

PORTS



DECEMBER 2016

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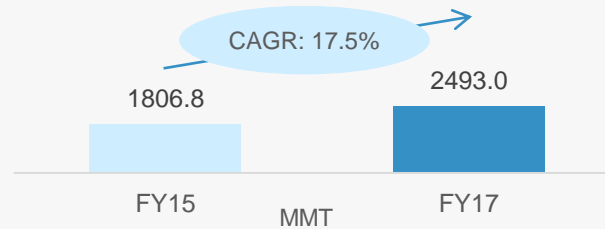
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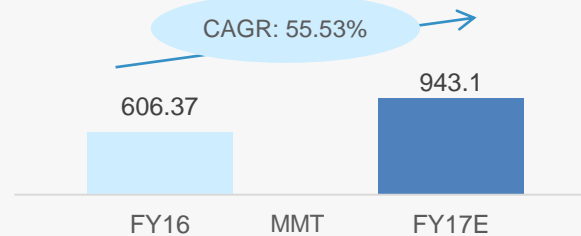
EXECUTIVE SUMMARY ... (1/2)

Increasing trade activities and private participation in port infrastructure set to support port infrastructure activity



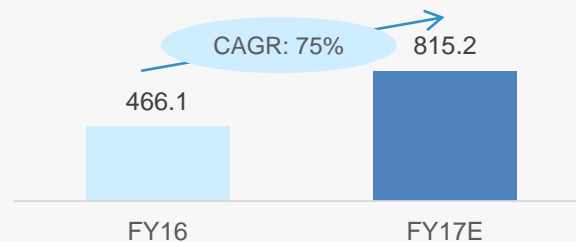
By FY17, cargo capacity in India is expected to increase to 2,493.1 MMT from 1,806.8 MMT in FY15

India has 12 major ports



By FY17, cargo traffic at major ports in India is expected to rise to 943.1 MMT from 606.37 MMT in FY16 at a YoY of 55.53 per cent

India's 200 non-major ports are strategically located on the world's shipping routes

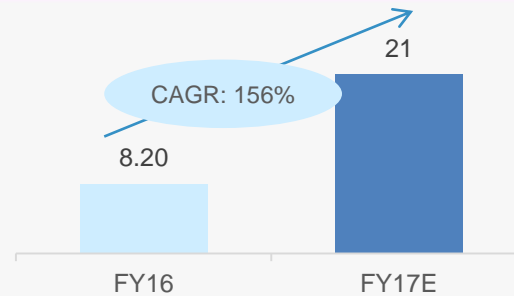


By FY17, cargo traffic at non-major ports in India is expected to grow to 815.2 MMT from 466.1 MMT in FY16

Source: Ministry of Shipping, TechSci Research
Notes: E – Estimates, MMT - Million Metric Tonnes

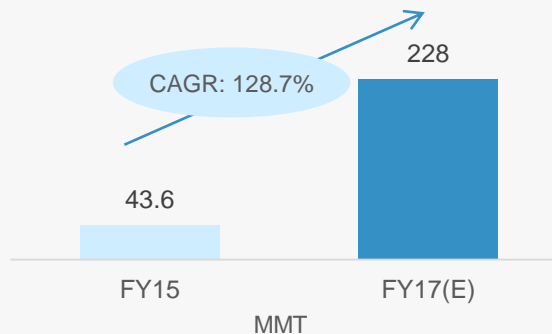
EXECUTIVE SUMMARY ... (2/2)

Trade to boost demand for containers



By FY17, container demand in India (For major ports) is expected to increase to 21 million TEU from 8.2 million TEU in FY16

Infrastructural development to increase demand for iron and steel



By FY17, iron ore traffic (For Major & Minor ports) is expected to rise to 228 MMT from 43.6 MMT in FY15

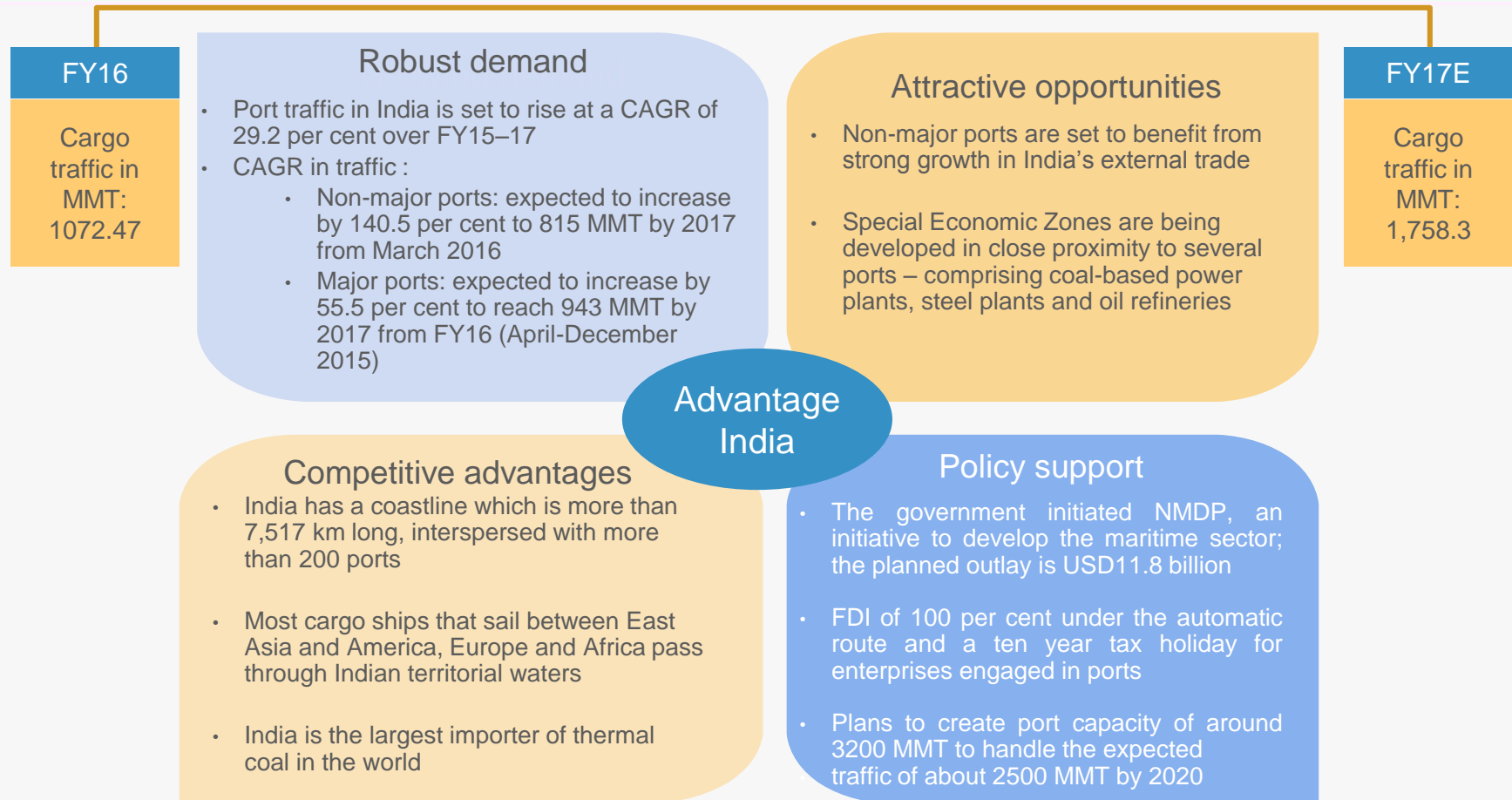
Source: Ministry of Shipping, TechSci Research

Notes: FY17 (E) – Estimates, TEU – Twenty Foot Equivalent Unit, MMT - Million Metric Tonnes

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ADVANTAGE INDIA



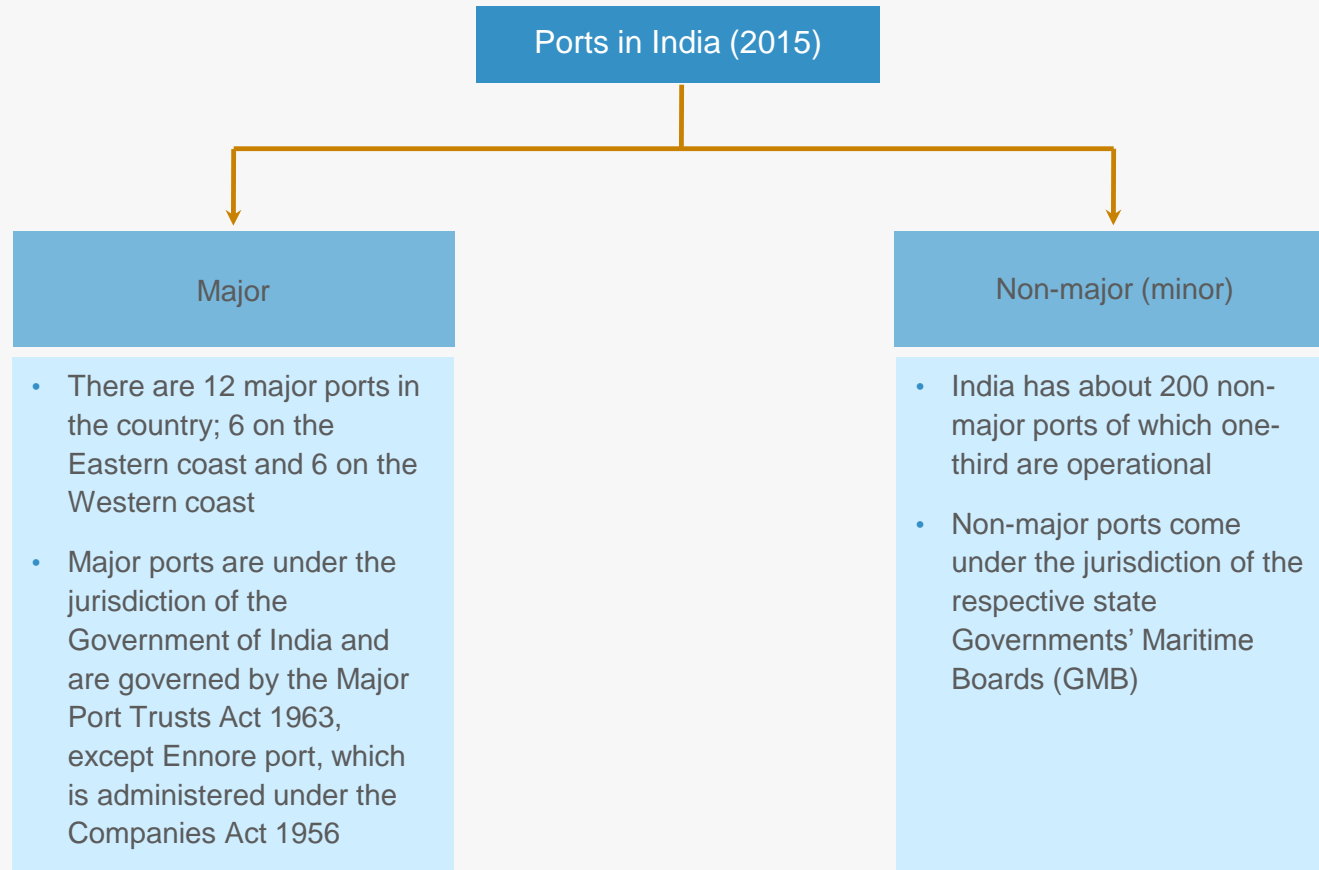
Notes: FY – Indian Financial Year (April–March), NMDP – National Maritime Development Programme, FDI – Foreign Direct Investment, USD – US Dollar, E – Estimated, MMT – Million Metric Tonnes, CAGR – Compound Annual Growth Rate

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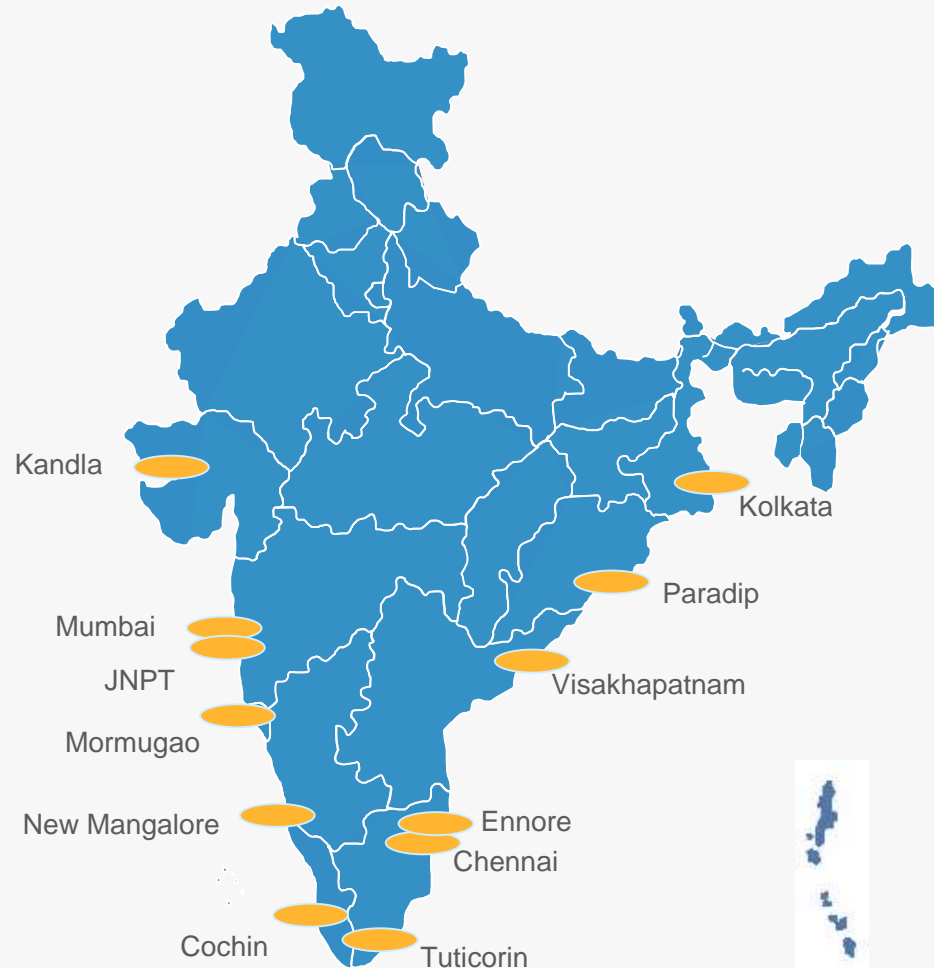
MARKET OVERVIEW AND TRENDS

THERE ARE TWO BASIC CATEGORIES OF PORTS IN INDIA



Source: Ministry of Shipping; TechSci Research

MAJOR PORTS IN INDIA

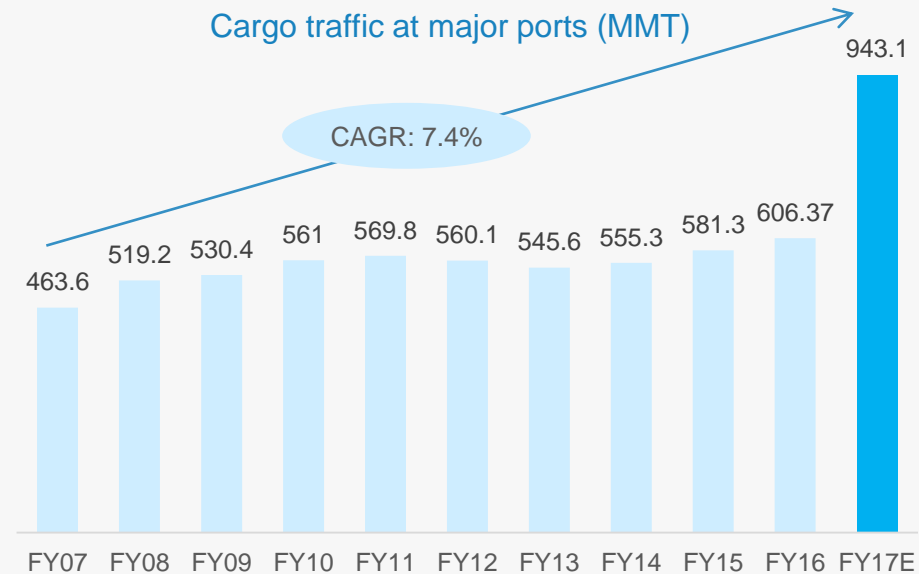


Note: JNPT – Jawaharlal Nehru Port Trust

CARGO TRAFFIC IS ON THE RISE ... (1/2)

Cargo traffic at major ports in India –

- * Stood at 606.37 MMT in FY16
- * Increased at a CAGR of 7.4 per cent during FY07–17E
- * Cargo traffic in 2017 at major ports is expected to reach 943.1 MMT
- * During April to September 2016, 12 major ports in India handled 315.4 MT (Million Tonnes) of cargo, showing a growth of 5.1 per cent in comparison to the same time during previous year.



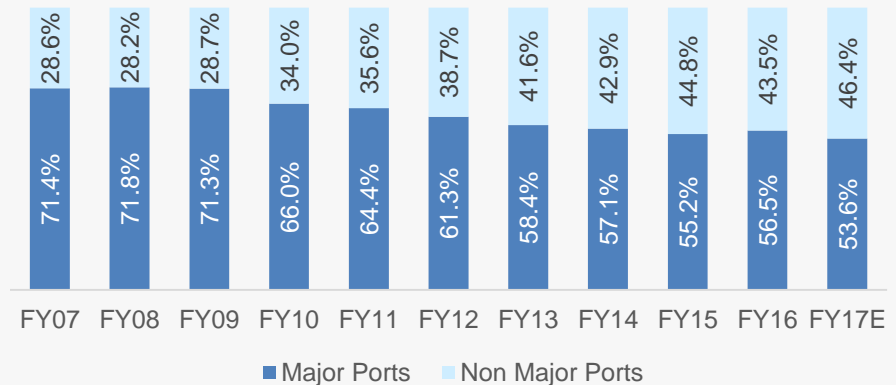
Source: Ministry of Shipping, TechSci Research
 Notes: MMT – Million Metric Tonnes,
 CAGR – Compound Annual Growth Rate,
 FY – Indian Financial Year (April–March),
 E – Estimated

CARGO TRAFFIC IS ON THE RISE ... (2/2)

Non-major ports are evolving faster than major ports-

- * Non-major ports are gaining shares and a major chunk of traffic has shifted from major ports to non-major ports
- * The contribution of non-major port's traffic to total traffic rose to 43.5 per cent in FY16 from 28.6 per cent in FY07

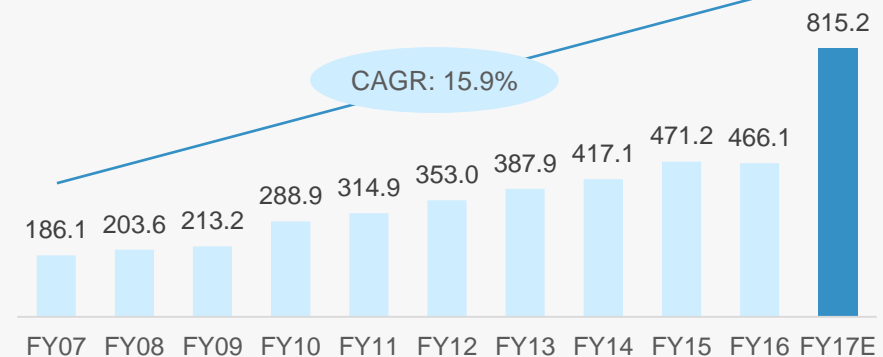
Percentage share of ports



Cargo traffic at non-major ports –

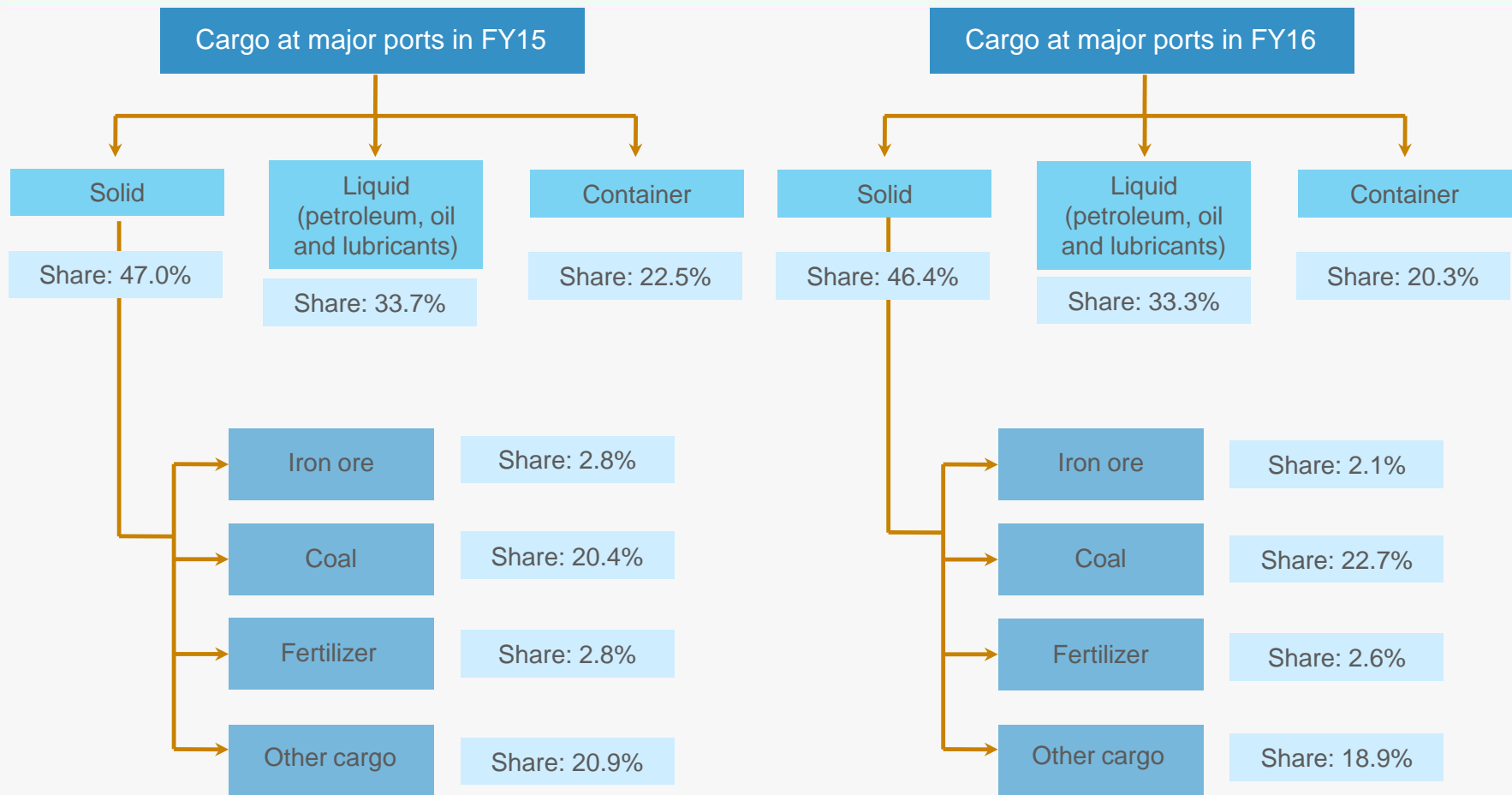
- * Stood at 466.1 MMT in FY16
- * Cargo traffic has expanded at a CAGR of 10.7 per cent during FY07–16 and is expected to grow annually at 15.9 per cent during FY07-17
- * Cargo traffic in 2017 at non-major ports is expected to reach 815.2 MMT

Cargo traffic at non-major ports (MMT)



Source: Ministry of Shipping, TechSci Research
Notes: MMT – Million Metric Tonnes, CAGR – Compound Annual Growth Rate, FY – Indian Financial Year (April–March); E – Estimate

CARGO PROFILE AT MAJOR PORTS IN INDIA ... (1/2)

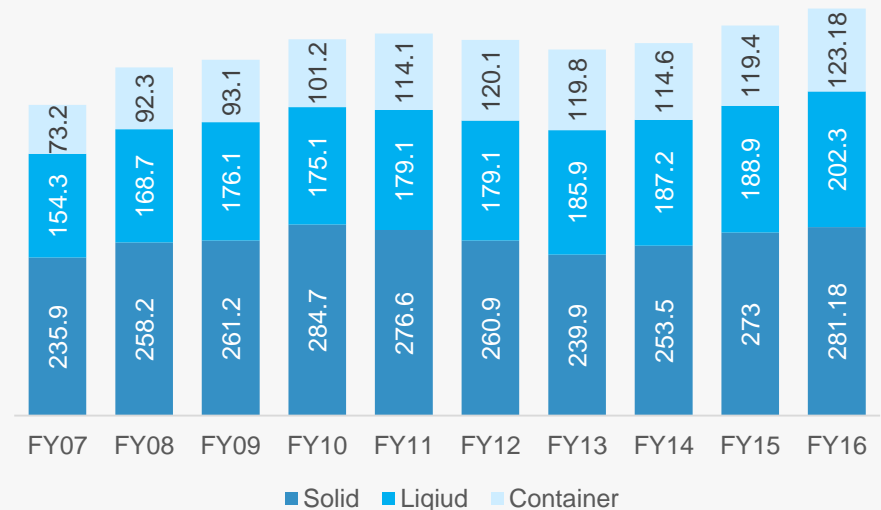


Source: Ministry of Shipping; TechSci Research
Note: Other cargo includes Fertiliser Raw Material (dry) and food-grains

CARGO PROFILE AT MAJOR PORTS IN INDIA ... (2/2)

- * Between FY07– FY16, cargo traffic grew at CAGR 3 per cent
- * Over FY07–16, CAGR in the volume of different segments was as follows–
 - * Solid cargo was 2 per cent
 - * Liquid cargo was 3.1 per cent
 - * Container cargo was 6 per cent
- * Cargo traffic during FY16 for solid, liquid, and container cargo was 281.18, 202.3 and 123.18 MMT, respectively
- * During April-October 2016, cargo traffic at 12 major ports in the country was reported at 370.04 MT, showing a growth of 6.27 per cent over the same period during the previous year

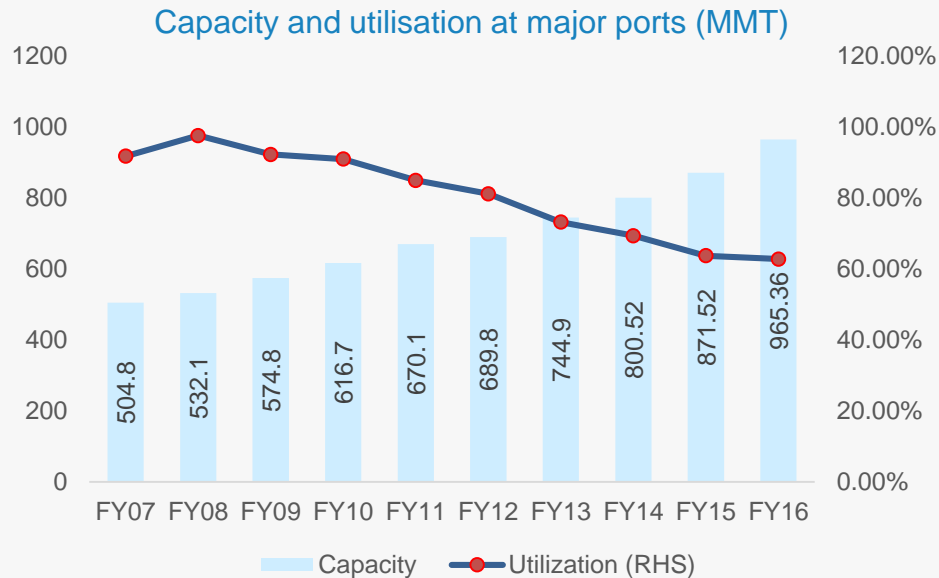
Cargo traffic at major ports (MMT)



Source: Ministry of Shipping; Indian Ports Association (IPA), TechSci Research
 Note: Other cargo in Solid includes fertiliser raw material (dry) and food-grains

INCREASE IN CAPACITY OVER THE YEARS

- * Capacity at major ports grew to 965.36 MMT in FY16, implying a CAGR of 7.5 per cent since FY07
- * Despite capacity increasing, utilisation rates have been gradually coming down post the global economic meltdown in FY08
- * Utilisation rates of major ports in India are much above world's average
- * As of November 2016, 12 Major Ports were identified under Sagarmala project, for cargo handling till 2035. The objective of this project is to promote port led development and to provide infrastructure to quickly transport goods to and from ports, with higher efficiency and at lower cost.
- * Indian Port Rail Corporation Limited (IPRCL), plans to conduct rail infrastructure expansion and modernisation work for Jawaharlal Nehru Port Trust (JNPT), Kandla Port and Haldia Dock Complex (HDC) from April 2017. Similar works have already started for Kolkata, Vishakhapatnam, Tuticorin, New Mangalore and Chennai ports.

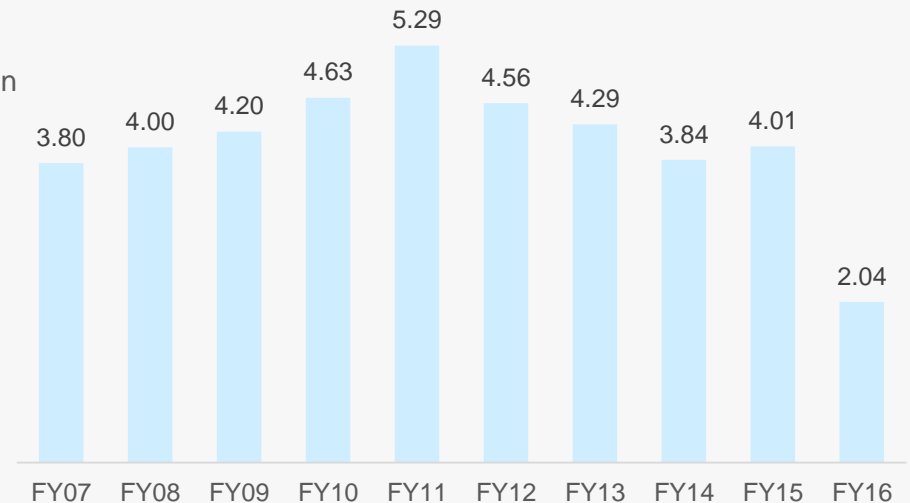


Source: Indian Port Association, Ministry of Shipping, TechSci Research
Note: MMT – Million Metric Tonnes

DROP IN TURNAROUND TIME IN FY13

- * Average turnaround time is influenced by factors such as type of cargo, parcel size and entrance channel
- * The average turnaround time improved to 2.04 days in FY16 from 4.01 days in FY15

Average turnaround time for major ports (in days)



Source: Ministry of Shipping, Indian Port Association TechSci Research
Note: Turnaround time – Total time spent by a ship from entry into port until departure

NOTABLE TRENDS IN THE PORTS SECTOR ... (1/2)

Increasing private participation

- Strong growth potential, favourable investment climate, and sops provided by state governments have encouraged domestic and foreign private players to enter the Indian ports sector. In addition to the development of ports and terminals –
 - The private sector has extensively participated in port logistics services
 - By March'15, around 99 Public Private Partnership (PPP) projects are operational with a total cost of around USD8813.8 million and capacity of 683.29 million tonnes per annum.

Setting up of port-based SEZs

- SEZs are being developed in close proximity to several ports, thereby providing strategic advantage to industries within these zones. Plants being set up include –
 - Coal-based power plants to take advantage of imported coal
 - Steel plants and edible oil refineries
- Development of SEZs in Mundra, Krishnapatnam, Rewas and few others is underway
- Government has announced plans to develop 14 CEZs (coastal economic zones) in a phased manner for port-led development in all the nine maritime states by advancing efforts to develop one new port, each on the east and the west coast

Focus on draft depth

- All the greenfield ports are being developed at shores with natural deep drafts and the existing ports are investing on improving their draft depth.
- Higher draft depth is required to accommodate large sized vessels. Due to the cost and time advantage associated with the large sized vehicles, much of the traffic is shifting to large vessels from smaller ones, especially in coal transportation

Source: Ministry of Shipping, TechSci Research

Notes: SEZ – Special Economic Zone, PPP – Public-Private Partnership

NOTABLE TRENDS IN THE PORTS SECTOR ... (2/2)

Specialist terminal-based ports

- Terminalisation: Focus on terminals that deal with a particular type of cargo
 - This is useful for handling specific cargo such as LNG that requires specific equipment and hence high capital costs. Forming specialist terminals for such cargo result in optimal use of resources and increased efficiencies
 - Examples of specialist terminals: ICTT in Cochin, LNG terminal in Dahej Port

'Landlord port' model

- To promote private investments, the government has reformed the organisational model of seaports –
 - From: A 'service port' model where the port authority offers all the services
 - To: A 'landlord port' model where the port authority acts as a regulator and landlord while port operations are carried out by private companies
- Major ports following 'landlord port' model: JNPT, Chennai, Visakhapatnam and Tuticorin

Rising traffic at non major ports

- With the increasing private participation in establishing minor ports. Cargo traffic handled by the minor ports are outpacing cargo traffic at major ports, cargo traffic at non major port has expanded at a CAGR of 31.5 per cent during FY07–15
- The cargo traffic at major ports was 606.37 MMT in FY16

Notes: ICTT – International Container Transshipment Terminal, LNG – Liquefied Natural Gas, MMT – Million Metric Tonnes
Source: TechSci Research

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PORTER FIVE FORCES ANALYSIS

PORTER'S FIVE FORCES ANALYSIS

Competitive Rivalry

- Increasing trade activities brought by rising imports of commodities like coal and crude to generate higher business and limit overall competition as most ports handle specific geographies
- There have been instances of private managed ports attracting the share of other ports (usually handled by government agencies) as in the case of JNPT and Mumbai Port Trust. However, demand expected to remain strong

Threat of New Entrants

- 100 per cent FDI under automatic route and income tax exemption (10 years) is attracting foreign players. However, higher capital expenditure acts as a barrier

Substitute Products

- With rising demand for port infrastructure due to growing imports (crude, coal) and containerisation, the threat of substitute products to remain weak

Bargaining Power of Suppliers

- Considerable capacities to be added going forward. However, demand to continue to remain strong

Bargaining Power of Customers

- Imports to continue to remain strong led by strong demand. However considerable port capacities to be added going forward



Source: PricewaterhouseCoopers, Techopak, TechSci Research

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STRATEGIES ADOPTED

STRATEGIES ADOPTED

Pan-India presence

- After having a strong advantage on India's West coast, Adani Ports and Special Economic Zone Ltd (APSEZ) is looking to strengthen its position by winning the bid of a new container terminal at Ennore port located on the east coast. Furthermore Adani Ports has acquired Dharma Port to replicate its development and growth on the eastern coast.
- Essar Ports Limited as a part of its strategic move to increase its potential on the east coast has won the contract for modernizing three ports at Visakhapatnam

Geographic diversification

- Geographic diversification as in the case of Adani group acquiring coal mines (Australia and Indonesia) and setting up coal terminal in Australia to take the benefit of increasing coal imports in India

Allied activities

- Adani group, largest private port operator in India, is now venturing into providing allied services like dredging. Its dredgers which were being used only at its own ports in the past have now started taking work from other ports

Container train operations

- Adani group has also ventured into the container railway business becoming the largest private link in the country. It conducts operations on a pan-india basis operating 6 container rakes

Modernising

- Port authorities are modernizing and upgrading port facilities to meet the needs of the port users in competitive environment

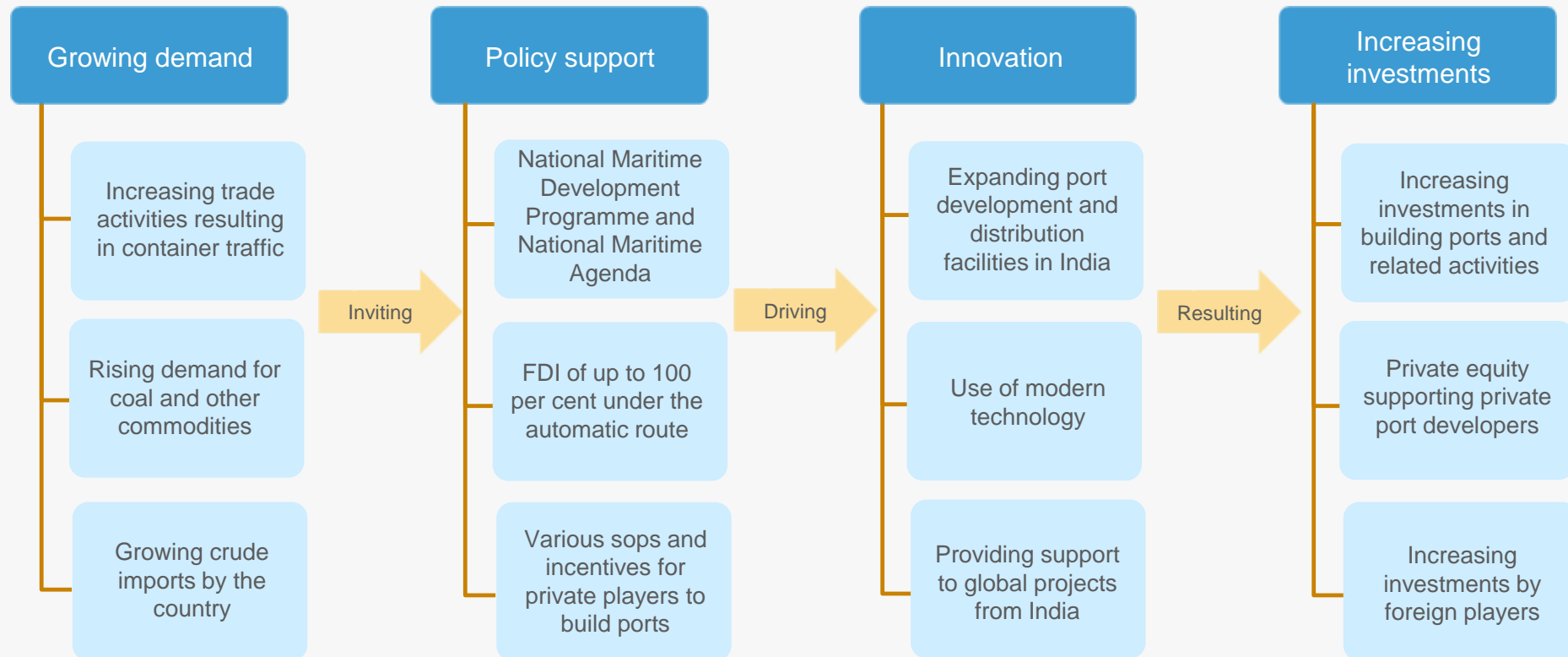
Source: Company website, TechSci Research

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GROWTH DRIVERS

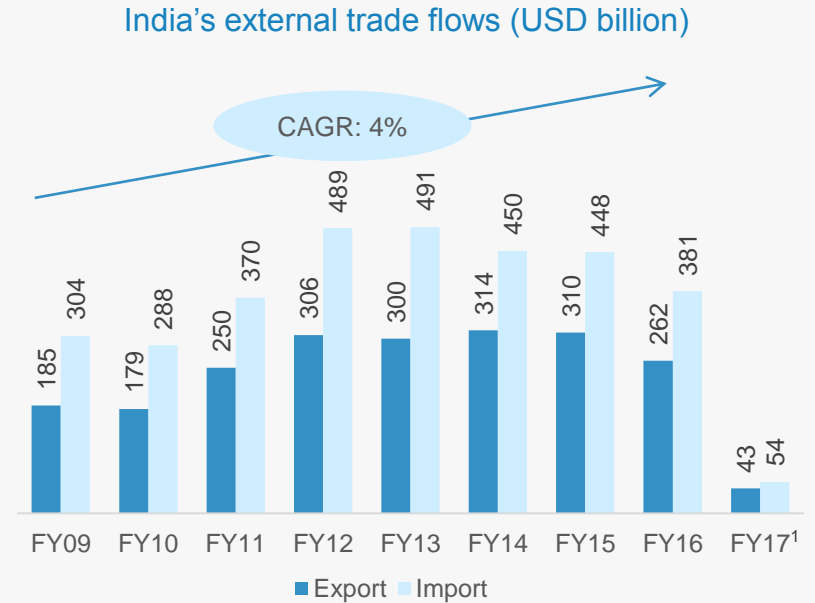
SECTOR BENEFITS FROM STRONG DEMAND, PRIVATE PARTICIPATION



Source: Ministry of Shipping, TechSci Research
Note: NMDP - National Maritime Development Programme

INDIA'S PORTS ARE BENEFITTING FROM STRONG GROWTH IN EXTERNAL TRADE ... (1/2)

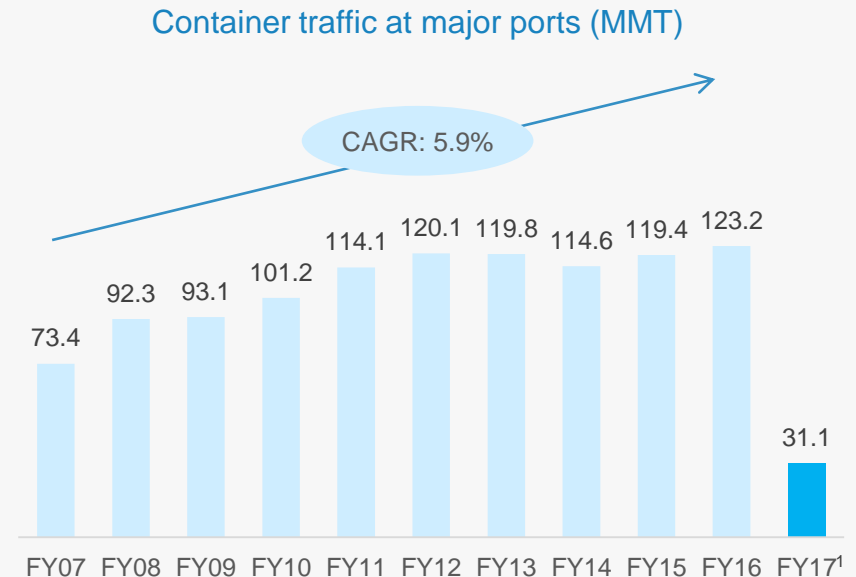
- * India's total external trade have grown to USD643 billion in FY16, implying a CAGR of 4 per cent since FY09
- * Ports handle almost 95 per cent of trade volumes; thus rising trade has contributed significantly to cargo traffic



Source: Ministry of Commerce, TechSci Research
CAGR: For Imports from FY09-15
FY17¹: Data available for April - May 2016

INDIA'S PORTS ARE BENEFITTING FROM STRONG GROWTH IN EXTERNAL TRADE ... (2/2)

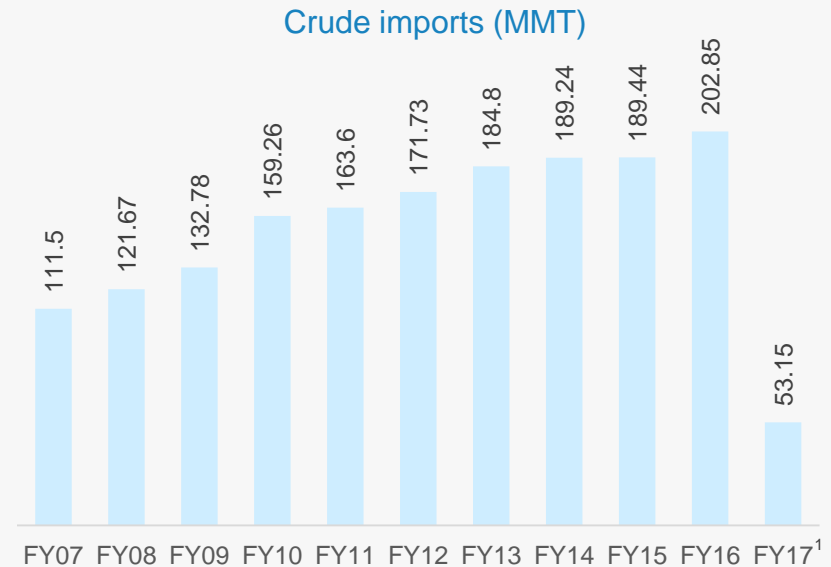
- * Increasing trade is translating into higher demand for containerisation due to their efficiency
- * During FY07–16, container traffic rose to 123.2 MMT, implying a CAGR of 5.9 per cent
- * During FY17¹, container traffic stood at 31.1 MMT



Source: Indian Ports Association, TechSci Research
Note: MMT – Million Metric Tonnes
FY17¹: Data available for April - May 2016

PORTS TO BENEFIT FROM GROWING CRUDE IMPORTS ... (1/2)

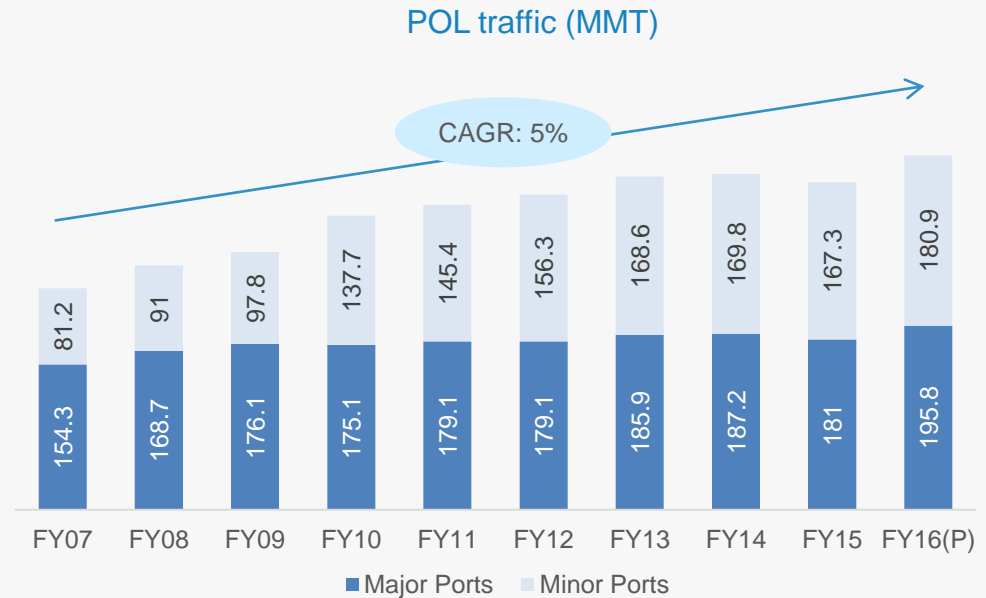
- * A consequence of strong GDP growth has been rising energy demand; the country currently meets about 75 per cent of total crude oil demand by imports
- * India's crude imports touched 202.85 MMT in FY16, implying a CAGR of 6.9 per cent over FY07–16



Source: Handbook of Indian Statistics (RBI),
Petroleum Planning and Analysis Cell, TechSci Research
Notes: MMT – Million Metric Tonnes,
FY17¹ – Data available for April – June 2016

PORTS TO BENEFIT FROM GROWING CRUDE IMPORTS ... (2/2)

- * Private ports have been especially good at attracting crude import traffic
- * POL have been the major contributors to total traffic at ports and contributed 33.3 per cent in FY16
- * POL traffic at both major and non-major ports added up to 376.7 MMT in FY15, implying a CAGR of 5 per cent over FY07–15
- * POL traffic in FY16 is expected to reach 376.7 MMT

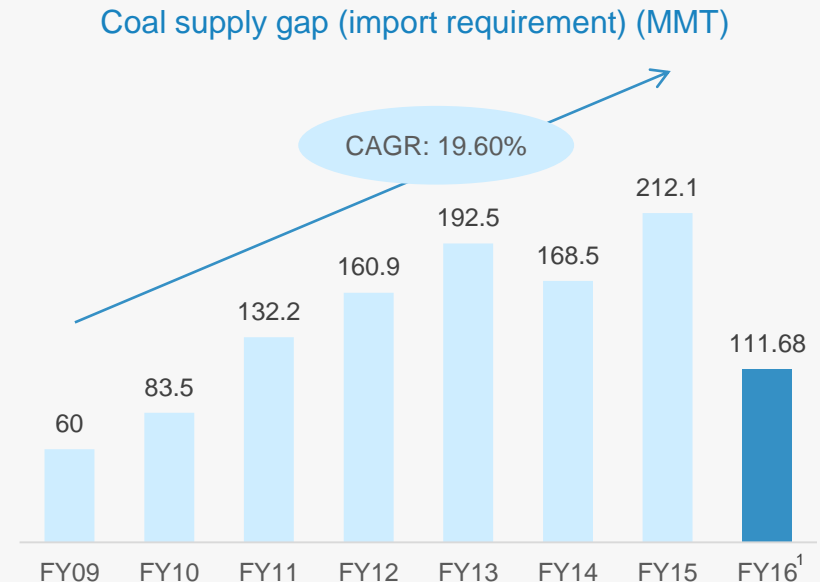


Source: Ministry of Shipping, TechSci Research
Notes: POL – Petroleum, Oil, and Lubricants,
MMT – Million Metric Tonnes
P – Provisional

INCREASING COAL IMPORTS SET TO DRIVE RISING CARGO TRAFFIC ... (1/2)

- * India is the largest importer of thermal coal in the world and this is expected to grow due to increased demand for power as coal-based power stations were the biggest contributors.
- * A major chunk of this import is transported by sea
- * Coal imports (both thermal and cooking) are estimated to have fallen to 168.5 in FY14 due to the increase in the coal production in the country. Further, the government has given the target of 143.28 million tonnes of coal supply gap which would be filled by import.
- * With growing demand for power, coal imports reached to be 111.68 MMT in FY16¹

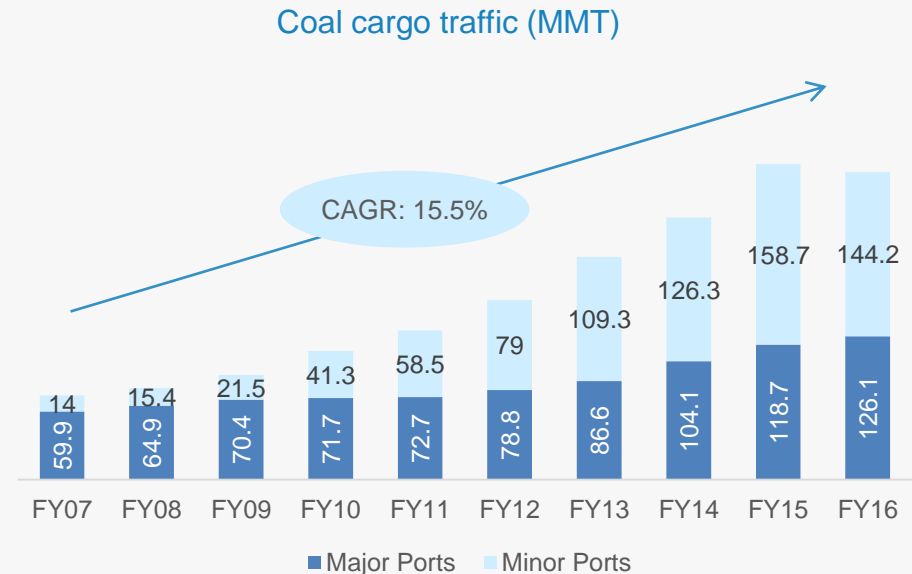
Notes:: GW – Gigawatt, MMT – Million Metric Tonnes



Source: Ministry of Coal, TechSci Research
Notes: The figures from FY9–14 in the above graph are as per the data provided by Coal Ministry Annual Reports, and the figure for FY17 is taken from the erstwhile Planning Commission Report data sourced from Coal Ministry Annual Report, FY16¹ – Data available till October 2015

INCREASING COAL IMPORTS SET TO DRIVE RISING CARGO TRAFFIC ... (2/2)

- * Increasing coal imports are set to drive coal cargo traffic upwards at both major and non-major ports
- * With private ports boosting their coal handling capacities, non-major ports look set to handle majority of coal imports in the future
- * Coal cargo traffic has grown at a CAGR of 15.5 per cent over FY07–16 to reach 270.3 MMT.
- * Total coal handled by India's 12 major ports jumped to 126.1 million tonnes in FY16 from 118.7 million tonnes in FY15
- * Thermal coal imports through the ports leaped 13.3 per cent to 98.7 million tonnes, while shipments of coking coal, used in making steel, reached to 27.35 million tonnes
- * Coal cargo traffic by minor ports crossed the total traffic of major ports by 2013. In FY16, the coal traffic by minor ports reached 144.23 MMT



Source: Ministry of Shipping; TechSci Research
Note: MMT – Million Metric Tonnes

NATIONAL MARITIME AGENDA 2010–2020 ... (1/2)

Focus on increasing capacity

- To create a port capacity of around 3,200 MT to handle the expected traffic of about 2,500 MT by 2020

Increasing investments

- Proposed investments in major ports by 2020 are expected to total USD18.6 billion, while those in non-major ports would be USD28.5 billion

World-class infrastructure

- To implement full mechanisation of cargo handling and movement at ports, thereby bringing Indian ports on par with the best international ports in terms of performance and capacity

Landlord ports

- Major ports have been working towards implementing 'Landlord port' concept duly limiting their role to maintenance of channels and basic infrastructure leaving the development, operation, management, of terminal and cargo handling facilities to the private sector

Strategically building ports

- To develop two major ports (one each on East and West coast) to promote trade as well as two hub ports (one each on the West coast and the East coast) – Mumbai (JNPT), Kochi, Chennai, and Visakhapatnam

Bringing ports under regulator

- To establish a port regulator for all ports in order to set, monitor, and regulate service levels, technical and performance standards

Source: Ministry of Shipping, TechSci Research

NATIONAL MARITIME AGENDA 2010–2020 ... (2/2)

National Maritime Agenda 2010–20 is aimed at all-round development of the Indian maritime sector

- * As per the National Maritime Agenda, the government is likely to create port capacity of 3200 MT for handling about 2500 MT of cargo, by 2020
- * Agenda involves investments in new projects at major ports of around USD18.6 billion, of which USD12.4 billion is expected to come from private sector players and the remaining from budgetary allocation
- * The total traffic on the Indian ports is expected to grow from about 2229 in 2018 and reach to 3033 MT by the end of 2020
- * The government, through this policy, aims to increase the tonnage under the Indian flag and Indian control as well as the share of Indian ships in EXIM trade
- * The government is also working to float a specialised Maritime Finance Corporation with the equity of ports and financial institutions to fund the Port projects

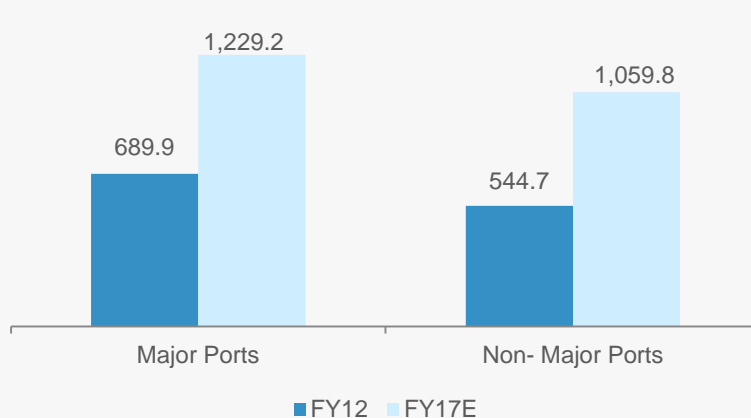
Source: Ministry of Shipping, TechSci Research
Note: EXIM - Export-Import,
MT – Million Tonne

12TH FIVE-YEAR PLAN

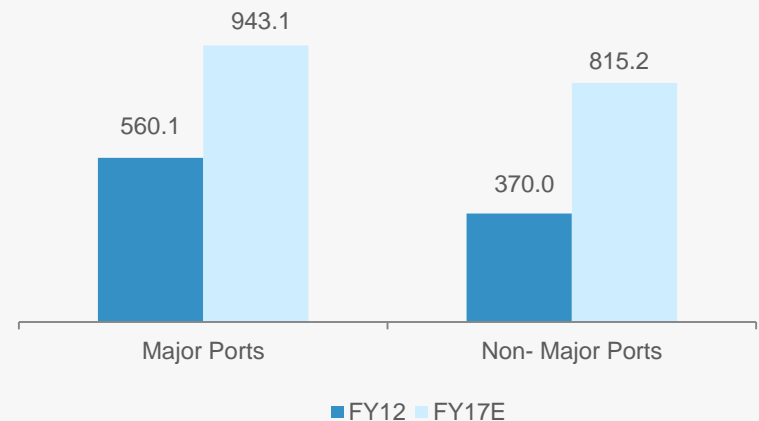
The 12th Five-Year Plan (2012–17) is focused on the development of major and non-major ports through public and private investments

- * The proposed outlay for port sector in the plan, excluding private investment, is USD4.9 billion
- * The overall projected traffic of 1,758.3 million tonnes to be achieved by FY17, the total capacity of the port sector is envisaged to be 2,289.04 million tonnes by the end of 2017
- * The government anticipates private sector investment of around USD28.8 billion during the 12th Plan Period.

Planned capacity 12th Five-Year Plan (MMT)



Projected traffic 12th Five-Year Plan (MMT)



Source: E:Estimated

FAVOURABLE POLICIES ASSISTING THE PRIVATE SECTOR

De-licensing and tax holidays

- The government has allowed FDI of up to 100 per cent under the automatic route for projects related to the construction and maintenance of ports and harbours
- A 10-year tax holiday to enterprises engaged in the business of developing, maintaining, and operating ports, inland waterways, and inland ports

Price flexibility

- Private ports enjoy price flexibility, as the government allows non-major ports to determine their own tariffs in consultation with the State Maritime Boards; at major ports, tariffs are regulated by the Tariff Authority for Major Ports (TAMP)

Model Concession Agreement (MCA)

- An MCA has been finalised to bring transparency and uniformity to contractual agreements that major ports would enter into with selected bidders for projects under the Build, Operate and Transfer (BOT) model
- As on September 2016, the Ministry of Shipping proposed a new model concession agreement (MCA) to attract more private sector investments in the development of port infrastructure across the country.

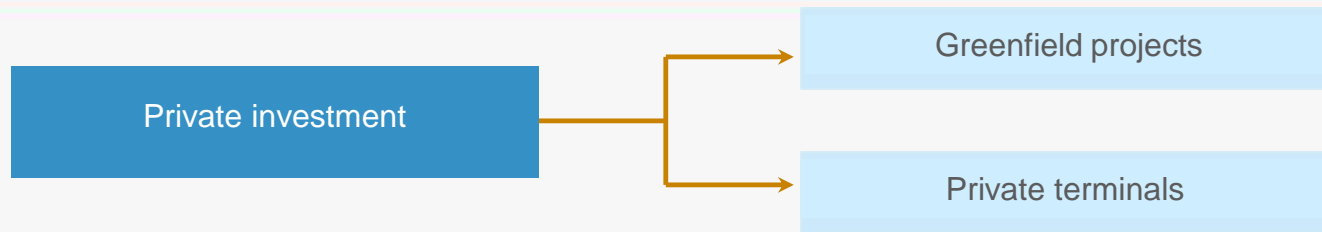
Major Port Authorities Act, 2016

- Primary focus of the scheme is to allow future public-private partnership operators to fix tariffs. With the implementation of this policy, port authorities will get the power to lease land for port-related use for up to 40 years and for non-port related use up to 20 years

Favourable system

- The system for security clearance for ports being streamline and made faster
- Expansion of existing framework to attract participation from the private sector for development of infrastructure facilities such as dredging, road infrastructure, creation of SEZ and development of integrated parking zones in the port area

STRONG PRIVATE SECTOR PARTICIPATION IN PORTS PROJECTS ... (1/3)



- * 39 Public Private Partnership (PPP) projects are operational at a cost of around USD2219.4 Million and capacity of 240.72 Million Tonnes Per Annum (MTPA).
- * 32 PPP projects at an estimated cost of around USD3917.6 Million and capacity 264.77 Million Tonnes Per Annum (MTPA) awarded and are under implementation.
- * Total 91 projects with involving capacity of 521.45 MTPA have been awarded during 2012-16 (Upto 30th June, 2015)
- * 15 PPP projects with an estimated cost of about USD1210.6 Million and capacity 69.47 Million Tonnes Per Annum (MTPA) have been awarded/approved and 13 projects at an estimated cost of about USD1466.2 Million and Capacity 108.35 Million Tonnes Per Annum (MTPA) are likely to be awarded/approved by 31.03.2015.
- * As of September 2016, the National Green Tribunal has given nod for construction of multi-crore 'Vizhinjam International Seaport Ltd (VISL)'. The port is being developed by Adani Group in collaboration with Kerala Government.
- * 2 mega port projects in Colachel in Tamil Nadu and Dahanu in Maharashtra with an initial investment of USD2.3 billion has been introduced and are being awaited for approval under PPP model in FY16.
- * As of October 2016, Central Government is planning to setup logistic hubs near seaports with the help of private sector players, to augment exports from the country.

STRONG PRIVATE SECTOR PARTICIPATION IN PORTS PROJECTS ... (2/3)

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

As on 2015

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

Source: Indian Ports Association, TechSci Research

Notes: NSICT – Nhava Sheva International Container Terminal, Mumbai,

ICTT – International Container Transshipment Terminal, SPM – Single Point Mooring

STRONG PRIVATE SECTOR PARTICIPATION IN PORTS PROJECTS ... (3/3)

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 MMTPA	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

Projects Completed and Awarded During FY15 & FY16

- * A PPP project worth USD220 million for redevelopment of berths 8, 9 and barge berths at the Port of Mormugao, Goa has been awarded in September 2016
- * Kamarajar Port Marine Liquid Terminal-II PPP project and Chidambaranar Port PPP Project (shallow draught berth) for handling general cargo, was introduced in 2016
- * Increase in capacity due to productivity of CBI & CBII (1.00 MTPA)
- * Development of WQ6 berth for 225m length and 22.5m width for handling dry bulk cargo on DBOFT basis (6.00) at VPT.
- * Development of EQ-10 berth in inner harbour for handling liquid cargoes and chemicals on DBOFT basis (1.84 MTPA) at VPT.
- * Increase in capacity at CICTPL coal berth due to productivity (1.00 MTPA) at KPL.
- * Increase in capacity at ETTPL berth due to productivity (1.00 MTPA) at KPL.
- * Increase in capacity at General Cargo berth (2.00 MTPA) at KPL.
- * Installation of floating cranes for handling the cargo vessels (2.49 MTPA) at VoCPT.
- * Construction of Mooring Dolphins at Liquid Cargo Jetty (1.00 MTPA) at JNPT
- * Increase in capacity due to deepening and widening of channel (10.20 MTPA) at JNPT.

Source: Indian Ports Association, TechSci Research

PRIVATE EQUITY INTEREST IN INDIAN PORTS/SHIPPING REMAINS HEALTHY

PE deals since 2014

Target	Acquirer	Value (USD million)	Year
LCL Logistix	CMA CGM Group	-	2015
Kattupalli port	Adani Ports and Special Economic Zone Ltd	-	2015
The Dhamra Port Co Ltd	Adani Ports and Special Economic Zone	926.0	2014
Samson Maritime Ltd	Kotak Private Equity Group	126.0	2014
Fourcee Infrastructure	General Atlantic LLC	104.0	2012
Mundra Port	3I Group, GIC Real Estate	100.0	NA
Karaikal Port Pvt Ltd (Second round)	Ascent Capital	41.7	NA
Ocean Sparkle Ltd	Standard Chartered PE	41.6	2012
Karaikal Port Pvt Ltd (First round)	IDFC Project Equity	32.6	NA
Gujarat Pipavav Port Ltd	IDFC	28.5	NA
Karaikal Port Pvt Ltd	Standard Chartered PE (Mauritius) II Ltd	27.1	2012
20Cube Logistics	Zephyr Peacock India	17.0	2013
Continental Warehousing Nhava Sheva	Aureos India Fund, Eplanet Venture	16.4	NA

Source: E&Y, Grant Thornton, Thompson ONE Banker, TechSci Research

PORTS



OPPORTUNITIES

OPPORTUNITIES

Increasing scope for private ports

- With rising demand for port infrastructure due to growing imports (crude, coal) and containerisation, public ports (major ports) will fall short of meeting demand
- This provides private ports with an opportunity to serve the spill-off demand from major ports and increase their capacities in line with forecasted new demand

Ship repair facilities at ports

- Dry docks are necessary to provide ship repair facilities. Out of all major ports, Kolkata has five dry docks, Mumbai and Visakhapatnam have two; the rest have one or no dock at all
- Given the positive outlook for cargo traffic, and the resulting increase in number of vessels visiting ports, demand for ship repair services will go up. This will provide opportunities to build new dry docks and setup ancillary repair facilities

Port support services

- Operation and maintenance services such as pilotage, dredging, harbouring and provision of marine assets such as barges and dredgers are expected to increase in coming years
- Increasing investments and cargo traffic point to a healthy outlook for port support services
- These include Operation and Maintenance (O&M) services like pilotage, harbouring and provision of marine assets like barges and dredgers

Source: Ministry of Shipping, TechSci Research
Note: O&M – Operations & Maintenance

PORTS

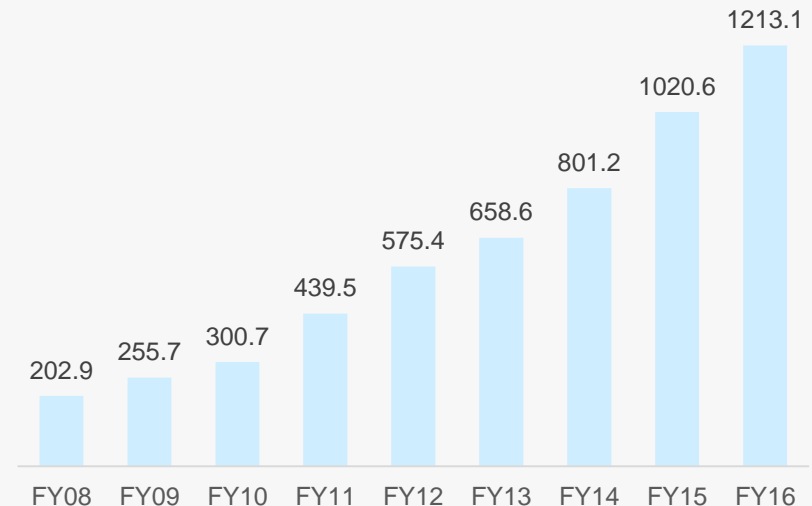


SUCCESS STORIES

MUNDRA: THE LARGEST PRIVATE PORT IN INDIA ... (1/2)

- * Mundra Port and Special Economic Zone Ltd was renamed as Adani Ports & Special Economic Zone Ltd
- * It is the largest private port in India in terms of volume
 - * Net Sales (FY16): USD1213.1 million
 - * Operating profit (FY16): USD710.5 million
- * Adani's Mundra Port crosses 100 MMT mark of cargo handling in FY16. The only commercial port in India to achieve 100 MMT traffic. Further, cargo traffic of the company touched 109.02 MMT in FY16
 - * Container traffic contributed the most, followed by coal and edible oil, chemicals and POL
- * Has the world's largest fully mechanised coal terminal with a capacity of 60 MTPA
- * Handles the second highest container traffic in India
- * During FY08–16, total revenue rose to USD1213.1 million, implying a CAGR of 25 per cent

Net sales (USD million)



Source: Company sources, including Annual Reports and news items; Assorted news articles; TechSci Research
Notes: POL – Petroleum, Oil and Lubricants, MTPA – Million Tonnes Per Annum, MMT – Million Metric Tonnes

- * Adani Group plans to convert Dhamra Port, in Odisha, into country's biggest seaport with industrial park, and set up LNG and LPG terminals, by 2021.
- * Dhamra Port is expected to have 35 berths having 315 million tonnes capacity.

JNPT: MAJOR PORT WITH THE LARGEST CONTAINER CAPACITY ... (1/2)

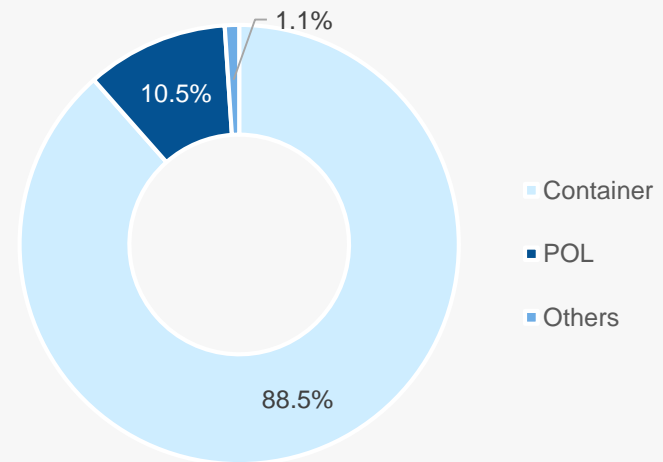
- * Jawaharlal Nehru Port Trust (JNPT) has the third highest cargo traffic and the highest container traffic in the country
- * It is a container-focused port and having container traffic of 37.64 MMT in FY16
- * Handled 63.8 million tonnes of cargo in FY15
- * Poised to handle 3 million TEUs of containers by the year FY16
- * Traffic handled at JNPT for FY16 was 42.6 MMT
- * Distribution of JNPT's container traffic for FY16 across its various terminals was as follows –
 - * Jawaharlal Nehru Port Container Terminal (JNPCT): 1.43 million TEUs
 - * Nhava Sheva International Container Terminal (NSICT): 1 MMT
 - * APM Terminals: 16.1 MMT

Notes: TEU – Twenty-Foot Equivalent Unit,
MMT – Million Metric Tonnes

JNPT: MAJOR PORT WITH THE LARGEST CONTAINER CAPACITY ... (2/2)

- * JNPT was developed to relieve the pressure of Mumbai port and was commissioned in 1989
- * It serves most of North India and has good hinterland connectivity through road and rail networks
- * JNPT, with a capacity of 4.76 million TEU, handles over 58 per cent of India's container traffic, as of FY16
- * JNPT is a pioneer in involving private sector participation in major ports and operates under a landlord model; NSCIT is the first private terminal in the country
- * The port is poised to handle 5.03 million TEUs of containers by 2016–17
- * Proposed capacity additions by FY17 –
 - * Marine chemical: 30 MTPA
 - * Container terminal: 58 MTPA

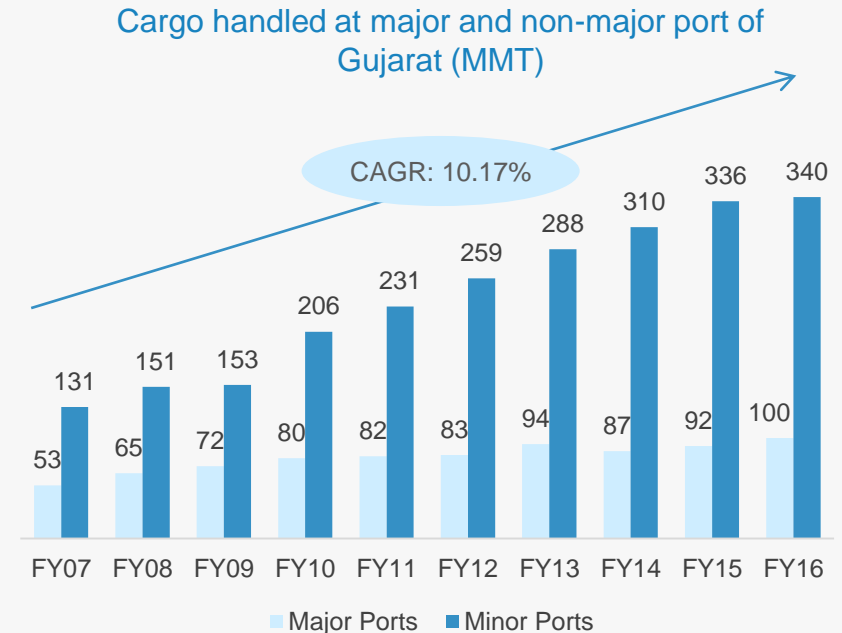
Cargo profile of JNPT (FY16)



Source: JNPT's website, Indian Ports Association, Ministry of Shipping, TechSci Research
 Notes: POL – Petroleum, Oil, and Lubricants, MMT – Million Metric Tonnes, TEU – Twenty-Foot Equivalent Unit, MTPA – Million Tonnes Per Annum

GUJARAT: PORT HUB OF INDIA ... (1/2)

- * Gujarat is endowed with 1,215 kilo meters of coastline i.e. 1/6th of total Indian coastline
- * The state has 42 ports of which 41 are non major, while Kandla is the sole major port
- * During FY07–16, cargo traffic in Gujarat increased at a CAGR of 10.17 per cent, with the cargo volume handled reaching 440 MMT in FY16.
- * Favourable policies of the Gujarat government helped the state in gaining private investors interest in port related activities



Source: Shipping Ministry, TechSci Research

GUJARAT: PORT HUB OF INDIA ... (2/2)

- * During FY15, Gujarat added 35 million tonnes of capacity at non-major ports, augmenting the capacity of non-major ports to 422 million tonnes
- * In FY16, Gujarat Maritime Board (GMB) handled 339.77 MMT of cargo, with a capacity addition of 466 MMT in the same year.
- * During the 12th Five-Year Plan, the government estimates investment of about USD9.4 billion in the port sector by private players in Gujarat
- * With seven ports under construction and five proposed ports, Gujarat has the highest number of privately operated greenfield ports in India
- * As of October 2016, Ministry of shipping has sanctioned Capital Dredging Project for Ro Pax Ferry Services between Gogha & Dahej, in Gulf of Cambay in Gujarat. The total project cost is US\$ 35.75 million, of which 50 per cent will be funded by Centre Government under the Sagarmala programme
- * As of November 2016, Ministry of Shipping sanctioned sum of USD 1.49 million to Gujarat Maritime Board for capacity building and safety training of workers involved in ship recycling activities under Sagarmala

Greenfield ports	Developer
Port of Pipavav	GMB and Gujarat Pipavav Port Ltd
Mundra Port	Gujarat Adani Port Ltd
Dahej Port	Petronet LNG Ltd and GMB
Hazira Port	Shell Gas B.V.

PORTS



USEFUL INFORMATION

INDUSTRY ASSOCIATIONS

Indian Ports Association (IPA)

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Bhishma Pitamah Marg, Lodi Road
New Delhi – 110 003
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Indian Private Ports & Terminals Association

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Ballard Estate, Mumbai 400 001, India
Tel. No: 022-22610599
Fax. No: 022-22621405
Email: secretary@ippta.org.in

- * Major and non-major ports do not have a strict association with traffic volumes. The classification has more of an administrative significance
- * Cargo traffic includes both loading (export) and unloading (imports) of goods
- * Containerisation is the increased use of container for transporting non-bulk goods. It leads to increased efficiency (both time and money)
- * Turnaround time is the total time spent by a ship from entry into port till departure
- * Twenty Equivalent Units (TEU) is a standard measure of containers which are 20 feet in length and 8 feet in width; the height can vary
- * Draft is the vertical distance between waterline and the bottom of the ship. It determines the depth of water a ship or boat can safely navigate. Higher capacity ships will need higher draft, hence ports with higher natural draft will attract bigger ships
- * Waterfront availability is the length of the water line on the coast where ships can rest and the goods are unloaded. Longer waterfront lengths reduce waiting time and help raise capacity
- * Terminals are certain sections of the ports where different types of cargo are unloaded
- * Single Point Mooring (SPM) is a loading buoy anchored offshore that serves as a mooring point and interconnect for tankers loading or offloading gas or fluid product
- * A dry dock is a narrow basin that can be flooded to allow a ship to be floated in, then drained to allow that ship to come to rest on a dry platform. Dry docks are used for construction, maintenance and repair of ships

- * **FY:** Indian Financial Year (April to March) – So FY11 implies April 2010 to March 2011
- * **USD:** US Dollar
- * **FDI:** Foreign Direct Investment
- * **IPA:** Indian Ports Association
- * **NMDP:** National Maritime Development Programme
- * **POL:** Petroleum, Oil & Lubricants
- * **SEZ:** Special Economic Zone
- * **CAGR:** Compounded Annual Growth Rate
- * **ICTT:** International Container Transshipment Terminal
- * **TEU:** Twenty-Foot Equivalent Unit
- * **MMPA:** Million Metric Tonnes Per Annum
- * **MMT:** Million Metric Tonnes

- * **GOI:** Government of India
- * **NSICT:** Nhava Sheva International Container Terminal, Mumbai
- * **O&M:** Operation and Maintenance services
- * **LNG:** Liquefied Natural Gas
- * Wherever applicable, numbers have been rounded off to the nearest whole number

EXCHANGE RATES

Exchange rates (Fiscal Year)

Year	INR equivalent of one USD
2004–05	44.81
2005–06	44.14
2006–07	45.14
2007–08	40.27
2008–09	46.14
2009–10	47.42
2010–11	45.62
2011–12	46.88
2012–13	54.31
2013–14	60.28
2014-15	61.06
2015-16	65.46
2016-17 (E)	66.95

Exchange rates (Calendar Year)

Year	INR equivalent of one USD
2005	43.98
2006	45.18
2007	41.34
2008	43.62
2009	48.42
2010	45.72
2011	46.85
2012	53.46
2013	58.44
2014	61.03
2015	64.15
2016 (Expected)	67.22

Source: Reserve bank of India,
Average for the year

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