



PORTS

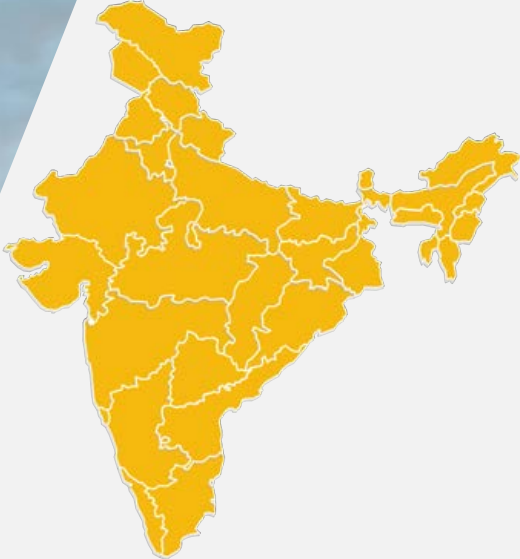
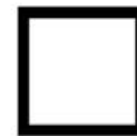
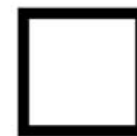
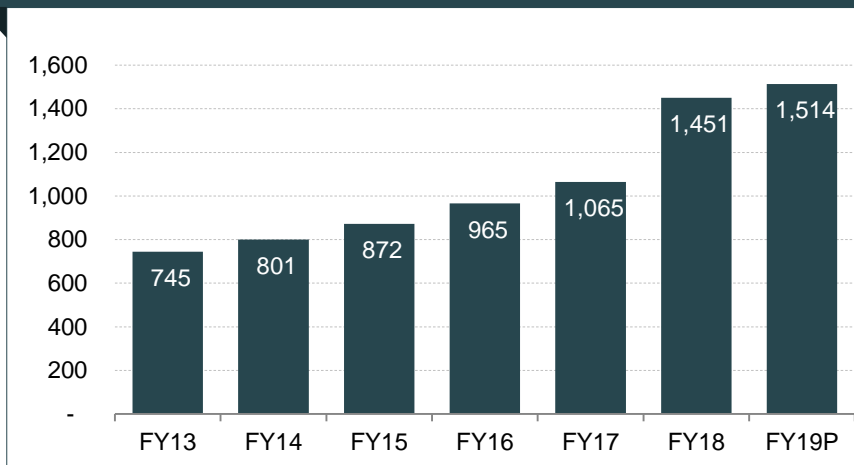


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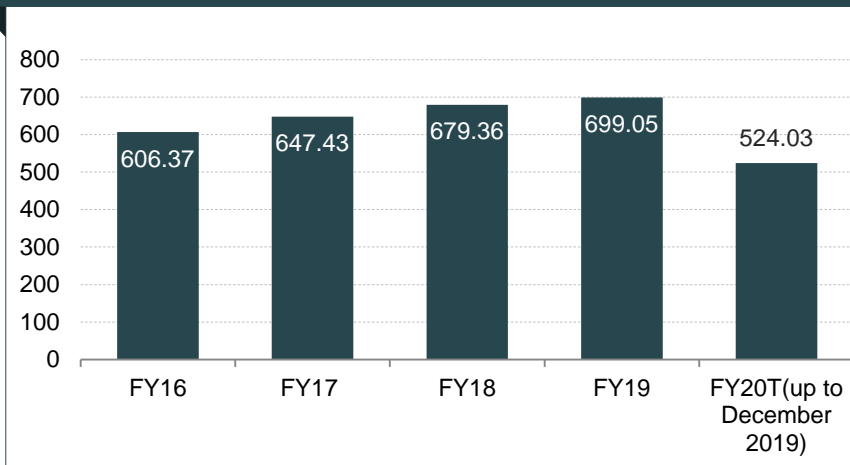
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Cargo capacity at major ports (million tonnes)



Cargo traffic at major ports (million tonnes)

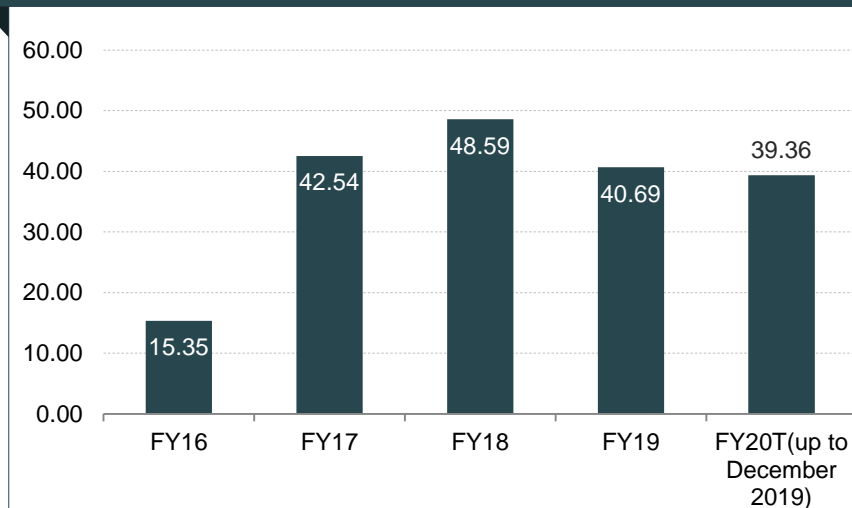


- Ports in India handle around 95 per cent of international trade volume of the country. Increasing trade activities and private participation in port infrastructure is set to support port infrastructure activity in India.
- India has 12 major ports. Under the National Perspective Plan for Sagarmala, six new mega ports will be developed in the country.
- The major ports had a capacity of 1,514.09 million tonnes per annum by FY19P. The Maritime Agenda 2010-20 has a 2020 target of 3,130 MT of port capacity.
- In FY19, major ports in India handled 699.05 million tonnes of cargo traffic, implying a CAGR of 2.74 per cent during FY08-19. Cargo traffic handled stood at 524.03 million tonnes in 2019 (till December 2019).
- As of Union Budget 2019-20, the total allocation for the Ministry of Shipping is Rs 1,902.56 crore (US\$ 272.22 million).

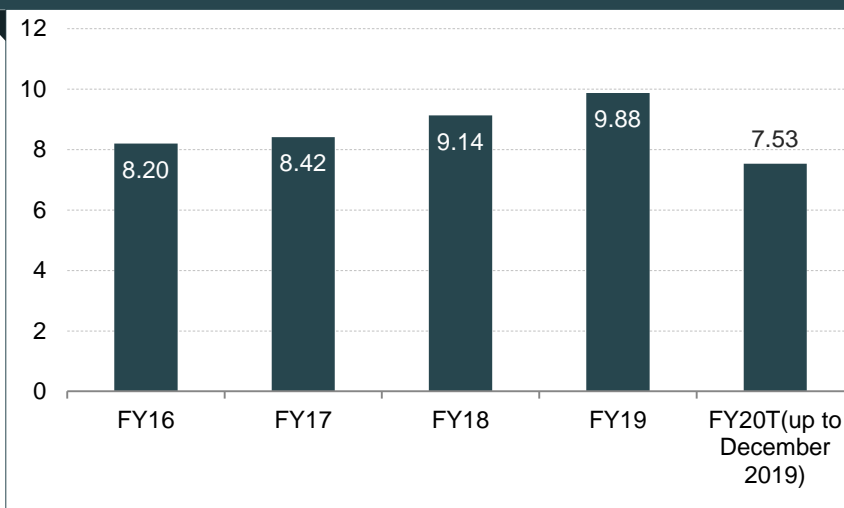
Note: P – Provisional, T-Tentative

Source: Ministry of Shipping - GOI, Care Ratings, Indian Ports Association

Iron ore[^] traffic (million tonnes)



Container traffic in India ('000 TEU)



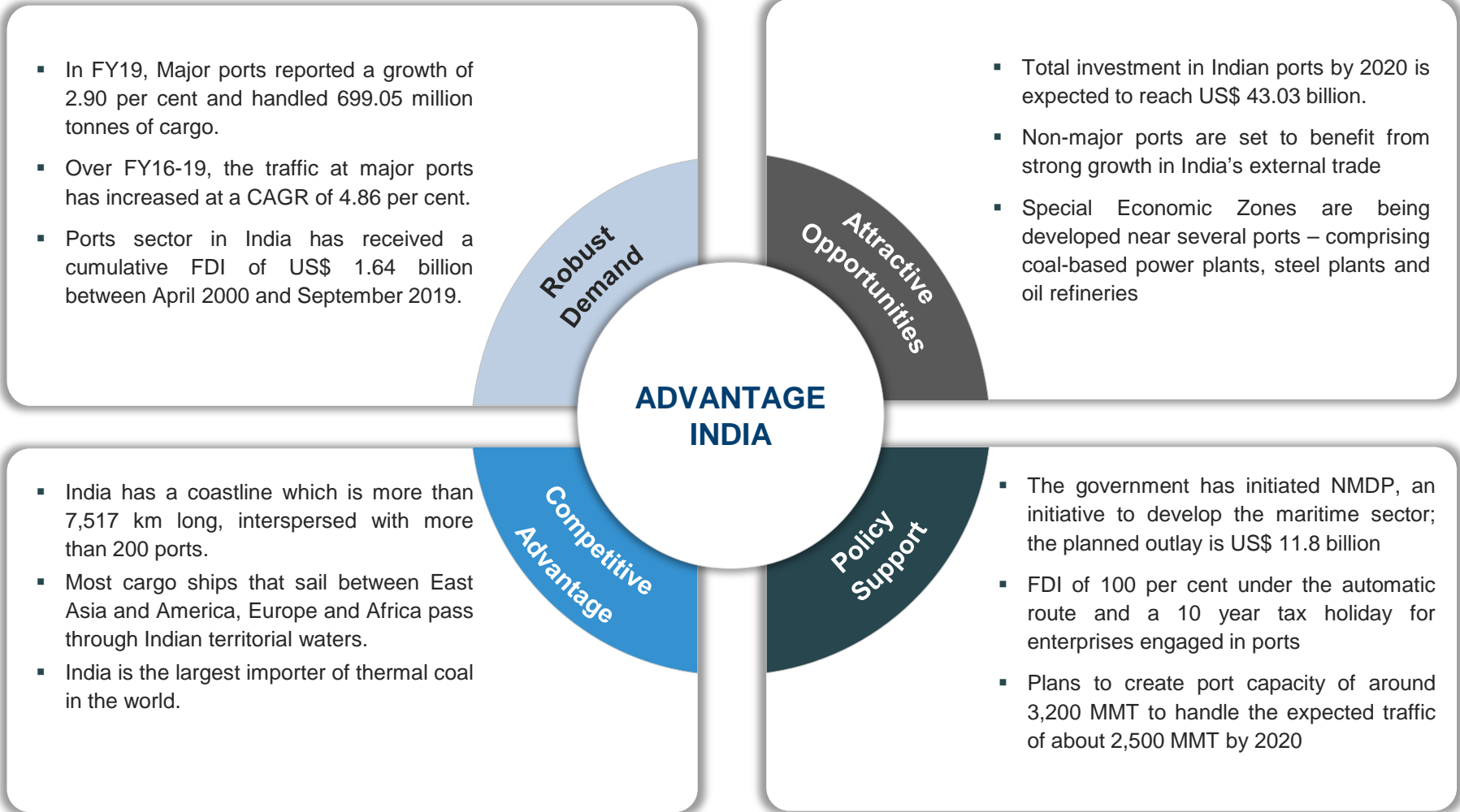
- India's 204 non-major ports out of which 44 ports are functional and are strategically located on the world's shipping routes
- Trade to boost demand for containers. In FY18 container traffic in India (for major ports) increased by 8.08 per cent year-on-year to 9,135 TEUs. In FY19, it reached 9,876 TEUs, implying a growth of 8.08 per cent year-on-year. India's containerised trade grew 10 per cent year-on-year between Jul-Sep 2018.
- Infrastructural development to increase demand for iron and steel. In FY19, iron ore[^] traffic at major ports reached 40.69 million tonnes.
- In November 2019, JSW Infrastructure commissioned a new iron ore terminal at the Paradip port in Odisha with a capacity to handle up to 18 million tonnes of cargo per annum.

Notes: TEU – Twenty Foot Equivalent Unit, ^ - Including pellets, T-Tentative

Source: Ministry of Shipping – GOI, Indian Ports Association

ADVANTAGE INDIA



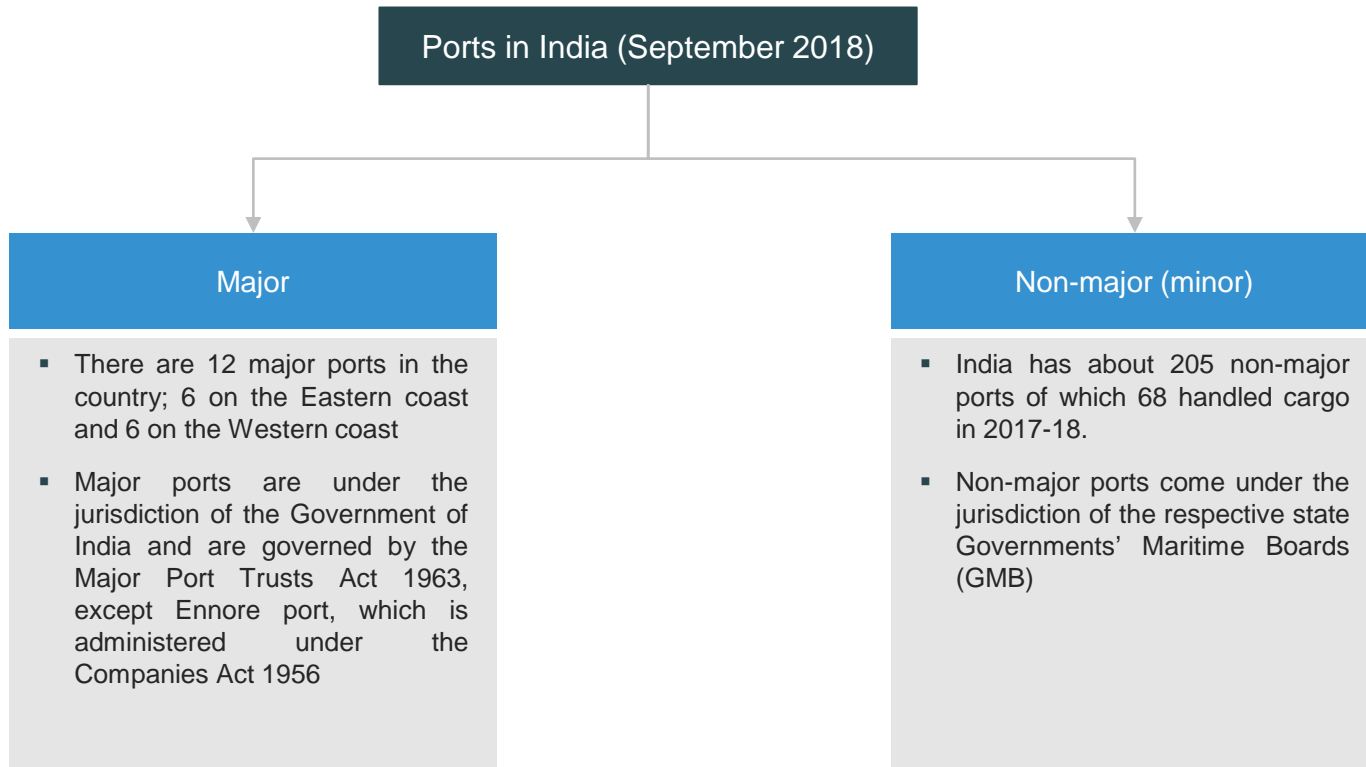


Note: NMDP – National Maritime Development Programme, FDI – Foreign Direct Investment, MMT – Million Metric Tonnes

Source: Report of the Task force on Financing Plan for Ports, Government of India, Indian Ports Association, Ministry of Shipping

MARKET OVERVIEW





Source: Ministry of Shipping

MAJOR PORTS IN INDIA



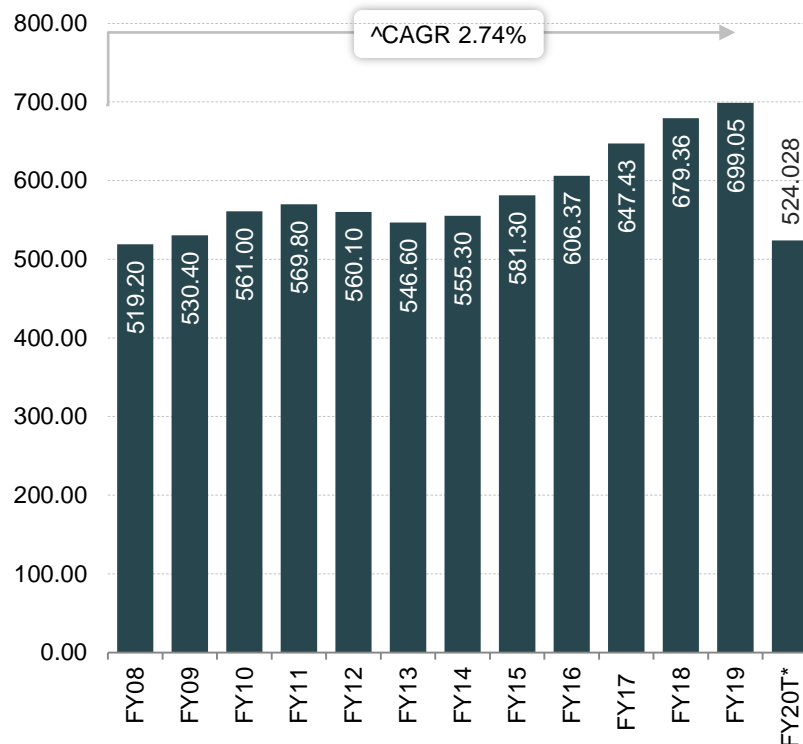
Note: JNPT – Jawaharlal Nehru Port Trust

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

Cargo traffic at major ports in India:

- Stood at 699.05 million tonnes in FY19, growing at a CAGR of 2.74 per cent from FY08-19.
- Traffic at major ports reached 524.08 million tonnes in FY20T (*up to December 2019*).
- In March 2017, 16 new cargo scanners were installed across major ports in India. In the 1st phase, 5 of the 12 major ports i.e. Kamarajar (Ennore), New Mangalore, JNPT, Kolkata and Vizag will receive the scanners.
- In August 2019, India became the first country in the world to issue Biometric Seafarer Identity Document (BSID), capturing the facial bio-metric data of seafarers.
- In November 2019, first ever movement of container cargo on Brahmaputra (National Waterway 2), focused on improving the connectivity to North Eastern Region (NER).

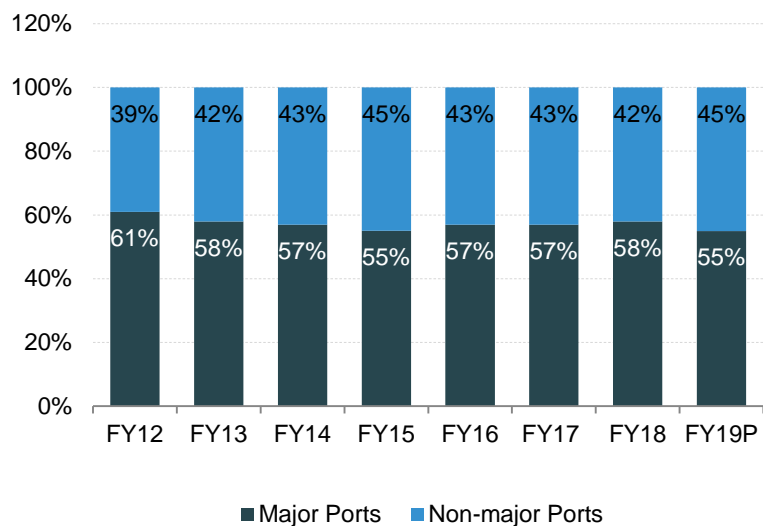
Cargo traffic at major ports (million tonnes)



*Note: FY – Indian Financial Year (April–March), ^CAGR is up to FY19, *- up to December 2019)*

Source: Ministry of Shipping

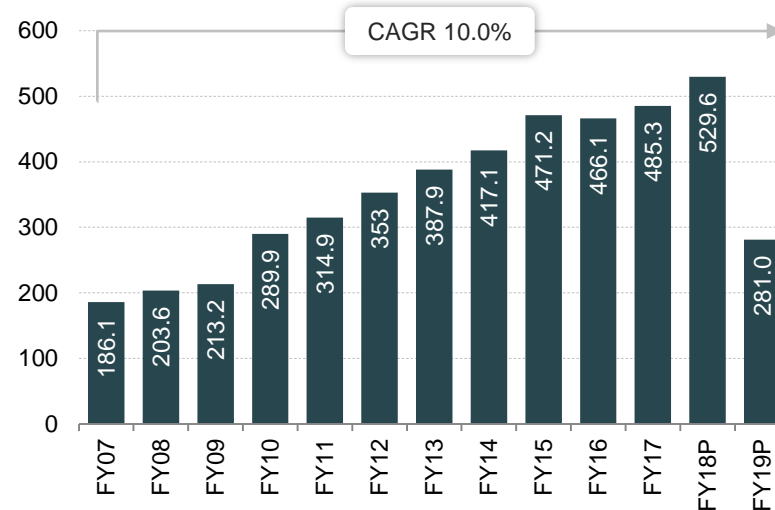
Market Share of Major and Non-Major Ports



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 45 per cent in FY19P(up to Sep18).

Cargo traffic at non-major ports (million tonnes)

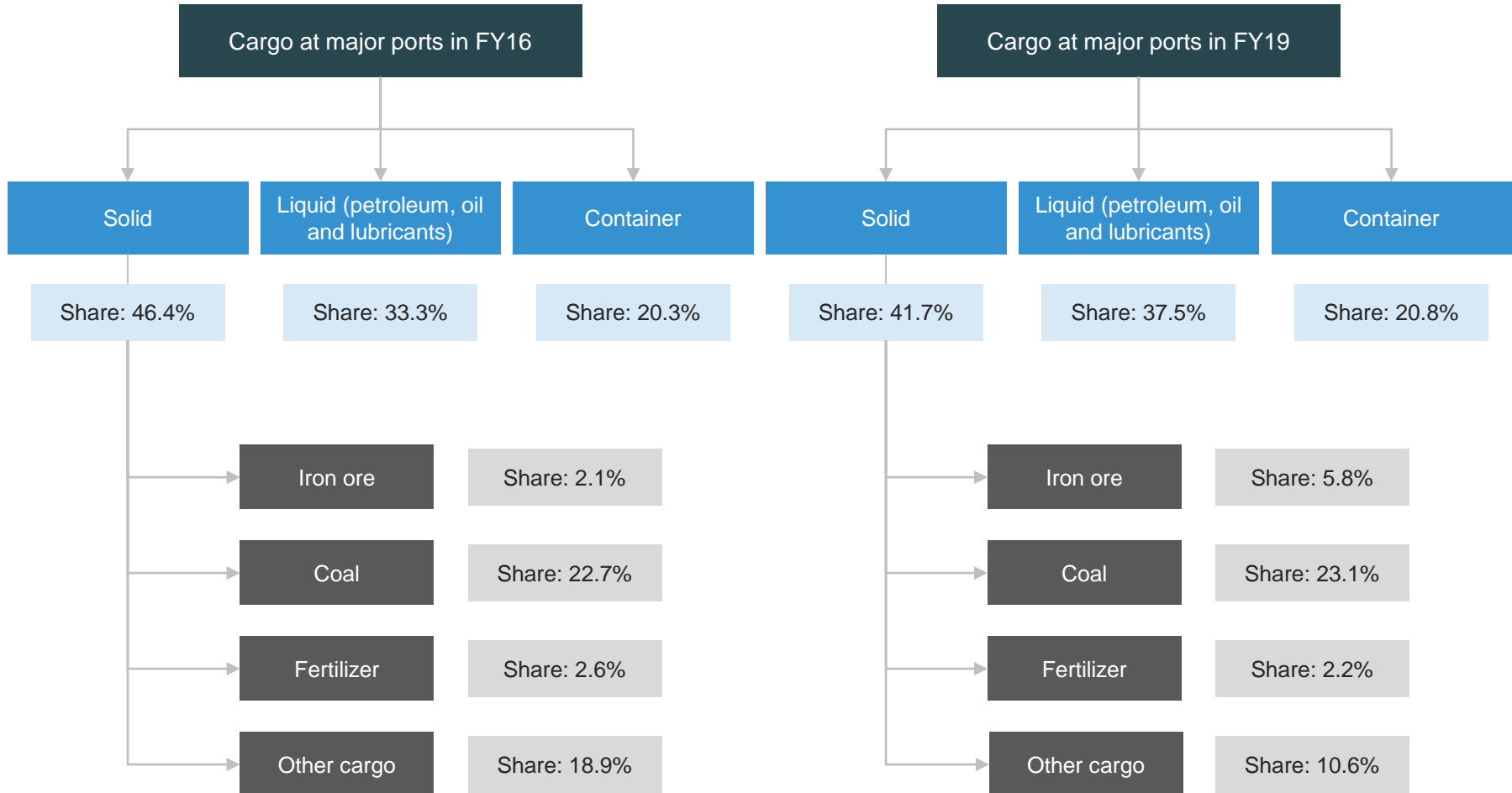


Cargo traffic at non-major ports –

- Reached 281.0 million tonnes in FY19P(up to Sep 18).
- Increased at 10 per cent CAGR between FY07-18.

Note: P – Provisional
Source: Ministry of Shipping

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



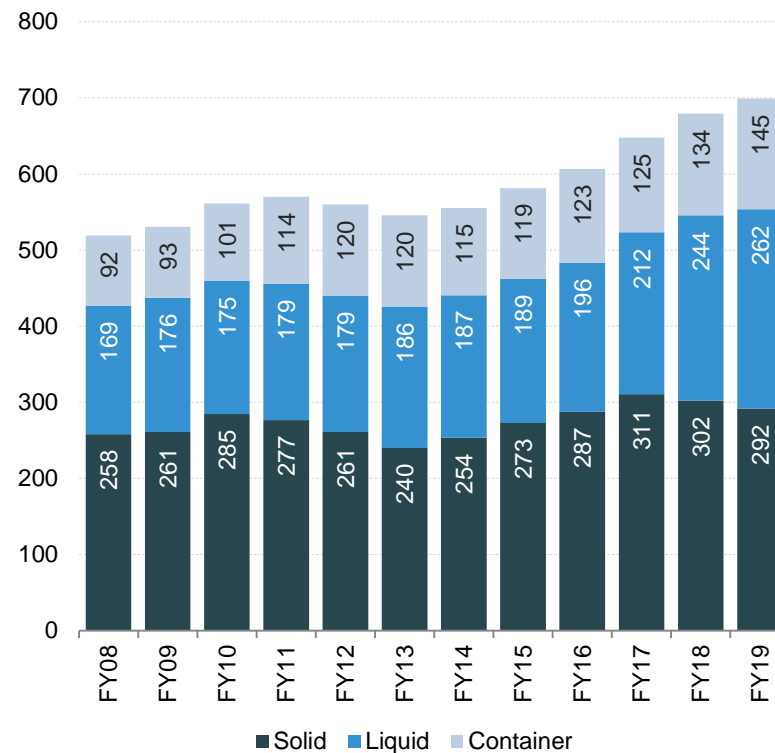
Note: Data for FY20 will be updated after March 2020

Source: Ministry of Shipping

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

- Solid cargo contributes the largest share to all traffic handled at major ports in India, followed by liquid cargo and containers.
- Over FY08-19, CAGR in the volume of different segments was as follows–
 - Solid cargo was 1 per cent
 - Liquid cargo was 4 per cent
 - Container cargo was 4 per cent
- Cargo traffic during FY19 for solid, liquid and container cargo was 292 MT, 262 MT and 145 MT, respectively.
- Adani Port and Special Economic Zone (APSEZ) became the first Indian port operator to handle cargo movement of 200 million tonnes (MT) in 2018-19.
- In October 2019, Ease of Doing Business-Implementation of Radio Frequency Identification (RFID) based Port Access Control System (PACS) at Kolkata Dock System (KDS) was introduced.

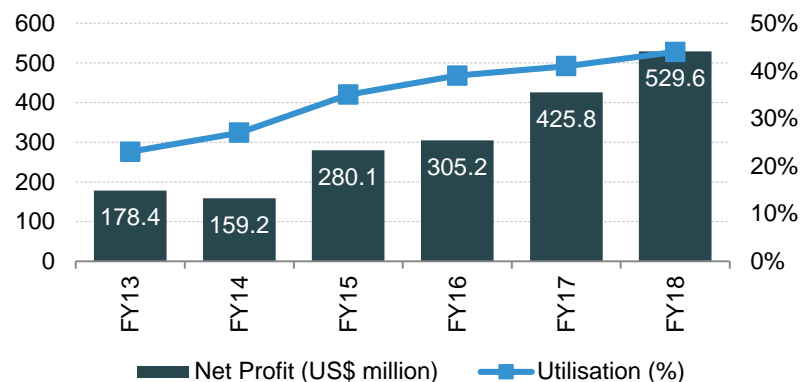
Cargo traffic at major ports (million tonnes)



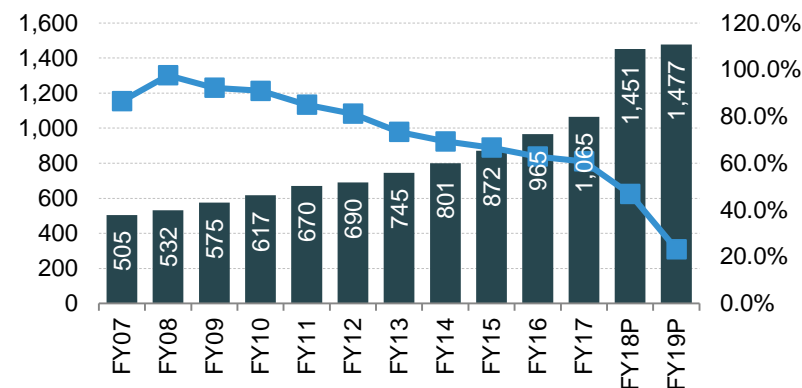
Source: Ministry of Shipping; Indian Ports Association

INCREASE IN CAPACITY AND PROFITS OVER THE YEARS

Net Profit and Operating Margin at Major Ports



Capacity and utilisation at major ports (million tonnes)(up to Sep 18)



- Net profit at major ports has increased from Rs 1,150 crore (US\$ 178.4 million) in FY13 to Rs 3,413 crore (US\$ 529.6 million) in FY18 while operating margin increased from 23 per cent to 44 per cent.
- Capacity at major ports is expected to grow to 1,477 million tonnes in FY19P from 505 million tonnes in FY07.
- Utilisation rates of major ports in India such as JNPT port, Kandla port, Ennore port, etc., are much above the world's average
- 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.
- In July 2019, V.O.Chidambaranar Port created a new record by handling 1,80,597 Metric Tonnes of cargo in a single day.
- As of February 2019, Shapoorji Pallonji Group, business conglomerate, sees the Gopalpur port capacity to reach 55 million tonnes (mt) by 2025.
- Employment of Indian seafarers on Indian and foreign ships witnessed a growth of 35 per cent in 2018. India ranks third in the largest seafarer supplying country in the world maritime industry.

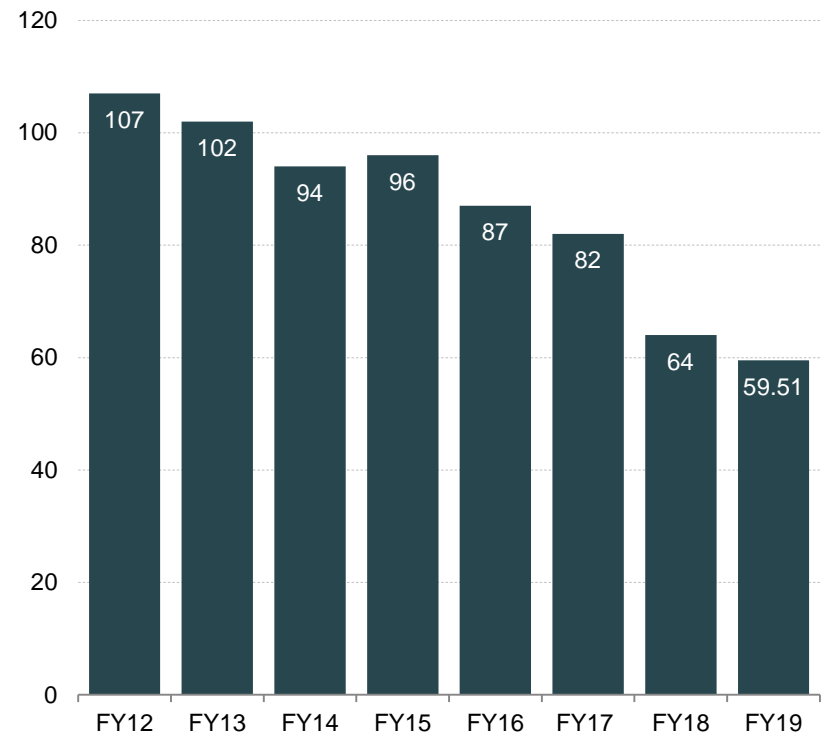
Note: 2017-18 capacity utilisation for major ports has been calculated by dividing capacity by traffic, FY19 Capacity is provisional

Source: Ministry of Shipping; Indian Ports Association (IPA), TechSci Research

DROP IN TURNAROUND TIME

- Average turnaround time is influenced by factors such as type of cargo, parcel size and entrance channel
- Turnaround time at major ports in India has decreased at a rapid pace from 82.32 hours in FY17 to 59.51 hours in FY19.

Average turnaround time for major ports (hours)(up to September 2018)



Note: Turnaround time – Total time spent by a ship from entry into port until departure

Source: Ministry of Shipping, Indian Port Association

RECENT TRENDS AND STRATEGIES



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

Setting up of port-based SEZs

- SEZs are being developed near 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.

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 vessels, much of the traffic is shifting to large vessels from smaller ones, especially in coal transportation

Ports to operate on Green energy

- Government of India is targeting to make the country the first in the world to operate all 12 major domestic government ports on renewable energy. The government plans to install almost 200 MW wind and solar power generation capacity by 2019 at the ports. The energy capacity could be ramped up to 500 MW in future years.

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

Source: Ministry of Shipping

<p>Specialist terminal-based ports</p>	<ul style="list-style-type: none"> ▪ 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
<p>Sanitation</p>	<ul style="list-style-type: none"> ▪ The Haldia Port of West Bengal was rated as the cleanest port among all the major ports in the 1st ever ranking by the Ministry of Shipping. The ranking of major 13 Indian ports was conducted by the Quality Council of India (QCI) during the 'Swachhta Pakhwada'.
<p>'Landlord port' model</p>	<ul style="list-style-type: none"> ▪ To promote private investments, the government has reformed the organisational model of seaports – <ul style="list-style-type: none"> • 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
<p>Rising traffic at non major ports</p>	<ul style="list-style-type: none"> ▪ With the increasing private participation in establishing minor ports. Cargo traffic handled by the minor ports are outpacing cargo traffic at major ports.
<p>Coastal Economic Zones</p>	<ul style="list-style-type: none"> ▪ The Government of India is planning to build 14 CEZs in the country to boost manufacturing and jobs. In November 2017, the first mega CEZ at the Jawaharlal Nehru Port in Maharashtra was cleared.

Note: ICTT – International Container Transshipment Terminal, LNG – Liquefied Natural Gas, MMT – Million Metric Tonnes

Source: TechSci Research

STRATEGIES ADOPTED

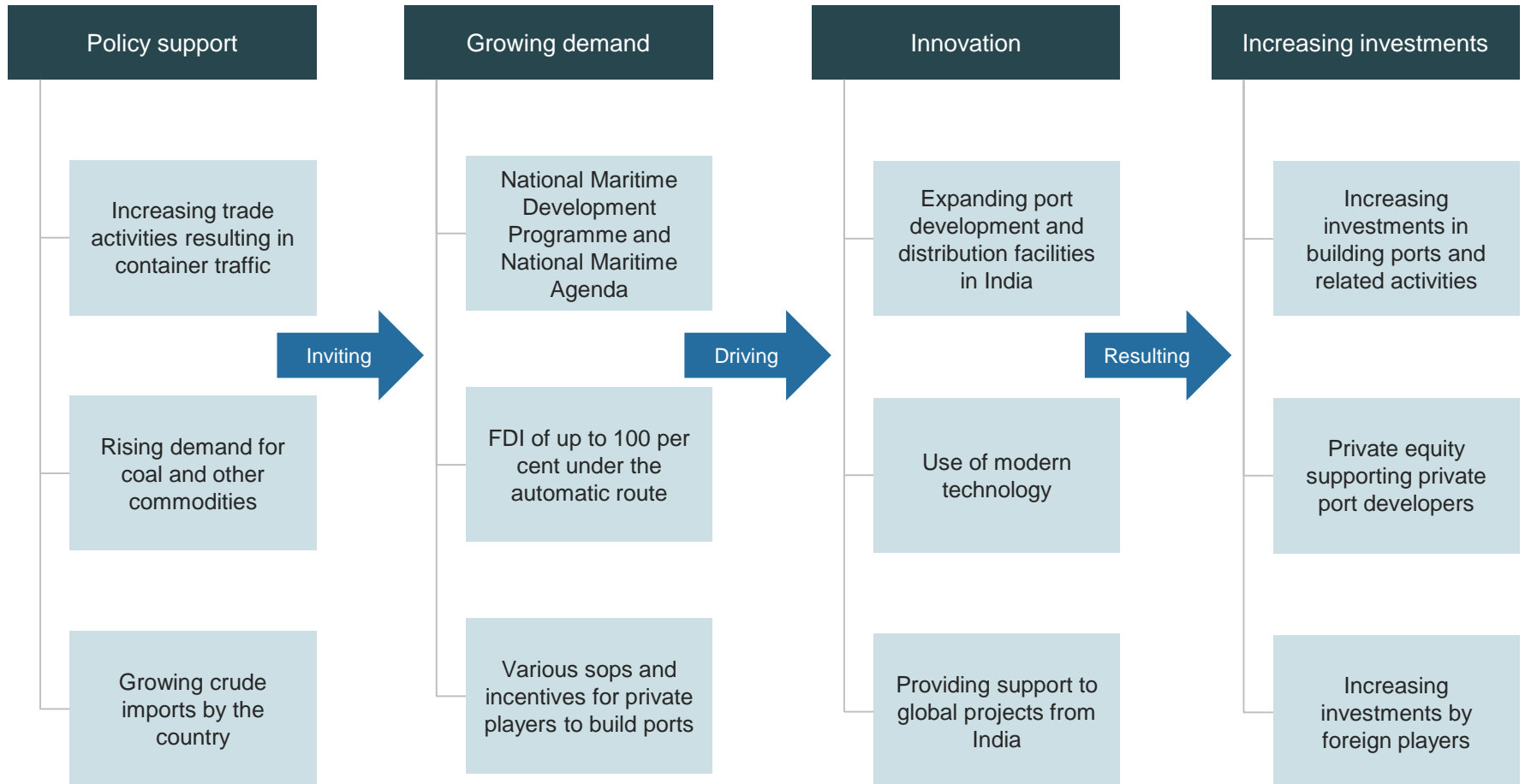
Allied activities	<ul style="list-style-type: none">Adani group, largest private port operator in India, is now venturing into providing allied services like dredging. Its dredgers which were being used only at its own ports in the past have now started taking work from other ports.
Container train operations	<ul style="list-style-type: none">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 six container rakes.
Modernising	<ul style="list-style-type: none">Port authorities are modernising and upgrading port facilities to meet the needs of the port users in competitive environment. Indian Ports Association (IPA) launched a cloud based community system called 'PCS1x'.
Pan-India presence	<ul style="list-style-type: none">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 coastEssar Ports Ltd as a part of its strategic move to increase its potential on the east coast has won the contract for the modernisation of 3 ports at VisakhapatnamEssar Ports Ltd., a leading port operator, plans to build a port in Gujarat with investments worth US\$1.49 billion. For the same, the company has signed a MoU with Gujarat Maritime Board (GMB)
Geographic diversification	<ul style="list-style-type: none">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.Adani Group is going to develop a new container terminal in Myanmar, its second international port after Australia, and has committed investments worth US\$ 290 million towards it.

Source: Company websites, Press Trust of India

GROWTH DRIVERS AND OPPORTUNITIES



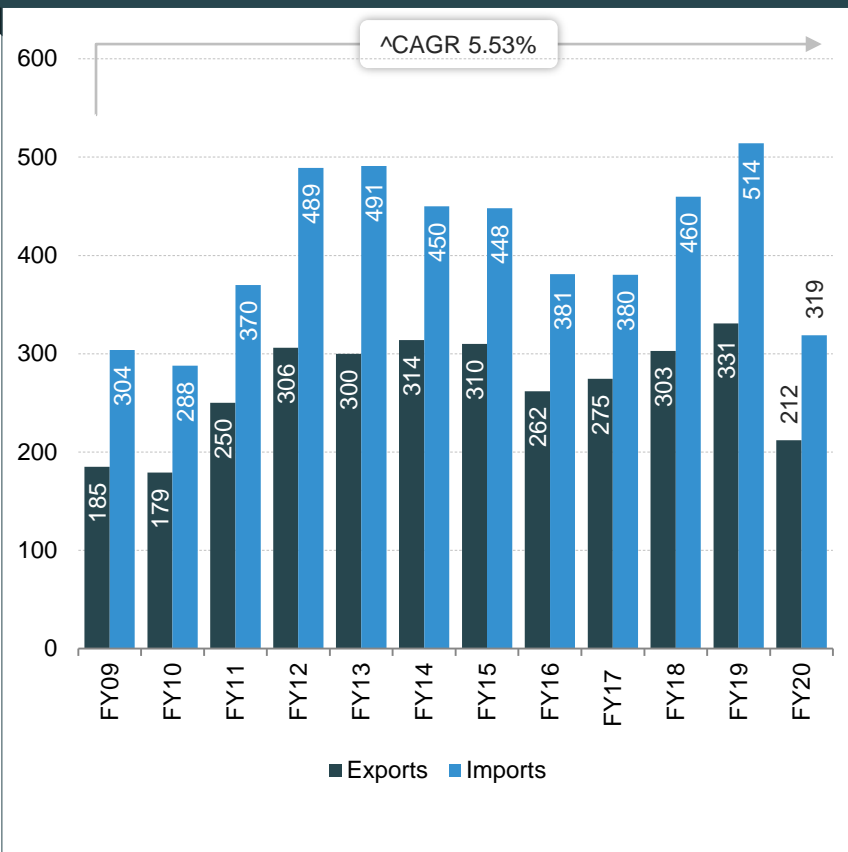
SECTOR BENEFITS FROM STRONG DEMAND, PRIVATE PARTICIPATION



INDIA'S PORTS ARE BENEFITTING FROM STRONG GROWTH IN EXTERNAL TRADE

- Ports handle almost 95 per cent of trade volumes; thus rising trade has contributed significantly to cargo traffic.
- India's total external trade¹ grew to US\$ 838.46 billion in FY19, implying a CAGR of 5.53 per cent since FY09. Merchandise exports during the year were US\$ 331.02 billion while imports reached US\$ 507.44 billion.
- India's merchandise exports and imports stood at US\$ 211.93 billion and US\$ 318.78 billion, respectively, in FY20 (till Nov'19).
- Increasing trade is translating into higher demand for containerisation due to their efficiency.

India's External Trade¹ (US\$ billion)(up to November 19)

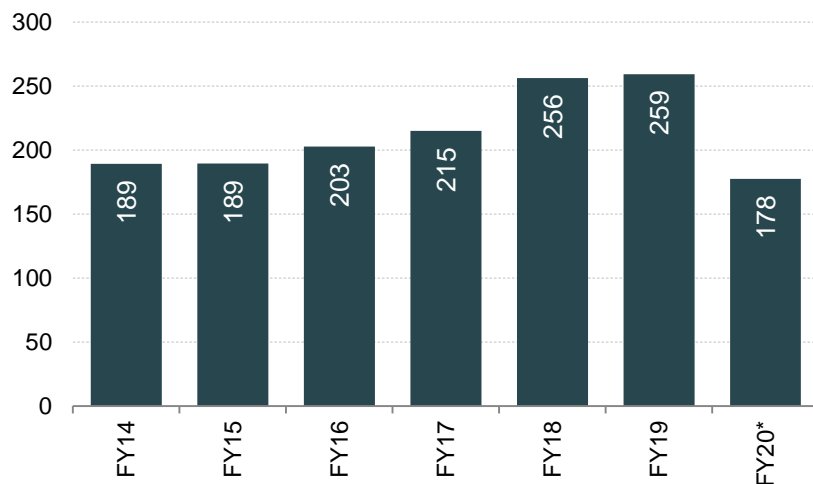


Notes: ¹merchandise trade, ^CAGR is till FY19

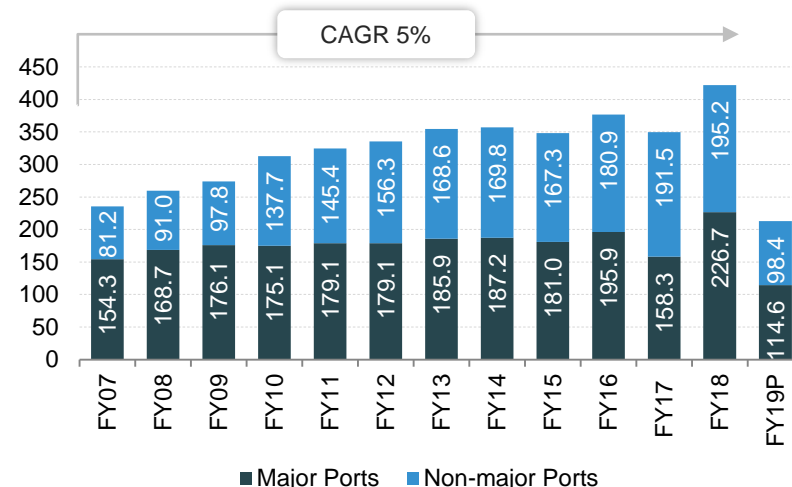
Source: Ministry of Commerce and Industry - GOI

PORTS TO BENEFIT FROM GROWING CRUDE IMPORTS

India's Crude Oil & Petroleum Products Imports (MMT)



POL Traffic (million tonnes)(up to September 2018)



- A consequence of strong GDP growth has been rising energy demand; As of May 2019, the country currently meets about 84 per cent of total crude oil demand by imports.
- India's crude oil & petroleum products imports touched 259.17 million metric tonnes in FY19, implying a CAGR of 7.12 per cent over FY08-19.
- Private ports have been especially good at attracting crude import traffic.
- Solid cargo has been a major contributor to total traffic at major ports and contributed 41.7 per cent in FY19.
- Government plans for reducing India's crude oil imports by 10 per cent by 2022.

Notes: MMT – Million Metric Tonnes POL – Petroleum, Oil, and Lubricant, *- Till November 2019

Source: Handbook of Indian Statistics (RBI), Petroleum Planning and Analysis Cell, Ministry of Shipping

Road Connectivity Projects Under Sagarmala

State	Number of Projects	Length (km)	Cost (US\$ billion)
Gujarat	4	690	3
Maharashtra	14	2,351	8.33
Goa	2	110	0.21
Karnataka	7	781	0.95
Kerala	21	220	0.69
Tamil Nadu	19	1,913	8.50
Andhra Pradesh	36	2,184	4.68
Odisha	4	62	0.10
West Bengal	5	275	1.44

Rail Connectivity Projects under Sagarmala

Status	Number of Projects	Length (km)	Cost (US\$ billion)
Completed	13	426	0.40
Under Implementation	27	1,967	2.92
Pre-Implementation	30	1,854	3.93

Multi modal Logistics Parks Under Sagarmala

Status	Number of Parks	Cost (US\$ million)
Completed	1	18.62
Under Implementation	9	267.65
Pre-Implementation	5	266.41

- As of May 2019, 334 projects have been initiated across the country under this programme.
- Road connectivity projects worth Rs 179,761 crore (US\$ 27.89 billion) are being implemented in coastal states.
- Government of India (GoI) have undertaken 55 rail project worth Rs 45,883.2 crore (US\$ 6.57 billion) and 15 road projects of Rs 2,899 crore (US\$ 0.41 billion) for the enhancement of port connectivity at various major and minor ports.
- Approximately 10,000 jobs were created through projects initiated under Sagarmala during the last three years
- India's second riverine Multi Modal terminal built at Sahibganj in Jharkhand to be introduced on September 12, 2019.

Source: Ministry of Shipping

Increasing capacity	<ul style="list-style-type: none"> ▪ To create a port capacity of around 3,500 MT to handle the expected traffic of about 2,500 MT by 2025.
Increasing investments	<ul style="list-style-type: none"> ▪ Proposed investments in major ports by 2020 are expected to total US\$ 18.6 billion, while those in non-major ports would be US\$ 28.5 billion. 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 ▪ Gujarat ports attract Indian and foreign firm investments of about Rs 36,000 crore (US\$ 4.98 billion)
World-class infrastructure	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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 ▪ Master plans for 142 capacity expansion projects worth Rs 91,434 crore (US\$ 14.19 billion) have been prepared by the Government of India under the Sagarmala programme. ▪ JSW Infrastructure enter into built, operate and transfer agreement with Paradip Port Trust at an investment of Rs 750 crore (US\$ 107.31 million) to operate Paradip port.
Bringing ports under regulator	<ul style="list-style-type: none"> ▪ To establish a port regulator for all ports in order to set, monitor and regulate service levels, technical and performance standards

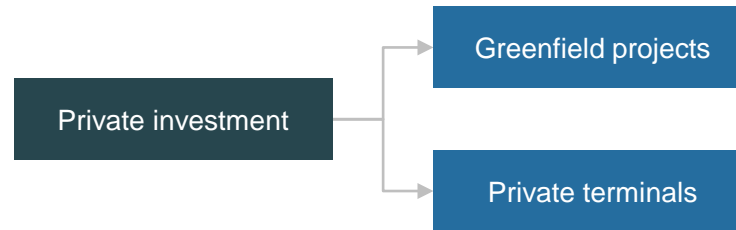
Source: Ministry of Shipping

FAVOURABLE POLICIES ASSISTING THE PRIVATE SECTOR

De-licensing and tax holidays	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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)	<ul style="list-style-type: none"> ▪ An MCA has been finalised to bring transparency and uniformity to contractual agreements that major ports would enter with selected bidders for projects under the Build, Operate and Transfer (BOT) model ▪ In March 2018, a revised MCA was approved by Government of India to make major ports in the country more investor friendly.
Major Port Authorities Act, 2016	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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. ▪ In May 2018, Ministry of Shipping allowed foreign flagged ships to carry containers for transshipment.
Project UNNATI	<ul style="list-style-type: none"> ▪ Project UNNATI has been started by Government of India to identify the opportunity areas for improvement in the operations of major ports. Under the project, 116 initiatives were identified out of which 91 initiatives have been implemented as of November 2018.

Source: Ministry of Shipping, Indian Ports Association

STRONG PRIVATE SECTOR PARTICIPATION IN PORTS PROJECTS ... (1/2)



- Essar Ports will invest US\$ 70 million in Hazira port by 2020.
- Indian ports and shipping sector witnessed three M&A deals worth US\$ 29 million in 2017.
- 39 Public Private Partnership (PPP) projects are operational at a cost of around US\$ 2219.4 million and capacity of 240.72 Million Tonnes Per Annum (MTPA). 32 PPP projects at an estimated cost of around US\$ 3917.6 Million and capacity 264.77 Million Tonnes Per Annum (MTPA) awarded and are under implementation.
- In January 2017, a new container service, operated by K Line, commenced operations between CITPL (Chennai International Container Terminals Pvt. Ltd) at Chennai port and the Far East.
- 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.
- As of May 2019, the Maharashtra Maritime Board (MMB) has started on building a new private port at Vadhawan in Palghar district based on the public-private-partnership (PPP) model.
- On 30 October 2018, Inland Waterways Authority of India (IWAI) gave operations and management of its terminal in Kolkata to the Summit Alliances Port East Gateways Pvt. Ltd. (SAPEL).
- As of November 2019, a number of projects with total project cost of Rs 13,308.41 crore (US\$ 1.90 billion) have been awarded in the last three years on upgradation of the major ports.

Note: PPP – Public Private Partnership

Source: Ministry of Shipping, EY

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

Terminals in major ports with private sector involvement	Port agency	Estimated cost (US\$ million)	Key private sector companies	Ports they developed
Container terminal, Ennore	Ennore	293.1	Maersk	JNPT (Mumbai)
LNG terminal, Cochin	Cochin Port Trust	729.1	P&O Ports	JNPT, (Mumbai and Chennai)
Container terminal, NSICT	JNPT	156.3	Dubai Ports International	(Cochin and Vishakhapatnam)
Oil jetty related facilities (Vadinar)	Kandla Port Trust	156.3	PSA Singapore	Tuticorin
Third container terminal (Mumbai)	JNPT	187.5	Adani	Mundra
Crude oil handling facility (Cochin)	Cochin Port Trust	146.5	Maersk	Pipavav
ICTT at Vallarpadam (Cochin)	Cochin Port Trust	262.9	Navyuga Engineering Company Ltd	Krishnapatnam
Construction of SPM captive berth (Paradip)	Paradip Port Trust	104.2	DVS Raju group	Gangavaram
Development of second container terminal (Chennai)	Chennai Port Trust	103.1	JSW	Jaigarh
			Marg	Karaikal

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

Source: Indian Ports Association

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.
- Cochin Port Trust (CPT) announced measures to increase its revenue by generating higher container traffic and increasing the number of passenger liners. CPT is also planning to setup a small industrial port at the southern end of Willingdon Island to boost business.

Ship repair facilities at ports

- Dry docks are necessary to provide ship repair facilities. Out of all major ports, Kolkata has 5 dry docks, Mumbai and Visakhapatnam have 2; the rest have 1 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.
- Potential market size of ship repair in India is around Rs 2,500-3,000 crore (US\$ 388-466 million) of which around Rs 1,000-1,500 crore (US\$ 155-233 million) has been tapped as of 2017.

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 and M) services like pilotage, harbouring and provision of marine assets like barges and dredgers.
- JNPT in Navi Mumbai signed an agreement with Development Bank of Singapore and State Bank of India, for external commercial borrowing worth US\$ 400 million for expansion of road network connecting the port.

Note: OandM – Operations and Maintenance

Source: Ministry of Shipping

KEY INDUSTRY ORGANISATIONS



Indian Ports Association (IPA)

Address: 1st floor, South Tower, NBCC Place
Bhishma Pitamah Marg, Lodi Road
New Delhi – 110 003
Phone: 91-11-24369061, 24369063, 24368334
Fax: 91-11-24365866
E-mail: ipa@nic.in, ipadel@nda.vsnl.net.in

Indian Private Ports and Terminals Association

Address: Darabshaw House, Level-1, N.M. Marg,
Ballard Estate, Mumbai 400 001, India
Tel. No: 022-22610599
Fax. No: 022-22621405
Email: secretary@ippta.org.in

USEFUL INFORMATION



- 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
- US\$: US Dollar
- FDI: Foreign Direct Investment
- IPA: Indian Ports Association
- NMDP: National Maritime Development Programme
- POL: Petroleum, Oil and Lubricants
- SEZ: Special Economic Zone
- CAGR: Compounded Annual Growth Rate
- ICTT: International Container Transshipment Terminal
- TEU: Twenty-Foot Equivalent Unit
- MMTPA: Million Metric Tonnes Per Annum
- MMT: Million Metric Tonnes
- GOI: Government of India
- NSICT: Nhava Sheva International Container Terminal, Mumbai
- OandM: 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	INR Equivalent of one US\$
2004-05	44.95
2005-06	44.28
2006-07	45.29
2007-08	40.24
2008-09	45.91
2009-10	47.42
2010-11	45.58
2011-12	47.95
2012-13	54.45
2013-14	60.50
2014-15	61.15
2015-16	65.46
2016-17	67.09
2017-18	64.45
2018-19	69.89

Exchange Rates (Calendar Year)

Year	INR Equivalent of one US\$
2005	44.11
2006	45.33
2007	41.29
2008	43.42
2009	48.35
2010	45.74
2011	46.67
2012	53.49
2013	58.63
2014	61.03
2015	64.15
2016	67.21
2017	65.12
2018	68.36

Source: Reserve Bank of India, FBIL, Average for the year

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