Historical Trends

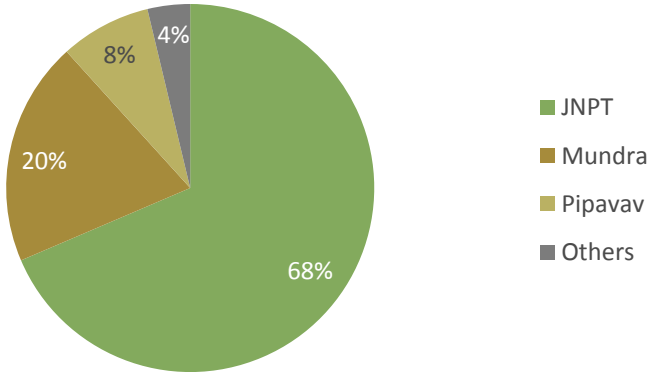
North west Ports have retained a majority share of All-India container traffic as they continue to serve the key clusters of Northern, Central and Western India.

Units: '000 TEU

Port	FY07	FY08	FY09	FY10	FY11
Kandla	178	165	138	147	160
Mumbai	138	118	92	58	73
JNPT	3,299	4,060	3,952	4,092	4,271
Gujarat Ports	684	912	1,041	1,196	1,725
North West Total	**4,299**	**5,255**	**5,223**	**5,493**	**6,229**
North West Share	**69%**	**69%**	**68%**	**68%**	**67%**
Mormugao	13	14	14	13	18
New Mangalore	17	21	29	32	40
Cochin	227	254	261	290	312
Tuticorin	377	450	439	440	467
Chennai	885	1,128	1,143	1,216	1,523
South Total	**1,520**	**1,868**	**1,885**	**1,991**	**2,360**
Vizag	56	71	88	97	144
Paradip	2	4	2	4	3
Haldia	110	128	127	124	149
Kolkata	239	297	302	378	377
East Total	**407**	**501**	**520**	**603**	**673**
All India Total	**6,226**	**7,623**	**7,628**	**8,087**	**9,262**

Source: IPA, GAPL and GPPL related articles

JNPT, Mundra & Pipavav together cater to **more than 95%** of the container traffic at North West Ports.



Gujarat Ports are increasingly gaining market share amongst North West Ports

	FY07	FY08	FY09	FY10	FY11
JNPT	77%	77%	76%	74%	69%
Gujarat Ports	16%	17%	20%	22%	28%

Growth at JNPT is slowing due to capacity constraints on the terminal end.

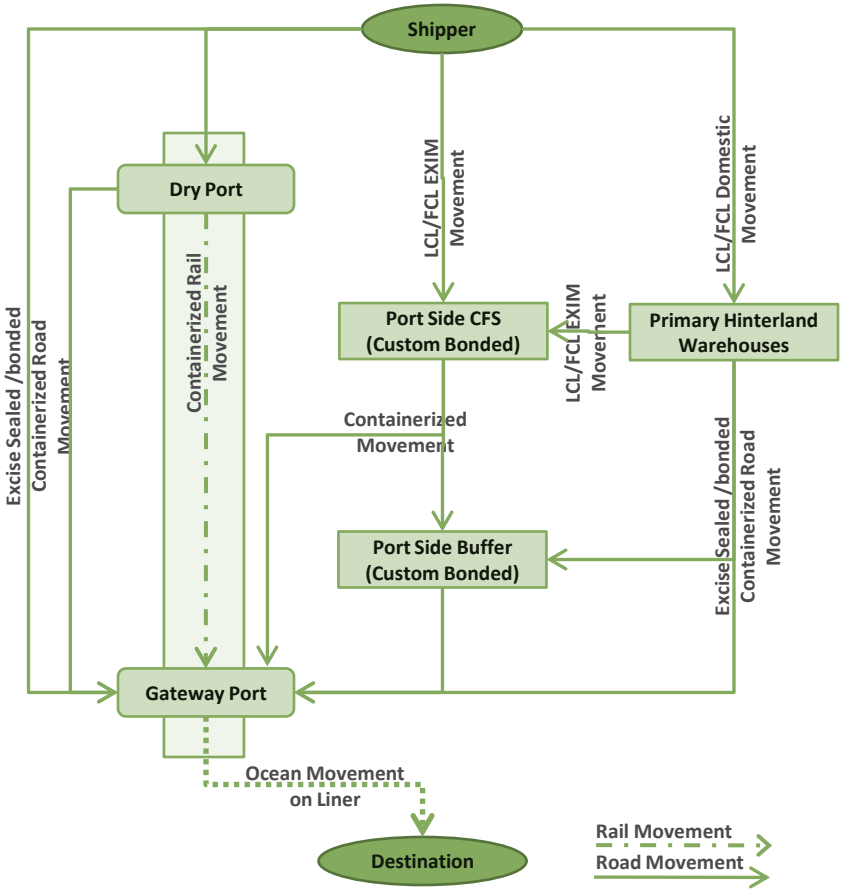
Port	FY10 Volume ('000 TEU)	FY11 Volume ('000 TEU)	TEU Growth
JNPT	4092	4271	179
Mundra	916	1228	312
Pipavav	280	497	217

Types of cargo flows

- Cargo movements from Shipper premises to gateway port can be grouped into two broad categories-
  - Cargo movement in the hinterland
  - Cargo movement near the port

- **Hinterland cargo movements** essentially involve the movement of cargo from shipper premises to the customs clearance point and vice/versa. These movements can include:
  - **Factory Stuffed/Destuffed Movements:** Cargo moves from nominated shipper factories (usually under excise seal) to CFS or even port gates for final customs clearance and v/v
  - **ICD cum CFS stuffed/destuffed movements:** Cargo moves as break bulk to CFS/ICD locations for customs clearance and onward movement to gateway ports and v/v
  - **LCL Cargo:** Often moves as un-cleared cargo to consolidation points closer to the ports where combined volumes permit boxes to be closed for various destinations.

- **Port side cargo movements** involve mostly the movement from port premises to local servicing CFSs /Warehouses and vice/versa:
  - **CFS based cargo** moves for stuffing/destuffing requirements and Custom Clearance
  - **Warehouse based cargo** moves for inventory management and consolidation of units for EXIM cargo
  - **Direct movement** of hinterland stuffed cargo arrives at Port Gate in a despatch / delivery ready condition



Port-based Ecosystem

One of the most important factors governing choice of port is the presence of containerisation facilities around the Port.

The factors contributing to heavy dependence on port-based containerisation facilities are:

- Potential for load consolidation
  - Mumbai is the biggest consolidation hub in India and hence the natural destination for majority LCL cargo
- Limited hinterland cluster size leading to unavailability of facilities
- Unbalanced export-import flows in the hinterland cluster leading to high container re-positioning cost
- Unreliable rail transits
- Lower road transport costs for light weight cargo in closed-body trucks rather than "containers on trailers"

Amongst the three key north-west container ports the port-based ecosystem handles ~51% of the total port volume.

Port	Port-CFS ('000 TEU)	Port-Gate ('000 TEU)	Total Port-based	% of port volume
JNPT	1,836	696	2,532	59%
Mundra	346	0	346	28%
Pipavav	17	0	17	3%

Rail served cargo

Clusters with longer leads and reasonable volumes in combination have a better potential to be served directly by rail / road

The choice of mode is influenced by the following parameters:

- Availability of rail-based containerisation facilities
- Distance from the Port
- Frequency of rail services to/from the port of choice

At the three key north-west container ports, significant volumes are transported by rail to/from the clusters. The following table shows the share of rail at these key ports:

Port	Rail Volume ('000 TEU)	Share in total Port volume
JNPT	1,122	26%
Mundra	251	20%
Pipavav	159	32%

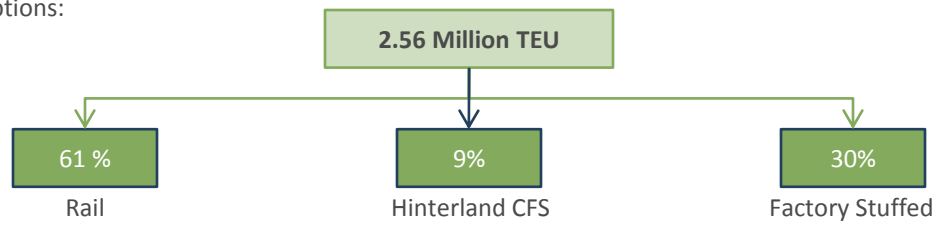
Good rail connectivity which is a combination of infrastructure and frequency of services as well as efficient last mile access to the ports is critical to attract cargo from distant clusters.

The absence of a good ICD network across India (offering quality rail services) has led to the heavy dependence on port-based eco-system.

Cluster Strength

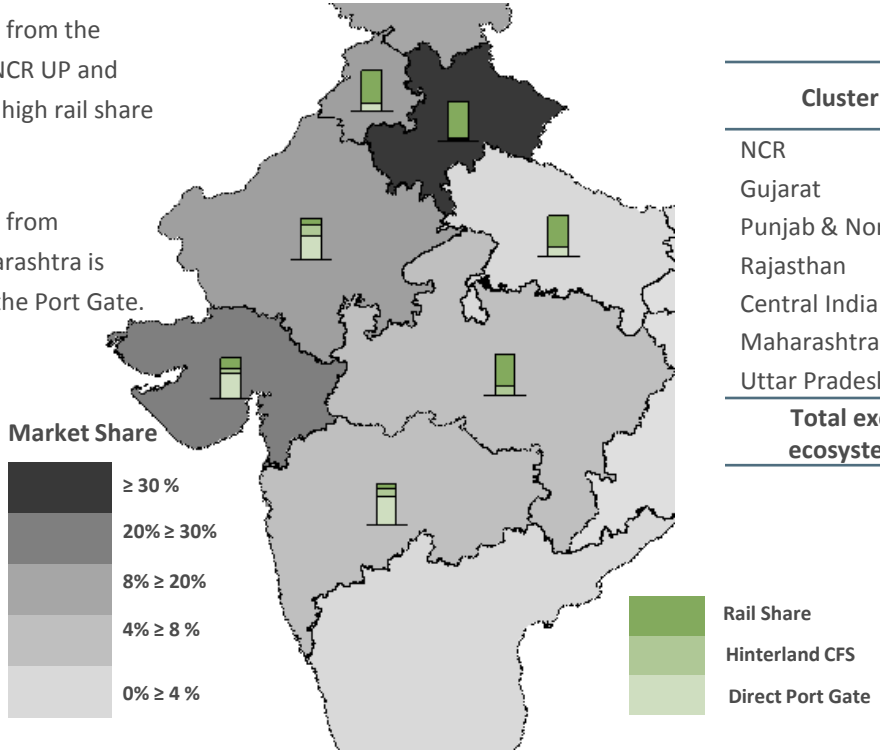
Cargo containerised at the cluster reaches the port through either of the following options:

- By Rail from/to ICD hinterland located in the hinterland
- By Road from /to CFS located in the hinterland
- Factory-stuffed cargo by Road to port gate



Containerised cargo from the clusters of Punjab, NCR UP and central India have a high rail share

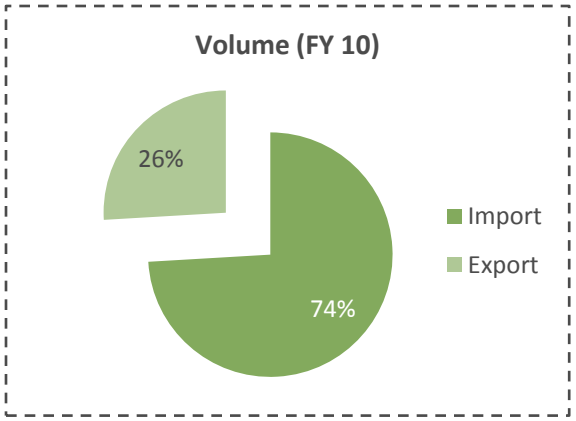
Containerised cargo from Rajasthan and Maharashtra is primarily served at the Port Gate.



Cluster	Share excl. ecosystem	Rail	Hinterland CFS	Direct Port-Gate
NCR	39.3%	92%	3%	5%
Gujarat	28.0%	27%	12%	61%
Punjab & North	10.3%	80%	2%	18%
Rajasthan	9.3%	17%	25%	58%
Central India	4.7%	77%	23%	0%
Maharashtra	4.7%	13%	20%	67%
Uttar Pradesh	2.8%	77%	0%	23%
Total excl. ecosystem	**100.0%**	**61%**	**9%**	**30%**

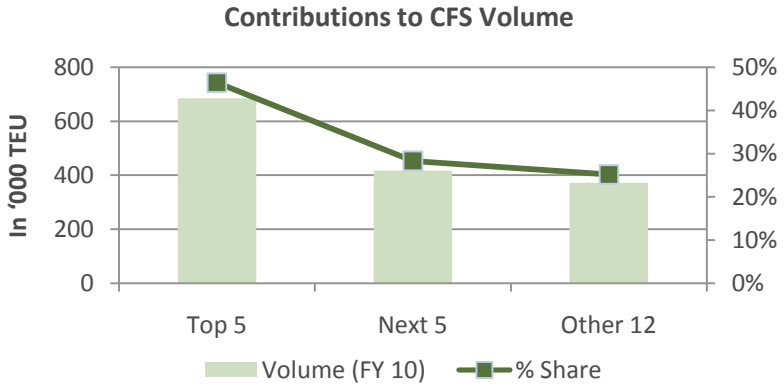
Rail Share from Rajasthan and Maharashtra is low since these locations have limited ICD facilities and directly connect to gateway ports over road

JNPT CFS Cluster



The CFS' at JNPT largely serve as evacuation facilities for import containers.

The top 5 CFS' at JNPT together contribute ~45-50% of the JNPT CFS volumes.



The CFS business is highly influenced by shipping lines as tie -ups and line nominations can directly promote the use of associated CFSs

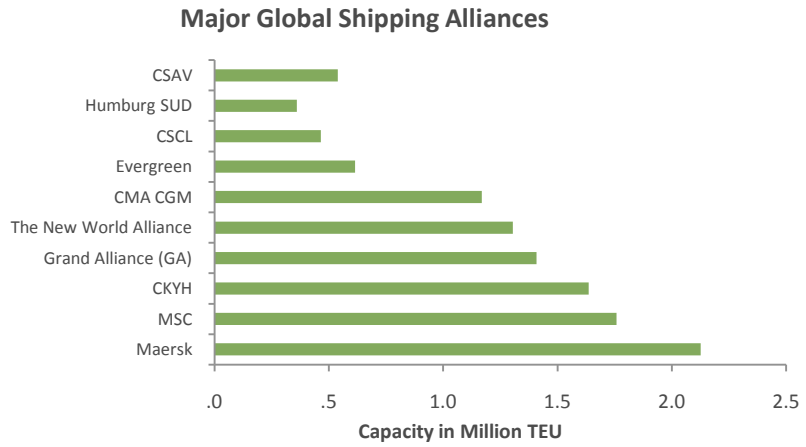
Factors governing the nomination process are:

- CFS efficiency and capacity
- Rates offered for loaded and empty
- Availability of container repair & cleaning services
- Other associations (Group company etc.)

Shipping Lines Associated with CFS' at JNPT

CFS	Associated Shipping Lines
GDL	APL, CMA, P&O, MITSUI, HANJIN, WAN HAI, OOCL
MAERSK	MAERSK
HIND TERMINALS	MSC
TLP	SAMUDERA, MISC
CWC	ASIATIC, WELGROW, MSC
Next 5	MAERSK, HANJIN, K-LINE, OWL, AARAS
Other	DELMAS, HAMBURG SUD, HYUNDAI, SINOKOR, STX PAN, NYK, MSC

Global Shipping Line Alliances



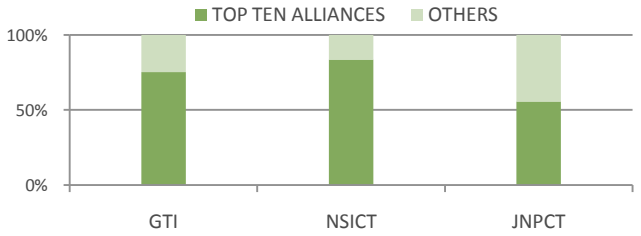
- Strategic Alliances between shipping companies are a common commercial practice in the container trade

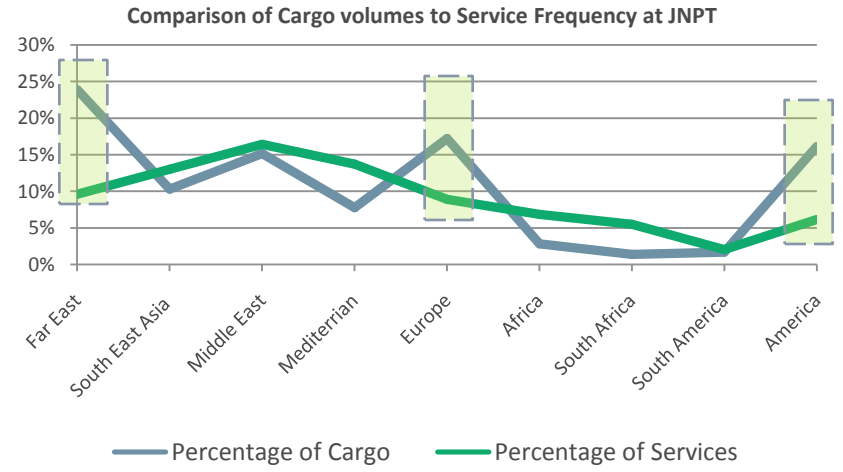
- The two types of shipping line alliance s are
  - Ownership based alliances – Maersk, MSC, Evergreen etc.
  - Non Equity collaborative alliances – Grand Alliance, New World etc.

- Shipping companies enter into alliance for a variety of reasons:
  - To obtain scale advantage, and extend service coverage where individual capacities are constrained
  - Improved asset utilization and reduced financial burden on capital investment
  - Limit external competition and catalyze entry to new trade routes

Shipping Line Alliances at JNPT

- Top ten shipping alliances control more then 60 % of the cargo at JNPT
- NSICT and GTI attract a larger share of alliance based services, while JNPCT has more smaller shipping lines

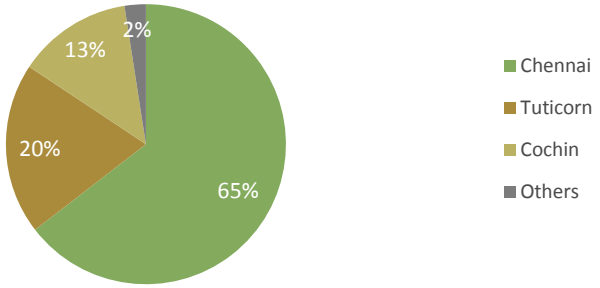




- Services with higher parcel exchange exist in the Far East, Europe and North America maritime zones.

Historical Trends

Chennai, Tuticorn and Cochin together handle around 98 % of the EXIM volumes



Both Tuticorin and Cochin Port are losing market share to Chennai.

	FY07	FY08	FY09	FY10	FY11
Chennai	56%	58%	58%	58%	61%
Tuticorn	24%	23%	22%	21%	19%
Cochin	14%	13%	13%	14%	12%

With the second terminal becoming operational at Chennai Port, its growth has exceeded that of other competing ports.

Port	FY10 Volume ('000 TEU)	FY11 Volume ('000 TEU)	TEU Growth
Chennai	1,216	1,523	307 (25%)
Tuticorn	440	467	27 (6%)
Cochin	290	312	22 (7.5%)

Port-based Ecosystem

The port-based eco-system in South India is strong in terms of CFS' but minimal in terms of warehousing, consolidation and distribution.

In South India, the presence of containerization facilities around the Port is a key factor in determining the Port of choice since:

- Clusters other than Chennai, Bangalore and Hyderabad are export dominant
- Unbalanced export-import flows in the hinterland clusters lead to high container re-positioning cost. Hence, cargo is dependent on port locations for containerisation.

Lack of available containerisation facilities also leads to dependence on port-based facilities

Rail served cargo

Rail is not a key mode of transport for EXIM cargo in South India. The following table shows the share of rail at these key ports:

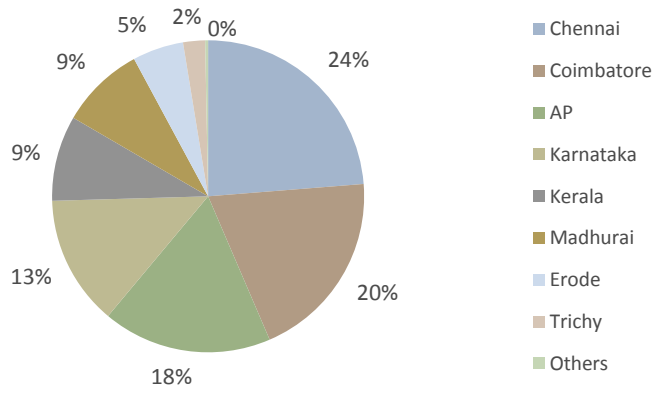
Port	Rail Volume (TEU)	Share in total Port volume
Chennai	40,578	3%
Tuticorn	4,782	1%
Cochin	10,262	3%

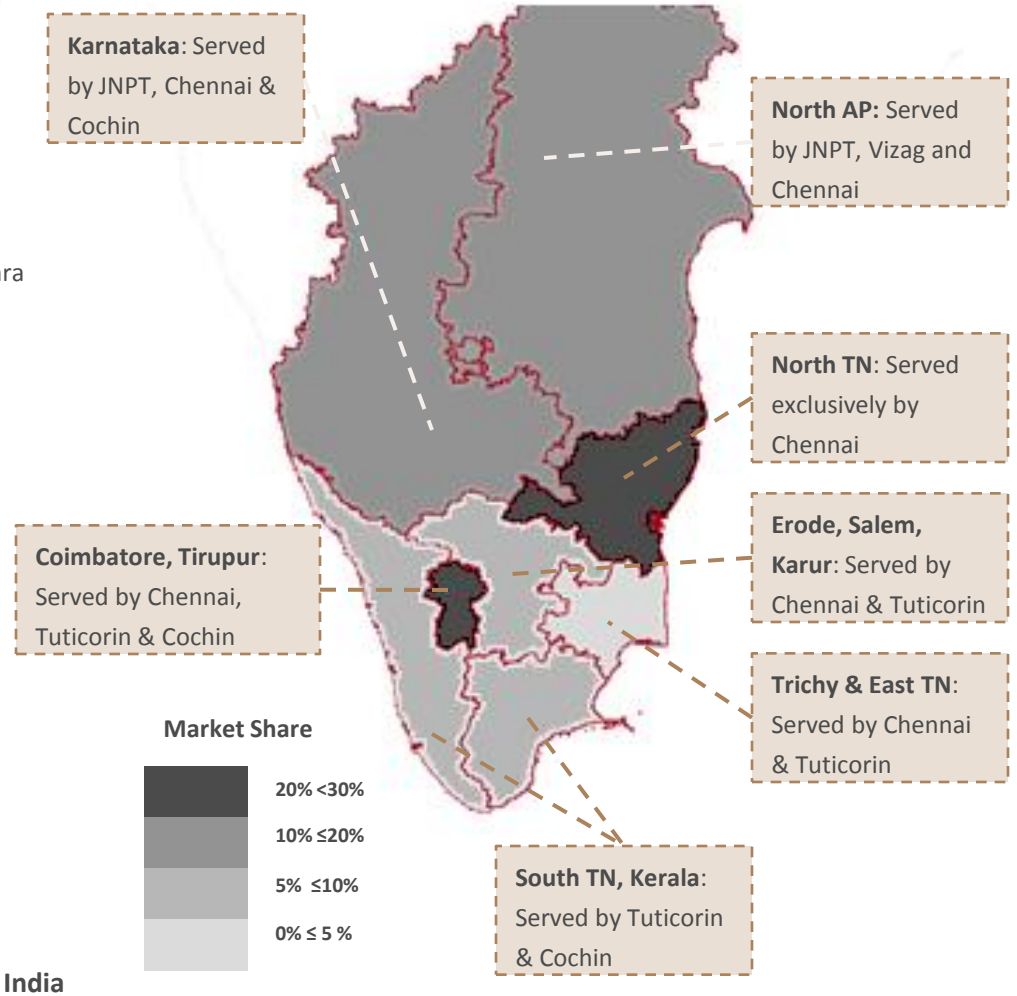
In spite of its multiple constraints, Chennai continues to remain the dominant port in South India due to lack of quality competition

Cluster Strength

- Chennai is the biggest cluster in south India followed by Coimbatore
- Chennai and Coimbatore (incl. Tirupur) together contribute around 44% of EXIM cargo
- Top five commodities alone contribute 60 -70 % of the export and import volumes.
  - Machine Parts, Paper, Scrap and Raw Cashew are major import commodities.
  - Cotton Yarn, Textile, and Granite are major export commodities
- Key clusters within Karnataka and AP are South Karnataka and North Andhra
  - Coffee volumes from North Karnataka have migrated to New Mangalore
  - Significant volume from the Hyderabad cluster has diverted to Vizag Port

Cargo Distribution From Cargo Clusters

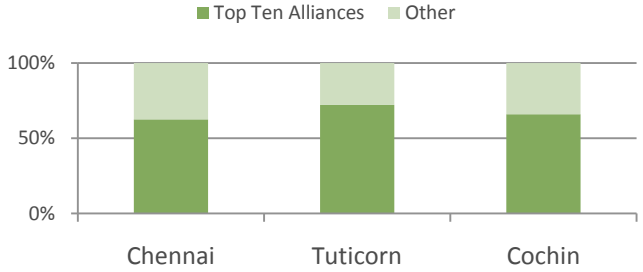




Chennai and Coimbatore are the biggest cargo clusters in South India

Shipping Alliances at South India Ports

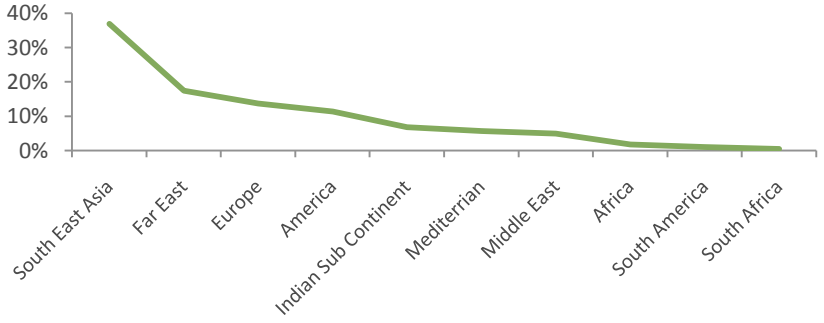
- Top ten shipping alliances control more then 60 % of the cargo
- Tuticorn attracts a larger share of alliance based services, while Chennai and Cochin has more smaller shipping lines



Significant cargo from South India is transhipped at Ports in South East Asia and Colombo:

- More than 50% of cargo from Chennai & Cochin Ports is transshipped
- ~25% of cargo at Tuticorin Port is transshipped at regional hubs

Chennai Port – Country of Trade



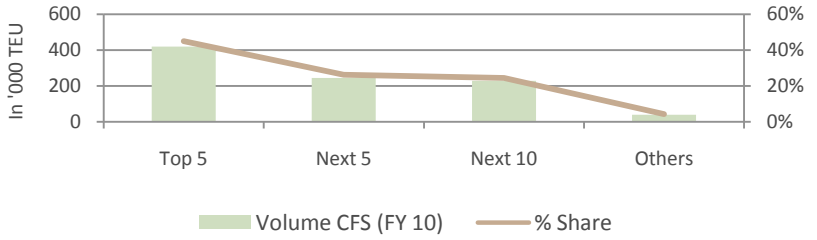
Cargo from South India is still largely transshipped at regional hubs.

Chennai CFS Cluster

- ~ 75-80% of Chennai Port's EXIM volumes are served by CFS' in Chennai
- The Export:Import ratio of the CFS cluster at Chennai is 36:64

- Chennai has 26 operational Container Freight Stations with a few more in the development stage
- Competition is intense in Chennai with multiple players entering the market to target the dominant, stable and growing CFS business in Chennai
- The top five players together have a market share of 53% with each of them in the range of 9-12%.

Contribution to CFS Volume

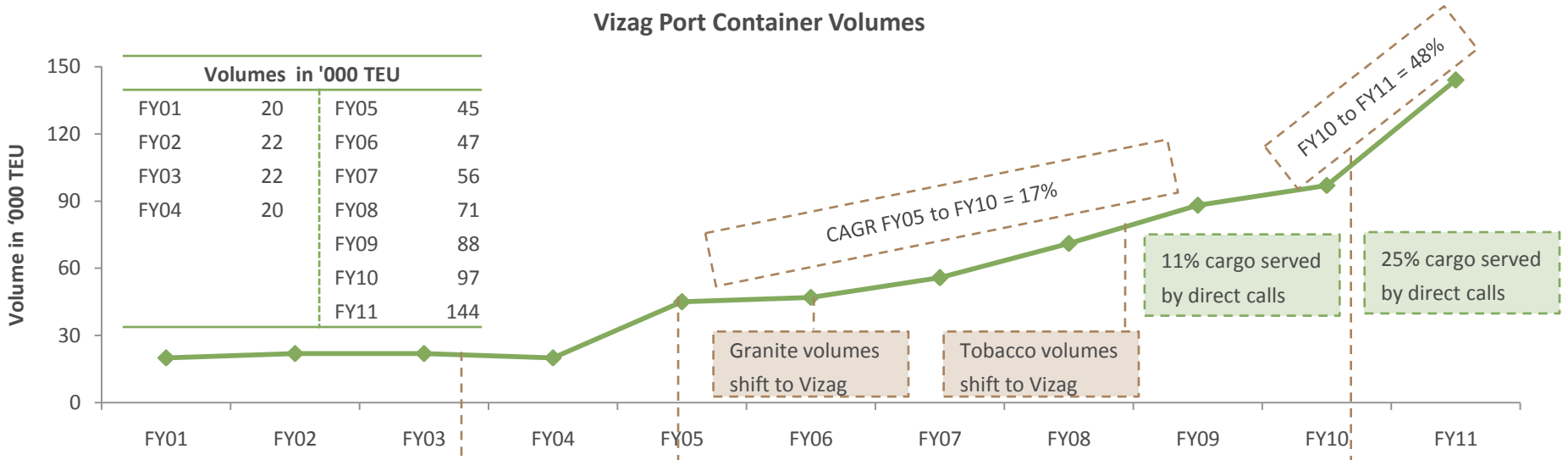


- Most CFS' (especially export based) have a strong commodity focus.
- Though published prices are union determined, heavy discounts are prevalent in the Chennai CFS market.

The CFSs at Chennai will be constrained by the potential of the Port.

Vizag Port Container Volumes

Volumes in '000 TEU			
FY01	20	FY05	45
FY02	22	FY06	47
FY03	22	FY07	56
FY04	20	FY08	71
		FY09	88
		FY10	97
		FY11	144



Start of Operations of Private Container Terminal

- DP World in JV with local partner starts operations of container terminal

Start of IndFex service to connect with China

- IndFex is an import heavy service, where the volumes are largely influenced by the shipping lines

Maersk extends its Chennai – Far East Service to also call Vizag

Feeder service to Kolkata also starts

Today: Mainline Services

- **CHX**: VCT – Tanjung Pelepas – Quingdao – Xingang – Shanghai – Tanjung Pelepas – Port Klang – Chennai
- **INDFEX-2**: VCT – Singapore – Hong Kong – Busan – Shanghai – Shekou – Hong Kong – Singapore – Chennai

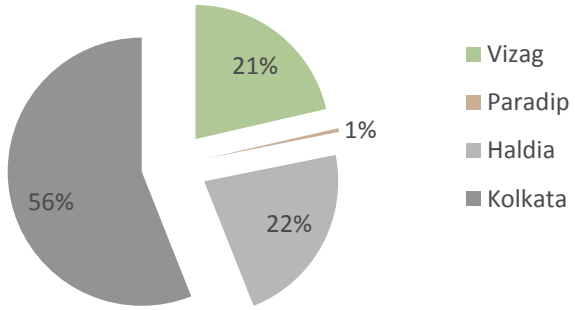
Today: Feeder Services

- **APL-BTL**: VCT – Port Klang – Singapore Port Klang – Chennai – VCT
- **FSI**: VCT – Colombo – Haldia – VCT (North & South directions)
- **OEL**: VCT – Kolkata – VCT
- **MCPIL**: VCT – Karaikal - Colombo
- **TCX**: VCT – Singapore – Laem Chabang – Singapore – Chennai – VCT

Containerised Cargo

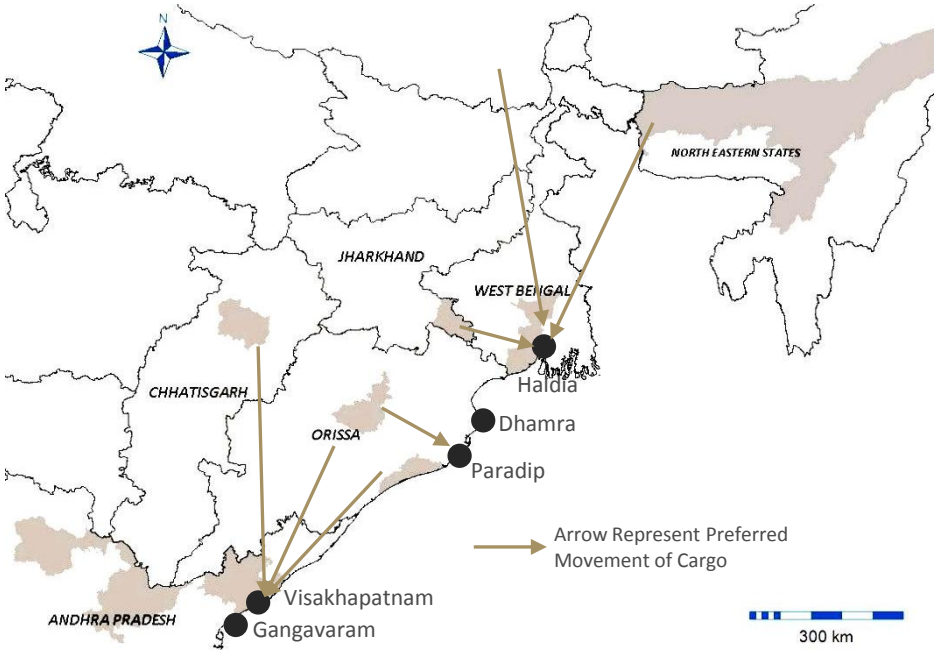
In spite of the Vizag success story, the East India ports handled less than a million TEU in FY 11, contributing less than 10% of the All India market.

Share of Ports in East India



- Despite low draft, no direct services and old equipment Kolkata and Haldia handle more than 85% of the container volumes in the East
- Kolkata benefits from being the mandated gateway for Nepal cargo
- Major containerised commodities are Tea, Jute, Food Products (mainly reefer cargo),Petro Products, Cast Iron Products, Stones, Steel and Garments

Commodity	Origin & Consumption Region/State
Jute, Petro Products	Kolkata Metropolitan Region around Hugli
Food Products	Kolkata, Orissa Coastal Regions, Northern Andhra Pradesh (Rice)
Petro Products	Haldia Refinery (Kolkata Region)
Cast Iron Products & Steel	South Jharkhand, North & North-West Orissa, North & Central Chhatisgarh
Stones	Southern Orissa, North & Central Andhra Pradesh
Garments	Kolkata Region



Future Potential & Choice of Port

The future drivers for container demand in the region are:

- Iron & Steel Industry
- Aluminum Industry

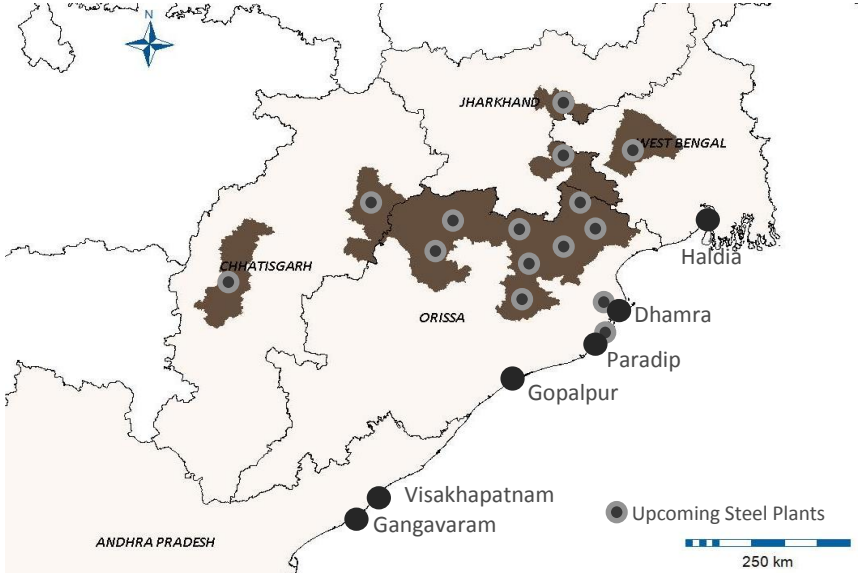
The existing cargo clusters have high proximity to Kolkata & Vizag, but have moderate growth potential.

Iron & Steel

Existing Port of Choice

- Haldia is the preferred port for Iron & Steel plants in West Bengal and Jharkhand region due to:
  - Tata Steel and SAIL having dedicated infrastructure at Haldia port
  - The nearest operational port is at Haldia
- The plants of Jindal Steel and Monnet steel in Chattisgarh use Visakhapatnam port considering shorter distance and better connectivity

Future Developments – MoUs for 210 million tonnes of production capacity



Most development plans in the hinterland are delayed owing to:

- Difficulties with land acquisition
- Problems with environmental clearances
- Delayed and conditional allotment of mines

Export Potential

- Iron & Steel exports have historically remained low from India, due to
  - A booming domestic economy and fast developing infrastructure sector in India
  - Better price realisation in the domestic market
  - Steel quality insufficiency from Indian producers
  - China's price competitiveness in international markets
- Currently large organised players in India export only around 10% of their annual production of steel
- The export share of production is expected to remain constant in the future
- **Containerization** of export steel is limited by:
  - Difficulties in handling (side loading containers & heavy weight equipments)
  - Increased packaging cost due to specialized handling and cargo securing
  - The current size of parcel exchange does not demand consolidation of cargo
- Containerised export of steel is limited to just 10-15% of overall exports

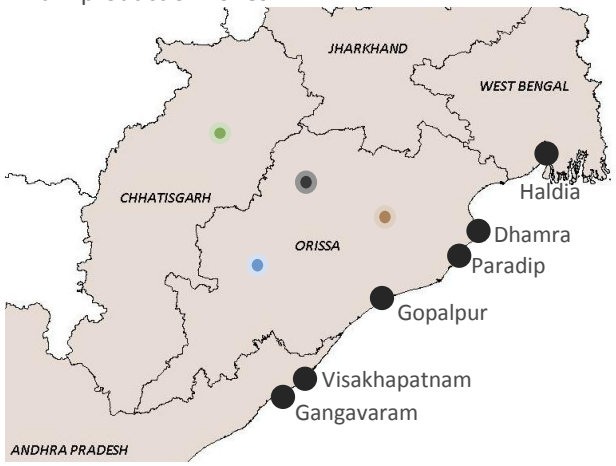
Max Potential of I&S containerised exports is 0.17 Million TEU

Dhamra and Paradip are suitably located to serve future steel plants, but max. containerised exports will be limited to 1.0-1.5% of production

Aluminum

Existing Production Locations

Orissa & Chattisgarh have the largest bauxite reserves in the country and are the main Aluminum production zones



Company	Location	Existing	Planned
Orissa			
NALCO	Angul	0.35	0.15
HINDALCO (ADITYA)	Lapanga		0.36
HINDALCO (Hirakud)	Hirakud	0.16	
VEDANTA	Jharsuguda	0.25	1.35
Orissa Total		0.76	1.86
Chhatisgarh			
Jindal	Raigarh		0.05
BALCO	Korba	0.35	0.33
Chhatisgarh Total		0.35	0.38
Jharkhand			
HINDALCO	Ranchi		0.36
Jharkhand Total			0.36
Total Aluminum capacity in East India		**1.10**	**2.60**

All Values in MTPA

Choice of Port

- NALCO primarily uses Vizag Port, but under compulsions of the state of Orissa minor volumes are shipped through Paradip port
- Hindalco (Utkal) has taken a berth on lease from Vizag port for captive usage
- Hindalco facilities in Orissa and Jharkhand are likely to use the Vizag port
- The BALCO plant is connected with both Vizag and Paradip ports, however the section connecting Paradip is congested due to high coal traffic

Export Potential

- Aluminum is mostly exported in the form of Aluminum ingots in break bulk form or in containerised form
- High value nature of cargo is pushing the trend toward greater degrees of containerisation
- In 2009, India exported ~0.45 million tonnes of Aluminum (~30% of overall production volumes) of which:
  - ~50% as Aluminum Ingots
  - ~45% as Aluminum Alloys (products)
- World-wide (as is the case with India) Aluminum is fast replacing use of wood and steel as choice of material in housing and automobiles

In the future, 100% of Aluminum exports are expected to be containerised

India will continue to export ~30% of Aluminum production

Max. potential of containerised Aluminum export is <0.1 MTEU

Future Scenario

Future scenario in the North-west market

- Mundra volumes to grow, along with an increasing role of the ecosystem at Mundra
- Development of the DFC critical to JNPT IV and further developments
- North-West to remain the dominant gateway
- South Gujarat and Rewas could be possible future opportunities

Future scenario in the East India Market

- Kolkata / Haldia likely to retain existing volumes with organic growth
- Vizag to grow with increasing shares from AP / Central India markets if better call dynamics are ensured
- Dhamra could be a dark horse if it brings in a recognised terminal operator and leverages location to target future Steel & Aluminum volumes

Future scenario in the South India market

- Chennai cluster to remain the dominant gateway
- Specific congestion issues at Chennai Port create interesting opportunities for feeder ports at Ennore, Kattupally…
- Cochin as a transshipment hub is a distant dream