Inter - Modal Traffic
Multi - Modal Options

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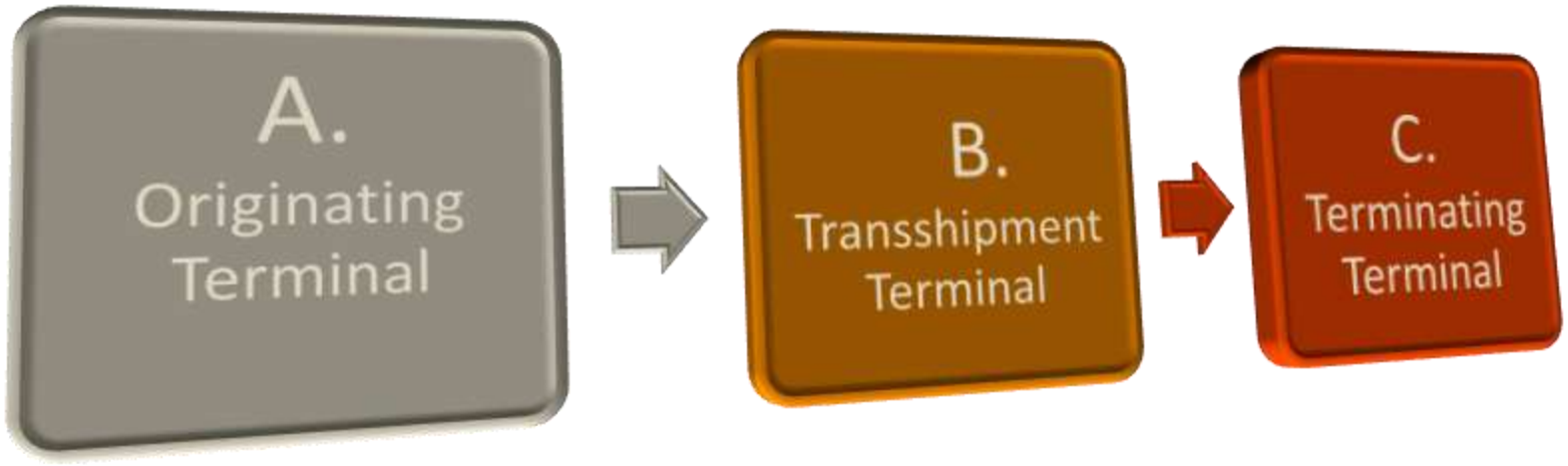
NAIR, Vadodara, 1st March 2017

Multimodal Transport

Multimodalism refers to transportation of goods between two points by more than one mode of transport. This could be by road-rail, road-rail-sea, road-air or any other combination.

The distance over which the goods have to be transported is an important consideration because the characteristics of haulage charges and terminal charges vary widely from mode to mode.

Cost and Efforts Involved



- A to B = Haulage Charges.
- B to C = Haulage Charges.
- At A, B & C = Terminal Charges.
- At A, B & C = Handling Charges.

Multimodal Transport…

After the goods are loaded in a "Multimodal equipment" at the commencement of the journey, they travel across multiple transport modes without any further handling of the goods until the goods reach the intended destination.

The carrier responsible for the entire carriage is referred to as a multimodal transport operator, or MTO.

Multimodal Transport: modal choice criteria

- Cost
- Speed
- Cargo value
- Security & Safety
- Route
- Equipment availability
- Cargo characteristics

Multimodal Transport Advantages

- Cost effective
- Cargo safety assured: no shortage/theft /damage/pilferage - less insurance cost
- Multiple pickup/deliveries: FCL/LCL
- Environmental friendly
- Fuel saving compared to only road transportation
- Provides mostly faster transit of goods
- Single window operation
- Reduces overall transaction cost

Intermodal Transport [IMT] Vs. Multimodal Transport [MMT]

What's Common

- Several Modes of Transport (at least two)
- Likely involvement of different operators for different modes

What's Different

- In MMT, One carrier takes cargo from Customer/Consignor at Origin and arranges to take it to the destination through various modes;
- While in IMT, the consignor has to negotiate/arrange to transport its cargo through different operators of various modes.

Intermodal Transport [IMT] Vs. Multimodal Transport [MMT]

ADVANTAGES

Multimodal Transport

a) Shipment tracking efficiency;
b) Door to door delivery;
c) Access to distant parts of the world;
d) Lower logistics coordination expenses.

Intermodal Transport

a) Likely advantage of lower rates;
b) Choice of selection of modes of transport for optimization in terms of Time and Cost.

Multimodalism & Containerization

- Multimodalism developed with "*Container Revolution*" of 1960s and 70s
- Containerization is the most vital factor of multimodal transportation as it combines consistency of rail, flexibility of road, cost effectiveness of shipping and speed of air transport
- It is important to remember that

  multimodal transport is not equivalent to container transport

Types of Container..

Flatrack	Open side
Open Top	Tank

CONTAINERS..

Container shipping is different from conventional shipping because it uses 'containers' of various standard sizes - 20 foot (6.09 m), 40 foot (12.18 m) , 45 foot (13.7 m), 48 foot (14.6 m), and 53 foot (16.15 m) - to load, transport, and unload goods. As a result, containers can be moved seamlessly between ships, trucks and trains. The two most important, and most commonly used sizes today, are the 20-foot and 40-foot lengths

The 20-foot container, referred to as a Twenty-foot Equivalent Unit (TEU) became the industry standard reference so now cargo volume and vessel capacity are commonly measured in TEU. The 40-foot length container - literally 2 TEU - became known as the Forty-foot Equivalent Unit (FEU) and is the most frequently used container today.

Boxed up and ready to go

Benefits of Containerization

- Reduces transit time through quicker cargo handling & by reducing the number of individual pieces of cargo that need to be handled
- Ensures substantial savings in packaging cost as compared to break bulk shipment
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Benefits of Containerization…

- Obviates the need for covered warehouses as containers can be stored in the open, thereby reducing warehousing cost
- Eliminates the intermittent handling of cargo during transit. Cargo arrives in better condition at destination
- Safety & security - No pilferage and physical damage to cargo

Wagons for Rail Movement:

- Initially, BOX type High-sided Bogie Open wagons were used for Container movement in India.
- Later, BFK and BRN wagons were also used.
- From 2000 onwards, new high speed BLC/BLL and Container flats (BFKN) are being used.
- The present size of the wagon fleet owned by CONCOR's network is around 13386 wagons (Approx.300 rakes)

BLC Wagons:

Features:

- Light weight under-frame with pay load of 61T;
- Speed-100 kmph;
- Slack less draw bars;
- Automatic twist locks (ATLs);
- Load sensing device (LSD);
- Anti-Pilferage device;
- 90 TEUs per train /180 in Double Stack train;
- A single-pipe air-brake system;
- One 40’ or Two 20’ in one wagon.

BLL Wagons :

- Longer wagon than BLC, capable of transporting of 2x22‘ or 1x45' containers
- Similar features as BLC wagons.

Refrigerated Container Train:

- ✓ Refrigerated container movement was introduced in 2004 in India between ICD Tughlakabad and JNPT/NSICT ports.
- ✓ Special power-packs for refrigeration power while train on run.
- ✓ Power-pack serves 12 FEUs (40’)

State of the Art ICDs of CONCOR – Specialised Reefer Movement

Evolution of Containerization in India

- Given the continental distances in India (almost 3000 km from north to south and east to west), rail transport is most cost effective option for cargo transportation over medium and long distances

- Indian Railways (IR) started door-to-door movement of domestic cargo in special DSO containers in 1966

Evolution of Containerization in India…

- In 1981, first ISO container moved by IR to India's first Inland Container Depot (ICD) at Bangalore, managed by IR
- By 1988, the network expanded to 7 ICDs
- Container Corporation of India Ltd (CONCOR) set up in 1988 as a PSU under Ministry of Railways
- CONCOR aimed to develop multimodal logistics support for India's international & domestic containerized cargo & trade

Evolution of Containerization in India…

- CONCOR today has a network of 64 terminals spread over the country.
- CONCOR has three distinct activities - a carrier, a terminal operator and a warehouse operator
- CONCOR's ICDs are dry ports in the hinterland and bring all port facilities including customs clearance to the customer's doorstep

CONCOR Network…

Pure Dom -> 16

Pure Exim -> 13

Combined -> 35

Total -> 64

Evolution of Containerization in India…

- CONCOR provides single-window facility coordinating with different agencies like customs, gateway ports, IR, road haulers, shipping lines, CHAs and forwarders

- In terms of Twenty-foot Equivalent Units (TEUs) handled every year, CONCOR's Throughput has grown tremendously (52,000 TEUs in 1989-90 to 2.92 million TEUs in 2015-16)

Evolution of Containerization in India…

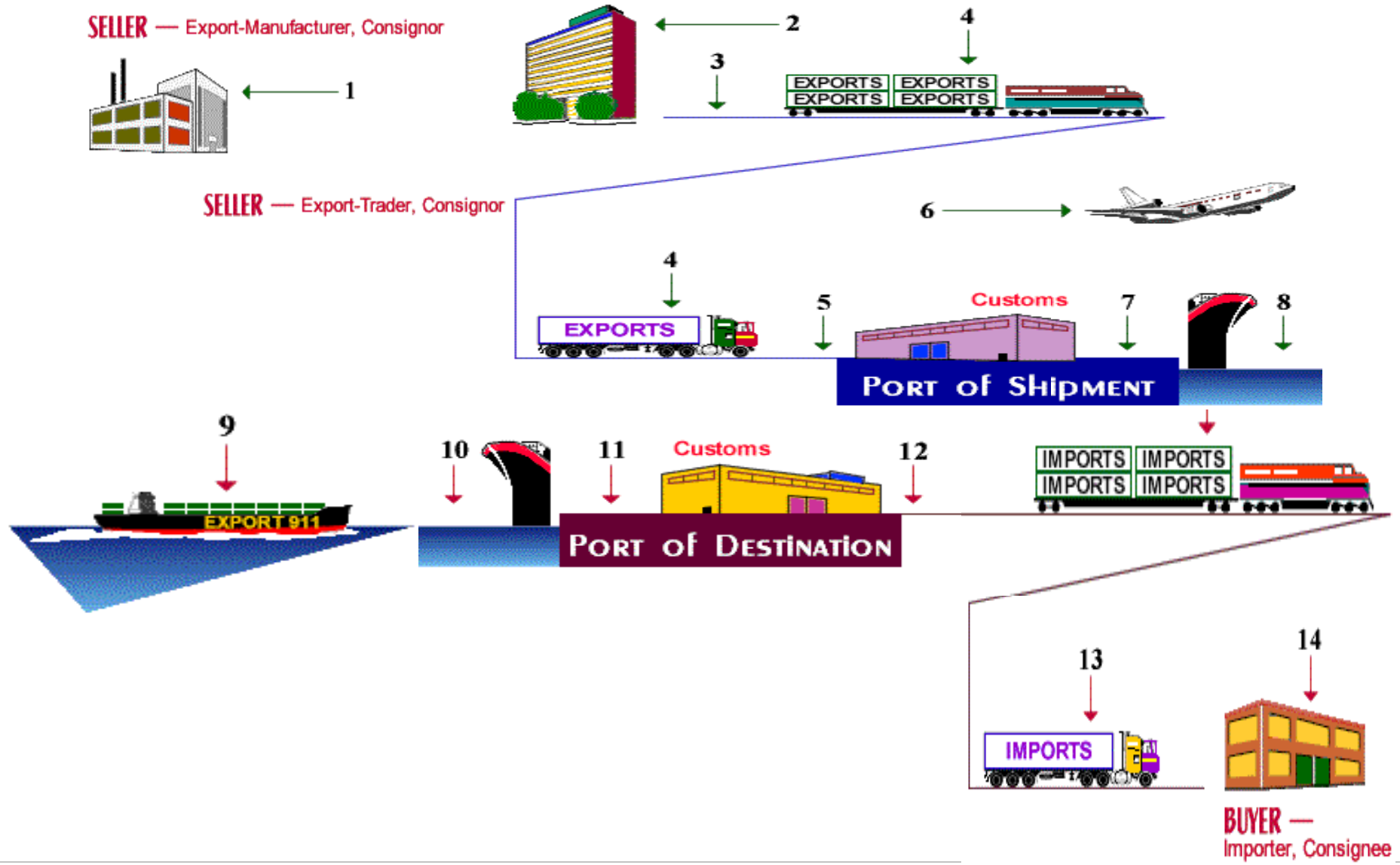
- In Feb 2006, Ministry of Railways granted license to private players to operate container trains
- These companies are expected to invest in rolling stock, ICD and logistics parks
- Apart from CONCOR, 16 container train operators were granted license

Containerization in India: Present status

- India handled 11.53 million TEUs (175 million tons) at all Ports in 2014-15.
- Major ports handled 8 million TEUs registering a growth of **6.71%** (Indian Ports Association).
- **Mundra** and **Pipavav** ports handled **2.64** and **0.79 Million TEUs** registering growth of **14%** and **15.45 %** respectively over the previous financial year.
- Rail share of EXIM containerized traffic between gateway ports and hinterland ICDs was 38.38 million tons (22%).
- Container traffic (48.83 MT) accounted for **4.45% of the IR's freight** basket of 1097.57 MT.
- CONCOR handled 2.92 million TEUs in 2015-16 at its vast network of 64 terminals spread across the Country.

Double Stack Container Rakes..

Typical Journey of a Container....Need of Hubs



Major Ports in ASIA

Busiest Container Ports

Sr. No.	Port	Vol.2014 (Million TEU)		Sr. No.	Port	Vol.2014 (Million TEU)
01.	Shanghai, China	35.29		11.	Rotterdam, Netherlands	12.30
02.	Singapore	33.87		12.	Port Kiang, Malaysia	10.95
03.	Shenzhen, China	24.03		13.	Kaohsiung, Taiwan, China	10.59
04.	Hong Kong	22.23		14.	Dalian, China	10.13
05.	Ningbo-Zhoushan, China	19.45		15.	Hamburg, Germany	9.73
06.	Busan, South Korea	18.65		32.	JNPT, India	4.45
07.	Qingdao, China	16.62			Source data: The Journal of Commerce annual top 50 World Container Ports, Lloyd's List annual Top 100 Ports, AAPA World Port Rankings, Drewry World Container Traffic Port Handling and individual port websites.	
08.	Guangzhou Harbor, China	16.16				
09.	Jebel Ali, Dubai, UAE	15.25				
10.	Tianjin, China	14.05				

Top 15 Exporters of Containerized Cargo

Sr. No.	Port	Vol.2014 (Million TEU)
01.	China	36.0
02.	United States	11.9
03.	South Korea	5.93
04.	Japan	5.28
05.	Indonesia	4.00
06.	Thailand	3.92
07.	Germany	3.32
08.	Taiwan	3.25
09.	India	3.07
10.	Vietnam	2.94

Sr. No.	Port	Vol.2014 (Million TEU)
11.	Brazil	2.88
12.	Malaysia	2.60
13.	Saudi Arabia	2.24
14.	Italy	1.83
15.	Turkey	1.82

Source data: IHS Global Insight, World Trade Service

Top 15 Importers of Containerized Cargo

Sr. No.	Port	Vol.2014 (Million TEU)
01.	United States	19.6
02.	China	14.7
03.	Japan	6.55
04.	South Korea	5.09
05.	Indonesia	3.17
06.	Germany	3.00
07.	United Kingdom	2.64
08.	Taiwan	2.53
09.	Australia	2.52
10.	Vietnam	2.47

Sr. No.	Port	Vol.2014 (Million TEU)
11.	India	2.39
12.	Thailand	2.35
13.	Malaysia	2.33
14.	Brazil	2.32
15.	U. A. E.	2.30

Source data: IHS Global Insight, World Trade Service

Top Trade Routes..

Sr. No.	Route	TEU shipped 2013
01.	Asia-North America	23,125,000
02.	Asia-North Europe	13,706,000
03.	Asia-Mediterranean	6,739,000
04.	Asia-Middle East	5,014,000
05.	North Europe-North America	4,710,000
06.	Australia-Far East *	2,923,279
07.	Asia-East Coast South America	2,131,000
08.	North Europe/Mediterranean-East Coast South America	1,680,000
09.	North America-East Coast South America	1,306,000

Source data: IHS Global Insight, World Trade Service

SERVICES PROVIDED AT TERMINALS

- Train Handling
- Container Storage
- Customs facilitation
- Warehousing of cargo (transit, bonded, LCL etc)
- Associated Value Added Services
- Door to Door Solutions

DETAILS OF MOVABLE ASSETS

- Rolling stock - 300 rakes
- No of Containers -20984
- No of Gantry Cranes - 17
- No of Reach Stackers - 52

Company has been procuring around 750 wagons from IR workshops every year for last 5 years.

CONCOR's Robust IT Systems

- VSAT based network extended over 64 locations
- Terminal Management Systems for
  - EXIM
  - Domestic
  - ERP for Finance & HR
  - Data Warehouse Module for Commercial Applications
- E-Payment of RR to IR through TMS
- Web enabled Customer Feedback
- Facility for e-filing of documents
- Online container tracking on CONCOR system
- KYC (Know Your Container) in some terminals
- SMS based container tracking

Future Ahead: MMLPs (Multimodal logistics parks)

- To harness the potential of development of DFC and expansion of Port capacity
- Value addition centre for cargo
- Just in Time Inventory management for customers
- All facilities at the doorstep of customers
- Synergies between various stakeholders in the logistics chain

Facilities in MMLPs

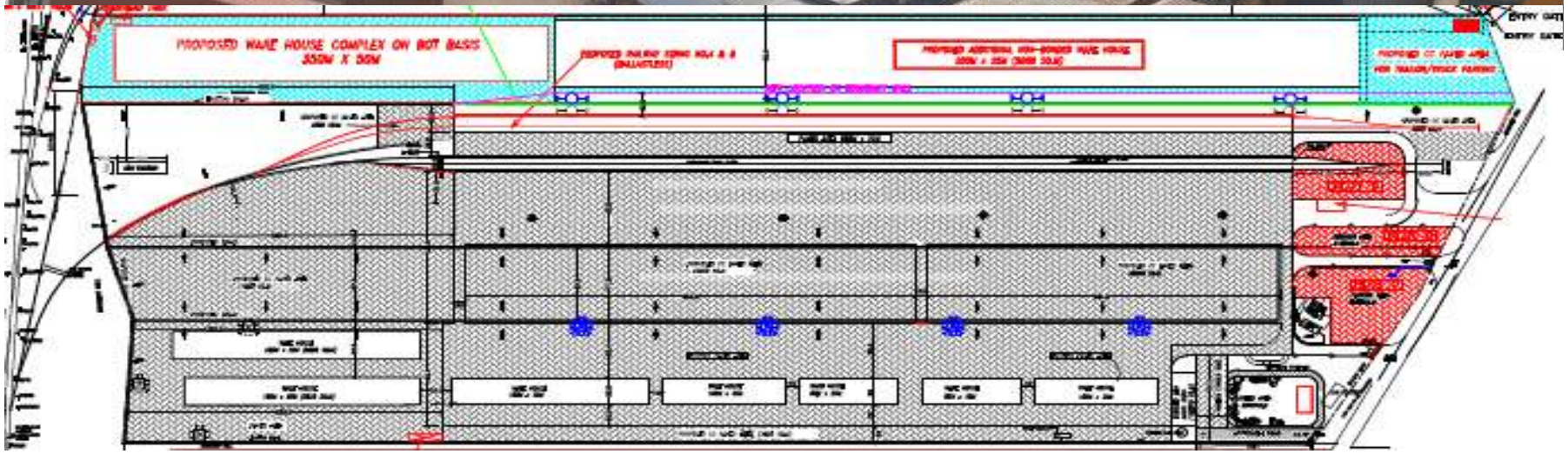
Facilities in MMLPs

- Rail access for container trains for movement in both EXIM and Domestic sectors.
- Inland Container Depot / Domestic Container Terminal facilities
- Warehousing : Transit, Bonded, Cold Chain etc
- Access to Indian Railway freight wagons for loading/unloading of bulk cargo under the PFT policy
- State of art operational and handling facilities like Reach stackers, cranes, Forklift trucks and trailers for internal transfer and local and long distance transportation.
- Fully paved area with separate entry and exit gates with sufficient supply of electricity and water.
- Customized IT application for the state of art facilities of operations and storage.

CONCOR's plans for MMLPs

- Coming up at 15 locations
- Along Western and Eastern DFCs and Feeder Routes
- In Rajasthan, Punjab, Uttarakhand, Andhra Pradesh, Odisha, Maharashtra Tamil Nadu and Uttar Pradesh

MMLP KHODIYAR ....1st MMLP in Gujarat



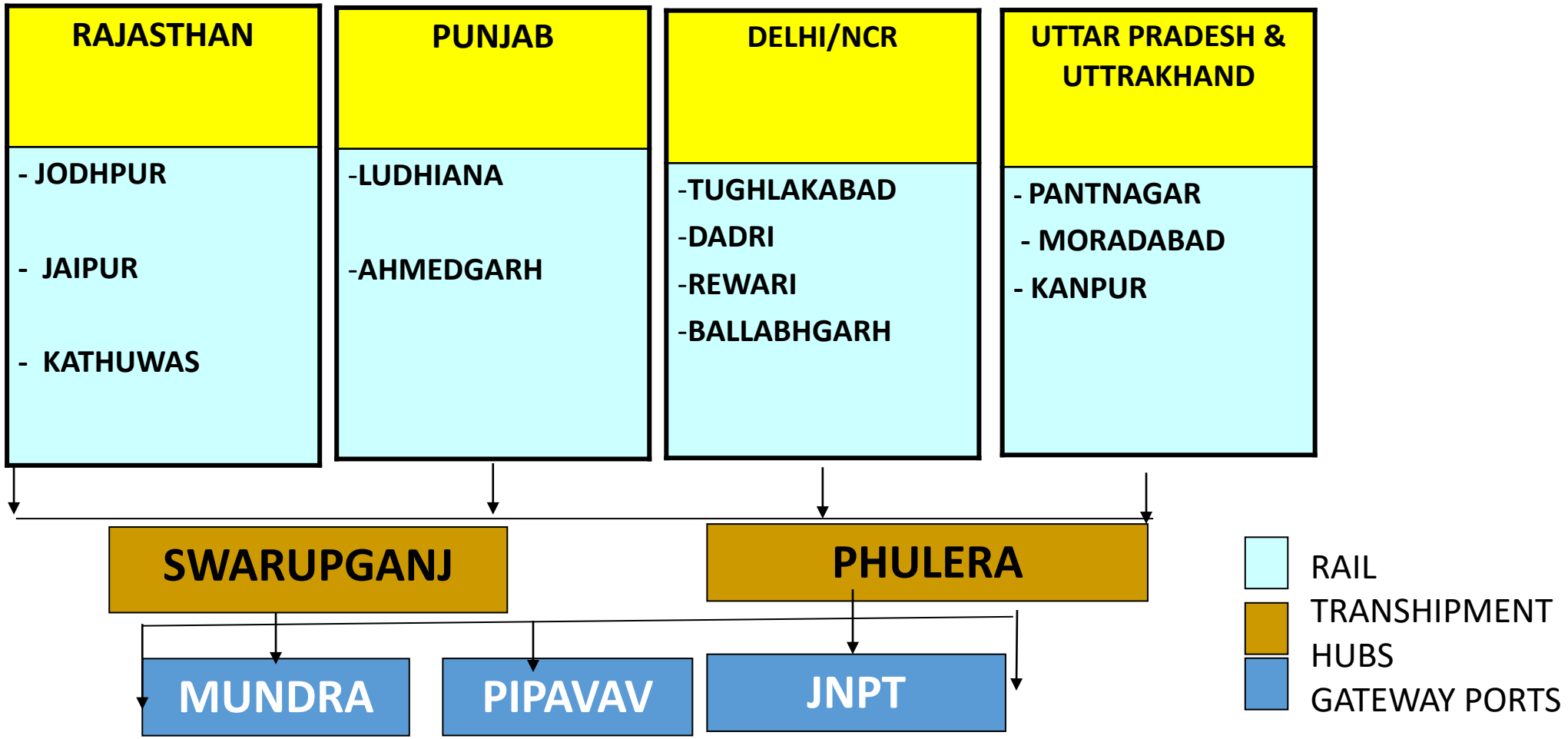
View of Integrated Gate Complex at MMLP, Kathuwas

Warehousing Zone
Multi-modal Logistics Park at Khatuwas, Haryana

Rail Transshipment Hub

- In DFC system trains carrying capacity to quadruple and costs to come down (360 TEUs per train)
- But Aggregation of single origin-destination will become time consuming
- CONCOR developing **R**ail **T**ransshipment **H**ubs for re-aggregation of containers dispatched from Ports and Dry Ports
- **Thereby decongesting the three main western Gateway ports – particularly JNPT**
- **And making services cheaper and quicker for the Customer**
- RTHs planned at **Swarupganj and Phulera** in Rajasthan along Western DFC

RTH – Pictorial Version



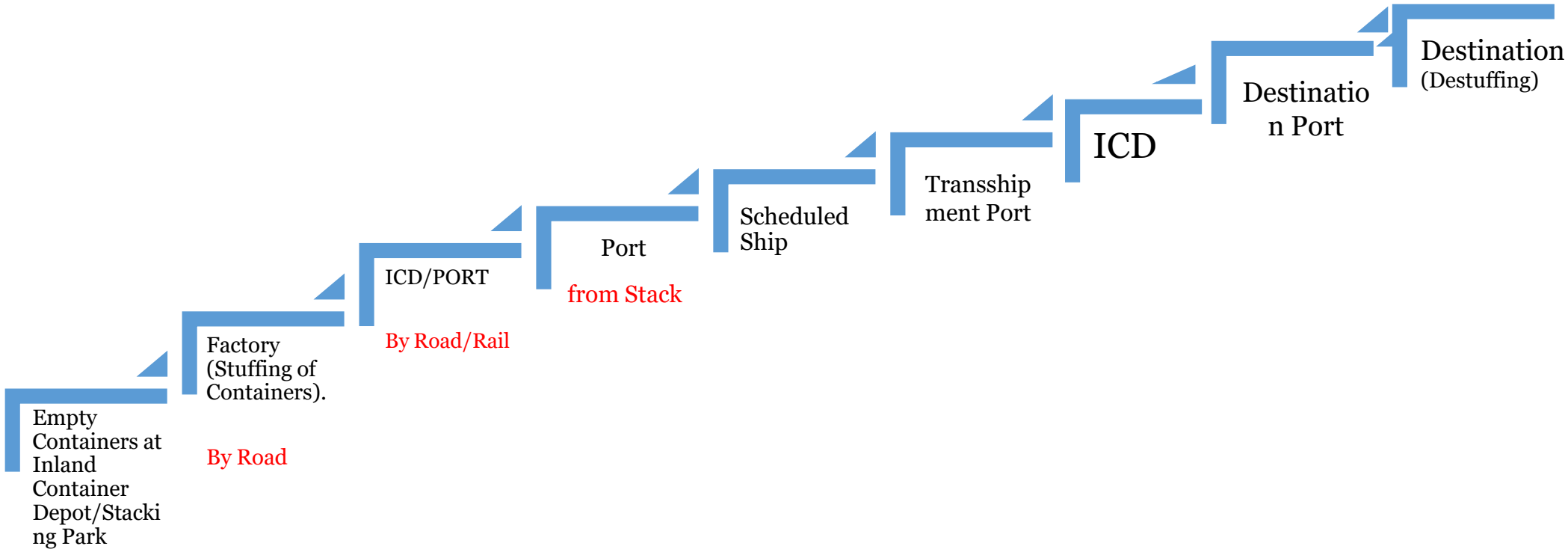
PRES CAP - 3MN
ADDL. CAP – 3 MN

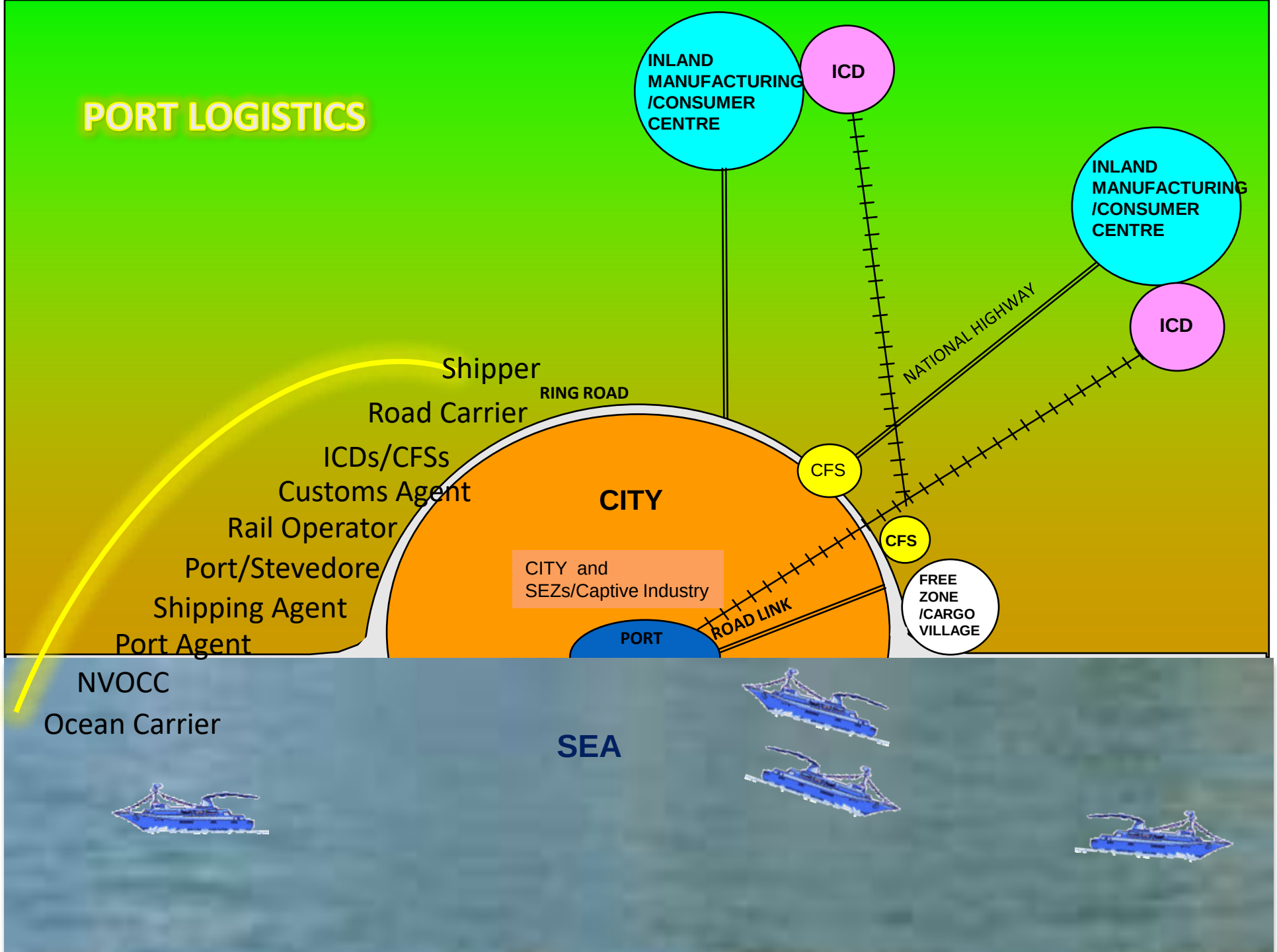
PRES CAP - 0.8MN
ADDL. CAP – 0.5 MN

PRES CAP – 5 MN TEUs
ADDL. CAP – 5 MN TEUs

Thank You..

Typical Journey of a Container....Need of Hubs




PORT LOGISTICS
INLAND MANUFACTURING /CONSUMER CENTRE
ICD
INLAND MANUFACTURING /CONSUMER CENTRE
ICD
NATIONAL HIGHWAY
Shipper
Road Carrier
ICDs/CFSs
Customs Agent
Rail Operator
Port/Stevedore
Shipping Agent
Port Agent
NVOCC
Ocean Carrier
RING ROAD
CITY
CITY and SEZs/Captive Industry
PORT
CFS
CFS
FREE ZONE /CARGO VILLAGE
ROAD LINK
SEA