Port Development and Integrated Inter-Modal Transport in India

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Agenda

- India’s performance on Logistics Performance Index
- Root causes impacting logistics performance in India
- Initiatives undertaken for Port Development (Sagarmala)
- Initiatives undertaken for Integrated Inter-Modal Transport (Bharatmala)
  - Development of Highway Infrastructure
  - Development of Allied Infrastructure
- Key outcomes
Logistics Performance Index (LPI) - India’s performance

India has improved its LPI ranking significantly (19 places) in 2016

India has improved significantly on key aspects of LPI:
- Efficiency of customs & border management clearance – 65 to 38
- Quality of trade and transport infrastructure – 58 to 36
- Competence and quality of logistics services – 52 to 32

1. International LPI score card and ranking
2. LPI reports
Source: World Bank
## Root causes impacting logistics performance

| Unfavorable Intermodal mix | • Higher % of road-based freight movement (~60%) leading to higher costs and emissions  
|                           |   – High rail congestion, pricing and rake booking policies |
| Inefficient fleet mix      | • Unorganized and fragmented nature of transporters  
|                           |   – Nature of consumption & production, and policies related to financing & taxation driving fleet mix |
| Under-developed transport infrastructure | • Lower density of freight carriage ways (4 + lanes) in India  
|                                         |   • Capacity mismatch on road infrastructure and lack of city bypasses/ elevated roads |
| Under-developed material handling infrastructure | • Unorganized logistics parks with limited infrastructure  
|                                               |   • Lack of mechanized material handling facility to enable containerized cargo movement |
| Procedural complexities     | • Complexity in documentation and procedures for interstate movement (relaxed with GST implementation)  
|                           |   • Delays in customs clearance at ports driven by complex documentation requirement (eased up since 2015) |
Key initiatives undertaken to improve Logistics Efficiency

**Development of Infrastructure**

- **Bharatmala Pariyojana** – Development of a network of Economic Corridors and its associated feeder routes to National Highways
- **Corridor approach** to enable consistent infrastructure across the corridor
- **Sagarmala** Program for port development
- Development of **Dedicated Freight Corridors** by Railways

**Development of allied infrastructure**

- **Multimodal Logistics Parks** to enable efficient intermodal freight movement
- **Land Ports** to enable land trade with neighboring countries
- Development of **National Waterways** to enable ecological & economical freight movement
- Development of **Inter Modal Stations** for passengers

India has made significant progress in logistics infrastructure development with keen focus on highway projects, MMLPs & freight terminals.
Initiatives undertaken for Port Development
The Sagarmala vision

Reducing the cost of transporting domestic cargo through optimizing modal mix

Optimizing time/cost of EXIM container movement

Reduction of logistics cost for EXIM and domestic trade with minimal infrastructure investment

Lowering logistics cost of bulk commodities by locating future industrial capacities near the coast

Improving export competitiveness by developing port proximate discrete manufacturing clusters
Sagarmala Programme: Vision and Overview

“The reduction of logistics cost for EXIM and domestic trade with minimal infrastructure investment”

Port-led Development

Port Modernisation
- Capacity augmentation
- New ports
- Efficiency improvement

Port Connectivity
- New road / rail connectivity
- Up-gradation of roads / railway
- Coastal Shipping
- Inland water transport
- Logistics

Port-led industrialisation
- Industrial clusters
- Coastal Economic Zones
- Maritime Clusters

Coastal Community Development
- Skill development
- Coastal tourism projects
- Development of fishing harbors, fish processing centers

Potential logistics cost savings of USD 5.3 to 6.1 billion per annum by 2025
# Key enablers and initiatives for port-led development

## A. Port Modernization
- Improve operations efficiency and augment capacity of major ports
- Develop 5-6 new ports to cater to cargo traffic growth and reduce logistics cost
- Develop an international transshipment terminal

## B. Port Connectivity Improvement
- Increase coastal shipping volumes of key cargo – E.g. Coal, Steel, Cement, to reduce logistics cost and decongest rail and road network
- Eliminate process bottlenecks to reduce container logistics time and cost

## C. Port-led Industrialization
- Port led development of heavy industries – E.g. cement and steel clusters, to leverage coastal shipping for moving raw materials and finished products
- Port led discrete manufacturing to reduce end to end container logistics cost; CEZ development

## D. Coastal Community Development
- Create human capital for port-led industrial development through coastal community skill development and livelihood generation programs
- Create community development fund to ensure sustainable development
Port connectivity enhancement projects under Sagarmala

Key projects

- 3 new pipeline projects
- Heavy Haul Rail Corridor / Cord line to connect Talcher to Paradip port
- DFC spur lines
- 10 new freight expressways
- 100+ road and rail connectivity projects
- 5 priority National Waterways
- 16 Multi-Modal Logistics Hubs
Port-led Industrialization: CEZs and Industrial Clusters

16 Bulk and 13 discrete manufacturing clusters proposed in 14 CEZs
### Port connectivity enhancement projects under Sagarmala

<table>
<thead>
<tr>
<th>Rail Connectivity</th>
<th>86 Rail connectivity projects (USD 10.19 billion; 6,934 Km) have been identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Connectivity</td>
<td>97 Road connectivity projects (USD. 25.632 billion; 8,523 Km) have been identified</td>
</tr>
<tr>
<td>Multi-Modal Logistics Parks</td>
<td>16 MMLPs / Inland Container Depots (USD 586 million) have been planned</td>
</tr>
<tr>
<td>Pipeline Projects</td>
<td>2 crude oil pipeline projects (USD 230 million) under implementation and 1 product pipeline project in design phase (USD 460 million)</td>
</tr>
<tr>
<td>Inland Waterways</td>
<td>Development of 6 National Waterways (USD 1,371 million, 3,104 Km) is planned, development of 2 waterways has started</td>
</tr>
</tbody>
</table>
Coastal Shipping and Inland Water Transport
Sagarmala objectives

- Modal share of coastal shipping and inland waterways is currently low.
- Cost per tonne-km of moving cargo by coastal shipping or inland waterway routes can be 60-80% lower than by road / rail.
- Modal shift can help reduce the transport and logistics cost for domestic and EXIM freight.

Double the share of coastal shipping and inland waterways in India’s modal mix by 2025.
Coastal Shipping and Inland Water Transport
Traffic Potential

Potential of approx. 220 MTPA (Million Metric Tonnes Per Annun) identified

- Existing - POL, Steel, Cement, Fertilisers: 51
- Existing Coal: 27
- Others: 8
- Total Existing: 86
- Additional - POL, Steel, Cement, Fertilisers: 100
- Additional Coal: 30-35
- Total: 216-221

MTPA, 2025

Existing (2015)
Additional
Development of 111 National Waterways

Pictorial representation of 5 major National Waterways in India

- **NATIONAL WATERWAY 1**
  - River Ganga
  - Length (KM): 1,620

- **NATIONAL WATERWAY 2**
  - River Brahmaputra
  - Length (KM): 891

- **NATIONAL WATERWAY 3**
  - Kollam-Kottapuram Stretch of Canals
  - Length (KM): 205

- **NATIONAL WATERWAY 4**
  - Kakinada-Puducherry Stretch of Canals
  - Length (KM): 1,078

- **NATIONAL WATERWAY 5**
  - East Coast Canal
  - Length (KM): 1,078
Initiatives undertaken for Integrated Intermodal Transport
Bharatmala Pariyojana

**Bharatmala** - a unique identity and imprint like the Golden Quadrilateral. An umbrella programme with focus on:

- Re-defining road development through improved effectiveness of already built infrastructure
- Multi-modal integration
- Bridging critical infrastructure gaps hindering seamless movement of goods and passenger traffic
- Addressing Road Safety
- Integrating National and Economic Corridors
## Components of Bharatmala Pariyojana

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Total Length (km)</th>
<th>Upgrade Req. in Phase I (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic Corridors development</strong></td>
<td>Connection of economically important production &amp; consumption centers</td>
<td>26,200</td>
<td>9,000</td>
</tr>
<tr>
<td><strong>Inter-corridor and Feeder routes development</strong></td>
<td>Inter-connection between economic corridors, first mile &amp; last mile connectivity</td>
<td>15,500</td>
<td>6,000</td>
</tr>
<tr>
<td><strong>National Corridors Efficiency Improvement</strong></td>
<td>Lane expansion, de-congestion of existing National Corridors</td>
<td>13,100</td>
<td>5,000</td>
</tr>
<tr>
<td><strong>Border and International Connectivity Roads</strong></td>
<td>Connectivity to border areas and boosting trade with neighboring countries</td>
<td>5,300</td>
<td>2,000</td>
</tr>
<tr>
<td><strong>Coastal and Port Connectivity Roads</strong></td>
<td>Connectivity to coastal areas to enable port-led economic development</td>
<td>4,100</td>
<td>2,000</td>
</tr>
<tr>
<td><strong>Expressways</strong></td>
<td>Greenfield expressways</td>
<td>1,900</td>
<td>800</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>66,100</td>
<td>24,800</td>
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Multi-Modal Logistics Parks: Concept

**Current Situation**
Point-to-point freight movement

**Future Situation**
Hub-and-spoke model freight movement

**Logistics Park will enable**
Freight aggregation & distribution
Multimodal freight movement

**Services Logistics Park will provide**
Storage and warehousing solutions
Value Added Services (custom clearance, etc.)
Logistics parks locations have been prioritized based on 5 parameters...

- Road freight movement at nodes within a radius of ~50 km
- % of freight moving from/to major ports
- Total road freight movement
- # of NHDP NH passing through node
- Proximity to Railway Dedicated Freight Corridor
- Presence of double line (or higher) railway network
35 MMLPs have been planned under Bharatmala Pariyojana
Salient Features of Multi-Modal Logistics Park

Methodology for conceptual design

- Nature of commodity flowing at a particular location
  - Freight handled
  - Typical days of inventory
  - Peak load
  - Density (area required per T)
  - Buffer area for future development

- Commodity specific storage conditions

- Commodity specific handling equipment

Storage area by commodity

- Intermodal area
- Road network
- Service area
- Others

Storage area by commodity type:
- Regulated
- Covered
- Indoor/shed
- Outdoor

Handling equipment:
- Crane
- Forklift
- Timer racks
- Pallet rack
- Lift truck
Intermodal Stations for Passenger Movement

IMS are designed to facilitate smooth inter-modal transit & provide world class amenities to inter-city passengers

Transit nature of Inter-city Passenger movement (e.g. for Nagpur)

- Nagpur is either origin or destination
- Commuters to Nagpur

<table>
<thead>
<tr>
<th>Nature of Transit</th>
<th>Nagpur is origin</th>
<th>Commuters to Nagpur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>First Time</td>
<td>41%</td>
<td>28%</td>
</tr>
<tr>
<td>Few times a month</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Few times a week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Everyday</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| ~30% passengers transit through Nagpur, of which, ~60% are high frequency travelers

Concept of IMS

- Large, state-of-the-art facility
- Integrates bus, rail, metro, inland waterways & other modes

Advantage of IMS

- Combined facilities for Rail & Road passengers
- Reduction in costs & Increase in footfalls
- Easy transit between rail & bus terminals
- World-class amenities like airports

Passengers transiting via Nagpur while traveling from one city to another
15 cities have been shortlisted for development of IMS

Criteria for Shortlisting

- Target passengers (e.g. population)
- Current Passenger demand (rail & road)
- Connectivity by rail & road
- City infrastructure (e.g. Ring roads, MRTS)
- No competing Infrastructure
- Availability of satellite railways stations

DPRs for IMS at Nagpur & Varanasi in final stage

Legend

- Pilot Projects
- Next 13 cities
19 land ports identified to facilitate cross-border cargo and passenger movement

- **Cargo facilities**
  - Storage (warehousing/parking)
  - Testing & Inspection (basic inspection, testing labs, quarantine facilities, impoundment area)

- **Passenger amenities**
  - Passenger terminal
  - Currency exchange bureau
  - Internet
  - Clearing agent banks
  - Body scanners
  - CCTV/PA system

- **Procedural enhancements**
  - ICT enablement
  - Single window clearance
  - Extended operational hours
  - Dedicated lanes

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1. ICP – Integrated Check Post
2. LPAI – Land Ports Authority of India

Locations where site visits have been conducted are marked in bold

18 locations planned for ICP development across BBIN corridor by the LPAI
Key Outcomes
Key outcomes envisaged from various initiatives

- Modernisation and capacity enhancement of existing ports

- Reduce India’s Logistics cost as a % of GDP from 14% to 8-9% of GDP through development of requisite infrastructure

- Improve the inter-modal mix of freight movement through improving share of railways and waterways in freight movement

- Boost manufacturing and make domestic goods more competitive in the International market

- Significantly improve India’s LPI ranking
Thank you
National Corridor Efficiency Enhancement Program

NCEEP components:

- **6 Laning** of National Corridors (GQ and NS-EW)
- **Decongestion** of key nodes through bypasses, ring roads
- Development of **Multimodal Logistics Parks**, to enable efficient freight movement

Improve the efficiency of National Corridors by consistent laning, removing choke points and developing Logistics parks
Economic Corridor Efficiency Enhancement

ECEEP Components

- Identified **44 corridors** (~26,200 kms) connecting economically important nodes
- Consistent 4+ lane infrastructure
- Allied infrastructure (Way side amenities, city bypasses, etc.)

Economic corridors need to be developed using a corridor based approach to reduce logistics cost

1. In NTKM: Based on OD Study conducted by RITES
2. More than 1 Million MT per annum
Last Mile Connectivity: Inter-corridor and Feeder routes

Inter-corridor Routes
• 8,400 km of Inter corridor routes connecting 2 or more corridors

Feeder Routes
• 7,600 km of shorter Feeder routes for first / last mile connectivity

Network of National corridors, Economic corridors, Inter corridor & Feeder routes expected to cater to 80% of road freight movement
Coastal and Ports Connectivity

Development of coastal roads will enable Port-led development

- ~2,100 km coastal roads to boost tourism, industrial development
- ~2,000 km to be built for port connectivity
- Connectivity to ports, Coastal road development in conjunction with Sagarmala
International Connectivity Roads

Inter-country trade to be facilitated by infrastructure in border points of trade movement

- **BBIN**: ~2,000KM road upgradation to improve connectivity to neighbors
- **Linking BBIN and IMT & tie with Asian Highway**
- **24 ICP¹'s to facilitate trade**

Note: (1) ICP – Integrated Check Posts
Proposed Management Model for MMLPs

Special Purpose Vehicle (SPV)

State Government

- Land ownership – Equity share in JV proportionate to land cost
- Facilitating approvals from state departments

Central Government Agencies

- Trunk Infrastructure (Road + Rail)
- Site development
- Techno commercial assessment (DPR)
- Coordination with stakeholders (Railways)
- Bidding process for concessionaire

Private developer

- Construction and operation of the Logistics Park
- Fixed rental to the SPV (State Government + Central Government)
- 30 year concession period + right of first refusal for 30 more years

Marketing the infrastructure to get investors
IMS play a key role in aiding city de-congestion & integrate with intra-city modes

Inter-modal stations decongest cities by:

1) Limiting inter-city traffic movement
2) Eliminating inter-city transit movement
3) Enhancing integration with intra-city modes
Master Plan  IMS Nagpur

- 5 STAR BUSINESS HOTEL
- 3 STAR HOTEL
- RETAIL
- COVERED PLATFORMS
- RAILWAY STATION
- ISBT
- CITY SIDE
- F.O.B.
- OLD FLYOVER
- NEW FLYOVER
- BUDGET HOTEL
- ICONIC COMMERCIAL TOWER
- METRO STATION