Linking the Logistics Dots

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Infrastructure & Logistics .... well known facts

- Efficient, cost effective and energy friendly transportation & connectivity are vital enablers to the economic advancement of a nation.
- India requires an integrated and well-coordinated approach to achieve optimum efficiencies in multi-modal transportation of goods – by Rail, Road, Air & Waterways.
- Most of India’s logistics infrastructure is unplanned, unstructured and piecemeal – not part of a larger national blueprint; woefully inadequate to meet demands of new production centers and burgeoning consumption hubs across the vast hinterland.
- Critically important to reduce Logistics costs and improve competitiveness of Indian goods at a global level. INR 1 saved in Logistics cost has a much greater impact on profitability than INR 1 increase in Sales.
- Logistics cost in India is among the highest in the world, around 13% of GDP, against <8-10% in the US and Europe.
- Poor logistics infrastructure costs the Indian economy extra USD 45bn or 4.3% of GDP/year, of which two thirds are hidden costs of theft, damage, higher inventory holding costs, facilitation & transaction costs (McKinsey Report: Building India, Transforming the nation’s logistics infrastructure).
Freight Transport in India is dominated by Road

**Two-thirds of this is from coastal shipping and one-third of this is on inland waterways mainly the Yangtze river**

Source- World Economic Forum; China Statistic Yearbook; Planning Commission India; NHAI; Indian Railways; DG, Shipping; Bureau of Transportation Statistics US; McKinsey
IOCL example ........

- IOCL moves material in bulk form (bags) in 250 trucks/day from Panipat in North India to Chennai area in South India.
- Containerization and cost-efficient North-South rail connectivity or movement via rail to Mundra port and onward to Chennai via coastal shipping would result in significant reduction of CO2 emissions.
- But road remains preferred mode due to lower cost and better first - last mile connectivity.

(Road transport emits 84g of CO2 equivalent per ton-km compared to 28g for railways and 15g for waterways – McKinsey Report, Building India, Transforming the nation’s logistics infrastructure).
Containerization, both domestic & international, has had a significant impact on global trade

As per findings of research conducted by The Economist, “In a set of 22 industrialized countries, Containerization was attributed to a 320% rise in bilateral trade over the first five years after adoption and 790% over 20 years. By comparison, a bilateral free-trade agreement raises trade by 45% over 20 years and GATT membership adds 285%”.

- Volume share of container trade within global trade increased from less than 5% to about 15% in 2012.

- Global container traffic volumes increased from 38.86 mil TEUs in 1980 to 586.21 mil TEUs in 2012, at a CAGR of about 8.5%, compared with a global real GDP CAGR of 2.6% for the same period.

Source: UNCTAD, The Economist, Frost & Sullivan research
Key Benefits of moving cargo in Containers - Containerization is the use of standardized intermodal containers for freight transport and is the single most important development in the evolution of multimodal logistics.

- Easy to transport by multiple modes (intermodal).

- Easier to stack, store and shift across modes.

- Enables rapid loading and unloading of large volumes of cargo.

- Higher safety of goods from damage, theft and weather changes.

- Bigger parcel size of goods; more cargo reaches destination at the same time.
International cargo drop at North India inland container depots (cargo converted from rail to road for direct port clearance)

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<th>Apr-Oct’15</th>
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<td>0</td>
<td>8621</td>
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<td><strong>Total</strong></td>
<td>249671</td>
<td>352199</td>
<td>601870</td>
<td>228127</td>
<td>340865</td>
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</table>
Massive Increase in Carbon Dioxide Emissions

- Road movement dominates domestic freight traffic, despite moving in bulk form over long distances – even though it is globally accepted that rail and waterways provide better economic and environment friendly options.

- Shift in North India container volumes from Rail to Road released 1,25,000 tons of additional carbon dioxide in the atmosphere, in the last 8 months alone.

- If the trend continues, North India will suffer from unwarranted release of 200,000 tons of carbon dioxide in the next 12 months.

- If extrapolated to container trains moving on all railway routes which have been affected, the total emission will be in excess of a million tons per annum.

(EXIM data for 8 months, source ICDs, assumption: cargo shift from rail to road)
Road Rules ....... Why?

- Low entry barrier
- Poor supporting infrastructure in rail, coastal, inland waterways, including last mile access
- Monopoly of Govt in rail sector
- Investment in highways and easy access of trucks to standalone ‘godowns’ which act as logistics warehouses
• Per metric ton rail freight unfavorable despite reduced diesel costs.
• Rail impacted by capacity issues and uncertain transits.
• Customers have more control and visibility to their cargo in road movement.
• Easy availability of trucks as compared to uncertain rail movement.
Danger of over dependence on Roads

- Congestion on roads in urban areas due to trailers/truck movement - more road accidents.
- More land required for long term road expansion.
- Economies of scale achieved through Coastal Shipping will be lost if cargo moves by road from hinterland to Coastal Ports.
- Environmental degradation.
“We all tend to concentrate on taking corrective actions that we know how to take, not necessarily concentrating on the problems we should correct and the actions needed to correct (them).”

- Eliyahu Moshe Goldratt

(Israeli physicist and business management guru)
We need a spider web of Inter-Dependencies
Opportunity to Create & Build

- Much of India’s logistics network is unrealized, yet to be built – huge opportunity to create an optimal infrastructure base – at a national level.
- Logistics infrastructure must be like a spider’s web of inter-dependencies of various modes (road, rail, air and transportation by water).
- Roads and Rail in India are congested and overburdened. It is time to invest heavily in national waterways - Coastal Shipping and Inland Waterways as alternate modes of transportation.
Huge coastline of 7516 kms - 13 major ports, 200 notified & intermediate ports.

Movement by water is cheaper, safer, lowest carbon emissions.

Larger parcel size of movement as compared to road and rail.

Development along rivers, coastal regions – improved economy, increased employment.
Coastal Shipping – Cost & Fuel Efficient

<table>
<thead>
<tr>
<th>MODE</th>
<th>OPERATING COST (INR/Ton km)</th>
<th>FUEL EFFICIENCY (Ton km/Litre)</th>
</tr>
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<tbody>
<tr>
<td>Water</td>
<td>0.75</td>
<td>105</td>
</tr>
<tr>
<td>Rail</td>
<td>1.18</td>
<td>85</td>
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<tr>
<td>Road</td>
<td>1.51</td>
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# Comparison between IWT, Rail and Road

<table>
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<tr>
<th>Parameters</th>
<th>IWT</th>
<th>Rail</th>
<th>Road</th>
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<tbody>
<tr>
<td>Energy efficiency: 1 horsepower (HP) can move what weight of cargo (kg)?</td>
<td>4,000</td>
<td>500</td>
<td>150</td>
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<tr>
<td>Fuel efficiency: 1 litre of fuel can move how much freight (ton-km)?</td>
<td>105</td>
<td>85</td>
<td>24</td>
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<tr>
<td>Inter Modal Comparative Operating costs (Rs./ton-km)*</td>
<td>1.06</td>
<td>1.41</td>
<td>2.58</td>
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<tr>
<td>Equivalent single unit carrying capacity</td>
<td>1 barge</td>
<td>15 rail wagons</td>
<td>60 trucks</td>
</tr>
<tr>
<td>Air pollution</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Land acquisition</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Capital required</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

*Inclusive of taxes

Note: the information is for indicative comparison only
Source: IWAI, KPMG in India analysis

IWT is an energy and fuel efficient mode of transport with relatively low operating costs and less negative effects on the environment...
Integrated national logistics platform & balanced modal network – crucial for success of ‘Make in India’
‘Make in India’ – our initiative for sustained global economic success.
Expected to push Indian GDP growth from services to manufacturing, make Indian exports competitive, get a larger share of world trade, create employment, achieve economic prosperity.
Crucial to create a logistics platform which integrates into global supply chains and infrastructure facilities.
High logistics cost will wipe out gains of low production cost.
India’s network of roads, rail and waterways are totally insufficient to help us leapfrog into next-generation trade competitiveness.
Imperative we have a national logistics blueprint, which builds on existing assets and capabilities, plans a decisive and robust intermodal infrastructure network – and most importantly – rapidly pushes the agenda towards implementation.
Looking Ahead

In 2015, Ministry of Shipping released guidelines to implement a financial scheme incentivizing some portion of cargo, now carried by rail and road, to shift to coastal shipping & inland waterways, to ensure transportation by water becomes an integral part of the country’s logistics chain.
Implementation of Goods and Service Tax (GST)

Due to multiple and differential state-level taxes, companies are forced to set up multiple warehouses across states to reduce associated taxation leading to higher intra-state movements, higher inventory carriage and storage costs. GST is expected to be the taxation gamechanger, allowing for hub-and-spoke models of warehousing (large hubs in key locations, with smaller spoke warehouses nearer to production and consumption centers). Can take India into next-generation warehousing model, comparable to global best in class warehousing industry.
Benefits of Dedicated Freight Corridors

- Significant increase in average speed of freight trains, volumetric capacity per wagon and throughput per train.
- Scheduled arrival-departure of trains (crucial aspect of effective supply chain solutions).
- Induction of modern technology in maintenance and train operations.
- Low operating cost.
- GREEN DFC – expected to save 457 million tons of CO2 over 30 years. *(Source: Report on ‘Green House Gas Emission Reduction Analysis for DFC’ by Ernst & Young).*
Positive impacts of DFC

- Direct & indirect generation of employment and upgradation of skills.
- Capacity released on Indian Railways can be used to augment and speed up passenger services.
- Decongestion of major highways.
- Development of ancillary industries (equipment and construction machinery, electrical, signaling, telecom).
- Industrial hubs (DMIC on western corridor between Delhi & Mumbai; industrial corridor on east between Amritsar and Dankuni).
Delhi Mumbai Industrial Corridor

A mega infra-structure project of US$ 90 billion with financial & technical assistance from Japan, covering a length of 1483 kilometers, between the political capital and the business capital of India, Delhi & Mumbai. Expected to create Smart Cities, global manufacturing & trading hubs. Will provide major impetus to high capacity transportation & logistics hubs across at least 6 mega investment centers.
India stands at the cusp of a historic opportunity to become a global leader in manufacturing, to create jobs and upgrade skills, to bring unimagined economic prosperity to regions starved of development, to take center stage in the global economic arena – much of this can be accomplished through a well integrated logistics infrastructure development plan – at the national level. We look forward to better days and many better tomorrows ........ Thank you!