

Background Paper for Seminar

on

**Enhancing Foreign Trade Competitiveness
through Logistics Efficiency**

By

Cygnus Business Consulting and Research

For

CII

Andhra Pradesh

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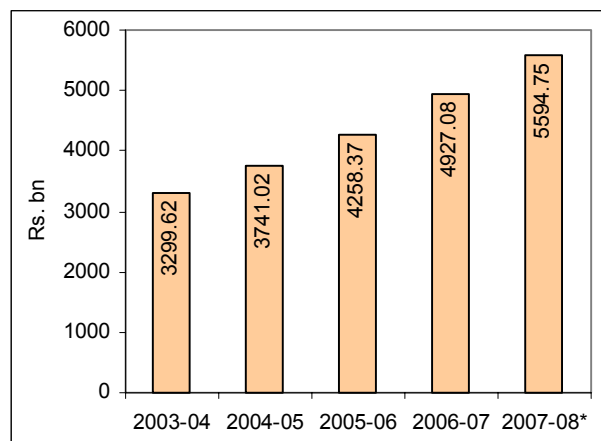
1. Overview of Logistics Industry in India

Logistics is fundamental to the performance of the economy and is crucial in matching the production of goods to the industrial demand (as inputs) and households (as private consumption). Logistics activities represent a substantial value added economic process. The competitive supply of logistics services is also a critical to contributing to efficient and effective industrial activity through innovative logistical solutions and reducing the cost of goods and services to households. The major logistics functions for the Indian industries include transportation, warehousing, freight forwarding and other value-added operations like Management Information Systems (MIS). Of these functions, transportation and freight forwarding have been traditionally outsourced to external service providers with relevant expertise and infrastructure. Apart from the traditional transport service providers who provide transportation services to the industry, the fast emergence of 3PL and 4PL which provide end-to-end logistics solutions indicates that companies are leaving the logistics functions to the experts and focus on their core competencies. The warehousing and MIS functions have been mostly managed in-house by the industries. The spread of organised retail industry necessitates the specialised logistics functions like specialised transportation like refrigerated vehicles, operation of hub and spoke model for distribution, JIT logistics, etc. Therefore, deliver the right product at the right time, at the right place and at the right cost helps to achieve better logistics efficiency. The logistics performance or efficiency can be measured from the cost, time and service quality.

1.1 Logistics Industry Scenario

Logistics cost in India is estimated to be around 13% (Rs5,594.75 billion) of the GDP in 2007-08, which is comparatively higher than the developed economies like the US (9.5%) and Japan (11%). Logistics cost is estimated at 16% of GDP in South Korea, 18.4% in China and 25% in Vietnam during 2007. The manufacturing sector is major sector which creates majority of logistics demand. China's logistics cost is much higher than India's; however, China's manufacturing sector

Fig 1: Spending on Logistics in India during 2003-04 to 2007-08



Source: MOSPI, Cygnus Research

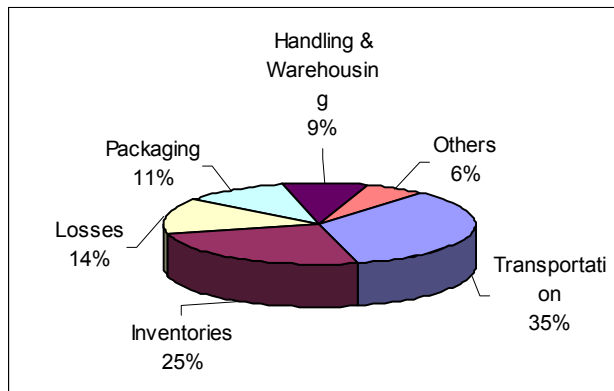
constitutes 48.3% of GDP (2007) against India's 25.02% in 2007-08, therefore, India's logistics spending is proportionately higher compared to China's logistics spending. The reasons for this high spending can be attributed to the poor infrastructure facilities, highly fragmented Indian logistics

market with small local players dominating the supply chain landscape, system inefficiencies, fleet related constraints, lack of implementation of Information Technology (IT) in logistics and frequent checks-ups at national highways and at interstate borders by the police, RTA and tax authorities and other regulatory issues that eventually led to increase the transportation time and costs. India's logistics industry is dominated by the unorganised players; unorganised sector constitutes around 85% in the Indian logistics industry.

1.2 Logistics Cost Composition Analysis

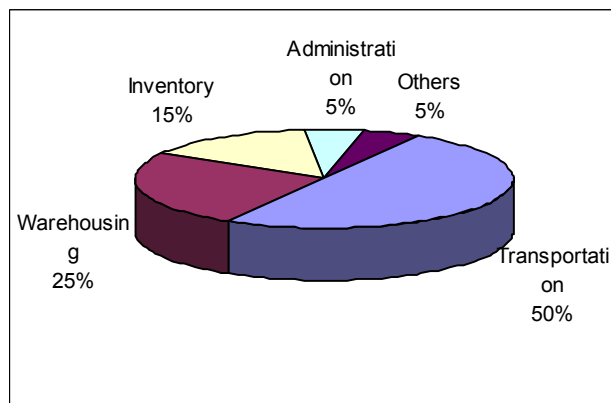
Transportation cost (35%) constitutes major part of the logistics cost, followed by inventory cost (25%), on an average. In some cases, the transportation costs may even go up to 80%, in the absence of some of the logistics functions like warehousing or inventory costs. Globally, transportation cost accounts for 39% of the total logistics costs, followed by warehousing cost 27%, inventory cost (24%), order processing cost (6%) and administration cost (4%). In USA, transportation cost constitutes 50% of total logistics costs (Figure 3), followed by warehousing cost (25%) and inventory cost (15%). The administration costs and other costs constitute 5% each of total logistics cost.

Fig 2: Elements of Logistics Costs in India (%)



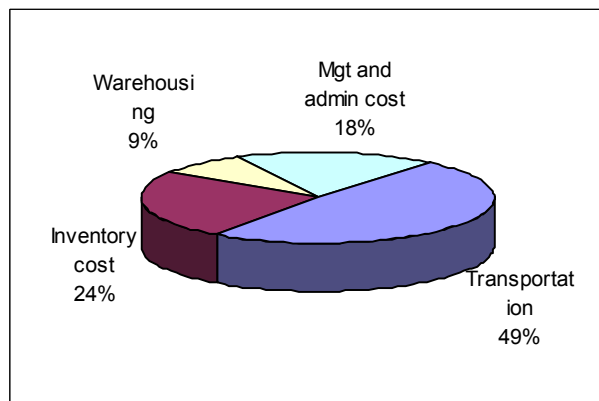
Source: Edelweiss Research, Cygnus Research

Fig 3: Elements of Logistics Costs in USA (%)



Source: United Supply Chain Group, Cygnus Research

Fig 4: Elements of Logistics Costs in China (%)



Source: Li & Fung Research Centre and Cygnus Research

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In china, transportation cost is estimated to constitute 49% of total logistics cost, followed by inventory carrying cost (24%), management and administration cost (18%) and warehousing cost (9%) as indicated in Figure 4.

High transportation costs in India can be attributed to higher and rising freight costs, rising fuel costs, bad transport infrastructure restricting the maximum distance covered per day by commercial vehicles, restrictions on overloading delays due to inefficient port systems, high cess and tolls in highways and old fleet. Carrying cost of inventory (25%) ranks next in the list, mainly due to excess layers of inventory, high proportion of stock-in-transit, improper planning and low adoption of new technologies. Handling and warehousing costs constitute 9% of the total logistics cost, apart from 11% of packaging costs. Higher warehousing costs can be attributed to factors like non-existent warehouse standards, no standards for suppliers, little vendor compliance, less IT applications, less warehouse space availability, etc. Other costs such as losses and insurance costs account for a huge 10-30% of total logistics cost. Poor quality of roads, poor logistics service quality, poor packaging quality leads to losses during logistics and contribute 14% of total logistics cost. Total logistics activities make up 15-20% of finished product costs in India as against 6.9% in USA and 20% in China. Table 1 provides comparative view of the logistics cost components in India, USA and China.

In India, logistics cost in automobiles industry accounts for 2-3% of sales on an average whereas in auto components industry it's around 3-4%. In the power transmission equipment industry, the logistics costs constitute 4-5% of sales. In pharmaceuticals industry, the logistics cost averagely constitute 3% of sales. In bulk commodity industries like cement, chemicals and steel the logistics cost is estimated to constitute 10% of sales.

	India	USA	China	Remarks
Transportation	35	50	49	US and China - Vast geographical areas which necessitate long distance transportation
Inventory carrying cost	25	15	24	More idle assets and higher interest rates in India escalate inventory costs
Losses	14			Poor transport infrastructure, dominance of unorganised sector in the transportation industry, unscientific and unprofessional conduct transportation operation leads to high losses in India
Warehousing	9	25	9	Warehousing industry in USA is larger as retail industry is highly organized and would like to avoid stock outs .
Packaging	11			

Administration		5	18	In India, majority of transport are small and regional who own small fleet and hence administration costs are less
Others	6	5		
Total	100	100	100	
<i>Source: Edelweiss Research, United Supply Chain Group, Li & Fung Research Centre and Cygnus Research</i>				

1.3 Time dimension of logistics efficiency

Lead time is another measurement of logistics efficiency. In India, the lead time is higher compared to other countries. For example, the lead times for Indian exports to China averages six to 12 weeks, compared with a two- to three-week average for exports from China to USA. It is estimated that there is a loss of up to 45% of time of trucks as they move goods across the country at state borders. This amount of time is spent in complying with inter state tax requirements and at transport check points. In case of marine transport, the average pre-berthing time at major Indian ports stood at 9.96 hours on an average. The average turnaround time was 3 days against Hong Kong's 10 hours and international standard of 2 days. It is estimated that due to insufficient port capacity, the lead time for Indian exports to the US is roughly three to four times greater than Chinese. Higher lead time can be attributed to factors like poor status and inadequate transport infrastructure like roads, sea ports and airports, old transport fleets covering less distance per day, unnecessary waste of time at interstate borders, check posts and toll gates, etc.

1.4 Logistics Quality

Despite the efforts of various stakeholders of logistics in India, the logistics quality in India is termed as poor, which severely affects the growth of the economy. According to a study by Prof. Raghuram of IIM (Ahmedabad) following are some of the parameters and consequences of logistics quality.

1.4.1 Impact on product availability

Efficient Consumer Response (ECU) study shows that product availability is low, with 30% stock-outs. Inter -regional comparison might show this to be a bigger problem in rural areas, leading to regional disparities. The consequences are quite significant, especially in the context of medicines and food. There is an overall reduction in choices, leading to lower quality of life.

1.4.2 Product and Service Quality

There is reduction in choices, poor functionality and repair mindset, leading to lower quality of life.

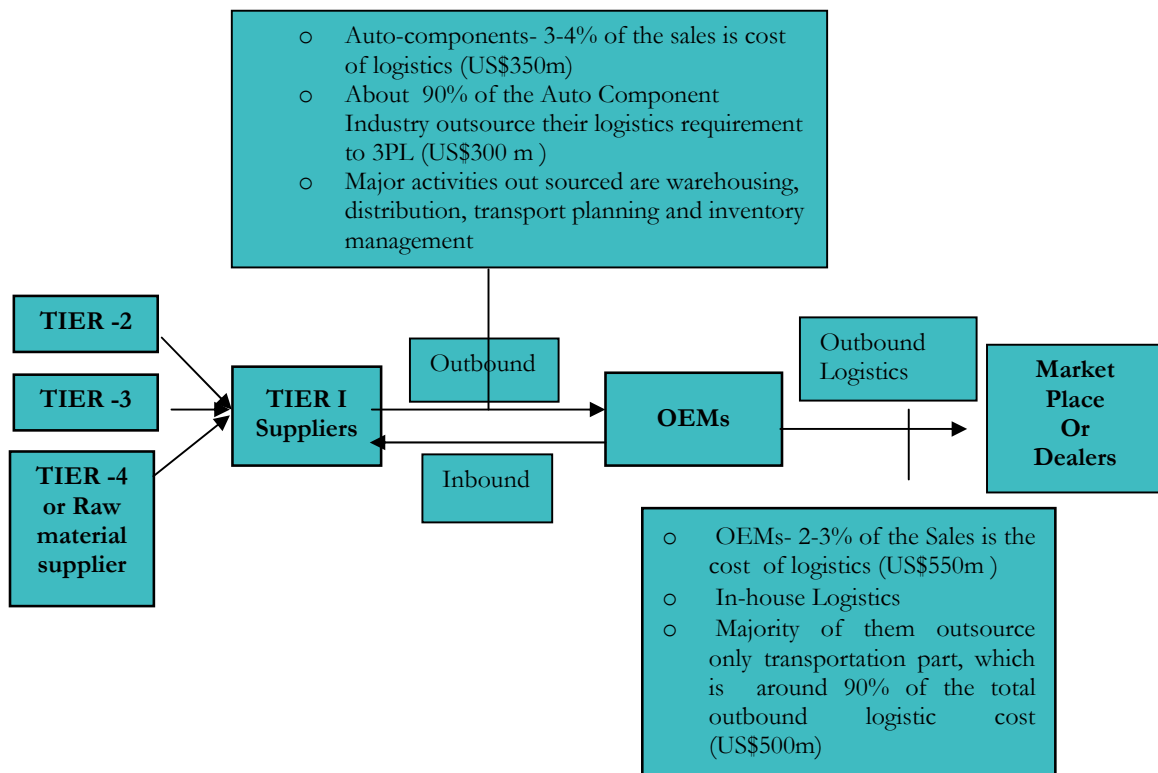
1.4.3 Responsiveness

Poor quality of logistics results in export disadvantages and higher inventories due to poor logistics quality. Average inventory level of grocery stores is 45 days of sales in India, compared to a range of 11 to 22 days in developed countries. This is caused by higher lead times due to lower speed of transport, number of check points, and turn-around time at ports, etc.

1.5 Logistics Costs and Processes of an industry - Auto components Industry

The logistics processes and costs involved in auto components logistics is presented in Figure 5. In view of the present globalisation, implementation of lean production and the development of modularisation have changed the relationships between automobile assemblers (OEMs) and their suppliers, especially those in the first and second tier. This gives rise to increased use of 3PL by auto components manufacturers. Organisations are increasingly outsourcing their logistics activities to 3PL to become more efficient. Previously, auto component companies used to outsource 90% of their transportation activities, 46% of warehousing, 39% of import/export management, 20% of procurement, 18.5% of manufacturing and 10% of information and inventory management. But at

Fig 5: Auto components Supply Chain Management Processes and Costs



Source: Cygnus Research

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present the scenario has substantially changed. Today, around 90-95% of auto component companies prefer outsourcing of logistics activities to 3PL or 4PL. Outsourcing logistics activities help companies to reduce costs, improve customer services and overall organisational efficiency. The major reasons for outsourcing of logistics activities are: investment, lower cost and strategic reasons.

2. Logistics Efficiency

The increase in global production sharing, the shortening of product life cycles, and the intensification of global competition all highlight logistics as a strategic source of competitive advantage. Therefore achieving efficient logistics provides a straight competitive advantage to the firm. Although costs and timeliness are of paramount importance, firms are primarily concerned with the overall reliability (service quality) of the supply chain. Generally, the high cost of logistics in India, high lead time and unpredictable supply chain are viewed as indicators of poor logistics efficiency. The logistics performance index (LPI), compiled by the World Bank, placed India at 39th in the world in 2005. Singapore ranks first in LPI.

The higher cost of logistics in India can be attributed to the factors listed in table 2. A comparison of state of Indian logistics industry with that of its western counterparts on certain parameters is made in table 3.

Category	Constraints
Infrastructure related	<ul style="list-style-type: none">• India has only 20% of good quality roads compared to Indonesia (30%), Brazil (30%), Korea (70%), Japan (>85%) and US (>85%)• 2% NH handles 40% freight traffic• Low investment in infrastructure: China (20%), India (6%)
System inefficiencies	<ul style="list-style-type: none">• Low IT penetration• Frequent checking at various points• High turnaround time in ports
Fleet related	<ul style="list-style-type: none">• Low speeds on high roads (India-30 km per hr but 60 km per hr in US and Western Europe)• Low distances covered per day (India- 250km per day but 600km per day in Western countries)• Low multi-axle trucks (India >95% are single or double axle trucks)
Regulatory obstacles	<ul style="list-style-type: none">• Low IT adoption by industry and govt agencies• At ports, customs clearance takes 3-5 days

Source: Cygnus Research

Table 3: State of the Logistics Industry – A Comparison with Developed Countries				
Logistics Element	State in the western countries	Focus	State in India	Focus
Costs	Approx. 9-11% of GDP	Total cost concept	13% of GDP	Individual elements are cost controlled, do not lead to overall efficiency
Transportation	Fleet management concept	Optimisation	Trucking concept	Cost control
Warehousing/ inventory	Collaborative, vendor-managed inventories, visible throughout the chain	Minimisation of stock	Minimal disruption of chain, stocking at various stages of chain	Buffering against the stock out
Inventory costs	Increasing far slower than rise in other costs	Optimal stocking, innovative financing	Rising	Individual cost controls do not translate into lower chain costs
Information	Free Flow, real time	Visibility of all concerned operations is vital for optimal performance	Islands of knowledge, reluctance to share	Inward looking; inadequate understanding of use of information by chain members
Personnel	Trained logistics managers	Organised body of management skills, systems focus	Personnel moved from sales/distribution/stores; very few professional managers	Practicing distribution-stores managers make better logistics managers
Organisational structure	Logistics function is separate and clearly defined objectives, roles and targets	Integrating and enabling function	Leading companies are giving a full functional status	Still seen as support function, not enabling function
Infrastructure	Supports and enables sophisticated and efficient logistics solutions		Poor quality spread and facilities	No cohesive strategy, tardy implementation and no buy-in by users
<i>Source: Cygnus Research</i>				

2.1 Bottleneck analysis Surface Transport in India

Bottleneck analysis of the surface (road and rail), marine and air logistics is presented below.

2.1.1 Roads

2.1.1.1 Infrastructure

- India has an extensive road network of more than 3.2m km, only about half of it is paved.
- All the major centers of the country are not linked by expressways, as of date.
- Nearly 38% of the national highway network is single lane, while about 59% is double lane.
- More than 85% of the roads in rural areas and are not of good quality.
- Twenty-five percent of national and state highways are congested.
- Because of inability to transport the produce to marketing and processing centers due to poor road conditions and inadequate coverage of rural road networks, around 20-30% of agricultural, horticultural and forest produce gets wasted.
- Poor road infrastructure and frequent check-ups by the police, tax authorities and RTAs which led delays on highways, cost an economic loss of around Rs200-300 billion per annum, expected to go up to Rs600 billion by 2017.

2.1.1.2 Unorganized nature

- The Indian trucking industry is highly fragmented; over 85% of the road transport business is unorganised, it is entirely vested in the hands of small private owners.
- In India, in total around 2.9m trucks (67%) are owned by around 500,000 fleet operators.
- The average age of Indian trucks is over 10 years with poor fuel efficiency, resulting in higher oil consumption and cover less distance per day.

2.1.1.3 Overloading

- People overload trucks, leading to pavement damage, reduced vehicle life span and inefficiency. 40-80% of two-axle trucks carry loads exceeding the prescribed limits.
- The number of accidents per 10,000 vehicles in India due to overloading, is 10 times higher than the European Union.

2.1.1.4 Taxation

- In India there is high administrative cost of collection of taxes like the passenger and goods tax, sales tax and octroi.
- Motor vehicle tax is levied on Gross Vehicle Weight and not on actual or potential axle loads and as a result, there is under-taxation of two-axle trucks relative to multi-axle vehicles.

2.1.2 Bottlenecks of Railways

- Slow progress in development of railway route network since 1950-51; during the 1950-51, India's railway route network was 53,596kms which has increased to 63,327 as on March, 2007, that clearly depicts the slow progress of the railway route network in India.
- Indian Railways (IR) has been consistently losing its market share to the road transportation industry (in terms of cargo volume handled), from 86.2% in 1950-51 to 38.7% in 2004-05.
- The ratio of passenger fares to freight rates is 0.32, still the lowest in the world.
- There is also a high degree of vertical integration.
- The technology deployed in wagons at present outdated technology of the eighties.
- It is not possible to load the covered and open wagons beyond 64 tonnes, except with certain heavy commodities.
- 49% of the Integral Coach Factory's plant and machinery has outlived its economic life.
- 16% of the machines is over 40 years old.
- At the wheel and axle plant, most of the machines have outlived their economic life, causing low down time and low quality output.
- Freight rate of Indian Railways is highest in the world.
- Loss of market share due to lack of flexibility in pricing.
- Indian Railways has a mixed track record in safety due to poor maintenance, inadequate infrastructure and human error.

2.1.3 Bottlenecks of Seaports in India

2.1.3.1 Infrastructure Bottlenecks

- In India the percentage of non-working time at berth per vessel is very high. Moreover, container handling cost in India is about 70% higher than other developed countries, even though labour cost is very cheap as compared to other developed countries.
- Due to an inadequate infrastructure container evacuation is done through railways, which is time consuming, unlike in the West where road transport is the major mode of evacuation.
- Even large ports can't support 6,000 TEU containerships, which make up 25% of today's shipping volume.
- Over capacity utilisation at major ports is becoming one of the important challenges for almost all ports in India; the average capacity utilisation at major ports is over 90%, which is very high compared to global standards of around 80%.
- Low levels of containerized traffic in India. Globally, the average level of containerisation is above 70%, while in India, it is around 30-35%. Though, container handling by Indian ports have grown by a CAGR of 15.93% during the period from 2003-04 to 2007-08, Indian port

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sector suffers from serious constraints. It includes inadequate port infrastructure, poor port connectivity, inadequate depth at most of Indian ports to handle big vessels with 15,000 TEUs, inability to evacuate containers in time, etc.

2.1.3.2 Connectivity

- Inadequate connectivity (both road and railway) with ports is one of the major concerns for growing seaborne trade in India. Though major ports are connected by roads and railways but certain specific issues aggravate the cargo movements such as speed of reach, timeliness and the capacity of the existing infrastructure and road-railway connectivity.

2.1.3.3 Labour Issue

- Labour unions play a vital role in labour intensive nature port operations. The Indian industry has been urging the Union government for many years to implement labour reforms. However, successive Indian governments have not touched labour reform for fear of a backlash from trade unions.

2.1.4 Bottlenecks – Airports

2.1.4.1 Major airports running out of capacity

- Major Indian airports are facing huge capacity constraints in terms of passenger and cargo traffic. Indeed, insufficient cargo bays, inadequate ground-handling facilities and shortage of runways are resulting in considerable delays.

2.1.4.2 High wait time and congestion in airports

- There is a sharp rise in congestion and waiting time, especially during peak hours due to lack of adequate technological development etc. Average waiting time for export cargo is 2.11 days (50 hours 37 minutes) and for import cargo, it is around 7.58 days (182 hours 32 minutes).
- In India, ATC delays cost the sector immensely. The sector is incurring huge losses; 5-10% additional flying time cost is around US\$ 80m per annum.

2.1.4.3 High fuel costs

- ATF prices in India continue to be far higher than global rates, making ATF account for 35-40% of operating cost, as against global average of 20-25%. The ATF in India is around 70% higher than the global figure, resulting in huge losses for the sector.

2.1.4.4 Taxation

- The sales tax on ATF varies from state to state. In some states, the sales tax is as high as 30%.

2.2 Areas for Improvement

2.2.1 Transportation

Devising a better logistics strategy should essentially start from evolving an efficient transportation system as transportation cost constitutes a major 35% share of the total logistics cost in India. Higher freight costs (11%), against a global average of 6%, and high tariffs per tonne per kilometre are some of the highest in the world. Backhaul, cross-docking, ex-factory, weekend ordering and deliveries, milk runs, pick to store/pick by line, direct dispatch to distribution centre/retail outlet are some of the delivery options that may be considered. Generally, the fewer the touch points, the lower the cost of distribution.

Case studies/ best practices in transportation

A. Cement: Efficient and Cost Effective Transport Mode

Cement industry is highly competitive and the availability of product at shelf-space is critical to success, because the scope for product differentiation is very less. The cement industry faces serious transportation hindrances in timely availability of rail wagons. Hence, a major Indian cement firm has decided to leverage the advantage of the multi-modal transportation system. Its efficient use of waterways transportation system for both domestic and exports of cement helped to significantly reduce the transportation cost by 67.24% over rail transport cost or 71.64% over road transport cost. For 10,000 tonnes per day (tpd) plant in India, it would take 1,000 dispatches per day by using 10-tonnes trucks or 250 dispatches using 40-tonnes trucks.

B. Apparel retailing: Customised Solutions

A major Indian 3PL service provider distributes products of apparels of a famous textile manufacturer across its retail shops in 110 cities in India. Since the garment industry is seasonal and fashion-oriented and the textile firm launches new designs every 15 days, these garments have to be delivered across the country in three days. The apparels consignment is moved from Chennai to a warehouse in Delhi and then distributed all over North India. For another Italian textile manufacturer, this 3PL service provider receives, stores, packs and dispatches garments to exclusive stores in more than 25 cities across India.

C. Auto components logistics: Trade off between logistics service quality and logistics cost

A consulting study conducted by the Cygnus on the outbound logistics practices of automobile industry in India, revealed the following insights.

- Most of the companies have In-house Logistics and outsource only the transportation part
- Generally, they have their own tailor made software to facilitate the entire supply chain
- Transportation expenses - 90-95% of the total outbound logistics cost
 - An MNC Automobile Manufacturer managed to have “Nil” returns (Replacement, return-damage due to transportation or other handling) by having long term agreements with multiple transporters who have young fleet age of the trailers (0-1 year). Though cost of transportation was higher than some of the domestic automotive companies, it was more than compensated by benefits in “nil” returns and faster movement of goods.

2.2.2 Warehousing & Distribution

The warehousing and distribution activities include inventory management, warehousing, and order processing. On inventory management front, reducing the inventory holding costs through reduction in lag time from vendor to store shelf and scientific sales forecasting for holding minimum required inventory, help in improvement of the distribution system. This also mitigates the risk of shrinkage and obsolescence. The VMI/customer replenishment service helps controlling stock levels and place orders based on sales and minimum/maximum stock levels. Collaborative forecasting with the suppliers help manage production quantities thus reducing the stock-holding period.

Case studies/best practices in distribution

A. Farm Equipment Manufacturing: Effective SCM resulted in reduced inventory level

The farm equipment division of a major automobile manufacturer in India has its assembly/manufacturing facilities at multiple locations, which had increased the complexity of the entire supply and operations. Hence, the company wanted to implement SCM as solution for a healthy margin-minimising costs by reducing the cost of production and the cost of lost sales. SCM has helped the firm by reducing its inventory by more than 50% and the company expects to maintain similar inventory level. Replenishment lead time has reduced from around 52 days to 19 days. The firm has established a strong web component for its 400 plus dealers to collect sales information and 800 suppliers to submit SCM planning information and material requirement planning schedules. It was able to reduce the dealer stock of 12,000 tractors and company stock of 7,000 units to 6,000 and 3,500 respectively after implementation of SCM.

B. Automobile Manufacturing: Better Inventory Management through implementation of a holistic SCM project

A major truck manufacturer in India attempted to streamline its supply chain process and started its SCM project 'Oscars' to optimise its supply chain and rationalise its sources. It resulted in the reduction of inventory level from 23 days to 18 days and achieved a savings of 3% in total operating cost from management initiatives such as daily management, process control, design, technology and capacity. Its logistics initiative including transporter-based rationalisation, Kanban, pull from satellite warehouses, enhancement of truck turn-around, load, space and route optimisation, resulting in a saving of over Rs1.25 crore per annum. The outsourcing to 4PL by the stores has saved 42 man-days.

Warehousing in India has been facing several hindrances for smooth functioning. Issues like low penetration of IT in warehousing, inadequate infrastructure, low private sector participation in building warehousing, low availability of specialised warehouses like controlled atmosphere/modified warehouses (for perishable food products) and hazardous commodities storage (like hazardous chemicals storage), etc are affecting the warehousing sector in India. Creating awareness about government subsidy programme for development of warehouses among entrepreneurs creating awareness and adaptation of warehousing management system (WMS), adaptation of scientific warehouse management, etc will help the warehousing industry in development and efficient functioning of warehousing sector in India.

2.2.2.1 Vendor Managed Inventory

The VMI or Kanban is allowing supplier to manage its customers' inventory. Implementing VMI will significantly improve the company's supply process, especially in the retail industry. VMI is operationalised through electronic means by exchanging inventory information between the buyers and sellers of products thus eliminating many of the built-in delays associated with traditional ordering systems and enables the establishment of collaborative inventory management systems. Some of past studies have shown that improvements in these two areas can result in the elimination of 20-30% of the previously required supply chain inventory. The basic concept of VMI is to share the inventory and other information in such a way that it allows for a reduction in order response time and a subsequent reduction in on-hand safety stock inventory needed to support sales or manufacturing activity.

2.2.3 IT Applications in Logistics/ SCM

The track and trace technologies like GPS and GSM are used as fleet navigation aids in vehicle tracking and two-way communication in the event of distress. Usage of these technologies is slowly catching up in India, especially with large fleet operators.

Effective use of IT also helps to manage and track inventory effectively. It also helps coordinate with suppliers and slash lead times, reduce stock outs and inform management the exact whereabouts of the SKUs. Retail industry is one of the biggest growth areas. Nearly every supermarket in India uses counter-mounted barcode scanners (usually called slot scanners) in combination with electronic POS terminals. For example, Oracle's offering of "JD Edward Enterprise One" software includes SCM execution (logistics) module which helps the user-firms to manage their logistics function effectively. Similarly, RFID technology from Infosys offers track & trace technology for warehousing management and effective inventory management.

3. Current Status of Logistics Efficiency in India

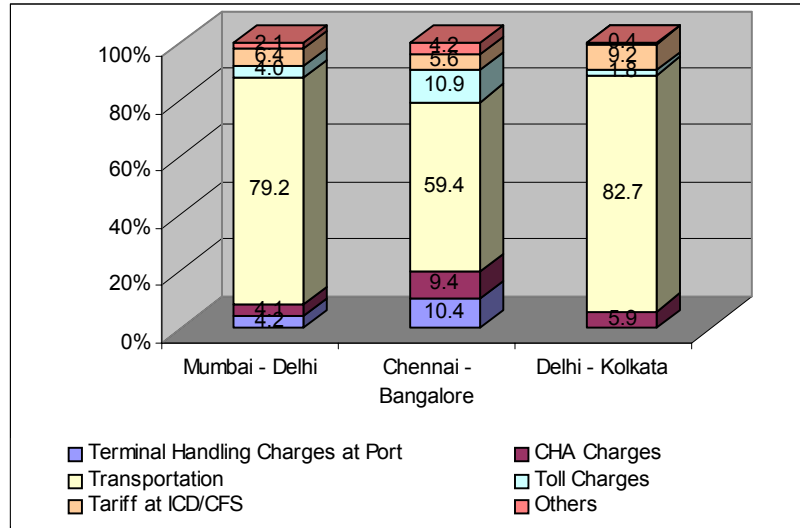
In order to analyse the current status of the logistics efficiency in India, a primary survey was conducted on three selected routes (ie) Mumbai – Delhi (Route 1), Chennai – Bangalore (Route 2) and Delhi – Kolkata (Route 3). Data was collected on the following efficiency parameters.

- Composition of logistics Cost
- Composition of Lead Time
- Average Speed & Transportation Cost Per Tonne Per Kilometre
- Comparison of Transportation Cost by Mode of Transportation
- Transportation Cost Per Tonne Per Km & Average Speed on Road

3.1 Composition of Costs

Figure 6 indicates that the road transportation cost constitutes the major component, which is around 60-80% of the total transportation cost composition. Among other costs, the tariff rates at ICD/CFS on sample routes come around 6-9% of the total costs involved in transportation. However, costs of other processes were not exceeded more than 10%. The component 'others' includes the flow of informal money at the Port, check posts, toll gates, etc.

Fig 6: Composition of Transport Costs on Sample Routes (%)

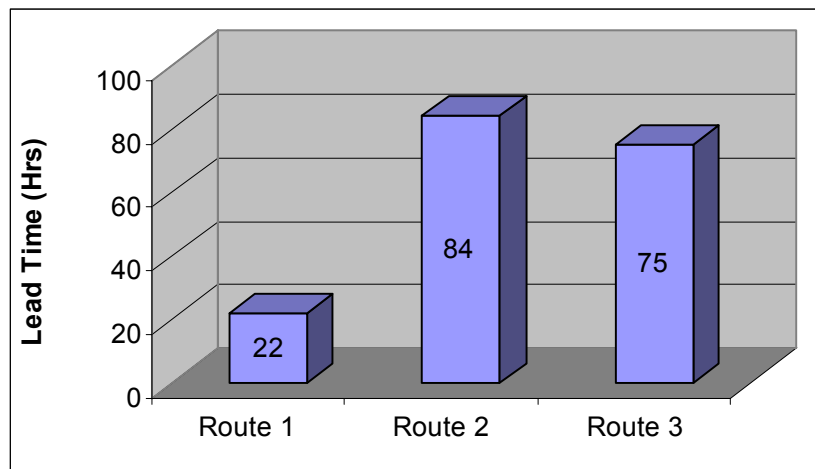


Source: Cygnus Research

3.2 Comparison of Cost and time related to Customs Clearance

As far as the lead time is concerned, generally the customs clearance process is identified as time consuming process, which ranges from about 22 hrs to 84 hrs depending on the Ports (Figure 7). The percentage share of customs clearance cost, charged by the Customs House Agent, is estimated at 4-9% of the total costs involved in the transportation of cargo in identified routes, in India.

Fig 7: Comparison of Lead Time Related to Customs Clearance



Cygnus Busine: Source: Cygnus Research

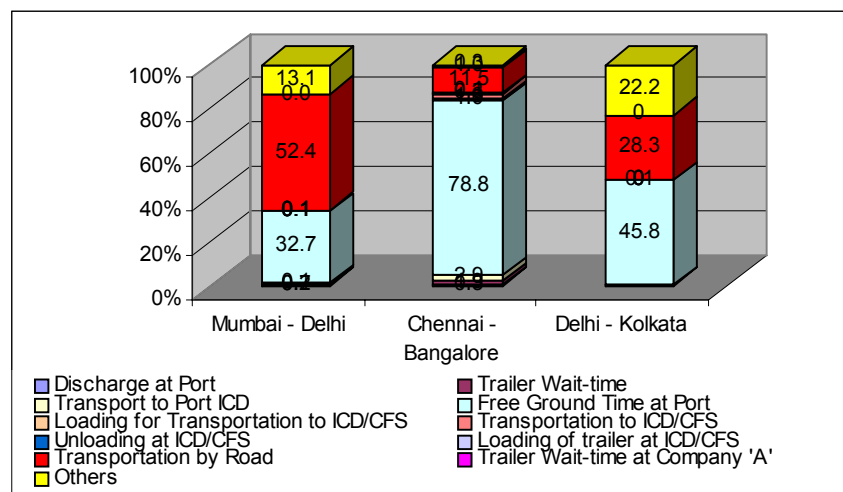
The major factors contributing the delay in customs clearance are:

- Lack of process automation and insignificant use of information technology.
- In spite of computerisation, the administrative philosophy remains that of a paper based system with many opportunities for face-to-face contacts on routine matters.
- Lack of transparency; unclear and unspecified import and export requirements.
- Inadequate procedures; especially a lack of audit-based controls and risk assessment techniques.
- Procedures are transaction based. Every document has to be checked, double checked, signed and countersigned and most import and export goods are physically examined, which also breeds corruption.
- Documentary inspection for all export cargo is intensive though less than in the case of imports.

3.3 Composition of Lead Time

As far as the lead time of different processes is concerned, the domestic road transportation from the Port to the factory gate constitutes the major share (Figure 8). A study undertaken by an Inter-Ministerial Group (IMG) with Departments of Revenue, Commerce, Economic Affairs and the Planning Commission of Government of India in 2005, shows that the dwell time of cargo for containers in Indian ports, the average dwell time or free ground time at major container terminals is 1.88 days for imports and 3.78 days for exports.

Fig 8: Composition of Lead Time of Processes on the Sample Routes (%)



Source: Cygnus Research

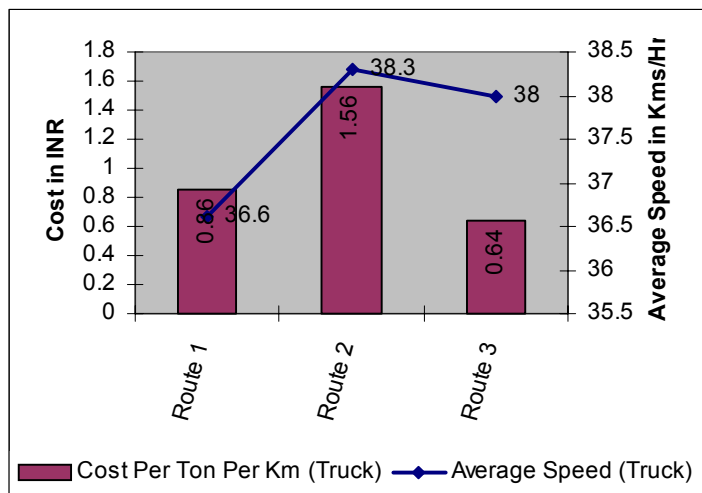
The lead time of transportation on Route 2 (Chennai – Bangalore) is only about 11.5% of the total lead time of processes, whereas the lead time of transportation in Route 1 and 3 are 52.4% and 28.3% respectively (Figure 8). This is because the Chennai – Bangalore journey is an overnight one; and also due to the presence of large multinational corporations such as Samsung, Nokia Special Economic Zone (SEZ), Volvo and State Industries Promotion Corporation of Tamil Nadu SEZs along this route, led to the building up a good road network between these cities.

3.4 Average Speed & Transportation Cost Per Tonne Per Kilometre

Generally, the average speed is a good indicator for explaining the surface condition of the road; it is 38.3km/hr on Route 2, shows good road conditions (Figure 9). The average speed of the trailers on other routes also shows better results, which indicates road network in good conditions in the sample routes.

The transportation cost per tonne per kilometre is estimated at around INR1.56 on Chennai–Bangalore route (Figure 9), which is higher as compared to the other two routes indicated. The transportation cost per tonne-kilometre is high on Route 2 because the transportation cost includes the return charges apart from all other charges.

Fig 9: Average Speed & Transportation Cost Per Tonne Per Km on the Sample Routes

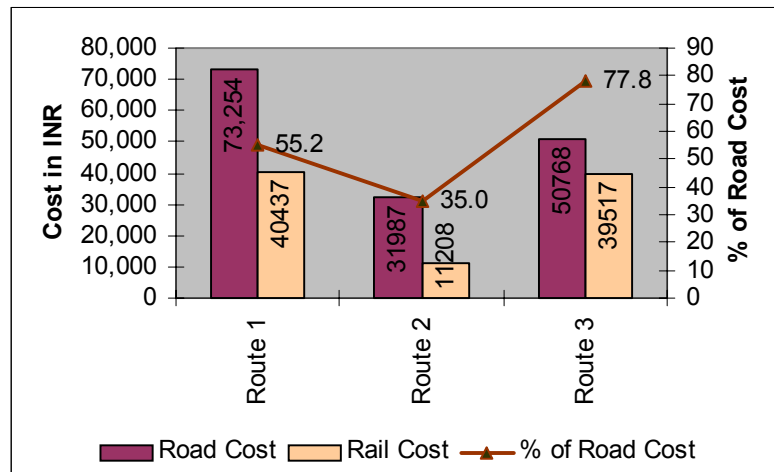


Source: Cygnus Research

3.5 Comparison of Transportation Cost by Mode of Transportation

It is known that rail transportation is cheaper than road transportation. On Route 1, the rail transportation costs constitute about 55% of the total road transportation cost. Similarly, it is about 35% on Route 2. But on Route 3_(Delhi–Kolkata), the rail transportation costs constitute about 77.8% of the road costs (Figure 10).

Fig 10: Comparison of Transportation Cost by Mode of Transportation on selected routes



Source: Cygnus Research

3.6 Comparative Analysis of the Road Routes Surveyed

- The Indian road network is seemingly very large. The high traffic-density road corridors, which are linked to various metro cities and ports, are being utilised to its fullest capacity. At the same time, road traffic has also been increasing over the last decade.
- It is also observed that the shippers or importers in the Northern India prefer Jawaharlal Nehru Port Trust (JNPT) to Kolkata Port, because the Route 1 (Mumbai – Delhi) has a very good road network as compared to the Route 3 (Delhi – Kolkata).
- From the transportation point of view, the transportation from Port to factory gate involves many issues and problems such as traffic restrictions, poor road conditions, etc.

4. Approach to improve logistics performance

Following stake holder wise approach to improve the logistics performance in India is suggested by Prof. Raghuram of IIM (Ahmedabad),

4.1 Government

- The provisions of Motor Transport Workers Act and Motor Vehicles Act need to be reviewed; streamlining of inter-state and intra-state movements by avoiding regulatory check points is suggested.

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- Government should continue the focus on physical infrastructure development (like the current National Highways Development Project). An integrated transport policy is imperative.
- It is suggested to create more mature frontline regulatory functionaries to ensure better compliance with the law.
- A review of incentives to encourage large fleet size as currently average fleet size of operation is about 5.
- Facilitate the build-up of quality human resources infrastructure through education and research.

4.2 Industry

- Industry should evolve standards and certification systems for practices in transportation, warehousing, handling and contracts (for each vertical).
- Benchmark for tracking progress on logistics maturity (by using a Capability Maturity Model)
- Facilitate the sharing of best practices and benchmarking against performance indicators (including costs) by supporting research on a sustained basis.
- Industry members should be insisted on complying with the law and standards.

4.3 Shipper

- Be sensitive to long run cost and value due to better logistics services. If commercially viable, shipper should work with service providers to insist on and improve logistics quality. 3PL service providers could be an opportunity.
- The shippers should be insisted on compliance with standards and the law.
- It is suggested to develop appropriate performance measures, both for own performance and the service providers' performance, and systems to monitor them.

4.4 Service Provider

- The service providers should be sensitive to long run cost and value due to better logistics services. They should identify market segments that have value for quality and make appropriate investments. The scale and scope of operations would be useful instrumentalities. Service providers should comply with standards and the law. Develop appropriate performance measures and systems to monitor them.

5. Conclusion

The high logistics cost in India is due to poor infrastructure, system inefficiencies and regulatory-related constraints. As transportation constitutes the single largest cost of logistics, logistics efficiency strategies should primarily focus on reducing it.

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Though there are deficiencies in terms of infrastructure and procedural aspects, affecting the logistics industry in India, efforts are being taken by Indian government to address these issues.

Given the importance of logistics industry to country's economic growth, the Planning Commission of India, proposed an total outlay of Rs.4,463.85 billion for transport sector (road sector alone constitute 22.40%) during 11th five year plan. Public Private Partnership is encouraged in logistics infrastructure development. The ongoing programme of four-laning the 5,900 km long Golden Quadrilateral (GQ) connecting Delhi, Mumbai, Chennai and Kolkata is nearing completion. The ongoing four-laning of the 7,300 km North-South East-West (NSEW) corridor is to be completed by December 2009. An National Highway Development Programme (NHDP), involving a total investment of Rs.2,200 billion upto 2012, has been established.

Government of India has also started working on Dedicated Freight Corridor (Delhi-Mumbai Industrial Corridor) covering 1483km and passing through the States of Uttar Pradesh, Delhi, Haryana, Rajasthan, Gujarat and Maharashtra. It offers immense opportunities for development of an Industrial corridor along the alignment of the connecting infrastructure. Similarly, work on the eastern freight corridor, connecting the Delhi-Kolkata is also expected to start soon.

Likewise, in the seaport sector, 2 major Government projects are underway; including the project "Sethusamundram" dredging of the Palk Strait, to facilitate maritime trade through it and National Maritime Development Programme for modernisation and expansion of port capacities.

On aviation sector, modernisation and expansion of the Delhi and Mumbai airports through PPPs has been awarded. Similarly, a plan for the development of other 35 non-metro airports is also under preparation. These projects call for a total investment of Rs.400 billion for modernisation of the airport infrastructure.

All these projects, when completed, are expected to improve the logistics infrastructure in India and result in reduction in logistics cost, time and service quality, which will in turn improve India's foreign trade in manufactured items..