

The Role of Transportation in International Marketing Logistic

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Abstract: Logistics is the process of planning, implementing and controlling the efficient, effective flow and storage of goods, services and related information from point of origin to point of consumption for the purpose of conforming the customer requirement. Word, "Logistics" is derived from French word „loger“, which means art of war pertaining to movement and supply of armies. Basically a military concept, it is now commonly applied to marketing management. Logistic managers are given the task of marketing logistics as well as communicating logistics with a purpose of positioning logistics in the present competitive environment. The cut-throat competition so commonly associated with many current organizations has caused most businesses all over the world to remain proactive and any organization which ignores the importance of logistics has to blame itself. The entire purpose of logistics is defined when the logistics managers start to take marketing initiatives. Logistics and marketing management are concerned with the effective flow of products and services in the economy and pertain to the distribution of both consumer and industrial goods. Marketing is considered to be a vital part of an economy and there is a need for an efficient marketing system which can ensure that all marketing activities are carried out in accordance with the predefined goals of the business. With the increasing globalization of economic activity and rapid development of information and communication technology , business are seeking to develop and organise strategic , efficient and world-wide network .These network , which are often referred to as global logistic focus on integrating product sourcing , production and distribution .In order to promote such global logistics network , which are also compatible with sustain ability objective ,government need to develop and implement cohesive transport policies both this research article aims to identify and incorporates issues common to all over Asia and European region and develop a policy option to facilitate the development of global logistic system as cooperative basis . In the paper authors showed actual topic concerning connection between marketing and logistics and their spheres. The paper is divided into four main paragraphs which include: good's distribution and marketing instruments, logistics and marketing, marketing logistics and logistic marketing management. Marketing could not exist without logistics and logistics could not exist without marketing – this main point authors tried to improve in following papers. All positive and negative factors of relation between marketing and logistics were shown. This relation created modern management – logistic-marketing management

Keywords: Ocean transport, multi modalization, World Sea, borne trade, world shipping, Indian shipping, inventory management.

1. INTRODUCTION

International marketing is simply the application of marketing principles to more than one country .However, there is a crossover between what is commonly expressed as international Marketing and global marketing , which is a similar term. At its simplest level , international marketing involves the firm in making one or more marketing mix decisions across national boundaries . At its most complex level, it involves the firm in establishing manufacturing facilities overseas and coordinating marketing strategies across the globe.

The globalization of production is concomitant to the globalization of trade as one cannot function without the other . International trade consequently demonstrates the extent of globalization with increased spatial interdependencies between elements of the global economy and their level of integration .These interdependent imply numerous relationships where flow of capital, goods, raw materials and services are established between regions of the world .

International marketing logistics can present to the unwary and uninitiated an enormously formidable barrier. Having the correct documentation internally and externally is vital or goods and services just simply cannot be exported. Marketers or their agents must be familiar with terms of access , contracts ,trade terms commercial documents including insurance and financial documents ,and the consequences of breaking any of the terms and conditions .In many products, the more familiar the distribution network players are with each other and their individual systems ,the easier the documentation process becomes to set up and operate .This reduction of transaction risk is a bonus and may involve the use of specialist agencies like freight forwarders and shippers .

2. OBJECTIVE OF INTERNATIONAL MARKETING LOGISTICS SYSTEM

Main objective of any logistic system should be maximum customer service and minimizing distribution cost. This can be done by achieving following objectives:

1. Improving customer service : The marketing concept assumes the sure way to maximize profits in the long the run is through maximizing the customer satisfaction .As such , an importance objective of all marketing efforts, including the physical distribution activities , is to improve the customer service .

An efficient management of physical distribution can help in improving the level of customer service by developing an effective system of warehousing, quick and economic

Transportation and maintaining, optimum level of inventory. But, the level of service directly affects the cost of physical distribution .Therefore, while deciding the level of service, careful analysis of the customer's wants and the policies of the competitors markets are necessary. The customers may be interested in several things like timely delivery, careful handling of merchandise, reliability of inventory, economy in operation and so on .

2. Reduce total distribution costs : Another most commonly stated objective is to minimize the cost of physical distribution of the products .As explained earlier , the cost of physical distribution consists of various elements such as transportation , warehousing and inventory maintenance , any reduction in the cost of one element may result in an increase in the cost of other element .Thus, the objective of the firm should be to reduce the total cost of distribution and not just the cost incurred on any one element . For this objective, the total cost of alternative distribution systems should be analysed and the one which has the minimum total distribution cost should be selected.

3. Generating additional sales: Another important objectives of the physical distribution system in a firm is to generate additional sales. Afirm can attract additional customer by offering better services at lower prices .For example , by decentralization its warehousing operations or by using economic and efficient modes of transportation , a firm can achieve larger market share . Also by avoiding the out of stock situation , the loss of loyal customer can be arrested .

4. Creating time and place Utilities : The physical distribution system also aim at creating time and place utilities in the products .unless the products are physically moved from the place of their origin to the place where they are required for consumption , they do not serve any purpose to the users. Similarly, the products have to be made available at the time they are needed for consumption .Both these purposes can be achieved by increasing the number of warehouses located at place from where the goods can be delivered quickly and where sufficient stocks are maintained so as to meet of transport should be selected to move the product from one place to another in the shortest possible time. Thus, the time and place can be created in the products through an efficient system of physical distribution.

5. Price Stabilization: Physical distribution may also aim at achieving stabilization in the process of the products It can be achieved by regulating the flow of the products to the market through a judicious use of available transport facilities and compatible warehouse operation.

For example, in the case of industries such as cottan textile , there are heavy fluctuations in the supply of raw material would be very cheap during harvesting season and very costly during off season . By stocking the raw material during the period of excess supply (harvest season)and made available during the periods of short supply , the prices can be duly stabilized .

3. DOMESTIC AND INTERNATIONAL LOGISTICS

Domestic logistics operate only within boundaries of a country where as international logistics operates globally . International logistics is much different than domestic in term of cost , mechanics and environment . Key differences are given below:

1. Logistics cost: According to data published by UNCTAD , the sea freight borne by developing countries in 1988 as a proportion of the cost of imports was 8.89 percent as compared to only 4.40 percent for developed countries . thus , developing countries bear a burden twice as high as that borne by developed countries in terms of transport cost . In fact , studies show transport cost to be a much more formidable obstacle faced by developing countries than the tariff .But , the percentages are averaged for all goods and all distances and conceal a wide range.

2. Mechanics: The second difference is in mechanics . Doing business with a foreign counterpart for the first time can be daunting experiences .For one thing it requires a lot of experience and expertise to be able to quote on a delivered basis without thorough knowledge of the procedures and regulations in operation in the concerned country.

Further ,movements between countries are accompanied by many more documents than in the case of domestic shipments. A study showed that in the case of domestic shipments.A study showed that in india an export consignment required 48 hours of typing to fill out forms,327signature were neededfrom the authorities and the whole process took an average six week to complete . Addto this , the delay occurring after the completion of these formalities at the inland cargo aggregation points,and at the port,etc. It was estimated that for a typical intermodal shipment from Chicago to Munich , the total time required was 21 days of which the 'productive'time,viz.time spent actually in transit , was less than 40percent . where developing countries are involved at either end of an international trade transaction , such delays at 'switching'points can account for an even greater proportion of total transit time , thus adding to the logistics costs .

3. Political and Cultural environment: The final group of factors is political and cultural environment . Where in order to retain control over the distribution , an exporter quotes on delivered basis he has to cover himself for a lot of uncertainty at the other end of the transaction ,eg . the extent of government control on foreign transaction and on the banking system , the legal recourse available in case of damage or fraud , the productivity , efficiency of labour , and capital in the other country, etc .Even insurance cover is seldom adequate to cover genuine losses in case of mishap to cargo . All these factors can be grouped together in a category of "unknown "which necessarily come into play in a transaction of international logistics.

4. IMPORTANCE OF LOGISTICS IN INTERNATIONAL MARKETING

Logistic system are very significant due to fact that they lead to ultimate consummation of the sales contract. Mere promise of supplying goods at competitive price is not enough ,supplier has to keep his promise by hiring a good logistic system . Delivery of goods should be executed according to the contract in order to fulfil the commercial and legal requirement. Factor which made logistic system so important are:

1. Globalization of business: Many companies is restructuring their production facilities on a global basis .Some manufacturers are centralizing production to gain economies of scale.

2. Growing range of customers: Product lines are proliferating. More and more product line variety is needed to satisfy growing range of customer tastes and requirements, and stock levels in both field and factory inevitably rise.

3. Competition :Product life cycle are contracting . companies that have gone all out to slash costs by turning to large scale batch production regularly find themselves saddled with obsolete stocks and are unable to keep pace with competitor new product introductions .

4. Economic of Scale : In many industries , the value added by manufacturing is declining as the cost of material and distribution climbs.

5. Shift of balance of power: The balance of power in a distribution chain is shifting from the manufacturer to the trader .

6. Technological advancement: The advantage of low cost , high volume data processing and transmission is revolutionizing logistics control systems .Because of new technologies , managers can now update sales and inventory planning faster and more frequently , moreover factories can respond with more flexibility to volatile market condition.

5. INFORMATION TECHNOLOGY APPLICATION IN DISTRIBUTION

With the entry of multi-nationals, doubled with phenomenal growth noticed across various industries in India – there has been an ever growing demand for smart logistics and efficient **supply chain management**. **Logistics** industry in India is mainly dominated by the unorganized sector and expecting quality service from these players was a distant dream for customers. However, with the advent of technology-led solutions in this sector and emergence of organized players, companies in this sector are striving hard to deliver quality services to their customers.

In this ever changing and rapidly growing business environment, every enterprise is looking for ways and means to put forward their competitive advantages and capture a larger market share. It is a proven fact that adoption of technology is the most important tool for any enterprise to keep its competitive advantage intact. The survival of an enterprise in the age of knowledge-based competitive economy depends on how the company improves their technological capabilities and offers better and innovative services using them.

Even in the logistics sector, it is mandatory for every firm to adopt new technologies and integrate the same into their operations to gain maximum benefits. Every firm in the modern day is under pressure from their partners and customers to change their traditional styles, operationally and organizationally and integrate them with modern systems and technologies to help speedy delivery and perform better. It is noted that even logistics companies are investing hugely on new information and communication technologies to perform better.

Problem areas with older systems:

Logistics industry till date is dominated by unorganized sector and penetration of technology is very minimal. Most of the processes are paper based which are highly redundant, wastes lot of time and is seen as a roadblock to expand operations beyond certain regional limits. On one side though technology is making rapid strides towards advancement; lack of proper **infrastructure** like roads, electricity and basic communication facilities is also seen as a major hindrance for growth of this sector. Due to lack of proper technology and support infrastructure, Indian logistics sector lost US\$ 30bn in 2010, which is a three-fold increase from US\$ 10bn loss that the industry suffered in the year 2003. Though it is highly difficult to pin-point the exact loss that occurred due to inadequate technologies, it is seen as a considerable amount which can be reduced with the implementation of right technologies. In addition, there is a need for change in the people's mindset. While, Western markets are highly evolved and organized, using latest technologies to reduce costs; in India people tend to reduce the 'fixed cost' which most times leads to increase in operational costs.

Solutions available for logistics sector:

With information technology sector evolving in India, many IT companies have developed products and solutions which are helping logistics companies reap benefits from. In order to achieve high levels of efficiency, a logistics company needs a standardized express distribution instruction, that helps make the distribution process more efficient and also reduce unwarranted operational costs. Any logistics company needs to adopt efficient identification technologies, like barcoding and **radio frequency identification (RFID)**; proper data acquisition technologies like optical scanning, electronic notepads, voice recognition and robotics for information management and control. These available technologies save a lot of time and money in foot printing and tracing of products or shipments. The technologies noted above are simple to implement and easy to integrate. Most of these devices can be used as plug and play if an enterprise system already exists in the logistics company. These technologies which are being evolved further on a continuous basis are widely available even in India. Currently, logistics companies are either importing these systems from abroad or are sourcing them locally. Among the upcoming and futuristic applications are, Warehouse Management and Distribution System and Automated package movement system. The latter which runs on RFID, is the most advanced version which indicates origin of the shipment, current location, its destination and even the route information. These are the kind of technologies which will play a prominent role in development/growth of logistics sector in India.

Benefits of these technologies:

The available technologies like barcoding; RFID; optical scanning; electronic notepads; robotics and voice recognition equipments play an important role in the modern day logistics or supply chain management. Among all, RFID is the most popular technology in logistics and retail sectors, used for a wide array of applications.

With right technologies in place, a logistics company can aim to reduce operational expenses by over 30 percent. These systems also help in reducing the lead time and facilitate express distribution, reduce manual errors, and enables enterprises set-up

6. KEY CHALLENGES FACING THE LOGISTICS INDUSTRY IN INDIA

Logistics is the backbone of the economy, providing the efficient, cost effective flow of goods on which other commercial sectors depend. The logistics industry in India is evolving rapidly and it is the interplay of infrastructure, technology and new types of service providers that will define whether the industry is able to help its customers reduce their logistics costs and provide effective services.

Despite weak economic sentiments, the logistics & warehousing industry continued to witness growth largely due to growth in retail, e-commerce and manufacturing sectors. The Global Logistics sector is expected to grow at around 10-15% in the period 2013-14. With this forward looking attitude and a promise of growth and improvements, the service oriented logistics industry is all set to expand beyond the horizons in the latter half of this decade, utilizing this fiscal year as its launch pad.

Following are the key challenges faced by logistics industry:

Poor Infrastructure:

One of the major critical challenges faced by companies today is of insufficient integration of transport networks, information technology (IT), warehousing and distribution facilities.

Trade Regulations:

Regulations exist at a number of different tiers, imposed by national, regional and local authorities. Regulations often differ from city to city, hindering the creation of national networks.

Trained Manpower:

Trained Manpower in both the third party logistics sector and the manufacturing and retailing sectors is very weak at a practical level, i.e., IT, driving and warehouse as well as at a higher strategic level.

Lack of Training Institutions:

The disorganized nature of the logistics sector in India, its perception as a manpower-heavy industry and lack of adequate training institutions has led to a shortfall in skilled management and client service personnel.

Information and Communications Technology:

There are a lack of IT standards and poor systems integration and equipment.

Poor Warehousing and Storage:

Poor facilities and management are to blame for high levels of loss, damage and deterioration of stock, especially in the perishables sector. Part of the problem is insufficient specialist equipment, i.e. proper refrigerated storage and containers, but it is also partly down to lack of training.

Lack of research and development (R & D) of the industry:

Although both the practitioners and the academicians are increasingly aware of the importance of logistics and supply chain, however the field is still under penetrated as far as research is concerned. It is important to prioritize research and development so that various weaknesses in the industry could be identified and improved.

Possible solutions to some of the challenges:

Infrastructural Improvements:

Needless to say, infrastructure is the backbone of every country's growth and prosperity and for the logistics industry to flourish in the developed countries, special emphasis has to be laid on the enhancement of the infrastructural facilities. Particular focus needs to be given on building world-class road networks, integrated rail corridors, modern cargo facilities at airports and creation of logistics parks which need to be given a status equivalent to Special Economic Zones.

Creating Awareness & Establishing Training Institutions:

Overcoming the skill gap in Indian logistics industry requires establishing training institutions. It is necessary to realize the benefits which best practice in logistics can bring to the companies so that the overall service quality of the sector is

improved. Gaps in training have to be filled not only at the entry level but also in the management cadre which could be made possible through specialized graduation and post graduation courses focused on Operations and Supply Chain management.

Improving Warehousing facilities:

Good storage and Warehousing facilities are essential to the growth of the logistics industry. With the increase in the transportation of perishable products, agencies associated with logistics will have to give a lot of importance to enhancing the Warehousing facilities. Warehousing will also need to go to the next level taking into account the changing dynamics of JIT manufacturing, global procurement and new models of sales and distribution.

Encouraging Research and Development (R&D):

Emphasizing on R&D is essential mainly because it encourages the use of indigenous technology which can make the industry more cost competitive and it also leads to the improvement in services due to the use of better and more streamlined services. Particular focus needs to be given on research in process excellence which can help eliminate inefficiencies and bring Indian logistics on par with global practices.

Estimated Future Growth:

The Indian logistics sector growth depends on the growth of its soft infrastructure like education, training and policy framework as much as the hard infrastructure. To support India's fast paced economy growth of logistics industry is very essential. It is estimated that the Indian logistics sector will continue to show robust growth of 10-15% annually, leading the pace of growth of the economy at large.

Main demand drivers:

In 2014 the Global economic outlook and indeed that of India is expected to significantly improve as India Inc begins to tackle the economic downturn. With a new government set to be in place in 2014, many policies are expected to be implemented which will give a fresh impetus to India's growth engine particularly in the corporate and SME sector which in turn will expand demand for the logistics sector. The biggest boost to the growth of the industry is coming from the increasing consumer demand, particularly in the Tier 2 and 3 sections of the country. This is being further fueled by the revolutionary growth being seen in e-commerce which is leading to logistics companies responding with new innovations in service since logistics is the most critical ingredient in the success of an online business.

7. OVERVIEW OF INTERNATIONAL MARKETING LOGISTIC AND INDIAN LOGISTIC INDUSTRY

International marketing is becoming more important to companies as the world shifts from distinct national markets to linked global markets. Globalization brings homogenization of consumer needs, liberalization of trade, and competitive advantages of operating in global markets. Companies are forced to think and act globally in order to survive in such a dynamic environment. All these elements have a deep impact on the development and the positioning of companies on international marketplaces where competition is cruel. Furthermore, another significant change concerns the customers since they are more demanding in term of quality, lead time and order fulfilment. In this context, firms must be more and more flexible and reactive to anticipate and to adapt to such changes. This quest for flexibility and reactivity affects the conception and the management of firms and more generally their logistic systems and contributes to the development of partnership relations, to the emergence of mergers or strategic alliances between companies. As a result, a 2 firm can no longer be considered as an isolated entity but as a component of a wider supply network. International Firms have begun to implement various strategies in order to remain competitive in world market. Logistics is one of the key areas in the process of international marketing as the delivery of goods to the buyer is as important as any other activity in business and marketing. Quite often, the most crucial part in International trade is the timely delivery of goods at a reasonable cost by the exporter to the importer. In fact, the prospective buyer may be willing to pay even higher price for timely supplies. The emergence of logistics as an integrative activity, with the movement of raw materials from their sources of supply to the production line and ending with the movement of finished goods to the customer has gained special importance. Earlier on, all the functions comprising logistics were not viewed as components of a single system. But, with emergence

of logistic as an important part of corporate strategy due to certain developments in the field of international marketing has gained special significance.

Logistic is the management of the flow of goods, information and other resources, including energy of goods and people ,between the point of origin and the point of consumption ,in order to meet the requirement consumers . Logistic involves the integration of information, transportation , inventory , warehousing , material handling , packaging , occasionally security. Logistic is a channel of the supply chain reaction which adds the value of time and the place of utility.

A developed or an economy is expanding its horizon for its overall development .It requires the integration of both logistics and marketing . This greatly influences the facilitation of the concepts of logistics and marketing . There is interplay between flow oriented logistics and marketing -oriented concept of marketing . Thus , the manufacturer of a product is benefited in such a way that he/ she is enabled to increase the informational and material purposes of the product as evaluated by the end-consumer. This integration also helps in stimulating the emergence of marketing logistic within the logistics structure to provide the customer with a wide range of option.

The Indian logistics industry was valued at an estimated US\$ 130 billion in 2012-13. It has grown at a CAGR of over 16 per cent over the last five years. The industry comprises the following main segments: Freight and passenger transportation via road, rail, air and water Warehousing and cold-storage The contribution from the movement of goods including freight transportation and storage is about 90 per cent. Aggregate freight traffic is estimated at about 2-2.3 trillion tonne kilometres. Road dominates the mode of freight transport mix and constitutes about 60 per cent of the total freight traffic. Rail and coastal shipping account for about 32 per cent and 7 per cent, respectively, while the share of inland waterways transportation and air is less than 1 per cent each. Warehousing comprises industrial and agricultural storage. Of the total warehousing space of about 1,800 million sq ft, the industrial and agricultural segments constitute about 86 per cent and 14 per cent, respectively. Government organisations including Food Corporation of India, Central Warehousing Corporation and the state warehousing corporations account for about two-thirds of the agricultural warehousing segment¹ . Warehousing also includes cold storage, comprising over 5,300 units; most of which are concentrated in the states of Uttar Pradesh, Punjab and West Bengal. According to the Ministry of Agriculture, at present, the cold chain capacity is about 9 million tonnes.

INDIAN AIR TRANSPORT: India's aviation industry has been witnessing a boom due to exponential growth in the domestic passenger carriage, cargo movement and international air traffic. India has jumped to 9th position in the world aviation market in 2007 from 12th in 2006. The airlines business is growing at 27 per cent per annum in India. During 2007, domestic airline passenger traffic has shown a growth of 32.51 per cent. Moreover, India's new international status as IT and manufacturing hub has led to the growth of international air traffic.

The aviation sector can be subdivided into the airport and airline industry. Sound airport infrastructure is a vital component of the overall transportation network and contributes directly to a country's international competitiveness. It also encourages flow of foreign capital into the economy. The FDI limits in civil aviation sector includes upto 49% on automatic route and upto 100% for NRI in Air Transport Services subject to no direct or indirect participation by foreign airlines. Also, includes FDI upto 100% for setting up Greenfield airport projects.

As far as the airlines are concerned, there are a number of companies, both public and private sector, which are providing passenger transport and cargo handling services in the country. In the public sector, there are mainly **Air India**, Air India Charters Limited and **Alliance Air**. In the private sector, there are 8 scheduled airlines (passenger), namely, **Jet Airways, Sahara Airlines, Deccan Aviation, Go Airways, Spice Jet, Kingfisher Airlines, Paramount Airways** and **Inter Globe Aviation Ltd. (Indigo)**. There is also a cargo private scheduled airline called as the **Blue Dart Aviation Ltd**. Besides, there are 86 companies, holding non-scheduled air transport operators permit.

Further, in order to increase international connectivity and facilitate foreign travel for passengers, India has entered into '**Air Service Agreements (ASA)**' with around 103 countries. These **bilateral agreements** provide the basic legal framework for operation of air services between the two contracting parties. The number of flights each country can operate and the destinations that could be served are also specified in these agreements.

The **Ministry of Civil Aviation** is the nodal authority responsible for the formulation of national policies and programmes for development and regulation of the civil aviation industry in the country. Its functions also extend to

overseeing airport facilities, air traffic services and carriage of passengers and goods by air. Two separate organizations under the Ministry monitor and regulate the sector:-

1. Directorate General of Civil Aviation (DGCA) is the regulatory body responsible for regulation of air transport services to/from/within India and for the enforcement of civil air regulations, air safety and airworthiness standards. The regulations are in the form of the **Aircraft Act,1934**; the **Aircraft Rules,1937**; the **Civil Aviation Requirements**; and the **Aeronautical Information Circulars**. Its other functions include:-

- Registration of civil aircraft;
- Formulation of standards of airworthiness for civil aircraft registered in India and grant of certificates to such aircrafts;
- Licensing of pilots, aircraft maintenance engineers; flight engineers; and air traffic controllers;
- Maintaining a check on the proficiency of flight crew, and also of other operational personnel such as flight dispatchers and cabin crew;
- Conducting investigation into accidents/incidents and taking accident prevention measures;
- Carrying out amendments to the Aircraft Act, the Aircraft rules and the Civil Aviation requirements for complying with the requirements of International Civil Aviation Organisation (ICAO);
- Granting approval to aircraft maintenance, repair and manufacturing organizations;
- Rendering advice to the Government on matters relating to air transport including bilateral air services agreements; on ICAO matters and on all technical matters relating to civil aviation; etc.

2. Bureau of Civil Aviation Security (BCAS) is the regulator for civil aviation security in the country. It's main responsibility is to lay down standards and measures in respect of security of civil flights at International and domestic airports in India. This also includes planning and co-ordination of all aviation security related activities, operational emergencies and crisis management. It is the "Appropriate authority" to ensure development, maintenance, updation and implementation of 'National Aviation Security Programme' for India and fulfill all international obligations in this context. The bureau has four 'Bomb Detection and Disposal Squads (BDDS)' positioned at the international airports of Delhi, Mumbai, Kolkata and Chennai with latest sophisticated equipment like Robot, Real time Viewing System (RTVS), Electronic Stethoscope, Explosive Detector, etc.

The Ministry of Civil Aviation has the following public sector undertakings/companies/autonomous bodies under its administrative control:-

1. National Aviation Company of India Limited (NACIL) :- is a company incorporated under the **Companies Act, 1956** and has the functions and responsibilities of providing safe, efficient, adequate, economical and properly coordinated international air transport services. It has been set up after the merger of Air India and Indian Airlines in 2007. This merger aims to create the largest airline in India. The name of the new airline is Air India and its logo is Maharaja. NACIL is carrying its operations under two operating permits, viz., NACIL-A and NACIL-I. It has following wholly owned subsidiaries, namely, **Hotel Corporation of India Limited**, Air India Charters Limited (AICL), Air India Engineering Services Ltd (AIESL); Air India Air Transport Services Limited (AIATSL); and **Alliance Air**.

2. Airports Authority of India (AAI) :- was constituted in 1995 for creating, upgrading, maintaining and managing civil aviation infrastructure, both on the ground and air space of the country. It aims at providing world class airport services for efficient operation of air transport in the country. It manages 127 airports, which include 16 **international airports**, 8 **customs** and 79 **domestic airports** and 24 **civil enclaves** at defence airfields. It controls the entire Indian airspace of 2.8 million square nautical miles.

3. Pawan Hans Helicopters Limited (PHHL) :- was established in 1985 as the country's national helicopter company for providing helicopter support services to the Oil Sector; operate scheduled/non-scheduled helicopter services in inaccessible areas and difficult terrains; as well as provide charters for promotion of travel and tourism. It has a well balanced fleet of 35 helicopters consisting of Bell 206L4, Bell 407, Dauphin SA 365N & AS 365N3 and Mi-172, which are most appropriate for multi-farious jobs. It is the only aviation company in India being awarded ISO 9001:2000 certification for its entire gamut of activities.

4. Indira Gandhi Rashtriya Uran Akademi (IGRUA) :- was established by the Government with the objective of improving the flying training standards in civil aviation and to impart line oriented flying training of international standards. It has been set up at Fursatganj in Rai Bareilly District of Uttar Pradesh. It is equipped with modern and sophisticated trainer aircraft, flight simulators, computer based training system, runway with modern navigational and landing aids and its own airspace. It is manned by highly qualified flying and ground instructors, with long experience in the field of aviation and flying training.

With liberalisation of the Indian economy and its global integration, continuous upgradation and modernisation of the aviation sector has become critically important. Accordingly, the current policy focus of the Government is on modernisation of the existing airports as well as the construction of new ones. For instance, the international airports in Delhi and Mumbai are being restructured through public-private partnership. Two **greenfield airport** projects at Bangalore and Hyderabad are being implemented on Build Own Operate Transfer (BOOT) basis. The AAI has decided to develop and modernise 35 non-metro airports to world class standards. Also, the bilateral arrangements are being strengthened for ensuring better international connectivity.

Air cargo volume grew at a compound annual growth rate (CAGR) of about 8.5 per cent from 0.7 MMT in 1998-99 to 2.2 MMT in 2012-13. International traffic accounts for about 64 per cent of the total air cargo traffic and domestic cargo accounts for the remaining 36 per cent. Between 1998-99 and 2012-13, domestic and international cargos have grown at a CAGR of 10.4 per cent and 7.6 per cent, respectively. Expanding cargo-handling infrastructure at airports, demand for speedy delivery, greater trade and commerce and increase in the number of flights operating – are some of the key reasons for this growth. Future growth in international cargo traffic is expected to be fuelled by trade agreements, especially, with the Asia-Pacific region, and trade in sectors like electronics, garments and pharmaceuticals. Growth in domestic cargo traffic is expected to be led by expansion of industrial activity beyond existing centres. Investments in airport and logistics infrastructure are also expected to drive demand of air cargo.

Proposed investments and private sector participation: For developing airport infrastructure, the government has proposed an investment of US\$ 13.5 billion² in the Twelfth Five-Year Plan period, which is almost double of that proposed in the Eleventh Five-Year Plan. This would include building and expanding cargo terminals. The private sector's contribution is expected to be 74.1 per cent.

Some of the projects included in the investment plan are as follows:

- Ongoing modernisation of the metro-airports - Kolkata and Chennai.
- Modernisation of 35 non-metro airports, of which, 20 are complete and 15 are ongoing.
- Development of air-freight stations (AFS) For example, Container Corporation of India and Cargo Service Centre India Private Limited have announced plans to set up an AFS at Mulund in Mumbai. Container Corporation of India also plans to develop AFSs in Ahmedabad, Pune and other major locations.

INDIAN WATER TRANSPORT: strategic location of a long coastline that flanks important global shipping routes, makes it a major maritime nation. The maritime sector in India comprises of ports, shipping, shipbuilding and ship repair as well as inland water transport systems. About 95% of the country's trade by volume and 70% by value is moved through maritime transport. With India's current share in global merchandise trade at around 0.80%, a sound maritime infrastructure plays an important role in the pace, structure and pattern of our economic development.

Department of Shipping (DOS), under the Ministry of Shipping, Road Transport & Highways, is the nodal organisation entrusted with the responsibility of formulating and implementing policies and programmes on these sectors. Vision of Department of Shipping is to take Indian maritime sector to commanding heights in order to serve India's trade and security interests in an efficient and economical manner. It has been taking several measures for upgrading and modernizing the maritime infrastructure in the country so as to meet the international standards. One such important step has been the formulated of the '**National Maritime Development Programme (NMDP)**' comprising a total of 387 projects which cover the entire gamut of activities in ports, merchant shipping and inland water transport. The objective of the programme is to facilitate focused and accelerated investment in specific infrastructure including port infrastructure, tonnage acquisition and institutional capacity building. It envisages a total investment of Rs. 100,339 crores out of which Rs. 55,804 crores is for major ports and the rest for shipping and inland water transport sectors.

The programme aims at:-

- Creating world-class infrastructure in ports.
- Encouraging Indian tonnage to meet Indian sea/water transportation requirements.
- Enhancing share of inland water transportation of goods in domestic trade.
- Promoting multi modal transportation of goods to facilitate trade.
- Protecting marine environment in partnership with other concerned agencies.

With the above aims and objectives in view, a development plan upto 2011-12, has been formulated after assessing the national traffic demand; additional capacity required to meet this demand; as well as the investment required and the funding pattern. Thus, through this programme, the Department of Shipping, seeks to fortify Indian maritime/water transportation system including ports, shipping and inland waterways in order to serve the economic and strategic needs to the country in an improved manner.

Shipping routes through coasts and inland waterways are primarily used for transportation of bulk freight. India possesses about 14,400 km of inland waterways. Over 3,600 km are navigable by large vessels, of which about 55 per cent is being used. To exploit the potential of this mode of transport, six national waterways have been declared; three of which are operational while three are being developed. In 2012-13, the estimated cargo movement via inland waterways was at around 89 million tonnes. The coastal-cargo traffic at major Indian ports has grown at a CAGR of about 2.6 per cent from 76 MMT in 1998-99 to 106 MMT in 2011-12. The freight via water is expected to grow further in the light of the Maritime Agenda 2010-2020, increasing contribution from non-major ports and growing focus on ports on the east coast. Overall cargo traffic has increased at non-major ports at a CAGR of about 19 per cent in the 14 years since 1998, indicating strong growth potential for these ports in the coming years; especially as the infrastructure improves.

Proposed investments and private sector participation: In January 2011, the Government of India launched the Maritime Agenda, 2010-2020, to increase the total port capacity. The salient features of the agenda are as follows:

- It envisages an investment of US\$ 57.4 billion in a phased manner to create a total port capacity of around 3,200 MMT. The non-major and major ports are expected to contribute 61 per cent and 29 per cent of the proposed investment, respectively.
- Capacity expansion by way of construction of new berths and jetties is likely to account for 65 per cent of the total outlay. Other support works such as connectivity works, channel deepening and equipment are likely to account for 35 per cent of the total outlay. In particular, the government aims to create an additional cargo handling capacity of around 900 MMT at ports along the East coast through an investment of about US\$ 22.5 billion.
- The funding of the projects under Maritime Agenda is to come, largely, from the private sector. The private sector is expected to contribute 66 per cent and 98 per cent of the total investments in major and non-major ports, respectively. The number of scheduled public-private partnership projects (PPP) in the maritime sector has significantly gone up from around 12 in the year 2008-09 to 29 in 2012-13.
- The projects in the construction phase include container terminal expansion and development of thermal coal and copper concentrate handling facility at V.O. Chidambaranar Port
- Some projects in pipeline include container terminal expansion, modernisation of iron ore handling complex and installation of mechanised handling facilities at Vishakhapatnam port.

Inland Water Transport (IWT) is a fuel efficient and environment friendly mode of transportation. India is richly endowed with navigable waterways, comprising rivers, canals, backwaters, creeks, etc. It is estimated that a total of about 14500 km of the waterways could be used for passenger and cargo movement. About 55 million tonnes of cargo is being moved annually by inland water transport. But, this means of transport is important only in few States, namely, Assam, West Bengal, Bihar, Mumbai, Goa and Kerala. Also, it is operational only in restricted stretches of Ganga-Bhagirathi-Hooghly rivers; the Brahmaputra river; the Barak river; the rivers in Goa; the backwaters in Kerala; inland waters in Mumbai and the deltaic regions of the Godavari-Krishna rivers.

Besides, the capacity of this sector is under-utilised, because most navigable waterways suffer from hazards like shallow water and narrow width of channel during dry weather; silting of river beds and erosion of banks; absence of adequate infrastructural facilities like terminals for loading and berthing and surface road links.

Hence, as a part of the Government's policy to optimally develop and harness the potential of Inland Waterways in the country, the '**Inland Waterways Authority of India (IWAI)**' was set up under the '**Inland Waterways Authority of India Act, 1985**'. The IWAI has been established for the development and regulation of inland waterways for shipping and navigation and for matters connected therewith or incidental thereto. The Inland Waterways Authority of India Act, 1985, empowers the Government to declare waterways with potential for development of shipping and navigation as **National Waterways**.

Currently, three waterways have been declared as National Waterways :-

1. **National Waterway No.1:-** The Ganga between Allahabad-Haldia (1620 km) in UP, Bihar, Jharkhand and West Bengal;
2. **National Waterway No.2:-** The Sadiya-Dhubri stretch of river Brahmaputra (891 km) in Assam; and
3. **National Waterway No.3:-** The Kollam-Kottapuram stretch of West Coast Canal along with Champakara and Udyogmandal Canals (205 km) in Kerala.

Also, in order to provide an impetus to the development of inland water transport mode, an '**Inland Water Transport Policy**' has been announced. It includes several fiscal concessions and guidelines for encouraging private sector participation in development of infrastructure and ownership and operation of inland vessels. IWAI is also authorized for joint ventures and equity participation in BOT projects.

Ports play a crucial role in the transportation sector of India. They provide an interface between the ocean transport and land-based transport. India has an extensive port infrastructure covering 12 major ports and 187 minor/intermediate ports (non-major ports). The total non-major ports are in the following States:- Gujarat (42); Maharashtra (48); Tamil Nadu (15); Karnataka (10); Kerala (17); Andhra Pradesh (12); Odisha (13); Goa (5); West Bengal (1); Daman and Diu (2); Lakshadweep (10); Pondicherry (2); and Andaman & Nicobar (23). While, the major ports along:-

1. *The east coast include:-*

- i. **Kolkata port (including Dock complex at Haldia):-** is the oldest and the only riverine major port of India. It has a vast hinterland comprising the entire eastern India and two landlocked neighbouring countries of Nepal and Bhutan.
- ii. **Paradip port :-** is the only major sea port in Odisha.
- iii. **Visakhapatnam port:-** is a natural harbour. It is the only port to possess the three International accreditations of ISO 14001; 2004 (EMS) / OHSAS 18001 and ISO 9001:2000 (QMS).
- iv. **Chennai port:** is an all weather artificial harbour with one outer harbour and an inner harbour with a wet dock and a boat basin with round the clock navigation facilities.
- v. **Ennore port:-** is situated on the coromandal coast about 24 km north of Chennai Port, along the coast line, in the State of Tamil Nadu. It is the first corporatised major port in India. It is an all weather port with State-of-the art infrastructure and modern navigational facilities.
- vi. **Tuticorin port:** also situated on the east coast of Tamil Nadu. It has two operational wings, namely, Zone 'A' comprising the new major port and Zone 'B' representing the old anchorage port, which were merged together on 1st April 1979, when Tuticorin Port Trust was constituted.

2. *The west coast include:-*

1. **Cochin port:-** was formally opened for vessels by 1930-31 and was given the status of a major port in 1936.
2. **New Mangalore port:-** has a modern all weather artificial lagoon situated at Panambur, Mangalore in the State of Karnataka on the west coast of India.
3. **Mormugao port:-** is one of the century old ports with modern infrastructural facility and is one of the finest natural harbours in the world.

4. Jawaharlal Nehru port is India's largest container port and also has become a world class international container handling port.

5. Mumbai port:- is a natural deep water port, the second oldest major port of India after Kolkata. Originally, a general cargo port, today it is a multi-purpose port handling all types of cargo-liquid bulk, dry bulk, break bulk and containers.

6. Kandla port: - a natural harbour situated in the State of Gujarat, is a gateway to the North-Western States.

All the Major Ports are administered by the 'Port Trusts' governed by the provisions of Major Port Trust Act, 1963 which are autonomous bodies, except the newly 'Ennore Port' which is run by 'Ennore Port Limited' (registered under the Companies Act, 1956). Besides, there is a subordinate office namely, the 'Andaman Lakshdweep Harbour Works (ALHW)'. It is under the control of the Department of Shipping and is entrusted with the responsibility of formulating and implementing the programme for providing port and harbour facilities in A&N Islands and Lakshdweep Islands. The remaining ports are under the administrative control of the respective maritime State Government.

There has been a phenomenal growth in the cargo handled at the ports, which has increased from 19.38 million tonnes (major ports) in 1950-51 to around 649.38 million tonnes (major and non-major ports) by 2006-07. At the beginning of the Tenth Plan, the capacity of major ports was about 344 MT. The aggregate capacity as on 31.3.2007 has been 504.75 million tonnes per annum (MTPA). Container traffic handled at major ports is also fast increasing. About 75 per cent of the cargo handled normally at these ports is for overseas trade. The major ports have handled a total traffic of 463.84 million tonnes during the year 2006-07 and 423.99 million tonnes in the year 2007-08 for the period upto 31.1.2008. Traffic in these ports is projected to go upto 700 MT by the year 2011-12. While, traffic at non-major ports and private ports is growing at 11.74 per cent (CAGR) and their share is expected to grow from 26.30 per cent in 2005-06 to 30 per cent in 2011-12.

Given the existing set up, in order to meet the gap between increasing demand and available port capacity, private and foreign investment in ports is being encouraged by the Government. The Government has opened up its major ports for private sector participation. This is expected to mobilise the required resources, improve efficiency, productivity and quality of services as well as bring competitiveness in port services.

ROAD TRANSPORT:

In the 20th century, the old modes of transport, the cart and the carriage were still used. The new additions specially in the north of India were all horse drawn. They were the *tanga*, *ekka* and *shikram* a box-like four wheeler. Carriages on the European pattern also came into use such as the landau, buggy, trap, phaeton or Victoria. Hand drawn and hand pushed carts were also used for conveying people. The palanquin and *dolie* carried by men were also used as transport for people. This was the case in cities. In the rural areas bullock carts were widely used.

World over, the state of the automobile industry has served as a barometer of the fortunes of the industrial sector as a whole. The state of consumer demand is reflected in auto sales which in turn have wide repercussions because of extensive linkages with suppliers. It is therefore a happy fact that the automobile sector is one of the fastest growing industries in India.

Prior to independence in the 1940s India had no automobile industry to speak of. Cars were brought into the country in a knocked down condition from England. They were reassembled to serve the minuscule market provided by the British ruling class and some Indian elites. The presence of such vehicles led to the birth of an indigenous spare parts industry mostly concentrated in the south of the country.

Today, the automobile industry is fast maturing. It sells about 4 million vehicles which is nearly 10 times more than the 45,000 sales that were realized in 1984. Over the last three years, the industry has been recording growth rates of 20%. Over 2 billion dollars of direct foreign investment has flowed into this sector alone. Virtually every automobile giant in the world be it General Motors, Peugeot, Mercedes-Benz, Ford, Fiat, Daewoo, Hyundai or Honda have invested substantially in setting up production facilities in India.

The encouraging policy environment, continuously rising incomes, and the increasing availability of consumer finance is likely to ensure that the auto industry continues its present rate of expansion.

The boom in the automobile industry has had a favourable impact on the auto components sector which has grown in an even more spectacular fashion at a rate of more than 30% per annum. The industry manufactures the entire range of parts from castings and forgings to final assemblies. There are over 300 medium and large units and several thousand small sector units active in the industry employing about 250,000 people. As regards future growth, investments of about \$ 400 million are expected to be made in the next few years. Much of this investment would come from foreign companies which have shown tremendous interest in developing the Indian auto components industry as a sourcing centre for their worldwide operations. At the beginning of 1996 there were 250 foreign collaborators (mainly from Japan, UK, USA, Germany) operating in India. In the first eight months of 1996 37 new joint ventures were finalized. Wholly owned subsidiaries, such as for instance by the GM owned Delphi Automotives, are also being set up.

The auto components industry has now emerged as a sector with competitive advantage. Exports in 1995-96 were of the order of \$ 250 million. Parts were exported to the plants of GM, Mercedes, IVECO, and Daewoo. Fuel injection parts, motorcycle components, gears, break systems, spark plugs and accessories were some of the chief export items. A sustained annual export growth of over 20% is expected in the future. Industry experts also foresee a continuation of recent trends away from single component parts to complete systems. This would add to the value creation potential of the industry.

Unlike other modes of transport, roads address the demand for goods to cities as well as remote areas of the country. Since 1999-2000, road freight has increased from 467 billion tonne kilometres(BTKM) to Indian Logistics Industry: Gaining Momentum 8 1,250 BTKM in 2011-12, at a CAGR of 8.6 per cent. It is estimated to have grown to 1,315 BTKM for 2012- 13. According to the Ministry of Road Transport and Highways, road freight is expected to reach 1,835 BTKMs by 2016-17. Development of national highways: National highways account for more than 40 per cent of the total road traffic. In the 12th Five-Year Plan period, the Government of India has set a target to construct 36,632 km of national highways in the period 2012-17, i.e., 2.65 times the target set in the previous plan period. Launched in 1998, the National Highways Development Programme (NHDP) aims to develop 50,000 km of National Highways by 2015 in seven phases and with an investment of US\$ 600 billion. Once completed, this is expected to further fuel the demand for road transport.

Private sector participation: The Government of India targets to secure 33 per cent of the funding for the total investments in road infrastructure from private players. It has announced several incentives to attract private players; including provision of 100 per cent tax exemptions in any consecutive 10 years out of 20 years after commissioning of the project, and duty free imports of high-capacity construction plant and equipment.

Many states in India, including Gujarat, Rajasthan, Madhya Pradesh and Maharashtra, have started awarding state highway contracts on a build-operate-transfer basis to private entities. Under this agreement, the state government delegates the work of 'design, build and operate' of state highways to a private sector entity for a certain period. Post the end of the period, the facility is transferred to the state government.

Some of the recent road PPP projects approved by National Highways Authority of India include:

- Four laning of Rohtak-Hissar section of NH-10 in Haryana .
- Four laning of Bhavnagar-Veraval section of NH-8E in Gujarat
- Six laning of Chakeri-Allahabad section of NH-2 in Uttar Pradesh
- Four laning of Khed-Sinnar section of NH-50 in Maharashtra

Roads are considered to be one of the most cost effective and preferred modes of transportation. It is easily available and accessible to all the sections of the society. It facilitates the movement of both men and materials from one place to another within a country. It helps to bring about national integration as well as provide for country's overall socioeconomic development. It is a key infrastructural unit which provides linkages to other modes of transportation like railways, shipping, airways, etc. Hence, an efficient and well-established road network is inevitable for promoting trade and commerce as well as meeting the needs of a sound transportation system in the country.

India has one of the largest road networks in the world, aggregating to 3.314 million kilometers and consists of Expressways, National Highways, State Highways, Major District Roads, Other District Roads and Village Roads. The National Highways (NHs), with a total length of 66,754 km, serve as the arterial network of the country. They connect the

State capitals, ports and big cities. They comprise only about 2 per cent of the total length of roads, but carry about 40 per cent of the total traffic. Out of their total length, 27 per cent is single lane/intermediate lane; 59 per cent is double-lane standard; and the balance of 14 per cent is four-lane/ six-lane/ eight lane standard. While, the State Highways (1,28,000 km) are the main roads of the State. They connect the capital and major cities of the States. The major district and other district roads have a total length of 4,70,000 km and facilitate the linkage between the main roads and rural roads. The rural roads, account for about 26,50,000 km, provide villages accessibility to other roads in order to meet their social needs, such as transporting agriculture produce to nearby markets.

In India, the **Department of Road Transport and Highways**, under the Ministry of Shipping, Road Transport and Highways, is the main authority concerned with the development of roadways. It has the overall responsibility for planning, construction and development of National highways in the country. While, all roads (other than NHs) fall within the jurisdiction of the respective State Governments. The department is entrusted with the task of formulation of broad policies relating to regulation of road transport in the country, besides making arrangements for movement of vehicular traffic with the neighbouring countries. It has two wings to carry out its various functions, namely:-

▪ **Roads wing** - deals with the matters relating to development and management of National Highways, in accordance with the provisions of **National Highways Act, 1956**. Its other main functions are:-

- i. Extending technical and financial support to State Governments for the development of State roads as well as the roads of inter-State connectivity and economic importance
- ii. Evolving standard specifications for roads and bridges in the country
- iii. Serving as a repository of technical knowledge on roads and bridges etc.

▪ **Transport wing** - deals with the matters relating to road transport system in the country. It is mainly responsible for administration of **Motor Vehicles Act, 1988** and **Road Transport Corporations Act, 1950**; taxation of motor vehicles and their compulsory insurance; and promotion of transport co-operatives in the field of motor transport. Its other functions are:-

- i. Evolving road safety standards in the form of a **National Road Safety Policy** as well as preparing and implementing the Annual Road Safety Plan
- ii. Collecting, compiling and analysing road accident statistics
- iii. Taking steps for developing a road safety culture in the country by involving the members of public and organising various awareness campaigns etc.

However, the Ministry is carrying out the operations of National Highways through three agencies, that is, State Public Works Department (PWD), **Border Roads Organisation (BRO)** and **National Highways Authority of India (NHAI)**. The execution of works and day-to-day management of most National highways in States are looked after by the respective PWDs. While, BRO is primarily responsible for construction and maintenance of roads in the border areas, classified as General Staff (GS) roads. It has not only linked the border areas of the North and North-East with the rest of the country, but has also developed the road infrastructure in Bihar, Maharashtra, Karnataka, Rajasthan, Andhra Pradesh, the Andaman and Nicobar Islands, Uttarakhand and Chhattisgarh. There are about 46,884 km of National Highways whose development and maintenance are presently being carried out by the respective PWDs and the BRO.

The **National Highways Authority of India (NHAI)**, constituted under the National Highways Authority of India Act, is the major agency for implementing the important projects on National highways in the country. Traditionally, these road/national highway projects were fully financed and controlled by the Government. But the increasing pressure of traffic and the resulting demand for road infrastructure had made it imperative to attract private investments into the sector. Hence, **National Highways Act (NH Act) 1956** was amended in June 1995 and private persons were allowed to invest in the NH projects; levy, collect and retain fee from users; etc. The beginning of significant private participation in roadways was made with the launching of India's largest road project called as the '**National Highways Development Project (NHDP)**'. The NHDP is a massive project taken up for the improvement and development of National Highways in the country and is being implemented in a phased manner by the NHAI.

The NHDP consists of the following components:-

- **NHDP Phase I & II** - Comprise of Golden Quadrilateral (GQ) and North-South and East-West Corridors. The Golden Quadrilateral (GQ-5,846 km) connects the four major cities of Delhi, Mumbai, Chennai and Kolkata. While, the North-South and East-West Corridors (NS-EW-7,300 km) connect:-
 - i. Srinagar in the North to Kanyakumari in the South, including spur from Salem to Cochin; and
 - ii. Silchar in the East to Porbandar in the West. The total estimated cost of the NHDP Phase I and II, having a total length of 14,357 km, is about Rs. 64,639.

The NHDP also includes 'Port Connectivity Project' comprising a length of 380 km for improvement of roads connecting 10 major ports in the country and other projects involving a length of 962 km.

- **NHDP Phase III** - Envisage four / six laning of 12,109 km of National Highways on Build, Operate and Transfer (BOT) basis. It consists of stretching the National Highways carrying high volume of traffic; connecting State capitals with the NHDP Phases I and II network; as well as providing connectivity to places of economic, commercial and tourist importance. The Government has approved implementation of 4815 km under NHDP Phase-IIIA and proposal for implementation of the balance length of about 7,294 km under Phase-IIIB has been approved recently.
- **NHDP Phase IV** - Envisage two laning of 20,000 km at an indicative cost of Rs.27,800 crore. It aims to provide balanced and equitable distribution of the improved/widened highways network throughout the country.
- **NHDP Phase V** - Envisage six laning of 6,500 km of national highways on Build, Operate and Transfer (BOT) basis. It comprises of 5,700 km of GQ and other selected stretches, at a cost of Rs. 41,210 crore.
- **NHDP Phase VI** - envisage construction of 1,000 km of expressways with full access control on new alignments at a cost of Rs. 16,680 crore. This would be beneficial for several growing urban centres of India, particularly those located within a few hundred kilometers of each other.
- **NHDP Phase VII** - envisage other Highway Projects at an indicative cost of Rs.16,680 crore. It includes construction and development of ring roads of major towns, bypasses, service roads, flyovers, elevated roads, tunnels, grade separated interchanges, etc. on National Highways, with a view to fully utilise the highway capacity as well as enhance safety and efficiency.

Also, the '**Special Accelerated Road Development Programme for North Eastern region (SARDP-NE)**' has been announced as a part of NHDP Phase -VII programme. The **Department of Road Transport and Highways** has been paying special attention to the development of National highways in the North-Eastern (NE) region of the country. SARDP-NE aims to improve road connectivity to all the State capitals, district headquarters and remote places in the NE region. It envisages improvement or construction of 8,737 km of roads (National Highways; State roads; and roads of strategic importance). This will ensure connectivity of 85 district headquarters in the eight North-Eastern States to the National Highways /State roads. The programme is to be implemented in two phases:-

- **Phase A** - Under this, 2304 km of roads have been approved for implementation at an estimated cost of Rs. 12,793 crore, out of which Rs. 8,173 crore would come from GBS and Rs. 4,620 crore would be leveraged against annuity payments to be made from the cess by NHAI. The likely target date for completion of Phase A is 2012-13.
- **Phase B** - This involves providing 2-lane connectivity to the 51 district headquarter towns of NER. The Government has accorded approval for the preparation of Detailed Project Reports (DPRs) for roads.

A sound infrastructural foundation is the key to the overall socio-economic development of a State. This acts as a magnet for attracting additional investment into a State and thus provides a competitive edge to it over other States. Availability of adequate and efficient infrastructural set up not only promotes rapid industrialization, but also improves the quality of life of the people of the State. This sector includes railways, roadways, ports, aviation, power, telecommunication, etc. All such services, by connecting the State with other parts of the country and world, ensure the progress and growth of the whole nation.

Until recently, the State Governments had been creating infrastructural facilities in their respective States out of their own budgetary resources, supplemented with some assistance from other Governmental and international agencies. But with

the opening up of economy and the resulting increase in competition (both domestic and abroad), there has been a depletion in the resources available for infrastructure development and maintenance. Hence, the State Governments have been making all efforts for attracting capital inflows into the infrastructure sector. The most important step in this direction has been the initiation of '**Public Private Partnership (PPP)**' programme. PPP refers to a long-term contractual partnership between the public and private sector agencies, specifically targeted towards financing, designing, implementing and operating infrastructure facilities and services in the State. These PPPs aim to achieve the twin objectives of high growth and equity on a sustainable basis.

The State Governments have identified a whole range of sectors for public-private partnership, including roads/highways, tourism, industrial infrastructure, shipping, etc. Some of the key infrastructure initiatives undertaken by the States using PPPs are:-

- **Karnataka:-** The major PPP project under implementation in the State is the 'Bangalore International Airport'. This is the first airport in the country being executed through the PPP route. The airport is being developed through a joint venture of the **Airports Authority of India (AAI), Karnataka State Industrial Investment and Development Corporation Ltd. (KSIIDC)** and private promoters (Siemens, Zurich Airport, Larsen & Toubro). Some of the other such projects are the Hassan–Mangalore Rail Line for Rs 310 crore (completed); the elevated expressway to E-City (Rs 600 crore, under construction); etc.
- **Andhra Pradesh:-** The major PPP project in the State is the 'Hyderabad International Airport', being executed under the build own operate (BOO) format. The other such projects are the Kakinada Deep Water Port, being developed on the operate- maintain- share-and-transfer (OMST) format; the **Gangavaram Port**, in the build own operate and transfer (BOOT) mode; FAB City; Hyderabad Outer Ring Road; Kakinada SEZ; Integrated Township and Convention Center; Jawaharlal Nehru Pharma City; Hyderabad Integrated Trade and Exposition Center; Hitec City and several knowledge, IT and biotechnology parks.
- **West Bengal:-** The major PPP initiatives in the State are the Salt Lake City Center and the Hiland Residential Project (under joint venture). The other proposed PPP projects include four-laning of Kalyani–Dum Dum Expressway; Water Park-cum-Entertainment Center along the Eastern Metropolitan Bypass; as well as transport, residential, commercial and entertainment/leisure infrastructure at Asansol, Howrah, Durgapur and Kolkata. Besides, the housing projects coming up on the outskirts of Kolkata City are a good example of PPP model in terms of delivering quality housing.
- **Kerala:-** The major PPP initiatives under way in the State are the 'Trivandrum City road improvement project' and the 'Vizhinjam International Container Transshipment project'. The former encompasses ten city road corridors and three National Highway bypasses of around 42 km as well as one underpass and two flyovers at junctions of strategic importance. The project is being implemented under build-operate-transfer (BOT) scheme on an annuity basis and its total cost is estimated at Rs 145 crore. While, the latter has been planned as a futuristic port facility which, upon completion, would be able to handle 4.1 million containers of twenty-foot equivalent units (TEUs) and vessels of the order of 12,000 TEU size with a total berth length of 2860 meters.
- **Madhya Pradesh:-** The State is a pioneer in PPP projects in the road sector. It has developed 1500 km roads under BOT. Other sectors with PPPs are water supply, city bypass, mobile medical units, bus stands, etc. The major PPP projects are the Dewas town bypass; Dewas industrial water supply project; mobile medical units and special economic zone (SEZ).
- **Gujarat:-** The concept of PPP was introduced in the State in the early 1990s, when the **Gujarat Maritime Board** commenced construction of the Pipavav port. Since then (as per the available information), twenty-one projects amounting to Rs 13,672.50 crore have been implemented through private sector participation. The State has proposed several projects under Viability Gap Funding (VGF) scheme, namely, Ahmedabad Bus Rapid Transit system; Rajkot–Jamnagar–Vadinar Road; Ahmedabad Convention Center; Dahej SEZ; Four-laning of Halol–Godhra–Shamlaji Road and Ahmedabad–Viramgam Road; etc.

For all such PPP projects, the State Governments have identified a well-defined regulatory framework. It includes enactment of legislations for clearly defining the types of infrastructure facilities, the governing authorities, the procedural requirements and the scope of private sector in execution of these projects. For example, States like **Andhra Pradesh** have enacted an Infrastructure Authority Act, which aims to facilitate private developers in securing the

mandatory administrative approvals and lays down the provisions for arbitration and fiscal regulation. It covers all the infrastructure sectors in the State.

8. INFRASTRUCTURE POLICY

Many State Governments have framed an infrastructure policy with the aim of adopting a co-ordinated and integrated approach towards infrastructure development. The policy spells out specific incentives and concessions for infrastructure projects, including upgradation of the existing facilities as well as encouraging private investments in the sector. It also provides guidelines for a speedy procedural set up and a transparent administrative support. For instance:-

- The **infrastructure policy for the State of Karnataka** aims to expand, broaden and deepen private investment in infrastructure as well as establish Karnataka as a role model for infrastructure development in the country. It applies to township development, waste management, tourism, energy, industrial infrastructure, agricultural infrastructure, education, healthcare, etc.
- The **infrastructure policy for the State of Odisha** provides a roadmap for attracting private participation in the infrastructure sector by identifying new projects and inter-sectoral linkages; deciding on the form / extent of Government support; prescribing datelines for clearances and rules; etc.

At the same time, several State Governments have framed separate policies for the individual infrastructural units. These include power policy, road policy, port policy, transport policy, telecom policy, etc. These policies aim to promote competition, foster a suitable regulatory and institutional framework as well as protect the interests of consumers in the concerned sector. For instance:-

- Power policies have been announced with a view to promote rapid development of the power sector in the respective States. Generally, their objective is to:-
 - i. Build adequate capacities in generation, transmission and distribution of power through efficient and cost effective means
 - ii. Achieve optimum utilization of existing equipments through renovation and modernisation
 - iii. Rationalize the tariff structure to ensure reasonable rate of return to power utilities
 - iv. Improve delivery of services and efficiency through technical, managerial and administrative restructuring of the utilities
 - v. Conserve energy through efficient utilization and demand management; etc.
- Port policies have been framed for the development of ports in the respective States. The objectives underlying such policies are to:-
 - i. Increase the State's share in the national and international trade and commerce
 - ii. Decongest the overall burden on existing ports in the State and thus cater to the needs of increasing traffic
 - iii. Encourage ship building, ship repairing and other such facilities
 - iv. Attract private sector investment in the existing and new port locations; etc.

Infrastructural development corporations:

State Governments have also established several agencies which look after the development and maintenance of infrastructural facilities in the particular State. They have been set up with the objective of facilitating higher flow of funds into the infrastructure sector; encouraging private sector participation; removing all the procedural bottlenecks and thus increasing the pace of implementation of infrastructure projects. For instance:-

- **Andhra Pradesh Industrial Infrastructure Corporation Ltd** is the premier organisation in the State of Andhra Pradesh, vested with the objective of providing industrial infrastructure through the development of industrial areas. It is the principle facilitator in mega projects like Special Economic Zone, Visakha Industrial Water Supply, Gangavaram Port, Convention Centre, Mega Industrial Parks at Parawada and Pashamylaram Financial District Hardware Park at

Hyderabad. It is the nodal agency for Government sponsored schemes like growth centres, export promotion industrial parks and integrated infrastructure development centres.

- **Haryana State Industrial and Infrastructure Development Corporation Limited (HSIIDC)** has been set up by the Government of Haryana as an institutional entrepreneur and a financial institution for promoting and accelerating the pace of industrialisation in the State, including infrastructural development.
- **Gujarat Infrastructure Development Board (GIDB)** has been set up by the Government of Gujarat to increase the flow of capital into the infrastructure sector; to ensure coordination among various Government agencies as well as to bring in private sector participation in the State. It identifies and prepares infrastructure projects; conducts feasibility studies; recommends risk-sharing mechanisms and monitors the progress of such projects.
- **Maharashtra State Road Development Corporation Ltd** has been set up by the Government of Maharashtra for accelerating the development of transport infrastructure facilities in the State by overseeing the completion of existing and new projects, with the active participation of the private sector.
- **Punjab Infrastructure Development Board** has been set up by the Government of Punjab as an apex body responsible for overall planning of infrastructure sector, including implementation of projects and formulation of policies, etc.

Thus, each State has been taking several steps for upgrading and enhancing its strengths in terms of infrastructural facilities. This in turn will attract more and more investors into the State and help in sustaining the competitiveness of the Indian economy on the global platform.

Warehousing and cold storage : The warehousing market is highly fragmented with organised players holding only about 8 per cent of the total warehousing space in India; which indicates tremendous opportunity. Demand for modern warehouses is on the increase. They are equipped with tall designs, modular racking systems, palletisation and use of automation systems. Establishment of free-trade warehousing zones: As per the government's initiative of setting up freetrade warehousing zones (FTWZ), several free trade zones have been established across the country with the objective of facilitating trade of goods and services in free currency. FTWZs offer a singlewindow solution for multiple logistics activities, with particular focus on trade flow. Several new FTWZs are being set up by logistics players. For example, in 2012, DHL announced plans to set up three new FTWZs.

At present, India has a cold chain capacity of around 9 million tonnes. The demand for additional cold storage capacity is expected to be about 15 million tonnes by the end of 12th Five-Year Plan period. It is expected that with the opening up of foreign direct investment (FDI) in multi-brand retail, organised food retailers would demand significant enhancements in cold chain and distribution infrastructure. In order to encourage investments in cold storage infrastructure, the government has announced several policy measures, such as granting accelerated depreciation benefits for imported equipment and greater public-private partnerships. The National Centre for Cold Chain Development has been established to strengthen the cold storage infrastructure. To meet higher demand, several logistics companies have set up subsidiaries in the cold chain management business. Some examples of the same are as follows:

- Container Corporation of India has a 100 per cent subsidiary, Fresh and Healthy Enterprises (FHEL), which is engaged in cold chain management. Its clients include Walmart, More, Big Bazaar, Mother Dairy and Big Apple.
- Gateway Distriparks Limited entered the cold chain logistics business through its subsidiary, Snowman Frozen Foods Limited, as a joint venture with Mitsubishi Group of Japan.

A sound infrastructural foundation is the key to the overall socio-economic development of a State. This acts as a magnet for attracting additional investment into a State and thus provides a competitive edge to it over other States. Availability of adequate and efficient infrastructural set up not only promotes rapid industrialization, but also improves the quality of life of the people of the State. This sector includes railways, roadways, ports, aviation, power, telecommunication, etc. All such services, by connecting the State with other parts of the country and world, ensure the progress and growth of the whole nation.

Until recently, the State Governments had been creating infrastructural facilities in their respective States out of their own budgetary resources, supplemented with some assistance from other Governmental and international agencies. But with the opening up of economy and the resulting increase in competition (both domestic and abroad), there has been a

depletion in the resources available for infrastructure development and maintenance. Hence, the State Governments have been making all efforts for attracting capital inflows into the infrastructure sector. The most important step in this direction has been the initiation of 'Public Private Partnership (PPP)' programme. PPP refers to a long-term contractual partnership between the public and private sector agencies, specifically targeted towards financing, designing, implementing and operating infrastructure facilities and services in the State. These PPPs aim to achieve the twin objectives of high growth and equity on a sustainable basis.

The State Governments have identified a whole range of sectors for public-private partnership, including roads/highways, tourism, industrial infrastructure, shipping, etc. Some of the key infrastructure initiatives undertaken by the States using PPPs are:-

□ **Karnataka:-** The major PPP project under implementation in the State is the 'Bangalore International Airport'. This is the first airport in the country being executed through the PPP route. The airport is being developed through a joint venture of the Airports Authority of India (AAI), Karnataka State Industrial Investment and Development Corporation Ltd. (KSIIDC) and private promoters (Siemens, Zurich Airport, Larsen & Toubro). Some of the other such projects are the Hassan–Mangalore Rail Line for Rs 310 crore (completed); the elevated expressway to E-City (Rs 600 crore, under construction); etc.

□ **Andhra Pradesh:-** The major PPP project in the State is the 'Hyderabad International Airport', being executed under the build own operate (BOO) format. The other such projects are the Kakinada Deep Water Port, being developed on the operate- maintain- share-and-transfer (OMST) format; the Gangavaram Port, in the build own operate and transfer (BOOT) mode; FAB City; Hyderabad Outer Ring Road; Kakinada SEZ; Integrated Township and Convention Center; Jawaharlal Nehru Pharma City; Hyderabad Integrated Trade and Exposition Center; Hitec City and several knowledge, IT and biotechnology parks.

□ **West Bengal:-** The major PPP initiatives in the State are the Salt Lake City Center and the Hiland Residential Project (under joint venture). The other proposed PPP projects include four-laning of Kalyani–Dum Dum Expressway; Water Park-cum-Entertainment Center along the Eastern Metropolitan Bypass; as well as transport, residential, commercial and entertainment/leisure infrastructure at Asansol, Howrah, Durgapur and Kolkata. Besides, the housing projects coming up on the outskirts of Kolkata City are a good example of PPP model in terms of delivering quality housing.

□ **Kerala:-** The major PPP initiatives under way in the State are the 'Trivandrum City road improvement project' and the 'Vizhinjam International Container Transshipment project'. The former encompasses ten city road corridors and three National Highway bypasses of around 42 km as well as one underpass and two flyovers at junctions of strategic importance. The project is being implemented under build-operate-transfer (BOT) scheme on an annuity basis and its total cost is estimated at Rs 145 crore. While, the latter has been planned as a futuristic port facility which, upon completion, would be able to handle 4.1 million containers of twenty-foot equivalent units (TEUs) and vessels of the order of 12,000 TEU size with a total berth length of 2860 meters.

□ **Madhya Pradesh:-** The State is a pioneer in PPP projects in the road sector. It has developed 1500 km roads under BOT. Other sectors with PPPs are water supply, city bypass, mobile medical units, bus stands, etc. The major PPP projects are the Dewas town bypass; Dewas industrial water supply project; mobile medical units and special economic zone (SEZ).

□ **Gujarat:-** The concept of PPP was introduced in the State in the early 1990s, when the Gujarat Maritime Board commenced construction of the Pipavav port. Since then (as per the available information), twenty-one projects amounting to Rs 13,672.50 crore have been implemented through private sector participation. The State has proposed several projects under Viability Gap Funding (VGF) scheme, namely, Ahmedabad Bus Rapid Transit system; Rajkot–Jamnagar–Vadinar Road; Ahmedabad Convention Center; Dahej SEZ; Four-laning of Halol–Godhra–Shamlaji Road and Ahmedabad–Viramgam Road; etc.

For all such PPP projects, the State Governments have identified a well-defined regulatory framework. It includes enactment of legislations for clearly defining the types of infrastructure facilities, the governing authorities, the procedural requirements and the scope of private sector in execution of these projects. For example, States like Andhra Pradesh have enacted an Infrastructure Authority Act, which aims to facilitate private developers in securing the mandatory

administrative approvals and lays down the provisions for arbitration and fiscal regulation. It covers all the infrastructure sectors in the State.

Infrastructure policy:

Many State Governments have framed an infrastructure policy with the aim of adopting a co-ordinated and integrated approach towards infrastructure development. The policy spells out specific incentives and concessions for infrastructure projects, including upgradation of the existing facilities as well as encouraging private investments in the sector. It also provides guidelines for a speedy procedural set up and a transparent administrative support. For instance:-

- The infrastructure policy for the State of Karnataka aims to expand, broaden and deepen private investment in infrastructure as well as establish Karnataka as a role model for infrastructure development in the country. It applies to township development, waste management, tourism, energy, industrial infrastructure, agricultural infrastructure, education, healthcare, etc.
- The infrastructure policy for the State of Odisha provides a roadmap for attracting private participation in the infrastructure sector by identifying new projects and inter-sectoral linkages; deciding on the form / extent of Government support; prescribing datelines for clearances and rules; etc.

At the same time, several State Governments have framed separate policies for the individual infrastructural units. These include power policy, road policy, port policy, transport policy, telecom policy, etc. These policies aim to promote competition, foster a suitable regulatory and institutional framework as well as protect the interests of consumers in the concerned sector. For instance:-

- Power policies have been announced with a view to promote rapid development of the power sector in the respective States. Generally, their objective is to:-
 - i. Build adequate capacities in generation, transmission and distribution of power through efficient and cost effective means
 - ii. Achieve optimum utilization of existing equipments through renovation and modernisation
 - iii. Rationalize the tariff structure to ensure reasonable rate of return to power utilities
 - iv. Improve delivery of services and efficiency through technical, managerial and administrative restructuring of the utilities
 - v. Conserve energy through efficient utilization and demand management; etc.
- Port policies have been framed for the development of ports in the respective States. The objectives underlying such policies are to:-
 - i. Increase the State's share in the national and international trade and commerce
 - ii. Decongest the overall burden on existing ports in the State and thus cater to the needs of increasing traffic
 - iii. Encourage ship building, ship repairing and other such facilities
 - iv. Attract private sector investment in the existing and new port locations; etc.

Infrastructural development corporations:

State Governments have also established several agencies which look after the development and maintenance of infrastructural facilities in the particular State. They have been set up with the objective of facilitating higher flow of funds into the infrastructure sector; encouraging private sector participation; removing all the procedural bottlenecks and thus increasing the pace of implementation of infrastructure projects. For instance:-

- Andhra Pradesh Industrial Infrastructure Corporation Ltd is the premier organisation in the State of Andhra Pradesh, vested with the objective of providing industrial infrastructure through the development of industrial areas. It is the principle facilitator in mega projects like Special Economic Zone, Visakha Industrial Water Supply, Gangavaram Port, Convention Centre, Mega Industrial Parks at Parawada and Pashamylaram Financial District Hardware Park at

Hyderabad. It is the nodal agency for Government sponsored schemes like growth centres, export promotion industrial parks and integrated infrastructure development centres.

□ Haryana State Industrial and Infrastructure Development Corporation Limited (HSIIDC) has been set up by the Government of Haryana as an institutional entrepreneur and a financial institution for promoting and accelerating the pace of industrialisation in the State, including infrastructural development.

□ Gujarat Infrastructure Development Board (GIDB) has been set up by the Government of Gujarat to increase the flow of capital into the infrastructure sector; to ensure coordination among various Government agencies as well as to bring in private sector participation in the State. It identifies and prepares infrastructure projects; conducts feasibility studies; recommends risk-sharing mechanisms and monitors the progress of such projects.

□ Maharashtra State Road Development Corporation Ltd has been set up by the Government of Maharashtra for accelerating the development of transport infrastructure facilities in the State by overseeing the completion of existing and new projects, with the active participation of the private sector.

□ Punjab Infrastructure Development Board has been set up by the Government of Punjab as an apex body responsible for overall planning of infrastructure sector, including implementation of projects and formulation of policies, etc.

Thus, each State has been taking several steps for upgrading and enhancing its strengths in terms of infrastructural facilities. This in turn will attract more and more investors into the State and help in sustaining the competitiveness of the Indian economy on the global platform.

9. WAREHOUSING

Warehouse is a storage structure constructed for the protection of the quality and quantity of the stored produce. The need for a warehouse arises due to the time gap between production and consumption of products. Warehousing or storage refers to the holding and preservation of goods until they are despatched to the consumers. By bridging this gap, storage creates time utility. There is a need for storing the goods so as to make them available to buyers as and when required. Storage enables a firm to carry on production in anticipation of demand in future. Warehouses enables the businessmen to carry on production throughout the year and sell their products, whenever there is adequate demand. Need for warehouses arises also because some goods are produced only in a particular season but are demanded throughout the year. Similarly, certain products are produced throughout the year but demanded only during a particular season.

Types of Warehouses:

Private Warehouses:

These warehouses are owned and operated by big manufacturers and merchants to fulfil their own storage needs. Big business firms which need large storage capacity on a regular basis and who can afford money, construction and maintain their private warehouses. A big manufacturer or wholesaler may have a network of his own warehouses in different parts of the country. The private warehouses are licenced to private persons and only the goods imported by or on behalf of the licensee are stored in such warehouse.

Public Warehouses:

These warehouses are a specialised business establishment that provide storage facilities to the general public for a certain charge. It may be owned and operated by an individual or a cooperative society. It works under a licence from the government. They are generally located near the junctions of railways, highways and waterways. They therefore provide excellent facilities for the easy receipt, despatch, loading and unloading of goods. They are very important in the marketing of agricultural products. A public warehouse is also known as 'duty paid warehouse'.

Public warehouses are very useful to the business community as they can meet their storage needs easily and economically by making use of the public warehouse, without heavy investment. Such warehouses provide storage facilities to small manufacturers and traders at low costs. They provide facilities for the inspection of goods by prospective buyers. They also permit packaging and grading of goods. The public warehouses receipts are good collateral securities for borrowings.

Bonded Warehouses:

These warehouses are licenced by the Government to accept imported goods for storage until the payment of customs duty. They are located near the ports. They are either operated by the Government or work under the control of customs authorities. The warehouse is required to give an undertaking or 'Bond' that it will not allow the goods to be removed without the consent of the custom authorities. The goods are held in bond and cannot be withdrawn without paying the customs duty. Such warehouses are very helpful to importers and exporters. If an importer is unable to pay customs duty immediately after the arrival of goods he can store the goods in a bonded warehouse. He can withdraw the goods in installments by paying the customs duty proportionately. Goods lying in a bonded warehouse can be packaged, graded and branded for the purpose of sale. Central Warehousing Corporation operates 75 Custom Bonded Warehouses with a total operated capacity of nearly 0.5 million Mts.

Benefits of Warehousing:

- Warehouses enable storage of goods when their supply exceeds demand and by releasing them when the demand is more than immediate productions. This on one hand ensures a regular supply of goods in the market and on the other hand it helps to stabilize prices by matching supply with demand.
- Warehouses provide for safe custody of goods. Businessmen can thus minimize the risks to goods from loss, damage, fire, theft etc. Perishable products can be preserved in cold storage. Also, the goods kept in a warehouse are generally insured.
- A warehouse provides facilities for processing, packing, blending, grading etc, of the goods for the purpose of sale. The prospective buyers can inspect the goods kept in a warehouse.
- Warehouses provide a receipt to the owner of goods for the goods kept in the warehouse. The owner can borrow money against the security of goods by making an endorsement on the warehouse receipt. By keeping the imported goods in a bonded warehouse, a businessman can pay customs duty in installments.

The Government has set up three agencies which are engaged in building large scale storage/warehousing capacity : Food Corporation of India (FCI)

It was established with the objective of fair distribution of food grains and to bring about stability in the prices in the country. It has the provision of scientific storage for the millions of tonnes of foodgrains procured by it. In order to provide easy physical access in remote and inaccessible areas, the FCI has a network of storage depots strategically located all over India. These depots include silos, godowns and an indigenous method developed by FCI, called Cover and Plinth (CAP). CAP storage is a term given to storage of foodgrains in the open with adequate precautions such as rat and damp proof plinths, use of dunnage and covering of stacks with specially fabricated polythene covers etc. FCI, thus maintains the health of the large stock of the tonnes of food grains in storage through its excellent storage management.

- Storage Capacity with FCI
- Statewise Storage Capacity with FCI

Central Warehousing Corporation (CWC):

It is a premier warehousing agency in India and is one of the biggest public warehouse operators in the country offering logistics services to a diverse group of clients. It is operating 490 Warehouses across the country with a storage capacity of 9.8 million tonnes providing warehousing services for a wide range of products ranging from agricultural produce to sophisticated industrial products. Warehousing activities of CWC include foodgrain warehouses, industrial warehousing, custom bonded warehouses, container freight stations, inland clearance depots and aircargo complexes. Apart from storage and handling, CWC also offers services in the area of clearing & forwarding, handling & transportation, procurement & distribution, disinfestation services, fumigation services and other ancillary activities. CWC also offers consultancy services/ training for the construction of warehousing infrastructure to different agencies.

17 State Warehousing Corporations (SWCs):

Warehousing corporations are also set up in different States of the country, like Andhra Pradesh State Warehouse Corporation; Haryana Warehousing Corporation, Kerala State Warehousing Corporation, etc. The area of operation of the

State Warehousing Corporations is centres of district importance. The total share capital of the State Warehousing Corporations is contributed equally by the concerned State Governments and the Central Warehousing Corporation. The SWCs are under the dual control of the State Government and the Central Warehousing Corporation.

10. LOGISTICS INDUSTRY GROWTH DRIVERS

Rapid industrial growth: Rapid growth in industries such as automobiles, pharmaceuticals, fast-moving consumer goods (FMCG) and retail has significantly increased the demand for movement of consumer and capital goods across the country, from entry ports to manufacturing or distribution locations or from manufacturers and distributors to consumers and exit ports.

The volume of freight traffic is positively related to the GDP of the country. Therefore, as the GDP increases, the volume goods' movement is expected to increase through all modes. During the period from 2007-2012, the agriculture and manufacturing GDP have increased from US\$ 263.6 billion to US\$ 290.7 billion at constant prices. The corresponding increase in freight traffic was from 1.3 trillion tonne kilometres (TTK) to 2.1 TTK.

Globalisation: With the growing integration of India's economy with the world, the country's total trade has grown at a CAGR of about 20 per cent from US\$ 57 billion in 1997-98 to US\$ 862 billion in 2012-13. The initiative to construct a trilateral highway connecting India, Myanmar and Thailand represents an important step in the establishment of connectivity between India and Southeast Asian countries. The highway is expected to be operational in the year 2015-16 and is likely to boost trade ties of India with other countries.

The increase in international trade has effected corresponding growth in cross-border freight traffic, thereby, adding to demand for logistics services.

Government initiatives: The Government of India has initiated several policy measures and programmes to attract investments in developing the logistics infrastructure of the country. Some of the key reforms undertaken by the Government of India include the following:

- **FDI regulations:** The government allows 100 per cent FDI under the automatic route for all logistics services, except air cargo and courier services. For air transport services including air cargo services, the limit was increased from 49 per cent to 74 per cent in 2008. Also, FDI of up to 100 per cent is permitted for courier services, subject to Foreign Investment Promotion Board (FIPB) approval.
- **Greater investments in development of logistics infrastructure:** The government has significantly increased the investment allocated for the development of logistics infrastructure including ports, airports, national highways, logistics parks, freight stations and corridors.
- **Private sector partnerships:** Several measures have been undertaken by the Government of India to encourage private sector participation in the logistics industry across all modes. These measures include increasing targeted contributions of private players in the investments set aside for the development of logistics infrastructure, tax exemptions and duty free imports. Apart from speeding up capacity creation, this is also aimed towards incorporating latest technologies and better management practices.

Streamlining indirect tax structure: The proposed introduction of the Goods and Services Tax (GST) is expected to significantly bring down the total costs of the logistics industry. At present, most companies have set up multiple small warehouses of size 4,000-10,000 sq ft across the country to save taxes on inter-state movement. But with the implementation of GST, the need to have several small warehouses is likely to be mitigated in favour of larger and consolidated warehouses at strategic locations. As per the estimates of Maritime Gateway, an Indian publishing house, if tax avoidance is not a factor for deciding on the distribution network, the total warehouse space can be reduced by 20-50 per cent. Also, scale economies start to positively affect warehouses only when they are larger than 30,000 sq ft. Other cost benefits would include lower IT spend on ERP linkages, cost effective routing and loading, lower inventory requirements and lower material handling and compliance costs.

Outsourcing of logistics: The logistics industry stands to benefit from the increasing trend of outsourcing the logistics and warehousing function to third party service providers. This function was traditionally performed by the organisations themselves. However, corporate entities recognise the benefits associated in engaging a third-party logistics provider for

integration of information flow, material handling, production, packaging, inventory, transportation, warehousing and often security. This allows corporate entities to concentrate on their core business and also avail of significant discounts through outsourcing.

According to ASSOCHAM, around 55 per cent of Indian companies outsourced logistic services such supply chain management and warehousing in 2009, as compared to about 10-15 per cent in 1999. As per the industry estimates, the increasing trend of outsourcing is expected to result in the growth of third-party logistics market at a CAGR of about 22 per cent, during 2012-15.

Entry of global players: Several global players view the Indian logistics market favourably and have announced intentions to increase their capacity of transporting goods from/to Indian markets. Several large global logistics companies have entered India by the way of mergers with or acquisitions of Indian logistics companies and joint venture agreements. For example:

- In 2013, FedEx Express acquired Mumbai-based integrated logistics service provider AFL. In 2012, GATI signed an agreement with Kintetsu World Express, a Japan-based air and ocean freight services provider.
- As per the agreement, GATI transferred its express distribution and supply chain business to the new joint venture under the name GATI-Kintetsu World Express. GATI holds 70 per cent stake and Kintetsu invested US\$ 53.54 million for 30 per cent stake in the venture.
- TNT acquired Mumbai-based Speedage Express Cargo Service for about US\$ 40 million in 2006.
- DHL acquired 68 per cent stake in Blue Dart Express Limited for US\$ 147.04 million in 2004.

Increasing number of multi-modal logistics players: The demand for multi-modal transport services by the end users is increasing, because it results in the reduction of overall transportation costs and quicker movement of cargo. It also requires less documentation. Several Indian logistics companies have formed joint ventures with other global and local players so as to provide multi-modal logistics services extending to air, rail, road and water. For example, Container Corporation of India has around 12 strategic joint ventures with companies including Maersk, TCI, Halcon, DPI, APM, Gateway Rail and Allcargo.

Increased PE investments: The Indian logistics market has attracted investments from large global and Indian private equity (PE) firms. Some of the deals are as follows:

- Indian Equity Partners struck deals with two logistics players. It took over the domestic road operations of TNT Express in India in December 2011 and acquired a minority stake in Gwalior-based Swastik Roadlines Private Limited, a food cargo supply chain service provider, in December 2010.
- In April 2011, Warburg Pincus invested US\$ 100 million in Chennai-based Continental Warehousing Corporation Limited, a subsidiary of the NDR Group.
- Some of the other deals include a US\$ 10 million investment by Ashmore Alchemy Investment Advisors in Siesta Logistics Corporation and Blackstone's investment of US\$ 75 million in Allcargo Logistics.

11. ELEMENTS OF GOOD CUSTOMER SERVICE POLICY IN LOGISTICS

1) Order Processing:

A company receives orders from other companies, middlemen, or directly from customers through mail, e-mail, fax, phone, or salesmen. Order processing is an importation component of the distribution system. It is considered as a key to customer service and satisfaction.

Order processing mainly includes:

1. Receiving order
2. Recording order
3. Filing order

4. Executing order or assembling of products for dispatch

5. Credit and collection.

Thus, it concerns with processing the orders quickly, accurately, and efficiently. The time period from the receipt of an order to the date of dispatch of products must be as short as possible. Ideally, the order recycle time should be completed within 8 days. But, the use of computer and computer networks, for speedy and accurate order processing, can save time, money and efforts for the company and increases customer satisfaction. It is often called as electronic data processing that minimizes possibility of error and omission. Every firm should establish the standard order procedure.

The physical distribution must be customer-oriented. It starts with customer order. Note that order processing affects customer service in two ways – reordering time (interval between two orders) and consistency of delivery time (delivering products within the fixed time). Rapid order processing enables a company to attain economy in other areas of physical distribution.

The person in charge of order processing must be careful for following aspects:

1. Assembling product must be exactly as per demand of customers in terms of quantity, quality, features, and price.
2. Execution must be as quick as possible.
3. The dispatch must be in appropriate mode of transportation.
4. Credit discount and other allied benefits must be offered as per policy.
5. Assessing the effectiveness of order processing. That includes feedback and follow-up.

(2) Warehousing:

In today's context, production is made in expectation of demand. Therefore, products are to be stored or preserved safely for the future demand. And also, all the production is not sold directly. Warehousing plays an important role for balancing demand and supply. For example, most of the agricultural products are produced seasonally, but have demand throughout the year.

It facilitates both continuous production and continuous marketing of the production. Warehousing service can contribute to customer satisfaction. Be clear that storage and warehousing are not similar terms, though are closely related.

Storage is marketing activity that involves holding and preserving products from the time of their production until their sale. Warehousing embraces storage plus a broad range of functions, such as assembling, breaking the bulk, dispatching as per need of middlemen, sorting/classification, providing market intelligence, preparing product for reshipping, etc. Warehousing involves more activities.

Classification of Warehouses:

Warehouses may be classified on two bases, on the basis of commodity and on the basis of ownership. Let's have overview of different warehouses.

On the Basis of Commodity:

On the basis of commodity stored, there can be:

1. Special Commodity Warehouses provide facility for storing special types of commodities, e.g., cotton warehouses, potato warehouses, grain warehouses, tanks for liquid products, explosive product warehouses, etc.
2. Cold Storage Warehouses provide facility for storing perishable products, e.g., fish, flowers, vegetable, fruits, etc.

On the Basis of Ownership:

According to the ownership, there may be various types of warehouses, like:

1. Private Warehouses are owned by individual, or firms. They are owned by retailers and wholesalers, or by manufacturers. Retailers and wholesalers store finished products while manufacturers store raw materials, provision, tools-equipment's, and finished products.

2. Cooperative Warehouses are owned on cooperative basis by two or more private parties to utilize storage facility jointly.
3. Public Warehouses owned by local authorities such as municipality, or by the state and central governments. Such warehouses are used by public/traders as well as by government. Traders can use these warehouses on the rents fixed by the government. Government uses these warehouses to buy and maintain stock of certain essential commodities.
4. Household Warehouses are temporary in nature owned by household/family to store and protect furniture, paintings, furs, tapestry, etc.
5. Bonded Warehouses are used to store product until payment is made or documents are cleared. They are situated near the Port for export and import business.

Many companies set up their distribution centers in each of regions around the market and integrate its distribution network with them for smooth, safe, and speedy delivery of products. The latest technology is used for maximum consumer benefits. Warehouses offer a number of direct advantages to manufacturers and sellers, and indirect advantages to customers.

Benefits Offered by Warehouses:

Following are the important benefits offered by warehouses:

1. Protection of products from fire, sunlight, dust, theft, heat/cold, etc.
2. Modern warehouses enable to store or preserve perishable products, like milk, fruits, vegetable, flowers, and certain types of chemicals, for reasonably longer period.
3. Professional warehouses provide a lot of facilities, such as inspection, protection, records, displacement on demand, insurance, etc., at affordable charges. Such warehouses are well-equipped with human and mechanical devices.
4. Warehouses at different key centres can speed up order processing efficiently with less risk and costs.
5. Producers and sellers can avail loans on the product stored in warehouses.
6. Consumers have a number of indirect benefits like quick and continuous availability, low price, quality, etc. Producers, sellers, and users equally share all the benefits of warehousing.

Key Issues/Decisions in Warehousing:

The manager should consider following aspects while utilizing warehouses:

1. Type of product
2. Time to store the product
3. Rent charged and facilities available
4. Location
5. Working capital requirement
6. Ownership
7. Risk, etc.

(3) Transportation:

Transportation is one of the core components of distribution system. It consists of moving or transferring products from producers to final users. Transportation involves two parties, carriers and shippers. Carriers are those companies that provide transportation facilities to others, such as the Western Railway, Indian Airline, Indian Shipping Companies, and many other private carriers provide transportation services by road, rail, water, air and underground pipes.

Shippers are those organisations and individuals such as manufacturers, middlemen, customers, and others to whom the carriers provide transportation services. For different modes of transportation, various regulatory bodies deal with various issues related to transportation of products. The Central and the State Governments have formulated a lot of Acts or legal provision to regulate transportation activities in the country.

The main regulatory bodies may include:

- i. The Civil Aviation Department, for air carriers.
- ii. The Shipping Corporation of India, for water carriers.
- iii. The Oil and Natural Gas Commission, for pipeline carriers.
- iv. The Road Transport Corporation of the state, for land or road carriers
- v. The Railway Authorities, for rail transportation, etc.

Transportation plays a crucial role in today's global marketing. It creates the place utility. In brief, transportation has positive impact in every facet of economic, social, and cultural development of the society. The key issues in transportation are type, costs, time, speed, risk, suitability, and availability. Marketer should take transportation decision carefully.

Key Issues in Transportation Decisions:

A marketer needs to consider on following issues:

1. Mode of Transportation:

This decision relates with selecting an appropriate mode of transportation. Main modes of transportation are road, railway, water, air, and pipeline. As per financial capacity, need, time available and overall suitability, the appropriate mode of transportation should be selected.

2. Costs and Availability:

One should select such a mode of transportation that is the most suitable and low in costs. Similarly, the mode must be easily available.

3. Suitability and Credibility:

It is an important consideration. The mode of transportation must fit to the products and company's overall internal situation, and must be reliable.

4. Relations:

In the era of relationship marketing, the marketer must maintain long-term profitable relations with various transport agencies. A firm has to perform many activities to establish and maintain healthy and profitable relations with the transport agencies.

5. Legal Provisions and Restrictions:

A firm must take transportation decisions within limit of contemporary legal provisions. Knowledge of legal provisions is essential.

6. Ownership:

This issue concerns with whether a firm should own, contract, or hire transportation means. Depending upon a company's capacity and requirements, it may own its own means of transportation, may undergo the contracts, or may hire such facilities.

(4) Organisational Responsibility for Physical Distribution:

Physical distribution is an important decision in today's marketing management. It involves a wide range of activities. Therefore, an effective coordination of various activities, such as order processing, warehousing, transportation, inventory control, etc., is indispensable to contribute in overall success of marketing strategies.

The entire range of physical distribution must be systematic and even scientific for effective distribution of products to the ultimate users. For the purpose, the systematic structure of organisation should be created to take care of physical distribution activities. Organisation of physical distribution must be well-equipped and properly organised to serve the purpose over time.

Type, nature, formation, and activities of organisational structure for physical distribution depend upon various factors like type of business, size of operation, resource availability, management philosophy, and so on.

After proper analysis of various relevant variables, the suitable structure of organisation should be created and implemented. There may be practically two alternatives, physical distribution committee or physical distribution department.

Physical Distribution Committee:

In order to manage distribution activities effectively and efficiently, many companies formulate a permanent committee. The committee consists of a group of people who work jointly for attaining marketing goals. The number of members in committee depends on types of key activities in distribution system.

A physical distribution committee consists of experts on various areas of distribution like warehousing, transportation, communication, order processing, and so on. This committee is headed by distribution manager or marketing manager. Each of the experts in a committee has necessary skills and experience to handle specific group of activities.

The committee, known as physical distribution committee, takes care of the entire range of activities related to distribution of products and is responsible for smooth distribution of products. The committee meets periodically and formulates policy to improve physical distribution system.

Physical Distribution Department:

Some companies treat physical distribution as a separate area of marketing management and maintain a separate physical distribution department. This department is headed by physical distribution manager. He is solely responsible for managing physical distribution activities.

He appoints needed experts in his department to assist him carrying different types of activities related to physical distribution. The physical distribution manager works under either production manager or marketing manager.

Mostly, the companies engaged in production and distribution activities, appoint physical distribution manager under marketing manager. He may be line administrator, a manager with staff responsibility, or the combination of both staff and line function. This type of organisation is typically portrayed in Figure 1.

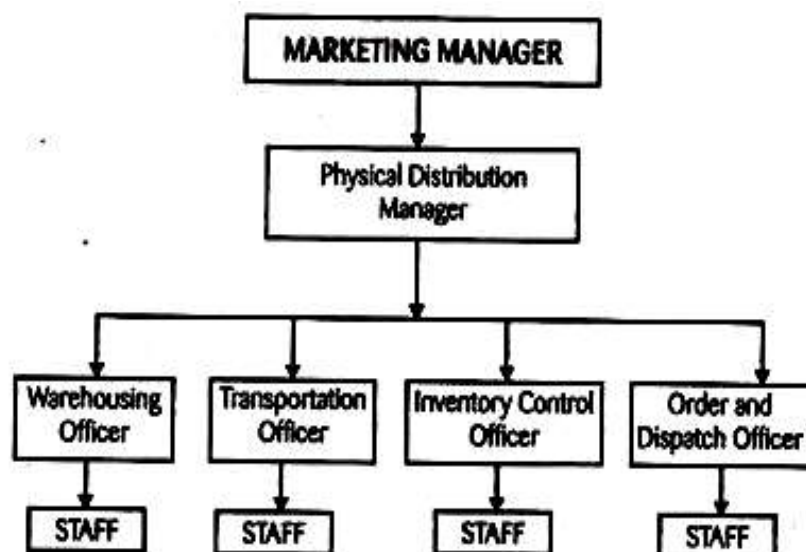


Figure 1: Physical Distribution Organisation

Marketing Manager: He, along with other marketing activities, also directs and controls physical distribution activities. Under him, the physical distribution manager is placed. Here, physical distribution is treated as a part of marketing. He takes care of marketing and distribution activities.

Physical Distribution Manager:

He is a direct authority responsible for physical distribution. He works under marketing manager. His functions involve storage and warehousing, inventory management, transportation, order processing and dispatching, communication, etc. He coordinates various activities needed for effective physical distribution. Various officers are appointed under him for each type of activities.

The officers who work under his direct supervision and control include:

1. Storage and warehousing officer
2. Inventory officer
3. Transportation officer
4. Order processing and dispatching officer
5. Communication officer, etc.

As per need, the required staff is appointed to assist each of these officers in performing their respective tasks. Sometimes, more officers are appointed for different types of works such as accountant, packing officers, and so on. The entire department headed by distribution manager works as a team to deal with total distribution system.

(5) Inventory Management: Inventory refers to stock of goods meant for the future sales. It can also be said as reservoir of goods held in anticipation of sales. Demand is fluctuating and exact prediction is not possible. So, the primary purpose of holding inventory is to meet market demand continuously.

The firm always maintains adequate stocks of products to meet customer orders immediately. It is considered as a link between ordering and production. Inventory management supports demand creation and consumer satisfaction.

Three types of costs are associated with inventory. The first is, holding costs (carrying costs), which include warehousing and storage costs, costs of capital tied up in inventory, costs of price decline, obsolescence, spoilage, pilferages, and taxes and insurance on inventory.

The Second is, costs of stock out or shortage, which include loss of sales, adverse impact on goodwill, losing customers permanently due to shortage of stocks, and administrative costs. And, the third is, replenishing or reordering costs (order processing costs), such as preparing and placing order; transportation, insurances and wastage during movement; and costs of receiving, inspecting, and handling materials. However, carrying costs and ordering costs are more important, and if they are balanced, the total costs can be effectively reduced.

A company has to decide on total annual need of inventory, ordering size, and level of inventory (called as ordering level) at which new order should be placed. It must determine maximum and minimum quantity that may be needed at any time. The main issues are ordering size – how much to order, and (reordering) ordering level – when to order.

Ordering and carrying costs are important considerations in inventory management. Ordering and carrying costs are adversely related. If more inventory/stock is maintained, carrying costs are high and ordering costs are low.

Quite opposite to it, when low level of inventory is maintained, carrying costs are low, and, due to more frequent order of smaller quantity, ordering costs go high. Therefore, the manager should decide on the optimum order size to reduce total cost of inventory. It is necessary to strike out balance between two types of costs to minimize total costs.

The most popular technique to determine optimum size of order is Economic Ordering Quantity, which can be determined by using following formula:

$$EOQ = \sqrt{2 AO/C}$$

Where,

A = Annual sales

O = Ordering costs

C = Carrying costs

Sometimes, ordering size or level is determined by trial and error or graphical method. The level of inventory at which costs are minimum, is taken as ordering size.

(6) Other Components:

In fact, physical distribution consists of a lot of decisions.

Some of minor decisions have been listed below:

- i. Material Management
- ii. Communication
- iii. Sorting and packing
- iv. Customer service, etc.

(7) Logistical Coordination or Market Logistics:

To distribute products from the point of production to the point of consumption (consumers) is traditionally called physical distribution. It starts from the factory and reaches the final destinations at the right time, in the right way and form, and at low costs.

Distribution is treated as a separate function of marketing, and the special independent arrangement is made for smooth distribution. Problem of physical distribution is thought of only after products are produced. Thus, physical distribution concerns with systematically distributing products to final users.

It involves all activities necessary (like warehousing, transportation, communicating, insurance, banking, ordering processing, inventory management, and services of channel members) to avail the products conveniently to ultimate users.

Market logistics (often called as supply chain management) is the modern form of physical distribution. Simple distribution is expanded into a broader concept of supply chain management.

Supply chain management starts before physical distribution. Logistics means a detailed organisation of large and complex exercise. Here, distribution is not treated as an independent activity but as an integral part of the total business system.

Market logistics or supply chain management is a detailed programme attempting to procure the right inputs (raw materials, components, and capital equipment's); convert them effectively into finished products; and distribute them to the final destinations.

It can help a company identify superior suppliers and help improve its productivity. It leads to low costs and better quality products that ultimately results into better customer satisfaction and/or strengthening the competitive position.

Market logistics system is prepared by considering target market's requirements. Thus, study of target market's requirements, preproduction (production planning), production process, and distribution are integrated to form market logistics system.

Market logistics involves:

- (1) Estimating target markets requirements,
- (2) Procuring necessary inputs for producing the right products,
- (3) Converting inputs into finished products (production process), and
- (4) Systematically distributing the products to ultimate users.

Definitions:

Market logistics can be defined as under:

1. Philip Kotler: "Market logistics involves planning, implementing, and controlling the physical flows of materials and final goods from points of origin to points of use to meet customer requirement at profit."

2. The Council of Logistics Management: “Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective, forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements.”

3. In more systematic way, the term can be defined as: Market logistics consists of estimating target markets requirements, procuring necessary inputs for producing the right products, converting inputs into finished products, and systematically distributing the products to ultimate users to achieve maximum customer satisfaction at profit.

4. Market logistics is coordinated system that coordinates various parties involved in production and marketing. In this sense, we can defined the term as: Market logistics is a broad system that involves coordinating activities of suppliers, purchasing agents, manufacturers, marketers, channel members, and customers to permit lower prices and yield higher profit margins.

Objectives and Importance:

Market logistics system is aimed at offering the right products to the right customers, at the right place, at the right time, in the right pattern, and at the least costs. It is an attempt to meet total customer expectations by systematically organizing production and marketing activities.

Let us list objectives of market logistics system:

1. To satisfy target customers by right products and right way of distribution.
2. To attract additional customers.
3. To reduce total costs and/or yield more profit margins.
4. To speed up trade cycle.
5. To integrate production and marketing with target market expectations.
6. To improve competitive strengths, etc.

Market Logistic Decisions:

In fact, market logistics concerns with making the distribution system effective. It involves a lot of decisions to offer the right products to the right buyers, at the right time, at the right place, at the right price, and in a right manner. It includes all the decisions that can ensure the righteousness in all significant aspects.

Market logistics is distribution related concept and mainly involves ordering processing, warehousing, and inventory and transportation decisions. But, distribution cannot be meaningful without suitable products. So, virtually, it is not distribution system, but total business system including production, marketing, finance and personnel.

Main decisions of effective market logistics system involve:

1. Determining target market requirements
2. Procuring appropriate inputs for producing the desired products
3. Producing the right products
4. Selecting suitable marketing channels
5. Order processing
6. Locating warehousing
7. Inventory management
8. Transportation
9. Handling, billing and payment
10. Maintaining relations among all parties involve

12. FUNCTION OF A LOGISTICIAN

1. Protect and control proprietary materials
2. Develop project plans, progress and result
3. Develop proposal that include documentation for estimates
4. Support the development of training materials and technical manuals
5. provide project management services , including the provision and analysis of technical data
6. Participate in the assessment and review of design alternatives and design change proposal impact.
7. Redesign the movement of goods to maximize value and minimize cost
8. Supplement manage sub contractor activities reviewing proposal , developing performance specificationand serving as liaisons between sub contractors and organization.
9. Develop and implement technical project management tools such as plans , schedules and responsibility and compliance matrices
10. Direct availability and allocation of materials ,supplies and finished product .

13. CONCEPT OF STRATEGIC DISTRIBUTION

Strategic management: Strategic management involves the formulation and implementation of the major goals and initiatives taken by a company's top management on behalf of owners, based on consideration of resources and an assessment of the internal and external environments in which the organization competes. Strategy is defined as "the determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals. Strategies are established to set direction, focus effort, define or clarify the organization, and provide consistency or guidance in response to the environment. Strategic management involves the related concepts of strategic planning and strategic thinking. Strategic planning is analytical in nature and refers to formalized procedures to produce the data and analyses used as inputs for strategic thinking, which synthesizes the data resulting in the strategy. Strategic planning may also refer to control mechanisms used to implement the strategy once it is determined. In other words, strategic planning happens around the strategic thinking or strategy making activity. Strategic management is often described as involving two major processes: formulation and implementation of strategy.

Process of strategic distribution is not as simple as it seems to be . There are some basic concepts that led to the regrouping of logistics activities as they are currently redined and which represent capstone ideas for physical distribution management These concepts are:

(1) The cost trade offs: The most commonly stated objective of the physical distribution management in a firm are to minimize the cost of distribution and maximize the services provided to the customers .However, it is not possible the services provided to the customers. However, it is not possible to simultaneously maximize customer service and minimize the distribution cost .Maximum customer service implies large inventories, faster transportation and best possible warehousing services. All of this would add to the cost of distribution cost .Maximum customer service implies large inventories, faster transportation and best possible warehouses , and keeping lower level of inventories . This would bring down the cost of distribution. but,at the same time ,it may bring down the customer service also. Thus the firms have to strike a balance between services also .Thus the firms may have to strike a balance between service also . thus the firms have to strike a balance between these two aspect . to do that , they have to first set the level up which they would extend service to the customer.

Total cost concept: Today the marketing view point of any organization is that the Customer is the King of the market. Hence at whatever cost, the customer must be satisfied. Thus the importance of customer service has grown day in and day out. Today a customer, well become the reason for a manufacturer's downfall.E.g.: if a customer has received goods which have been damaged in transit and which he is unable to return or if the goods are of very poor and which, too he is unable to return, or which he finds great difficulty in returning, he is likely to remain a one time customer. He may further even publicize his adverse opinion to his colleagues, friends and others and caution them to be careful while purchasing

goods from this particular manufacturer. On the other hand, a satisfied customer would recommend a particular product and a manufacturer and even give unsolicited testimonial to prospective customers. Thus it has become important to keep the customer satisfied through good customer service, which requires an up-to-date logistics system. The logistics system may require huge investments and at times may become a large portion of the total cost incurred by the company. The various costs involved in developing and maintaining a successful logistics system are:

Inventory cost: Inventory costs are directly affected by such factors as the mode of transport, the number of warehouses planned, the levels of inventory maintained to ensure a certain level of service, etc. The inventory costs are the cost of the money locked-up in the cost of goods, insurance, occupation of space, pilferages, losses, damages, etc., as well as the maintenance of inventory. These costs are increased by the cost of the obsolescence of a product over a period of time, especially when the company makes rapid changes in product models or when products are perishable. In this connection, the costs of a low inventory must also be taken into account. When the manufacturer is unable to produce goods because of lack of raw materials or is unable to supply goods because of inadequate finished products stock, he loses particular sales.

Warehousing costs: Goods have to be stored for sometime after production, however small that time interval may be. This is done either at the production center, or in the marketing area, or somewhere in between or at all the three locations. The warehousing of raw materials either steps up the cost of their supply or of the cost of distribution of finished product. As a manufacturer wishes to approach the objective of zero stock-out of the finished products or zero loss of production, adequate warehousing capacity becomes essential; and this pushes the firm in higher fixed and operating costs of warehousing. Also, to improve customer service to certain levels, it becomes necessary to increase the number of warehouses. Accordingly, the company management has to arrive at the optimum number of warehouses which is consistent with the minimum total cost of distribution, taking into account the effect on the other elements of cost in the total logistical system.

Production or Supply costs: Production costs tend to decrease with an increase in the volume of production. Also, these costs vary between various production points. If a manufacturer has several plants producing the same product, he has to make a decision to vary the supplies or production from certain plants – a move which inevitably affects the cost of production itself as well as the cost of transportation, transit times, warehouse and inventory costs.

Channels of distribution costs: Various alternatives for distribution are available to a manufacturer. This distribution may be through a sole selling agent at the nation level, Or through regional distributors or through wholesale dealers, or by direct supplies to dealers and retailers and even to customer. Mail order sales or catalogue sales at different retail outlets of a manufacturer are direct sales to the customer, which automatically involve decisions on the establishment of stockiest and storage points or warehouses.

In the traditional marketing concept, the manufacturer is interested in scaling down the discount to the distributor to reduce the total cost. But if the distributor's discount is low, he may not, perhaps because of his low profit margin, distribute the goods either in sufficient volume or he may not render satisfactory customer service. This may bring about a loss of present and future sales to the manufacturer. Similarly, changes in the distribution system may take place by alternative use of space, say, for inventory, or for marketing or for production centre. This may also affect customer service in one way or the other. Therefore, a company has to carefully select channels of distribution since it affects decisions relating, ultimately, to customer service and satisfaction.

Transportation Costs: The cost of transport varies generally with the speed with which goods are transported. Water transport is the cheapest, while air transport is the most expensive. Rail transport is cheaper than road transport, beyond a certain distance. Both rail and road transport stand somewhere in between water and air in terms of the cost of transport.

Material Handling Costs: A suitable material handling system should be designed to reduce the cost of material handling to the minimum. This would require the consideration of several possible combinations of manual and mechanized handling of the goods and materials. But material handling operations have an impact on other distribution aspects, such as the cost of packaging as well as damages and losses that results from material handling. The design of the material handling system and the consideration of its cost also affect the selection of the mode of transport to be used and hence the cost of transport gets affected.

Packaging Costs : Decisions on packaging are affected by decisions on such factors as type of product, the mode of transport and type of material handling equipment used. A total cost approach would make it necessary for us to select packaging version, which takes into account other distribution factors as well. Thus it would not be sufficient merely to reduce the cost of packaging to the minimum.

Customer Service Costs :If the manufacturer or supplier guarantees the satisfaction with goods and agrees to give a refund on returned goods or exchange the returned goods, he must arrange for the movement of defective or returned goods from the customer (or retailer) back to the supply warehouse or manufacturing centre. Complaints of defects or of the deficiencies pointed out by the customer in the goods that are returned may therefore be utilized as a management feedback to improve the quality of service. Incidentally, with such a guaranteed service the manufacturer on a permanent basis, would win the customer's loyalty. Guaranteed customer service, therefore, involves certain costs to the organization but it also leads to certain benefits in the long run. It increases the value of the company in the market.

TOTAL SYSTEM COSTS CONCEPT: The total system concept is an extension of the total cost concept and is probably one of the most commonly used approaches . It looks at the physical distribution in its total form as a system consisting of several interconnected tasks or parts operating together to achieve the given objectives.It represent a philosophy for distribution management all those factor in a decision that are some way affected by the outcome of the decision .Thus are in some way affected by the outcome of the decision. Thus , the system concept of physical distribution envisages integration of all the component as part of a whole whose market impact is maximum when they operate in synergy.

14. GENERAL CHARACTERISTICS OF INDIA LOGISTICS MARKET

Generally, India's logistics market is huge but unexploited. With the increasing globalisation, logistics players in India have to face the challenges since worldwide sourcing and deliveries requires global logistics support. Figure 4.1 portrays the overview of AsiaPacific logistics market and the position of India as compared to other countries within the region.

Unlike China, the development in the logistics market is relatively slow and still in the infancy stage in India. However with the entry of several foreign logistics companies into the country, domestic logistics players are realising the advantage of supply chain Markets Hong Kong Singapore Japan Australia New Zealand Korea Taiwan Mature China Unique Malaysia Thailand Indonesia Philippines India Mid-Level Sub-Continent Vietnam Cambodia Laos Myanmar Etc

Developing ♣ Developed Logistics ♣ High Competition ♣ High Service levels ♣ Lead time pressure ♣ Lower Growth ♣ Rapid Development ♣ Undeveloped domestic ♣ Increasing service levels ♣ High Growth ♣ Developing sophistication ♣ Increasing competition ♣ Increasing service levels ♣ Varied Growth ♣ Poorer infrastructure ♣ Lower competition ♣ Customs ♣ Ownership Issues ♣ High Growth Characteristics 40 management and trying to adopt them into their business to remain competitive. As a result, recent years has been witnessing increasing service levels in the industry. Growth is varied within different industry segments. Some industry segments are highly fragmented with many organized and unorganized units. In fact, about 85% of the logistics services are in unorganized sectors. Apart from providing the prime logistics service functions such as transportation, warehousing and distribution, and freight forwarding, the logistics players in India have also started to handle other activities like inventory management, order processing, collection of bills, sales and excise duty documentation, among others. However most players offer only one or two services out of the gamut of service products comprising transportation, warehousing, freight forwarding, express cargo delivery, courier services, container services, shipping services and others. According to a survey on the practices in logistics industry in India, it was revealed that warehousing, inbound and outbound transportation, custom clearing and forwarding are the most frequently outsourced activities in India, activities such as packaging, fleet management and consolidation are gaining attention and growing in popularity in the country and more and more companies are planning to use 3PL services in the future as an integrated set of services rather than for just movement of material. The state of the prime logistics functions in India is discussed in brief below: Transportation: Transportation is an essential and a major sub-function of logistics that creates time and place utility in the supply chain management. Transportation is also the largest component in the logistics cost. In India, about 40% of the logistics cost is due to transportation alone. The major infrastructure required for moving goods in India involve the active roles of roads, railways, ports and shipping, and airports all of which are either managed or regulated by the government. The current state of the transportation sector in India is discussed in detail in Chapter 2. Multimodal transport is the movement of cargo from the point of origin to the final destination using two or more modes of transport. It facilitates international trade by ensuring the smooth flow of the

containerised cargo under single contract and giving better control over the transport chain. In India, CONCOR is the major player in the multimodal logistics business in India. It provides logistics support for the country's international trade by developing the necessary infrastructure such as rail and road services and containerised cargo movement within the country. Currently CONCOR provides the only means by which shippers may obtain containerised freight transportation by rail in India. Warehousing: Warehouse management is one of the critical components of supply chain that ensures the products are properly handled, stored and delivered. In India, warehousing industry is mostly dominated by state warehousing corporations and public sector undertakings such as Central Warehousing Corporation (CWC), Punjab State Warehousing Corporations (Conware) and others. The CWC is the largest warehouse operator in India which operates across the country through 444 warehouses and provides storage capacity of 7.3 million tonnes for a wide range of products. Foodgrain warehouses, custom bonded warehouses, container freight stations, inland clearance depots and aircargo complexes are among the warehousing activities provided by the CWC. Besides the warehousing corporations, most of the major ports of India also provide warehousing facilities through their own warehouses and also through privately-owned warehouses located within or outside the port area. Material handling system is the fundamental part of warehouse management which accounts for the major portion of the warehousing cost. In India, there is a serious lack in this system in terms of equipment and technology, leading to improper staking and storage. Godrej & Boyce Mfg. Co. Ltd, among the few players in India in the material handling area offers a wide range of the equipment such as battery-powered rider, pedestrian pallet trucks, manual and powered stackers, among others. In terms of sophistication such as the Warehouse Management System (WMS) technology which is used abroad, the concept is still not very prevalent in the Indian market. However with the recent emergence of some software developers in India, such as the Eclipse Systems, there has been continuous effort to provide cutting edge technologies such as barcode scanning and RF technologies to automate the warehouse operations. Such system offers accuracy, flexibility and power that warehouse management demands by giving the customers total control of the warehouse from receiving, cross-docking, putaway, pulling, picking, replenishment, bulk order, cycle count, validation, shipping and customer returns. As such, the concept of WMS is gaining momentum in Indian logistics market. 42 Distribution: The large distances, inhospitable terrain, poor highway infrastructure, an over-stretched railway network and a myriad of state and central excise laws are among the challenges faced by logistics players in India in the distribution of goods within the country. As a result, the delivery process at times takes longer period and is expensive and can be unreliable too. However there have been efforts in this area with some logistics players trying to set up complex distribution models using multimodal means of transportation to achieve which achieve right balance between cost and, efficiency and reliability. Freight forwarding: The freight forwarders in India are typically described as an agent who arrange the transportation and prepare shipping documents. However, today their role have changed and they are expanding their service portfolio by offering more services including port handling, chartering, custom broking, project management, packing and moving, road and rail transportation, through bill of lading and air freight import and export services. Due to their ability to manage international freight movement through air and sea freight, there are increasing chances for freight forwarders to become full-fledged logistics service and solution providers. Value added services: Besides the prime logistics functions above, logistics players in India are also providing value added services as a strategy to stay competitive in the logistics industry. Among the value added services provided by many players today includes kitting, packing, repacking into various sizes, labelling, light assembly, consolidation and cross-docking, and among the value added services provided in the overall supply chain processes are order processing, inventory management, payment collection, insurance, tax management, reverse logistics and information management. With the increasing trend of companies to outsource their logistics requirement such as the above, logistics market and the 3PL industry are also growing in the country.

15. MAJOR DRIVERS OF LOGISTICS INDUSTRY IN INDIA

The concept of logistics is continuing to gain strength in India. There are several major drivers fuelling the growth of the industry. 1. Organizations are realizing the huge potential savings that efficient logistics can offer, and its impact on revenue growth and improved profitability. Moreover, the increasing complexity of supply networks, globalization of businesses, proliferation of product variety, and shortening of product lifecycles forcing them to realize that it is better to allow the experts to manage their logistics, and this results in acceptance of outsourcing as a business practice. 2. The increasingly demanding customers, coupled with the increasing cost pressure and competition, there is an urge for companies to differentiate themselves from their competitors through value added services and competitive prices. As such, price and time factors, for example on-time delivery, shorter lead time, improved service and better inventory

management become important criteria in selection of suppliers. Availability of efficient logistics service providers become an important part of the sourcing equation. 3. The globalization trend in the complex business environment worldwide also poses great opportunities for the logistics industry in India. Worldwide companies have started adopting global sourcing and distribution strategies and have given higher priorities on efficient management of supply chain and logistics. Such global strategy has significant implication on the growth of Indian logistics industry. 4. Another major driver of the logistics industry is the internet. With the emerging ecommerce, there is a need for e-companies to offer an efficient distribution system that ensures fulfilment and timely delivery of goods ordered through the internet. Companies are on lookout for the strategic logistics players who can streamline the movement of their goods and ensure faster delivery. In addition, with EDI, bar coding and tracking of goods in transit used widely, many companies are depending on the logistics providers to provide the IT integration.

16. LOGISTICS PLAYERS IN INDIA AND THEIR STRATEGIES

A major strategy currently being practiced by global logistics players in doing business is by providing integrated logistics solutions and by offering value added services to customers. The aim is to build a long-term relationship with the customers by providing one-stop solution. This improves the supply chain efficiency and also enables the OEMs to concentrate on their core activities. Some players in the industry have become partners of choice by providing high-tech infrastructure which includes excellent IT and communication system. Although many of the 3PL players in India still offer the basic services like transportation and warehousing, large MNCs and some Indian companies have started adopting these strategies to show strong presence and remain competitive in the region. Transport Corporation of India Ltd (TCI) for example, offers integrated solutions such as consulting, transport management, warehousing, and IT and MIS (Material Information Systems) services and other valued added services such as reverse logistics, kitting services, custom clearance, e-logistics and tax and facilitating tax management. In response to e-commerce, apart from 3PL providers, many ocean carriers such as APL, Maersk and P&O are also adopting the integrated logistics services. Maersk India which already operates a logistics centre (container freight station) in Dronagiri Warehousing Complex in Navi Mumbai, is planning to set up another total logistics centre near Gugaron in Haryana to meet the growing demand from the northern states. In response to the growing demand in the logistics industry worldwide, the Indian players have set globalization as their long-term vision. Thus another strategy adopted by them is to expand and establish themselves on an international level through alliances and partnering 45 agreements, and through joint ventures. Some recent developments in India using this strategy are discussed in detail in section

17. SOME SUGGESTIONS TO APPROACH THE LOGISTICS MARKET

While profiling India logistics industry, one has to keep in mind that the industry is less developed and is a relatively unexplored area as compared to the countries like America and Europe. However, with the increasing competitive pressure and with the rapid trend of logistics players changing their identities and expanding their service portfolios, there is increasing need for the industry service providers to gain supply chain advantage and improve their service offerings. Among the strategies recommended to players to improve chances of success in the logistics sector in India are as follows: Think local, service global : As India's logistics industry is in the infancy stage, setting up a nationwide distribution capabilities at the start-up stage would be difficult. Instead logistics players should consider comprehensive coverage of one part of India or one vertical before spreading out to the rest. This is because a successful business just in one part of the country can easily become dominant and attractive to cater both ends of supply and demand. On the other hand, the quality standards and service levels currently offered by Indian logistics players could be below expectations. With the emerging globalization and integration of Indian market with the global market, Indian companies are increasingly demanding services on par with global 57 standards. As such, local logistics providers have to focus on offering world-class services and solutions to enhance the satisfaction level of their customers. Focus on information and coordination in developing logistics solutions rather than asset ownership: It is not wise to have hard assets in transportation, warehousing and logistics sector (which may not be considered high quality of international standards) be controlled by Indian companies. Instead, these assets should be utilized more effectively and in a networked fashion to achieve higher coordination, backed by the ability to provide logistics solutions that add value to their customers. Thus it is more optimizing for the service provider to create and sell solutions based on agreements that bind and control their assets, rather than fully owning them. Be industry specific and provide customized solution: The logistics service need, expectation and specification of each industry and even companies within the same industry may differ, and in India it is a

common sigh that service providers are not able to design, develop, provide and manage their customer-specific requirements. Therefore a critical success factor for the players is to reach an enhanced customer-centric market and to retain in a long term relationship is to offer the right service in the right quantity and right condition to the right customer at the right time and right cost. Pursue alliances aggressively: One approach for the Indian service providers with strong asset position but low skills seeking global stature is to form alliances with the multinational players. It gives a competitive advantage in terms of meeting the demand for a one-stop, provide technical, engineering and supply chain solutions, and often cost effective alternative for extending existing service offerings and geographical coverage. At the same time, through alliance local players can provide world-class services in India and remain competitive in the domestic market. For the global players, forming strategic alliance with local market partners will help to gain access to local clients, high degree of penetration and better understanding of India's domestic logistics needs and expectations. Thus, the alliance gives customers of each organization access to integrated global supply chain management, analysis, re-engineering, freight payment and full seamless execution via a joint service offering. 58 Focus on organization building as much as strategy or operations : While transportation and logistics is necessarily a highly operational undertaking, the success of a logistics business will also be defined by the quality of its solutions and therefore the skills and commitment of its manpower. Their drive, knowledge, innovative and commitment will make the essential difference to service quality and impacts of solutions. This issue is doubly crucial in India as there are not much logistics domain experts in the area and the knowledge in providing optimized logistics solutions are relatively unexplored by conventional Indian service providers. As such, it is important to educate them to build talented personnel who know how to work efficiently within the constraints of the Indian market. On the other end, there is also need to educate the Indian organizations on the benefits of outsourcing to the logistics service providers for them in the short and long term. Provide technological solutions : In today's global business practice, technological solution is in widespread usage and it has also become the mantra in the logistics business. This has in turn created a market for software vendors, who have responded with suites of Supply Chain Execution (SCE) applications. This includes order, warehouse and transportation management systems, online tracking of goods, real time information, Global Positioning Systems (GPS) and most recently the Radio Frequency Identification (RFID) systems RFID which improves the accuracy and distribution efficiencies. India is a globally acknowledged IT powerhouse and this strength must be exploited by Indian companies to develop specific capabilities in IT-enabled Logistics such as the development and management of logistics planning and coordination systems. Leading Indian IT companies can complement their IT expertise with logistics domain knowledge to develop logistics capabilities for the different industries. Indian service providers should also quickly embrace the IT available and further develop the customized IT solution that suit the Indian requirement so as to enhance the quality and reliability of services provided. One option to do this is by forming alliance with independent software companies who can tailor-make the IT systems based on the local requirement. The IT solution offered should also be able to facilitate the increasing e-commerce activities across the country. Essentially, it is the players who can provide seamless e-logistics services that will emerge as successful logistics players in India.

18. CONCLUSION

The Indian logistics industry was valued at an estimated US\$ 130 billion in 2012-13. It has grown at a CAGR of over 16 per cent over the last five years. The industry comprises freight and passenger transportation via road, rail, air and water, as well as warehousing and cold-storage. Air cargo volume grew at a CAGR of about 8.5 per cent from 1998-99 to 2012-13. Future growth is expected to be fuelled by trade agreements, expansion of industrial activity beyond existing centres and investments in airport infrastructure. The government has doubled the proposed investment in airport infrastructure in the Twelfth Five-Year Plan period, as compared to the Eleventh Five-Year Plan. The private sector's contribution is expected to be over 74 per cent. The coastal-cargo traffic at major Indian ports has grown at a CAGR of about 2.6 per cent from 1998-99 to 2011-12. The freight via water is expected to grow further in the light of the Maritime Agenda 2010-2020. The Agenda aims at increasing the port capacity with increased focus on non-major ports and ports on the east coast. The funding of the projects under Maritime Agenda is also likely to be primarily come from the private sector. Freight movement via railways has grown at a CAGR of around 5.1 per cent from 2007-08 to 2011-12. The development of dedicated rail freight corridors is likely to boost freight traffic. The government has also recently allowed private players to construct and own rail lines to transfer goods. The road freight has grown at a CAGR of 8.6 per cent from 1999-2000 to 2011-12. The government's National Highways Development Programme aims to develop 50,000 km of National Highways by 2015. Once completed, this is expected to further fuel the demand of road transport. The

government targets to secure 33 per cent of the funding from private players. It has also announced several incentives to attract private players to set up free-trade warehousing zones and cold storage infrastructure. These measures are expected to drive growth in the logistics industry. The key growth drivers are: rapid growth in industries such as automobile, pharmaceuticals, fast-moving consumer goods (FMCG) and retail; increase in trade because of integration of India's economy with world; government initiatives such as FDI regulations, private sector participation and development of logistics infrastructure and increasing trend of outsourcing logistics to third party service providers. In the coming years, the key trends that are likely to affect the industry positively are entry of global players, increase in number of multi-modal logistics service providers, and greater investments.

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