1.0 Growth of Containerization and Multi Modal Transportation in India

INTRODUCTION

India is a developing country. After getting independence in 1947 it opted for a Social Democratic Government. In its zeal to achieve this objective it not only ignored but downright sneered at market driven economy. The socialist welfare state experiment met with disastrous result by 1990 when the country tottered on the brink of bankruptcy. This state of affairs was reached in spite of the country being a leading global producer of several products and rich in resources.

The country pulled back from the brink of bankruptcy by instituting economic reforms which lead to India achieving 6-7% GDP growth for the past ten years and becoming 4 largest economy in the world after the US, Japan and China in the Purchasing power parity. Currently in addition to 8% GDP growth rate it has a low Inflation rate along with sustainable fiscal deficits. It is on the threshold of becoming an economic superpower in the next ten years.

However what could be one of the biggest hurdles in its path to realizing its goal is the limitations of its infrastructure imposed, by the lack of an efficient integrated Multimodal Transport capability. The infrastructure capability can just not match the export and manufacturing growth rates. The country’s road, rail and sea transportation system leaves much to be desired and the port infrastructure is crumbling. It is a catch situation as development does not take place due lack of infrastructure which does not develop due to lack of financial resources this in turn leads to further lack of development. Several global corporations are hesitant to invest in India for several reasons of which lack of suitable infrastructure being the most important. It is the objective of this paper to analyze the reasons behind this predicament. Enactment of the “Multimodal Transportation of Goods Act” was in 1993.
RESEARCH METHODOLOGY

The available literature on this subject merely describes containerization and Multimodal transport in India. It does not analyze the role of containerization in the growth of foreign trade of the country nor does it attempt to establish a relationship. Between the GDP growth and the rise in container throughput. This thesis not only covers the above mentioned lacunae but also attempts to forecast the growth rate of containerization in India in the next decade. Furthermore this thesis also provides solutions to the challenges that would be created due to the rapidly rising throughput the thesis primarily focuses upon hinterland development and generation of Container traffic both export and import. It further observes the movement of these containers to and from the gateway ports. It then tries to establish a relationship between the GDP growth, foreign trade and container throughput. While doing so it attempts to identify the problems faced in the movement of containers and tries to find Solutions for these problems.

The thesis will also describe the macro economic background of India along with special characteristics of different regions where the cargo is generated. It will also focus upon the geographical terrain where the ports are situated and analyze the Reasons for the success and failures of the gateway ports.

1.2 PROBLEM DEFINITION:

The study focuses on the International trade growth of India in the past decade And the contribution of containerization to this growth. It is one of the objectives of this study to analyze the reasons behind the growth of container throughput. Thus the problems this thesis undertakes to analyze are as under:

1. Identify and analyze the critical role of containerization in the Growth of International Trade of India.

2. Identify and analyze the obstacles to the development of multi Modal transport.

3. Ascertain the role of multi modal transport in the future growth of international trade.
1.3 RESEARCH QUESTIONS:

The research questions are as follows:

1. What is the impact of growth of GDP on container throughput?

2. What is the role of multi modal transport in the international sea bound trade of India.

1.4 RESEARCH OBJECTIVES

There are two main objectives of this research which are as under:

a. Forecast the growth of containerization in the next ten years.

b. Analyze the factors influencing the growth of containerization.
A GLOBAL OVERVIEW OF CONTAINERISATION

It is difficult to imagine globalization taking place without the assistance provided the freight container. The container has been called the box that makes the world go round. When it was introduced no one could have imagined how quickly the ocean Freight business would have evolved thanks to the container. Asia particularly China serves as the world’s manufacturing hub separated by the sea to the major Consumption markets of Europe and the USA. This is the basic reason for which the container market is growing three times as fast as the world economy. These steel boxes have become the building blocks of the new global economy.

The invention is relatively young. About 50 years ago on 26 April 1956 the first the Container ship called —Ideal X owned by a man named Malcolm MacLean set sail from Port Newark, New Jersey enrooted to Texas. On board there were 58 trailers. In order to save upon labor and time required to load ships, the Americans came up with the idea Of loading full trailer on a ship was introduced years earlier when he was a trucker. The Trailer became the container. MacLean later of undid the Zealand Shipping Company which was subsequently acquired by the Mares group in 1999. Another American Called George Sharpe invented the cellular design of the ship. These boxes can carry just about anything from frozen beef from South America, LCD monitors from Honking, to shoes and toys from China.

There was a growing demand in the western countries for the goods manufactured in Asian countries. This demand was met by transporting them cheaply in Containers to the consumers by sea. This ever increasing demand led to economies of Scale being realized in manufacturing and transportation sectors.
LOGISTICS & SUPPLY CHAINING

At present 9 billion cartons of general merchandise move down the supply chain every year connecting the manufacturers of array of goods and consumers. It is a method of coordinating suppliers, retailers and customers resulting in value creation. Globalization is enabled by supply chaining which further drives up the demand for Cheaper goods manufactured at production centers located at places where cheap and Skilled labor was available. This fact can be explained further as the more these Supply Chains grow, the more they force the adoption of common standards between Companies (so that every link can interface with the next) the more points of friction are Eliminated and efforts of one company get adopted by the other. Consumers today are enjoying benefits of more and more variety at lower and lower prices of products as Never before in the history of mankind. This has been enabled largely by Containerization. The success and growth of retail giants like Wal-Mart has largely been due to the recognition of the importance of logistics and to the improvement of their Supply chain strategies.

Information technology and digital communications also play a major role in the Supply Chain. IT helps in understanding the tastes of consumers which is converted into design, manufacture, transport and supply of the desired products. It contributes to lowering of inventory levels and reducing carrying costs and thus freeing expensive Capital. It is a very transparent process which identifies and eliminates inefficiency everywhere. Cost cutting is the major driver of supply chain efficiency and leads to the employment of new technologies in the attempt of reducing labor costs eliminating errors and speeding up the entire process.

Once the containerized cargo lands at the gateway ports it is transported by rail, road and waterways to hinterland warehouses / distribution centers. The containers are stripped and the cargo is stored in these warehouses / distribution centers and is subsequently transported in assorted lot sizes to the wholesalers and retailers. Time is of essence in this entire process. All the parties involved endeavor to minimize the time factor during which the goods are in their possession. This gave rise to just in time concept of inventory levels. This results in compressing the time when the goods leave the factory premises of the manufacturer till the time it is sold to the final consumer. The cost benefits of this time compression are passed on to the
consumer which in turn offers a competitive edge to the manufacturer. This would not have been possible without the advantages offered by economics of containerization.

2.2 OFFSHORING

In 1977 the Chinese leader Deng Xiao Ping put China on the road to capitalism by declaring that "to get rich is glorious". When China opened its tightly closed economy, companies of the West saw it as a huge new market for their products as China had a Population in excess of a billion people. Some companies set up shop in China to sell their wares. But because China at that time was not a member of WTO it was able to raise barriers restricting penetration into its markets. Soon these companies realized their folly and to make the best of the bad situation they decided to commence manufacturing activities in China in order to exploit the advantages offered by low wage Skilled worker pool of China. This concept was accepted gladly by the communist Leadership of China. Once the process began in a range of industries from consumer electronics to eyeglass frames to auto parts, rest of the companies not wishing to be left out joined the bandwagon.

By joining WTO in 2001 China assured the foreign companies of protection by International law and Standard Business practices. This greatly enhanced China’s Attractiveness as a manufacturing platform. Under WTO rules Beijing agreed to treat non Chinese firms in the same way as local firms thus opening its own markets to Foreign companies. Bureaucracy was also reduced in the effort to facilitate trade. The advantage of China lies with its low wage workers and its eagerness to grow. The huge population with its purchasing power has converted China into a burgeoning Consumer market. China has more than 160 cities with a population in excess of one million. China is today considered a threat, customer and an opportunity all at the same time by the nations of the west. The more attractive China makes itself for global off shoring the more it spurs on other low wage nations of Asia like Malaysia, Thailand, Vietnam and Indonesia. While the developed nations of Asia like Japan, Taiwan, South Korea and Singapore strive harder to retain their competitive advantage they already have. This makes the entire region a dynamic growth area which intensely competes with each other to attract Global
business by offering best tax breaks, educational incentives and subsidies apart from their cheap labor.

China has also improved its brand equity by absorbing latest technology and Modern management techniques required to improve its productivity. The resulting loss of jobs has been compensated by the rising service sector. The Chinese leadership is encouraging education and training often at institutions all over the world. This is Globalization at its best.

2.3 BENEFITS OF CONTAINERIZATION.

Time and costs are interrelated in the investments of all modes of transport. Each asset has its own cost depending on capital and revenue expenses. Increase in asset utilization with reference to time yields more revenue and hence higher profits. Thus with a view to saving cost and time, cargoes / goods are consolidated and converted into as big a unit as possible. The developed countries of the west preferred this system thereby increasing productivity by displacing expensive Labor. Further as unit load becomes bigger, mechanization becomes imperative involving capital investment. The container serves this purpose perfectly whereby bigger units of cargoes can be stored and carried in one go. The container can be classified by raw material (from which it is constructed) or by its size. Currently the maximum numbers of containers are made of Steel and Aluminum. The International Standards Organization (ISO) after conducting a detailed study of standardized the size of containers to 20’ and 40’ in length, 8’ in breadth and 8 / 9 in height. The internal volume of a Twenty foot equivalent unit (TEU) is 33M 1/21/3. Containers were also classified by use for example general cargo which does not require temperature control was called dry cargo container, while the thermal container designed to carry cargoes requiring temperature control is usually made of Steel and Aluminum with polystyrene foam insulation. This container was further classified into Refrigerated, insulated and ventilated types. The third category of containers are classified under the broad heading of special containers like open top, bulk, tank, open side, flat racks, car and pen containers to carry different types of cargoes like grain, cement, liquids, over sized machinery, cars and live stock. The most important aspect of containerization is the suitability for
door to door service i.e. a shipment can be made, complete in all respects from the shipper’s premises in one country to the consignee’s premises in another country under a single contract, freight and document which covers transport by all modes like rail, road, ship, inland waterways and airways. This is termed as Multi Modal or Inter Modal transport.

Trade in general and exports and imports in particular have benefited by containerization and Multi Modal transport in two ways by reduction in costs and improved customer service. The cost saving has been on account of reduced freight, packaging costs, insurance premiums, warehousing costs and lower inventory in the following manner:

a. **Freight rates**: They are assessed per container unit, for all kinds of Cargoes popularly known as FAK-Freight of all kinds.

b. **Packaging costs**: Earlier when general cargo was transported in non unitized form, weather proof and sturdy packaging was a necessity. But in container transport this need has been eliminated and package size has been reduced to optimize container space usage.

c. **Insurance premium**: Marine risks by way of weather damage, thefts etc are reduced due to cargo being transported in containers. It results in lowering of insurance premium.

d. **Warehousing costs**: Transportation of cargo in earlier era by general cargo vessels necessitated warehousing at ports of loading and discharge for storage, sorting, packing, inspection etc. Containerization has dispensed with such processes leading to cost savings.

e. **Inventory costs**: Container carriers sail at high speeds and maintain strict schedules. This allows the exporters and importers to do forward planning and maintain lower inventory.

f. **Customer Service**: Containerization leads to better service to customers in the form of quicker delivery, assured transit times and less damage to cargoes in transit because container carriers are high speed vessels which spend less time in ports due to improved efficiency of port handling equipment.
2.4 FREIGHT STRUCTURE:

In the past decade containers have been increasingly used for transportation of almost all types of general cargoes. This has lead to lowering of transportation costs and has resulted in benefits for all parties involved. Nowadays traders stipulate transport of cargo in containers as a precondition for commercial contracts. As a result of this demand the shipping lines have responded by manufacturing different types of containers like dry van, open tops, ventilated, flat racks, high cube and reefers with the length being standardized to 20’ and 40’ and width at 8’. The freight structure has been mainly determined by three factors, adoption of trade route, inland mode of transport and the liner conference with minor influences exerted by freight forwarders, cargo consolidators and in some cases the Non vessel owning operator. The principle of what the market can bear also plays an important role. Certain types of time sensitive cargoes like perishables, white goods and garments attract higher freight while others like scrap, metal waste, steel coils and such voluminous inexpensive cargoes which cannot afford to pay higher freight are charged less for the same transportation route. The factor of one way empty container haulage also affects the freight structure.

Another important factor affecting the freight structure is the detention charge and the responsibility of causing such detention. A container either loaded or empty gets detained sometimes by the different parties involved for a variety of reasons like traffic congestion, non-availability of cargo, custom regulations and so on resulting in rise of expenses. In some cases the expense is absorbed by the carrier while in the remaining cases it is passed on to the shipper or the intermediate handling agent. The rising costs of fossil fuels and port congestion charges are usually borne by the shipper while the rest are shared between the shipping line and the intermediate handling agent. There are also other factors affecting the freight structure like demand and supply, competition amongst the lines, the transportation characteristics of the cargo like susceptibility to pilferage and damage, the length of the voyage and lastly availability of infrastructure.
There are three types of freighting arrangements namely a) Commodity box rate (CBR) b) Freight of all kinds (FAK) and c) tariff rate for less than container load shipments. The CBR is the most popular, where a single tariff is applicable for a 20 Container stuffed with a one or similar types of cargos. The shippers derive maximum advantage of the space available for stuffing keeping in mind the weight restrictions. The FAK is quoted by the carrier when he is not concerned with the commodity stuffed inside the containers (provided it is not hazardous or requires special care). Here the shipper derives maximum advantage by admixing different types of compatible cargoes. Shippers having small quantities of cargoes are charged a rate depending upon the volume and weight of the cargo. In such cases the stuffing / destuffing costs are borne by the carrier. The liner conference also fixes minimum freight tariffs that need to be charged by the member operators. The conference fixes different rates taking into consideration the commodity transport routes, ports, scope of responsibility accepted by the carrier and other such mutual contractual terms like free on board (FOB) free alongside (FAS) Ex works (EXW), cost and freight (CFR) etc. These are known as the International Commercial Terms or INCO terms formulated by the International Chambers of Commerce in 1936 and subsequently amended several times in 1953, 1967, 1980, 1990 and lastly in 2000.
CONTAINERIZATION IN INDIA

Ironically containerization was introduced for the first time in Indian domestic market way back in 1966 by the Indian railways to provide door to door service to their customers and attract cargo from roadways. They used containers with a 5 ton payload. However the International Marine Container failed to become popular right up to the late 1980s which in turn affected international trade growth. Hence the necessary infrastructure required for multi modal transport was never created till it was almost too late. It was only in 1987 that the Government of India realized the importance of containerization and started constructing a satellite port at Bombay which commenced operations in 1988 and was christened The Jawaharlal Nehru Port (JNP) after the first Prime Minister of India. Subsequently a Corporation was created by the Indian railways for inland haulage of containers by rail called CONCOR which constructed the first ICD at Tughlakabad in New Delhi.

India acquired its first cellular ship in 1948 with a capacity of 400 TEUs. The first container was handled at Cochin in 1979 carried by a vessel owned by American President Lines which also commenced a scheduled service from Bombay followed by several other foreign companies. The shippers and consignees also responded positively to this new development and forced the government to make heavy investments in the infrastructure for growth of containerization in India. Containerization has since grown substantially. Indian ports handled a total of 1,052,000 TEUs in 1993 while it handled 4,637,000 TEUs in 2005, a significant growth of 400% in 12 years.

3.1 AN OVERVIEW OF INDIAN FOREIGN TRADE

The Indian exports can be classified into three groups as follows:


2. Products like Diamonds, Leather products, Garments, Chemicals, Engineering goods and Automobile components.

3. Products like Tea, Coffee Jute etc. With the diversification of India's export base the share of manufacturing and processed goods is increasing.
Except for Jute and Tea most of the other products are exported from the Ports of JNPT and Mundari. While non bulky but valuable products like polished diamonds, jewelry and cut flowers are exported by air mainly from Mumbai. The Indian imports mainly comprise of crude oil and Petroleum Oil products, sophisticated electronics, high tech engineering capital goods, chemicals, POL products, edible oil, Newsprint etc. most of these goods are destined for consumption in the Northern states or western states. A very small percentage is consumed in central or eastern India. The southern states are served mainly by the Chennai port with little help from Vizagapatam, Kochi and Tuticorin.

India has major trade relations with the United States, EU countries, Persian Gulf and South East Asian countries apart from China and Japan. Thus it is not concentrated with a particular global region. Furthermore due to draft restrictions and lack of suitable infrastructure, the mega carriers of 8000 TEU capacity and above are unlikely to call at the Indian ports in the foreseeable future and Indian containerized cargo will continue to be shipped from the ports of Singapore and Shalala/Jebel Ali.

The Indian foreign trade comprising of both exports and imports will continue to grow in the next ten years at a healthy pace of 7-8% with imports having an edge over exports. As the share of the service sector is continually increasing while the share of agriculture continues falling, the growth of physical movement of goods will not rise beyond a certain limit. In other words the Indian economy cannot be compared with Chinese economy which is driven by the manufacturing industry thus requiring physical movement of goods and hence bigger infrastructure with large capacities to avail the benefits of economies of scale.
3.2 HINTERLAND DEVELOPMENT

The full potential of containerization cannot be realized without hinterland development. This requires large investments along with subsidized pricing structure to enable the containers to reach the cargo generating locations cheaply. In India fair quantity of the exports are generated in the northern states of Punjab, Haryana and Uttar Pradesh which are located far away from the gateway ports of JNPT. Hence the first Internal Container depot (ICD) was created in Delhi followed by depots in Panpat, Ludhiana, Moradabad, Agra and Mega and a corporation was created by the Government of India called Container Corporation of India Ltd (CONCOR) to connect these ICDs to the gateway port by rail in India to enable smooth and seamless movement of containers. Subsequently CONCOR also started constructing ICDS and CFSs in other parts of India and at present operates 60 ICDs and CFSs all over the country.

ICDs are interfaces between connecting modes of transportation and offer a total package of activities to handle export and import containers and general cargo flows between road, rail and waterways in a cost effective manner with intermediate storage thrown in, along with some value addition services like consolidation of cargo, grading, sorting, packaging, custom examination etc. The ICDs also provide container repair and cleaning facilities.

3.3 ROLE OF CUSTOMS IN MULTIMODAL TRANSPORTATION OF CONTAINERS.

With the advent of containerization in India, Indian customs became an important entity in the transportation chain and new systems and procedures had to be put in place and constantly fine tuned to adapt with the frequently changing scenario. As customs duties on export/import goods are a major source of revenue for the Government of India the procedures instituted had to prevent revenue leakage on one hand while not becoming cumbersome to hinder trade growth on the other hand. At this point one can say that the custom authorities have succeeded to a great extent in achieving these objectives.
The custom procedures can be broadly divided into three areas: a) Export cargo procedures, b) Import cargo procedures, c) Transshipment cargo procedures.

a) **Export cargo procedures:** The exporters need to file five copies of Shipping bills in hard and soft format giving necessary details at the ICD itself along with the container number and the port of loading. The cargo is examined and the duty is assessed by the custom officials present in the ICD who then permit the cargo to be stuffed in to the designated container and permit its inland transportation to the gateway port. A copy of the shipping bills is retained by the custom authorities at the ICD itself while handing over remaining copies to the exporter. The exporter also has to fill and submit along with the shipping bill a GR (Guaranteed Remittance) form in triplicate indicating the value of export cargo. The authenticity of the value stated is also verified by the customs who then forward this form to the Reserve Bank of India to ensure receipt of remittance of the value of goods exported. On the container reaching the gateway port the shipping bills are endorsed by the port custom authorities and are then handed over to the respective shipping lines, permitting loading of the containers to the vessels. As and when the container is loaded on to the vessel the shipping line prepares and submits an Export manifest in hard and soft format giving all details to the port customs who after verifying the details stated in the manifest subsequently inform the ICD customs of the loading details of the said container. The GR form is then endorsed by the ICD custom authorities and returned to the exporter to enable him to submit the same documents to the banks and obtain his dues presenting the letter of credit given to him by the consignee. In order to promote exports the Government of India has waived excise duty levied on the goods manufactured within the country and exported. The exporter on submitting the proof of goods exported to the excise department is reimbursed the duty paid by him earlier. The Government of India has also exempted income tax on foreign remittances to enhance its foreign currency reserves and ensure inward remittances of value of cargo exported from the country.
b) **Import Cargo Procedures:**

Prior to the physical arrival of imported cargo the importer needs to obtain permission from Reserve Bank of India to import and remit the necessary foreign currency abroad to the shipper. On obtaining such permission the physical shipment of cargo in a container is effected by loading the container on a vessel owned / operated by a specific shipping line. It then becomes the responsibility of the shipping line to submit an Import document giving necessary details with the custom authorities who will then allow that the containers is unloaded from the vessel at a specified port of discharge. Depending on the contract of affreightment between the shipper and the shipping line evidenced by the bill of lading the importer or his agent or the shipping line itself obtains transshipment permit from the customs allowing the container to be transported by rail or road to the ICD located closest to the factory / warehouse of the importer. The movement of containers from the gateway port to the interior is a special facility. The shipping line or the transporters, need to execute a suitable bond undertaking to bear the custom duty liability on shortages that may occur during the transit. On reaching the respective ICD the shipping line submits the container along with the necessary documents and the transshipment permit to the ICD custom authorities who after verifying the integrity of the seals affixed on the doors of the container allow the destuffing of the cargo. The cargo is either destuffed or warehoused in the ICD itself or is destuffed in the presence of the custom officials and loaded on to a truck trailer or is restuffed in to the same container which is then loaded on to a truck trailer for onward transport to the factory / warehouse premises of the importer. The ICD customs ensure the receipt of the cargo according to what is mentioned in the import document filed and transshipment permit that has been filed by the shipping line.

c) **Procedure for Transshipment containers:** Transshipment means shifting of cargo from one vessel to another vessel for transport to the final destination. If the cargo discharged in the country is not meant for consumption within the country then such cargoes do not attract customs duty. Some of the Indian ports also serve as the gateway ports for land locked countries like Nepal and Bhutan. They also service to some extent the International trade of Bangladesh where the mainline operators do not call. In the case of transshipment a transshipment
permit (TP) is prepared and submitted by the shipping line to the custom authorities who then allow such containers to be discharged at a specific port either to be loaded on to another vessel for onward transportation to its final destination or on to truck trailer or railway wagon for inland transportation. In such cases a transit bond needs to be furnished by the transporter to the tune of 300% of the CIF value. The ports of Kendal, Chennai, Kochi and Halide handle fair quantity of such transshipment cargoes.

3.4 ROLE OF GLOBAL MULTIMODAL OPERATORS.

Indian shipping companies are relatively small both in terms of vessels and in terms of cargo transported with the sole exception of the state owned The Shipping Corporation of India. It is a strange fact that in spite of a lot of encouragement and assistance provided by the Government of India, Indian shipping companies carry less than 5% of the total Indian container trade amounting to approximately five million TEUs.

Almost the entire containerized foreign trade of India is handled by foreign shipping companies like Mares, Mediterranean Shipping Company (MSC), Evergreen, NYK, MOL, Happing Lloyd and APL to name a few. These shipping lines have been operating in India through their agents for the past 35-40 years. It was only in the 1990s after the institution of the economic reforms process that these companies established Indian subsidiary companies registered in India. In the process they not only served the India foreign trade but they have also managed to control completely the Indian market. It was again a foreign company namely, P & O Ports which imitated the port privatization process by obtaining the first private terminal contract at JNPT in 1998 followed by Chennai and Mundari. The APM Terminals followed up by obtaining another terminal at JNPT and Papaya. With the opening of the rail container transport sector almost 14 foreign companies have been awarded licenses to transport containers by rail thus ending the monopoly of CONCOR. Some of the foreign shipping companies notably Mares and APL have also entered the warehousing and distribution sectors by opening their own ICDs at JNPT and New Delhi.
At present these foreign shipping companies are offering total logistics solutions to the Indian industry by way of their expertise and experience gathered globally over the years. It is very unlikely that an Indian shipping company will challenge their position in the near foreseeable future as they neither have the necessary resources nor the expertise.
4.0 RAIL AND ROAD TRANSPORTATION

Inland transportation of containers is the biggest challenge faced by multi modal operators in India. Presently about 40% of the containers are moved by railways with the remaining percentage by roadways with no usage of inland waterways. Indian Railways was the legacy of the British Raj created over 150 years ago. With regards to the roadways one can stretch the period back to the 13th century or even earlier when the rulers like Asoka and Sheer Shah the Sure created the Grand Trunk road stretching right across the breadth of India. But the modern roadways were only created by the British rulers with large capacity increases done by the Government of India after independence. These road and rail networks were created when containerization and globalization were at their starts hence it is not surprising that they are unable now to cope up with the strain deriving from containerized global cargo. Any improvements will require large investments which the Government of India is unable to do due to financial constraints. On the other hand the private sector is keen to provide financing to infrastructure investment provided the Government guarantees them normal returns.

Indian Railways began operations in India in 1853 just 15 years after the steam engine was invented in Great Britain. It was slowly extended to all parts of India especially in those areas where the British ruled directly like Bombay, the United Provinces, Central India, Bengal and Madras. This was done with the purpose of helping British Trade and Commerce. It is worth noting that as much as 80-85% of the existing rail infrastructure was created by the British in pre-independence India which was subsequently modernized and increased after independence. Today Indian Railways have excellent coverage in with almost all parts of the country. It carries both passengers and freight in a cost effective manner. The Railways subsidize certain classes of both passenger and freight traffic by charging higher rates to other classes which they can bear to pay. In addition to this as it is entirely owned by the Government of India it has complete monopoly on rail movement and owns huge real estate assets which it can use as it desires. Railways have also spawned commercial set ups like Railed in the telecommunications sector, Indian Rail Tourism and Catering Service (IRTS) in the hospitality sector and RITES in the Engineering Consultancy sector to exploit new opportunities arising in these fields.
4.1 RAIL TRANSPORTATION OF CONTAINERS.

Indian Railways first started container transportation in January 1966 to provide door to door integrated intermodal service. The containers with a pay load of just 5 tons were loaded and sealed in consignor’s godowns and delivered to consignee’s godowns using both rail and road transport. It resulted in reducing risk of loss, damage and pilferage apart from saving on packing costs. This service was essentially meant for the domestic market and this experience helped them subsequently to provide multimodal transportation of ISO containers. The actual job of Railway haulage was conducted by Indian Railways. The railways transported the containers by rail for CONCOR at below market price allowing CONCOR to make profits which were reinvested in setting up ICDs and CFSs on railway owned lands leased to CONCOR. By refusing to transport containers by rail for any other organization the Indian Railways thus made CONCOR a monopoly.

While accepting containers for rail transportation from various shipping lines CONCOR in turn issued a Rail Receipt (RR) on behalf of Indian Railways which is a negotiable document. The shipping line in turn issues a combined transport document (CTD) or Bill of Lading to the consignor. The RR is also known as Inward Way Bill (IWB). CONCOR has submitted a bond to the customs as a security against revenue leakage and for allowing them to transport containers to and from the gateway ports to the hinterland. On arrival of the containers at their destination as the case may be, the respective shipping lines surrender their IWB and obtain delivery of their containers. The IWBs are covered under the Indian Railways Goods Transportation Act whereby the liability of CONCOR is limited to Rs. 50/- per kg or actual value of goods whichever is lower. However due to the high demand and several infrastructural bottlenecks mostly the absence of dedicated freight corridor reserved for container traffic the Indian Railways are unable to provide pre-fixed scheduled service by means of which the containers from ICDs can directly be connected to the sailings of specific ships from gateway ports, nor can they guarantee fixed transit times.

Another problem faced by the shipping lines is the lack of movement of imports to certain ICDs like Abingdon and Moradabad where only exports are generated. Hence empty containers have to be moved free of cost to these locations. In such
cases CONCOR stuffs these ISO containers owned by the shipping lines with domestic cargo and earns freight while charging the line a discounted rate maintaining it advantageous for the line to reposition the empty boxes.

The design of the container flat cars is also being altered to allow them to carry heavier payloads at high speeds and wherever possible containers would be transported in double stacks. This experiment was successfully conducted between ICD Raipur and the gateway port of Papaya. Another problem in hinterland transportation by railways is that the Indian railway network presents technical discontinuities. Certain routes have a smaller gauge of 1.00 meter that is being slowly converted to the broad gauge of 1.67 meters that is used throughout the country. These discontinuities impede universal rail connectivity and hence containers have to be routed over longer routes. The structure of numerous overhead bridges as well as rail bridges also needs to be altered to enable movement of heavy loads at high speeds. This also applies to railway tunnels. Several trunk routes are electrified while the rest are still dependent on diesel locomotives. This also results in slowing down smooth operation as the electric locomotives have greater power than the diesel operated locomotives and can pull heavier loads at greater speeds.

4.2 ROLE OF CONCOR.

With the advent of containerization in India, a separate corporation under the Indian railways was created as an autonomous public sector undertaking on 1st March 1988 with the basic objective to provide multi modal transport logistics in a cost effective and efficient manner in order to facilitate the nation’s foreign trade. In 1994 it transported 0.36 million TEUs and grew at a rate of 15.2% and presently transports over 2.2 million TEUs per annum and till recently had a total monopoly control over rail movement of containers. CONCOR has also set up bonded warehouses at various ICDs where import cargoes are stored under custom bond and is cleared on part basis by the importer on payment of custom duty. CONCOR also transports Petroleum Oil and other liquid bulk products in its own tank containers in the domestic market along with other general cargoes. CONCOR has installed a sophisticated container cargo logistics system in the ICDs owned by it and interconnected with each other with multi user LAN network. It has
also purchased over 5000 container flat wagons and several container handling equipments with a World Bank loan of about 94 million USD. The Government of India subsequently sold part of its equity in CONCOR in the open market and its share is traded on the major stock exchanges in India.

CONCOR has also entered into several joint ventures with Shipping Lines, State Warehousing Corporations and Terminal Operators to offer Multi Modal Logistics and Consultancy Services. They have an excellent vendor development program whereby they have financed their own vendors to buy expensive handling equipment and the loan amount is deducted in monthly installments from their bills. This has lead to creation of committed and loyal vendors. CONCOR has also completely outsourced the road transportation activity which has enabled them to concentrate on its core transport activity and consolidating its status as a market leader as multi modal logistics operator. CONCOR plans to extend the coverage of its services countrywide by building additional terminals. It is also in the process of acquiring additional rolling stock to increase frequency of service. It has invested in modern information technology systems to provide information in real time to its customers. It is also beginning to provide third party logistics (3PL) services and has plans to set up Distriparks, Freight and Trade Development centers to offer total logistics solutions.

As stated earlier CONCOR faces a high demand for movement of containers and due to unavailability of sufficient flat cars, the demand cannot be satisfied promptly. This resulted in many shipping lines being dissatisfied with the service of CONCOR. As a consequence the Government decided recently to end the monopoly of CONCOR in the transportation of containers by rail and to grant access to the container rail transportation to other commercial organizations with the necessary experience and financial standing. In addition a feasibility study has been conducted on the construction of a dedicated freight corridor between Delhi and Mumbai and Delhi and Kolkata and work is expected to commence in the near future. The equity stake of the Government of India in CONCOR would be partially sold to raise necessary resources for construction of the freight corridor. The last major problem faced in rail transportation of containers is non availability of sufficient container handling equipment at the ICDs and CFSs as they are not only capital intensive but are also expensive and difficult.
to maintain. As such overhead gantry cranes are not manufactured in India and have to be imported. These cranes become economically viable only if sufficient volume is generated at the ICD/CFS. This result in increase of turnaround time consumed to discharge and load a train at the ICD. The problem is further aggravated due to the mushrooming of ICDs and CFSs at various locations, thus resulting in dilution of volumes available for handling at the locations.

4.3 ROAD TRANSPORTATION OF CONTAINERS

Presently in spite of several shortcomings and bottlenecks the roadway system continues to carry over 57% of the total container traffic and continues to grow at a rate of 11.4% which is not a desirable situation at all for several reasons. The first reason is that Indian roadways are just not capable of withstanding the heavy demand placed on them. This results in congestion and mounting expenses. As it is the Indian roads are in a poor condition and rapidly deteriorating when heavy loads are placed on them. Secondly Indian roads traverse through hills and mountain passes and cross several bridges built over rivers, streams and creeks. This requires the truck trailers to have sufficient horse power engines and well maintained trailer systems to carry heavy loads efficiently over long distances. Unfortunately this is not the case in India, thus resulting in frequent breakdowns and long congestions and heavy expenditure apart from pollution and health hazards. Thus neither the roads network nor the truck trailers are capable of handling container transport. Thirdly Indian roads are not priced correctly.

A few toll roads have developed recently but the experiment is yet to prove successful. It remains to be seen whether the revenue generated can provide sufficient returns on the capital invested and whether it can be used for maintaining the roads. A massive road development programme connecting the four Metros has been undertaken with the help of private sector but is unlikely to be completed within the scheduled time period and the earmarked budget. Whether this road network assists in easing the unbearable strain placed upon the roadway system as a whole remains to be seen. Furthermore whether this road network would be priced efficiently is also an important question otherwise in no time the entire system would disintegrate in to pieces. Though economically priced the Railways have not been able to attract freight from the road network mainly due
to insufficient connectivity and its failure to maintain scheduled transit times apart from insufficient supply of container wagons and poor customer service. Though most of the ICDs and CFSs are connected by rail network yet the dependency on road transport has not been reduced. The custom authorities too are quiet reluctant to permit usage of roadways for inland transportation of containers due to risk of pilferage and smuggling. With the advent of terrorism this risk has increased manifold. Yet due to lack of other alternatives they have permitted some movement of containers with surprise checks in between the transit.

Another hindrance in seamless movement of containers is the Octroi tax which is a tax imposed by local municipal authorities especially where inter-state movement is concerned. It impedes smooth movement of goods and ads to delays and expenses. The need for abolition of Octroi has been emphasized by several committees and Trade Associations central Government of India responded by abolishing Octroi in Delhi and Union Territories. The state governments have been urged to abolish Octroi and finding alternate sources of revenue to compensate the loss. But the major opposition comes from the municipalities and local governing bodies for whom it is a major source of income. Another problem requiring attention is the need to rationalize the Motor vehicle tax structure and reduced multiplicity by centralized tax collection. The National and Zonal permit scheme was formulated with the single point taxation as its major objective with simplified procedures. However this scheme is yet to be implemented. The usage of multi axle vehicles also needs to be encouraged which can result in fuel efficiency and increase in load carrying capacity of the vehicles especially of heavy containers It also exerts lesser stress on the road network. It is pertinent to note that one of the most important causes of road damage is improper axle load of trucks. In order to achieve this objective the Motor Vehicle tax structure needs to be rationalized which is currently based upon the number of axles.

As stated earlier the road network is in poor condition due to cumulative neglect especially of state highways and district feeder roads. The roads need to be repaired and upgraded on war footing. It needs to be recognized that road characteristics like asphalted concrete mix, premix carpet, soling and roughness etc affect the cost of operations of vehicles and with the global fuel prices shooting up, the situation can spin out of control. The improvement of road condition can
result in major fuel cost savings. In order to improve the road infrastructure the Government of India has created a National Highways Authority. The road bridges which constituted an important part of the road network system also need to be upgraded to carry heavier loads. The drivers of heavy vehicles also need to be imparted necessary training especially regarding safety and precautions to be observed to reduce road accidents. Proper guidelines need to be evolved to transport containers in a safe manner especially regarding proper stowage of cargo and securing of containers. The vehicles should also be inspected periodically to ensure proper maintenance. Last but not the least is the need to highlight private sector participation because the Government just does not have the necessary resources to achieve the stated objectives. There is a wide scope in both rail and road networks for the participation of the private sector. But the Government should recognize the need for making the opportunities sufficiently attractive to entice the private sector in investing their funds as well as their expertise in building and operating such projects.
5.0 GROWTH OF INTERNATIONAL TRADE AND MULTIMODAL TRANSPORT.

India’s International trade has grown substantially in the past decade, containerization and multi-modal transport has played a major role in driving this growth especially of manufactures and Agriculture produce. This is the state of affairs despite a container penetration ratio of 56%. The manufacturing centers of India are situated far away from the gateway ports. Majority of India’s export cargo generation takes place in the Northern states of Punjab and Haryana, Delhi and Uttar Pradesh which are situated far away from the ports of Mumbai, JNPT and Mundari where the mainline vessels call. Though India’s International trade has grown manifold yet its share in the global International trade has remained under 1%. This failure has been primarily due to two factors.

**Firstly** the myopic policies and priorities of the Government of India driven by the need to protect the interests of the urban consumer by controlling the prices.

**Secondly** due to the cussed policies of the developed countries of the west chiefly United States to protect the interests of the rural farmers by offering huge subsidies.

It is an irony that such economic policies are being followed in the very countries that gave birth to the founders of the modern economic theory via Adam Smith and Ricardo. Both of them must be turning in their graves. The manufacturing centers of India are situated far away from the gateway ports. The majority of India’s export cargo generation takes place in the northern states of Punjab, Haryana, Delhi and Uttar Pradesh which are situated far away from the ports of Mumbai, JNPT and Mundari where the mainline vessels call. Though India’s international trade has grown yet its share in the global International trade had remained under 1%. This failure has been primarily due to two factors. Firstly the policies and priorities of the Government of India have been driven by the need to protect the interest of the urban consumer by attempting to control prices. Secondly, the policies of the developed countries of the west primarily the United States are aimed at protecting the interests of their local farmers by subsidization of production.
India is primarily an agriculture based economy where more than 70% of its vast population is employed in the agricultural sector. In addition to this the agricultural activity is dependant to a great extent on monsoon rains and less on irrigation except in Punjab and Haryana. In spite of such circumstances India is a major producer of almost all kinds of agricultural and animal products and is a net exporter. Thus India could become the bread basket of the world if it was allowed to freely access the global market. On the other hand Indian high technical content manufactures are inferior compared to those of developed countries.

In the recent WTO talks the developed countries lead by the United States insisted on India to lower its custom duties to their products while refusing to reduce subsidies to their own farmers. Despite the inability of Indian and western policy makers to reach an agreement, Indian foreign trade continues to grow at a healthy pace of 10-12% and will continue to do so. Taking into consideration the above mentioned fact containerization and multi modal transport will have no option but to keep pace with the growth of International trade of India. As stated earlier the majority of Indian general cargo is originated mainly in the northern regions with smaller amounts being generated in rest of the country though considerable exceptions are the western states of Gujarat and Maharashtra along with the southern states of Tamilnadu and Karnataka. The rest of the country does not contribute to the International trade activity. This happens despite several ICDs and CFSs are set up in states like Bihar, Orissa, Bengal and Andhra Pradesh where significant cargo generation just does not take place.
5.1 INTERNATIONAL TRADE AND INFRASTRUCTURE DEVELOPMENT.

Presently the foreign trade of India is in excess of 500 million tons (both imports and exports) and is targeted to rise yearly by 10-12%. This places a challenge on Indian infrastructure, which is already under strain to sustain this pace of growth in trade. This calls for additional effort to modernize the crumbling infrastructure which is characterized by obsolete equipment, hierarchical and bureaucratic management structure, labor intensive institutions which are not consistent with government objectives of trade growth. Even if the government has earmarked significant (but insufficient) resources, it remains to be seen whether they could be adequate and properly used, taking into consideration the past history of cost over runs, delays and corruption during the construction of mega projects. Similarly considering that the bureaucracy is reluctant to give up control of infrastructure, it would also become another impediment to attract much needed private capital.

The Government of India has targeted 8% GDP yearly growth rate which would be unattainable without simultaneous without growth in International trade which in turn needs to be facilitated by modern and efficient infrastructure. Such an infrastructure can only be available with the active assistance and participation of the private sector. The private sector will only be interested if guaranteed returns are assured; this is exactly what the government needs to do via; to attract private investment and participation by making necessary changes in their policies. India has a fairly balanced international trade with exports lagging slightly behind imports. In order to promote export growth the government has announced a slew of incentives like no tax on export earnings, exemption of customs duty on imported machinery for export oriented enterprise, setting up of special economic zones (SEZs) and several others.

Such steps have resulted in merchandise exports growing by excess of 10% consistently and are currently to the tune of 80 billion USD whereas the Chinese exported goods worth 564 billion USD for the same period. In spite of this growth India’s share of global export trade is less than 1%. India will have to make much more efforts similar to the ones made by the Chinese to further penetrate the global markets. The Economic Survey of India indeed admits that
The single most important reason for stagnant share of global export markets has been lack of modern infrastructure to facilitate international trade. Another important factor that needs to be focused upon is the fact that only 71.3% of exports and 42.6% of imports are containerized. In addition about 70% of the total containerized trade moves through the 3 major ports of JNPT, Mundari and Chennai (with the bulk of the trade passing through JNPT) and the balance 30% being shared between the remaining 9 major ports. This results in congestion at JNPT and underutilization of capacity at the other major ports. It also causes over stress on the Delhi-Mumbai rail and road network. This imbalance has been partially corrected by some cargo of JNPT and Mumbai being diverted to the newly commissioned ports of Mundari and Papaya in Gujarat, while some cargo of Chennai might be diverted to the recently privatized terminals of Valarpadam in Kerala near Kochi and Vishakhapatnam. But the swift annual growth of 10% easily consumes the additional capacity generated in this way.

5.2 INDIAN SHIPPING INDUSTRY.

India is strategically located close to the Trans Pacific and Europe-Far East liner shipping routes and the intra Asia North-South trade lanes. Almost all global shipping lines have their presence in India to exploit the growing market opportunities and derive advantage of the strategic location. The National shipping line Shipping Corporation of India (SCI) has one of the largest fleets in the world. Indian Officers and Seamen are employed globally. Several training institutes for Officers and Seamen have been set up by the Government as well as by Shipping Companies. In addition to this the Government has promoted and developed several ship building and repair yards to promote growth of the shipping industry. An Indian classification society called The Indian Register of Shipping was also set up to help the trade. India also has one of the biggest ship breaking facilities in the world located at Along in the state of Gujarat on the west coast. It must be acknowledged that the shipping industry in India has always been fully liberalized with no restrictions on the entry of private sector companies. On the contrary every possible effort has been made to help the private sector to progress in this industry by the Government both financially and fiscally. Several policy changes were legislated towards achieving this objective. Presently Indian shipping industry comprises of a few large and medium size shipping companies.
dominated by the state owned Shipping Corporation of India and a host of private players. On the eve of independence Indian shipping comprised of only 60 vessels with gross tonnage of 0.192 million tons which has grown to 612 vessels with gross tonnage of 7.96 million tons in 2005. This is well short of the proposed growth target of 9 million gross tons. This has resulted in the national flag carriers losing market share to foreign shipping companies. This has been in spite of the Government providing all possible incentives like reserving government cargoes for Indian vessels and providing cheap capital as well as tax waivers. However it must be stated that policy changes in relaxation of sabotage laws did affect the shipping industry adversely. Yet these measures did little to increase the role of the national shipping industry and revive the recessionary trends. In addition to this the industry on its own has not been able to attract equity capital from the market. One of the major reasons for this difficulty is non receipt of tax benefits available to export oriented industries. This is so despite the fact that not only the shipping industry earns foreign exchange for the nation but also saves foreign exchange which would have been payable to foreign carriers. To summarize it can be said the Indian shipping industry has not been able to exploit the opportunities accorded by the policies of liberalization of the Government of India. In the recent past the government had also proposed to sell a majority stake of its holdings in the Shipping Corporation of India which eventually was shelved due to political opposition and unattractive offers. Presently the Indian liner shipping trade is dominated by host of foreign carriers notably Mares, Mediterranean Shipping Company (MSC), Evergreen, American President Lines (APL) and China Ocean Shipping Company (COSCO) who have formed Indian subsidiaries. Various alliances and consortiums have been formed by the companies with others to exploit the Indian shipping market. Some of these companies have also managed to obtain long term contracts to manage port terminals, warehousing complexes and transport containers by rail from the gateway ports to hinterland destinations.
5.3 OVERVIEW OF MULTIMODAL INFRASTRUCTURE IN INDIA.

Unlike Europe, India does not enjoy an efficient inland waterway system or an extensive coastal short sea transport so almost the entire domestic transportation is conducted by rail and road networks. India has a long coastline of 7000 kilometers served by 12 major ports under the central government jurisdiction and 181 minor ports under the respective state control. A major plan is underway to revamp and develop the ports. Though containerization was introduced in India in 1980s the container penetration ratio is only 43% which is far less as compared to the developed countries. The hinterland penetration is also not very significant. In spite of India having an extensive road and rail network connecting the gateway ports to hinterland destinations the coefficient of connectivity is low and has to be improved upon.

Though India has 14,500 kilometers of navigable waterways large cargo vessels are unable to use them due to insufficient draught. Furthermore as these rivers are extensively used for irrigation and electricity generation the capacity for cargo transportation is severely restricted even further. The Inland Waterways Authority of India (IWAI) was set up in 1984 to develop, maintain and administer the waterways while The Central Inland Water Transport Corporation (CIWTC) was set up to undertake freight transport. However less than 1% of the domestic cargo is moved via this mode which the policy makers wish to improve upon.

The Multimodal Transportation of Goods Act (MTGA) was enacted in 1993 by the Government of India with an objective to facilitate the movement of goods from any location within the country to any place outside India. It allows the road, rail, inland waterways, deep sea and non vessel owning container carriers (NVOCC) to register as Multimodal Transport Operators (MTO) with the Director General of Shipping and can issue a multimodal transport document (MTD) which replaced the earlier combined transport document (CTD) as a basic document which would be treated as a negotiable instrument for documentary credit by the Banks. Presently there are about 190 registered Multimodal Transport Operators.
5.4 CONSTRAINTS FOR GROWTH OF MULTIMODAL TRANSPORTATION.

A 1995 United States Department of Transportation study had described a model for analyzing and evaluating constraints of multimodal transportation which were divided into Operational, Institutional, Regulatory, Financial and Infrastructure sectors. An attempt will be made in this thesis to apply the same parameters of the model in Indian context.

a) REGULATORY CONSTRAINT.

The focus of this particular constraint is the lacunae in The Multimodal Transportation of Goods Act enacted in 1993 which are as follows:

a. The Air Freight operators are excluded from this Act.

b. The MTO license needs to be renewed annually.

c. Higher liabilities for the operator.

Apart from the above mentioned problems there are a variety of minor issues rendering the MTGA ineffective and hence only few MTOs offer the MTD which lacks credibility amongst foreign buyers of Indian goods.

b) OPERATIONAL CONSTRAINTS.

This constraint highlights the absence of modern equipment, bad infrastructure and reliable transport services from the gateway ports to hinterland destinations which result in expensive delays and higher costs of land leg logistics resulting in loss of competitive edge of Indian products. Due to unpopularity of the MTD the operators continue to issue mode specific documents like the Bill of lading for the sea leg and lorry or railway receipts for the land leg of transport. However these separate documents do not provide a legal regime for uniform liability nor are they negotiable. Hence most of the Indian exports move on FOB basis. Several ICDs lack adequate export facilitation agencies and phytosanitary certificate issuing authorities. Neither do all the ICDs offer export promotion schemes DEEC (Duty exemption entitlement certificate) or the DEPS (duty
exemption passbook scheme). There is no rational logic displayed in posting adequate custom officials nor are all the ICDs connected by railways necessitating use of congested roadways. The rail corridor from Delhi to Mumbai is under severe strain due to insufficient capacity and a dedicated freight corridor is being planned with Japanese financial assistance but is not expected to become operable in near future. Even sufficient railway flat cars for container transportation are not available and are being ordered nor are the rail track strong enough to carry heavy loads at high speeds. The users of the rail services expect better frequencies, assured transit times, reliability, security, door to door, cost effective and better customer service.

The coastal and short sea shipping network is conspicuous by its absence. The vessels are old and poorly equipped. In spite of demand the growth of coastal shipping is restricted due to inadequate finance and poor returns. The attitude of the custom authorities is also not very helpful as they are more enthusiastic to curb smuggling and revenue leakage. The custom procedures are crying for overhaul on urgent basis. There is also dire need to streamline documentation procedures. Development of coastal shipping will relieve stress from the congested road networks.

c) INSTITUTIONAL CONSTRAINTS.

It is well known that Indian bureaucracy is very rigid and reluctant to give up controls, the regulations and laws are cumbersome which add to delays and expenses. There are several central ministries regulating the transport sector with overlapping powers in addition to state and local government bodies adding their bit to the chaos. For example an exporter has to process at least 50 documents and receive 15 approvals before he can export his goods. A single window clearance system is the need of the day in addition to electronic data processing.
d) INFRASTRUCTURAL CONSTRAINTS.

There is urgent need for developing the National Roads highway network, conversion of narrow gauge rail tracks and dredge the inland waterways. The capacity of the major and minor ports needs to be increased as well. Presently India does not possess a single deep draught nodal hub like Salalah or Singapore. All Indian exports and imports are transshipped from Colombo, Singapore or Salalah which adds to the costs and delays. This problem is expected to aggravate further with the introduction of Suez and Malacca max vessels with larger capacity in near future. There just are not any terminals which can handle such vessels. It results in increment of cycle time of Indian cargoes rendering them uncompetitive in the global supply chain. The Indian ports are operating beyond their capacity and need to develop urgently by attracting private investment. The container traffic has grown many folds in the past two decades and is expected to grow by at least 10% per annum to 600 million tons by end of the current financial year. This growth can only be handled if massive development program of infrastructure development is under taken on war footing and necessary investments are made. India has partially privatized the ports of Kandla, JNPT, Mumbai, Kochi, Chennai and Vishakhapatnam and allowed the development of Greenfield ports at Mundra and Papaya on the west coast of Gujarat in the private sector. New ports are also being planned at Gangavaram, Dharma and Kulpi on the east coast.

e) FINANCIAL CONSTRAINTS.

India has been a socialist country with a welfare state. This results in subsidized pricing of infrastructure. In addition to this the tax base of India is very narrow hence revenue generation is not satisfactory. Furthermore due to centralized planning model industrial growth is stifled. The agriculture sector is hampered by dependency on annual monsoon rainfall and lack of irrigation and satisfactory pricing mechanisms. All these factors place heavy financial constraints on the state. To further aggravate the problem infrastructure development receives low priority the only solution out of this quagmire is to allow private investment to invest in infrastructure development, permitting a reasonable rate of return. Taking into consideration the above facts it can be concluded that India has
indeed recognized the importance of integrated transport systems and has taken several measures to get its act together. However the pace of development of infrastructure does not match the pace of economic growth. Due to fragmented polity the will to pursue economic reforms with vigor and purpose is lacking. There is no consensus about economic development policies. While private investment appears to be the only source of finance but the scope of such schemes is unclear. The international business community far more clarity and commitment to development of infrastructure otherwise they will scout for better opportunities elsewhere. There is no doubt that India has the necessary potential in transportation and logistics management, but it is unrealized due to lack of proper direction. The policies too lack vision and foresight and the attitude of the government appear to be lackadaisical. The basic multimodal motto of — Don’t stop the Box” appears more like a mirage in the Indian cont

5.5 MINDSET OF INDIAN POLICY MAKERS.

If these factors are not properly understood there exists a danger of arriving at wrong conclusions. Some of these factors are listed hereunder. It should be understood that India till recently was never a single National entity. It was a loose conglomeration of princely states, kingdoms and principalities which were perennially at war with one another. It was the British Government who welded the sub-continent land mass into a single entity in 1857, after it took over the responsibility of administering the country from the erstwhile British East India Company. Even then they did not administer the entire company directly. Part of the administration was left to the princes and kings who accepted the sovereignty of the British Government. A uniform legal framework was conspicuous by its absence. This situation continued to exist right until India obtained its independence in 1947. The Indian society continues to be divided horizontally by religion, caste, tribes, language and culture, while it is divided vertically by Income, Education and technology. This results in creation classes of people as diverse and disparate as possible with their vested interests in conflict with others. Hence it is almost impossible to achieve complete consensus on any policy issue. Historically India never was a democracy and nor was it a theocracy either. It can be called secular
only because the state does not profess nor promote any religion. But occasionally it is forced to interfere into religious conflicts with a motive to contain, rather than resolving them least it is accused of prejudice and bias. The government is very apprehensive of such conflicts being converted into full crisis.

The policy makers of immediate post independence India who wrote the constitution and created the political framework, were just not up to the task. They were old, inexperienced and had spent years in British jails. They had no training in economic discipline. Due to the British Rule they were also highly prejudiced and suspicious of the market economy of the west. Thus the constitution while setting lofty objectives of welfare state did not specify the means to achieve them. Hence even today the policy makers try to reconcile the economic objectives with those of welfare state. After the death of Mahatma Gandhi in 1948, there was a total dearth of nationally acceptable leader with the necessary credibility and stature who could pull the country out of the morass and set it on the path to economic and social progress. This situation exists even today.

The partition of the country left deep psychological scars on the mindsets of the leaders of both the countries namely India and Pakistan. The accompanying bloodshed and untold human suffering destroyed the capacity of the political leadership to trust each other nor did the future covert and open conflicts help in removal of suspicions. Hence both the countries spend significant amount of resources, energy and time in checkmating the progress of each other. Basically India is an agricultural economy with over 70% of its populace engaged in some form of agricultural activity. Unfortunately agriculture cannot be a highly profitable business and the share of Agriculture in the Nation’s GDP is under 25%. In addition Indian agriculture is extremely vulnerable to the vagaries of the south west monsoon rains resulting in production glut and the bottom falling out of the market or severe shortages due to deficient rainfall. Though some steps have been taken to increase production by use of fertilizers, high yield seeds and irrigation, the situation is far from satisfactory.
Presently one can notice a tragic scenario with the government warehouses overflowing with buffer food stocks on one hand which end up getting rotten and consumed by rodents, and starvation deaths on the other hand due to nonexistent purchasing power. Thus due to the preoccupation of our politicians with agriculture the industrial and services sector is by and large left to fend for itself. It light be surprising to know that only 2.31% of the population (Ministry of Finance, Department of Income Tax) of the country pays income tax in spite of liberalization and introduction of economic reforms. Even more surprising is the fact that less than one percent of the population account for more than 50% of the contribution to the national exchequer. Thus the only other source of income for the government is customs and excise duties on imports and manufactured goods respectively. Hence any increase in rates of taxes or duties is self-defeating and renders Indian products expensive. The government has also committed to reduce custom tariffs as per WTO requirements. Hence it is making desperate attempts to increase revenue by increasing the tax base and prevention of leakage without much success as yet.

While considering infrastructural investments the policymakers focus primarily upon employment generation. India being a democracy the policy makers are elected every five years. Due to the rising expectations of the population it has become increasingly difficult to be re-elected for the incumbents without displaying some visible performance benefiting the voters. In addition to this the policy makers also attempt to obtain pecuniary benefit for themselves and the political setups to which they belong as elections are expensive propositions. Hence in the absence of any such benefits the politicians are unlikely to execute any projects in a hurry.

Another factor that needs to be taken into account is the fact that in quite a few instances the Government in the provinces and the Central Government at New Delhi hail from different political parties and indulge in creating obstacles for each other. This results in non implementation of certain infrastructure projects and policies and thus impedes economic growth.
6.0 PRIVATE SECTOR PARTICIPATION IN PORT DEVELOPMENT

An analysis of global urban growth and development would arrive at a conclusion that ports infrastructure and safe harbors have played a very critical role in their growth. For example, Singapore, Hong Kong, Dubai, New York, London, Rotterdam, twerp, Hamburg, Pusan, Shanghai and so on. It is quite obvious that these cities would not have grown and prospered if they were not graced with natural harbors and Ports infrastructure. Ports are similar to gateway yes through which the trade of the nation flows. They play an important role in the economic progress of a nation, especially in the age of globalization where international trade assumes critical importance. Efficient Port infrastructure is the key to the success, considering the fact that 90% of the international trade is transported by sea. The ports not only earn revenue for the nation by facilitating trade but also generate employment and provide value added services. On the other hand non availability of such infrastructure can be a de-motivating factor in attracting investments both foreign and domestic. India is graced with a long coastline of 6217 Kames with 12 major ports apart from 180 minor ports of which 15 can be developed. The combined throughput of the 12 major ports was 360.28 Million Tones having a total value of 300 Billion USD. Due to consistent growth of Gross Domestic Product in the past few years the demand for ports infrastructure has far outpaced supply by 400% in containers and 250% in Bulk. In order to overcome this hurdle land and assets required to handle the cargo have been estimated and quantified. The blue print for development of ports and hinterland infrastructure for seamless logistics market integration has been prepared and a comprehensive Maritime policy has been announced.

A nation’s economic progress is gradual and goes through several stages such as pre-industrial to transitional before maturity. The demands of a nation also vary depending on the stage of economic growth. India’s economic growth is currently at the transitional stage where the demand for shipping is growing day by day. Thus rendering investment opportunities in shipping sector maximum growth potential. The Indian ports are emerging as nodal hubs and are gradually integrating into global shipping channels. In this era of fast paced globalization the ports assume critical
importance and it is imperative that Indian ports are developed to enable India to integrate itself into global economic activity. Ports are complex interfaces between sea and land and necessitate understanding of construction technology, environmental hazards, trade patterns and shipping economics to unlock their potential. Unlike other sectors, ports are spherical in terms of growth and demand. They act as catalyst in the development of industrial complexes and economic zones and influence urban growth.

6.1 A HISTORICAL PERSPECTIVE.

As is well known, India is an ancient civilization and has been engaged in maritime commerce for the past 2500 years. India had extensive trade links with South East Asia and the Middle East apart from a vibrant shipbuilding industry tradition. The flagship of Lord Nelson in the battle of Trafalgar was built in Bombay by the Wades in 1815. About 10% of global trade was handled by Seurat in 1850. The Dutch, English, French and Portuguese owned warehouses and colonies for over 300 years in various parts of India where they stored their goods.

However, due to the sad experience of colonization by the British, India after it became independent in 1947 opted for import substitution and self-reliance socialist trade policy, thus discouraging international trade in general and neglected the ports infrastructure sector in particular. The ports are governed by The Government of India directly through the Port Trust Authorities vide the Indian Ports Act 1908 and the Major Ports Act 1963. The Ports real estate and its movable assets were the property of the Government of India who also employed the labor and carried out maintenance operations. The tariffs were fixed by the Government of India through the aegis of Ministry of Shipping and Transport. The minor ports were governed by respective state Maritime Boards. These ports had maximum draught of 5-12 meters.
MAP OF INDIA DEPICTING MAJOR PORTS
A list of major ports is given hereunder:

<table>
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<tr>
<th>West coast</th>
<th>East Coast</th>
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<td>Kandla</td>
<td>Kolkatta</td>
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<td>Mumbai</td>
<td>Halide.</td>
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<td>Nava Shiva</td>
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<td>Mormugoa.</td>
<td>Vizagapatnam</td>
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<td>Mangalore.</td>
<td>Chennai</td>
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<tr>
<td>Kochi.</td>
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Minor Ports:

1. Jamnagar  
2. Kakinada  
3. Bhavnagar  
4. Nagapattinam  
5. Sitka  
6. Gangavaram  
7. Malachi  
8. Kulpi  
9. Prouder  
10. Dollar  
11. Hahira  
12. Papaya  
13. Mundra  
14. Dame  
15. Kara  

As the ports were not considered profit oriented but rather service oriented, this led to poor port productivity, thus rendering the Indian exports expensive. Even today after a lot of restructuring the freight component of Indian exports is as high as 20% of its price. Some indicators of port productivity in 1990 are given hereunder.
1. Average labor productivity 1400T/Employer

2. Average Vessel Turnaround time 11.9 days

3. Average Berth Productivity 4700T/day

4. Average Berthing delays 4.7 days.

5. Idle Berth time 30%

6. Crane Productivity 11 TEU/hr.

It is ironical to note that even then the ports made a profit of 12 billion rupees, most of which was earned as rent of their real estate used for non port activities and demurrage rather than from operations. Even today the ports own huge tracts of expensive land and are thus very wealthy bodies. Furthermore the income of ports is tax exempt and also manages to receive budget allocations from the Central Government. The cost of handling cargo is still prohibitively expensive and the port productivity is still poor.

Hinterland development goes hand in hand with port development. The hinterland Development in India did not exist. The Rail and Road connectivity was poor. Container Freight Stations and Internal Container Depots did not exist. Hence cargo was trucked all the way to the ports and stored in warehouses located inside and adjacent to ports and the cargo was handled manually. The cargo too was not unitized. The cargo handling cranes were also of the ancient make with capacity of 3 tones only and they were over 300 years old.

The legal framework too was very inadequate. There was very low use of electronic data interchange and most of the records were manually maintained and the old system was dreadfully slow. The customs laws and regulations strangled the system and were fertile breeding grounds for corruption. The ports lacked dry docking and ship repair facilities. At the most some minor repairs could be
carried out. Even today the capacity of Indian dry docks does not exceed 50000 DWT. The nearest major dry dock facility is in Dubai and Colombo.

There were several Indian shipping companies before 1990 via, The Shipping Corporation of India, Scandia Steam Navigation Company, Great Eastern Shipping Company, Demo Steamships, Deodar Shipping Corporation, Chowgule Steamships, Essay Shipping Company, Vern Shipping Corporation, etc. The poor productivity of the Indian ports, the socialist mindset of the Government, the non-competitive expensive Indian goods and discouragement of import goods led to most of the Indian shipping companies going bankrupt and closing down. The downfall of Indian shipping industry was triggered by the downtrend of the shipping markets and the oil crisis in the 1980s. The situation was ripe for a crisis which happened in 1991.

6.2 CHANGING SCENARIO:

According to Dr. Jeffery Sachs the fall of the Berlin wall triggered the advent of globalization and end of the socialist dream leading to the USSR breaking up. USSR was the biggest trading partner of India and patron. The end of the Russian empire resulted in Indian commerce and industry being hit severely. India was almost bankrupt with foreign currency reserves just sufficient to pay for two weeks of imports. The Middle East oil crisis triggered growth of ship sizes dramatically to achieve economies of scale. However due to lack of adequate draft and lack of hinterland infrastructure these ships could not enter Indian ports resulting in Indian commerce being affected adversely and compounding the crisis. The Indian policy framework was also another hindrance.

The Government of the day recognizing the severity of the situation introduced revolutionary reforms in 1991 right across the board in all infrastructure sectors such as owner generation, roads, telecommunications, air transportation, banking, finance and ports. It was also realized that it was impossible to develop infrastructure facilities without private sector participation.

One of the reasons why the infrastructure sector was reserved for the public sector was because earlier only the Government could afford to invest in such capital intensive projects where the returns on capital were low and the gestation
periods were long. However the scenario changed when the capital stock markets got a boost due to institution of reforms in the financial sector. Another reason was that only the Government had necessary experience to handle such large capital intensive projects as they had the managers who had obtained such experience during the Second World War. But over the period the private sector managers also started receiving training usually abroad.

In order to achieve this objective the Government of the day had to legislate new laws diluting their own equity either in open markets or to strategic partners. Thus the Indian Ports Act and the Major Ports act were amended and the suggestions made by the World Bank were incorporated into the Acts whereby the Government could invite investors to participate in port infrastructure development or manage the assets owned by the port on contract basis. In this manner the port became landlord and owner of assets while the operating control was handed over to the private operator on a Builddown and Transfer basis for a long term period of 30 years.

It was decided that the private sector participation will be on the basis of open competitive bidding and the evaluation criterion would be on the basis of maximum realization to the port using Net Present Value and discounted Cash Flow Technique. The port would not be giving any financial guarantees either for financial returns or the traffic. Furthermore the port would continue to fix tariff ceiling which would be revised periodically. At the end of the lease period the assets would revert back to the owners.

6.3 PRIVATE SECTOR PARTICIPATION IN PORT DEVELOPMENT

1. Berths leased out for 10 years at Halide for import of coking coal and export of iron & steel material.

2. Berths leased out for two years at Mumbai for handling containers.

3. A consortium led by P&O Australia is setting up a $200 million Container Terminal on BOT basis at Jawaharlal Nehru Port.

4. Coal Jetty at Mumbai by Tata Electrics.
5. Agreement signed at Mormugao Port for re-construction of two berths for Handling Coal.

6. Provision of equipment, operation and maintenance of container terminal at Tuticorin Port.

7. Construction and management of two coal berths at New Mangalore Port.

8. Extension of container and LNG terminal at Cochin.

9. A captive jetty for fertilizer raw materials commissioned at Kandla and two oil jetties under construction.

10. Integrated 5 berth chemical terminal at Jawaharlal Nehru Port.

11. Captive facilities for handing coal, liquid bulk, etc. At Greenfield port of Encore under construction near Chennai.

12. Development of captive port facilities proposed for petroleum crude, LPG, LNG at Halide, Para dip, Visakhapatnam, Mangalore, and Tuticorin, Cochin.

13. Two Multi-purpose berths each at Halide and Visage

6.4 CURRENT TREND:

The following areas were identified for Privatization:

a) Leasing of existing assets of the Port.

b) Constitution of new assets.

c) Leasing of cargo handling equipment and floating crafts.

d) Pilot age.

e) Captive facilities for port based industries.

f) Greenfield project development.
In addition to this the government of India has taken steps to make necessary policy changes in the areas of documentation for seamless Multi Modal transportation like through Bills of lading. In addition to this tax and fiscal incentives vide budgetary supports would be provided for infrastructure investments. New projects would also be initiated for providing better connectivity between east and west coast of India. To reduce cost of sea transportation involved in going around Sri Lanka the blue print of the Sethusamudran project has been prepared which will involve dredging and deepening of the Palk Straits to allow ships to pass through them. The need to develop inland water transportation and coastal shipping has been encouraged to provide efficient alternatives to Rail and road transport which is very costly and leads to heavy pollution. Additional budgetary support would be provided to improve road connectivity in order to decongest container traffic inside the ports.

Another area of concern was labor reforms. As Indian port labor was expensive as well as inefficient legislation has been proposed to be initiated to provide easy layoffs, retrenchment and higher working hours, providing training for value addition and providing social security benefits. However no reforms in this sector have been legislated as yet.

Some efforts have also been made in scrapping old and inefficient equipment and replacing the same with new ones. Special attention has also been given to widening of roads network, laying of additional rail lines, construction of Internal Container depots, Freight Stations and Harbor Terminals. Railway wagons capable of carrying heavy container loads with automatic locking systems of latest designs have been manufactured to transport containers over long distances in shortest time period. Investments have also been made in cargo handling equipment at various internal depots.

All these efforts have resulted in growth of cargo traffic in all major Indian ports except Kolkatta and Mumbai by over 47% in the past ten years. The cargo volume has grown considerably in the ports of Nava Shiva, Vishakhapatnam,
Kandla and Chennai while the ports of Mangalore, Cochin and Tuticorin have shown modest growth. However except for JNPT the handling cost per ton has increased at all the ports. JNPT handled maximum number of containers while Vishakhapatnam handled minimum. The pre berthing delays had also reduced with improvement in turnaround time of vessels. It should also be understood that though all major ports handle containers except for JNPT, rest of the ports are not container ports. Some ports like Mormugoa, Para deep, Mangalore and Vishakhapatnam are essentially bulk cargo ports designed to handle iron ore while Kandla, Mumbai, Tuticorin, Halide and Mumbai were designed to handle general cargoes and hence have inherent limitations.

Due to the oil crisis and intermittent of Suez canal due to middle east wars the ship-owners had no other alternative but to increase the size of the vessels which sailed round the cape of good hope to avail the economies of scale. This meant none of these ships which had drafts exceeding 14 meters could berth at any of the major ports of India which had severe draught restrictions. This resulted in making the Indian exports more expensive as they required transshipment and creation of hub ports. Even today larger vessels of 4000 TEUs capacity cannot visit Indian ports. In order to modernize the Indian ports the Government of India had no other option but to opt for private investment which they did by amending the existing regulation by delegislating in the parliament. They initially created a centralized Directorate of Indian ports to implement the privatization plans. The blueprint for doing so began with identification of the area where private participation was necessary. The methodology, criterion and parameters for doing so were also laid down and privatization began in earnest 1993 by privatizing the port of Encore near Chennai. A separate tariff authority for major ports (TAMP) was created in 1991 to set ceiling on port tariff and regulating competition.
6.5 GROWTH POTENTIAL:

The revolutionary reforms undertaken in 1990s by the Government of India resulted in a substantial growth of Indian economy giving rise to fast growth of international trade, both exports and imports. Thus the demand for efficient port infrastructure with greater capacities was generated. This demand had to be met with to avoid missing the bus. This was initiated by the Government of India by entering into several joint ventures and creating (SPVs) Special Purpose Vehicles with several global operators like APM Terminals, Dubai Port Authority and P & O Ports. A special corporation called the Container Corporation of India Ltd with monopoly to carry containers by rail to various inland destinations was created in 1989. Just recently permission has been given to several private operators to run container trains between ports and inland container depots. Similarly joint venture projects have been initiated to build marine constructions like breakwaters and deepening and dredging of approach channels. Several green field ventures are also on the drawing board for the ports of Ganagvaran, Dhahran, Kulpi, Rewash and Kakinada.

With regards to hinterland development several joint ventures have been entered into to set up special economic and free trade zones at various locations in the country like Posture, Halide and Kandla. Captive port facility like Dame have been created and developed to handle chemicals and other concentrates with British Petroleum (BP). A cold storage chain has also been created in joint venture with an American partner. Dry cargo and grain handling facility has been created at Jamnagar with Cargill. Several minor ports under the authority of respective state maritime boards like Aligarh, Dharamtar and Dahl are also being developed to handle special cargoes like LNG and low grade coal to run power generation stations.

The Asian economy is one of the most dynamic in the world due to high degree of industrialization programs assisted by foreign investment which manufacturing abilities and stimulated local demand. In the past four decades many national governments in this region embraced outward oriented growth policies. As a consequence of which the entire region was transformed from
agricultural base to an industrial one. India adopted a similar growth path in 1990. As is well known transportation capabilities have an important role to play in The facilitation of the global trade. The western developed countries have spent huge sums of money in building an infrastructure suitable for seamless transportation of Goods and services demanded by industries. Since the inception of globalization in 1990s there has been a shift in the manufacturing base from the developed countries of Western Europe and United States to the Asian countries, notably China, South Korea, Taiwan, Malaysia and Thailand where cheap and skilled labor is available in Abundance. Simultaneously the Asian countries have made necessary adjustments in their processes to provide guaranteed services. This has been possible solely due to comparatively lower costs of logistics which provides a sustainable competitive advantage in global markets. But due to severe financial constraints it has not been possible for rest of the Asian countries like Cambodia, Vietnam, Bangladesh, Indonesia, Philippines and India to develop the necessary infrastructure, especially transportation, in spite of their governments understanding the importance of infrastructure developments. Hence the potential of these countries has not been fully realized.

The UNCTAD (1995) report has precisely laid emphasis on this fact of both the manufacturing and transportation industries working in tandem to achieve common Objectives. In addition to this a flexible regulatory system would add to the synergy so created, resulting in the developing nations in becoming export engines, which would ultimately result in these countries gaining competitive edge in global markets. The report also stresses upon the advantages that could be derived by the developing Nations in adopting a multimodal transport system in achieving this objective. The report further advises these Nations to learn from the experiences of the developed Western nations in developing their transportation capabilities, lowering logistical costs and Implement superior management practices and work culture.

Such an approach to develop multimodal transport systems would not only lead to benefits for the service user and provider but also to the respective governments by Way of enhanced revenue generation
6.6 AREAS OF CONCERN:

Though it is quite obvious that private sector participation in port infrastructure is necessary not only for purpose of investment but also for managerial and technical expertise necessary to realize the potential of the natural resources, yet there are some areas of concern. One of the key areas is the diverse cultures, objectives and mindsets in which the Government and private sector operate. It will make the working together of two diverse partners rather difficult and lot of compromise, understanding and patience would be necessary. It would also be necessary to lower the macro growth targets to more realistic levels especially as there are various other uncontrolled variables that influence the growth of trade, cargo flows and inter modal dynamics of supply chain management.

Similarly it is difficult to predict growth of traffic and throughput with a comfortable degree of certainty. The same also goes for return on investments and payback period considering the long gestation periods of such projects. Considering the fact that the Government controlled Tariff Authority would set ceilings on port traffic and regulate competition amongst port, it is difficult to state whether ports could obtain revenues they deserve for providing better quality of service.

The financial arrangement between the port authorities and private promoters of revenue and cost sharing could also come under strain in changing political environment where several contradictory vested interests come into play. It could lead to misunderstandings, suspicions and leading to breakup of partnerships and litigation, especially in the light of the fact that the partnership is not between equal partners.

There are several risks involved which are inherent to such kinds of joint ventures. Given the fact that such projects have to depend on other external factors like the hinterland, the rail network and congestion of road traffic. Sometimes such a project could fail due to port connectivity not being efficient. The hinterland development is definitely within the control of one of the partners which is the Government of India.
Last but not the least is the legacy of labor rules which is again the responsibility of the Government. Indian labor is infamous for its low productivity, efficiency and high cost. Furthermore this labor is unionized and can become an albatross around the neck of the new joint ventures causing them to fail. Hence Government has to take care of this legacy.

6.7 CRITERION FOR SELECTION OF PROMOTERS

We have to understand that it is very easy to legislate changes in the policy and invite private participation but it is very difficult to achieve the stated objectives of such joint ventures if sufficient planning is not undertaken to demarcate clearly the responsibilities and liabilities of the various participants of the joint venture. It will also be necessary to clearly state the penalties for failing to achieve the stated targets and the objectives/targets that need to be achieved.

In order to do so it is necessary to clearly state the criterion for selection of promoters. Furthermore the procedure for selection of promoters/investors should be absolutely transparent to ensure against levying of allegations of corruption and favoritism. This process of selection of promoters / investors and stipulating the criterion for selection was laid down in the policy paper on privatization of ports in India, some of which are listed below:

One of the basic criteria is of course the ability to raise the necessary capital i.e. The promoter should provide evidence of possession of necessary capital/assets reserves.

Next, the investor should possess experience of handling such type of projects i.e. he should have the necessary vision and should have the patience and be capable of withstanding the long gestation period. He should be aware that he will have to interact with several Government agencies and it requires a long time and perseverance to obtain the necessary permissions from several government agencies. He should also develop a large customer network and should be capable of attracting traffic. He should have at his disposal some cargo handling equipment or should be capable of deploying some at short notice.
Similarly the same criteria were laid down for the role of regulatory authority. The relevant shipping ministry and the various state maritime boards were considered suitable for playing the role of regulatory authority. It was assumed that such bodies would have developed the necessary understanding of port dynamics necessary to successfully interact with joint venture partners to make the venture a commercial success. It is imperative for the authorities to set unambiguous benchmarks to compare performance. The authorities should also be capable of analyzing the risks involved in such ventures especially regarding security and should jointly evolve necessary procedures to reduce them.

The financial institutions like banks should also examine meticulously the risks involved before funding such ventures. They should be capable of providing flexible terms of finance and again have the patience for withstanding long repayment periods, usually of 20 years or more.

6.8 EVALUATION OF GAINS:

It has been noticed from the few specific cases that the joint venture partnerships in port infrastructure development are not only workable but are immensely successful to the extent that one begins to doubt whether the benchmarks were kept too low due to lack of confidence. The joint ventures of port of Mundra, Pipavav, Nhava Sheva and Chennai have proved extremely successful. It has resulted in the targets being surpassed well within the time period and the returns on investments have been quite attractive. The values of the port assets have multiplied manifold within few years. Furthermore the original developers of the ports of Mundra, Pipava, Nhava Sheva and Chennai have sold their stakes in the joint ventures to global companies like APM Terminals and Dubai Ports at prices which have multiplied their investments several times.

Similarly companies like Gateway Distriparks of Singapore have benefited handsomely by investing in warehousing, multi modal transportation and istriparks. It has also resulted in generation of employment opportunities for the local population and has resulted in appreciation of real estate several times over. It has also attracted foreign direct investment in several Greenfield projects. The banks and the financial institutions are also keen to participate in such large infrastructure projects.
Today the government of India is of the opinion that the market potential of the port infrastructure sector is in excess of USD 50 Billion. It has not only resulted in attracting more investors eager to invest in such projects but have also resulted in the licenses attracting much better prices for example, APM Terminals which managed to get the license for development of the third terminal at Nhava Sheva agreed to share 33% of its revenue with the port authority.

In response to the government of India’s change in policy for permitting private sector operators to run container freight trains from Gateway ports to hinterland depots. Several operators have applied for permission and three operators have been granted licenses to do so. As such this sector is going to see rise in revenue and traffic. Thus the experiment of port sector joint ventures has been proved a success resulting in benefit for the nation.

6.9 EXTERNALITIES:

The development of port infrastructure has given rise to both positive and negative externalities. Though there has been an increase in the international trade of India which has had a positive impact on the GDP growth, imp laymen, and government revenue, road and rail infrastructure conditions etc. Yet, there have been some negative results too such as increase in urban population, pollution, heavy congestion of road and rail traffic, delays, displacement of local populace, rise in crime rate, heightened security concerns etc.

In order to mitigate these externalities both the government and the private sector involved in the development of port infrastructure have taken measures such as providing employment for project affected people, free medical and education benefits . It is obvious that due to the private sector participation in the development of port infrastructure projects there has been substantial improvement in the performance parameters of the ports. Traffic has increased by over 40%, the turnaround time of the vessels, the pre berthing delays, berth and crane productivity have improved. However Indian ports continue to be expensive when compared to ports like Dubai, Singapore and Hong Kong due to poor labor productivity. Furthermore the improvement is only in selective ports like JNPT, Mundari, Papaya, Dame and Encore. Ports like Mumbai, Kendal, Mormugoa,
Mangalore, Cochin, Paradip, Chennai, Vishakhapatnam and Haldia have yet to show improvement. Private sector participation has been invited in several major and minor ports infrastructure development projects which have yet to bear fruit.

The Government of India has to accelerate the pace of reforms which should be progressive, facilitative and encourage investment. This will result in transformation of markets. It will result in growth and availability of clusters of private companies engaged in construction, port management, finance, shipping, engineering, design and so on. There is also a need to diversify the basket of assets to minimize risks. Technical knowhow also needs to be imported from developed countries who have the necessary experience of running such a complex industry whose performance has a bearing on the overall development of the country. It should also be acknowledged here that the complex interaction between performance of ports and economic growth is not yet well understood.

India also has to explore possibilities of emerging as hub and transshipment ports flanking the east/west trade route. Tariffs and costs should be lowered significantly while providing the highest level of service. In order to do so the private sector investment should be availed of by addressing their fears and concerns.
7.1 OVERVIEW OF INDIAN ECONOMY

Economists from all over the world have conducted studies of various aspects of the Indian Economy and have envisaged India becoming an economic powerhouse in the next two decades along with China. For over a century the United States have been the largest economy in the world. However since the onset of the Globalization in the 1990s there has been a shift in the focus from United States and Western Europe to Asia and the Far East. The western European countries have seen the decline in global GDP share by 5% followed by United States and Japan with a decline of 1% each. This slack as been made up by the rising share of India and China in the manufacturing, industries and service sectors. It has been forecasted that the share of United States in the world GDP will reduce further from 21% to 18% and that of India will rise from 6% to 11% and will become the third pole in the global economy after United States and China by 2025. By the Indian economy will be almost 60% the size of the US economy.

As India prepares itself for becoming an economic superpower it as to overcome institutional and infrastructural bottlenecks inherent in the system. Infrastructure as critical to sustain economic growth. Currently Indian economy is facing various obstacles which make it difficult to sustain the economic momentum. **In order to realize its potential it needs to undertake the following remedial measures.**

1. Simplification of procedures and relaxing entry barriers.

2. Checking population growth and improving per capita income which is only 2310 USD per annum.

3. Boosting Agriculture growth by diversification and development.

4. Expanding industrial base by at least 10% to enable it to integrate with world economy.

5. Developing world class infrastructure.

6. Allowing Foreign Investment into more areas
7. Empowering the population through education and improving health care.

A growth rate of above 8% was achieved by the Indian economy with inflation rate of just 2.34%. There are several factors responsible for this robust performance especially the Indian service sector growth which compensated for the fall of agricultural sector from 9% to just 1.1%. The weak US Dollar was also helpful and partially offset the rising costs of crude oil. A strong Balance of Payments position saw foreign currency reserves rising above the 100 Billion mark. This has been chiefly due to the rise in export remittances and foreign capital inflows. The downward trend of interest rates also helped economic growth. During the past two decades the stock market index has more than doubled, thus assisting capital formation.

7.2 THE MAIN SECTORS OF INDIAN ECONOMY.

A. Agriculture.

Just above 60% of the population depends for its subsistence on agriculture which is extremely vulnerable to the vagaries of South West Monsoon. Hence it displays an impressive growth performance of 9.1% in 2003-04 and falls to 1.1% in the following year due to deficient rainfall. India is not only one of the top leading producers of several agricultural products but also has the maximum livestock cattle. It also has the privilege of having highest quantity of land under irrigation. In spite of these impressive figures the contribution of Indian agriculture sector has seen a steady decline in the past twenty years from a high of 35% in 1984 to a low of 19% in 2004 accompanied by a growth spate of suicides by Indian farmers. There are several reasons for this statement ranging from poor rainfall, lack of investment in agriculture, government policies designed to check inflation and rising food prices to global agricultural production and highly subsidized farming sector of the developed countries.
Several solutions to this problem have been suggested by experts and economist like giving higher priority to livestock, horticulture, cultivation and organic farming and inland fisheries. (Agriculture Task Force Report ò 2002) The Government of India as well as the private sector has indeed started taking keen interest in rural infrastructure development and instituting legislative reforms in areas like greater outlays for irrigation, water conservation, crop insurance and availability of cheap capital for agriculture while acceleration in agriculture growth to 7-8% is not beyond imagination but it will be possible to achieve such sustainable growth only if necessary measures are taken on an emergency basis.

**B. Manufacturing & Industry**

The fall in contribution of agricultural sector to the Gross Domestic Product of India was not compensated by the industrial and manufacturing sectors. Their share has remained practically unchanged for the past twenty years at about 25% and 15% respectively. Yet there has been a steady growth of about 6-7%. The growth was aided by rising contribution of mining and electrical power generation. The textile industry is the largest in terms of providing employment and as created 12 million new jobs. With the phasing out of quota regime under MFA this industry is poised for growth. The Automobile industry has demonstrated the inherent strengths of Indian labor and is one of the two sunrise industries, the other being pharmaceuticals. India’s WTO involvement in the past decade has encouraged the growth of pharmaceutical industry. Apart from manufacturing of drugs the industry has been in the forefront of Research & Development of generic drugs. It will grow at a greater speed once intellectual property protection laws are implemented earnestly. India then could be a global hub for Research & Development based clinical research. The growth of industries and manufacturing sectors can be accelerated further by improvement of infrastructure particularly power generation, labor reforms and simplifying procedures for foreign direct investments. It will not only help in growth of GDP but will also assist in employment generation.

**C. Services.**
The service sector has displayed consistent growth pattern since 1995 and almost all sub sectors like banking, healthcare, insurance, hospitality, air transportation, media and the most important of all telecommunications and information technology have contributed to a vast extent to the growth of the Indian economy in the past decade. This sector as compensated for the decline in the contribution of the agriculture sector in the country’s GDP from 39% in 1984 to 53.3% in 2005. It has resulted in cities like Bangalore, Pune and Hyderabad finding place in the global map. Several Indian companies like Tata Consultancy Services, Infosys and Wipro have become household names due to their remarkable performance in the IT sector. Though this sector has contributed hugely to the Indian economy its performance in the area of employment generation has not been as impressive. IT enabled services such as Business Processing Outsourcing have been growing at a rapid pace mainly due to availability of a number of skilled English speaking manpower. But it is also facing hurdles and difficulties by way of protectionist trend in the United States. The global market of this sub sector is, to the tune of 200 Billion USD of which India’s share is less than 4 Billion. Yet this sub sector is poised to grow largely due to the high quality of output and competitive costs. The tourism industry also achieved some distinction by servicing over 3 million tourists.

7.3 FACTORS INFLUENCING GROWTH OF CONTAINERIZATION

An analysis of the growth of international trade and GDP shows that growth rate of trade is greater than the growth rate of GDP for longer periods of time. One of the reasons for this difference is low costs of transport. Other reasons are vertical disintegration of production activities adding extra links to supply chain, outsourcing, special concentration of production and rationalization of supply base. This impact is greater in general cargo flows leading to economies of scale.
The factors determining the increase of container throughput concern the development of:

1. Economic activity.
2. Container penetration.
3. Trade intensity.
4. Shipping systems.
5. Port competition.
8.0 CONCLUSIONS

8.1 NECESSITY FOR DEVELOPMENT OF MULTI MODAL TRANSPORT INFRASTRUCTURE:

The three most important criterions for success in International Trade are Price, Quality and In Time delivery. It is not possible to meet these criterion without having a proper logistics and multimodal system. Containerization and multi modal transport form an integral part of any logistics and supply chain. Everyday new and innovative methods are discovered and improvisations made in improving the quality of products while simultaneously lowering the costs. One of the important methods of lowering the costs is by lowering inventory levels and introducing just in time concepts. Thus Indian merchandise cannot become competitive without containerization and multi modal transport. As stated earlier the Indian policy makers have realized the importance of containerization and multimodal transport but they face two major constraints while attempting to realize the full potential of containerization and multi modal transport.

India also needs to develop a suitable logistic system for economical and efficient transportation of goods from the manufacturing centers to the distribution points. However it should be realized that the infrastructure has to be properly priced to enable it. The cargo will reach the market in a fast, safe and economically cheap mode. It is also necessary to develop roads and rail network connecting the ICD to the gateway port to sustain itself on one hand and also to generate reasonable profit on the capital deployed in constructing it. At the same time the infrastructure pricing should also be affordable to the end user. Hence the investments in such projects can only be long term basis and the cost of capital will have to be well below the market rate. It should also be acknowledged that the needs and requirements of such infrastructure will vary greatly in different regions of the country.