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INDIAN SHIPPING INDUSTRY: A CATALYST FOR GROWTH

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EXECUTIVE SUMMARY

The growth in international trade, removal of trade barriers being the principal reason, has made the developing countries to concentrate more on the improvement of their infrastructure, like roads, airports, seaports, which play a vital role in the development of the economy. Product storage, along with the capacity to move large shipments, have placed the shipping industry in a very advantageous position. Containerization, multi-modal transport services, advancement of marine engineering technology, specialized systems, and computerization have contributed towards making sea transport as a prime mode for movement of internationally traded goods. However, the development of shipping industry in a country also depends on its population density, economic advancement and many other inter-related conditions, like port and refueling capacities.

GLOBAL SCENARIO

In 2008, international seaborne trade was estimated at over 8 billion tons of goods loaded, a volume increase of 3.6% over the volume recorded in the previous year. Dry cargo, including bulk, break bulk, and containerized cargo, accounted for the largest share of goods loaded (66.3%), while oil made up the balance. Growth in dry bulk trade is estimated at 4.8% with the five major bulk products, fuelled mainly by the needs of China's metal industries.

From a level of 2.5 billion tonnes in 1970, the volume of sea borne trade in the world has grown over the years crossing 8 billion tons in 2008, witnessing a CAGR of 3.3%. Developing countries accounted for greater share (60.5%) in total goods loaded, as compared to the developed countries, which hold a share of 33.5% in 2008, and the balance being accounted by economies in transition. Within the developing region, Asia displayed a good performance having the highest share (62.3%) in the total goods loaded, followed by Latin America (22.9%). Following the global economic slowdown and sharp decline in world merchandise trade, growth in international trade continued, albeit at the slower rate of 3.6% in 2008 over 2007, as compared to 4.5% in 2007 over 2006 (8168 million tonnes in 2008, 7882 million tonnes in 2007, and 7545 million tonnes in 2006).

The level of world fleet also saw a rise in 2009 with the world merchant fleet exceeding 1 billion dwt (dead weight

tonnage). The fleet of container-ships increased by 11.9%, reflecting the growing share of traded goods being containerized; the tonnage of oil tankers increased by 2.5%; bulk carriers by 7%; general cargo ships by 3.2%; in the year 2009 over the levels prevailed in the year 2008.

Japan has been topping the list of countries controlling fleets in terms of dwt with 173.2 million dwt and 3720 ships; followed by Greece, with 3064 ships and 169.4 million dwt; and Germany, with 3522 ships and 104.9 million dwt. India was ranked at the 15th position with 963 ships and 15.5 million dwt, a share of 1.4% in terms of dwt.

In terms of value of trade, USA is the major country engaged in maritime transport generating 10.68% of world trade in 2008. Other major countries include Germany (8.22%), China (7.91%), and Japan (4.78%). Among the Asian countries, China is the largest trader with large container port traffic and fleet. China International Marine Containers (CIMC) and Singamas are the two largest container manufacturers, which make China dominate in this field also. India is placed at eighteenth position in the world (with a share of 1.45%), and seventh position amongst Asian countries.

Global Trends

Effects of the Global Slowdown

Shipping Industry has been widely impacted given the economic slowdown of 2008 and 2009. Since the demand for ships / vessels is a derived demand of commodities, the slowdown affected the demand for ships / vessels during this period. This has been evident from the movement of Baltic Dry Index (BDI), which is a daily weighted average of prices of shipping raw materials, and is one of the leading indicators of global economic activity. BDI measures the demand to move raw materials, which indicates production, planning and industrial activity worldwide. BDI reflects the freight cost to transport dry bulk cargoes around the world, mainly raw materials such as iron ore, coal, and grains. The index excludes wet cargoes (such as crude oil carried by tankers) and container business (used mainly to carry manufactured products).

Regulators Plan to Monitor Shipping Rates

As the global trade shrunk by over 10%, many shipping lines found themselves in a situation of excess capacity (many liners ordered new ships during the economic boom period). Some analysts predicted that at least few shipping lines would go out of business to match with the supply demand situation. However, it is believed that shipping lines, in an informal arrangement, collectively reduced the capacity through 'slow steaming' (spending more days in sea, which helped them to save on fuel and reduce capacity). It is estimated that slow-steaming could

cut a liner's capacity by around 5%. It is also believed that some shipping lines have teamed up to levy a voluntary surcharge of US $ 400 per container. Both the Federal Maritime Commission (USA) and the European Monitoring Agency are closely monitoring the developments to see any evidence of price fixing by shipping liners.

Maritime Transport and Climate Change Challenge

Like other economic sectors, maritime transport, which by volume carries over 80% of global trade, has a role to play in addressing formidable challenge of climate change. International maritime transport is playing a part in contributing to climate change, but more importantly, it is also likely to be directly and indirectly impacted by the various climate change factors, such as rising sea levels, extreme weather events and rising temperatures. The wide-ranging impacts of climate change, including that from maritime transport, and their potential implications for trade, economic growth and development, underscore the need to integrate climate considerations into strategies for transport planning and development. Increasingly, it is being recognized that considered and concerted actions are urgently required to ensure effective control of greenhouse gas emissions and to establish the requisite adaptive capacity in the shipping industry, especially in developing countries. Recognizing the importance for the maritime transport sector of contributing to global efforts at reducing emissions of greenhouse gases, IMO's Marine Environment Protection Committee (MEPC) is considering a number of mitigation measures aimed at reducing emissions of greenhouse gases from international shipping.

Integration of Shipping Industry with Global Logistics and Supply Chains

Global shipping majors, like other segments of the conventional transport industry, are increasingly getting integrated with the emerging global logistics and supply chain activities, owing to both external and internal dynamics. Many firms are entering into the enhanced canvas of offering logistics solutions, such as door-to-door delivery systems, integrating with rail/road haulage movements of cargo, customs brokerage, cargo consolidation, packaging/ re-packaging, and distribution services, thereby substantially consolidating their market position, and supplementing their ocean freight income. The global shipping industry is thus going through a major redefinition by undertaking logistic integration of their cargo operations.

Change in Directions in Trade Volume

Multi-polarity of trade flows, and the growth in trade volumes of Asian region is expected to impact the world shipping, as profoundly done by liner shipping and containerised cargo some decades ago. One may

recall that the earlier phase of trade volume witnessed shipping growth in TransAtlantic and TransPacific routes, and the growing volume of world trade, especially from Asia, is likely to position the Pacific Rim and Indian Ocean Rim routes in the lime light.

Common Port to Specialist Port

Ports have been conventionally viewed as provider of omnibus solution to all types of cargo on a common basis. However, the global trend is veering into development of freight specialized ports – such as LNG terminals, container terminals - that involve high capital costs and intensive deployment of cargo handling equipment. Also, there has been a global trend in the port sector towards growing separation of port authority from port operator. The balance of power in the maritime trade, which was traditionally in favour of shipping lines, has been shifting in favour of shipper, whose cargo is being moved. With such emerging trends in port development in the world, shipping companies are expected to change their strategies and offer solutions to suit such trends.

Liner Shipping Connectivity of LDCs

UNCTAD publishes an annual index called the 'Liner Shipping Connectivity Index' (LSCI) that aims at capturing trends and differences in countries' liner shipping connectivity. The index covers 162 coastal countries and comprises five components: (a) the number of ships, (b) their container carrying capacity, (c) the number of companies, (d) the number of services provided, and (e) the size of the largest vessels that provide services from, and to each country's seaports. Most LDCs are also among the least connected countries. The average ranking of LDCs in 2009 was 109, compared to an average ranking of 76 for other developing countries and 68 for developed countries.

Growth in Establishment of Transshipment Terminals

Growth in long distance and containerized trade has led to the growth in establishment of transshipment hubs. It is not possible to establish direct shipping connections between every country because either there may not be enough volume, or the ports may be located distantly from each other. Therefore, a set of direct or transshipment connections are required to link all country pairs by maritime shipping. For this purpose, the transshipment terminals and intermediate hubs have been started. The world's most important intermediate hub is Singapore, where 92% of its traffic is transshipped. The emergence of major intermediate hubs favoured a concentration of large vessels along long-distance, high capacity routes, while smaller ports can be serviced with lower capacity ships. Consequently, the emergence of intermediate hubs has permitted liner services that would otherwise be economically unfeasible.

Port Regionalization

Ports, especially large gateways, are facing a wide array of local constraints that impair their growth and efficiency. Limited availability of land for expansion is one of the most acute problems. This issue is exacerbated by the deepwater requirements for handling larger ships. Port regionalization is required when the ports are not able to handle additional traffic. Port regionalization refers to integration between maritime and inland transport systems, particularly by using rail and barge transportation, which are less prone to congestion than road transportation. Port regionalization and hinterland connectivity has been growing over the years, with the objective of meeting the constraints faced by ports. Port regionalization helps in creating a regional load centre network through joint development of a specific load centre and logistics platform in the hinterland. This has led to the development of corridors leaning on rail or barge services connecting to inland terminal facilities, which act either as satellite terminals, load centers or, less commonly, transmodal facilities. Many port authorities, terminal operators, commercial real estate developers and local/regional governments have been actively involved in the setting of such facilities.

INDIAN SCENARIO

Maritime transport, which plays a vital role in the development of the country, comprises ports, shipping, shipbuilding and ship repair, and inland water transport systems. According to the Ministry of Shipping, Government of India, approximately 95% of the India's trade by volume, and 70% by value, is moved through maritime transport. India is among the top 20 leading countries having large number of merchant fleets in the world. The Gross Tonnage (GT) under the Indian flag was 10.1 million GT as of 1.09.2010, with as much as 1029 ships in operation.

Ports act as an interface between ocean transport and land transport. India has 12 major ports viz. Kolkata (including Dock complex at Haldia), Paradip, Vishakapatnam, Chennai, Ennore, Tuticorin, Cochin, New Mangalore, Mormugao, Jawaharlal Nehru at Nhava, Mumbai, and Kandla, and 187 minor ports.

Despite recessionary conditions, traffic handled at major ports has grown on an average by 5.7% in the year 2009-10, over the year 2008-09. However, ports like Haldia (-20.4%), Ennore (-6.9%) and New Mangalore (-3.2%) are few of the main ports that witnessed negative growth in 2009-10. Nevertheless, most of the ports have not achieved their target for the year 2009-10. Mormugao (8.5%), Tuticorin (8.1%) Mumbai (2%), Kandla (2%), and Paradip (1.8%) were the only ports which achieved their growth target for 2009-10. Haldia (-22.1%) and Ennore (-14%) were the two ports which showed huge variation in traffic

compared to the traffic targeted in 2009-10. It has been the endeavour of Government of India to consistently enhance the cargo handling capacity of the major ports keeping in view the projected traffic for the country. The aggregate capacity in major ports as on 31.3.2009 was 574.77 MTPA. Major cargoes handled at Indian ports include: petroleum products, iron ore, fertilizers & raw materials, coal and containerized cargo. In case of POL, fertilizer and other cargo, Kandla handled the highest traffic.

LNG Shipping in India

In the past few years, there has been a massive growth in LNG trade globally. The growth is mainly due to the energy demands of the emerging economies, particularly India and China, and due to the fact that LNG is relatively safe and environmentally friendly. Even in the event of spillage, LNG evaporates quickly and has no long term adverse effect on the ecosystem, and so poses little or no risk to environment. The non corrosive nature of LNG makes the life of an LNG carrier longer than other types of carriers.

Currently, India has two LNG terminals, with few more that are planned or proposed. India started receiving LNG shipments in January 2004 with the start-up of the Dahej terminal in Gujarat state. Indian shipping industry currently does not own any LNG vessels; one of the main reasons is attributed towards the cost of acquisition of LNG vessels. With a capacity of about 135,000 cubic metres, a LNG vessel cost at least US $ 200 million in the international market. Therefore, the Indian shipping industry is currently exploring this area through joint ventures. Shipping Corporation of India (SCI) has identified carriage of LNG as one of its thrust and growth areas, and has emerged as the first Indian shipping company in LNG transportation, through global agreements. SCI has acquired stake in the three Indian LNG transportation agreements through a global bidding process.

International Container Transshipment Terminal (ICTT)

The need to develop transshipment hub ports in India was documented by the Planning Commission in its Tenth Five Year Plan. The Vallarpadam terminal in Cochin has been identified as a transshipment terminal for the sub-continent by the Government of India. The Vallarpadam terminal, the first-of-its-kind in India, aims to cut down logistics costs for shipping lines, transshipping cargo in and out of the country, as at present, the containerized cargo, to and from India, is transhipped through the ports at Colombo, Dubai, Singapore and Salalah.

INDIAN SHIPBUILDING INDUSTRY

The world shipbuilding statistics shows that during 2009, the world order book was close to 9226 ships, which was around (-) 18.6% less compared to previous year. In fact,

after 2007, new orders for shipbuilding had reduced by almost half in 2008 and in 2009. However, completions of the shipbuilding orders have shown improvement over the years.

India, currently, has around 32 shipyards, owned by: Central Government (6), State Governments (2), public listed private shipyards (3), and privately held shipyards (22). However, the major share of the present ship-building capacity in India is held by eight public sector yards, with Cochin Shipyard Limited and Hindustan Shipyard Limited having capacity and infrastructure to build vessels of 1.1 lakh dwt, and 80,000 dwt, respectively. Barring these two shipyards, the majority of private sector shipyards have limited ability to build vessels in respect of capacity and size of the vessels. Also India's capability of building technologically advanced ships, like LNG carriers are relatively less.

According to the world order book position, during 2009, Indian shipyards had an order book of close to 260 ships constituting 1% share in terms of GT and 2.8% share in terms of number of bookings. China was top in the list with the largest number of bookings of 3523 ships, followed by South Korea (1675), Japan (1286) and Europe (447). India stood at the sixth position in the world order book, after Vietnam (287).

Although India occupies a small percentage of the global shipbuilding market, the Indian shipbuilding industry is well positioned for growth. According to a study by the Indian Shipbuilders Association, the industry can grow at a rate of more than 30%, and this rate of growth could be achieved through supportive measures by the Government, including incentives for shipyards. As growth in international trade results in increased global and domestic demand for new vessels, Indian shipyards have certain advantages over shipyards in developed nations. India possesses a large pool of technical workers, and its cost of workforce is relatively low, compared to most other shipbuilding countries. Apart from this, the Indian navy usually gives orders to Indian shipyards based on national interests. This will also act in favour of the Indian shipbuilding industry.

Shipbuilding acts as a catalyst for overall industrial growth due to spin offs to other industries, including steel, engineering equipments, port infrastructure, trade and shipping services. The indirect potential of shipbuilding industry in employment generation and contribution to GDP is therefore tremendous. The dynamics of India's economic growth will continue to create demand for new ships, and ship-building capacity within the country needs to be augmented to cater to this demand. If the domestic ship-building capacity is augmented, the benefits to the economy would be manifold, with spillover effects on other associated/ ancillary sectors, and generation of employment.

SHIP-REPAIR INDUSTRY

The global ship repair market is estimated to be worth US $ 10 billion to US $ 12 billion, with Singapore holding a share of 20%; India, on the other hand, has only a share of about US $100 million[1]. There are a total of 35 SRUs (Ship Repair Units) registered with the Director General of Shipping, Government of India, of which only 7 SRUs namely - Alcock Ashdown & Co Ltd, Chennai Port Trust, Cochin Shipyard Limited (CSL), Garden Reach Shipbuilders & Engineers Ltd. (GRSE), Hindustan Shipyard Limited (HSL), Mumbai Port Trust (MbPT) and Mazagaon Dock Limited (MDL) have been given the permanent approval as SRUs. The major SRUs in the country are CSL, HSL, Western India Shipyard, MDL, and ABG shipyard. Western India Shipyard is the only shipyard in India, which is dedicated to ship repairing activity.

Since India is located strategically on the international trade route, the country can offer ship repair and maintenance services to ships plying from west to east in the trade route. This represents increasing market potential for the ship-repair business, as ship owners may prefer to repair their ships without deviating from their trade routes. Currently, ship-repair is primarily undertaken in Dubai Dry docks, Singapore, Bahrain and Colombo dockyards. The Ship-repair industry in India will also get business from the Indian shipping industry, which has about 50% of ships owned, older than 20 years. As the older ships require more frequent and extensive ship-repair and maintenance, Indian ship yards could gear themselves to service them.

ROLE OF SHIPPING IN MITIGATING CLIMATE CHANGE

According to International Energy Association, the CO_2 emissions and fuel consumption by the shipping sector have been increasing over the years owing to growth in trade around the world. From a level of 562 million tonnes of CO_2 in 1990, the emissions have doubled to 1050 million tonnes in 2007. The fuel consumption by the shipping industry has also increased during this period, from a level of 179 million tonnes to 333 million tonnes. However, compared to other sectors, shipping is the least environmentally damaging form of commercial transport, and compared with land based industries, is a comparatively minor contributor to marine pollution from human activities. According to a study (Second IMO GHG Study 2009) by International Maritime Organisation (IMO), shipping industry contributed 4% to the total CO_2 emissions during 2007, and comparatively lesser than the other sectors.

Even though India, compared to other nations, has very less emissions from

[1]Maritime Advisory

the shipping industry, the players should concentrate on reducing emissions on a sustainable basis. Indian ship building industry should also pay attention in building ships that will be fuel efficient and hence reduce emissions in the future. Shifting to LNG-based fuel vessels would also contribute to achieving lesser emissions from Indian shipping industry, as also in terms of reduction in fuel cost.

In the case of CO_2 emissions from International Marine Bunkers, Singapore was having the highest emissions in 2007, constituting a share of 15.9% in the total emissions of CO_2 by international marine bunkers. This was because Singapore had the busiest marine bunkering centre, as also one of the world's top export refining centres. China and Singapore were the countries which had shown considerable increase of emissions over the years. India's share was very minimal owing to minimal bunkering activities in the country.

CHALLENGES AND STRATEGIES

Challenges

Onerous Tax Regime

According to a Research Paper by Ministry of Finance, Government of India, the shipping industry is facing significant tax burden, though the tonnage tax has been introduced. The paper lists out taxes such as minimum alternate tax, dividend distribution tax, withholding tax liability on interest paid to foreign lenders, withholding tax liability on charter hire charges paid to foreign ship owners, seafarers taxation cost to employers, wealth tax, sales tax, VAT on ships and spares, lease tax on charter hire charges, customs duty on import of certain categories of ships, stores, spares and bunkers, and services tax. The Research Paper is of the view that such tax regime makes Indian ship owners to prefer to own vessels outside India.

Multiplicity of Regulations

Shipping industry, catering to the demand across continents, is regulated by both domestic and international regulations. Internationally, the International Maritime Organisation has a set of rules to ensure safe, secure and efficient shipping, besides the labour standards required for seafarers worldwide. There are also international regulations on operations of ships, such as International Convention for the Safety of Life at Sea, International Convention for the Prevention of Pollution from Ships, Convention on the International Regulations for Preventing Collisions at Sea, International Convention on Loadlines, International Ship and Port Facility Security Code, and International Safety Management Code. There are also international regulations for seafarers, such as International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, and ILO Merchant Shipping Convention.

UN Convention on the Carriage of Goods by Sea (called the Hamburg Rules), The UN Convention on International Multimodal Transport of Goods (1980), and the UN Convention on Conditions of Registration of Ships (1986) are some of the other regulations initiated by UNCTAD.

Domestically, there are several acts that regulate the Indian shipping industry, such as: The Merchant Shipping Act (1958), The Inland Vessels Act (1917), The Coasting Vessels Act (1838), and The Multimodal Transportation of Goods Act (1993). Besides, there are also other statutes that govern the shipping industry indirectly. These include: The Indian Ports Act (1908), The Dock Workers (Regulation of Employment) Act (1948), The Seamen's Provident Fund Act (1966), and The Inland Waterways Authority of India Act (1985).

The wider regulatory framework makes stricter entry barriers into the industry, and adds cost to the compliance of such regulations.

Declining Share of Indian Shipping Tonnage in India's Overseas Trade

Over the years the share of Indian shipping in overseas trade has declined. From 85% in 1981, it has declined to 32% in 2009. As on September 2010, India had 693 vessels under coastal trade, and 336 vessels under overseas trade with a total of 1029 ships in total. High transportation costs, port delays, poor turnaround time of coastal ships on account of over-aged vessels, and inadequate mechanical handling facilities are some of the other reasons for the declining share of Indian shipping tonnage in India's overseas trade. Continued slippages in the share of Indian shipping in the carriage of India's overseas trade is in turn causing a drain on precious foreign exchange in terms of payment of freight charges, which could otherwise be used for other high priority imports or for building up indigenous infrastructure. One of the major reasons for the declining share in overseas trade has been the age profile of the shipping vessels in India. Majority of the Indian shipping fleet contains ships which are over 20 years of age. This reduces the competitiveness of Indian vessels as compared to the foreign vessels. The increasing size and sophistication of ships and port facilities require heavy capital investment, which is one of the major problems faced by Indian shipping industry.

Declining Cargo Support

As per the existing Government policy, all import contracts are to be finalized on FOB (Free On Board) basis in respect of Government owned / controlled cargoes on behalf of Central Government Department/ State Government Department and Public Sector Undertaking under them, with a view to retain control over shipping arrangements within the country, and for providing cargo support to Indian flag vessels by

providing first right of refusal. For meeting the above objective, the policy provides for centralized shipping arrangements through the Chartering Wing (TRANSCHART) in the Ministry of Shipping, Government of India. As regards Chartering of vessel for movement of cargoes on private account, the same are regulated through the Director General of Shipping, by granting permission to private charters after taking into consideration the availability of Indian flag vessels by granting first right of refusal.

Data collated by Ministry of Shipping, Government of India, on Government owned / controlled cargoes handled by the chartering wing of Ministry of Shipping, shows that the share of Indian vessels in moving cargo under TRANSCHART has been declining over the years. Cargo support in favour of national shipping is very important, since reservation of national cargoes for national fleet provides the national fleet with a certain degree of stability in an otherwise violently cyclical market.

Manpower Shortage

One of the major problems faced by the shipping industry is the shortage of manpower. India is not able to provide adequate number of seafarers to man Indian flag vessels. This is mainly because not enough young people seem to find seafaring an attractive and appealing career with many of the officers preferring to sail on-board foreign flag vessels owing to favourable taxation policies. Industry experts opine that over-regulation of the industry, owing to which seafarers have to undertake lots of job responsibility in a very short time, is another reason for declining interest to undertake seafaring as a profession. The only way the shortage of seafarers can be managed is by creating a workplace environment that is attractive to applicants, and corporate values that are aligned to wider social interests. Though the International Labour Organization (ILO), the IMO (the IMO has designated 2010 as the "Year of the Seafarer"), and shipping industry organizations began helping to stimulate initiatives for recruitment into the industry a couple of years ago, it is considered that the ultimate solution lies with the industry itself.

High Port Calling Costs

High port charges, like port dues, berth hire, pilotage and cargo-handling charges, in India are also affecting the Indian shipping industry. India is known to be having high ship calling cost as compared to other competitor countries in the region. According to industry sources, port calling costs for a ship that can carry 1,200 standard cargo containers is US $ 19,000 (₹ 8.4 lakh) at Kochi. The rate is US $ 3,300 in Colombo, Sri Lanka, and US $ 5,700 in Jebel Ali, United Arab Emirates. This makes the Indian ports non competitive compared to other foreign ports. High prices

would normally deprive a port, a part of its patronage (vessels and cargo owners), and thus reduce demand for port services.

Congestion in Port and Connectivity with Hinterland

Indian ports are the gateways to India's international trade, and are handling over 90% of foreign trade. Though the bulk of Indian trade is carried by sea routes, the existing port infrastructure is insufficient to handle trade flows effectively. The current capacity at major ports is overstretched. The major ports together have a capacity of 574.77 million tonnes per annum (MTPA), handling traffic of 560.96 million tonnes during 2008-09, and the capacity utilization during this period was 96.7%. The capacity utiilisation at major ports has been increasing over the years owing to growing trade. During 2001-02 the capacity utilization was 83.6%, which has peaked to 99.7% during 2007-08, signifying increasing congestion in all the major ports. Another major challenge faced by Indian shipping industry is the relatively low hinterland connectivity with the ports. Indian ports are finding it difficult to handle additional traffic because of slow evacuation from ports. Therefore, it is important that connectivity of major ports with the hinterland is augmented not only to ensure smooth flow of traffic at the present level but also to meet the requirements of projected increase in traffic.

Strategies

Increasing Investment in Shipping Industry

Shipping analysts feel that there is a pressing need for the Government to take on the role of a facilitator and create opportunities for a healthy business climate to attract fresh investments in the shipping sector. The old ships are being used by the ship owners primarily due to low investment capacity to buy new ships, and the tremendous shortage in the availability of ships. Usage of old ship is highly risky apart from being operationally more expensive. Further, several countries around the world have banned certain class of ships, as per their build and age, to be operated from their ports. A large part of the current order book of the shipyards would go towards replacing these old vessels and the incremental growth in capacities would be additionally catered by orders placed outside India.

Developed countries have evolved various innovative structured models for financing shipping industry. Norway has evolved the kommandittselskap structure (KS Model), which is a tax-deferral method employed to finance ship acquisitions. The German adopted the 'Kommanditgesellschaft' (KG) model for financing of various projects including that of shipping industry. Both KS and KG models operate more or less on similar principles. Such models would be best suited for Indian shipping industry too. According to the Directorate General

of Shipping, Government of India, innovative methods are required to raise the needed resources. One such suggestion was exploring the possibility of creating innovative financing models like German KG Model for shipping finance in India.

Indian shipping industry does not attract much of the requisite investments, at present. The German KG Model would help the Indian shipping industry in mobilizing necessary funds for the shipping companies, as also would serve as an effective investment tool for high net-worth individuals, who would benefit from tax exemption and also earnings. The Indian shipping industry can also use this model for the purpose of purchasing LNG vessels as they are perceived to be relatively safe investments backed by long term charters.

Strengthening Shipbuilding Industry

Shipbuilding acts as a catalyst for overall industrial growth due to spin offs to other industries, including steel, engineering equipment, port infrastructure, trade and shipping. The dynamics of India's economic growth has created, and will continue to create a demand for new ships, most of which will have to be built abroad, due to inadequate indigenous capacity. On the other hand, the benefits to Indian industry and potential for employment generation from shipbuilding and the associated ancillary industry would grow manifold, if India builds ships for meeting its entire tonnage requirements. Also single window clearance system needs to be brought into place for according clearances to new shipyard projects covering land acquisition, environmental clearance, power and water etc., so that project implementation is not delayed. The present requirement to obtain multiple clearances from various departments acts as a deterrent to attracting investment into this sector.

Developing Adequate Container Freight Stations

To increase the competitiveness of the country's exports in the global market, by reducing the transaction cost (both absolute and implicit cost) in exports, the Government of India is laying stress on developing a number of container freight stations (CFSs) in the country. Modern and technologically advanced CFSs play a significant role in effective custom clearance activities in the port, and thereby shorten the turnaround time of ships. More CFSs need to be developed in the vicinity of export clusters across the country. Mapping of existing network of CFSs with the Towns of Export Excellence shows that the CFS network needs to be strengthened further. It may be mentioned that Towns of Export Excellence are identified by the Ministry of Commerce and Industry, Government of India, if the value of production in the identified town exceeds ₹750 crore.

Integration of Shipping and Logistics

It is important to note that the economy today is experiencing more and

more trade related activities. Hence, overall logistics development has become very essential, especially in the transportation sector. In order to be competent with the global majors, India needs to offer exemplary transportation services along with logistics services by integrating the two segments. Logistics is defined as the process of planning, implementing, and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption, so as to meet customer requirements. The integrated logistics value chain consists of three key links or segments which are transportation, warehousing and value added services. However, traditional transport companies, courier companies and freight forwarders have emerged as integrated logistics service providers by leveraging on their existing infrastructure and experience. They not only provide the prime functions like transportation, warehousing, packaging, clearing and forwarding, but also provide value added services, such as order processing, documentation of sales tax and excise duty, invoicing, collection of bills, inventory management, and others. This kind of development is very important and useful for the shipping industry in particular.

With the strategies being taken up by few industrial houses to reduce operational costs and enhance value addition throughout the value chain, importance of integrated logistics has got a new dimension. Outsourcing of logistics service to specialized service providers, having considerable expertise in the industry, has become a trend. Overall, the role of integrated logistics services is expected to increase in the economy leading to betterment of value chain.

Creation of Adequate Warehousing Facilities

Warehousing and storage is also an integral part of the logistics industry and plays a very important role in the shipping industry. Warehousing and storage has undergone a lot of change over the past decade, and internationally warehousing has been classified into three types, viz., private warehousing, public warehousing and contract warehousing; amongst them contract warehousing is popular. Since ports act as an interface for seaborne trade movement, most of the major ports in India provide warehousing facilities to its users through its own warehouses, as also with those privately-owned warehouses located within or outside the port arena.

With an increasing number of ships calling at Indian ports, storage and warehousing facilities need to be upgraded manifold. Domestic ports suffer from inadequate storage facilities, which result in delay in consignment delivery. In the coming days, the number of ships calling at Indian ports is likely to increase manifold. This will result in huge

unloading of cargoes, which needs to be stored properly before being sent to the final destination. Therefore, a major investment opportunity lies in setting up warehouses that not only provide storage facilities, but also offer services in packaging of goods, so that they do not get damaged during transit.

Creation of Multimodal Logistics Parks

Another trend has been the establishment of multi-modal logistics parks. These multi-modal logistics hubs have been planned to provide total transport solution and other value-added services to industry in and around the dedicated freight corridors. Each logistics park will have a container terminal for both domestic and international operations; mineral-handling terminals; cement and fertilizer terminals; automobile terminals; storage and distribution; as well as transshipment facilities; conventional, cold storage and product-specific warehouses; as well as hotels, banks, food parks and entertainment centres. Such trend would open up new avenues and opportunities for manufacturers, retailers, suppliers, and logistic players to improve their supply chain. Service, cost and time advantage are direct benefits of such parks, and outsourcing of value-added services, which are traditionally performed in-house, would further increase the competitiveness. Logistic parks across the globe provide ample reference points and are excellent showcases against which India's logistics parks could be modelled. It may be mentioned that Indian railways have identified 11 sites in the Delhi-Mumbai corridor for developing multi-modal logistics parks.

Tapping LNG Business

In order to harness India's power and fertilizer projects, LNG (Liquefied Natural Gas) is being imported by India. If transportation of LNG is taken up by the shipping industry, it would provide significant volume of business for the shipping industry. However, many shipping companies may not have adequate resources to buy LNG vessels to engage in this business. According to industry sources, a LNG vessel costs around US $ 200 million; therefore, it is important for the Indian shipping companies to build strategic tie-ups with foreign counterparts so that they do not miss out this business opportunity.

It may be mentioned that the state-owned Shipping Corporation of India (SCI) has already started building strategic tie-ups through collaborative approach. SCI has joined hands with Mitusi Osaka Shosen Kaisha (OSK), a consortium in Japan, to build LNG vessel to serve India's needs. Even the private companies have shown interest in LNG transportation. Although the Indian shipping companies are interested in LNG transportation, low level of experience and the volume of investment act as major hindrances.

Bilateral Shipping / Cargo Reservation Schemes

Bilateral shipping arrangements are considered to be an effective tool to ensure cargo support to the Indian shipping companies. In this context, it may be mentioned that cargo support in favour of national shipping is prevalent, since reservation of national cargoes for ships carrying national flags provides a certain degree of stability in an otherwise violently cyclical market. Such support enhances the competitive strengths of national shipping companies, and thereby contributes to the growth of national fleet. According to Office of Maritime Administration of US Department of Transportation, USA is providing cargo preference to US national flags, of Government-impelled cargo, with 100% preference for military cargo, and export cargo supported by US-Exim Bank; 75% preference for agricultural cargo (governed by the Food Security Act of 1985); and 50% Civilians Agencies Cargo (governed by Cargo Preference Act of 1954).

India too is providing cargo support to Indian ships, through TRANSCHART, for movement of Government owned/ controlled cargo. However, there has been decline in support provided through TRANSCHART, as, pursuant to trade liberalization, there has been decanalisation of imports of various items, which reduced the quantum of such support to Indian ships. According to a study by UN-ESCAP, the lower share of Indian shipping in the carriage of country's overseas trade is due to the terms of trade being used by India's trading partners, who by and large have been entering into shipping contracts favourable to them. In the above context, Government may consider including cargo reservation schemes in the negotiations under the bilateral/ regional trade agreements.

CONCLUSION

The Indian shipping industry has been growing in the last two decades; however the competitive position of the Indian shipping industry needs to be strengthened. Government of India has been supporting the growth of the industry through various measures. Government has a role to develop Indian port sector, which would contribute to the growth of the Indian shipping. The players in the shipping and associated sectors have also a role to play for the development of the industry, for it to carve a niche in the world shipping map. Indian shipping industry needs to team up with foreign consortium of fleet owners to tap the growing LNG transportation business. Indian ship builders must focus on benchmarking their own processes to international standards to improve the efficiency, delivery time, price and quality. Innovative financing measures such as German KG model may be adopted to encourage fund flow into this sector. It is therefore essential for India to put together all such strategies, that would lead to optimal and effective contribution towards developing the shipping industry.

1. INTRODUCTION

The growth in international trade, removal of trade barriers being the principal reason, has made the developing countries to concentrate more on the development of their infrastructure, like roads, airports, seaports, which play a vital role in the development of the economy. Product movement and product storage along with the capacity to move large shipments have placed the shipping industry in a very advantageous position. Containerization, multi-modal transport service, advancement of marine engineering technology, specialized systems, and computerization have contributed towards making sea transport as a prime mode for movement of internationally traded goods. However, the development of shipping industry in a country also depends on its population density, economic advancement and many other inter-related conditions, like port and refueling capacities.

Merchant ships can be of four types:

a) Tankers;
b) Bulk carriers;
c) General cargo vessels; and
d) Container ships.

The type of merchant vessel employed on a trade route is determined basically by the traffic carried. There are different ways in which ships can be operated.

a) Tramp vessels or general trader does not operate on a fixed sailing schedule, but merely trades in all parts of the world in search of cargo, primarily bulk shipments;

b) Liner vessels operate on a fixed route between two ports or two series of ports. They operate on a regular scheduled service;

c) Conference line is an association of ocean carriers who have joined together and have consensus with regard to freight rates and shipping conditions;

d) Independent lines operate independently and individually.

The world shipping is having well defined routes contributing to its further development. Some of the chief shipping lanes are given in Table – 1.

Table: 1

Chief Shipping Lanes in the World	
Shipping Routes	**Regions Connected**
The North Atlantic Route	W. Europe, E. Canada and USA
The Mediterranean-Red Sea-Indian Ocean Route	N.W.Europe, Mediterranean, E.Europe, S.Asia and E. Asia
The Cape Route	W.Europe, Africa, Australia via Cape of Good Hope
The South Atlantic Route	S.E.South America, N.W.Europe, Mediterranean
The Panama Route	E.N.America, W.United states, W.Canada, Chile
The North Pacific Route	W.N.America, E.Asia, N.America, Australia

Note: N –North, W - West, S - South, E - East

2. GLOBAL SCENARIO

In 2008, international seaborne trade was estimated at over 8 billion tons of goods loaded, a volume increase of 3.6% over the volume recorded in the previous year. Dry cargo, including bulk, break bulk, and containerized cargo, accounted for the largest share of goods loaded (66.3%), while oil made up the balance. Growth in dry bulk trade is estimated at 4.8 % with the five major bulk products, fuelled mainly by the needs of China's metal industries.

From a level of 2.5 billion tonnes in 1970, the volume of sea borne trade in the world has grown over the years crossing 8 billion tons in 2008, witnessing a CAGR of 3.3%. Developing countries accounted for greater share (60.5%) in total goods loaded, as compared to the developed countries, which hold a share of 33.5% in 2008, and the balance being accounted by economies in transition. Within the developing region, Asia displayed a good performance having the highest share (62.3%) in the total

Table - 2

Development of International Sea Borne Trade

(In million of tons)

Year	Oil	Main bulks*	Other Dry cargo	Total (all cargoes)
1970	1442	448	676	2566
1980	1871	796	1037	3704
1990	1755	968	1285	4008
2000	2163	1288	2533	5984
2006	2648	1888	3009	7545
2007	2705	2013	3164	7882
2008**	2749	2097	3322	8168

Source: Review of Maritime Transport 2009, UNCTAD
*Note: * Iron ore, grain, coal, bauxite/alumina and phosphate*
*** Preliminary*

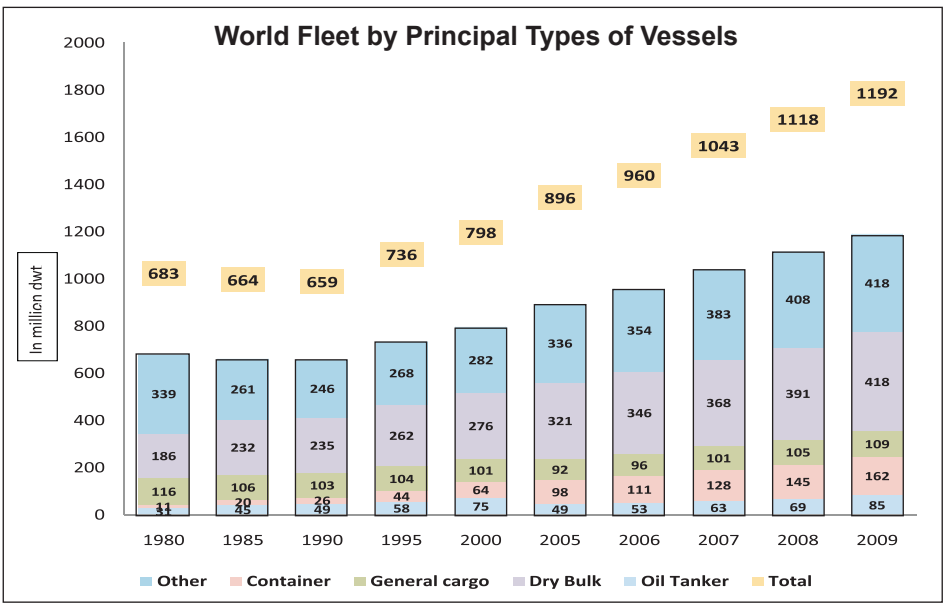
Table - 3

World Sea Borne Trade in 2008, by Country Groups and Types Of Cargo
(In millions of tons)

Country group	Goods Loaded				
	Total	% share in Total World Trade	Crude	Petroleum Products	Dry cargo
World	168.0	100.0	1834.1	915.3	5418.6
Developed countrie	742.0	33.6	116.9	375.4	2249.7
Economies in transition	480.1	5.9	133.4	33.9	312.8
Developing countries	945.9	60.6	1583.8	506.1	2856.0
• Africa	718.7	8.8	358.8	83.7	276.2
• America	135.6	13.9	258.6	100.1	776.9
• Asia	084.2	37.8	961.8	322.1	1800.3
• Oceania	7.2	0.1	4.6	0.1	2.5

Source: Review of Maritime Transport 2009, UNCTAD

Exhibit:1



Source: Review of Maritime Transport 2009, UNCTAD

goods loaded, followed by Latin America (22.9%). Following the global economic slowdown and sharp decline in world merchandise trade, growth in international trade continued, albeit at the slower rate of 3.6% in 2008 over 2007, as compared to 4.5% in 2007 over 2006 (8168 million tonnes in 2008, 7882 million tonnes in 2007, and 7545 million tonnes in 2006)

The level of world fleet also saw a rise in 2009 with the world merchant fleet exceeding 1 billion dwt (dead weight tonnage). The fleet of containerships increased by 11.9%, reflecting the increasing share of traded goods being containerized; the tonnage of oil tankers increased by 2.5%; bulk carriers by 7%; general cargo ships by 3.2%; during 2009 over the levels in the year 2008. (Exhibit: 1 and Table: 4).

Japan has been topping the list of countries controlling fleets in terms of dwt with 173.2 million dwt and 3720 ships; Greece, with 3064 ships and 169.4 million dwt; and Germany, with 3522 ships and 104.9 million dwt are other major players in the world. India was ranked at 15th position with 963 ships and 15.5 million dwt, a share of 1.4% in terms of dwt.

Table: 4

World Fleet Size by Principal Types of Vessels (million dwt)

Principal Types	2008	2009	% change
Oil Tankers	407.88	418.27	2.5
	(36.5)	*(35.1)*	*-1.4*
Bulk Carriers	391.13	418.36	7.0
	(35.0)	*(35.1)*	*0.1*
General Cargo Ships	105.49	108.88	3.2
	(9.4)	*(9.1)*	*-0.3*
Container Ships	144.66	161.92	11.9
	(12.9)	*(13.6)*	*0.6*
Other types of ships	68.62	84.9	23.7
	(6.1)	*(7.1)*	*1.0*
• Liquefied Gas Carriers	30.01	36.34	21.1
	(2.7)	*(3.0)*	*0.4*
• Chemical Tankers	8.24	8.14	-1.2
	(0.7)	*(0.7)*	*0.0*
• Offshore supply	20.69	22.57	9.1
	(1.9)	*(1.9)*	*0.0*
• Ferries and passenger ships	5.95	6.08	2.2
	(0.5)	*(0.5)*	*0.0*
• Others	3.74	11.76	214.4
	(0.3)	*(1.0)*	*0.7*
World	1117.78	1192.32	6.7

Note: figures in parantheses show the percentage share

Source: Review of Maritime Transport, 2009

Table - 5

Top Six Countries with the Largest Controlled Fleets as of January 1, 2009									
Rank	Country or territory of domicile	No. of vessels			DWT (In '000 of dwt)				
		National flag	Foreign flag	Total	National flag	Foreign flag	Total	Foreign flag as % of total	National flag as % of total
1	Japan	733	2987	3720	12199.53	161085.69	173285.2	93.0	7.0
2	Greece	720	2344	3064	52833.48	116593.20	169426.7	68.8	31.2
3	Germany	479	3043	3522	17428.47	87525 23	104953.7	83.4	16.6
4	China	1944	1555	3499	37204.73	55594.49	92799.22	59.9	40.1
5	Norway	783	1244	2027	11542.92	38673.31	50216.23	77.0	23.0
6	Republic of Korea	797	438	1235	20858.86	25764.36	46623.22	55.3	44.7
World total		16996	20840	37836	347007.00	757952.02	1104959.02	68.6	31.4
Source: Review of Maritime Transport 2009, UNCTAD									

The 35 countries and territories with the largest fleets registered under their flag accounted for 93% of the world fleet. Countries with largest flag of registration were Panama with 274 million dwt, followed by Liberia (124 million dwt) and Marshall Islands (68.45 million dwt). As regards the number of ships, the largest fleet was again flagged in Panama (8065 vessels) followed by USA (6435), Japan (6316), Indonesia (4464), China (3916) and Russia (3444). India stood at the 16th position in terms of DWT (15.3 million dwt) and 15th position in terms of number of vessels (1460 vessels) (Table: 6).

Most open and international registries specialize in certain countries of ownership. Panama is used by the vessel owners of Japan who account for more than half of the registries tonnage (128.4 million dwt), followed by owners from China (22.8 million dwt), Greece (19.4 million dwt) and Republic of Korea (19.2 million dwt). The world's second largest registry, Liberia is used by owners from Germany (39.5 million dwt), Greece (23.2 million dwt), Russia (8.1 million dwt) and Saudi Arabia (7.4 million dwt). Marshall Islands, being the third largest registry, catered to Greece (16.1 million dwt), USA (11.8 million dwt) and Germany (10.5 million dwt). (Table: 7)

Table: 6

The 35 Flags of Registration with the Largest Registered Deadweight Tonnage As of 1 January 2009							
Rank	**Flag of Registration**	**DWT (In '000)**	**No of Vessels**	**Rank**	**Flag of Registration**	**DWT (In '000)**	**No of Vessels**
1	Panama	273,961	8065	20	Antigua and Barbuda	12,455	1195
2	Liberia	125,993	2306	21	USA	11,910	6435
3	Marshall Islands	68,451	1265	22	Bermuda	10,298	153
4	Hong Kong, China	64,183	1371	23	Malaysia	9,391	1238
5	Greece	63,036	1498	24	Turkey	7,476	1301
6	Bahamas	62,013	1446	25	Saint Vincent & the Grenadines	7,400	1009
7	Singapore	60,798	2451	26	France	7,144	168
8	Malta	50,666	1532	27	Russian Federation	7,140	3444
9	China	39,998	3916	28	Indonesia	7,025	4464
10	Cyprus	31,388	1016	29	Netherlands	6,815	1296
11	Republic of Korea	22,600	3001	30	Philippines	6,750	1808
12	Norway	20,322	601	31	Belgium	6,631	243
13	Germany	17,949	961	32	Vietnam	4,663	1312
14	UK	15,950	1676	33	Cayman Islands	4,314	153
15	Japan	15,417	6316	34	Taiwan	4,246	637
16	India	15,300	1460	35	Thailand	4,218	879
17	Isle of Man	14,516	345	Total top 35 flags of registration		1,107,312	67,019
18	Italy	14,415	1588	World Total		1,192,317	99,741
19	Denmark	12,479	470				

Source: Review of Maritime Transport, 2009

Table: 7

Nationality of Top 3 Major Open and International Registry Fleets As of 1 January, 2009									
Sl no	Country or territory of ownership	Panama		Country or territory of ownership	Liberia		Country or territory of ownership	Marshal Islands	
		million dwt	No of vessels		million dwt	No of vessels		million dwt	No of vessels
1	Japan	128.42	2292	Germany	39.52	57	Greece	16.05	282
2	China	22.82	558	Greece	23.16	387	USA	11.79	170
3	Greece	19.43	503	Russia	8.05	95	Germany	10.45	233
4	Republic of Korea	19.21	324	Saudi Arabia	7.35	28	Norway	6.19	86
5	Taiwan	12.75	332	Singapore	4.42	36	Turkey	2.34	57

Source: Review of Maritime Transport, 2009

There are various reasons for choosing a foreign registry to register a ship, which is also called 'flag of convenience'. The reasons may include: reduction of operating costs, or avoidance of regulations in the owner's country. Flag of convenience may also happen based on vessel types and characteristics. Usually older vessels are nationally flagged than foreign flags. Another major reason to choose a foreign flag by ship owners in another country is with the objective of involving the ship in international trade. According to UNCTAD, owners from high income countries are more likely to choose a foreign registry than owners from countries with lower income.

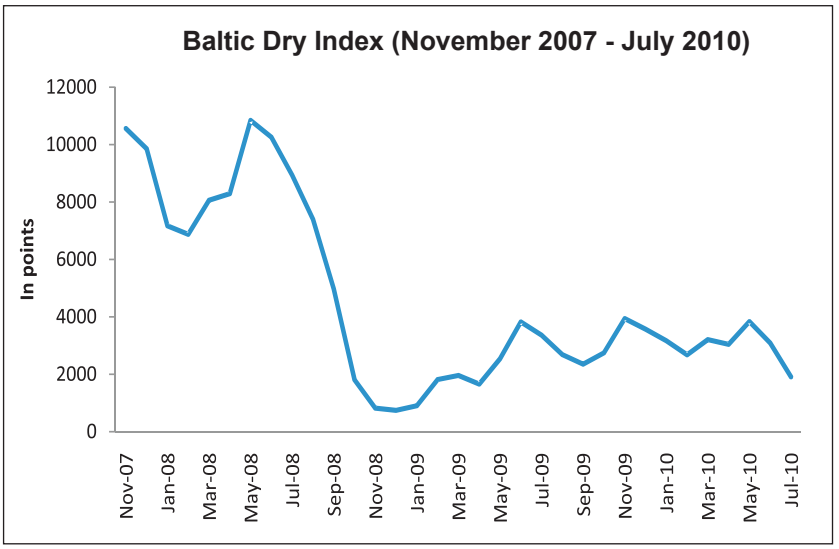
In terms of value of trade, USA is the major country engaged in maritime transport generating 10.68% of world trade in 2008. Other major countries include Germany (8.22%), China (7.91%), and Japan (4.78%). Among the Asian countries, China is the largest trader with large container port traffic and fleet. China International Marine Containers (CIMC) and Singamas are the two largest container manufacturers, which make China dominate in this field also. India is placed at eighteenth position in the world (with a share of 1.45%), and seventh position amongst Asian countries.(Table: 8)

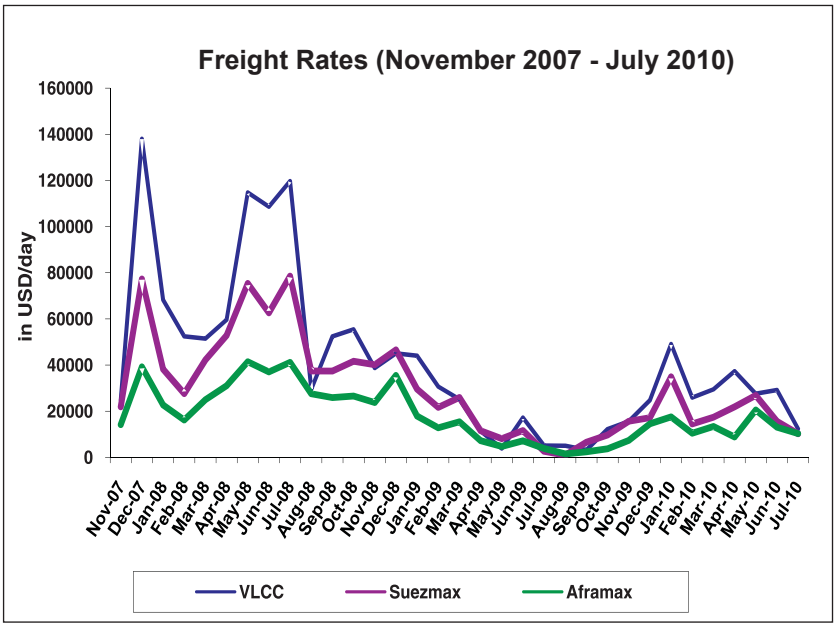
Table - 8

Maritime Engagement of 25 Major Trading Nations (2008 trade data)	
Country / Territory	**Percentage share of world trade generated in terms of value**
USA	10.68
Germany	8.22
China	7.91
Japan	4.78
France	4.04
Netherlands	3.72
Italy	3.37
UK	3.36
Belgium	2.91
Canada	2.70
Republic of Korea	2.64
Russian Federation	2.61
Hong Kong (China)	2.32
Spain	2.06
Singapore	2.03
Mexico	1.85
Taiwan	1.53
India	1.45
Saudi Arabia	1.27
Australia	1.19
Switzerland	1.19
Malaysia	1.15
Sweden	1.15
Poland	1.14
Brazil	1.12
Total Above	76.39
Source: Review of Maritime Transport 2009, UNCTAD	

Exhibit : 2

Baltic Dry Index and Freight Rates (Nov 2007 - July 2010)





Note: VLCC (Very large crude carriers) – 2,00,000 – 3,00,000 DWT
: Suezmax – 1,20,000 – 1,80,000 DWT
: Aframax – 79000 – 1,20,000 DWT
Source: Indian Industry: A monthly review, 2009&2010, Baltic exchange.com

Global Trends

Effects of the Global Slowdown

Shipping Industry has been widely impacted given the economic slowdown of 2008 and 2009. Since the demand for ships / vessels is a derived demand of commodities, the slowdown affected the demand for ships / vessels during this period. This has been evident from the movement of Baltic Dry Index (BDI), which is a daily weighted average of prices of shipping raw materials, and is one of the leading indicators of global economic activity. BDI measures the demand to move raw materials, which indicates production, planning and industrial activity worldwide. BDI reflects the freight cost to transport dry bulk cargoes around the world, mainly raw materials such as iron ore, coal, and grains. The index excludes wet cargoes (such as crude oil carried by tankers) and container business (used mainly to carry manufactured products).

BDI had grown strongly alongside the globalization process, with the new powerhouse economies, like China and India, seeking increasing volume of core raw materials, such as iron ore, coal, and oil for stimulating their manufacturing activity. BDI had reached its peak in November 2007 at 10,561 points, probably due to significant growth in world economy, and double-digit expansion of international trade volumes. The ship-builders were piled up with massive orders for the construction of new ships, mainly in Chinese, Japanese and South Korean shipyards, as the shipping companies did not want to face the challenge of low capacity, but respond to the expected increase in demand for freight along key trading routes, such as Asia-Europe or the trans-Pacific.

But, since the second half of the year 2008, the demand contracted significantly. From the beginning of May 2008, BDI fell down, and touched its lowest in December 2008, at 743 points. Thus, the shipping industry was also one of the major sectors of the world to get affected by the global economic crisis. However, the BDI has started improving since January 2009, and has been witnessing a cyclical trend. As on July 2010, the BDI fell by 38% from 3088 points in June 2010 to 1910 in July 2010. The main reasons for this has been the lower imports from China and an oversupply of dry bulk vessels on the ocean. China has been reducing its steel production due to the falling global prices of steel, thereby resulting in reduced imports of high cost iron ore. As a result of this, the demand for capsize vessels used for transporting iron ore fell which led to the BDI to fall.Another significant factor was the fall in freight rates. From its highest in June 2008, the freight rates for VLCC fell from US $ 1,19,722 per day in July 2008 to US $ 45,090 per day by December 2008. The Suezmax (from USD 78,573 per day in July 2008 to USD 46,598 per day by December 2008), and Aframax (from USD 41,184 per

day in July 2008 to USD 35,509 per day by December 2008) freight rates also showed decline since July 2008. However, later on, the rates had started improving and as on March 2010, freight rates of VLCC stood at USD 29,491 per day, Suezmax stood at USD 17,407, and Aframax stood at USD 13,401 per day, respectively. The rates have again showed a decline since May 2010. As on July 2010, freight rates for VLCC fell by 58%, from USD 29,199 per day in June 2010 to USD 12,358 per day in July 2010; freight rates for Suezmax fell by 35%, from USD 15,651 per day in June 2010 to USD 10,237 per day in July 2010; and the freight rates for Aframax fell by 21%, from USD 13,084 per day in June 2010 to USD 10,331 in July 2010.

Regulators Plan to Monitor Shipping Rates

As the global trade shrunk by over 10%, many shipping lines found themselves in a situation of excess capacity (many liners ordered new ships during the economic boom period). Some analysts predicted that at least few shipping lines would go out of business to match with the supply demand situation. However, it is believed that shipping lines, in an informal arrangement, collectively reduced the capacity through 'slow steaming' (spending more days in sea, which helped them to save on fuel and reduce capacity). It is estimated that slow-steaming could cut a liner's capacity by around 5%. It is also believed that some shipping lines have teamed up to levy a voluntary surcharge of US $ 400 per container. Both the Federal Maritime Commission (USA) and the European monitoring agency are closely monitoring the developments to see any evidence of price fixing by shipping liners.

Maritime Transport and Climate Change Challenge

Like other economic sectors, maritime transport, which by volume carries over 80% of global trade, has a role to play in addressing formidable challenge of climate change. International maritime transport is playing a part in contributing to climate change, but more importantly, it is also likely to be directly and indirectly impacted by the various climate change factors, such as rising sea levels, extreme weather events and rising temperatures. The wide-ranging impacts of climate change, including on maritime transport, and their potential implications for trade, economic growth and development, underscore the need to integrate climate considerations into strategies for transport planning and development. Increasingly, it is being recognized that considered and concerted actions are urgently required to ensure effective control of greenhouse gas emissions and to establish the requisite adaptive capacity in the shipping industry, especially in developing countries. Recognizing the importance for the maritime transport sector of contributing to global efforts at

reducing emissions of greenhouse gases, IMO's Marine Environment Protection Committee (MEPC) is considering a number of mitigation measures aimed at reducing emissions of greenhouse gases from international shipping (Annexure: 2).

Integration of Shipping Industry with Global Logistics and Supply Chains

Global shipping majors, like other segments of the conventional transport industry is increasingly getting integrated with the emerging global logistics and supply chain activities, owing to both external and internal dynamics. Many firms are entering into the enhanced canvas of offering logistics solutions, such as door-to-door delivery systems, integrating with rail/road haulage movements of cargo, customs brokerage, cargo consolidation, packaging/ re-packaging, and distribution services, thereby substantially consolidating their market position, and supplementing their ocean freight income. The global shipping industry is thus going through a major redefinition by undertaking logistic integration of their cargo operations.

Change in directions of trade volume
Multipolarity of trade flows, and the growth in trade volumes of Asian region is expected to impact the world shipping, as profoundly done by liner shipping and containerised cargo some decades ago. One may recall that the earlier phase of trade volume witnessed shipping growth in TransAtlantic and TransPacific routes, and the growing volume of world trade, especially from Asia, is likely to position the Pacific Rim and Indian Ocean Rim routes in the lime light.

Common Port to Specialist Port

Ports have been conventionally viewed as provider of omnibus solution to all types of cargo on a common basis. However, the global trend is veering into development of freight specialized ports – such as LNG terminals, container terminals - that involve high capital costs and intensive deployment of cargo handling equipment. Also, there has been a global trend in the port sector towards growing separation of port authority from port operator. The balance of power in the maritime trade, which was traditionally in favour of shipping lines, has been shifting in favour of shipper, whose cargo is being moved. With such emerging trends in port development in the world, shipping companies are expected to change their strategies and offer solutions to suit such trends.

Liner Shipping Connectivity of LDCs

Most international trade in manufactured goods is transported by containerized liner shipping services. These liner services form a global maritime transport network, through which basically all coastal countries are connected to each other. UNCTAD publishes an annual index called the

'Liner Shipping Connectivity Index' (LSCI) that aims at capturing trends and differences in countries' liner shipping connectivity. The index covers 162 coastal countries and comprises five components: (a) the number of ships, (b) their container carrying capacity, (c) the number of companies, (d) the number of services provided, and (e) the size of the largest vessels that provide services from, and to each country's seaports.

Most LDCs are also among the least connected countries. The average ranking of LDCs in 2009 was 109, compared to an average ranking of 76 for other developing countries and 68 for developed countries (Table 9).Container shipping companies are less likely to provide services to and from LDC seaports because (a) national trade volumes tend to be lower, and (b) a lower level of development will often make ports less attractive for transshipment and transit cargo.

The ranking of LDCs among the 162 coastal countries improved slightly by 3 points between 2004 and 2009[2]. Improving port infrastructure investment and the introduction of

Table: 9

Average LSCI Rankings of Country Groups, 2009					
Regions	**Developed countries**	**Economies in Transition**	**Developing Countries**	**LDCs**	**Grand Total**
Africa	-	-	70	104	89
Asia	70	136	60	108	69
Europe	63	100	-	-	68
Latin America and the Caribbean	83	-	92	124	92
North America	86	-	-	-	86
Pacific	79	-	92	132	103
Grand total	68	106	76	109	81.5

Source: UNCTAD
Note: Lesser the rank the better.

[2]UNCTAD

private sector operations, seaports in several LDCs have managed to become more attractive as ports of call for international liner shipping companies.

Growth in Establishment of Transshipment Terminals

Growth in long distance and containerized trade has led to the growth in establishment of transshipment hubs. It is not possible to establish direct shipping connections between every country because either there may not be enough volume, or the ports may tend to be very distant from each other. Therefore, a set of direct or transshipment connections are required to link all country pairs by maritime shipping. For serving this purpose the transshipment terminals and intermediate hubs were started. The world's most important intermediate hub is Singapore, where 92% of its traffic is transshipped. The emergence of major intermediate hubs favoured a concentration of large vessels along long-distance, high capacity routes, while lesser ports can be serviced with lower capacity ships. Consequently, the emergence of intermediate hubs has permitted liner services that would otherwise be economically unfeasible.

Port Regionalization

Ports, especially large gateways, are facing a wide array of local constraints that impair their growth and efficiency. Limited availability of land for expansion is among one of the most acute problems. This issue is exacerbated by the deepwater requirements for handling larger ships. Port regionalization is required when the ports are not able to handle additional traffic. Port regionalization refers to integration between maritime and inland transport systems, particularly by using rail and barge transportation, which are less prone to congestion than road transportation. Port regionalization and hinterland connectivity has been growing over the years, with the objective of meeting the constraints faced by ports. Port regionalization helps in creating a regional load centre network through joint development of a specific load centre and logistics platform in the hinterland. This has led to the development of corridors leaning on rail or barge services connecting to inland terminal facilities, which act either as satellite terminals, load centers or, less commonly, transmodal facilities. Many port authorities, terminal operators, commercial real estate developers and local/regional governments have been actively involved in the setting of such facilities.

- ***Satellite terminals:*** These are tend to be close to a port facility, but mainly at the periphery of its metropolitan area (often less than 100 km), since they mainly assume a service function to the seaport facilities. They accommodate additional traffic and undertake services that have become too expensive at the port, such as warehousing (e.g. empty

containers) and distribution. Satellite terminals can also serve as load centers for local or regional markets, particularly if economic density is high, in which case they form a multi-terminal cluster with the main port they are connected to through regular rail or barge shuttle services. For gateways having a strong import component, a satellite terminal can also undertake transloading function in a significant manner, where the contents of maritime containers are transloaded into domestic containers or truckloads.

- ***Load centers:*** This refers to a major intermodal facility - load center - granting access to well defined regional markets that include production and consumption functions. It commonly corresponds to a metropolitan area where a variety of terminals serve concomitantly intermodal, warehousing, distribution and logistics functions. These tend to take place in logistics parks and free trade zones (or foreign trade zones). The inland terminal is thus the point of collection or distribution of a regional market. The more extensive and diversified the market, the more important is the load center. If the load center has a good intermediary location, such as being along a major rail corridor, then freight distribution activities servicing an extended market will be present.

- ***Intermodal / transmodal facilities:*** These link large systems of freight circulation either through the same mode (e.g. rail-to-rail) or through intermodalism (e.g. rail-to-truck). In the latter case, the inland terminal assumes the role of a load center. The origin or the destination of the freight traffic tends to be elsewhere, particularly for transmodal freight.[3]

Drivers of Change for Future Maritime Transportation

According to OECD, there are six major drivers for maritime transportation – policy, demography & society, energy & environment, technology, economics, and finance. Policy plays a very important role in maritime shipping because the development of shipping requires government assistance. Maritime transportation is subject to many forms of regulations pertaining to safety, security and environment. For e.g polices like Cabotage, demurrage and privatization play an important role in the development of shipping. For ports and maritime shipping, the most complex policies have been related to security considerations, namely advance notice of cargo content and scanning cargo at ports. These have been absorbed in practices and costs, as efficient security procedures became a competitive factor along

[3]International Transport Forum, OECD

Table: 10

Existing and Emerging Drivers for Future Maritime Transportation		
Type	**Maritime shipping**	**Ports**
Policy	Shipping Security Governance Regulation Taxation Cabotage	Port security Cluster governance Demurrage
Demography	Derived Demand	Real estate pressures on terminal facilities
Energy and Environment	High operating costs Emission regulations	Modal shift for inland distribution Emission regulations (e.g. drayage)
Technology	Economies of scale Ship design	Integrating information technologies Terminal automation
Economics	Network rationalization Slowdown in global trade Maturity of containerization Development of niche markets	Hinterland access regimes Transshipment (competition)
Finance	Return on investment	Return on investment
Source: International Transport Forum, OECD		

supply chains. In the case of maritime shipping, policy and regulations are important for shipping security, governance and for taxation.

Demography is another factor which plays an important role as a driver for maritime transportation. It creates derived demand for maritime transport. When there is an increase in population, there would be increase in demand and consumption levels. This would lead to changes in mobility. Also, as greater share of population lives in urban areas, this would lead to increasing demand, which would ultimately lead to pressure at the port terminals with respect to ships calling at the port. This would help in further expansion of port terminals and also may lead to new sites being developed for port activities leading to new opportunities for more efficient connections with inland transport systems.

Climate change has become an important issue in recent times and this is another factor that may add to the sustainability of transport systems. Since maritime transportation only accounts for the least greenhouse gas emissions, compared to other forms of transport, use of maritime transport may tend to increase in the future due to this reason. Ports have also started embarking in various environmental regulations such as restricting ship engine idling and drayage, which focus on noise and

pollutant emissions because they have clear local impacts. Also the prices of energy and raw materials have a direct impact because higher the energy prices, there will be a shift towards more energy efficient modes of transport.

Use of IT and technological innovations contribute to trade facilitation as it makes the custom procedures more standardized and efficient thereby resulting in economies of scale. Innovations in technology will ensure better performance of engines and materials making the work faster and easier. This will also help in improving performance with better utilization of existing assets. For example, improvements in terminal automation will be especially suitable for ports that have a good volume and acute real estate pressures. Information technology has multiplying effects on maritime transportation, particularly over the management of intermodal assets. The range of applications is impressive, from the loading and unloading sequence of container ships, stacking in container yards, navigation (GPS), scheduling (pick up and delivery), gate access, and tracking the whereabouts of a container.

Another major driver of growth for maritime sector is economic growth and global trade. The structure of economies, their trade patterns and level of activities have an important influence in national and global transport systems. The price of transportation is linked to the viability of supply chains and comparative advantages derived from them. As transportation costs are expected to rise on the medium term, namely, due to fossil fuels, transport demand will be readjusted accordingly in volume but also in location. According to OECD, both for ports and maritime shipping, the short and medium terms underline a process of rationalization. The exploitation of comparative advantages, which have been a driving force of globalization, is yielding lower productivity gains and many suppliers are reconsidering their outsourcing strategies. It can be expected that containerization will reach a phase of maturity, at least in advanced economies, and that future growth potential will be more limited to niche markets, such as commodities. Hinterland access regimes are developing as important port competition factors, particularly in the case of transshipment terminals.

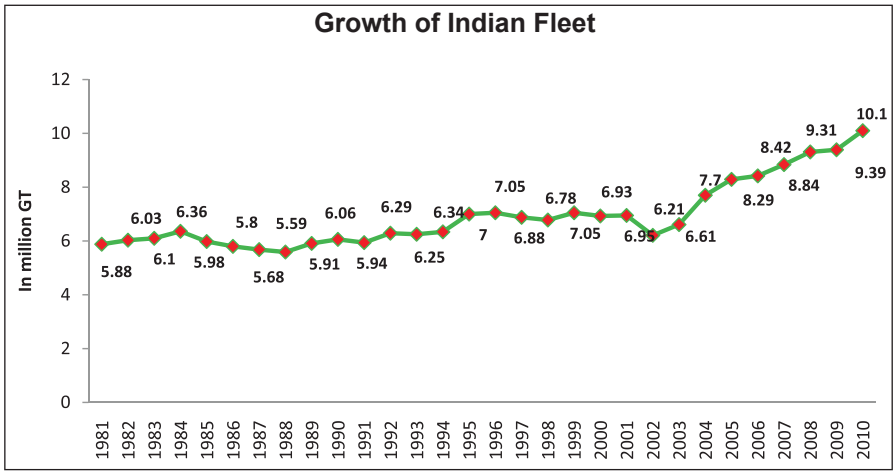
Finance is a major growth factor for maritime transport because without finance the development of maritime transport will suffer. In most of the cases, the largest financial institutions, often in partnership with the public sector, provides adequate level of capitalization. Transportation projects, due to their size and technological complexity, are getting increasingly capital intensive. The value of transportation assets and the revenue they generate are likely to be important factors behind their financing. Recently, maritime transport is becoming less attractive to investors and this would be a driving factor determining the growth of the maritime sector in future.

3. INDIAN SCENARIO

Maritime transport, which plays a vital role in the development of the country, comprises ports, shipping, shipbuilding and ship repair, and inland water transport systems. According to the Min istry of Shipping, Government of India, approximately 95% of the India's trade by volume and 70% by value is moved through maritime transport. India is among the top 20 leading countries having large number of merchant fleets in the world. The Gross Tonnage (GT) under the Indian flag was 10.1 million GT as of 1.09.2010, with as much as 1029 ships in operation.

Shipping Corporation of India, with 80 ships, hold a share of 33% in total Indian shipping tonnage as on October end 2009. Other major players were Great Eastern Shipping Company (65 ships and 17% of GT), Mercator Lines Ltd (16 ships and 7% of GT) and Essar Shipping and Logistics Ltd (29 ships and 4% of GT).

Exhibit : 3



Note: data for 2010 as on 1.09.2010

Source: Indian National Shipowners Association (INSA), Annual Report 2009-10, Ministry of Shipping, Government of India

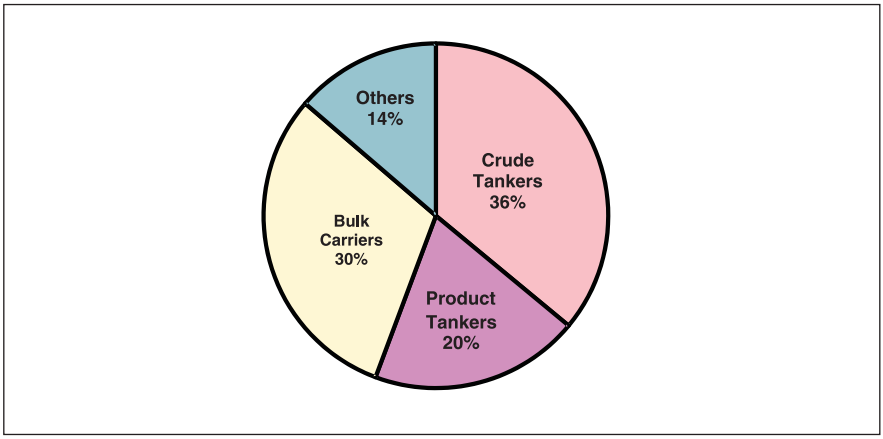
Table: 11

Distribution of Indian Shipping Tonnage During 01.01.2009 to 31.10.2009				
SL. NO	**Name of Company**	**Ships**	**GT**	**% of GT**
1	Shipping Corporation of India Ltd.	80	3076,000	32.67
2	Great Eastern Shipping Co. Ltd.	65	1626 041	17.27
3	Mercator Lines Ltd.	16	690,396	7.33
4	Essar Shipping & Logistics Ltd.	29	443,725	4.71
5	Varun Shipping Co., Ltd.	16	406,920	4.32
6	Chambal Fertilizers & Chemicals.	4	227,714	2.41
7	Tolani Shipping Co. Ltd.	6	209,460	2.22
8	Surendra Overseas Ltd.	5	168,314	1.78
9	West Asia Maritime Ltd.	4	107,672	1.14
10	Sanmar Shipping Ltd.	4	104,722	1.11
11	Radiant Shipping.	4	90,551	0.96
12	Five Star Bulk Carriers Ltd.	3	59,327	0.63
13	Chowgule Steamship Ltd.	5	53,882	0.57
14	Others	722	2,148,440	22.82
Total		**963**	**9413,164**	**100.00**
Source: Ministry of Shipping, GOI				

Tankers and bulk carriers constitute around 86% of the total fleet size; the break-up of which include: crude tankers - 35%, product tankers - 20%, bulk carriers - 31% and others 14%. Different types of ships are used for different types of cargoes, like tankers for carrying oil and liquid products, bulk carriers for mineral ores, grains and many other produce, general cargo vessels for break bulk cargo and container ships for containerized cargo.

During 2007-08, the share of Indian shipping lines in India's overseas trade was 9.5% as compared to a high percentage of 90.5% contributed by foreign lines. Indian lines held a significant percentage in liquid cargo of 16.4%.

Exhibit : 4
Composition of Indian Fleet
(Position as on 1.7.2006)



Source: Indian National Shipowners Association (INSA)

Table - 12

Share of Indian Shipping in India's External Trade (2007-08)
(In '000 tonnes)

Type of cargo	Indian lines	Foreign lines	Total
General cargo			
Loaded (Export)	1681 (2.3%)	71367 (97.7%)	73048
Unloaded (Import)	4113 (5.0%)	77560 (95.0%)	81673
Total	5794 (3.7%)	148927 (96.3%)	154721
Dry bulk			
Loaded (Export)	8031 (6.9%)	108593 (93.1%)	116624
Unloaded (Import)	6489 (6.7%)	89667 (93.3%)	96156
Total	14520 (6.8%)	198260 (93.2%)	212780
POL/Product & Other Liquids			
Loaded (Export)	3518 (8.3%)	38941 (91.7%)	42459
Unloaded (Import)	30819 (18.5%)	135567 (81.5%)	166386
Total	34337 (16.4%)	174508 (83.6%)	208845
Grand total			
Loaded (Export)	13230 (5.7%)	218901 (94.3%)	232131
Unloaded (Import)	41421 (12.0%)	302794 (88.0%)	344215
Total	**64651 (9.5%)**	**521695 (90.5%)**	**576346**

Source: Annual Report 2008-09, Ministry of Shipping, GOI

Port Traffic

Ports act as an interface between ocean transport and land transport. India has 12 major ports viz. Kolkata (including Dock complex at Haldia), Paradip, Vishakapatnam, Chennai, Ennore, Tuticorin, Cochin, New Mangalore, Mormugao, Jawaharlal Nehru at Nhava, Mumbai, and Kandla, and 187 minor ports.

Despite recessionary conditions, traffic handled at major ports have grown on an average by 5.7% in the year 2009-10, over the year 2008-09. However, ports like Haldia (-20.4%), Ennore (-6.9%) and New Mangalore (-3.2%) are few of the main ports that witnessed negative growth in 2009-10 Nevertheless, most of the ports have not achieved their target for the year

Table - 13

Traffic Handled at Major Ports

(In '000 tonnes)

Ports	Target	Traffic		% Variation against	
		2009-10	2008-09	Target	Previous year traffic
Kolkata	13410	13045	12428	-2.7	5.0
Haldia	42700	33250	41791	-22.1	-20.4
Paradip	56030	57011	46412	1.8	22.8
Visakhapatnam	67090	65501	63908	-2.4	2.5
Ennore	12450	10703	11500	-14.0	-6.9
Chennai	64000	61057	57491	-4.6	6.2
Tuticorin	22010	23787	22011	8.1	8.1
Cochin	18960	17429	15228	-8.1	14.5
New Mangalore	40340	35528	36691	-11.9	-3.2
Mormugao	45000	48847	41681	8.5	17.2
Mumbai	53460	54543	51876	2.0	5.1
JNPT	67880	60746	57291	-10.5	6.0
Kandla	78000	79521	72225	2.0	10.1
Total	581330	560968	530533	-3.5	5.7

Source: Ministry of Shipping, GOI

2009-10. Mormugao (8.5%), Tuticorin (8.1%) Mumbai (2%), Kandla (2%), and Paradip (1.8%) were the only ports which achieved their growth target for 2009-10. Haldia (-22.1%) and Ennore (-14%) were the two ports which showed huge variation in traffic compared to the traffic targeted in 2009-10.

It has been the endeavor of Government of India to consistently enhance the cargo handling capacity of the major ports keeping in view the projected traffic for the country. The aggregate capacity in major ports as on 31.3.2009 was 574.77 MTPA. Thus the favorable capacity – traffic equation continued during the year. (Table: 14)

Major cargoes handled at Indian ports include petroleum products, iron ore, fertilizers & raw materials, coal and containerized cargo. In case of POL, fertilizer and other cargo, Kandla handled the highest traffic

Table: 14

Capacity Utilization at Major Ports			
Year	**Aggregate Capacity (In Million tonnes per annum (MTPA), as on 31 March 2009)**	**Traffic (In million tonnes)**	**Utilization (In %)**
2001-02	343.95	287.59	83.6
2002-03	362.75	313.45	86.4
2003-04	389.50	344.80	88.5
2004-05	397.50	383.75	96.5
2005-06	456.20	423.57	92.8
2006-07	504.75	463.78	91.9
2007-08	532.07	530.53	99.7
2008-09	574.77	560.96	97.6

Source: Annual Report 2009-10, Ministry of Shipping

Table: 15

Cargo-wise Traffic Handled at Major Ports 2009-10
(In '000 tonnes)

Ports	POL	Iron Ore	Fertilizer	Coal	Container	Other Cargo	Total
Kandla	47211	660	5700	3225	2421	20304	79521
Visakhapatnam	18290	18108	3684	11118	1679	12622	65501
Chennai	13425	7882	591	3362	23476	12321	61057
JNPT	5082	-	-	-	53078	2586	60746
Paradip	11647	16158	3567	19821	44	5774	57011
Mumbai	34596		442	3745	606	15154	54543
Mormugao	964	40574	125	4741	192	2251	48847
New Mangalore	21339	7062	833	2791	475	3028	35528
Haldia	9338	7684	294	7525	2010	6399	33250
Tuticorin	514	41	2091	5813	6599	8729	23787
Cochin	11957	-	354	148	3928	1042	17429
Kolkata	724	809	47	16	6645	4804	13045
Ennore	395	936	-	9279	-	93	10703
Total	**175482**	**99914**	**17728**	**71584**	**101153**	**95107**	**560968**

Source: Ministry of Shipping, GOI

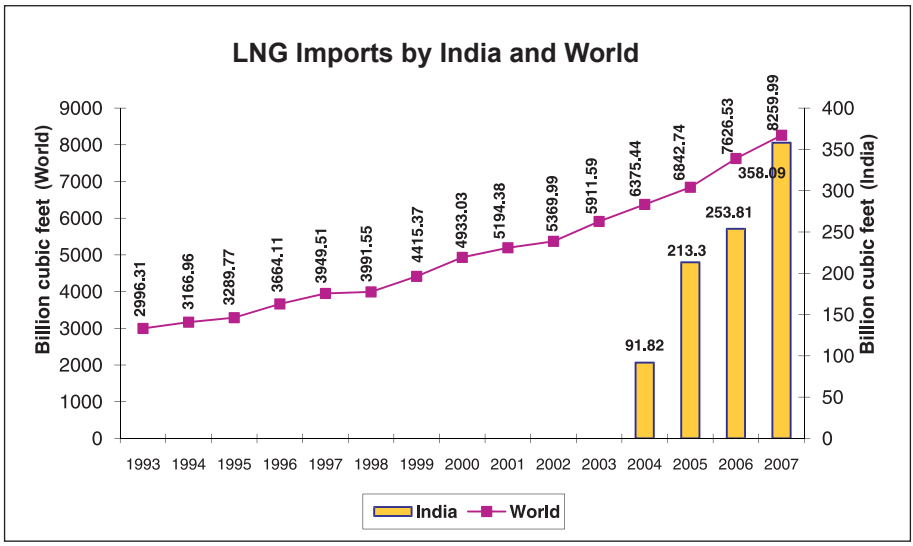
LNG Shipping in India

In the past few years, there has been a massive growth in LNG trade globally. The growth is mainly due to the energy demands of the emerging economies, particularly India and China, and due to the fact that LNG is relatively safe and environmentally friendly. Even in the event of spillage, LNG evaporates quickly and has no long term adverse effect on the ecosystem, and so poses little or no risk to environment. The non corrosive nature of LNG makes the life of an LNG carrier longer than other types of carriers.

India began importing liquefied natural gas (LNG) since 2004. In 2007, India imported 358 billion cubic feet of LNG, making it the seventh largest importer of LNG in the world. Qatar was by far the largest supplier, accounting for nearly 82% of India's imports. Some of the other major source countries for LNG imports by India include: Nigeria (6.3%), Algeria (4.3%), Trinidad and Tobago, and Oman (2.1% each). India imports LNG through both long-term contracts and spot shipments.

Currently, India has two LNG import terminals, with few more that are planned or proposed. India started receiving LNG shipments in January 2004 with the start-up of the Dahej terminal in Gujarat state. Petronet LNG, a consortium of state-owned Indian companies and international investors, owns and operates the Dahej LNG facility with a capacity of 5 million tons per year (mta) (975 bcf/y). India's second terminal, Hazira LNG, started operations in April 2005, and is

Exhibit : 5



Source: US Energy Information Administration

owned by a joint venture of Shell and Total. The facility has a capacity of 2.5 mta (488 Bcf/y), and has capacity to expand upto 5 mta (975 Bcf/y) in the future.

Geographically, India is very strategically located and is flanked by countries that have large gas reserves on both the sides - east and the west. India is relatively close to four of the world's top five countries in terms of proven gas reserves, viz. Iran, Qatar, Saudi Arabia and Abu Dhabi.

Indian shipping industry currently does not own any LNG vessels; one of the main reasons is attributed towards the cost of acquisition of LNG vessels. With a capacity of about 135,000 cubic metres, a LNG vessel cost at least US $ 200 million in the international market. Therefore, the Indian shipping industry is currently exploring this area through joint ventures. Shipping Corporation of India (SCI) has identified carriage of LNG as one of its thrust and growth areas, and has emerged as the first Indian shipping company in LNG transportation, through global agreements. SCI has acquired stake in the three Indian LNG transportation agreements through a global bidding process. .

It may be mentioned that, earlier, the guidelines by DG-Shipping stipulated that no licence shall be granted for chartering an LNG vessel unless registered under the Indian flag and is owned by an Indian entity either wholly or with an Indian partner holding no less than 26% stake in the joint venture company owning the LNG tanker. However, in 2006, the guidelines have been modified, and with the introduction of LNG Shipping Policy, the importers are given the flexibility to transport the cargo either on FOB (free-on-board) or CIF (cost-insurance-freight) basis, by deploying foreign or Indian flag ships.

International Container Transshipment Terminal (ICTT)

Transshipment ports or transshipment hubs would refer to the port of choice for shipping lines seeking to trans-ship their containerized cargoes originating from or destined for a country. Transshipment is the shipment of goods or container to an intermediate destination, and then from there to yet another destination. Transshipment usually takes place in transportation hubs and most of the international transshipment also takes place in designated customs areas, thus avoiding the need for customs checks or duties, which are otherwise major hindrances for swift movement of goods.

The need to develop transshipment hub ports in India was documented by the Planning Commission in its Tenth Five Year Plan. The Vallarpadam terminal in Cochin has been identified as a transshipment terminal for the sub-continent by the Government. The Vallarpadam terminal, the first-of-its-kind in India, aims to cut down logistics costs for shipping lines, transshipping cargo in

and out of the country, as at present, the containerized cargo, to and from India, is transhipped through the ports at Colombo, Dubai, Singapore and Salalah. This trend is not only making the transportation cost expensive, but also time consuming. It is to be noted that the Vallarpadam terminal aims to transform Cochin port from being a feeder port to a transshipment hub port and the proximity of the terminal to east-west sea routes offers great savings, if containers are transhipped through the terminal. According to industry sources, since ICTT is located within the Special Economic Zone area, containers transshipped through Vallarpadam would undergo customs checks only at the Indian ports of origin or at the ports of their destination.

ICTT is developed by DP World on a build-operate-transfer basis, and DP World will manage and subsequently transfer its operations at the Rajiv Gandhi Container Terminal (RGCT) in Cochin Port to the new terminal upon its completion. The DP World has been granted a 38-year concession for the exclusive operation and management of the site.

Some of the main reasons for choosing Cochin as the location for international transshipment container terminal include: a) Cochin is strategically located in close proximity to the global east-west trade routes; b) the Cochin port is all-weather port, which offers a great advantage to vessel operators who are able to work on their berthing windows without fail; c) ICTT will have a draft of around 15 metres, which, with the latest technology of ship-to-shore (STS) cranes in support, will facilitate handling of large container vessels afloat; d) deployment of these cranes will ensure that productivity at ICTT is at par with the international standards; e) the terminal will have the facility to berth a mainline vessel and a feeder, together with the possibility of exchange of boxes - from a feeder, a container could be directly put on to the mainline vessel, or vice-versa, which is expected to result in better transit times for the shipper.

Regulatory Framework

Shipping in India, being a Central subject, is dealt by the Ministry of Shipping. The Indian shipping industry is mainly governed by the following Acts;

1. The Merchant Shipping Act, 1958
2. The Inland Vessels Act, 1917
3. The Coasting Vessels Act, 1838
4. The Multi-modal Transportation of Goods Act, 1993

Some other statutes that have indirect relevance on Indian shipping include:

1. The Indian Ports Act, 1908
2. The Dock Workers (Regulation of Employment) Act, 1948
3. The Major Ports Trust Act, 1963
4. The Seamen's Provident Fund Act, 1966
5. The Inland Waterways Authority of India Act, 1985

Box: 1
World Bank's Logistics Performance Index (LPI)

The World Bank's Logistics Performance Index (LPI) summarizes the performance of countries in six areas that capture the most important aspects of the current logistics environment: Efficiency of the customs clearance process, quality of trade and transport-related infrastructure, ease of arranging competitively priced shipments, competence and quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled or expected time.

These areas range from traditional issues (customs procedures and infrastructure quality) to new concerns (tracking and tracing shipments, timeliness in reaching a destination, and the competence of the domestic logistics industry. None of these areas alone can ensure good logistics performance. Their selection is based on the latest theoretical and empirical research and on extensive interviews with professionals involved in international freight logistics. The LPI uses standard statistical techniques to aggregate the data into a single indicator. This approach makes it possible to conduct meaningful comparisons across countries, regions, and income groups, as well as to undertake country-specific diagnostic work. Plotting an average relation between country income and logistics performance makes it possible to identify over- and under-performers in the logistics sector. An overperformer is a country with a higher LPI score than would be expected based solely on its income level, and an underperformer is a country with a lower than expected LPI score.

According to the Logistics Performance Index of World Bank, among the lower middle income countries, India was one of the top logistics performer with a world rank of 47 in 2009; and relative to income per capita, India was among the top ten over performers (excluding high-income countries), along with Bangladesh, China, Democratic Republic of Congo, Madagascar, Philippines, South Africa, Thailand, Uganda, and Vietnam.

Source: The Logistic Performance Index and its indicators, World Bank, 2010

There are various subordinate offices, autonomous bodies, societies and associations, and public sector undertakings, which help the Ministry in regulating the shipping industry. Some of them are:

- The National Shipping Board, a statutory body, which advises the Central Government on shipping matters;
- The Directorate General of Shipping, the main administrative authority which issues orders and notifications on various aspects of shipping;
- The Mercantile Marine Department, which comes under the administrative control of Directorate General of Shipping, dealing with the registration and survey of ships;
- The Transchart Wing, responsible for making shipping arrangements for import cargo under the control of Govt./PSUs;
- The Indian Register of Shipping, a classification society.

The Indian shipping industry, apart from the regulations is also governed by the various IMO/ILO instruments (Conventions & Protocols) ratified by the Government of India and also has to comply with the rules and regulations issued by Ministries of Finance, Company Affairs, and Commerce and Industry, Government of India.

It may be mentioned that the Ministry of Shipping, Government of India has been working towards merging two existing port legislations which are Indian Ports Act, 1908, and Major Ports Act, 1963, which rule over Government-controlled major ports, private and non major ports of the country, into a single comprehensive Act. The proposed legislation will club many sections into one which deal with topics that are common in nature for both major and non major ports. There will be a separate section for board of trustees, operations and management of major ports which is exclusive to them. The proposed port legislation could also have provisions to create a Port Regulatory Authority Act which would help de-link Tariff Authority for Major Ports (TAMP) from the consolidated Act. The powers to fix rates may, then, be left to the management of port authority or Government or any other authority so authorized by the Government.

Also, it has been observed that in all the major ports world over, land has been leveraged for optimizing the throughput and increasing the revenue of ports. It is an established practice globally for ports to allot land for carrying out economic activity including establishing industry to ensure captive cargo to the port, thereby enhancing the sustainability of that port. Port lands have also been used to set up Special Economic Zones (SEZ) aimed at encouraging industrial development in and around the port. Other than the above, ports

are generally expected to utilize their land, with port related activities being given the first priority and activities incidental to the port being treated as secondary in nature. Hence, optimum utilization of land is a matter of continuing importance to all ports. Based on this, a Land Policy for Major Ports was issued by the Ministry of Shipping, in 2004. Land policy is one of the most important policy frameworks guiding the overall functioning of the port sector. Recently, the Ministry of Shipping has proposed to issue a revised Land Policy for major ports. Accordingly a committee constituted by the Ministry of Shipping submitted a draft 'Land Policy for major ports, 2010'. According to the policy, every major port shall have a Land use plan covering the entire land owned and/ or managed by the port. Land can be allotted either on licence or lease basis as per land use plan/zoning. The policy is applicable for all major port trusts, except for land relating to Gandhidham Township of Kandla Port Trust. This policy for land allotment will be applicable to all BOT projects also.

Recent Initiatives

National Maritime Development Programme

In December 2005, the Ministry of Shipping, Road Transport and Highways, Government of India, unveiled the National Maritime Development Programme (NMDP). The objective of the programme is for upgrading and modernizing the maritime infrastructure in India to bring it to globally comparable standards.

The programme consists of projects to be completed in 2 phases over a period up to 2011-12. The total investments have been estimated at Rs 1003 billion. It consists of a total of 387 projects divided into the following:

- 276 projects for the major ports with an investment of Rs 558 billion consisting of 25 projects for deepening of channels, 76 for port development, 52 for procurement, replacement and upgradation, 45 for projects related to port connectivity and 78 for other related schemes;

- 111 for Shipping and IWT (Inland Water Transport) with an investment of Rs 445 billion.

Coastal Shipping: for the promotion of coastal shipping, the following two schemes are being initiated:

- ***Coastal Shipping Development Fund (CSDF) for soft lending for the purpose of acquisition of coastal vessels:*** Under this scheme, it is estimated that for acquisition of coastal vessels an investment of Rs.10,000 crore would be required in the next five years and the funding pattern for the same is Rs.500 crore through

budgetary support, Rs. 1500 crore from reputed institutional financing and Rs.8000 crore from private investment.

- ***Centrally Sponsored Scheme (CSS) for development of coastal shipping infrastructure:*** Central assistance will be by way of grant-in-aid. The grant-in-aid through budgetary support would be provided to the tune of Rs.500 crore. Out of this, the Central assistance will be limited to 33% of the project cost; remaining 67% being contributed by the respective State Government.

New Perspective Plan

Ministry of Shipping has decided to create a New Perspective Plan for the maritime sector for the period upto 2020. The New Plan would have year-wise project for the period covering the 12th Five Year Plan and initial period of 13th Five Year Plan. It would include policy framework for stimulation of capacity expansion as well as growth of maritime sector, supplementary projects for ports development from other infrastructure departments, like National Highway Authority of India, roads, railways, inland waterways, dredging mechanization and modernization plan of major ports and non major ports, etc. The Ministry has also constituted a sub group and core working group for preparation of Perspective Plan 2020.

Tonnage Tax

To facilitate the growth in Indian shipping industry, Government of India has been taking several measures. In the past, under Sec. 33AC of the Income Tax Act 1961, shipping companies have been permitted 100% tax exemption on their profits transferred to a special reserve created under this Section. Introducing tonnage tax in lieu of corporate tax from 2004-05 and the inclusion of dredgers in the tonnage tax regime in 2005-06 and also allowing 100% FDI in the shipbuilding sector are some of the measures taken for the development of the industry. The Tonnage Tax system helps Indian ship owners to even out their tax burden in the industry, which is highly cyclical in nature. Also, cargo support is extended by the Government by centralizing shipping arrangements through chartering wing (TRANSCHART), finalizing all import contracts on FOB (Free on Board), in respect of Government owned or controlled cargoes, so as to retain control over the shipping arrangements in the country, and providing support to the vessels.

Support through TRANSCHART

The Ministry of Shipping also has a Chartering Wing (TRANSCHART) which makes shipping arrangements at internationally competitive freight rates for transportation of Government owned or controlled cargoes against FOB/FAS imports of the Government

and in this way gives cargo preference to Indian vessels. During the period 1st January, 2009 to 30th November 2009, 440 ships were finalized by the TRANSCHART for shipment of total quantity of 256.18 lakh MT of Government cargoes. The major cargoes handled during this period were coking coal, crude oil, fertilizer, fertilizer raw materials, lime stone, iron ore, steel materials, seawater magnesia, ballast cleaning machines and other liner / project cargoes. Out of total 440 ships, 138 were Indian ships which carried approximately 99.41 lakh MT i.e. approx 38.80% of total. The main reason for low share of Indian vessels was due to inadequate availability of required type of vessels in Indian fleet for carriage of various bulk cargoes and also low participation of Indian vessels for covering the Government cargoes due to availability of better alternate options. However, all efforts are being made to use available / suitable Indian vessels to the maximum extent possible. The shipping arrangements were made as per the requirement of indenting departments / PSUs and with their prior approvals.

Manpower Requirements

There has been a shortfall of skilled manpower in the shipping industry since 1990s, which led to the appointment of a Committee on Maritime Education & Training (COMET) under the chairmanship of Dr. C.P. Srivastava [formerly Secretary General of IMO (International Maritime Organization)]. One of the significant developments that took place, out of the recommendations of the COMET Report, was the commencement of private sector training facilities, which was restricted only to Government institutions earlier. In order to meet the requirement of trained manpower in merchant navy, the Directorate General of Shipping, currently through various maritime training institutes, both under public and private sector, imparts pre-sea and post-sea training in engineering and nautical discipline. Currently there are 125 training institutes.

However, in order to bring uniformity in curriculum offered by various institutions, the Government proposed to establish an Indian Maritime University to facilitate and promote maritime studies, research, and extension work with focus on emerging areas, including marine science and technology, marine environment, socio economic, legal and other related fields. A step in this direction was taken with the registration of the Indian Institute of Maritime Studies (IIMS). The safety and the efficiency of the ships are crucially dependant on professional ability of the seafarers. Great importance has always been attached to maintenance of high quality training. For this purpose there are 50 institutes conducting relevant courses.

Thrust to Passenger Lines

In the tourism front, international cruise shipping is yet another area that India is increasingly venturing,

as the country promotes international travel and tourism. There had been around 29 cruise ships during the year 2006 which had disembarked in India especially in Mumbai, Kochi and Goa. Many Indians too have been going for international cruises. The Government has considered bringing in a comprehensive cruise shipping policy to make India a major destination for cruise shipping. Accordingly, the Government has proposed to build cruise terminals of international standards at major ports, and proposed to announce a range of schemes for tour operators. Presently, local cruises have been picking up, and attracting a significant volume of travellers within the country for packages from Mumbai to Goa, Mumbai to Lakshwadeep and so on.

Indian Maritime Casualty Investigation Cell

Ministry of Shipping, Government of India has given approval for creation of Indian Maritime Investigation Cell with the objective of conducting investigation into causes of casualties and incidents in accordance with the provisions of the Merchants Shipping Act, 1958, bearing in mind the mandatory tenets of the International Maritime Organisation Casualty Investigation.

New Deep Sea Ports

It has been decided to conduct a feasibility and locational study for setting up of a deep-sea port, off the coast of West Bengal, keeping in view the increasing trade with the South-East Asian and East Asian regions. Global Expression of Interest has been floated and consultants have been shortlisted. Tenders have also been invited and consultant being selected for conducting feasibility study for development of Port at Colachel in Tamil Nadu.

Channel Deepening Projects

The available depths in entrance/ approach channels in Indian ports are inadequate for large size new generation vessels to pass through them. As a result, mainline vessels bypass Indian ports. This is particularly relevant for container vessels where inadequate depth in the port channels continues to be a major factor contributing to transshipment of a significant portion of Indian-origin/ Indian-bound container traffic in neighbouring ports outside India. This increases the transportation costs for Indian traders. With a view to overcoming this challenge, concerted measures to deepen channels in various major ports have been taken.

Private Sector Participation

Ministry of Shipping has been encouraging private sector participation in the major ports, particularly in the development of berths/terminals on BOT basis. The capacity augmentation will be mainly through Public-Private Partnership (PPP). However, berths will also

be constructed by the port, where operational requirements necessitate the ports to construct and operate the berth out of their own resources.

The preferred route for private sector participation is through open competitive bidding in which the bidder offering the highest percentage of revenue share to the major ports is selected. Tariff Authority for Major Ports (TAMP), which is an independent statutory authority, fixes the tariffs to be charged from the port users by the private operators. For fixing the upfront tariffs, TAMP shall follow a normative cost based approach. These tariffs will act as ceiling and will be indexed to inflation and the private operators are free to charge below these ceilings. It may be mentioned that PPP projects have been awarded for development and construction of berths / mechanization in respect of Kolkata, Vishakhapatnam, Paradip, New Mangalore and Mormugao Port Trusts.

Multi-modal Transport

For better rail-road connectivity to enhance trade, a Committee of Secretaries (CoS) under the Chairmanship of Member Secretary, Planning Commission with Secretary (Shipping), Secretary (RT&H), Secretary (Environment and Forests) and Member Traffic (Railway Board) as members was constituted. In case of road connectivity, focus was laid on port connectivity and hinterland connectivity, which connects to the source of cargo such as iron ore, coal, etc. A number of multimodal projects have been taken up in all the major ports. The projects on roads and rail connectivity are implemented mainly by the National Highways Authority of India (NHAI) and Ministry of Railways, respectively. In a number of instances, the ports have made significant financial contribution for execution of the connectivity projects.

National Maritime Complex

At present, India has 1029 ships having 10.1 million GT. There are 12 major ports in the country in addition to a large number of non-major public and private ports within the domain of the various states. Seafaring is an old and respected profession in India. Indian seafaring officers are employed in ships of many foreign flag. Shipping cannot be embraced as a profession in the absence of necessary competence in seafaring skills. For this purpose international conventions exist, as adopted by the UN specialized agency in this regard, namely, the International Maritime Organization. Also, the maritime training and education to the private sector opened up. With the objective of showcasing various facets of Indian maritime industry, the Government has decided to establish a National Maritime Complex at Chennai.

Box: 2
Shipping Trade Practices Bill

A Bill to provide for bringing transparency in trade practices adopted by maritime transport logistics service providers in respect of: a) services rendered by them for arranging transportation of containerized cargo; b) registration of such service providers and their obligations; c) mode and manner of fixing tariff by the service providers; and d) export and import, and for matters connected therewith or incidental thereto. The aim of the Bill is to infuse some degree of transparency in the business and to make the charges public.

The Shipping Trade Practices Bill, 2006 was aimed at shipping intermediaries across all cargo handling categories, and later the Shipping Trade Practices Bill, 2008 was made applicable only to containerized cargo. However the new proposal put forward by the Ministry of Shipping, Government of India, will apply to maritime logistical service providers such as container ship owners, non-vessel operating common carrier, customs house agents, forwarding agents and other players in the chain.

According to the Shipping Trade practices Bill, service providers are required to register with the Government. The service providers would also be required to publish their rates, mode and manner of fixing tariff and display it on their premises or website, when the Bill comes into force. The Bill draws reference from the rules of US Federal Maritime Commission (FMC), an independent regulatory body that governs the US shipping trade. The Commission's strategic goal is to protect the public from unlawful, unfair or deceptive ocean transportation practices and resolve disputes. It also handles the maritime antitrust regulation.

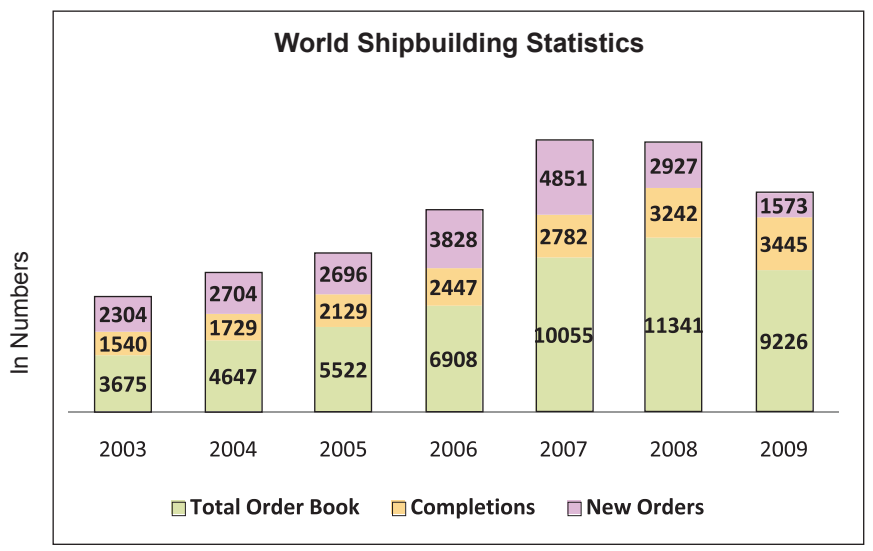
The Bill, once put into force, will help in speeding up the maritime grievance redressal, necessary to avoid the need to resort to legal recourse that takes years to settle and also help the exporters and importers who pay arbitrary and exorbitant charges for the services provided mostly by unregistered players.

Source: Exim Research.

4. INDIAN SHIPBUILDING INDUSTRY

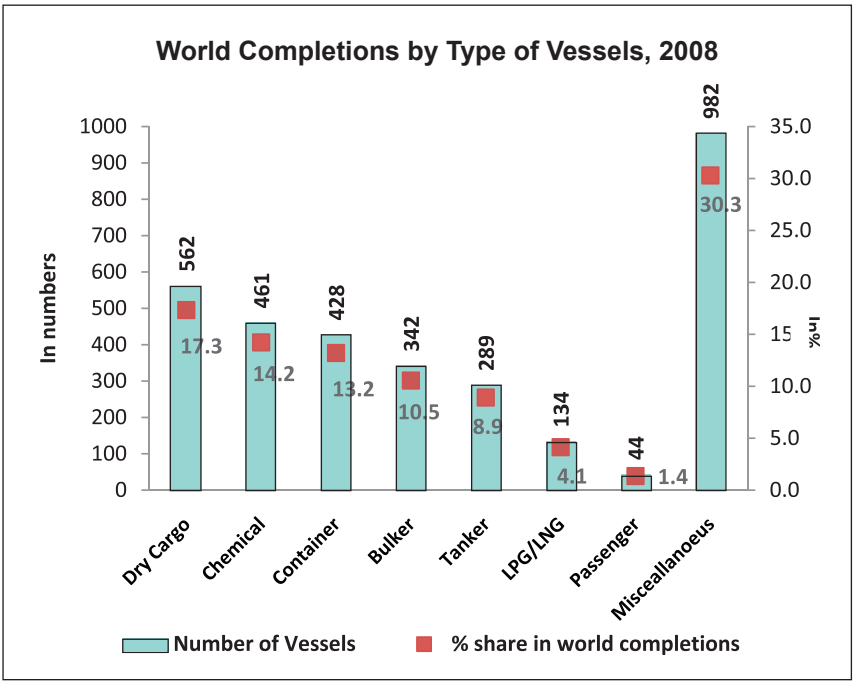
Shipbuilding, which includes, shipyards, marine equipment manufacturers, and a large number of service and knowledge providers, is an important and strategic industry in a number of countries around the world. Shipbuilding is a globalized, technology-based, and capital intensive industry. The industry is influenced by developments in the shipping industry and the market dynamics. One of the unique factors of the shipbuilding industry is that a ship is sold before the construction begins and each ship is custom made for the owner. It may take around 1 to 3 years for the delivery of a new ship. The buyer orders a ship in anticipation of its future use and sometimes it is done with an advance charter agreement which makes it important for the shipyard to deliver the ship within the specified time. This feature makes delays in shipbuilding unacceptable at times, and thus the buyers prefer to place orders with established shipyards who have a good track record.

Exhibit : 6



Source: World Shipbuilding Statistics-Lloyd's Register
Shipbuilding Statistics, March 2010, Shipbuilders Association of Japan

Exhibit : 7



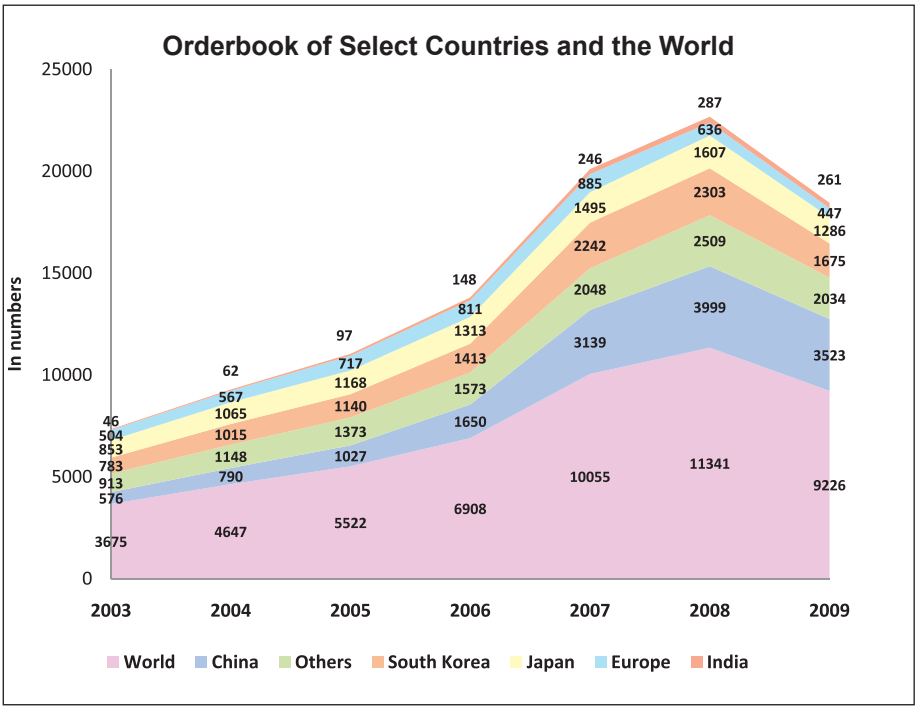
Source: World Shipbuilding Statistics-Lloyd's Register
Shipbuilding Statistics, March 2010, Shipbuilders Association of Japan

The world shipbuilding statistics shows that during 2009, the world orderbook was close to 9226 ships, which was around (-) 18.6% less compared to previous year. It is evident from Exhibit: 6 that new orders during 2009 was also lower than the previous years. In fact, after 2007, new orders for shipbuilding had reduced by almost half in 2008 and 2009. However, completions of the shipbuilding orders have shown improvement over the years.

During 2008, around 17% of the new orders received were for dry cargo vessels followed by chemical tankers (14.2%), containers (13.2%), and bulkers (10.5%). LPG/LNG vessels (4.1%) and passenger vessels (1.4%) were two categories which showed the least orders in 2008.

India currently has around 32 shipyards, owned by: Central Government (6), State Governments (2), public listed private shipyards (3), and privately held (around 22) shipyards. However, the major share of the present ship-building capacity in India is held by eight public sector yards, with Cochin Shipyard Limited and Hindustan Shipyard Limited having capacity and infrastructure to build vessels of 1.1 lakh DWT, and 80,000 DWT, respectively. Barring

Exhibit : 8



Source: World Shipbuilding Statistics-Lloyd's register, Shipbuilding Statistics, March 2010, Shipbuilders Association of Japan

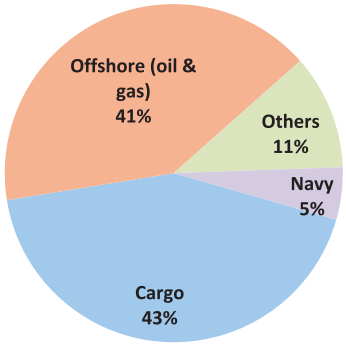
these two shipyards, the majority of private sector shipyards have limited ability to build vessels in respect of capacity and size of the vessels. Also India's capability of building technologically advanced ships, like LNG carriers are relatively less.

According to the world order book position, during 2009, Indian shipyards had an order book of close to 260 ships constituting 1% share in terms of GT, and 2.8% share in terms of number of bookings. China was top in the list with the largest number of bookings of 3523 ships, followed by South Korea (1675), Japan (1286) and Europe (447). India stood at the sixth position in the world order book, after Vietnam (287). (Exhibit: 8)

India has been witnessing increase in the order book position over the years, which has largely resulted from export orders. The bulk of the orders have been in the small ship segment, comprising offshore supply vessels, anchor handling tugs and cargo, although CSL (Cochin Shipyard Limited) has exported some large and medium ships. Offshore segment is attractive mainly

Exhibit : 9

Indian Shipping: Orders Booked Till 2011-12



Source : Maritime Advisory

because oil and gas companies have contractual and regulatory commitments to the government to explore blocks awarded to them, which in turn require ships so that exploration can be initiated. Such factors could encourage foreign players to invest in Indian offshore sector, which will help improve India's technical know-how in the field and prevent shipbuilding delays. This shows that the potential for exploring export opportunities is significant for Indian shipping industry. It may be mentioned that the ship-building technology and facilities in India may require significant upgradation to cater to the requirements of overseas buyers. Majority of the orders were from Europe.

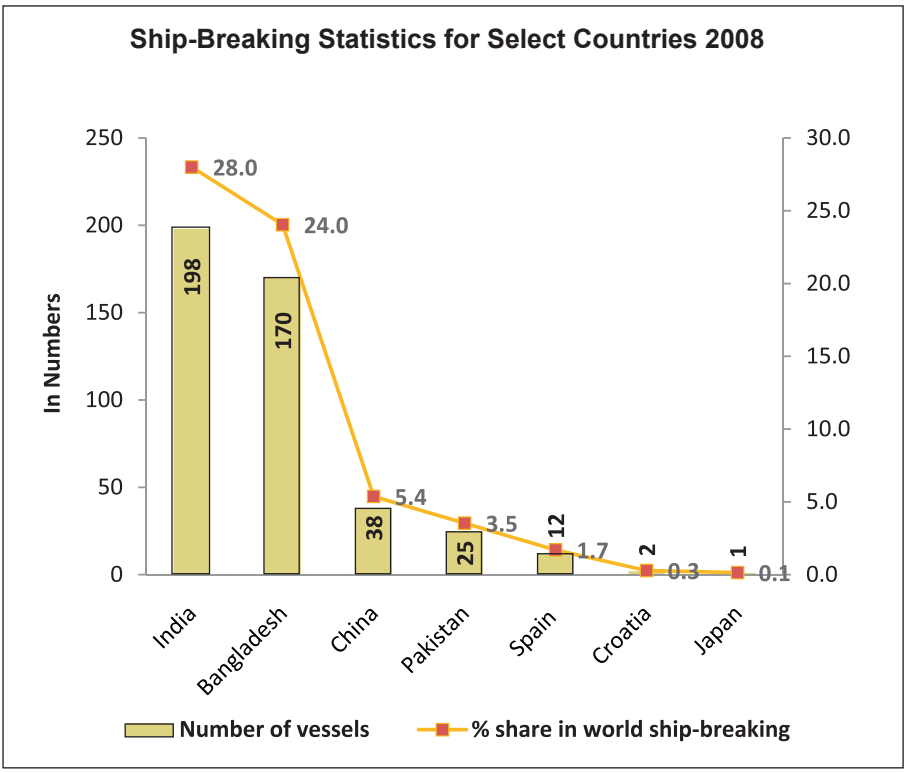
For integrated growth of the industry, there is a need to create an R&D base along with developing in-house design capability, infusing new technology, developing skilled workforce, adopting appropriate fiscal measures and industry-friendly regulations, so that Indian shipbuilding can achieve credibility for delivering quality ships on time.

According to the Report of the Task force on Ship Building and Ship Repair Industry, constituted by the Planning Commission, Government of India most of the ships, including dredgers, imported by Indian owners are fully exempted from customs duty making the existing shipbuilding industry totally unprotected in India. In fact, customs duty of about 35% is imposed on all capital equipment required for shipbuilding which inflates the cost of shipbuilding in the country compared to other countries. Hence, in the current scenario, it becomes cheaper to import a ship

due to the exemption of customs duty on import of all ships and dredgers. The Task Force has also suggested to implement a single window clearance system for according clearance to new shipyard projects, covering land acquisition, environmental clearance, power and water etc., so that project implementation is not delayed. Apart from this, an expanding shipbuilding industry would require a large trained work force, covering all areas in the techno-economic spectrum of shipbuilding. Therefore, universities/ academic institutions should develop curriculum for developing skill sets, covering entire spectrum from basic ship-building trade to high-end research, in collaboration with universities of leading maritime nations.

Although India occupies a small percentage of the global shipbuilding market, the Indian shipbuilding industry is well positioned for growth. According to a study by the Indian Shipbuilders Association, the industry

Exhibit : 10



Note: Total world disposals: 707 vessels
Source: World Shipbuilding Statistics-Lloyd's register,
Shipbuilding Statistics, March 2010, Shipbuilders Association of Japan

can grow at a rate of more than 30%, and this rate of growth could be achieved through supportive measures by the Government, including incentives for shipyards.

As growth in international trade results in increased global and domestic demand for new vessels, Indian shipyards have certain advantages over shipyards in developed nations. India possesses a large pool of technical workers, and its cost of workforce is relatively low, compared to most other shipbuilding countries. Apart from this, the Indian navy usually gives orders to Indian shipyards based on national interests. This will also act in favour of the Indian shipbuilding industry.

Also, there is a need to replace the old ships in the country. According to Indian National Shipowners Association, about 50% of Indian ships are aged 20 years or more and needs to be replaced. The world ship breaking statistics for 2008 also shows that, of the total world disposals of 707 vessels, 28% were from India followed by Bangladesh (24%), China (5.4%) and Pakistan (3.5%) (Exhibit: 10). This shows that there will be a need for more vessels in the future and the domestic shipyards should strive towards getting these contracts.

Shipbuilding acts as a catalyst for overall industrial growth due to spin offs to other industries, including steel, engineering equipments, port infrastructure, trade and shipping services. The indirect potential of shipbuilding industry in employment generation and contribution to GDP is therefore tremendous. The dynamics of India's economic growth will continue to create demand for new ships, and ship-building capacity within the country needs to be augmented to cater to this demand. If the domestic ship-building capacity is augmented, the benefits to the economy would be manifold, with spillover effects on other associated/ ancillary sectors, and generation of employment.

SHIP-REPAIR INDUSTRY

The global ship repair market is estimated to be worth US $ 10 billion to US $ 12 billion, with Singapore holding a share of 20%; India, on the other hand, has only a share of about US $100 million[4]. There are a total of 35 SRUs (Ship Repair Units) registered with the Director General of Shipping, Government of India, of which only 7 SRUs namely - Alcock Ashdown & Co Ltd, Chennai Port Trust, Cochin Shipyard Limited (CSL), Garden Reach Shipbuilders & Engineers Ltd. (GRSE), Hindustan Shipyard Limited (HSL), Mumbai Port Trust (MbPT) and Mazagaon Dock Limited (MDL) have been given the permanent approval as SRUs. The major SRUs in the country are CSL, HSL, Western India Shipyard, MDL, and ABG shipyard. Western India Shipyard is the only shipyard in India,

[4] Maritime Advisory

which is dedicated to ship repairing activity.

Since India is located strategically on the international trade route, the country can offer ship repair and maintenance services to ships plying from west to east in the trade route. This represents increasing market potential for the shiprepair business, as ship owners may prefer to repair their ships without deviating from their trade routes. Currently, shiprepair is primarily undertaken in Dubai dry docks, Singapore, Bahrain and Colombo dockyards. The shiprepair industry in India will also get business from the Indian shipping industry, which has about 50% of ships owned, older than 20 years. As the older ships require more frequent and extensive shiprepair and maintenance, Indian ship yards could gear themselves to service them.

5. ROLE OF SHIPPING IN MITIGATING CLIMATE CHANGE

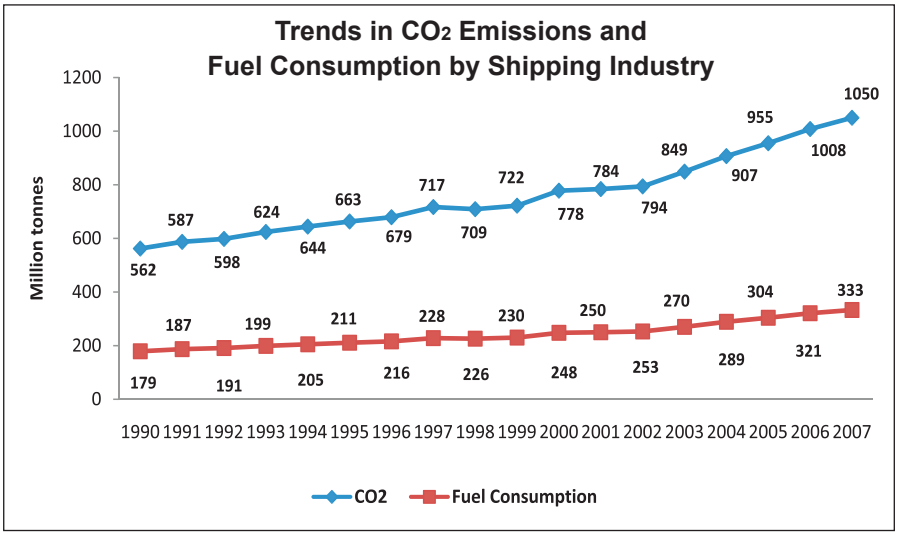
Over 90% of world's volume of trade is carried across the world's ocean shipping vessels. Like all modes of transportation, that use fossil fuels, ships produce carbon dioxide emissions that significantly contribute to global climate change and ocean acidification. Besides carbon dioxide, ships also release a handful of other pollutants like black carbon, Nitrogen Oxides (NO_2) and Nitrous Oxides (N_2O) that also contribute to the problem. Compelling scientific evidence and a better understanding of the economics of climate change have moved the issue to the forefront of the agenda in international shipping. One of the major differences in the shipping industry is that, unlike other sectors which contribute to climate challenge, shipping is one of the very few industries which may also get impacted by climate change, through associated factors such as rising sea levels, extreme weather events and rise in temperatures. Indian shipping industry, thus, has a significant role to play in addressing this formidable challenge.

According to International Energy Association, the CO_2 emissions and fuel consumption by the shipping sector have been increasing over the years owing to technological advancement and also growth in trade around the world. From a level of 562 million tonnes of CO_2 in 1990, the emissions have doubled to 1050 million tonnes in 2007. The fuel consumption by the shipping industry has also increased during this period, from a level of 179 million tonnes to 333 million tonnes. (Exhibit:11) However, compared to other sectors, shipping is the least environmentally damaging form of commercial transport, and compared with land based industries, is a comparatively minor contributor to marine pollution from human activities. According to a study (Second IMO GHG Study 2009) by International Maritime Organisation (IMO), shipping industry contributed 4% to the total CO_2 emissions during 2007, and comparatively lesser than the other sectors. (Exhibit: 11).

In the case of CO_2 emissions from International Marine Bunkers[5],

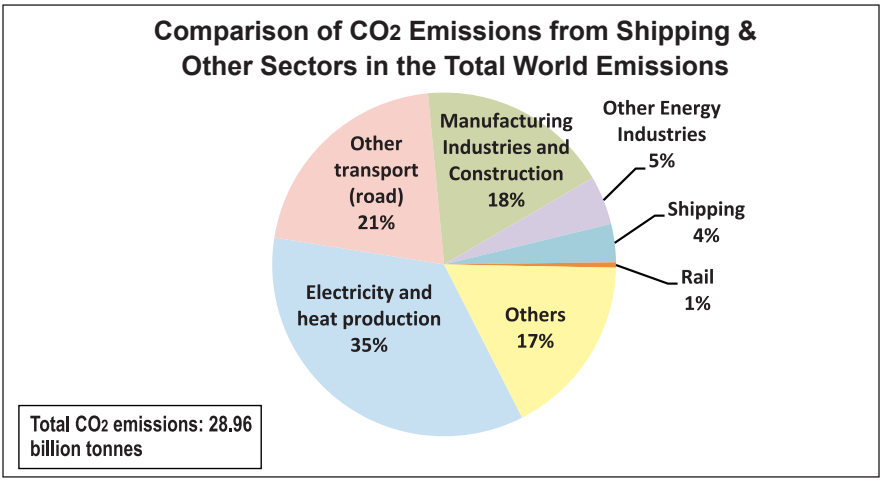
[5]According to International Energy Agency (IEA), international marine bunkers comprise of all fuels delivered to sea going ships of all flags, including warships and fishing vessels. Consumption by ships engaged in transport in inland and coastal waters not included. The revised 1996 IPCC guidelines used by UNFCCC have slight difference in the definition. According to UNFCCC international marine bunkers comprise seagoing ships of all flags that are engaged in international transport, whereas national navigation refers to fuel used for navigation of all vessels not engaged in international transport.

Exhibit : 11



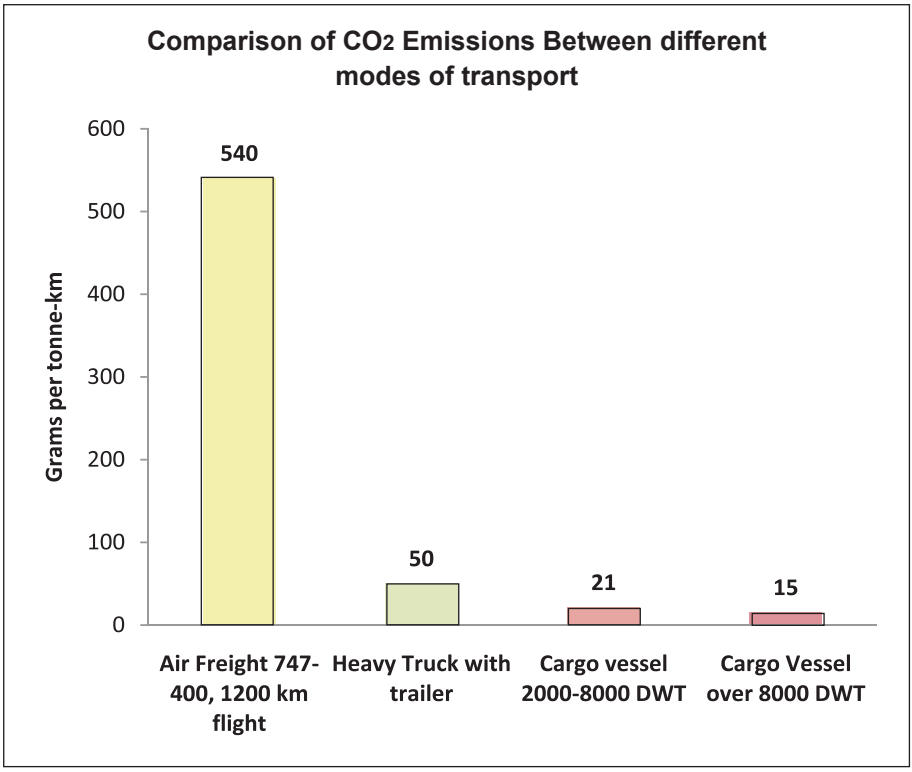
Source: IEA Statistics in CO2 Emissions from fuel combustion

Exhibit : 12



Source: Second IMO GHG Study 2009

Exhibit : 13



Source: : Report by International Chamber of Shipping

Singapore was having the highest emissions in 2007, constituting a share of 15.9% in the total emissions of CO_2 by international marine bunkers. This was because Singapore had the busiest marine bunkering centre, as also one of the world's top export refining centres. Exhibit 14 shows an increasing trend of CO_2 emissions from Singapore over the years to become the highest emitter in 2007. Singapore was followed by USA (15.7%), China (9%), Netherlands (8.3%) and UAE (7.2%). The share of UAE in the total emission remained almost the same over the years, and USA had shown a decline from being the highest emitter in 2007 to be replaced by Singapore. China and Singapore were the countries which had shown considerable increase of emissions over the years. India's share was very minimal owing to minimal bunkering activities in the country. Major refinery activities in all these countries are located near important international marine shipping routes and ports.

The wide-ranging impacts of climate change, including that arising out of maritime transport underscores

the need to integrate climate considerations into strategies for transport planning and development. Increasingly, it is being recognized that considered and concerted actions are urgently required to ensure effective control of greenhouse gas emissions and to establish the requisite adaptive capacity in the shipping industry, especially in developing countries.

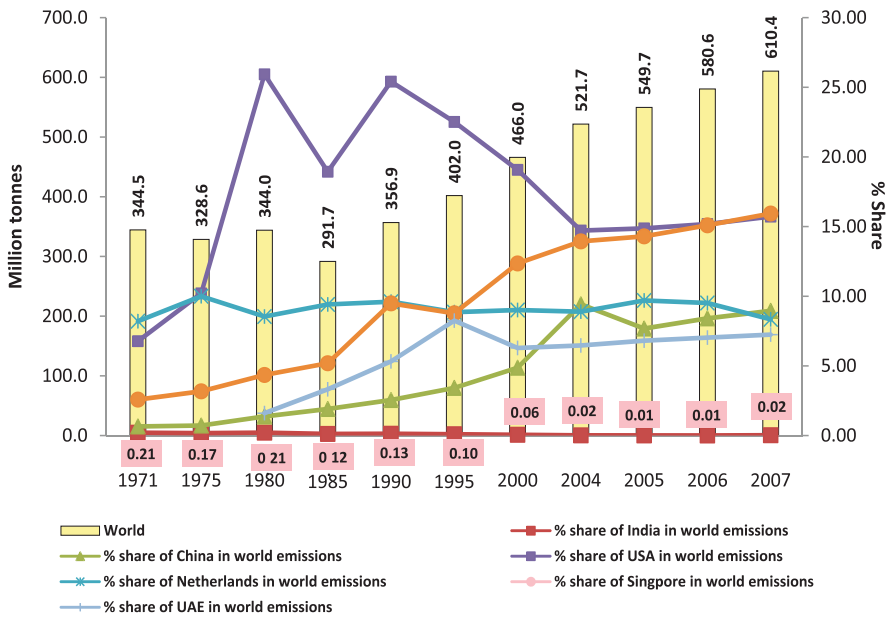
Recognizing the importance for the maritime transport sector of contributing to global efforts at reducing emissions of greenhouse gases, IMO has established a Marine Environment Protection Committee (MEPC), which is considering a number of mitigation measures aimed at reducing emissions of greenhouse gases from international shipping.

On the pollution front, International Maritime Organisation (IMO) has been tightening the levels of NOx (nitrogen oxide) and SOx (sulphur oxide) emissions from ships, and ship-owners are made to opt for reducing emissions by means of low sulphur fuels, and fixing of catalytic converters etc.

In shipping, greater speeds lead to more fuel consumption, and thus the emissions level also increase. Hence, experts opine that reducing the speed

Exhibit : 14

World's Largest Emitters of CO2 From International Marine Bunkers



Source: IEA Statistics in CO_2 Emissions from fuel combustion

of the vessel can help in fuel savings and thereby contribute to emissions reductions. According to IMO (International Marine Organization), speed reduction of 10% across global fleet would reduce emissions by 23%. During the spike in fuel prices in the year 2008, shipping lines have been voluntarily reducing their speeds.

Another suggestion mooted by IMO is to shift from heavy fuel oils to marine diesel oil and marine gas oil, which will help in reducing CO_2 emissions. Switching to low-sulfur fuels would reduce emissions of fine particles, including black carbon, as well as carbon dioxide, nitrogen oxides and nitrous oxide, and enable the use of other emissions control equipment that the sulfur levels in residual fuel would otherwise impede. Some of the other measures that are suggested include: 'weather routing', which is used to establish the shortest time route or the most economical route from a departure to arrival point by applying available information of the weather condition, viz. wind, wave and current; fleets should begin to implement longer-term measures to reduce pollution and thereby global warming, such as fuel efficient design of new ships and engines created specifically for slow steaming; the use of cold ironing at ports, where ships shut off their diesel engines and are connected to shore-based power for their electrical needs, which reduces direct emissions in port areas and allow energy needs to be met by low-emission sources, such as wind or solar energy[6].Some of the measures suggested by industry experts from OCEANA (international organization focused solely on ocean conservation) for conserving energy in shipping industry include:

- Improved hull design to achieve reductions in emissions through reduced fuel consumption;
- A bulbous bow can increase a ship's fuel efficiency by reducing its wavemaking resistance;
- A stern flap, a small plate that extends behind a ship's transom, lengthening the bottom surface of the hull, to reduce a ship's resistance and thus increase fuel efficiency;
- Applying special coatings to propellers to reduce fuel use by four to five percent, while simultaneously reducing maintenance requirements. The cost of coatings is likely to be paid back through saving in maintenance cost within a year.

Even though India, compared to other nations, has very less emissions from the shipping industry, the players should concentrate on reducing emissions on a sustainable basis. Indian ship building industry should also pay attention in building ships that will be fuel efficient and hence reduce emissions in the future. Shifting to LNG-based fuel vessels

6 Report on Shipping impacts on climate, Oceana

would also contribute to achieving lesser emissions from Indian shipping industry, as also in terms of reduction in fuel cost.

Given the critical role of maritime transport, efficient and well functioning ports and services are a necessity for all the activities ranging from production to export. Hence, cost efficient and sustainable international shipping services are important. Impact of climate change will vary from country to country; hence, actions should be tailored according to the circumstances of different countries and regions. Increased focus on responding to the climate challenge is important for the long-term prospects of the maritime transport sector, and more generally for global trade.

6. CHALLENGES AND STRATEGIES

CHALLENGES

Onerous tax regime

According to a Research Paper by Ministry of Finance, Government of India, the shipping industry is facing significant tax burden, though the tonnage tax has been introduced. The paper lists out taxes such as minimum alternate tax, dividend distribution tax, withholding tax liability on interest paid to foreign lenders, withholding tax liability on charter hire charges paid to foreign ship owners, seafarers taxation cost to employers, wealth tax, sales tax, VAT on ships and spares, lease tax on charter hire charges, customs duty on import of certain categories of ships, stores, spares and bunkers, and services tax. The Research Paper is of the view that such tax regime makes Indian ship owners to prefer to own vessels outside India.

Multiplicity of regulations

Shipping industry, catering to the demand across continents, is regulated by both domestic and international regulations. Internationally, the International Maritime Organisation has a set of rules to ensure safe, secure and efficient shipping, besides the labour standards required for seafarers worldwide. There are also international regulations on operations of ships, such as International Convention for the Safety of Life at Sea, International Convention for the Prevention of Pollution from Ships, Convention on the International Regulations for Preventing Collisions at Sea, International Convention on Loadlines, International Ship and Port Facility, Security Code, and International Safety Management Code. There are also international regulations for seafarers, such as International Convention on Standards of Training, certification and Watch-keeping for Seafarers, and ILO Merchant Shipping Convention.

UNCTAD initiated the development of the 1978 UN Convention on the Carriage of Goods by Sea (called the Hamburg Rules). The UN Convention on Code of Conduct for Liner Conferences (1974) provides for the national shipping lines of developing countries to participate on an equal basis with the shipping lines of developed countries. The UN Convention on International Multimodal Transport of Goods (1980) establishes a single liability organizational structure for the international carriage of given consignments of goods entailing use of more than one mode of transport. The UN Convention on

Conditions of Registration of Ships (1986) introduces new standards of responsibility and accountability for the world shipping industry and defines the elements of the genuine link that should exist between a ship and the state whose flag it flies. Some of the UN conventions have not come into force as there is a minimum requirement of number of contracting parties, as also a minimum share in terms of tonnage of the contracting parties.

Domestically, there are several acts that regulate the Indian shipping industry, such as: The Merchant Shipping Act (1958), The Inland Vessels Act (1917), The Coasting Vessels Act (1838), and The Multimodal Transportation of Goods Act (1993). Besides, there are also other statutes that govern the shipping industry indirectly. These include: The Indian Ports Act (1908), The Dock Workers (Regulation of Employment) Act (1948), The Seamen's Provident Fund Act (1966), and The Inland Waterways Authority of India Act (1985).

The wider regulatory framework makes stricter entry barriers into the industry, and adds cost to the compliance of such regulations.

Declining share of Indian shipping tonnage in India's overseas trade

Development of Indian shipping tonnage as given in Table: 16 shows that over the years the share of Indian shipping in overseas trade has declined. From 85% in 1981, it has declined to 32% in 2009. As on September 2010, India had 693 vessels under coastal trade, and 336 vessels under overseas trade with a total of 1029 ships in total. High transportation costs, port delays, poor turnaround time of coastal ships on account of over-aged vessels, and inadequate mechanical handling facilities are some of the other reasons for the declining share of Indian shipping tonnage in India's overseas trade. Continued slippages in the share of Indian shipping in the carriage of India's overseas trade is in turn causing a drain on precious foreign exchange in terms of payment of freight charges, which could otherwise be used for other high priority imports or for building up indigenous infrastructure. One of the major reasons for the declining share in overseas trade has been the age profile of the shipping vessels in India. Majority of the Indian shipping fleet contains ships which are over 20 years of age. This makes the Indian vessels non competent with the foreign vessels.

Apart from this, under this competitive global scenario, all countries face the challenge of continuously having to upgrade and modernize their maritime transport system in order to cope with the rapid increase in volume of cargo throughput. This requires the adaptation of new and improved technology in both the vessels as well as the landside operations of ports and land transport facilities. The increasing size and sophistication of ships and port facilities require heavy capital investment, which is one of the major problems faced by Indian shipping industry.

Table: 16

Development of Indian Shipping Tonnage								
Period	Coastal Trade			Overseas Trade			Total	
	Ships	Gross Tonnage	% share of no of ships in total	Ships	Gross Tonnage	% share of no of ships in total	Ships	Gross Tonnage
01.04.1981	59	249 633	15 1	331	5 494 887	84 9	390	5 744 520
01 04 1982	64	287 412	15 9	339	5 653 422	84 1	403	5 940 834
01 04 1983	69	340 904	17 2	333	5 664 004	82 8	402	6 004 908
01.04.1984	72	337 264	17 7	335	5 790 299	82 3	407	6 127 563
01.04.1985	99	342,336	23.1	329	5,976,193	76.9	428	6,318,529
01 04 1986	100	301 896	27 6	262	5 454 491	72 4	362	5 756 387
01 04 1987	120	413 632	32 1	254	5 346 961	67 9	374	5 760 593
01.04.1988	129	443,331	35.2	237	5,099,875	64.8	366	5,543,206
01 04 1989	146	455 244	37 5	243	5 247 461	62 5	389	5 702 705
01 04 1990	152	512 467	37 3	256	5 465 991	62 7	408	5 978 458
01.04.1991	163	523 733	39 0	255	5 515 587	61 0	418	6 039 320
01 04 1992	169	561 316	41 0	243	5 345 663	59 0	412	5 906 979
01 04 1993	187	640 115	42 8	250	5 633 142	57 2	437	6 273 257
01 04 1994	204	644 140	46 2	238	5 635 246	53 8	442	6 279 386
01 04 1995	214	693 267	47 5	237	5 861 882	52 5	451	6 555 149
01 04 1996	226	708 362	47 1	254	6 391 891	52 9	480	7 100 253
01.04.1997	233	693,331	48.4	248	6,221,749	51.6	481	6,915,080
01.04.1998	234	642 838	49 0	244	6 200 318	51 0	478	6 843 156
01.04.1999	250	656,174	51.0	240	6,212,021	49.0	490	6,868,195
01.04.2000	273	681 605	53 2	240	6 231 361	46 8	513	6 912 966
01.04.2001	316	697,242	57.9	230	6,119,357	42.1	546	6,816,599
01.04.2002	336	733 658	60 0	224	6 087 279	40 0	560	6 820 937
01.04.2003	425	805,262	69.0	191	5,372,297	31.0	616	6,177,559
01.04.2004	436	807 808	68 2	203	6 136 398	31 8	639	6 944 206
01 04 2005	458	810 591	66 8	228	7 202 364	33 2	686	8 012 955
01 04 2006	496	817 449	67 1	243	7 646 971	32 9	739	8 464 420
01 04 2007	530	842 032	67 3	257	7 753 153	32 7	787	8 595 185
01 04 2008	585	904 484	67 5	282	8 086 107	32 5	867	8 990 591
01 04 2009	627	962 922	67 8	298	8 320 217	32 2	925	9 283 139
01 09 2009	644	985 009	67 6	308	8 501 516	32 4	952	9 486 525
01.09.2010	693	1,008,571	67.3	336	9,099,495	32.7	1029	10,108,066

Source: Ministry of Shipping, Government of India

Declining cargo support

As per the existing Government policy, all import contracts are to be finalized on FOB (Free On Board) basis in respect of Government owned / controlled cargoes on behalf of Central Government Department/ State Government Department and Public Sector Undertaking under them, with a view to retain control over shipping arrangements within the country, and for providing cargo support to Indian flag vessels by providing first right of refusal. For meeting the above objective, the policy provides for centralized shipping arrangements through the Chartering Wing (TRANSCHART) in the Ministry of Shipping. As regards Chartering of vessel for movement of cargoes on private account the same are regulated through the Director General of Shipping by granting permission to private charters after taking into consideration the availability of Indian flag vessels by granting first right of refusal.

Data collated by Ministry of Shipping, Government of India, on Government owned / controlled cargoes handled by the chartering wing of Ministry of Shipping, shows that the share of Indian vessels in moving cargo under TRANSCHART has been declining over the years.

Cargo support in favour of national shipping is very important, since reservation of national cargoes for national fleet provides the national fleet with a certain degree of stability in an otherwise violently cyclical market.

Manpower shortage

One of the major problems faced by the shipping industry is the shortage of manpower. India is not able to provide adequate number of seafarers to man Indian flag vessels. This is mainly because not enough young people seem to find seafaring an attractive and appealing career with many of the officers preferring to sail on-board foreign flag vessels owing to discrepancy in taxation policies. Industry experts opine that over-regulation of the industry, owing to which people on board have to carry on lots of job responsibility in a very short time, was another reason. Increasing global outsourcing of crew has led to ships carrying a mix of people from different countries and this is making seafarers homesick. Earlier, one of the attractions of the career was a sailor could get to see the world. Such opportunities have been reduced with growing automation and shortening of turnaround time in ports. Many ports accommodate tankers at SBM (single-buoy mooring) facilities, which mean the vessel is miles away from shore.

The only way the shortage of seafarers can be managed is by creating a workplace environment that is attractive to applicants, and corporate values that are aligned to wider social interests. Though the International

Table - 17

Progress of TRANSCHART
Statement Showing Quantities of Import and Export of Government Owned Controlled Cargoes Handled by the Chartering Wing, Ministry of Shipping, Government of India

Year	Indian vessels	Foreign Vessels	Total	% share of Indian Vessels
1960	01.59	10.34	11.93	13.3
1970	16.12	26.27	42.39	38.0
1980	58.70	80.10	138.80	42.3
1990	124.00	62.70	186.70	66.4
1991	107.04	67.13	174.17	61.5
1992	94.72	76.51	171.23	55.3
1993	75.74	53.01	128.75	58.8
1994	71.18	53.45	124.63	57.1
1995	88.14	93.45	181.59	48.5
1996	100.28	95.56	195.84	51.2
1997	125.69	118.83	244.52	51.4
1998	130.95	87.87	218.82	59.8
1999	108.41	62.25	169.66	63.9
2000	59.28	131.92	191.20	31.0
2001	64.67	212.10	276.77	23.4
2002	155.36	328.30	483.66	32.1
2003	213.88	376.45	590.33	36.2
2004	243.80	423.17	666.97	36.6
2005	201.78	339.57	541.35	37.3
2006	172.38	226.75	399.13	43.2
2007	163.57	245.57	409.14	40.0
2008	135.95	23.14	339.09	40.1
2009	108.01	170.43	278.44	38.8

Source: Ministry of Shipping, Transchart Wing
Note: Includes Liner an Bulk cargoes

Labour Organization (ILO), the IMO (the IMO has designated 2010 as the "Year of the Seafarer"), and shipping industry organizations began helping to stimulate initiatives for recruitment into the industry a couple of years ago, it is considered that the ultimate solution lies with the industry itself.

High port calling costs

High port charges, like port dues, berth hire, pilotage and cargo-handling charges, in India are also affecting the Indian shipping industry. India is known to be having high ship calling cost as compared to other competitor countries in the region. According to industry sources, port calling costs for a ship that can carry 1,200 standard cargo containers is US $ 19,000 (₹ 8.4 lakh) at Kochi. The rate is US $ 3,300 in Colombo, Sri Lanka, and US $ 5,700 in Jebel Ali, United Arab Emirates. This makes the Indian ports non competitive compared to other foreign ports. High prices would normally deprive a port, a part of its patronage (vessels and cargo owners) and thus reduce demand for port services.

Congestion in port and connectivity with hinterland

Indian ports are the gateways to India's international trade, and are handling over 90% of foreign trade. Though the bulk of Indian trade is carried by sea routes, the existing port infrastructure is insufficient to handle trade flows effectively. The current capacity at major ports is overstretched. The major ports together have a capacity

Table: 18

Capacity Utilization at Major Ports			
Year	**Aggregate Capacity (In Million tonnes per annum, MTPA as on 31 March 2009)**	**Traffic (In million tonnes)**	**Utilization (In %)**
2001-02	343.95	287.59	83.6
2002-03	362.75	313.45	86.4
2003-04	389.50	344.80	88.5
2004-05	397.50	383.75	96.5
2005-06	456 20	423 57	92 8
2006-07	504 75	463 78	91 9
2007-08	532.07	530.53	99.7
2008-09	574.77	560.96	97.6

Source: Annual Report 2009-10, Ministry of Shipping, Government of India

of 574.77 million tonnes per annum (MTPA) handling traffic of 560.96 million tonnes during 2008-09, and the capacity utilization during this period was 96.7% (Table: 18). The capacity utiilisation at major ports has been increasing over the years owing to growing trade. During 2001-02 the capacity utilization was 83.6%, which has peaked to 99.7% during 2007-08, signifying increasing congestion in all the major ports.

The situation of limited capacity and high demand has inevitably resulted in port congestion. This results in overstretched berths leading to pre-berthing delays and longer ship turnaround time. Indian ports are not on par with some of the major international ports, though in the recent years, major investments in port modernization have been undertaken.

Another major challenge faced by Indian shipping industry is the relatively low hinterland connectivity with the ports. Indian ports are finding it difficult to handle additional traffic because of slow evacuation from ports. Therefore, it is important that connectivity of major ports with the hinterland is augmented not only to ensure smooth flow of traffic at the present level but also to meet the requirements of projected increase in traffic. Table : 19 shows the movement of cargo by major transport categories. It may be understood that hinterland connectivity is very low for most of the cargo handled in the country.

While the priority for improved port performance usually focuses on its waterfront and other landside development within the perimeter of the port, development of the supporting infrastructure in terms of road and rail connectivity also acts as an impetus and a catalyst to a superior port performance. Resulting from the dynamic growth registered by the ports in cargo volumes, enhanced port connectivity has become essential to facilitate an improved port performance.

STRATEGIES

Increasing investment in shipping industry

One of the major challenges faced by Indian shipping industry is the competition from foreign shipping companies which have structural and cost advantages. One of the disadvantages of Indian shipping, vis-à-vis its global counterparts, has been the average age of Indian fleet being higher than the world average. The world fleet average stood at 13.9 years in 2009, while in India, the average age of fleet was 15.2 years. Around 50% of operating fleets in India has an average age of over 20 years. This makes Indian fleets less competitive, as mostly younger vessels, which are below 15 years old, are often preferred, as they tend to provide high and more transparent collateral value catering to additional funding flexibility for management. Some estimates put the investment

Table: 19

Movement of Cargo by Major Transport Categories					
Cargo Group	Moved By (in %)				
	Pipeline	Railways	Road	Conveyors	IWT (Inland Waterways)
Crude Oil	100	-	-	-	-
POL	50	25	25	-	-
LPG	-	50	50	-	-
LNG	100	-	-	-	-
Thermal Coal	-	-	-	-	-
• Loading Port	-	100	-	-	-
• Unloading port	-	20	-	80	-
Coking Coal	-	100	-	-	-
Iron Ore	-	-	-	-	-
• Mormugao	-	20	-	-	80
• New Mangalore	100	-	-	-	-
• Tamil Nadu	-	100	-	-	-
• Andhra Pradesh	-	100	-	-	-
• Orissa, West Bengal	-	100	-	-	-
Food grains	-	70	30	-	-
Fertilizer Raw Materials	-	30	30	15	15
Other Dry Bulk	-	30	70	-	-
Other Liquid Bulk	20	20	60	-	-
Containers	-	45	55	-	-
Break Bulk	-	20	80	-	-

Source: Rail Road Connectivity of Major Ports, Report of Committee of Secretaries, GOI,

required for replacement of old ships in Indian shipping industry at about US $ 50 billion.

Shipping analysts feel that there is a pressing need for the Government to take on the role of a facilitator and create opportunities for a healthy business climate to attract fresh investments in the shipping sector. The old ships are being used by the ship owners primarily due to low investment capacity to buy new ships, and the tremendous shortage in the availability of ships. Usage of old ship is highly risky apart from being operationally more expensive. Further, several countries around the world have banned certain class of ships, as per their build and age, to be operated from their ports. A large part of the current order book of the shipyards would go towards replacing these old vessels and the incremental growth in capacities would be additionally catered by orders placed outside India.

It may be mentioned that shipping is a capital intensive industry; vessels constitute almost 90% of the fixed assets of a typical shipping company. Financing is considered as a specialty sector due to the unique charecteristics associated with the shipping industry, such as volatile markets, international service, mobility of assets etc. Globally, term lending, supported by collateral and mortgage, has been the most prevalent form of financial assistance for the shipping industry. Governments have also been providing significant financial support to their national shipping industries, either directly or indirectly. India too had a financial assistance scheme for ship building industry, which came to an end in the year 2007. Government is considering a modified support scheme for Indian ship builders.

Developed countries have evolved various innovative structured models for financing shipping industry. Norway has evolved the kommanditselskap structure (KS Model), which is a tax-deferral vehicle employed to finance ship acquisitions. The German adopted the 'Kommanditgesellschaft' (KG) model for financing of various projects including that of shipping industry. Both KS and KG models operate more or less on similar principles. Such models would be best suited for Indian shipping industry too. According to the Directorate General of Shipping, Government of India, innovative methods are required to raise the needed resources. One such suggestion was exploring the possibility of creating innovative financing models like German KG Model for shipping finance in India.

The German KG fund has a track record of around 40 years; it is a special corporate form of partnership where the investors are shareholders or corporate partners of the KG-funds. Profits from these funds are taxed only at personal level and also act as a tax saving instrument. According to the articles of partnership agreement, the KG-shareholders have their rights

of profit participation, information enquiries, direct company's control and voting right. However, they can assign part of these rights to a trust company in order to facilitate the fund's operation.

Some of the special features of the KG Model are:

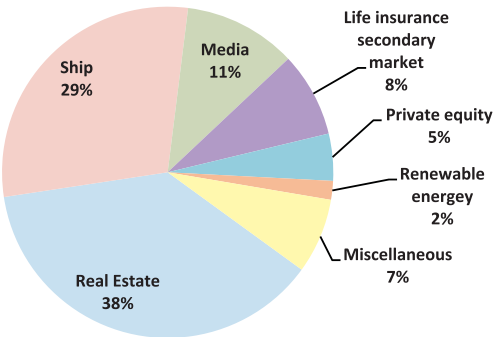
- It is closed-end fund bound to a fixed investment period with relatively long term investment horizon generally 5 to 15 years;
- The fund has no marked to market risks;
- The investors are high networth individuals from private households;
- The minimum subscription amount is around Euro 15,000 and above;
- KG fund, being a corporate entity can be designed for different business activities and tax schemes.

According to the articles of partnership agreement, the investors have their rights of profit participation, information enquiries, direct company's control, and voting right. Some of the sectors for which the KG funds were utilized are given in Exhibit: 15.

The main objective of the German KG model is the project financing by individuals participating in projects and no special corporate legislation is necessary to set up the model. The general concept of a KG is understood and accepted by private investors, financing banks, business partners and other stakeholders.

Exhibit : 15

Select Sectors Using KG Funds



Source: German Ocean Invest

Box - 3
Basic Structure of the KG Model[7]

- A KG has one general partner and one or several limited partners (who are the private investors). In most of the cases, the general partner of a German KG is a limited company. The limited partners may be participating in the KG directly or via a trustee. Often the KG has an advisory board representing the investors by monitoring the management of the general partner.

- By establishing a limited company as the general partner, the overall exposure of the investment is limited to the raised equity of the limited partners plus the equity of the limited company.

- For private investors, being limited partners of the KG, the risk of each investor is generally limited to the amount of his single investment.

- Each private investor is participating in the profit and losses of the KG, in proportion to his equity stake, compared with the total equity.

- The purchase of the assets acquired by the KG is partly financed by the equity provided by the investors and partly leveraged by bank loans.

- The KG receives income from lending, time chartering ships or making use of media rights or insurance policies. The KG is liquidated after the assets have been sold. Depending on the risk profile, the KG may invest in single assets or groups of assets. The investment of the limited partners is bound until liquidation (closed-end fund).

- The contributions to the fund will get tax exemption. The fund buys ships, and charters them out to experienced ship operators. The model works like a mutual fund but, instead of investing in equities, the fund directly buys physical assets. The investors will benefit both from the tax exemption and from the earnings.

[7]Report by Watson, Farley & Williams

The main attractions of the Germany's KG model are the benefits available under the German Tonnage Tax. The Tonnage Tax was introduced into the German Income Tax Act, in 1999, in order to promote standardization of the taxation of shipping companies within the EU. Under the KG model, the tax benefits from Tonnage Tax will be directed towards the individual investors, and the KG's income tax, which is based on net tonnage rather than corporate profit, will lead to a much reduced tax burden for the investors.

Compared to other investment avenues, investment in shipping sector is relatively safer because the operational risks get covered by a variety of maritime insurances like freight insurance, loss of hire insurance, etc. Moreover ship-investment generates cash flows only from leasing or sales, making the income structure quite simple and transparent.

Indian shipping industry does not attract much of the requisite investments, at present. The German KG Model would help the Indian shipping industry in mobilizing necessary funds for the shipping companies, as also would serve as an effective investment tool for high net-worth individuals, who would benefit from tax exemption and also earnings. The Indian shipping industry can also use this model for the purpose of purchasing LNG vessels as they are perceived to be relatively safe investments backed by long term charters.

Strengthening shipbuilding industry

Shipbuilding acts as a catalyst for overall industrial growth due to spin offs to other industries, including steel, engineering equipment, port infrastructure, trade and shipping. The dynamics of India's economic growth has created, and will continue to create a demand for new ships, most of which will have to be built abroad due to inadequate indigenous capacity. On the other hand, the benefits to Indian industry and potential for employment generation from shipbuilding and the associated ancillary industry would grow manifold, if India builds ships for meeting its entire tonnage requirements.

According to industry sources, shipbuilding nations around the world have been enjoying subsidy as high as 40% from their respective Governments on new ship-building cost. With such support not available for the shipyards in India, they are relatively uncompetitive in the global market place. Further, the existing ship building capacity is quite inadequate in the context of growing trade. Thus, in addition to Government support for ship building activities, it may also be essential for Indian shipyards to take certain concrete steps to improve their bottom line. Proper management of shipyards would improve their productivity and track record on quality and delivery of the vessels.

The shipyards are also required to adopt modern marketing techniques and strategies.

In both the naval and commercial sectors, mere increase in infrastructure will not ensure achievement of desired results. For integrated growth of the industry, there is also a need to create an R & D base, develop in house design capability, infuse new technology, develop skilled workforce, and adopt appropriate fiscal and regulatory measures, so that Indian shipbuilding can achieve credibility as a source for delivering quality ships in time.

An expanding shipbuilding industry would require a large trained work force, covering all areas in the techno-economic spectrum of shipbuilding. Universities for shipbuilding technology should be created, in collaboration with universities of leading maritime nations in order to provide well trained and capable human resource, covering the entire spectrum, from basic shipbuilding trade skills to high-end research.

Also single window clearance system needs to be brought into place for according clearances to new shipyard projects covering land acquisition, environmental clearance, power and water etc., so that project implementation is not delayed. The present requirement to obtain multiple clearances from various departments acts as a deterrent to attracting investment into this sector.

Some of the countries are reportedly extending fiscal / financial support, concessional credit, aiming at development of shipping activities. India too had provided financing support for ship building activities, which came to an end in 2007. It is reported that Chinese Government has introduced stimulus package for the shipbuilding industry. According to this stimulus package, the Chinese Government would, amongst other things, offer a 17% subsidy on prices for Chinese ship buyers until 2012, offer preferential interest rates to Chinese shipbuilders, raise China's shipbuilding capacity to 50 million deadweight tonnages by 2011, encourage banks to finance shipbuilding through issuance of USD bonds in order to minimize cancellations, and assist the two largest shipyards in China - China State Shipbuilding Co Ltd., and China Shipbuilding Industry Corp., to engage in mergers and acquisitions, encouraged by the creation of an investment fund and the injection of capital. It is reported that South Korea is also providing such incentives to the shipbuilding industry. In the above context, it may be appropriate to revive the scheme to support the Indian ship building industry to cater to the growing needs of India's international trade.

Developing adequate container freight stations

To increase the competitiveness of the country's exports in the global market, by reducing the transaction

Table: 20

List of Towns of Export Excellence				
No.	**Towns of Export Excellence**	**State**	**Product Category**	**ICD or CFS existing in region**
1	Tirupur	Tamil Nadu	Hosiery	Yes
2.	Ludhiana	Punjab	Woollen Knitwear	Yes
3.	Panipat	Haryana	Woollen Blanket	No
4.	Kanoor	Kerala	Handlooms	Yes
5.	Karur	Tamil Nadu	Handlooms	Yes
6.	Madurai	Tamil Nadu	Handlooms	Yes
7.	AEKK (Aroor, Ezhupunna, Kodanthuruthu&Kuthiathodu)	Kerala	Seafood	Yes
8.	Jodhpur	Rajasthan	Handicrafts	Yes
9.	Kekhra	Uttar Pradesh	Handlooms	No
10	Dewas*	Madhya Pradesh	Pharmaceuticals, Leather products	Yes
11.	Alleppey*	Kerala	Coir Products	Yes
12.	Kollam* (Quillon)	Kerala	Cashew Products	Yes
13.	Indore	Madhya Pradesh	Soya Meal and Soya Products	Yes
14.	Bhilwara	Rajasthan	Textiles	Yes
15.	Surat	Gujarat	Gems and Jewellery	Yes
16.	Malihabad	Uttar Pradesh	Horticulture Products	No
17.	Kanpur	Uttar Pradesh	Leather Products	Yes
18.	Ambur	Tamil Nadu	Leather Products	No
19.	Jaipur	Rajasthan	Handicrafts	Yes
20.	Srinagar	Jammu & Kashmir	Handicrafts	No
21.	Anantnag	Jammu & Kashmir	Handicrafts	No

Source: Department Of Commerce, Ministry of Commerce and Industry, Government of India

*Note : *Places which have ICD/CFS in less than 50 kms.*

** Dewas has in Indore*

** Alleppey has in Cochin*

** Kollam has in Kottayam*

cost (both absolute and implicit cost) in exports, the Government of India is laying stress on developing a number of container freight stations (CFSs) in the country. Modern and technologically advanced CFSs play a significant role in effective custom clearance activities in the port, and thereby shorten the turnaround time of ships. More CFSs need to be developed in the vicinity of export clusters across the country. Mapping of existing network of CFSs with the Towns of Export Excellence (Table: 20) shows that the CFS network needs to be strengthened further. It may be mentioned that Towns of Excellence are identified by the Ministry of Commerce and Industry, Government of India, if the value of production in the identified town exceeds ₹ 750 crore.

Integration of shipping and logistics

It is important to note that the economy today is experiencing more and more trade related activities. Hence, overall logistics development has become very essential, especially in the transportation sector. In order to be competent with the global majors, India needs to offer exemplary transportation services along with logistics services by integrating the two segments. Logistics is defined as the process of planning, implementing, and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption, so as to meet customer requirements. The integrated logistics value chain consists of three key links or segments which are transportation, warehousing and value added services.

Global shipping majors, like other segments of the conventional transport industry, are increasingly getting integrated with the emerging global logistics and supply chain activities, owing to both external and internal

Table: 21

Comparison of Logistics Cost		
Country	**Logistics Cost/ GDP**	**Share of 3PL in overall logistics**
India	13-15%	10%
U.S.	9.9%	57%
Europe	10%	30-40%
Japan	11.4%	80%

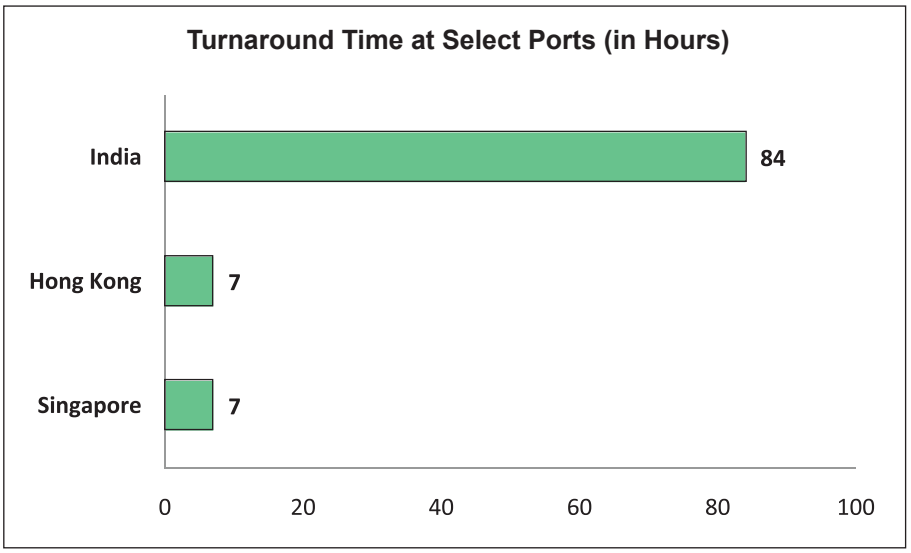
Source: Transport Corporation of India, KPMG Analysis
Note: 3 PL or Third party logistics providers typically specialize in integrated operation, warehousing and transportation services that can be scaled and customized to customer's needs based on market conditions and the demands and delivery service requirements for their products and materials.

dynamics. Many firms are entering into the enhanced canvas of offering logistics solutions, such as door-to-door delivery systems, integrating with rail/road haulage movements of cargo, customs brokerage, cargo consolidation, packaging/ re-packaging, and distribution services, thereby substantially consolidating their market position, and supplementing their ocean freight income. The global shipping industry is thus going through a major redefinition by undertaking logistic integration of their cargo operations.

In India, the market for logistics service providers is highly fragmented. While most of the existing players are performing various functions of logistics, provision of integrated logistics service for any kind of commodity has become the demand of the industry. The development of India's logistics companies has lagged behind their global peers, as is reflected in logistics costs of Indian companies being high at 13% of GDP (Table: 21), mainly due to lower outsourcing of logistics functions by corporates. The lower outsourcing, in turn, is due to a multi-layered tax system, lower outsourcing of manufacturing activities, and poor infrastructure.

It is due to the regulatory environment, extensive fragmentation and inadequate infrastructure that led to the inefficiencies in the logistics sector in India. Extensive fragmentation means the low capacity of the players to develop the industry as a whole. In India, inadequate port facilities have become a bottleneck to the

Exhibit : 16



Source: KPMG analysis

development of shipping. The major reasons for this have been the higher turnaround time at ports and high cost of administrative delays. According to an analysis by KPMG, the turnaround time at ports for India has been 84 hours when compared to 7 hours in countries such as Hong Kong and Singapore. (Exhibit: 16).

However, the Government and industry have been recognising logistics as strategic industry, as the backbone for continued growth. Key policies and infrastructural growth are facilitating shift in the logistics industry towards improved performance. With large vessels and more complicated network systems handling millions of boxes and parcels, shipping lines and logistics providers need to integrate and handle information. In addition, the evolving business landscape and increasing competition across industries, is creating the need for more efficient and reliable logistics services than what exist today.

However, traditional transport companies, courier companies and freight forwarders have emerged as integrated logistics service providers by leveraging on their existing infrastructure and experience. They not only provide the prime functions like transportation, warehousing, packaging, clearing and forwarding, but also provide value added services, such as order processing, documentation of sales tax and excise duty, invoicing, collection of bills, inventory management, and others. This kind of development is very important and useful for the shipping industry in particular.

With the strategies being taken up by few industrial houses to reduce operational costs and enhance value addition throughout the value chain, importance of integrated logistics has got a new dimension. Outsourcing of logistics service to specialized service providers, having considerable expertise in the industry, has become a trend. Overall, the role of integrated logistics services is expected to increase in the economy leading to betterment of value chain.

Creation of adequate warehousing facilities

Warehousing and storage is also an integral part of the logistics industry and plays a very important role in the shipping industry. Warehousing and storage has undergone lot of changes over the past decade and internationally warehousing has been classified into three types, viz., private warehousing, public warehousing and contract warehousing; amongst them contract warehousing is popular. Since ports act as an interface for seaborne trade movement, most of the major ports in India provide warehousing facilities to its users through its own warehouses, as also with those privately-owned warehouses located within or outside the port arena.

With an increasing number of ships calling at Indian ports, storage and warehousing facilities need to be

upgraded manifold. Domestic ports suffer from inadequate storage facilities, which result in delay in consignment delivery. In the coming days, the number of ships calling at Indian ports is likely to increase manifold. This will result in huge unloading of cargoes, which needs to be stored properly before being sent to the final destination. Therefore, a major investment opportunity lies in setting up warehouses that not only provide storage facilities, but also offer services in packaging of goods, so that they do not get damaged during transit.

Creation of multimodal logistics parks

Another trend has been the establishment of multi-modal logistics parks. These multi-modal logistics hubs have been planned to provide total transport solution and other value-added services to industry in and around the dedicated freight corridors. Each logistics park will have a container terminal for both domestic and international operations, mineral-handling terminals, cement and fertilizer terminals, automobile terminals, storage and distribution, as well as transshipment facilities, conventional, cold storage and product-specific warehouses as well as hotels, banks, food parks and entertainment centres. Such trend would open up new avenues and opportunities for manufacturers, retailers, suppliers, and logistic players to improve their supply chain. Service, cost and time advantage are direct benefits of such parks, and outsourcing of value-added services, which are traditionally performed in-house, would further increase the competitiveness. Logistic parks across the globe provide ample reference points and are excellent showcases against which India's logistics parks could be modelled. Indian railways have identified 11 sites in the Delhi-Mumbai corridor for developing multi-modal logistics park.

Tapping LNG business

In order to harness India's power and fertilizer projects, LNG (Liquefied Natural Gas) is being imported by India. If transportation of LNG is taken up by the shipping industry, it would provide significant volume of business for the shipping industry. However, many shipping companies may not have adequate resources to buy LNG vessels to engage in this business. According to industry sources, a LNG vessel costs around US $ 200 million; therefore, it is important for the Indian shipping companies to build strategic tie-ups with foreign counterparts so that they do not miss out this business opportunity.

It may be mentioned that the state-owned Shipping Corporation of India (SCI) has already started building strategic tie-ups through collaborative approach. SCI has joined hands with Mitusi Osaka Shosen Kaisha (OSK), a consortium in Japan, to build LNG vessel to serve India's needs. Even

the private companies have shown interest in LNG transportation. Although the Indian shipping companies are interested in LNG transportation, low level of experience and the volume of investment act as major hindrances. Hence, it is necessary for the industry to develop and explore new avenues to engage in such activities.

Bilateral shipping / cargo reservation schemes

Bilateral shipping arrangements are considered to be an effective tool to ensure cargo support to the Indian shipping companies. In this context, it may be mentioned that cargo support in favour of national shipping is prevalent, since reservation of national cargoes for ships carrying national flags provides a certain degree of stability in an otherwise violently cyclical market. Such support enhances the competitive strengths of national shipping companies, and thereby contributes to the growth of national fleet. According to Office of Maritime Administration of US Department of Transportation, USA is providing cargo preference to US national flags, of Government-impelled cargo, with 100% preference for military cargo, and export cargo

Box : 4
India's Offer under WTO's Maritime Transport Services

The Commitments by India under Maritime Transport are made in accordance with the General Agreement on Trade in Services. All commitments are subject to domestic law, entry requirements, rules and regulations and the terms and conditions of the Directorate General of Shipping, Reserve Bank of India, or any other competent authority of India. For supply of Maritime Auxiliary Services, through commercial presence under Mode 3, it will be only through Indian registered company.

Under limitations to market access, India has offered that under Liner Shipping, atleast 40% of cargo carried by liner shipping companies must be reserved for Indian flag ships. Preference will be given to Indian flag vessels (for dry, liquid, and gas other than LNG) for Government cargoes, Government owned / controlled cargo. Indian flags will have the first right of refusal for carrying such cargo and only thereafter can foreign flag ships be allowed to be in-chartered / taken on international rental basis.

Source: *India's Revised Offer dated August 24, 2005; Ministry of Commerce and Industry, Government of India*

supported by US-Exim Bank; 75% preference for agricultural cargo (governed by the Food Security Act of 1985); and 50% Civilians Agencies Cargo (governed by Cargo Preference Act of 1954).

India too is providing cargo support to Indian ships, through TRANSCHART, for movement of Government owned/ controlled cargo. However, there has been decline in support provided through TRANSCHART, as, pursuant to trade liberalization, there has been decanalisation of imports of various items, which reduced the quantum of such support to Indian ships. According to a study by UN-ESCAP, the lower share of Indian shipping in the carriage of country's overseas trade is due to the terms of trade being used by India's trading partners, who by and large have been entering into shipping contracts favourable to them. In the above context, Government may consider including cargo reservation schemes in the negotiations under the bilateral/ regional trade agreements.

CONCLUSION

The Indian shipping industry has been growing in the last two decades; however the competitive position of the Indian shipping industry needs to be strengthened. Government of India has been supporting the growth of the industry through various measures. Government has a role to develop Indian port sector, which would contribute to the growth of the Indian shipping. The players in the shipping and associated sectors have also a role to play for the development of the industry, for it to carve a niche in the world shipping map. Indian shipping industry needs to team up with foreign consortium of fleet owners to tap the growing LNG transportation business. Indian ship builders must focus on benchmarking their own processes to international standards to improve the efficiency, delivery time, price and quality. Innovative financing measures such as German KG model may be adopted to encourage fund flow into this sector. It is therefore essential for India to put together all such strategies, that would lead to optimal and effective contribution towards developing the shipping industry.

ANNEXURE 1: INDIAN SHIPPING : TOP TEN PROJECTS

Company/Project/Locations	Product/Land Area	Capacity	Unit	Cost (Rs Cr)	To be Completed by
India Gateway Terminal Pvt. Ltd. Vallarpadam Intl. Container Transshipment Terminal Project Cochin, Ernakulam, KER	-	-	-	2,118.00	June 2010
Paradip Port Trust Harbour Deepening Project Paradip, Cuttak, Orissa	Capesize vessels Handling capacity upto Depth of Entrance Channel Depth of Approch channel	1,25,000 4.0 3.7	Dwt Metres Metres	253.36	August 2010
Dhamra Port Co. Ltd Dhamra Doshinga Port Phase I Project Dhamra, Kendrapara, ORI	Port Navigational Channel Draught Rail Connectivity	27.0 18.0 62.0	Milliontonnes Metres Kms	3,239.00	August 2010
Hindustan Petroleum Corpn. Ltd Vizag S B M Project Vishakhapatnam, Visakhapatnam, AP	Single Buoy Mooring	3,00,000.0	Dwt	643.46	September 2010
Shipping Corpn. Of India Ltd Two LR-II Crude Tanker Acquisition Project Multi Locations, Multi Region, MR	LR-II Crude Tankers	1,05,000.0	Dwt	586.58	November 2010
Cochin Port trust **Vallarpadam — Kochi capital dredging project** **Kochi, Ernakulam, Kerala**	Capital dredging	-	-	544.00	September 2010
Gujarat Maritime Board Chhara Port Project Chhara, Gujarat, GU	Port development	8.0 2.0	MTPA Numbers	750.00	December 2010
Ennore Port Ltd Coal Terminal Project Ennore. Thiruvallur, TN	Ennore Coal Terminal	8.0	MTPA	400.00	September 2010
Dholera Port Ltd Dholera Port Project Dholera, Ahmadabad, GUJ	Port Draft Water Front Jetties	6.0 18.0 6.0 8.0	MTPA Metres KMS Numbers	3000.00	March 2011
Greatship (India) Ltd. Thirteen Offshore Supply Boats & an Oil Drilling Rig procurement Project Multi Locations, Multi Region, MR	Supply Boats Vessels Jack-up Rig- Greatdrill Chitra AHTSV-Greatship Aarti MPPSV/MPSV-Greatship Maya MPPSV/MPSV-Greatship Mamata	13.0 1.0 1.0 1.0 1.0	Units	3500.00	March 2011
Mercator Mechmarine Ltd. Vansi Borsi Shipbuilding Yard Project Vansi Borsi, Surat, GU	Shipyard	200.0	Acres	2,000.00	Mar 2011
Garware Offshore Services Ltd. Large Platform Supply Vessel (PSV) Vessel Procurement Project Multi Location, Multi Region, MR	Large Platform Support vessel	4,500.0	Dwt	275.00	Oct 2010
Modest Infrastructure Pvt. Ltd. Bhavnagar Shipbuilding Project Bhavnagar, Gujarat, GUJ	Bhavnagar Shipyard	-	-	500.00	Feb 2011

Source: Indian Industry: A monthly review, March 2010

ANNEXURE 2: THE IMO PACKAGE FOR REDUCING CO_2 OF SHIPPING INDUSTRY

The IMO Marine Environment Protection Committee has already developed a package of measures for reducing shipping's CO_2 emissions, with an agreed timetable for adoption. Inter alia, these include:

- A system of energy efficiency design indexing for new ships (similar in concept to the ratings applied to cars and electrical appliances);

- A template for a Ship Energy Efficiency Management Plan (SEEMP) for use by all ships. The SEEMP allows companies and ships to monitor and improve performance with regard to various factors that may contribute to CO_2 emissions. These include, inter alia: improved voyage planning; speed management; weather routing; optimizing engine power, use of rudders and propellers; hull maintenance and use of different fuel types;

- The ingredients for possible economic measures that could be applied globally to shipping in order to encourage emission reduction;

Governments at IMO have also agreed key principles for the development of regulations on CO_2 emissions from ships so that they will:

1. Effectively reduce CO_2 emissions;
2. Be binding and include all flag states;
3. Be cost effective;
4. Not distort competition;
5. Be based on sustainable development without restricting trade and growth;
6. Be goal-based and not prescribe particular methods;
7. Stimulate technical research and development in the entire maritime sector;
8. Take into account new technology;
9. Be practical, transparent, free of fraud and easy to administer.

ANNEXURE 3: RELEVANT POLICIES CURRENTLY UNDER CONSIDERATION AT IMO'S MEPC

Relevant policies currently under consideration at the Marine Environment Protection Committee of IMO include:

- Policies aimed at reducing maritime emissions irrespective of the ship design, operation or energy source e.g. market-based instruments such as emissions trading;
- Policies aimed at improving the operational fuel efficiency of the fleet (eg. market based instruments such as the Energy Efficiency Operational Indicator (EEOI) levy, the Energy Efficiency Design Index (EEDI) levy/benefit scheme; command and control instruments such as the mandatory EEOI limit, mandatory EEOI reporting, and the mandatory ship efficiency management plan (SEMP); and voluntary measures such as voluntary agreements to improve EEOI and to implement SEMP);
- Policies aimed at improving the design efficiency of fleet (eg. market based instruments such as the EEDI levy, the EEDI levy benefit scheme; command and control instruments such as the mandatory EEDI limit for new ships; and voluntary measures, such as voluntary agreement to improve EEDI and voluntary standards;
- Polices aimed at reducing fuel life cycle carbon emissions, such as policies that favour the use of natural gas or biofuels (eg. market based instruments such as differentiated levy and command and control instruments such as fuel life-cycle carbon emissions standard and a biofuel standard).

ANNEXURE 4: BUSINESS PARTNERS INVOLVED IN ESTABLISHMENT OF KG FUND

A number of business partners are involved in the establishment of a KG-fund. In case of a shipping fund, they are:

- **KG-Investors:** The KG-Investors subscribe fund's shares trough a trust company or by themselves. They are the ultimate beneficial owners of the KG-fund;

- **KG-House:** The KG-House is the fund's issuing house. Its business includes fund's conception, projection, marketing and roadshow activities. The KG-House is also responsible for the acquisition of funds' equity shares;

- **The Trust:** The Trust takes the responsibility of funds administration. During the fund's life-span, the trust company informs the KG-investors about the fund's performance;

- **The Bank:** The ship financing bank provides mortgage loans, bridge-financing and other loan-related currency- and interest swap businesses as well as bank guarantees to the KG Fund;

- **Supervisory agent for the disposition of fund's capital:** External tax-consultants or layers can be independent supervisors that have the assignment to review the disposition of funds capital;

- **Examiner of the funds' prospectus:** Before the fund's prospectus is issued by the KG-House, an independent agent will check the prospectus about its completeness, clearness, trueness and plausibility. The purpose of the prospectus' examination is to disclose adequate information of the fund's risk and chance in its investment return.

Source: German Ocean Invest

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