

Special Report 1

Multi-Modal Traffic Growth and Potential

1.1 BACKDROP

Multi-modal or inter-modal transport refers to door to door movement of goods by a single transport operator. It involves the transportation of freight in a container or a vehicle using multiple modes of transportation - rail, ship or truck, without any handling of the freight itself when changing modes. Cargo is thereby less prone to damage and pilferage during transfer and mechanized handling also minimizes costs of all intermodal transfers. The transport of goods from origin to destination becomes seamless and the customers can avail of door to door deliveries. Multi-modal transportation thus optimally uses each mode's specific advantages to ideally deliver the lowest cost transportation service. It implies the availability of different transport networks - road, rail, coastal shipping and airways, facilities for efficient multi-modal transfers, and service providers who take responsibility for deliveries from door to door.

While containers have been in use since the 1960s and standardized ISO containers since the 1970s, the phenomenal growth of container traffic in international trade in the last 10 years is due both to expansion of trade, removal of trade barriers and great improvements in information and communication technology in this period. In India, containers of imported cargo were first moved inland by Railways in 1981 (though containers were first handled at Indian ports much earlier in 1973). In 1988, CONCOR was set up and it took over the existing 7 ICDs of the Railways, increasing them in number to 57 in 2008-09. Movement of containers inland, as Indian industry is not concentrated just along the coasts (as in China) is a cost imperative that is crucial for India's foreign trade and with globalization also for all domestic manufacturing. It is not sufficient in this context to develop road, rail and coastal shipping as separate networks, but to have a sufficient intermodal connectivity which can facilitate multi-modal transportation. The adequacy of our modal networks and services has to be tested against this new transportation demand.

1.2 UNDERSTANDING THE NEW TRANSPORTATION DEMAND

Containers were actually an innovation that spread from maritime transport to inland transport after 1966 when the first transatlantic container service was introduced, the earlier attempts at introducing piggyback trailer on flatcar (TOFC) services by the railways in the US not being commercially successful. In the US, where containers first traveled long distances inland, it was the deregulation of railways in the 1980s which gave the railways the freedom to offer services in conjunction with road and shipping, for door to door deliveries of long distance cargo. In fact, the addition of the inland component completed the standardization process for the container. The disadvantage of few ports offering container services was set off by low cost integrated inter-modal networks to carry double stacked containers inland.

Expansion of containerization worldwide both facilitated and was driven by the removal of trade barriers in the 1990s. The savings in time and cost possible because of the new transport technology are especially significant in the context of the present global markets, where worldwide net-centric logistics and supply chains determine the cost competitiveness of the

final finished product¹. With the removal of trade barriers, transportation is the most significant part of production costs and distribution logistics. A Consignee prefers to deal with one multi-modal transport operator who arranges firstly, the delivery of goods from door to door and secondly, assumes responsibility throughout irrespective of whether this is the party that carries out the different stages of transport. There is a high premium on reliability, safety, security and frequency of deliveries. Transport components have increased in comparison with inventory components in production costs because of greater dependability and just in-time delivery. Starting in the corporate world of the US, with firms like Federal Express who created a worldwide network facilitating real time transactions, the modern business has a production chain corresponding with a complex logistics chain straddling continents.

A transportation system in the new business environment has to transform itself from a static network that links origins and destinations, into a flexible system able to quickly adapt to constant fluctuations of origins and destinations.

The transportation requirements for the new business environment are listed as follows²-

- ◆ Short door to door lead time,
- ◆ High frequency of transport services,
- ◆ Easy access to a large number of destination terminals for each originating terminal
- ◆ Great flexibility of services,
- ◆ Maximum volumes and weight of load units,
- ◆ Opportunities for services for less than container load shipments, and
- ◆ Minimizing freight damage vulnerability.

To minimize costs for providing such services, aggregation or bundling becomes necessary. However, transshipment from these nodes would also add to costs and time, and also result in increasing total distance moved compared to a direct route. Optimum locations, best management practices and flexibility would ensure the viability of the mode.

While developing countries need to improve infrastructure for inland connectivity to participate in international trade and benefit from the global market, the developed countries too are viewing the expansion of trade and the consequent increase in demand for reliable, frequent deliveries of smaller volumes over long distances, as a challenge to the existing norms in transportation. For these countries an expanding transportation demand also compels looking for new solutions that will reduce costs, energy consumption, congestion and environmental damage in view of the ever increasing share of road transport³.

1.3 THE CONTEXT OF GLOBAL DEVELOPMENTS

The expansion of this new transportation demand is driving transport infrastructure growth and new transportation planning in many parts of the world.

The US leads the world in international trade, with the highest volumes of imports being received from China. The major traffic flows for inter-modal traffic within the US are from west to east from the container ports on the west coast to the markets on the east coast. Though, the share for inter-modal traffic for rail in terms of tonnage is 16 %, whereas for bulk traffic it is 70

¹ Dynamics and spatial patterns of inter-modal freight transport networks, Handbook of logistics and Supply Chain management, 2001, by Priemus, Hugo and Rob Konings, Elsevier Science Ltd.

² Dynamics and spatial patterns of intermodal freight transport networks, Handbooks of Transportation Series, Vol. 2, 2001, by Hugo Priemus and Rob Konings.

³ Development of Multi-modal transport and Logistics Services, 15th July 2003, report by UNCTAD Secretariat.

%, this rail share is critical for the US economy⁴. The Panama Canal restricted the size of ships that could reach the east coast, and now the west coast ports face congestion with waiting time increasing for container ships. Along with US ports, rail and road capacity are now facing capacity shortages with expanding trade with China. Transshipment hubs are anticipated to come up in the Mediterranean area catering to European and the US east coast ports.

Europe was the earliest to develop all transport modes, from maritime, inland waterway, to road and rail. Since the 1970s containers were moved inland by barges to inland commercial centers and river ports like Rotterdam and Antwerp, and thereafter by road. Today, containerized cargo comprised 16% of freight handled at ports, after liquid bulk (41 % of freight handled at ports), and dry bulk (26 % of freight handled at ports). Economic growth resulted in increase of freight traffic, but annual increases in road freight are greater than volumes moved over inter-modal systems that is rail or coastal shipping⁵. For inland freight, the modal shares are 76.5 % for road, 17.6 % for rail and 5.9 % for inland waterways⁶.

Most inland movement of freight is concentrated on roads, already congested along important routes especially where there is no connectivity of inland waterways or coastal shipping, because despite the progress in European unification, only the road and inland waterways network has been unified. As Europe faces an expansion in transport demand with globalization and the expansion of the European Union eastwards, there is increasing concern over congestion, environmental pollution and energy conservation, which have resulted from the expansion of road traffic. A more efficient use of each mode and inter-modal connectivity for use of each mode in combination was highlighted in the 2001 European White paper on Transportation. The major challenge for European transport, along with capacity expansion for each mode, is to unify the rail freight market in order to improve inter-modal options, reduce congestion on European roads and environmental pollution. This requires technological up-gradation, standardization of rail network, development of high density rail freight corridors and improved facilities for intermodal logistics.

The major factor behind the growth in international trade and increase in containerized freight transport in the US and EU is the emergence of China as a major trading partner of the US and Europe in the last 5 to 6 years. In China itself, industrial development started along the east coast where shipments were containerized and transported to the ports by barges and coastal ships. Transport overseas was made possible at low cost in large container ships that crossed the Pacific to the US west coast leading to the development of the west coast ports in the US⁷. As a result of this pattern of development, economic growth in China is concentrated on the east coast. In order to have a more balanced growth, the Chinese “go west” policy includes the development of highways and railways to spread development into the interior. However, Chinese railways continue to be primarily bulk goods carriers and inter-modal transport, like industrial development has not penetrated inland to a large extent.

1.4 TRENDS IN CONTAINER TRAFFIC IN INDIA

The present container freight flows are analyzed in this section, with a view to assessing both the increase of total traffic of Exim traffic at the ports, and the potential growth that can result in future. This stream of traffic has increased on an average by 12.6 % percent per year since the 1990s when economic liberalization was initiated, and a high rate of growth is projected on the basis of the trend seen in the last few years.

⁴ Freight –Rail Bottom Line Report, 2002, by American Association of State Highway and Transportation Officials

⁵ Challenges for Transport Policy in Europe: Supporting Inter-modality, 2002, by Jack Short, Secretary, European Conference of Ministers for Transport.

⁶ Transport Section in EUROSTAT

⁷ Freight Mobility and Intermodal Connectivity in China, 2008, Report of study sponsored by American Association of State Highway and Transport Officials.

ISO Containers

- ◆ Total cargo handled at Major Indian Ports in 2007-08 was 519,314* thousand tonnes, of which 92,269 thousand tonnes, comprising 17.77 % of total traffic was containerized.
- ◆ Total traffic handled at intermediate and minor ports was an additional 203,621 thousand tonnes in 2007-08, of which 11,052 tonnes or 5.43 % was container traffic. Thus, of total traffic of 722,935 tonnes handled at ports, containerized traffic was 103,321 thousand tonnes or 14.3 %.
- ◆ Out of the 12 major ports, only 7 ports have substantial container traffic exceeding 2000 thousand TEUs, and only 4 major ports have a more than 5 % share of container traffic of total container traffic handled. These are JNPT, Chennai, Kolkata, and Tuticorin. JNP handled 51,923 thousand tonnes in 2007-08 of a total container handling of 103,321 thousand tonnes for all Indian major and minor ports, i.e. more than 50 % of total container traffic of India. Chennai handled 18,050 thousand tonnes in 2007-08, i.e. 17.46 % of total container traffic, and Tuticorin, and Kolkata, 5630 thousand tonnes, and 5139 thousand tonnes, respectively.
- ◆ Minor ports had a substantial share of container traffic specially the GMB ports of Pipavav and Mundra. In 2007-08 they contributed 10,746 thousand tonnes of container traffic and their combined share of container traffic was 10.4 % of total container traffic, and next only to the share of JNPT and Chennai.
- ◆ Container traffic is concentrated in few ports, although most ports handle some container traffic. The share of container traffic to total cargo in 2007-08 varied at the major ports, from less than 5 % in the case of Paradip, Vishakapatnam, New Mangalore, and Mormugao, Kandla, and Mumbai to over 20 % in the case of Cochin, Tuticorin, Chennai, Kolkata and specially JNPT, where more than 93 % of traffic handled is containerized.

CONTAINER TRAFFIC AT MAJOR PORTS : 2007-08

(In 000' Tonnes)

PORTS	TOTAL TRAFFIC*	CONTAINER TRAFFIC	% SHARE CONT. TRAFFIC TO OVERALL CONT. TRAFFIC	% SHARE CONT. TRAFFIC TO TOTAL TRAFFIC AT PORT
VISAKHAPATNAM	64597	1133	1.2	1.8
CHENNAI	57154	18050	19.6	31.6
KANDLA	64920	2617	2.8	4.0
MUMBAI	57038	1632	1.8	2.9
JNPT	55838	51923	56.3	93.0
HALDIA	43588	2397	2.6	5.5
PARADIP	42438	54	0.1	0.1
MORMUGAO	35128	135	0.1	0.4
NEW MANGALORE	36019	320	0.3	0.9
TUTICORIN	21480	5630	6.1	26.2
COCHIN	15810	3239	3.5	20.5
KOLKATA	13741	5139	5.6	37.4
TOTAL	507751	92269	100.0	

*Ennore Port does not include container traffic.

- ◆ Growth of container traffic at major ports was at an average rate of 15.84 % from 1993-94 to 1997-98, at the rate of 14.90 % between 1998-99 and 2002-03, and at the rate of 12.54% between 2003-04 and 2006-07. With the emergence of Mundra port in 2003-04, the share of minor ports has gone up. The growth, including both major and minor ports in the last 5 years from 2001-02 to 2007-08 is almost 19 %. Significantly, the rate of increase has gone up between 2005-06 and 2006-07 to over 20 % and in 2007-08 to over 25 %.

CONTAINER TRAFFIC AT MAJOR & MINOR PORTS: 2007-08

(In 000 Tonnes)				
YEAR	MAJOR PORTS	MINOR PORTS	TOTAL	GR./YEAR
2001-02	37230	*	37230	BASE YEAR
2002-03	43672	*	43672	17.30
2003-04	51002	*	51002	16.78
2004-05	54761	*	54761	7.37
2005-06	61980	3929	65909	20.36
2006-07	73437	7652	81089	23.03
2007-08	92269	10746	103015	27.04
Avg. Gr./Yr				18.9
CAGR				18.5

* Official Figures for these years were not available

- ◆ The share of container traffic to total traffic at major ports has also increased from 8.2 % in 1995-96 to 18 % in 2007-08.

The above overview shows that container traffic is concentrated in two major ports and two minor ports, but there is substantial share of container traffic in total traffic at some other ports like Tuticorin, Cochin and Kolkata. It is significant that the share of container traffic in total traffic at ports has increased from 8 % to 18 % in the last ten years. The rate of growth of Exim container traffic in the last few years indicates the urgent necessity of catering to this increase in traffic. CONCOR moved 1716 thousand TEUs (22,811 thousand tonnes) of Exim\ISO containers, out of total of 6069 thousand TEUs (81,089 thousand tonnes) of container traffic, handled at Indian ports in 2006-07. However, CONCOR's share of ISO containers represents only 28 % of containers that were transported inland either after arrival or before dispatch overseas.

DSO Containers

- ◆ Domestic container movement was started by CONCOR in the year 1991, but this was for bulk commodities for which wagons were not available. Promotion of Container traffic with the purpose of consolidating piecemeal cargo and giving door-to-door service was started when the Domestic Division of CONCOR was set up in 1997. At present there are only 5 exclusively domestic terminals and 20 combined terminals handling both Exim and domestic containers; whereas there are 41 container depots dealing with Exim traffic Domestic container traffic was only 23 % of ISO traffic of CONCOR in 2006-07.
- ◆ Growth of domestic containers vis a vis Exim containers is shown in the following table. The low rate of growth is indicative of the neglect of this traffic by the agencies involved in container transport, rather than a reflection of potential as road traffic figures of non-bulk high value commodities show.

COMPARATIVE GROWTH OF INTERNATIONAL & DOMESTIC CONTAINER TRAFFIC OF CONCOR				
(FIGURES IN TEU'S)				
YEAR	INTERNATIONAL	GROWTH	DOMESTIC	GROWTH
2000-01	753368	Base year	291360	Base year
2001-02	905058	20.1	326775	12.2
2002-03	1031925	14.0	351238	7.5
2003-04	1251618	21.3	350501	-0.2
2004-05	1376516	10.0	351460	0.3
2005-06	1556715	13.1	373848	6.4
2006-07	1715661	10.2	389605	4.2
Avg. Gr./Year		14.8		5.0

Rail and Road Shares of Container Traffic

ISO Container

Of the total of 81,089 thousand tonnes container traffic handled at major and minor ports in 2006-07, rail share in inland movement, both originating and terminating, was 16,099 thousand tonnes or 19.85 %. The table below shows the share of rail container movement in total container traffic at each port for 2006-07. No rail movement of containers is shown from New Mangalore, Mormugao and Tuticorin and Kandla ports.

(In numbers)

PORTS	TOTAL CONT. TRAFFIC HANDLED AT PORT	TOTAL CONT. TRAFFIC HANDLED BY RAIL	% OF RAIL PERCENTAGE OF RAIL MOVEMENT OF CONT. HANDLED AT PORT
JNPT	40810000	12274476	30
CHENNAI	14166000	921940	7
KOLKATA	4003000	213690	5
COCHIN	2949000	127889	4
KANDLA	2778000	--	0
MORMUGAO	127000	---	0
VISHAKAPATNAM	799000	39301	5
NEW MANGALORE	265000	--	0
MUMBAI	1580000	6787	0
TUTICORIN	4011000	--	0
PARADIP	31000	185	1
HALDIA	1918000	156	0
MUNDRA & PIPAVAV	7652000	2515008	34
TOTAL	81089000	16099432	20

It can be seen from the above table that only JNPT and Mundra and Pipavav have a rail share of at least 30 %. The other ports have a very low share of rail movement of containers, which could be the result of several factors, for example shorter lead distances to and from inland destinations, low volumes insufficient for introducing container train services or the lack of a two-way traffic which only can justify carriage of containers by rail, in the present pricing scheme. The development of rail infrastructure for freight transport would generate more traffic.

CONCOR's share includes the rail share, together with a much smaller road volume representing container movement from and to ICDs close to Bombay in the Western Region. While CONCOR's share of 28 % of containers handled at ports represents mainly rail share, the remaining over 70 % containers represent short or long distance road transport, for consignees within the hinterland and more distant locations.

DSO Container

As per 2007-08 Railway data for Containers moved, 20.90 thousand tonnes (76.56%) of container traffic comprised of Exim or ISO containers from and to ports, and 6.4 thousand tonnes (23.44 %) comprised DSO containers. Road share of domestic container movement for CONCOR is negligible.

Origin Destination Flows Of Rail Container Data

As per the railway data, the main origin destination flow of ISO containers is between

- ◆ ICDs of the northern, western and central regions, especially Tughlakabad and Dhandari Kalan from the Northern region, Dadri from the North Central region, Sabarmati from the Western region, and Nagpur from the Central region, to the west coast ports of JNPT, Mundra and Pipavav. (Refer pg. 3.22)
- ◆ Between Whitefield and Chennai,
- ◆ From Sanatnagar to Dronagiri (Greater Mumbai), and JNPT to Sanatnagar
- ◆ Between Tughlakabad and Tondiarpet

There are 31 ICD locations handling a volume of more than 1 lakh tonnes of ISO containers. These are listed in **Annexure 3.7** of Annexure volume -1.

The movement of DSO containers has a mostly north-south movement between Tughlakabad and Tondiarpet, Whitefield, Sanatnagar, Turbhe APM Complex (near Bombay), and Vishakapatnam. This is followed by a movement from west to east from Khodiyar and Turbhe Complex to Shalimar, and from Alipur to TKD. There is also important movement between Sanatnagar and Tondiarpet in the south and the Shalimar in the east, among others.

1.5 FUTURE PROJECTIONS OF CONTAINER TRAFFIC IN INDIA

The potential for container traffic would be assessed on different pedestals for exim cargo and domestic cargo. As drivers for growth in container traffic in exim cargo are principally determined by the international trade; and as the emphasis in the international trade is for greater containerization; Indian exim cargo gets containerized inexorably. Thus projection of exim container traffic is essentially driven by the growth of exim trade. The more critical issues in growth of exim container traffic would be availability of policy and infrastructure support.

However, in the domestic trade the scenario is entirely different. The essential driver as perceived in international trade is absent. Thus growth of domestic containers is a function of government policy, infrastructure availability and the trade's perception of value in using the service.

Projections for Container Traffic in Exim cargo

Future projections of container traffic based on the average rates of growth observed (between 2001-02 and 2005-06) of 15.1 % indicate that traffic will increase to 10.0 m TEUs by 2010-11 and to 20.3 m TEUs by 2015-16. The National Maritime Development Programme (NMDP) forecast projects container traffic to grow at 18.3 % during 2004-14, and that major ports would have 72 % share. Container traffic growing at this rate will reach 26.8 m TEUs by 2015-16. Though the recent economic downturn will necessarily reduce the rate of growth, it is expected to increase again. Not only port infrastructure, but inland movement of containers will require expansion of rail capacity to handle bulk movement of containers at optimum cost.

Regional aspects of future port development are therefore relevant. Factors on which the relative growth of each port will depend are (i) regional economic growth and growth of new manufacturing sites, (ii) improvements in port connectivity that can improve accessibility of some ports more than others, (iii) changes in Indian and global shipping patterns that can cause changes in routing decisions of Indian shippers, (iv) actions by local governments and local managements to increase port's attractiveness for container trade⁹. The Western sector will continue to dominate container transport in the future with 66 % of container traffic, because of the proximity to the northern and western markets. However the growth of Mundra and

⁸ Containerization – Building Global Trade Competitiveness, 2007, Raghuram G and Rachna Gangwar, Research and Publications, IIM Ahmedabad.

⁹ India: Port Sector Development – Possibilities for Accelerating Growth, 2007, World Bank.

Pipavav will offer stiff competition to JNPT whose share is expected to decline though it will continue to increase in terms of absolute volumes. The share of the southern ports is estimated to continue to be 27 %, though the NMDP projection envisages a share of 33 %. Growth is expected to be the most for Cochin (Vallarpadam) and Tuticorin compared to more modest expansion at Chennai. Ports in the eastern sector are expected to grow more slowly, being handicapped by the lower manufacturing base, and distance from the main international shipping routes, despite proximity to Asian markets. Vizag port is expected to show high growth on the east coast related to the economic growth in Andhra Pradesh.

Projections of Container Traffic in Domestic Cargo

Though the initiatives for domestic container movement started in early nineties, the growth has been sporadic and very slow. The annual growth of rail based container movement of domestic containers from 2000-01 to 2006-07 presented in the previous section (see sub section on DSO containers) shows that the highest growth of 1.2 per cent was registered in 2001-02. While for three years the growth varied between 5 and 7 per cent; for the rest of the period growth was less than five percent - with 2003-04 showing a decline of 0.2 per cent over the previous year.

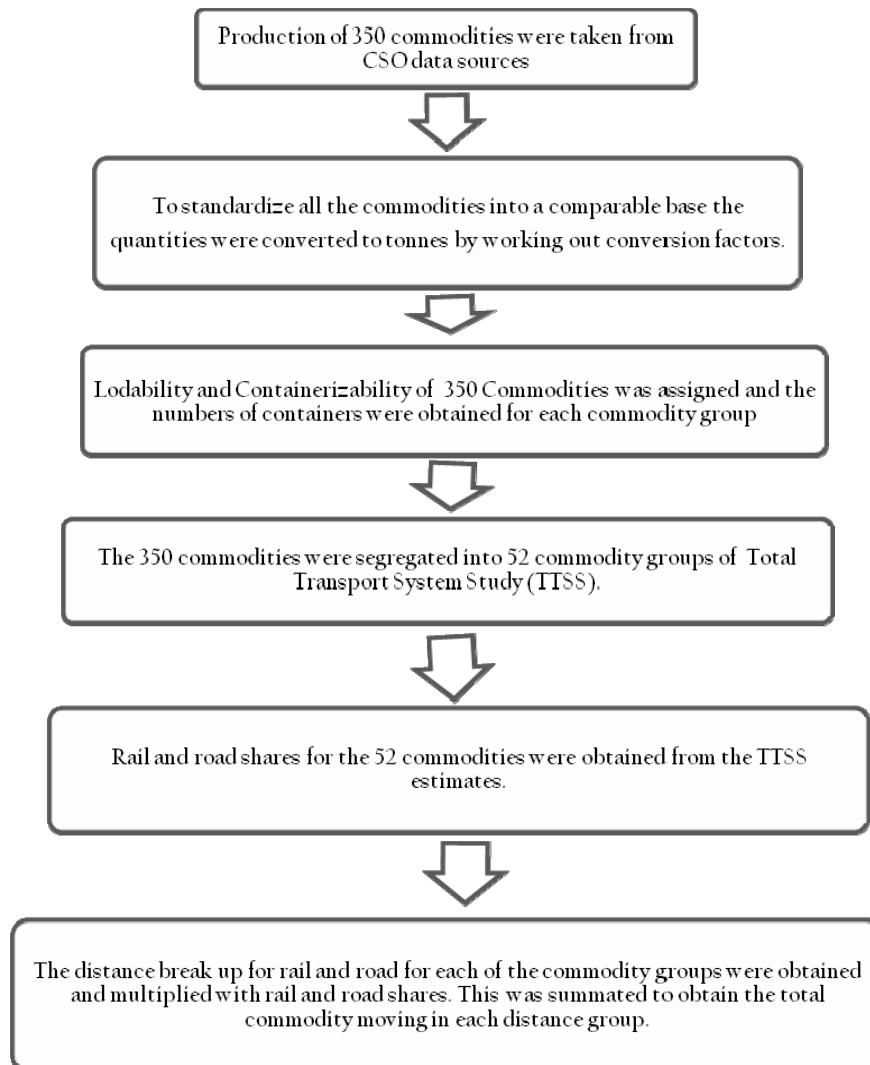
This however does not represent the true picture. Around 22 per cent of the total truck movement in the country is accounted by closed body trucks indicating the potential for domestic container movement. Hence, the consultants decided to generate the base demand for domestic container movement using data generated in this study.

Central Statistical Organization (CSO) reports data of production for 350 commodities on its CSO Publication (Web Source: http://www.mospi.gov.in/mospi_cso_rept_pubn.htm/25.04.09) and the production for 2007-08 is given at Appendix I of the special report I. The objective is to convert the production into measurable tonnage data and then estimate the containers required. The process is explained in the flow chart. The process is as follows:

- ◆ Conversion into tonnes: CSO reports data into different measuring units. To standardize all the commodities into a comparable base the quantities were converted to tones. The conversion factors for each commodity are also given in Appendix I. The conversion factors were arrived at by looking at sample commodities in each of the 350 commodity groups and then conversion ratios worked out. The conversion factors so worked out are applied uniformly to the commodity group. However, the method is still an approximation.
- ◆ To assess the container traffic two factors were assessed for each commodity group; suitability for containerization and extent of cargo loading. Suitability for containerization is assessed at 6 levels varying from NIL to 90 per cent. The extent of loading is also assessed in 6 ranges varying from NIL to 27 tonnes. Table below gives the values for suitability for containerization and extent of loading.

RANGES FOR CONTAINERISATION AND LODAING OF DIFFERENT COMMODITIES			
SUITABILITY FOR CONTAINERIZATION		TONNES LOADED PER CONTAINER	
CODE	PER CENT	CODE	TONNES
NIL	0	NIL	0
Very Low Containerisability (VLC)	0.1	Very Low (VL)	7
Low Containerisability (LC)	0.3	Low (L)	13
Medium Containerisability (MC)	0.5	Medium (M)	19
High Containerisability (HC)	0.6	High (H)	24
Very High Containerisability (VHC)	0.9	Very High (VH)	27

Flow Chart for Estimating Domestic Containersable Cargo and Number of Containers



- ◆ By applying both the factors assessed in the Table above, numbers of containers were obtained for each commodity group.
- ◆ The 350 commodities were segregated into 52 commodity groups of TTSS. The matching group for each of 350 commodities is given in Appendix 1.
- ◆ The final production, containerisable cargo, and the number of containers is estimated for 52 commodities. The details are given in Appendix 2.
- ◆ In the next the cargo was split between rail and road by using the study estimates.
- ◆ The distance break up for rail and road for each of the commodity groups were obtained and multiplied with rail and road shares. This was summated to obtain the total commodity moving in each distance group. Data for distance slabs more than 400 kms is presented in Appendix 2.

Total estimated potential for domestic containers in different distance slabs is given in the Table below. In the table it is assumed that cargo less than 400 kilometers would not be containerized. Potential for containerization in the distance slab more than 400 kilometers is 8.47 million containers and above 1500 kilometers the potential is about 2.12 million containers. As the

current number of domestic containers is around .3 million containers the extent of containerization is works out to 2 per cent.

DISTANCE SLABWISE CONTAINERASABLE CARGO	
DISTANCE SLAB (IN KM)	NO OF CONTAINER (IN MILLION NOS)
0-100	1.2
101-200	1.6
201-300	1.4
301-400	1.1
401-500	0.8
501-600	0.7
601-700	0.8
701-800	0.6
801-900	0.6
901-1000	0.6
1001-1100	0.4
1101-1200	0.5
1201-1300	0.4
1301-1400	0.4
1401-1500	0.6
>1500	2.1

CONTAINESABLE CARGO IN DIFFERENT DISTANCE RANGES	
DISTANCE MORE THAN 400 KMS	NO OF CONTAINERS (IN MILLION NOS)
400 KM	8.47
500 KM	7.62
600 KM	6.88
700 KM	6.10
800 KM	5.52
900 KM	4.92
1000 KM	4.36
1100 KM	4.00
1200 KM	3.52
1300 KM	3.11
1400 KM	2.70
1500 KM	2.12

1.6 DEVELOPING THE POTENTIAL OF MULTI-MODAL TRANSPORT IN INDIA

For India in the present globalized trade environment, the costs of transportation are an important component determining the competitiveness of exports, imports, and viability of domestic production. This necessitates a broader view of transport infrastructure and services, beyond the past experience and practice of development of road, rail, shipping and airways, to a consideration also of more efficient provision of transfers from one mode to the other, and encouragement of more optimal combinations of different modes. With the vast east-west and north-south expanse of the internal market, the pattern of future economic development itself rests on the way that the constraints of distance are overcome, and at what price.

The potential for expansion of inter-modal traffic is conditional on development of multi-modal infrastructure, and a facilitating policy regime. Network growth including expansion of ports, improved hinterland connectivity, increased road and rail capacity, developing coastal and inland waterways as alternative, fuel efficient modes, and introducing the concept of seamless connectivity of modes can retard or accelerate this growth.

Developing Ports to Handle Larger Shipping Vessels

In the continued effort to increase economies of scale, the sizes of container ships have been increasing which in turn restricts their entry to only those ports that are deep enough. Container ships of the future would have minimum capacities of 6000 to 8000 TEUs, with some ships being up-to 12000 and 14000 TEU capacity. Present ships with capacities of 4000 TEU or below would be used only for feeding to smaller ports. The large ships would require drafts between 13–15.5 mtrs. Such ports would also need to upgrade berthing facilities, higher crane handling capacity, and loading and unloading arrangements, with facilities to shift containers to feeding vessels.

Of the ports handling present container traffic, only Mundra port has the required depth. Planning of port capacity for larger ships is necessary as otherwise India will have to be served by other ports in the Indian Ocean which will increase transportation costs and adversely impact the development of inter-modal transportation.

Developing Hub and Feeder Operations at Ports and Along the Coast

At present there are no hub operations in India with most container traffic from and to India going through a feeder, transshipment and mainline movement. There is a delay in time and costs involved in this, estimated to be 40 hours to 50 hours at an extra cost of at least US \$ 70 per TEU¹⁰. In the absence of a hub port, container traffic from and to India uses foreign ports like Colombo, Singapore, Dubai and Salalah for transshipment. Savings of up-to Rs. 6000 to Rs. 16000 are possible with an Indian hub port. The other advantages for the port and transport sector would be that revenue from transshipment would remain with India and marine side traffic from and to the hub port would move faster. JNPT, from where 80 % of traffic proceeds directly without hubbing elsewhere, and Visakhapatnam port, with its deeper draft, could potentially develop as hub ports. Vallarpadam terminal at Cochin is conceived as a transshipment port to compete with Colombo.

The reasons why hub operations have not started in India yet, are, that container traffic has not reached sufficient volumes, infrastructure and draft at container ports is lacking for mainline container ships to call, and finally lack of coastal feeder vessels under the Indian flag and cabotage laws restricting foreign vessels from plying in coastal waters. Clarity in policy and integrated planning for coastal and international trade requirements is necessary.

It is expected as per forecasts of JNPT that total container traffic in India will reach 23 million TEUs in 2016. Of this 9 m TEUs is expected to be hubbed, but only 11 % of this traffic, i.e. 0.95 m TEUs will be hubbed in India implying a transshipment traffic of 1.9m TEUs. However, if hubbing should develop, up-to 50 % or 4.5 m TEUs could be hubbed in India, implying transshipment handling of 9 m TEUs. This raises demand for port handling capacity for containers from the projected 21 m TEUs to 30 m TEUs 2015-16.

Facilitating Containerization of Freight Traffic at ICDs and CFSs

In India, containerized cargo represents only 30 % of India's external trade and only 68 % of general cargo compared to 75- 80 % in the developed countries.

Containers of imported cargo were first moved inland by Railways in 1981 (though containers were first handled at Indian ports much earlier in 1973). In 1988, CONCOR was set up and took over the existing 7 ICDs of the railways, increasing them in number to 57 in 2008-09. CONCOR, with its near monopoly in Exim container cargo, has a share of 28 % of containers handled at ports which represents mainly rail share; the remaining over 70 % containers represent short or long distance road transport, for consignees within the hinterland, or more distant locations. The share of inter-modal inland transport for Exim traffic, that is, traffic moving by rail compared to the remainder with an all-road movement, is only 20 % of containers handled at ports.

The latest initiative to increase containerization occurred in 2007, when Ministry of Railways detailed a policy to permit private operation of container trains, hoping thereby to increase rail share in freight transportation, especially piecemeal traffic that had shifted to road over the years.

The introduction of private players in container train operations is also expected to give a fillip to a nascent Domestic container industry. At present there are only 5 exclusively domestic terminals and 20 combined terminals handling both Exim and domestic containers; whereas there are 41 container depots dealing with Exim traffic Domestic container traffic was only 23 %

¹⁰ Containerization- Building global trade competitiveness, 2007, Raghuram G, and Rachna Gangwar, Research and Publications, IIM Ahmedabad

of ISO traffic of CONCOR in 2006-07. While Exim container traffic has grown at over 16 % in the last 5 years, domestic container traffic has grown slowly at 5 % only. The introduction of private players in container train operations is expected to raise this figure.

Improved Hinterland Connectivity of Ports and Construction of High-Speed Dedicated Rail Freight Corridors

JNPT's dominance is related partly to good connectivity with its northern hinterland, compared to the Gujarat ports and Southern ports. However, the rail line is congested, handling much more than its capacity of 50 trains per day, and having substantial passenger traffic which is given higher priority compared to freight traffic. Container traffic has consequently been diverted to road. Only 20 % of containers received at ports are transported inland by rail.

For moving 21 m TEUs projected traffic in 2015-16, at 30 % rail share, and 90 TEU by train, over 190 trains would need to be run per day. Currently approx. 40 trains are running each day, out of which 25 are on the JNPT-TKD corridor. The most significant step to increase rail capacity for port traffic has been the high-speed dedicated rail freight corridor. It has been projected to divert, upon completion in 2012-13, 50 % to 60% of the freight traffic, which the railways will be losing to road in the interim because of the saturation of the current rail capacity. Extending for 2763 kms from Dadri to JNPT and Ludhiana to Sonnagar in the first phase, the rail freight corridor will eventually also connect Mumbai and Kolkata with Chennai. The traffic projected to come to rail are coal, ores and steel in the eastern corridor and container traffic specially from newly set up SEZs along the Western Corridor to JNPT. Along with a system of Logistics Parks that will integrate road and rail transport, the new corridor is expected to increase rail share in freight traffic.

Planning for development of roads for improving first and last mile connectivity is necessary to avoid congestion and to reduce multiple handling of containers.

Development of Multi-Modal Logistics Parks

These have been conceived as multi-modal freight terminals for bulk, break-bulk and containerized traffic and will be equipped with facilities like warehousing, cold storage, handling, and customs checking, to facilitate efficient and cost effective services like cargo aggregation and disaggregation, inter-modal transfer, sorting, packing and repacking. With this initiative, the Railways hope to provide value-added services that will make an inter-modal transfer to rail attractive in the supply chains of various types of users. While transport to the MMLP from the surrounding hinterland area could be by road, consolidation and value addition followed by transfer to cheaper rail for longer hauls would be given an incentive.

Presently four sites have been identified for exploring viability of the concept at Vapi in Gujarat, Durgapur in West Bengal, Ludhiana in Punjab and Nasik in Maharashtra.

It is clear that provided it facilitates multi-modal transfers between two modes, and ensures with the latest warehousing management techniques that transport network time is greater than warehousing time, the project is bound to prove commercially viable. For a complete coverage of the hinterland, these nodes in turn should be connected by road and rail to other similar, smaller collection nodes, in a hub and spoke model. These will truly promote an integrated development of road and rail networks.

Development of Coastal Shipping and Inland Waterways

Coastal shipping can provide competition to road for transport of general cargo and containerized cargo. However, more than any other mode, development of coastal shipping

requires connectivity between ports and the hinterland by rail or road. The potential for expansion is evident from the high growth seen in coastal shipping, especially at the non-major ports since its introduction in the 1990s. At present, only bulk commodity movement is carried on by coastal shipping, where it has successfully competed with rail transport. Container movement by coastal shipping could prove to be more competitive compared to road transport especially when hubbing increases at Indian ports. Augmenting tonnage of Indian coastal ships for feeder and developing ports for handling coastal shipping are urgently required.

Inland water transport with its low fuel costs and pollution levels is an important mode for locations with access to rivers. It comprises 20 % of the transport sector in Germany and 32 % in Bangladesh, but comprises less than 1 % of transport tonnage in India. However, because of the neglect in the past, it has a potential especially in tidal zones where it can be effectively combined with coastal shipping.

Multi-Modal Transportation of Goods Act and Customs Procedures

The new global business environment has introduced a new factor in the traditional pattern of freight flows between producers and consumers, namely the logistics provider or the multi-modal transport service provider. New legislation was required to regulate the operations of such service providers. In India, the Multi-modal transportation of Goods Act of 1993 was enacted laying down conditions under which such operators could do business. Several lacunae in the aspects covered by the Act, (it initially only covered export transactions), and the way in which its provisions were to be implemented, failed to attract sufficient interest in the sector. Amendments were made to remove the perceived shortcomings, but industry expects a more secure and facilitating regime for this sector to develop.

Modernization of Customs procedures especially with the availability of new ICT is urgently required. This will speed up checking and reduce delays, which are increasing with the increasing volumes of transactions, and locations at which these transactions originate. Moreover, new methods of checking of container contents will be required in view increasing security concerns for India and unfeasibility of manual checking with expanding volumes.

Measures for domestic containerization

As explained in the section on the growth potential for domestic containerization, scope to increase domestic containerization is much higher. By adapting international container standards for domestic cargo movement India has ensured continuity and seamless movement of containers across the country. However these standards have two inherent limitations: underutilization of trailing loads and space on broad gauge railway system of Indian Railways, and inability to reach major production and consumption centers in urban areas and in rural areas with rudimentary road infrastructure.

For example the carrying capacity of train carrying closed wagons (BCNAs) is around 14 per cent more than a train carrying containers. More importantly, the volume is underutilized by around 17 per cent; and for bulky cargoes - like consumer electronic goods - more than weight loadable volume is important. Hence it is necessary for redesigning the wagons and containers to optimize the movement for Indian conditions.

A redesign of containers is also necessary in view of the Indian road infrastructure; especially in the core areas of the city where important markets are located, congested industrial clusters and agricultural markets. For this it is necessary to undertake either one or all of the following:

- ◆ Reduce the container size
- ◆ Introduce pellets so that cargo reach the store shelves directly

- ◆ Standardize the sizes of containers and pellets to Indian rail and truck conditions

Larger countries like United States use non standard containers like 48 feet and 53 feet for domestic cargo. In India also the necessity for exploring new standards for containers is imperative. There is an urgent need to redesign wagons, containers and pellets and standardize them to meet Indian conditions. Unless this is done the unit cost of transport by containers will remain high and domestic containerization will not spread.

1.7 CONCLUSION

An integrated development of all transport modes is essential for development of multi-modal transport, along with a policy framework to facilitate the development of multi-modal services, and the entry of such service providers. Domestic traffic containerization needs to be actively promoted for long distance movement of non-bulk goods. This is the only way to reduce overall efficiency of the transport system and transportation costs for the economy as a whole.

Appendix- 1 Special Report 1

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Milk powder of all kinds	50	Mn.Tonnes	104	104,000,000	1000000.000	Mn.Tonnes/Tonne	VLC	0.1	10,400,000.0	M	19	547368
Wheat flour/maida	2	Th.Tonne	1969	1,969,000	1000.000	Th.Tonne/Tonne	MC	0.5	984,500.0	VH	27	36463
Biscuits (IPP)	46	Tonnes	1252101	1,252,101	1.000	Tonnes/Tonne	VHC	0.9	1,126,890.9	H	24	47953
Biscuits (SSI)	46	Tonnes	0	0	0.000	Tonnes/Tonne	VHC	0.9	0.0	H	24	0
Sugar	5	Mn. tonnes	27.852	27,852,000	1000000.000	Mn. tonnes/Tonne	MC	0.5	13,926,000.0	H	24	592596
Salt	22	Th.tonnes	17845.3	17,845,300	1000.000	Th.tonnes/Tonne	LC	0.3	5,353,590.0	H	24	227812
Chocolate & sugar confectionary	46	Tonnes	56570	56,570	1.000	Tonnes/Tonne	VHC	0.9	50,913.0	H	24	2167
Deoiled mustard cake	29	Tonne	1713871	1,713,871	1.000	Tonne/Tonne	LC	0.3	514,161.3	H	24	21879
Edible hydrogenated oil	29	Tonne	1380128	1,380,128	1.000	Tonne/Tonne	VHC	0.9	1,242,115.2	M	19	65374
Soyabean oil	29	Tonne	1618114	1,618,114	1.000	Tonne/Tonne	VHC	0.9	1,456,302.6	M	19	76648
Sun flower oil	29	Tonne	109915	109,915	1.000	Tonne/Tonne	VHC	0.9	98,923.5	M	19	5207
Coconut oil	29	Tonne	17107	17,107	1.000	Tonne/Tonne	VHC	0.9	15,396.3	M	19	810
Cotton seed oil	29	Tonne	26343	26,343	1.000	Tonne/Tonne	HC	0.6	15,805.8	M	19	832
Deoiled rice bran	29	Tonne	4511226	4,511,226	1.000	Tonne/Tonne	VHC	0.9	4,060,103.4	M	19	213690
Ground nut oil	29	Tonne	27350	27,350	1.000	Tonne/Tonne	VHC	0.9	24,615.0	M	19	1296
Mustard oil / rape seed oil	29	Tonne	147044	147,044	1.000	Tonne/Tonne	VHC	0.9	132,339.6	M	19	6965
Rice bran oil	29	Tonne	805406	805,406	1.000	Tonne/Tonne	VHC	0.9	724,865.4	M	19	38151
Till seed oil	29	Tonne	542	542	1.000	Tonne/Tonne	VHC	0.9	487.8	M	19	26
Tea	13	Thousand tonnes	947.94	947,940	1000.000	Thousand tonnes/Tonne	VHC	0.9	853,146.0	L	13	65627
Coffee	13	Tonnes	264861	264,861	1.000	Tonnes/Tonne	VHC	0.9	238,374.9	L	13	18337
Malted food	46	Tonnes	83840	83,840	1.000	Tonnes/Tonne	VHC	0.9	75,456.0	H	24	3211
Rectified spirit	30	K.Litre	1141156	969,983	0.850	K.Litre/Tonne	HC	0.6	581,989.6	H	24	24766
Beer	46	K.Litre	407665	346,515	0.850	K.Litre/Tonne	VHC	0.9	311,863.7	H	24	13271
Indian made foreign liquor	46	K.Litre.	302868	257,438	0.850	K.Litre./Tonne	VHC	0.9	231,694.0	H	24	9859
Country liquor.	46	K.Litre.	186106	158,190	0.850	K.Litre./Tonne	VHC	0.9	142,371.1	H	24	6058

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Soft drink & soda	46	Mil.Bottles	1499.6	38,390	25.600	Mil.Bottles/Tonne	VHC	0.9	34,550.8	H	24	1470
Cigarettes	14	Mill.Nos	86963.8	434,819	5.000	Mill.Nos/Tonne	VHC	0.9	391,337.1	L	13	30103
Cotton yarn (including SSI)	8	Mn.Kg	2948	2,948,000	1000.000	Mn.Kg/Tonne	VHC	0.9	2,653,200.0	VL	7	379029
Cotton cloth (excluding hosiery)	33	M.Sq.Mtrs	17222.8	4,306	0.250	M.Sq.Mtrs/Tonne	VHC	0.9	3,875.1	VL	7	554
100% Non-cotton cloth	33	M.Sq.Mtrs	20994.8	5,249	0.250	M.Sq.Mtrs/Tonne	VHC	0.9	4,723.8	VL	7	675
100% Non-cotton yarn	8	Mn.Kg	378.2	378,200	1000.000	Mn.Kg/Tonne	VHC	0.9	340,380.0	VL	7	48626
Blended cloth	33	M.Sq.Mtrs	6880.3	1,720	0.250	M.Sq.Mtrs/Tonne	VHC	0.9	1,548.1	VL	7	221
Blended yarn	8	Mn.Kg	676.5	676,500	1000.000	Mn.Kg/Tonne	VHC	0.9	608,850.0	VL	7	86979
Carpet backing cloth	33	Th.tonnes	0	0	0.000	Th.tonnes/Tonne	VHC	0.9	0.0	VL	7	0
D.W.Tarpaulin	9	Tonnes	0	0	0.000	Tonnes/Tonne	VHC	0.9	0.0	L	13	0
Hessain	9	Thousand tonnes	350.3	350,300	1000.000	Thousand tonnes/Tonne	VHC	0.9	315,270.0	VL	7	45039
Sacking	9	Thousand tonnes	1144.6	1,144,600	1000.000	Thousand tonnes/Tonne	VHC	0.9	1,030,140.0	VL	7	147163
Yarn	8	Thousand tonnes	137.5	137,500	1000.000	Thousand tonnes/Tonne	VHC	0.9	123,750.0	VL	7	17679
Cotton hosiery cloth	33	M.Sq.Mtrs	9921.9	2,480	0.250	M.Sq.Mtrs/Tonne	VHC	0.9	2,232.4	VL	7	319
Particle board	15	Sq.Mtrs	6538505	65,385	0.010	Sq.Mtrs/Tonne	MC	0.5	32,692.5	M	19	1721
Plywood commercial	15	Sq.Mtrs	5742200	38,760	0.007	Sq.Mtrs/Tonne	HC	0.6	23,255.9	M	19	1224
Rayon grade pulp (machine made pulp all kinds)	15	Tonnes	201194	201,194	1.000	Tonnes/Tonne	VHC	0.9	181,074.6	L	13	13929
Paper & paper board (IPP)	36	Tonnes	6288658	6,288,658	1.000	Tonnes/Tonne	HC	0.6	3,773,194.8	M	19	198589
Paper & paper board (SSI)	36	Tonnes	0	0	0.000	Tonnes/Tonne	HC	0.6	0.0	M	19	0
Newsprint bleached	36	Tonnes	1038610	1,038,610	1.000	Tonnes/Tonne	HC	0.6	623,166.0	M	19	32798
Corrugated boxes/cartons (all kinds)	36	Tonnes	23400	23,400	1.000	Tonnes/Tonne	VHC	0.9	21,060.0	M	19	1108
Finished leather	34	Th.Pcs	28248	141,240	5.000	Th.Pcs/Tonne	VHC	0.9	127,116.0	L	13	9778
Leather footwear	34	Th.Pairs	199407.3	11,964	0.060	Th.Pairs/Tonne	VHC	0.9	10,768.0	L	13	828

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
indian type (IPP)						ne						
Leather footwear indian type (SSI)	34	Th.pairs	0	0	0.000	Th.pairs/Tonne	VHC	0.9	0.0	L	13	0
Leather footwear western type	34	Th.Pairs	20470.9	1,024	0.050	Th.Pairs/Tonne	VHC	0.9	921.2	L	13	71
Shoe uppers	34	Th.Pairs	10344	517	0.050	Th.Pairs/Tonne	VHC	0.9	465.5	L	13	36
Leather garments	34	Rs.Mn.	2855.4	29	0.010	Rs.Mn./Tonne	VHC	0.9	25.7	L	13	2
Leather goods	34	Rs.Mn.	561.3	17	0.030	Rs.Mn./Tonne	VHC	0.9	15.2	L	13	1
Chlorine	30	Th.Tonne	1391.74	1,391,740	1000.000	Th.Tonne/Tonne	VLC	0.1	139,174.0	H	24	5922
Disolved acetalene gas (d.a.gas)	35	Th.Cu.Metres	5384.2	3,765	0.699	Th.Cu.Metres/Tonne	HC	0.6	2,259.1	H	24	96
Oxygen	35	Th.Cu.Mtrs	495996	346,850	0.699	Th.Cu.Mtrs/Tonne	HC	0.6	208,110.2	H	24	8856
Sulphuric acid	30	Tonnes	6569315	6,569,315	1.000	Tonnes/Tonne	VLC	0.1	656,931.5	H	24	27955
Fatty acids	30	Tonnes	261480	261,480	1.000	Tonnes/Tonne	MC	0.5	130,740.0	H	24	5563
Glycerine	30	Tonnes	33768	33,768	1.000	Tonnes/Tonne	MC	0.5	16,884.0	H	24	718
Calcium carbide	30	Tonnes	97414	97,414	1.000	Tonnes/Tonne	MC	0.5	48,707.0	H	24	2073
Caustic soda	30	Th.Tonne	2058	2,058,000	1000.000	Th.Tonne/Tonne	LC	0.3	617,400.0	H	24	26272
Soda ash	30	Th.Tonne	1981	1,981,000	1000.000	Th.Tonne/Tonne	LC	0.3	594,300.0	H	24	25289
Titanium dioxide	30	Tonnes	62337	62,337	1.000	Tonnes/Tonne	VHC	0.9	56,103.3	H	24	2387
Acetic acid	30	Tonnes	315328	315,328	1.000	Tonnes/Tonne	MC	0.5	157,664.0	H	24	6709
Acetic anhydride	30	Tonnes	29290	29,290	1.000	Tonnes/Tonne	HC	0.6	17,574.0	H	24	748
Ethelene glycol	30	Tonnes	950090	950,090	1.000	Tonnes/Tonne	HC	0.6	570,054.0	H	24	24258
Ethylene	30	Tonnes	2805941	2,805,941	1.000	Tonnes/Tonne	LC	0.3	841,782.3	H	24	35821
Formaldehyde	30	Tonnes	240637	240,637	1.000	Tonnes/Tonne	HC	0.6	144,382.2	H	24	6144
Linear alkyl benzene	30	Tonnes	470744	470,744	1.000	Tonnes/Tonne	HC	0.6	282,446.4	H	24	12019
Methanol	30	Tonnes	360745	360,745	1.000	Tonnes/Tonne	HC	0.6	216,447.0	H	24	9211

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Phenol	30	Tonnes	74937	74,937	1.000	Tonnes/Tonne	HC	0.6	44,962.2	H	24	1913
Phthalic anhydride	30	Tonnes	244137	244,137	1.000	Tonnes/Tonne	HC	0.6	146,482.2	H	24	6233
Caprolactum	30	Tonnes	86475	86,475	1.000	Tonnes/Tonne	HC	0.6	51,885.0	H	24	2208
Nitrogenous fertilizers	26	Th.Tonne	10902	10,902,000	1000.000	Th.Tonne/Tonne	LC	0.3	3,270,600.0	H	24	139174
Phosphatic fertilizers	26	Th.Tonne	3838	3,838,000	1000.000	Th.Tonne/Tonne	LC	0.3	1,151,400.0	H	24	48996
Endosulfan technical	30	Tonnes	7953	7,953	1.000	Tonnes/Tonne	LC	0.3	2,385.9	H	24	102
Monocrotophos	30	Tonnes	5349	5,349	1.000	Tonnes/Tonne	VHC	0.9	4,814.1	H	24	205
Synthetic rubber	10	Tonnes	91807	91,807	1.000	Tonnes/Tonne	VHC	0.9	82,626.3	H	24	3516
P.V.C. resins	37	Tonnes	0	0	0.000	Tonnes/Tonne	VHC	0.9	0.0	M	19	0
Synthetic resins	37	Tonnes	147196	147,196	1.000	Tonnes/Tonne	VHC	0.9	132,476.4	M	19	6972
P.F. moulding powder	31	Tonnes	2605	2,605	1.000	Tonnes/Tonne	VHC	0.9	2,344.5	L	13	180
Rubber chemicals	30	Tonnes	35063	35,063	1.000	Tonnes/Tonne	VHC	0.9	31,556.7	H	24	1343
H.D.P.E	37	Tonnes	968294	968,294	1.000	Tonnes/Tonne	VHC	0.9	871,464.6	H	24	37084
Metallised bopp films	37	Tonnes	96346	96,346	1.000	Tonnes/Tonne	VHC	0.9	86,711.4	L	13	6670
Paints, enamels & varnishes (IPP)	31	Tonnes	822576	822,576	1.000	Tonnes/Tonne	VHC	0.9	740,318.4	L	13	56948
Paints, enamels & varnishes (SSI)	31	Tonnes	0	0	0.000	Tonnes/Tonne	VHC	0.9	0.0	L	13	0
Azo dyes	31	Tonnes	3361	3,361	1.000	Tonnes/Tonne	VHC	0.9	3,024.9	L	13	233
Organic pigments	31	Tonnes	23020	23,020	1.000	Tonnes/Tonne	VHC	0.9	20,718.0	L	13	1594
Reactive dyes	31	Tonnes	1354	1,354	1.000	Tonnes/Tonne	VHC	0.9	1,218.6	L	13	94
Optical whitening agent (IPP)	31	Tonnes	7086.2	7,086	1.000	Tonnes/Tonne	VHC	0.9	6,377.6	L	13	491
Optical whitening agent (SSI)	31	Tonnes	0	0	0.000	Tonnes/Tonne	VHC	0.9	0.0	L	13	0
Sulpha drugs	46	Tonnes	2342	2,342	1.000	Tonnes/Tonne	VHC	0.9	2,107.8	H	24	90
Trimethoprim	46	Kg.	356495	356	0.001	Kg./Tonne	VHC	0.9	320.8	H	24	14
Ampicillin	46	Kg.	556387	556	0.001	Kg./Tonne	VHC	0.9	500.7	H	24	21

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Pencillin	46	M.M.U.	0	0	0.000	M.M.U./Tonne	VHC	0.9	0.0	H	24	0
Vitamin a	46	M.M.U.	83.146	0	0.000	M.M.U./Tonne	VHC	0.9	0.0	H	24	0
Vitamin c	46	Kg.	142145	142	0.001	Kg./Tonne	VHC	0.9	127.9	H	24	5
Hair oil/ayurvedic hair oil	46	K.Litre	32694	27,790	0.850	K.Litre/Tonne	VHC	0.9	25,010.9	H	24	1064
Detergent all kinds	46	Tonnes	1102429	1,102,429	1.000	Tonnes/Tonne	VHC	0.9	992,186.1	H	24	42221
Soap all kinds (IPP)	46	Tonnes	403404	403,404	1.000	Tonnes/Tonne	VHC	0.9	363,063.6	H	24	15450
Soap all kinds (SSI)	46	Th.tonnes	3775.5	3,775,500	1000.000	Th.tonnes/Tonne	VHC	0.9	3,397,950.0	H	24	144594
Agarbathi	46	Rs.Mn.	510.6	1,021	2.000	Rs.Mn./Tonne	VHC	0.9	919.1	H	24	39
Toothpaste	46	Tonnes	56999	56,999	1.000	Tonnes/Tonne	VHC	0.9	51,299.1	H	24	2183
Toothpowder	46	Tonnes	6648	6,648	1.000	Tonnes/Tonne	VHC	0.9	5,983.2	H	24	255
Filament yarn	8	Mn.Kg	1500.7	1,500,700	1000.000	Mn.Kg/Tonne	VHC	0.9	1,350,630.0	VL	7	192947
Nylon tyre cord	43	Tonnes	81473	81,473	1.000	Tonnes/Tonne	VHC	0.9	73,325.7	VL	7	10475
Polyster fibre	33	Tonnes	911924	911,924	1.000	Tonnes/Tonne	VHC	0.9	820,731.6	VL	7	117247
Viscose staple fibre	33	Tonnes	277819	277,819	1.000	Tonnes/Tonne	VHC	0.9	250,037.1	VL	7	35720
Viscose tyre cord	43	Tonnes	7335	7,335	1.000	Tonnes/Tonne	VHC	0.9	6,601.5	VL	7	943
Matches (IPP)	46	Mil.boxes	91867.6	716,567	7.800	Mil.boxes/Tonne	VHC	0.9	644,910.6	H	24	27443
Matches (SSI)	46	Mil.boxes	0	0	0.000	Mil.boxes/Tonne	LC	0.3	0.0	H	24	0
Fire works	30	Tonnes	8522	8,522	1.000	Tonnes/Tonne	HC	0.6	5,113.2	H	24	218
High explosive nitro glycerine based	30	Tonnes	0	0	0.000	Tonnes/Tonne	NIL	0	0.0	H	24	0
Industrial explosives	30	Tonnes	200886	200,886	1.000	Tonnes/Tonne	LC	0.3	60,265.8	H	24	2565
Cine film & x-ray films	37	Th.Sq.Mtrs	16303	815	0.050	Th.Sq.Mtrs./Tonne	VHC	0.9	733.6	L	13	56
Photo film/roll film	37	Rs.Thousand	811249	20	0.000	Rs.Thousand/Tonne	VHC	0.9	18.3	L	13	1
Adhesives all types	30	Tonnes	36228	36,228	1.000	Tonnes/Tonne	VHC	0.9	32,605.2	H	24	1387
Gelatine	30	Tonnes	6866	6,866	1.000	Tonnes/Tonne	VHC	0.9	6,179.4	H	24	263

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
						e						
Bicycle tubes	43	Mill.Nos	117.6	2,352	20.000	Mill.Nos/Tonne	VHC	0.9	2,116.8	M	19	111
Bicycle tyres	43	Mill.Nos	95.4	4,770	50.000	Mill.Nos/Tonne	VHC	0.9	4,293.0	M	19	226
Giant tubes	43	Th.Nos.	8377.3	33,509	4.000	Th.Nos./Tonne	VHC	0.9	30,158.3	M	19	1587
Giant tyres	43	Th.Nos.	14335.1	43,005	3.000	Th.Nos./Tonne	VHC	0.9	38,704.8	M	19	2037
Rubber conveyor belting	10	Tonnes	23178	23,178	1.000	Tonnes/Tonne	VHC	0.9	20,860.2	H	24	888
Tractor tyres/a.d.v.tyres	43	Th.Nos.	2590.6	129,530	50.000	Th.Nos./Tonne	VHC	0.9	116,577.0	M	19	6136
Two wheeler tyres	43	Th.Nos.	22986.4	45,973	2.000	Th.Nos./Tonne	VHC	0.9	41,375.5	M	19	2178
Rubber footwear	10	Mill.Pairs	30.56	764	25.000	Mill.Pairs/Tonne	VHC	0.9	687.6	H	24	29
Rubber hoses (other type)	10	K.Metre	7496.5	0	0.000	K.Metre/Tonne	VHC	0.9	0.0	H	24	0
Sheets (pvc/rubber)	10	Tonnes	31548	31,548	1.000	Tonnes/Tonne	VHC	0.9	28,393.2	H	24	1208
Contraceptives	46	Th.Nos.	3060500	1,530	0.001	Th.Nos./Tonne	VHC	0.9	1,377.2	H	24	59
L.D.P.E	37	Tonnes	198139	198,139	1.000	Tonnes/Tonne	VHC	0.9	178,325.1	M	19	9386
Laminates (decorative)	15	Tonnes	32738	32,738	1.000	Tonnes/Tonne	VHC	0.9	29,464.2	M	19	1551
PVC pipes & tubes	37	Tonnes	46331	46,331	1.000	Tonnes/Tonne	VHC	0.9	41,697.9	M	19	2195
Aviation turbine fuel	19	TMT	9106	9,106,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Benzene	30	TMT	0	0	0.000	TMT/Tonne	HC	0.6	0.0	H	24	0
Bitumen	20	TMT	4510	4,510,000	1000.000	TMT/Tonne	LC	0.3	1,353,000.0	VH	27	50111
Furnace oil	19	TMT	12647	12,647,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
High speed diesel	19	TMT	58360	58,360,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Light diesel oil	19	TMT	671	671,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Low sulphur heavy stock	19	TMT	3111	3,111,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Lubricating oil	30	TMT	880	880,000	1000.000	TMT/Tonne	VHC	0.9	792,000.0	H	24	33702
Motor spirit	19	TMT	14167	14,167,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Naptha	19	TMT	16438	16,438,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Natural gas	19	MCM	32274	23,386,957	724.638	MCM/Tonne	NIL	0	0.0	NIL	0	0
Petroleum coke calcined	19	TMT	0	0	0.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Superior kerosene	19	TMT	7794	7,794,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0
Liquified petroleum	19	TMT	8792	8,792,000	1000.000	TMT/Tonne	NIL	0	0.0	NIL	0	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
gas												
Di-methyl tetra phthalate (dmt)	30	Tonnes	3969	3,969	1.000	Tonnes/Tonne	HC	0.6	2,381.4	H	24	101
Hard coke	18	Th.tonnes	10520	10,520,000	1000.000	Th.tonnes/Tonne	LC	0.3	3,156,000.0	VH	27	116889
Middling	18	Th.tonnes	6191	6,191,000	1000.000	Th.tonnes/Tonne	NIL	0	0.0	NIL	0	0
Washed coal	18	Th.tonnes	7176	7,176,000	1000.000	Th.tonnes/Tonne	NIL	0	0.0	NIL	0	0
Carbon black	20	Tonnes	428802	428,802	1.000	Tonnes/Tonne	MC	0.5	214,401.0	H	24	9123
Glazed tiles/ceramic tiles	25	Tonnes	1364787	1,364,787	1.000	Tonnes/Tonne	VHC	0.9	1,228,308.3	H	24	52268
Bottles/bottle glass wares	45	Tonnes	916793	916,793	1.000	Tonnes/Tonne	VHC	0.9	825,113.7	L	13	63470
H.T.Insulators	32	Tonnes	55311	55,311	1.000	Tonnes/Tonne	VHC	0.9	49,779.9	H	24	2118
Cement all kinds	24	Th.Tonne	167580	167,580,000	1000.000	Th.Tonne/Tonne	LC	0.3	50,274,000.0	H	24	2139319
Polished granite/stone chips	23	Rs.lakh	995578	9,955,780	10.000	Rs.lakh/Tonne	VHC	0.9	8,960,202.0	H	24	381285
Asbestos cement pressure and building pipes etc.	24	Th.Tonne	150	150,000	1000.000	Th.Tonne/Tonne	VHC	0.9	135,000.0	H	24	5745
Asbestos cement sheets	24	Th.Tonne	2298.8	2,298,800	1000.000	Th.Tonne/Tonne	HC	0.6	1,379,280.0	H	24	58693
Railway/concrete sleeper	24	Numbers	825002	67,650	0.082	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Graphite electrodes & anodes	32	Tonnes	112854	112,854	1.000	Tonnes/Tonne	VHC	0.9	101,568.6	H	24	4322
Bars and rods	27	Thousand tonnes	18323.1	18,323,100	1000.000	Thousand tonnes/Tonne	NIL	0	0.0	NIL	0	0
Carbon steel	27	Thousand tonnes	22684.2	22,684,200	1000.000	Thousand tonnes/Tonne	MC	0.5	11,342,100.0	H	24	482643
H.R.coils/ skelp	27	Thousand tonnes	11516.4	11,516,400	1000.000	Thousand tonnes/Tonne	NIL	0	0.0	NIL	0	0
Pig iron	27	Thousand tonnes	5088.3	5,088,300	1000.000	Thousand tonnes/Tonne	MC	0.5	2,544,150.0	VH	27	94228
Railway materials	27	Thousand tonnes	1077.1	1,077,100	1000.000	Thousand tonnes/Tonne	MC	0.5	538,550.0	H	24	22917
Stainless/ alloy steel	27	Thousand tonnes	2360	2,360,000	1000.000	Thousand tonnes/Tonne	VHC	0.9	2,124,000.0	H	24	90383
Structurals (light, medium & heavy)	27	Thousand tonnes	4600.7	4,600,700	1000.000	Thousand tonnes/Tonne	NIL	0	0.0	NIL	0	0
Sponge iron	27	Thousand	18400	18,400,000	1000.000	Thousand	MC	0.5	9,200,000.0	VH	27	340741

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
		tonnes				tonnes/Tonne						
Plates	27	Thousand tonnes	0	0	0.000	Thousand tonnes/Tonne	NIL	0	0.0	NIL	0	0
Steel wires (wire drawing)	27	Thousand tonnes	427	427,000	1000.000	Thousand tonnes/Tonne	MC	0.5	213,500.0	H	24	9085
Wire ropes	27	Tonnes	87589	87,589	1.000	Tonnes/Tonne	VHC	0.9	78,830.1	H	24	3354
Electric sheets	32	Thousand tonnes	168.5	168,500	1000.000	Thousand tonnes/Tonne	HC	0.6	101,100.0	H	24	4302
GP/GC sheets (colour coated)	27	Thousand tonnes	4388.7	4,388,700	1000.000	Thousand tonnes/Tonne	VHC	0.9	3,949,830.0	H	24	168078
Tinplate (including ww)	28	Thousand tonnes	188.8	188,800	1000.000	Thousand tonnes/Tonne	VHC	0.9	169,920.0	H	24	7231
C.R sheets/ coils	27	Thousand tonnes	6187.3	6,187,300	1000.000	Thousand tonnes/Tonne	NIL	0	0.0	NIL	0	0
H.R sheets	27	Thousand tonnes	678.6	678,600	1000.000	Thousand tonnes/Tonne	NIL	0	0.0	NIL	0	0
Pipes & tubes (DCIS)	37	Thousand tonnes	1235	1,235,000	1000.000	Thousand tonnes/Tonne	VHC	0.9	1,111,500.0	H	24	47298
Pipes & tubes (SSI)	37	Tonnes	295280	295,280	1.000	Tonnes/Tonne	VHC	0.9	265,752.0	H	24	11309
Ferro chrome	27	Thousand tonnes	383	383,000	1000.000	Thousand tonnes/Tonne	MC	0.5	191,500.0	H	24	8149
Ferro manganese	27	Thousand tonnes	163	163,000	1000.000	Thousand tonnes/Tonne	MC	0.5	81,500.0	H	24	3468
Ferro silicon	27	Thousand tonnes	63	63,000	1000.000	Thousand tonnes/Tonne	MC	0.5	31,500.0	H	24	1340
Other ferro alloys	27	Thousand tonnes	314	314,000	1000.000	Thousand tonnes/Tonne	MC	0.5	157,000.0	H	24	6681
Copper metal (cathode)	28	Tonnes	44742	44,742	1.000	Tonnes/Tonne	VHC	0.9	40,267.8	H	24	1714
Stamping & forgings	28	Tonnes	472052	472,052	1.000	Tonnes/Tonne	VHC	0.9	424,846.8	H	24	18079
Aluminium extrusions	28	Tonnes	142583	142,583	1.000	Tonnes/Tonne	VHC	0.9	128,324.7	H	24	5461
Aluminium foils	28	Tonnes	46037	46,037	1.000	Tonnes/Tonne	VHC	0.9	41,433.3	H	24	1763
Aluminium ingots	28	Th.Tonne	755.74	755,740	1000.000	Th.Tonne/Tonne	LC	0.3	226,722.0	H	24	9648
Aluminium rolled products	28	Tonnes	307067	307,067	1.000	Tonnes/Tonne	HC	0.6	184,240.2	H	24	7840
Aluminium wire rods	28	Tonnes	246915	246,915	1.000	Tonnes/Tonne	HC	0.6	148,149.0	H	24	6304
C.I.castings	27	Tonnes	0	0	0.000	Tonnes/Tonne	HC	0.6	0.0	H	24	0
Steel castings	27	Tonnes	512359	512,359	1.000	Tonnes/Tonne	HC	0.6	307,415.4	H	24	13082

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
(IPP)						e						
Steel castings (SSI)	27	Tonnes	0	0	0.000	Tonnes/Tonne	HC	0.6	0.0	H	24	0
L.P.G. cylinders	35	Th.Nos.	2597.2	51,944	20.000	Th.Nos./Tonne	HC	0.6	31,166.4	H	24	1326
Drums & barrels	45	Tonnes	61668	61,668	1.000	Tonnes/Tonne	MC	0.5	30,834.0	M	19	1623
Tin metal containers	45	Tonnes	39008	39,008	1.000	Tonnes/Tonne	HC	0.6	23,404.8	H	24	996
Spun pipes	24	Tonnes	105412	105,412	1.000	Tonnes/Tonne	MC	0.5	52,706.0	H	24	2243
Agricultural implements	27	Rs.Mn.	313.71	2,241	7.143	Rs.Mn./Tonne	MC	0.5	1,120.4	H	24	48
Bolts & nuts (IPP)	44	Tonnes	678569	678,569	1.000	Tonnes/Tonne	VHC	0.9	610,712.1	H	24	25988
Bolts & nuts (SSI)	44	Tonnes	0	0	0.000	Tonnes/Tonne	VHC	0.9	0.0	H	24	0
Welded link chains	27	Tonnes	26792	26,792	1.000	Tonnes/Tonne	MC	0.5	13,396.0	H	24	570
Zip fasteners (SSI)	46	Rs.Thousand	147229	10	0.000	Rs.Thousand /Tonne	VLC	0.1	1.0	H	24	0
Metalic utencils excl. pressure cooker	46	Rs.Thousand	275070	69	0.000	Rs.Thousand /Tonne	VHC	0.9	61.9	H	24	3
Pressure cookers	46	Numbers	3914607	4,698	0.001	Numbers/Tonne	HC	0.6	2,818.5	H	24	120
Aluminium collapsable tubes	28	Mill.No.	91.9	643	7.000	Mill.No./Tonne	MC	0.5	321.7	H	24	14
Razor blades	46	Mill.Nos	7808.7	4,685	0.600	Mill.Nos/Tonne	VHC	0.9	4,216.7	H	24	179
Welding electrodes/rods	32	Th.Run Mt	358788	0	0.000	Th.Run Mt/Tonne	HC	0.6	0.0	H	24	0
Complete tractors	40	Numbers	304409	765,589	2.515	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Dumper	40	Numbers	683	39,956	58.500	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Hydraulic machine/hydraulic cylinders	40	Rs.Thousand	1184203	1,066	0.001	Rs.Thousand / Tonne	HC	0.6	639.5	M	19	34
Wheel mtd dump loaders	40	Numbers	2512	0	0.000	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Boilers	40	Rs.Mn.	82313.5	0	0.000	Rs.Mn./Tonne	NIL	0	0.0	NIL	0	0
Diesel engines (IPP)	40	Numbers	3232470	439,616	0.136	Numbers/Tonne	HC	0.6	263,769.6	M	19	13883
Diesel engines	40	Numbers	0	0	0.000	Numbers/Tonne	HC	0.6	0.0	M	19	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
(SSI)						ne						
Textile machinery	40	Rs.Mn.	29100	1,455,000	50.000	Rs.Mn./Tonne	MC	0.5	727,500.0	M	19	38289
Printing machinery	40	Rs.Mn.	5435.2	16,306	3.000	Rs.Mn./Tonne	MC	0.5	8,152.8	M	19	429
Furnaces	40	Rs.Mn.	1558.4	121	0.078	Rs.Mn./Tonne	LC	0.3	36.4	M	19	2
Industrial machinery	40	Rs.Mn.	35589.3	35,589	1.000	Rs.Mn./Tonne	HC	0.6	21,353.6	M	19	1124
Cooling towers	40	Rs.Mn.	3755.1	0	0.000	Rs.Mn./Tonne	NIL	0	0.0	NIL	0	0
Refrigerators & air-conditioning plants	40	Rs.Mn.	966.82	6,574	6.800	Rs.Mn./Tonne	NIL	0	0.0	NIL	0	0
Window type air conditioners	32	Numbers	773035	32,467	0.042	Numbers/Tonne	VHC	0.9	29,220.7	M	19	1538
Refrigerators (domestic)	32	Th.Nos.	7393	502,724	68.000	Th.Nos./Tonne	VHC	0.9	452,451.6	M	19	23813
Sealed compressors	32	Numbers	5571005	35,097	0.006	Numbers/Tonne	HC	0.6	21,058.4	H	24	896
Cranes	40	Tonnes	21580	21,580	1.000	Tonnes/Tonne	NIL	0	0.0	NIL	0	0
Lifts	40	Numbers	8439	8,439	1.000	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Material handling equipment in cl.wagon	40	Rs.Mn.	12200.23	0	0.000	Rs.Mn./Tonne	NIL	0	0.0	NIL	0	0
Air and gas compressor (IPP)	32	Numbers	127388	803	0.006	Numbers/Tonne	VHC	0.9	722.3	M	19	38
Air and gas compressor SSI)	32	Numbers	0	0	0.000	Numbers/Tonne	VHC	0.9	0.0	M	19	0
Monoblocks	32	Numbers	239854	28,782	0.120	Numbers/Tonne	VHC	0.9	25,904.2	M	19	1363
Parts & accessories (pumps & compressors)	44	Rs.Mn.	354.98	66	0.187	Rs.Mn./Tonne	HC	0.6	39.8	H	24	2
Power driven pumps	40	Th.Nos.	789.9	1,580	2.000	Th.Nos./Tonne	HC	0.6	947.9	M	19	50
Valves all kinds	44	Rs.Mn.	21175.4	1,271	0.060	Rs.Mn./Tonne	HC	0.6	762.3	M	19	40
Ball & roller bearings	44	Mn. Nos.	289.07	2,891	10.000	Mn. Nos./Tonne	HC	0.6	1,734.4	M	19	91
Gear boxes	44	Numbers	111928	8,395	0.075	Numbers/Tonne	HC	0.6	5,036.8	M	19	265
Cutting tools	40	Th.Nos.	2675	13	0.005	Th.Nos./Tonne	MC	0.5	6.7	M	19	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
(lathes etc.)						e						
Diamond tools	44	Numbers	3376146	6,752	0.002	Numbers/Tonne	HC	0.6	4,051.4	M	19	213
Machine tools (IPP)	44	Rs.Mn.	26914.6	128,165	4.762	Rs.Mn./Tonne	HC	0.6	76,898.9	M	19	4047
Machine tools (SSI)	44	Rs.Ten Mn.	2815.3	134,062	47.619	Rs.Ten Mn./Tonne	HC	0.6	80,437.1	M	19	4234
Typewriters	46	Numbers	16696	38	0.002	Numbers/Tonne	HC	0.6	22.5	M	19	1
Sewing machines	46	Numbers	0	0	0.000	Numbers/Tonne	HC	0.6	0.0	M	19	0
Washing/ laundry machines etc.	32	Numbers	2168858	43,377	0.020	Numbers/Tonne	VHC	0.9	39,039.4	M	19	2055
Electric generators (including alternators)	32	Rs.Mn.	14741.6	49,139	3.333	Rs.Mn./Tonne	HC	0.6	29,483.2	H	24	1255
Power & dist. transformers (IPP)	32	Mill.K.V.A	73.3	0	0.000	Mill.K.V.A/Tonne	HC	0.6	0.0	H	24	0
Power & dist. transformers (SSI)	32	Numbers	1853256	55,598	0.030	Numbers/Tonne	HC	0.6	33,358.6	H	24	1420
Control panels/boards/disks	32	Rs.Mn.	9913.07	24,783	2.500	Rs.Mn./Tonne	VHC	0.9	22,304.4	M	19	1174
Protection system/switch board/switch gear etc.	32	Rs.Thousand	5617909	562	0.000	Rs.Thousand/Tonne	VHC	0.9	505.6	M	19	27
Switchgear (circuit breakers)	32	Numbers	18938508	9,469	0.001	Numbers/Tonne	HC	0.6	5,681.6	M	19	299
Electric motors (IPP)	32	Mn. H.P.	12.88	0	0.000	Mn. H.P./Tonne	HC	0.6	0.0	M	19	0
Electric motors (SSI)	32	Numbers	2100886	42,018	0.020	Numbers/Tonne	HC	0.6	25,210.6	M	19	1327
Electric motors phase one	32	Numbers	3265634	16,328	0.005	Numbers/Tonne	HC	0.6	9,796.9	M	19	516
Power capacitors	32	KVAR	11247464	0	0.000	KVAR/Tonne	HC	0.6	0.0	M	19	0
Motor starters and contactors	32	Th. Nos	8739.41	43,697	5.000	Th. Nos/Tonne	VHC	0.9	39,327.3	M	19	2070
Stamping (lamination)	32	Tonnes	55812	55,812	1.000	Tonnes/Tonne	HC	0.6	33,487.2	M	19	1762
Turbines (steam/hydro)	32	Rs.Mn.	35181.6	0	0.000	Rs.Mn./Tonne	HC	0.6	0.0	M	19	0
ACSR/AA conductors	32	Tonnes	16187	16,187	1.000	Tonnes/Tonne	HC	0.6	9,712.2	H	24	413
Insulated cables/wires all	32	Ten Mn.Km.	2579704	0	0.000	Ten Mn.Km./Tonne	HC	0.6	0.0	H	24	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
kinds						e						
PVC/PICL	37	K.Metre	62678	62,678	1.000	K.Metre/Tonne	HC	0.6	37,606.8	M	19	1979
Telecommunication cables	32	Mill.Mtr	8013.2	0	0.000	Mill.Mtr/Tonne	HC	0.6	0.0	M	19	0
Winding wires	32	Tonnes	28849	28,849	1.000	Tonnes/Tonne	HC	0.6	17,309.4	H	24	737
Storage batteries	32	Mn.Nos	40.99	614,850	15000.000	Mn.Nos/Tonne	VHC	0.9	553,365.0	M	19	29124
Dry cells	32	Mill.Nos	2518.4	5,037	2.000	Mill.Nos/Tonne	VHC	0.9	4,533.1	M	19	239
Auto lamps	32	Th. Nos.	73189	1,098	0.015	Th. Nos./Tonne	VHC	0.9	988.1	M	19	52
G.L.S. lamps	32	Mill.Nos	430.9	10,773	25.000	Mill.Nos/Tonne	VHC	0.9	9,695.3	M	19	510
Fluorescent tubes	32	Mn. Nos	214.92	774	3.600	Mn. Nos/Tonne	VHC	0.9	696.3	M	19	37
Lighting, fitting & fixtures	32	Rs.Mn.	459.6	46	0.100	Rs.Mn./Tonne	VHC	0.9	41.4	M	19	2
Electric fans all kinds (IPP)	32	Mn. Nos	11.74	58,700	5000.000	Mn. Nos/Tonne	VHC	0.9	52,830.0	M	19	2781
Electric fans all kinds (SSI)	32	Mn. Nos	0	0	0.000	Mn. Nos/Tonne	VHC	0.9	0.0	M	19	0
Telephone instruments	32	Th.Nos.	4607	92	0.020	Th.Nos./Tonne	VHC	0.9	82.9	M	19	4
T.V. picture tubes	32	Th.Nos.	6490.2	38,941	6.000	Th.Nos./Tonne	VHC	0.9	35,047.1	L	13	2696
T.V. receivers	32	Th.Nos.	5767.9	11,536	2.000	Th.Nos./Tonne	VHC	0.9	10,382.2	L	13	799
Tape recorders	32	Th.Nos.	13.2	26	2.000	Th.Nos./Tonne	VHC	0.9	23.8	L	13	2
Computer system and its peripherals	32	Rs.Mn.	42011	5,251	0.125	Rs.Mn./Tonne	VHC	0.9	4,726.2	L	13	364
Electrolytic capacitors	32	Mill.Nos	870.4	4,352	5.000	Mill.Nos/Tonne	VHC	0.9	3,916.8	M	19	206
Ship building and repair	44	Rs.Mn.	32831.7	0	0.000	Rs.Mn./Tonne	NIL	0	0.0	NIL	0	0
Locomotives all types	40	Numbers	422	46,420	110.000	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Broad gauge covered wagons	40	Numbers	1882	50,814	27.000	Numbers/Tonne	VLC	0.1	5,081.4	M	19	267
Broad gauge passenger carriage	40	Numbers	3101	80,626	26.000	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Wheel and axles complete set	44	Numbers	40509	162,036	4.000	Numbers/Tonne	NIL	0	0.0	NIL	0	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Auto ancillary & parts	44	Rs.Mn.	159737	7,987	0.050	Rs.Mn./Tonne	VHC	0.9	7,188.2	H	24	306
Commercial vehicles	40	Numbers	545104	2,452,968	4.500	Numbers/Tonne	NIL	0	0.0	NIL	0	0
Zeep type vehicles	38	Numbers	345883	567,248	1.640	Numbers/Tonne	LC	0.3	170,174.4	L	13	13090
Passenger cars	38	Numbers	1421984	1,421,984	1.000	Numbers/Tonne	LC	0.3	426,595.2	L	13	32815
Springs	44	Tonnes	17637	17,637	1.000	Tonnes/Tonne	VHC	0.9	15,873.3	H	24	675
Auto rickshaws	41	Numbers	500592	290,343	0.580	Numbers/Tonne	LC	0.3	87,103.0	L	13	6700
Motor cycles	42	Numbers	6503532	780,424	0.120	Numbers/Tonne	LC	0.3	234,127.2	L	13	18010
Scooter and mopeds	42	Numbers	1505760	150,576	0.100	Numbers/Tonne	LC	0.3	45,172.8	L	13	3475
Bicycles all kinds	39	Th.Nos.	11397	170,955	15.000	Th.Nos./Tonne	LC	0.3	51,286.5	M	19	2699
Medical and surgical instruments	30	Rs.Mn.	3297.8	33	0.010	Rs.Mn./Tonne	VHC	0.9	29.7	L	13	2
Syringes all types	30	Rs.Mn.	1785	179	0.100	Rs.Mn./Tonne	VHC	0.9	160.7	M	19	8
Process control instruments	40	Rs.Mn.	4716.8	4,717	1.000	Rs.Mn./Tonne	VHC	0.9	4,245.1	L	13	327
A.C.poly phase house service meters	32	Mill.Nos	1.69	0	0.000	Mill.Nos/Tonne	VHC	0.9	0.0	M	19	0
A.C.single phase house service meters	32	Mill.Nos	0	0	0.000	Mill.Nos/Tonne	VHC	0.9	0.0	M	19	0
Laboratory and scientific instruments	40	Rs.Mn.	545.5	55	0.100	Rs.Mn./Tonne	VHC	0.9	49.1	L	13	4
Alarm time pieces	46	Th.Nos.	408	4	0.010	Th.Nos./Tonne	VHC	0.9	3.7	M	19	0
Wrist watches	46	Th.Nos.	12636	32	0.003	Th.Nos./Tonne	VHC	0.9	28.4	M	19	1
Writing instruments	46	Rs.Thousand	658776	16	0.000	Rs.Thousand/Tonne	VHC	0.9	14.8	M	19	1
Pencils (SSI)	46	Rs.Thousand	122459	31	0.000	Rs.Thousand/Tonne	VHC	0.9	27.6	M	19	1
Electricity	32	Mill.KWh	0	0	0.000	Mill.KWh/Tonne	NIL	0	0.0	NIL	0	0
Coal(Incl.lignite)	18	Mill. Tonne	490.38	490,380,000	1000000.000	Mill. Tonne/Tonne	NIL	0	0.0	NIL	0	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Iron Ore	16	Mill. Tonne	2.844	2,844,000	1000000.000	Mill. Tonne/Tonne	NIL	0	0.0	NIL	0	0
Rice	1	Th. Tonne	96430	96430000	1000.000	Th. Tonne/Tonne	VLC	0.1	9,643,000.0	VH	27	357148
Wheat	2	Th. Tonne	78400	78400000	1000.000	Th. Tonne/Tonne	VLC	0.1	7,840,000.0	VH	27	290370
Jowar	3	Th. Tonne	7780	7780000	1000.000	Th. Tonne/Tonne	VLC	0.1	778,000.0	H	24	33106
Bajra	3	Th. Tonne	9790	9790000	1000.000	Th. Tonne/Tonne	VLC	0.1	979,000.0	H	24	41660
Maize	3	Th. Tonne	19300	19300000	1000.000	Th. Tonne/Tonne	VLC	0.1	1,930,000.0	H	24	82128
Other Cereals	3	Th. Tonne	4073	4073000	1000.000	Th. Tonne/Tonne	VLC	0.1	407,300.0	H	24	17332
Gram	4	Th. Tonne	6910	6910000	1000.000	Th. Tonne/Tonne	VLC	0.1	691,000.0	H	24	29404
Total Pulses (Excl. Gram)	4	Th. Tonne	8210	8210000	1000.000	Th. Tonne/Tonne	VLC	0.1	821,000.0	H	24	34936
Tur	4	Th. Tonne	3090	3090000	1000.000	Th. Tonne/Tonne	VLC	0.1	309,000.0	H	24	13149
Oilseeds	7	Mn. Tonne	28.83	28830000	1000000.000	Mn. Tonne/Tonne	VLC	0.1	2,883,000.0	M	19	151737
Groundnut	7	Th. Tonne	9.36	9360	1000.000	Th. Tonne/Tonne	VLC	0.1	936.0	M	19	49
Rapeseed and Mustard	7	Th. Tonne	5.8	5800	1000.000	Th. Tonne/Tonne	HC	0.6	3,480.0	M	19	183
Sugarcane	6	Mn. Tonne	340.56	340560000	1000000.000	Mn. Tonne/Tonne	NIL	0	0.0	NIL	0	0
Jute and Mesta	9	Th. Tonne	11.18	11180	1000.000	Th. Tonne/Tonne	LC	0.3	3,354.0	H	24	143
Rubber	10	Th. Tonne	825	825000	1000.000	Th. Tonne/Tonne	VHC	0.9	742,500.0	H	24	31596
Fruits	12	Th. Tonne	62858	62858000	1000.000	Th. Tonne/Tonne	LC	0.3	18,857,400.0	M	19	992495
Vegetables	12	Th. Tonne	125887	125887000	1000.000	Th. Tonne/Tonne	LC	0.3	37,766,100.0	M	19	1987689
Bauxite	17	Thousand Tonnes	23498	23498000	1000.000	Thousand Tonnes/Tonne	NIL	0	0.0	NIL	0	0
Chromite	17	Thousand Tonnes	4783	4783000	1000.000	Thousand Tonnes/Tonne	MC	0.5	2,391,500.0	H	24	101766
Copper Conc.	17	Thousand Tonnes	63.86	63860	1000.000	Thousand Tonnes/Tonne	MC	0.5	31,930.0	H	24	1359
Gold	28	Kilogram	205085	205.085	0.001	Kilogram/Ton	NIL	0	0.0	NIL	0	0

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
						ne						
Lead Conc.	17	Thousand Tonnes	125.896	125896	1000.000	Thousand Tonnes/Tonne	MC	0.5	62,948.0	H	24	2679
Manganese Ore	17	Thousand Tonnes	2475	2475000	1000.000	Thousand Tonnes/Tonne	NIL	0	0.0	NIL	0	0
Zinc. Conc.	28	Thousand Tonnes	1034.737	1034737	1000.000	Thousand Tonnes/Tonne	HC	0.6	620,842.2	M	19	32676
Ball Clay	25	Thousand Tonnes	601.742	601742	1000.000	Thousand Tonnes/Tonne	MC	0.5	300,871.0	H	24	12803
Barytes	26	Thousand Tonnes	1073.458	1073458	1000.000	Thousand Tonnes/Tonne	LC	0.3	322,037.4	H	24	13704
Diamond	46	Carats	587	1.10	0.002	Carats/Tonne	NIL	0	0.0	NIL	0	0
Dolomite	21	Thousand Tonnes	4877	4877000	1000.000	Thousand Tonnes/Tonne	NIL	0	0.0	NIL	0	0
Fire Clay	26	Thousand Tonnes	363.586	363586	1000.000	Thousand Tonnes/Tonne	MC	0.5	181,793.0	H	24	7736
Garnet (Abrasive)	30	Thousand Tonnes	867.727	867727	1000.000	Thousand Tonnes/Tonne	HC	0.6	520,636.2	H	24	22155
Gypsum	26	Thousand Tonnes	2659	2659000	1000.000	Thousand Tonnes/Tonne	LC	0.3	797,700.0	M	19	41984
Kaolin	26	Thousand Tonnes	1329	1329000	1000.000	Thousand Tonnes/Tonne	MC	0.5	664,500.0	M	19	34974
Laterite	25	Thousand Tonnes	1325.575	1325575	1000.000	Thousand Tonnes/Tonne	LC	0.3	397,672.5	H	24	16922
Limeshell	25	Thousand Tonnes	138.341	138341	1000.000	Thousand Tonnes/Tonne	LC	0.3	41,502.3	H	24	1766
Lime Stone	21	Million Tonnes	188.462	188462000	1000000.000	Million Tonnes/Tonne	NIL	0	0.0	NIL	0	0
Magnesite	28	Thousand Tonnes	237.822	237822	1000.000	Thousand Tonnes/Tonne	MC	0.5	118,911.0	M	19	6258
Phosphorite	30	Thousand Tonnes	1861	1861000	1000.000	Thousand Tonnes/Tonne	LC	0.3	558,300.0	H	24	23757

Item	Commodity Code (TTSS Code)	Unit	Production 07-08	Production (Tonne)	Conversion Factor Unit	Conversion Factor	Assessment of containerisable cargo			Assessment number of containers		
							Containerisability Code	Fraction of cargo containerisable	Tonnage containerisable Cargo	Lodability Code	Tonnes Loaded per container	No of Container
Pyroxenite	30	Thousand Tonnes	204.362	204362	1000.000	Thousand Tonnes/Tonne	LC	0.3	61,308.6	H	24	2609
sand (Other)	25	Thousand Tonnes	1486	1486000	1000.000	Thousand Tonnes/Tonne	NIL	0	0.0	NIL	0	0
Silica Sand	25	Thousand Tonnes	3723	3723000	1000.000	Thousand Tonnes/Tonne	LC	0.3	1,116,900.0	H	24	47528
Sillimanite	30	Thousand Tonnes	41.722	41722	1000.000	Thousand Tonnes/Tonne	MC	0.5	20,861.0	H	24	888
Steatite	30	Thousand Tonnes	819.579	819579	1000.000	Thousand Tonnes/Tonne	MC	0.5	409,789.5	H	24	17438
Wollastonite	30	Thousand Tonnes	118.666	118666	1000.000	Thousand Tonnes/Tonne	MC	0.5	59,333.0	H	24	2525
Fodder	11	tonne	0	0	0.000	tonne/Tonne	NIL	0	0.0	NIL	0	0
Containers	47	tonne	0	0	0.000	tonne/Tonne	NIL	0	0.0	NIL	0	0
Fish, meat	48	tonne	0	0	0.000	tonne/Tonne	NIL	0	0.0	NIL	0	0
Livestocks	49	tonne	0	0	0.000	tonne/Tonne	NIL	0	0.0	NIL	0	0
Scraps(All type)	51	tonne	0	0	0.000	tonne/Tonne	NIL	0	0.0	NIL	0	0
Others	52	tonne	0	0	0.000	tonne/Tonne	NIL	0	0.0	NIL	0	0
All Fertilizers	26	Mn.Tonnes	32.11	32,110,000	1000000.000	Mn.Tonnes/Tonne	LC	0.3	9,633,000.0	H	24	401375

Appendix- 2 Special Report 1

Comm. Code	Commodity Name	Tonnage Total (In Million Tonne)	Tonnage Containersable (In Million Tonne)	Total No of Container (in '000)	Distance Slab (In KM)											
					>400	>500	>600	>700	>800	>900	>1000	>1100	>1200	>1300	>1400	>1500
1	RICE (ALL TYPES)	96	10	357	194	1,719	1,542	1,385	1,201	1,085	968	859	698	575	463	352
2	WHEAT AND WHEAT FLOUR	80	9	327	183	1,600	1,388	1,154	975	800	704	635	544	467	382	285
3	OTHER FOOD GRAINS	41	4	174	120	1,072	958	871	754	665	571	501	435	376	322	242
4	GRAMS & PULSES	18	2	77	55	495	441	388	343	294	259	236	199	166	144	111
5	SUGAR AND KHANDSARI	28	14	593	366	3,191	2,839	2,414	2,093	1,797	1,510	1,289	1,056	882	740	563
6	SUGAR CANE	341	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	OIL SEEDS (ALL TYPES)	29	3	152	140	1,337	1,237	1,010	932	900	887	853	806	771	670	502
8	COTTON (RAW & MANUFACTURED)	6	5	725	525	4,850	4,515	4,076	3,750	3,371	2,698	2,505	2,138	1,954	1,764	1,474
9	JUTE AND COIR (RAW & MANUFACTURED)	2	1	192	184	1,796	1,783	1,781	1,761	1,699	1,630	1,592	1,538	1,529	1,287	1,002
10	RUBBER (RAW & PRODUCTS)	1	1	37	14	138	136	134	132	124	122	121	119	118	109	106
11	FODDER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	FRUITS AND VEGETABLES	189	57	2,980	1,994	18,459	16,852	15,171	13,921	12,651	11,402	10,387	9,234	8,035	6,947	5,322
13	TEA AND COFFEE	1	1	84	67	309	293	285	276	135	131	120	112	107	102	93
14	TOBACCO & TOBACCO PRODUCTS	0	0	30	11	104	96	85	77	73	67	61	56	51	46	37
15	WOOD, TIMBER, PLYWOOD, ETC.	0	0	18	11	101	92	81	69	58	51	45	38	33	28	23
16	IRON ORE	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	ORES OTHER THAN IRON	31	2	106	52	424	336	239	201	171	154	117	95	78	61	51
18	COAL	514	3	117	66	590	530	462	419	383	347	307	270	220	188	155
19	POL PRODUCTS (LIQUID)	154	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	COALTAR AND BITUMEN	5	2	59	31	262	227	197	181	166	144	136	107	92	75	63
21	LIMESTONE & DOLOMITE	193	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comm. Code	Commodity Name	Tonnage Total (In Million Tonne)	Tonnage Containersable (In Million Tonne)	Total No of Container (in '000)	Distance Slab (In KM)											
					>400	>500	>600	>700	>800	>900	>1000	>1100	>1200	>1300	>1400	>1500
22	SALT	18	5	228	190	1,759	1,682	1,543	1,434	1,330	1,138	1,002	783	632	498	305
23	GRANITE, MARBLES & OTHER SPECIFIED STONES	10	9	381	275	2,468	2,215	1,988	1,782	1,509	1,329	1,221	1,059	869	754	599
24	CEMENT AND CEMENT STRUCTURES	170	52	2,206	1,097	9,317	7,728	6,335	5,576	4,802	4,257	4,015	3,696	3,407	3,117	2,486
25	BLDG. MATRL. (BRICKS, EARTH WORK, SAND, STONE, STONE CHIPS ETC.)	9	3	131	48	429	356	317	284	255	211	193	171	147	125	95
26	CHEMICAL MANURES & FERTILISERS	52	16	688	397	3,483	3,150	2,792	2,213	1,804	1,407	1,249	986	843	693	531
27	IRON & STEEL (ALL TYPES)	97	31	1,245	728	6,683	6,141	5,487	4,986	4,468	4,042	3,690	3,190	2,717	2,292	1,814
28	METALS OTHER THAN IRON AND STEEL	3	2	97	58	538	484	438	399	371	314	292	261	233	198	152
29	EDIBLE OILS	10	8	431	253	2,292	2,061	1,828	1,659	1,486	1,335	1,220	1,084	959	834	638
30	CHEMICALS (POWDER AND LIQUID ALL TYPES)	24	8	335	232	2,126	1,942	1,713	1,561	1,424	1,285	1,189	1,043	925	819	625
31	PAINTS & DYES	1	1	60	49	468	443	411	394	170	148	135	120	108	94	77
32	ELECTRICAL GOODS (INCL. ELECTRICAL WIRES)	2	2	88	61	569	526	481	444	411	376	349	312	286	259	209
33	CLOTHS & CLOTH MANUFACTURED	1	1	155	107	969	891	812	753	681	619	566	491	433	387	310
34	LEATHER & GOODS (INCL. BONES)	0	0	11	7	64	59	54	51	47	41	38	35	31	25	21
35	GAS CYLINDER - ALL TYPES (FILLED & EMPTY)	0	0	10	5	40	35	30	27	23	20	18	16	14	12	9
36	PAPER & PAPER PRODUCTS	7	4	232	151	1,372	1,233	1,094	1,004	904	819	743	666	590	510	400
37	PLASTIC & PLASTIC GOODS	3	3	123	87	813	754	690	645	597	543	506	445	397	356	289
38	CAR, VANS, ETC.	2	1	46	43	426	423	419	400	394	388	369	349	342	327	304
39	CYCLE & CYCLE PARTS	0	0	3	2	21	20	18	17	16	16	14	13	11	11	10
40	HEAVY	5	1	54	25	216	192	166	147	131	118	107	95	82	70	54

Comm. Code	Commodity Name	Tonnage Total (In Million Tonne)	Tonnage Containersable (In Million Tonne)	Total No of Container (in '000)	Distance Slab (In KM)											
					>400	>500	>600	>700	>800	>900	>1000	>1100	>1200	>1300	>1400	>1500
	MACHINERY,TRACTORS ETC.(INCL. AGR. EQUIP.)															
41	THREE WHEELERS	0	0	7	5	52	49	45	40	38	36	34	32	29	27	23
42	TWO WHEELERS	1	0	21	16	154	146	138	130	123	114	108	101	92	85	66
43	TYRE AND TUBE	0	0	24	17	164	152	139	128	117	106	97	86	79	71	59
44	SPARE PARTS (ALL TYPES)	1	1	36	23	211	201	190	180	168	159	152	143	135	123	106
45	EMPTY TINS, BOTTELS, DRUMS ETC.	1	1	66	35	317	284	246	223	196	179	165	147	130	115	91
46	PROVISIONS & HOUSEHOLD GOODS	8	7	318	191	1,736	1,570	1,407	1,286	1,174	1,054	968	849	754	674	545
47	CONTAINERS (LOADED & EMPTY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	FISH/EGG/MEAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	LIVESTOCK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	MILK & PRODUCTS	104	10	547	218	1,836	1,657	1,424	1,324	1,186	1,043	960	858	759	698	550
51	SCRAP (ALL METALS)	19	6	245	139	1,283	1,187	1,091	1,025	952	870	801	712	626	503	402
52	PARCELS,MISC,OTHERS, ETC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	2,284	287	13,818	8,471	76,248	68,846	61,031	55,198	49,151	43,613	39,965	35,186	31,081	27,004	21,152