सत्यमेव जयते

ए. के. महापात्र आई.ए.एस.
सचिव
A. K. MOHAPATRA IAS
SECRETARY
Tel. : 23714938
Fax : 23716656

भारत सरकार
Government of India
पोत परिवहन, सड़क परिवहन और राजमार्ग मंत्रालय
Ministry Of Shipping, Road Transport & Highways
पोत परिवहन विभाग
Department of Shipping
परिवहन भवन/Transport Bhawan
१, संसद मार्ग/1, Parliament Street
नई दिल्ली/New Delhi

March 20, 2007

Dear Friend,

To cope with the demand created by the Indian economy registering an annual growth of more than 9% we propose to take steps to increase the efficiency of our Ports and reduce the dwell time of cargo. We have prepared a draft report on the various factors influencing dwell time as well as steps to be taken to reduce dwell time to the minimum. The report encompasses the movement of cargo right from the time when the ship calls at the anchorage to its evacuation from in-transit area of the port's terminal. We are placing this report on our website with the hope that it will be thoroughly scrutinized and responded to. We welcome your suggestions at the earliest. Needless to say that your response will be of immense help to us in further improving the report. Kindly send your response to Deputy Secretary (Port Operations) on e-mail id dspo@nic.in

With kind regards,

Sincerely yours,

(A.K. Mohapatra)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. BACKGROUND

In the meeting of the Committee on Infrastructure held on 16th February, 2006, it was decided that an Inter Ministerial Group (IMG) under the chairmanship of Secretary Shipping be constituted to make recommendations for reducing the total dwell time at Ports and to bring it in line with International Standards. Accordingly, an Inter-Ministerial Group was constituted on 13th March 2006. It was required to submit its report by 31st May 2006. The composition of the IMG was as follows:

(i) Secretary (Shipping) - Chairman

(ii) Member Secretary, Planning Commission (or his representative)

(iii) Chairman Railway Board (or his representative)

(iv) Secretary, Department of Economic Affairs

(v) Secretary, Commerce

(vi) Secretary, Revenue.

The meetings of the group were held on 15.5.2006, 29.5.2006, 29.6.2006, 31.10.2006, 24.11.2007 and 25.01.2007 amongst the Members and core group of officers.

Detailed discussions were held with the representatives of the Major Ports and the Port Users to get a better appreciation of the issues involved and to identify the measures required for reducing the dwell time at the Ports. Two separate teams of officers were also deputed to visit Rotterdam and Singapore Ports to study various aspects of dwell time at these ports.

Issues concerning the dwell time at the Ports and measure for its improvement were discussed in the meetings held with stakeholders and representatives and members of IMG. The different components of the dwell time at various stages involving different agencies were reviewed. A comparison was also made with the procedures followed in Ports in other countries.

1.1. Terms of Reference

- To analyze the efficiency of the Major Ports in the country and to identify the factors affecting the performance.

- To recommend measures to be adopted for improving the efficiency at ports.

- To identify the factors effecting port's efficiency and suggest measures to improve the efficiency.

- To analyze the dwell time of cargo / containers at Indian Ports and to arrive at the factors contributing to the high dwell time and recommend measures for reducing the dwell time and improve the efficiency at major ports.

2. INTRODUCTION

2.1. Indian Port Sector

Ports in India are classified as major or minor on the basis of ownership. The Government of India wholly owns the 12 Major ports. While the Major Port Trust Act of 1963 governs the eleven Major Ports, the 12th port viz. is the only corporate port that is administered by the provisions of Companies Act. The ownership of the non-major ports is essentially under the jurisdiction of the respective Maritime Board of the State Governments.

2.2. Cargo Profile at Indian Ports

The volume of cargo handled at the Indian ports has witnessed CAGR of 10.67% in the last five years. Total cargo handled at the 12 Major Ports is 423.34 million tonnes in 2005-06 against 383.7 million tonnes handled in 2004-05. The cargo profile at Indian major & minor ports for the year 2005-06 is exhibited in Tables 1.1 & 1.2 of Appendix-1. The share of the minor ports is growing steadily and is almost 25% of the Indian maritime trade.

2.3. Stakeholders of the Port Sector

Port authorities are one of the important stakeholders in the supply chain logistics, whose performance is a key factor in determining the efficiency of the system. The identified stakeholders and their role in port logistics chain are listed in Appendix -2.

2.4. Ex-Im Procedures at the ports

The Major Ports are ISO certified and the port procedures in conjunction with Customs procedures are intended to provide definite predictable methods by which cargoes can be handled and cleared through seaports on payment of applicable Custom duties, port charges for vessels as well as cargo, abiding by the laws of the land.

Ports are Custom notified places under Section 7 of the Customs Act 1962. Ports are the custodians of cargo appointed by Customs under Section 45 of the Customs Act 1962 for safe storage of goods till they are delivered. The respective ports prescribes the procedures under Major Port Trusts Act of 1963 for the handling of vessels and cargo, delivery and admittance of cargo at the port in conjunction with the Customs procedures for clearance of cargo.

All services rendered by the Major Ports are payable in accordance with the rates approved by TAMP. The Steamer Agents intimate the port regarding the arrival of the vessel. The port extends desired facilities for vessel and cargo operations on payment of applicable vessel related charges on grant of permission by Customs. On payment of applicable stevedoring charges and other service charges, the Stevedore's request for provision of port labour for the cargo discharge and loading operations.

The Clearing and Forwarding Agent move the cargo in or out of the port after completing the formalities for clearance of cargo at Customs. Wharfage charges are the basic dues on the cargo passing through the port. In imports, cargo is delivered on receipt of Out of Charge order from Customs and in exports, cargo is loaded on receipt of Let Export Order / Passed for Shipment (or) Allowed for Shipment.

Manual processing, multiple physical interfaces and redundancy characterize the Ex-im processes at Indian Ports. Bottlenecks and limited use of information technology in the processes hamper the seamless transfer of cargo in the supply chain logistics. General procedures for import & export streams of containers, Bulk and Break Bulk cargoes have been listed and explained with the help of respective process flow charts in Appendix 3.

3. DWELL TIME AND EFFICIENCY AT PORTS

3.1. Concept and Introduction

Maritime trade contributes more than 90% of the total volume of the ex-im trade. Cargoes are transported in bulk, break bulk and containerized forms. The cargo handled at the Major Port Trusts in 2005-06 was 423.34 million tonnes. The break-up is illustrated in the pie diagram below.

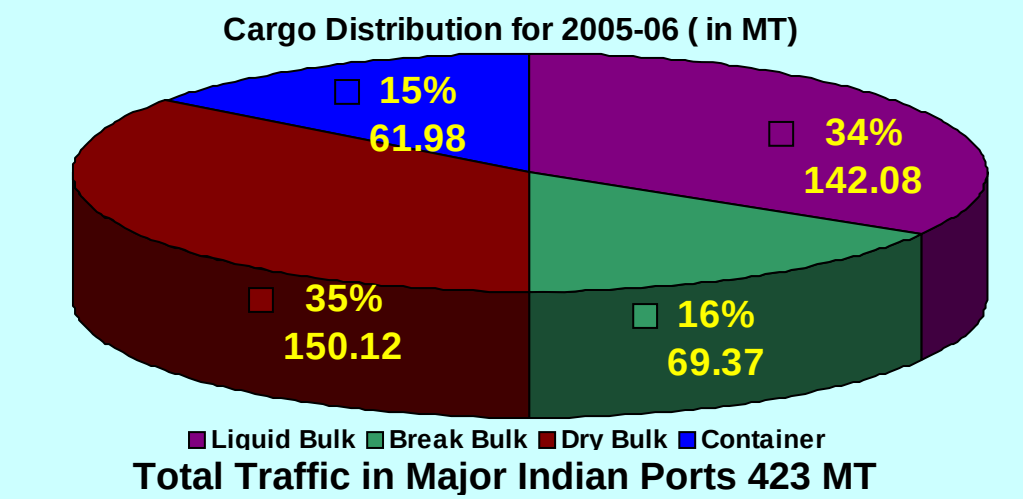


Figure 3.1: The distribution of cargoes handled by Indian Major Ports in 2005-06

3.2. Definition of Dwell Time

The duration for which an entity stays in the port for service is called dwell time of the entity. In the port parlance, the entities are mainly the vessel and cargo / containers.

Cargo / Container related dwell time

The time cargo / container remains in a terminal's in-transit storage area while awaiting shipment by vessels in exports or evacuation by rail / road in imports.

Vessel related dwell time

From the time a vessel reports at anchorage to the time it is cast-off from the berth, is the Turn Round Time for the vessel.

Dwell time of cargo/container and vessel broadly reflects the efficiency of the port. Thus measures adopted to reduce the dwell time have an influence on the efficiency of the port.

3.2.1 Comparison Of Average Dwell Time at Indian Major Ports

The Dwell Time at Indian Ports for 2005-06:

AVERAGE DWELL TIME IN INDIAN PORTS -COMBINED FOR LICENCED AREA, TRANSIT AREA AND TERMINAL (2005-06) **(IN DAYS)**

Sl.No.	PORT	Dry Bulk				Break Bulk				Container*	
		Import		Export		Import		Export		Import	Export
Indian Major Ports		WH-LA	Terminal	WH-LA	Terminal	WH-LA	Terminal	WH-LA	Terminal		
1	TPT	NA	3	NA	NA	7	5	NA	NA	1.18	3
2	CHPT	50	3	30	3	15	7	15	7	3	4.5
3	MGPT	50	3.5	18	3	NA	NA	NA	NA	NA	NA
4	PPT	45	3	30	3	NA	NA	NA	NA	NA	NA
5	MBPT	NA	4	NA	NA	7	7	7	7	1.2	7
6	JNPT	NA	NA	NA	NA	NA	NA	NA	NA	1.5	6
7	KANDLA	60	4	7	6	6	7	11	7	5	1
8	HALDIA	30	3	30	3	10	5	10	6	6.5	6.5
9	KOLKATTA	NA	NA	NA	NA	17	5	10	6	8.2	4.8
10	VPT	10	3	20	3	10	5	NA	NA	3.8	2.3
11	NMPT	10	3	30	4	7	4	NA	NA	NA	NA
12	COPT	25	3	NA	NA	NA	NA	NA	NA	10	7
13	ENNORE	NA	3	NA	NA	NA	NA	NA	NA	NA	NA
	Average	**35**	**3.23**	**23.57**	**3.57**	**9.87**	**5.62**	**10.6**	**6.6**	**1.88***	**3.78***

* Only ports with dedicated container terminals / BOT terminals / throughput greater than 40000 TEUs have been taken into consideration.

NA – Not Available. WH- Warehouse; LA- Leased, TA-Transit Area

Table 3.2.1: Average Dwell Time in Indian Ports-Combined for Licenced area and Terminal

The above Table shows the dwell time at Indian Major Ports for the year 2005-06.

Average container Dwell Time at major container Terminals:

- Import = 1.88 days
- Export = 3.78 days

Average Dwell Time of Indian Ports for Dry Bulk/Break Bulk:

Import: Dry Bulk =35+3.23 = 38.23 days Break Bulk = 9.87+5.62= 15.49 days

Export: Dry Bulk =23.57+3.57= 27.14 days Break Bulk = 10.6 +6.6 = 17.2 days

It is pertinent to note that for liquid bulk cargoes dwell time is not an issue since in most of the ports the cargo is pumped out of the port premises or to user tank farms directly from the vessel.

Except in the case of Jawaharlal Port most of the container vessels calling on the container terminals today are feeder line vessels from the nearby hub ports like Singapore, Colombo, Penang etc. The average dwell time in major container terminals is 1.88 (import) and 3.78 (export) days. Any reduction in dwell time would reduce the transaction cost and also increase the capacity of the existing Port

infrastructure. This in turn would facilitate the trade in general and will enhance the competitiveness of Indian goods in the international markets.

It is observed that the port's role in the entire logistics chain is barest minimum to provide the infrastructure facilities for handling of vessels, containers and other cargo. A detailed time study of the actual time taken by the port authority for handling import and export containers in the container terminal was carried out. It revealed that the total time taken by the port authority, cumulatively, is 3.5 to 5.5 hrs for import and 3.3 to 5.3 hrs for export. Thus it can be observed that the rest of the time the container dwells in the port is on the account of other stakeholders like shipping agents, customs, Clearing agents / transporters etc who have to play their respective roles in preparing & furnishing the requisite information to the port authority, arrange for funds for making payment of port charges, arranging for transport etc. Appendix 3A gives the time taken for various activities taken by the port for handling containers at the terminal.

3.3. Port Efficiency Parameters

The efficiency of any Port may be judged by the Parameters such as – Pre Berthing Detention Time (PBD), Non-Working Time at Berth (NWT), Turn Round Time (TRT) and Output per Ship Berth day (OSB) of the vessels.

While making comparison on the basis of indices of efficiency it is important to note that ports differ significantly in their infrastructure, cargo mix, types of ships calling at the Ports and nautical constraints etc. For these reasons, comparison of the indices of efficiency parameters not only with international ports but also amongst other Indian Ports may not be appropriate.

3.3.1 Pre-Berthing Detention

Definition:

"This is the time taken by a ship from its arrival at the anchorage (reporting station) till it starts its movement to the working berth, i.e., operational berth. "

Pre berthing Detention is a component of the Turn Round Time and any increase in the PBD correspondingly increases the Turn Round Time. The Average Pre Berthing Time on port account and non-port account at the Indian Major Ports for the year 2005-06 is illustrated in Table 4.1 of Appendix-4. The factors contributing towards port account and non-port account towards pre-berthing detention are listed in the table.

3.3.2 Non Working Time of Vessels At Berth

Definition:

Non-working time is defined as sum of the "The Idle time from the time of berthing to start of work, idle time during ship operation and idle time taken from the time of completion of operations to sailing from berth together.

The Average Non-working Time on port account and non-port account at the Indian Major Ports for the year 2005-06 is listed in Table 4.2 of Appendix-4. The factors contributing towards port account and non-port account towards Non-Working Time are listed in the table.

3.3.3 Turn Round Time (TRT)

Definition:

The Turn Round Time of a vessel refers "to the time the vessel reports at the anchorage to the time it sails out from the berth".

The Average Turn Round Time on port account and non-port account at the Indian Major Ports for the year 2005-06 is listed in Table 4.3 of Appendix-4. The factors contributing towards port account and non-port account towards turn round time are listed in the table.

From the data pertaining to the above three port efficiency parameters, it is observed that the average PBD, NWT and TRT values especially on non-port account are quite high, indicating that ships have to wait at anchorage or berth for availing the services and under utilization of resources at Indian Ports. Ideally, the berths should wait for ships and not the ships for berth. At the international Ports there is no concept of PBD as sufficient infrastructure is available to service the vessels as and when they arrive. NWT as also TRT at International Ports is low.

3.3.4 Output Per Ship Berth Day

Definition:

The average output per ship berth day is defined as the ratio of the aggregate cargo to the total number of berth days.

The Average Output per Ship Berth Day (OSB) at the Major Indian Ports for the year 2005-06 is listed in Table 4.4 of Appendix 4. The low values for OSB indicate lower productivity and there is enough scope for improving the same by way of minimizing the non-working time.

3.3.5 Efficiency Parameters – Inter-Dependency

The port efficiency parameters Turn Round Time (TRT), Pre-Berthing Time (PBD), Output per Ship Berth day (OSB) and Non-Working Time (NWT) are inter-dependent and factors affecting one parameter will have cascading effect on the others. The main parameter of TRT can be fairly taken to indicate the efficiency of the port since it reflects all the other components effectively. To make understanding explicit, the following pictorial representation of the components involved in TRT is shown.

The pictorial representation of the components involved in TRT is shown below:

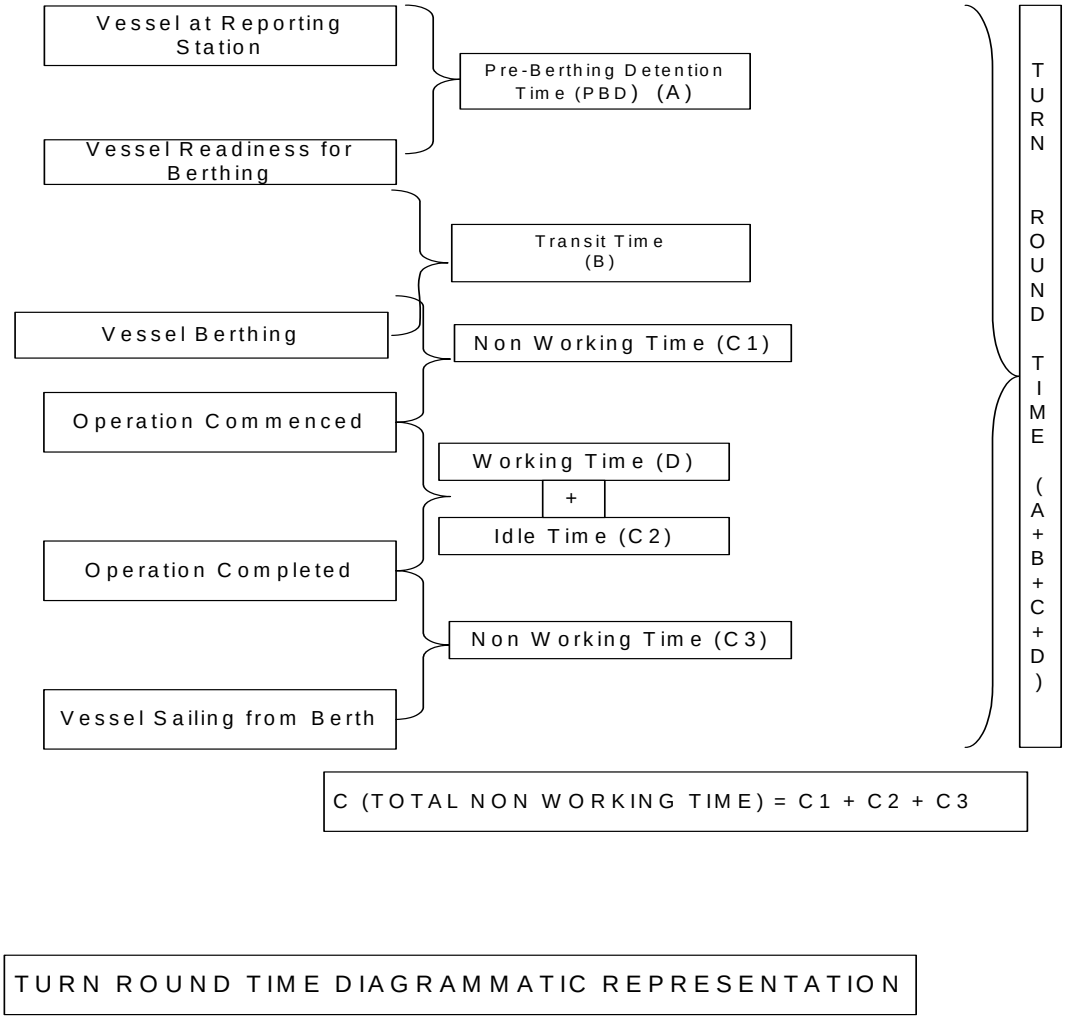


Figure. 3.3.5: Turn Round Time Diagrammatic Representation

In terms of time distribution, TRT is the sum of PBD, time spent at the working berth that includes the vessel working time (WT) and Non-Working Time (NWT) at berth and operational Transit Time (time taken for berthing).

The values of the various components involved in TRT (over all) for the major ports for the year 2005-06 are given in the Table 4.5 of Appendix 4. The TRT is taken as an indicator of the overall port efficiency.

A comparative analysis of facilities at International Ports and Indian Ports has been dealt at chapter 4. This study in the chapter 5 includes the detailed analysis of various factors attributable to the port as also other stakeholders, which are contributing to the dwell time of the vessel as well as for the cargo and also those affecting the port efficiency parameters. Initiatives already taken by the department of shipping have been listed in chapter 6. Specific recommendations to address the issues involved have been listed with target dates for implementation by the ports and other stakeholders in chapter 7.

4. INTERNATIONAL AND INDIAN PORTS – A COMPARATIVE ANALYSIS

4.1 Standards at some International Ports.

To make a comparative analysis, the performance of our ports and some of the international practices adopted in port operations for achieving higher efficiency and quick turn round time of resources were studied.

Ports are large entities, whose characteristics are defined by the demands of the local economy. It is observed that the Port of Rotterdam is predominantly an industrial complex comprising of industries and a Port to cater to the demands of the domestic as well as continental trade, It is a Port handling wide range of cargo mix with separate state of the art terminals to handle containers, liquid bulk, dry bulk and break bulk. On the other hand, Singapore, which is along the world's busiest maritime route, has four container terminals that handle close to 23 million TEUs of which 85% is transshipment container traffic and only 15% is domestic consumption. Port Officers deputed to study these ports confirmed the vast difference in the quality of infrastructure and superstructures characterized by state-of-the-art facilities ably supported by the IT infrastructure available at these ports in comparison to Indian Ports. There is a large disparity in the volume of cargo handled at the Ports of Rotterdam and Singapore as shown in Table-4.2.3.1 and the volume of cargo collectively handled at all Indian Major Ports.

International seaports are transportation gateways that are runs as commercial enterprises in the private sector and supported for infrastructure by public bodies where in the market forces play a large part in their success. The success of these enterprises is not confined to the port owners only but by entire regional economies since strong ports stimulate trade and helps to attract inward investment. Further, these ports are complemented by excellent transport connections by barge / feeder vessels, road and rail network. To make a direct evaluation of the prevailing situation in international ports two separate study teams visited the Port of Rotterdam and Port of Singapore. In general successful international ports are characterized by optimized business process flow complemented with electronic information exchange amongst the stakeholders by the latest in Information Technology, higher level of mechanization, huge volumes of cargo and vessel traffic, intermodal connectivity and vast space for storage and processing. Another key feature is the presence of huge industrial complex within the port premises. Thus the growth of both the port and the industries complement each other.

4.2 International Ports - Overview

4.2.1 e-Environment With ERP for Port Operations:

The entire business processes in the port is in an e-environment, which is characterized by literally no manual intervention. The leading ports have been successful in simplifying or eliminating complex and cumbersome import procedures, policies and practices and have evolved practices that are in tune with ever-changing and dynamic nature of international trade. With globalization and highly competitive environment, international ports have ensured that their core function of sea port operations is cost effective, maximizes profit and at the same

time ensures quicker turn round of ships and encourages investment.

International ports are bound by International Maritime Organizations (IMO) convention on facilitation of International Maritime Traffic (FAL) of 1965. The purpose of the FAL convention is to facilitate maritime transport by simplifying and minimizing the formalities, documentary requirements and procedures associated with the arrival, stay and departure of ships engaged in international voyages. United Nations has established CEFACT known now as UN/CEFACT, which is its Center for Facilitation of procedures and Practices for Administration, Commerce and Transport. The focus is worldwide facilitation of international transactions through simplification and harmonization of procedure and information flow. With the advent of wide spread use of information technology, electronic data interchange has come to be referred as “best practice” technology of improving trade facilitation.

Sea Ports are Custom bound area where goods can be released after undergoing certain procedures, which include revenue collection. In the international ports, Customs procedures are highly simplified and rationalized with emphasis on the speed of clearance of goods to reduce delays in delivery to overseas and local customers. This leads to overall improvement in import duty administration and clearance of goods so as to improve and control cargo clearance and produce increased revenue as well as supply relevant trade data for planning purposes. International Ports have integrated their business process flows successfully with Internet information technology.

The entire gamut of information exchange amongst the stakeholders involved in sea port operations has been streamlined through adoption of Port Community System. The core workflow of port logistics is described in the diagram given below:

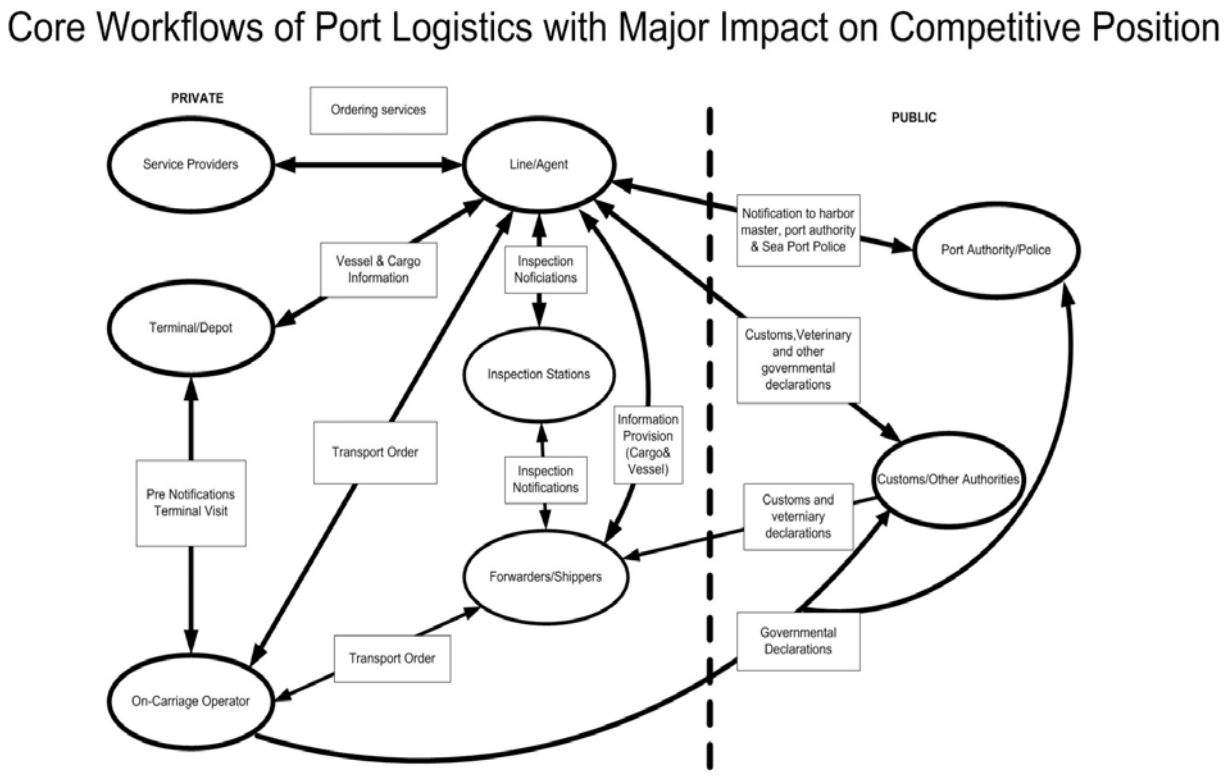


Figure. 4.2.1 (a): Core wokflow of Port Logistics

The Port Community System run by M/s Port Infolink at Port of Rotterdam and M/s Portnet at Port of Singapore enables to facilitate chain integration of the entire process of information exchange amongst the stakeholders and maintain its competitive position in their respective areas. With continuous growth of cargo flows, the availability of a Port Community System is a pre requisite for a successful development of a port. In international ports, Port Community System is defined as a typical PPP (Public-Private-Partnership) investment that has a:

- PCS platform forms ICT infrastructure
- Neutrality is paramount
- High investment costs and risks (depending on scale and complexity of the port)
- Large number of users from different transport sectors which need to share information to perform. Without initiating and controlling role of the government only bilateral solutions will be developed.

PCS is characterized by a central platform, which enables reuse and integration of data. Information is stored, changed, shared and reused by a great number of customers. A central platform enables powerful and seamless data integration between all major port players and throughout the port logistics chain, communication via both messages and ASP Internet services. Central platform offers central functionality for all services.

Implementation of the above has led to the improvement in the businesses of the clients of the port that in turn enhances the competitive position of the port by:

- Faster and more efficient transport & handling
- High service levels by less retyping with less mistakes and more focus on service delivery
- Lower staff and administration cost

International ports that have implemented PCS have experienced large improvement in their competitive position of the port in the following areas:

- Value for money
- Throughput time & capacity
- Operational cost
- Service levels & customer focus
- Security

The document flow for import and export process is given below in the diagram:

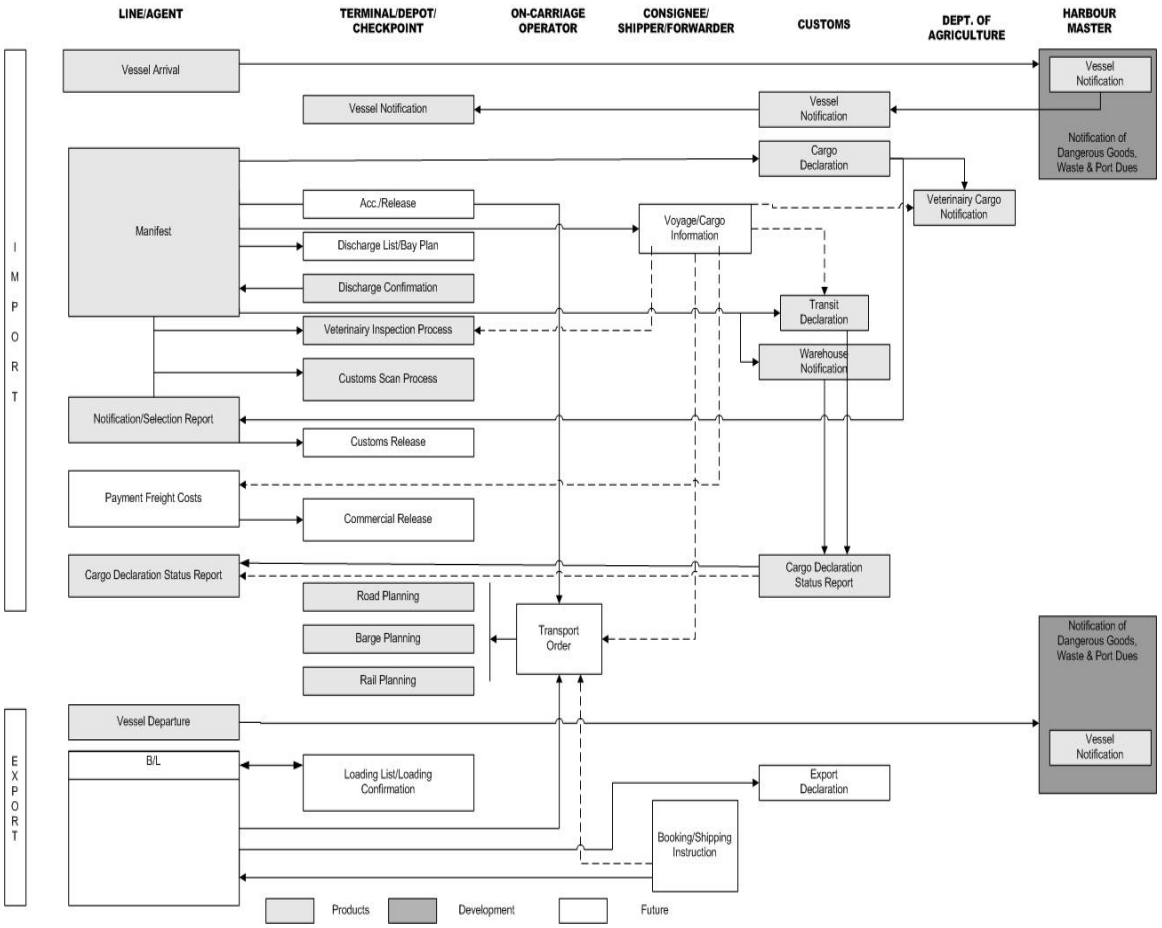


Figure. 4.2.1. (b) The document flow for import and export process

All the formats and message exchanges are designed according to the international norms and standards issued time to time by UN/CEFACT.

4.2.2. Port Infrastructure and Superstructures

International Ports are characterized by sufficient port infrastructure in terms of modern resources, port superstructure and services. The draught available in these ports ensures that neither the size of the vessels nor the nature of cargo is a constraining factor. The norm is that the resources wait for servicing the vessels / cargo. The infrastructure available at the Port of Rotterdam is:

Feature	Port of Rotterdam
Port Area	10,500 ha
Area of Water	3,500 ha
Total Port Length	40 km
Pipelines	1500 km
Quay Length	77 km

Tank Storage	33.3 Million m3
Terminal (all private)	59
Oil Jetties	122
Dry Docks	16

The Superstructures available at international Ports are powerful and have the latest technologies implemented. The Quay Cranes are capable of reaching across 22 rows of containers, the yard cranes can reach upto 9 high and supported by automated systems.

4.2.3. Quantum of traffic

4.2.3.1 Cargo traffic:

International ports in general have high volume of cargo traffic with different cargo mix. In addition, they cater to huge volume of transshipment traffic. During 2005, Port of Rotterdam handled 370 million tonnes of cargo and Port of Singapore authority handled 423 million tonnes of cargo. Analysis of the cargo mix at these ports indicates that 85% of traffic at Singapore is transshipment for containers. Both these ports are considered to be hub ports of Europe and Asia respectively.

Comparison Cargo traffic with Rotterdam and Singapore for 2005. (In 000's Tonnes)

Port	Period	POL	Iron* ORE	Fertilizer		Coal		Container		Others	Total
				Finished	Raw	Therma	Coking	Tonnage	TEUs		
Indian Ports	2004-05	126442	76195	3846	5831	33322	19237	54761	4233	64112	383746
	2005-06	142087	79171	6624	5570	37658	21101	61980	4613	69376	423567
Port of Singapore	2004 Jan-Dec	129300	These above commodities are included in the category others.						21300	264100	393400
	2005 Jan-Dec	137800							23200	285500	423300
Port of Rotterdam	2004 Jan-Dec	135400	42300	These above commodities are included in the category others.				82500	8292000	92300	352600
	2005 Jan-Dec	144300	40800					91200	9287000	93900	370200

Source: IPA and information brochure of the Port of Rotterdam & Singapore

Table 4.2.3.1. : Comparison of Cargo Traffic of Indian Ports with International Ports –2005

4.2.3.2 Vessel Traffic:

Vessel traffic at the international ports is very high with around 1.5 lakh vessels per year of different sizes. At Port of Rotterdam and Port of Singapore authority on average more than 1,50,000 vessels of different sizes and with different cargoes call on the port. The draught available range from 12m to 23m, which enables the port to handle even the latest container vessels and tankers. The number of ship movement amounts to over four lakhs in each of these ports.

4.2.4 Dwell Time Comparison with International Ports:

A comparative statement showing the average dwell time of Indian Major Ports with International Ports like Rotterdam and Singapore is listed in the Table below:

In days

Cargo Type	Major Ports		Rotterdam $		Singapore		Jurong	
	Import	Export	Import	Export	Import	Export	Import	Export
Dry Bulk	38	27	14-30	14-30	-	-	-	-
Break Bulk	15	17	60	60	*0.85	*0.85	2	*0.9
Container	1.88	3.78	4	3	*0.6	*0.6	*0.8 **2	*0.8 **2
$ Dwell Time here is not constraint					*Transshipment.		**Local day	

Table 4.2.4 : Comparison with International Ports.

It is observed that the dwell time for containers at Major Port's container terminals are comparable with the International Ports. At Port of Rotterdam, the port is a component of the industrial complex similar to the Special Economic Zones (SEZ) in India. In such ports, the dwell time is not a matter of concern.

4.2.5 Level of Mechanization:

There is a high degree of mechanization of the facilities involved in port operations especially in cargo handling and information exchange. The work force is skill intensive and technology driven. The terminal operators and the port authority ensure that the terminals are equipped with highly productive cargo handling systems in line with the objectives of the port and demands of the trade. The discharge / loading rate is very high. For instance the liquid bulk terminal has a discharge of about 1 – 1.25 lakhs tons per day. The dry bulk terminal also discharges 1 – 1.25 lakh tonnes per day. The number of quay cranes deployed per vessel is around 3-4 and the productivity of these cranes is between 25-30 moves per hour. The container-parking yard is equipped with sufficient number of yard cranes and other accessories. The port gates at Singapore have an automated system in place, which facilitates flow through system. Further, the cargo handling systems are supported by the modern technologies. At Rotterdam a Container terminal is fully automated extensively using information technology especially robotics.

4.2.6 Space- not a constraint:

Space is not a constraint as the ports have sufficient space for cargo storage and allied activities and thus congestion is not a factor. In Rotterdam, the port occupies only 60% of the huge industrial complex and the remaining 40% comprises of various industries. The port meets the industries logistics requirements for movement of goods. In Singapore too, the port complements the various industries that have established themselves adjacent to the port.

4.2.7 Evacuation of Cargo:

Successful international ports are transshipment intensive points and evacuation is mostly by feeder vessels in case of Singapore and barges in case of

port of Rotterdam. Intermodal connectivity of seaside with landside is seamless. In port of Singapore a highly innovative flow through gate system is in place that has eliminated the problem of congestion at the port gates. The detail of the Flow Through Gates is in Appendix 9. Delivery and admittance of containers is by appointment and highly automated gate system that ensures hassle free entry / exit in and out of the port. Even port of rotterdam is having cargo evacuation by appointment that is a saving for all concerned in the trade. Further, the port evacuates liquid cargo by pipeline.

4.2.8 Regulatory Practices:

Ports as mentioned earlier are customs bound areas and are bound by customs regulations for cargo clearance. Unlike Indian ports, international ports have minimal but effective customs clearance procedures that do not inhibit port operations.

4.3. A Comparative analysis of International Port viz-a-viz Indian Major Ports:

An analysis of the facilities available at International Ports and at Indian Ports shows the following major differences.

Sl. No	**Indian Port**		**Rotterdam Port**
1	**Evacuation / Aggregation of cargo**		
	Cargo is predominantly by road and rail only.		Most of the bulk cargo and the containers movement through barges accounts for 50-60% transportation because of excellent inland water networking. Intermodal connectivity by rail / road is seamless.
2	**Level of Mechanization**		
	The extent of mechanization is less in Indian Major Ports		The level of mechanization is very high with the latest technologies applied in all spheres.
3	**Location of Port based Industries**		
	Most of the manufacturing firms are located away from the ports.		Most of the manufacturing units are located within the Port, thereby the evacuation is very fast.
4	**Availability of storage space**		
	Land is very scarce in Ports. Hence, evacuation has to take place.		As so much of land is available at the Rotterdam Port, the more number of days the cargo lies inside the Terminal, the revenue is high to the Terminal Operator.
5	**Availability of Resources**		
	We have dedicated terminals with less number of berths.		There is no concept of pre-berthing detention as the berths are waiting for ships and they have longer quay lengths.

6	**Information Exchange**		
	EDI implementation is partial. Too many human interfaces and manual exchange of documents.		The total EDI networking is complete and total and hence, there is no physical movement paper from any place. Human intervention is almost nil. All payments are also done electronically.
7.	**Custom's regulations for cargo clearance:**		
	All Customs formalities have to be completed in the respective port itself.		Under the European Union Customs formalities, Customs clearance need not take place at the Port itself, it may be done beyond the port premises.
8.	**Work Processes:**		
	Work flow is manual and partly computerized and ERP is being envisaged for implementation.		The entire processing is computerized and enterprise resource planning software is implemented years back.

Sl.No.	**Indian Port**	**PSA Singapore**
I	**Availability of Physical Infrastructure:**	
1	The total number of Terminals for handling containers at India's biggest Container Port–JNPT is three Terminals having linear quay length of 600 Mtr., adequate for nine vessels at a time.	PSA Singapore has four terminals having quay length of 11,754 mtrs which can accommodate about 41 container vessels at a time.
2	The area available at JNPT for the three terminals is about 133 hectares.	The area available at Singapore Ports for the four terminals is about 425 hectares.
3	For expansion of area, JNPT is dependant on acquisition of land behind the terminal and the same is fraught with problems of land acquisition and resettlement/rehabilitation.	Though land is scarce in Singapore, expansion of terminal is done by reclamation of land from sea and therefore though costly, can be well planned and is not limited by the constraint of land acquisition.
4	The draft at JNPT is (-) 12M and there is limitation on latest generation vessels.	Maximum draft is more than (-) 16 M. and there is no limitation on the most modern and latest generation container vessels.
5	There are draft limitations in the channel.	There are no draft limitations in the channel and the biggest ships in the world can visit Singapore Port at any point of time.
6	The total number of quay cranes is about 8 Nos.	The number of quay cranes at the four terminals at PSA Singapore is 131.
II	**Level of Mechanization:**	
1	The level of mechanization at Indian Ports is limited and many cargoes are handled by conventional means. In container stream, the number of quay	The level of mechanization is very high and sophisticated with infusion of latest technology in every sphere of handling of cargo.

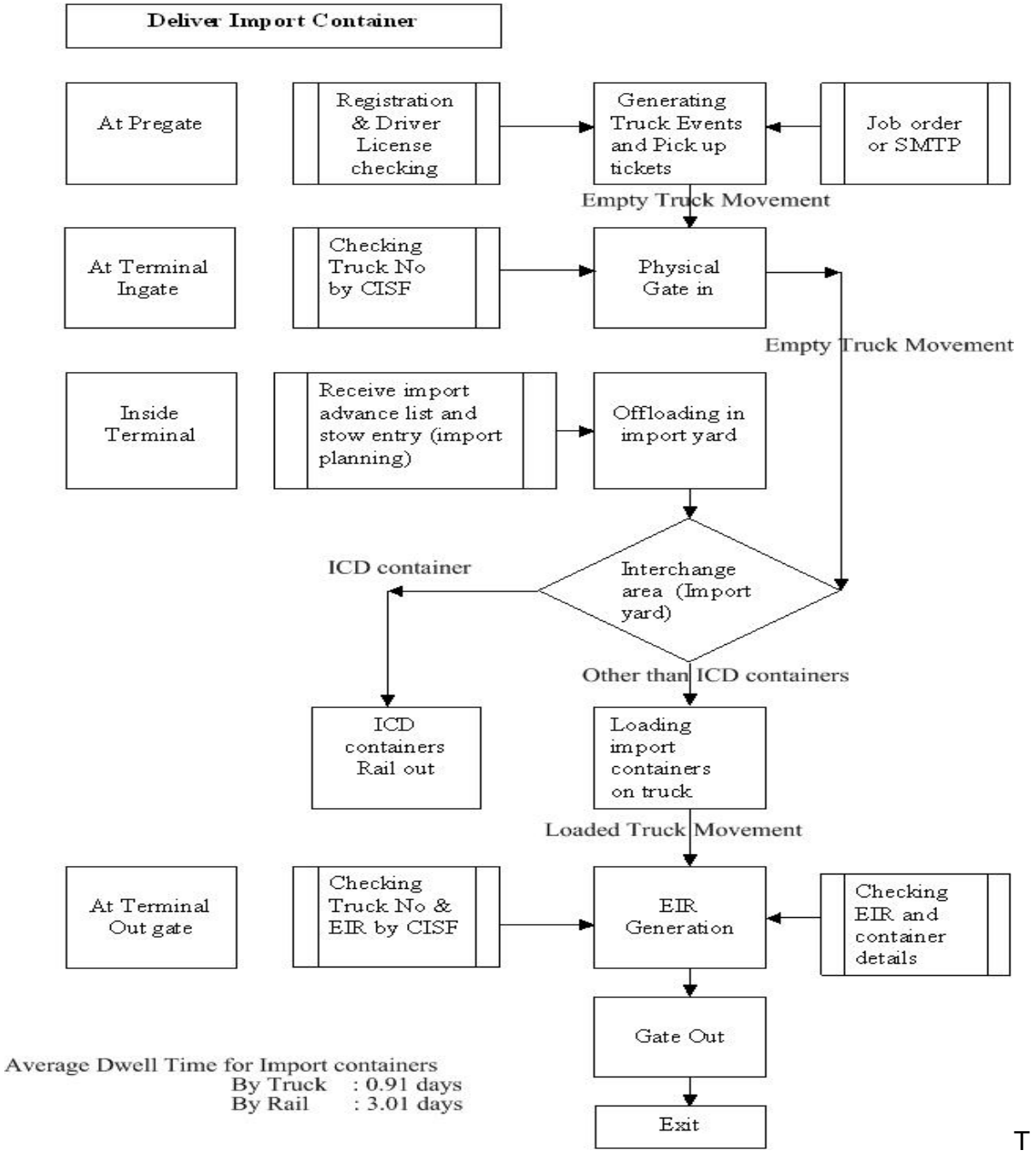
	cranes reach stackers, trailers etc. are far limited.	
2	The equipments are handled by staff deployed at site. The average move per hour is about 20/25. Due to less deployment of cranes, the crane rate (total number of containers loaded/unloaded from a ship in one hour) is about 60/70. This leads to late turn round of vessel and subsequent high dwell time.	The cranes are both operated by staff at site and also by automation through Terminals control centre. The move per hour is about 25-30. They have the maximum reach across the biggest and widest generation vessels. Due to adequate deployment of cranes, the crane rate achieved is 100 per hour. This leads to quick turn round of vessel and subsequent less dwell time.
III	**Cargo handling characteristics:**	
1	The total volume of cargo handled at Indian Ports in 2005-06 is 423.567 Million Tons. In this, handling of container cargo is only 4613 TEUs and JNPT, India's biggest container port handled 2667 TEUs in 2005-06.	The total volume of cargo handled at Singapore in the calendar year 2005 was 423.3 million tons of which, containers handled was 23.2 million TEUs. The volumes therefore are simply not comparable.

4.4. Business Process Flow At Indian Container Terminals:

Indian Major ports have re-engineered their business flow processes for containers incorporating the best practices in international ports and at the same time abide by the complex regulatory practices. There is scope for optimizing the processes further. A comparison of the process flow amongst the major terminals such as Jawaharlal Nehru Port Trust (JNPT), Gateway Terminals India (GTI), Chennai Container Terminal Private Limited (CCTPL) etc indicate that the flow is almost similar in these container terminals due to the fact that the operations at these container terminals are run based on terminal operating systems such as NAVIS, CETOS etc. These terminal operating systems are basically designed on the best practices adopted by the International ports and hence the basic framework of operations is the same with customization meet the specific needs of the terminal. Given below is the workflow at these three terminals – JNPT, GTI, CCTPL.

JNPT Work Flow:

The workflow adopted by Jawaharlal Nehru Port Trust for their import containers is:



T

Figure 4.4 (a) Workflow adopted by JNPT – Import Container

The Workflow Adopted By Jawaharlal Nehru Port Trust For Their Export Containers Is:

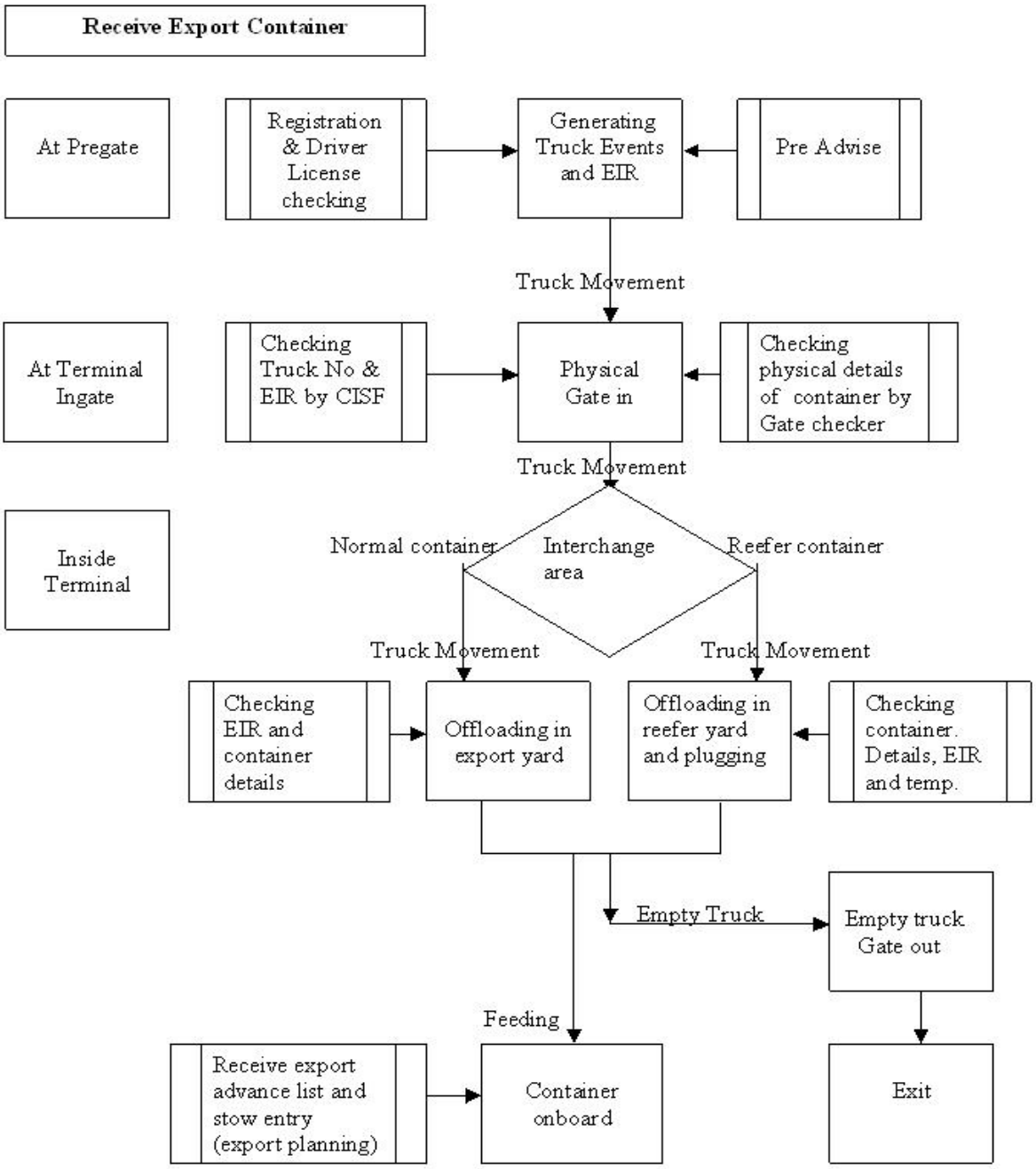


Figure 4.4 (b) Workflow adopted by JNPT – Export Container

G T I Work Flow :

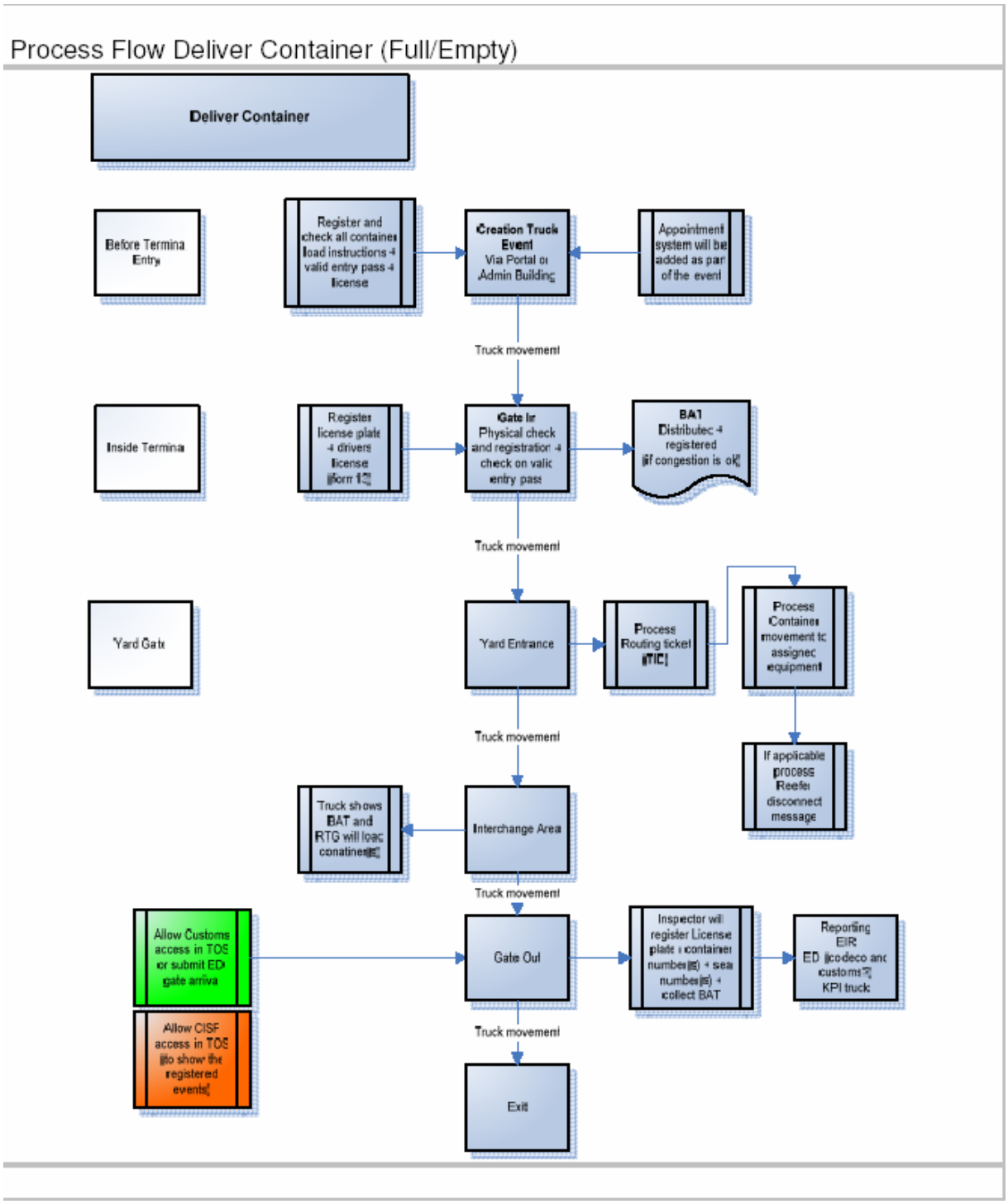


Figure 4.4 c) Process flow Delivery Container - GTI

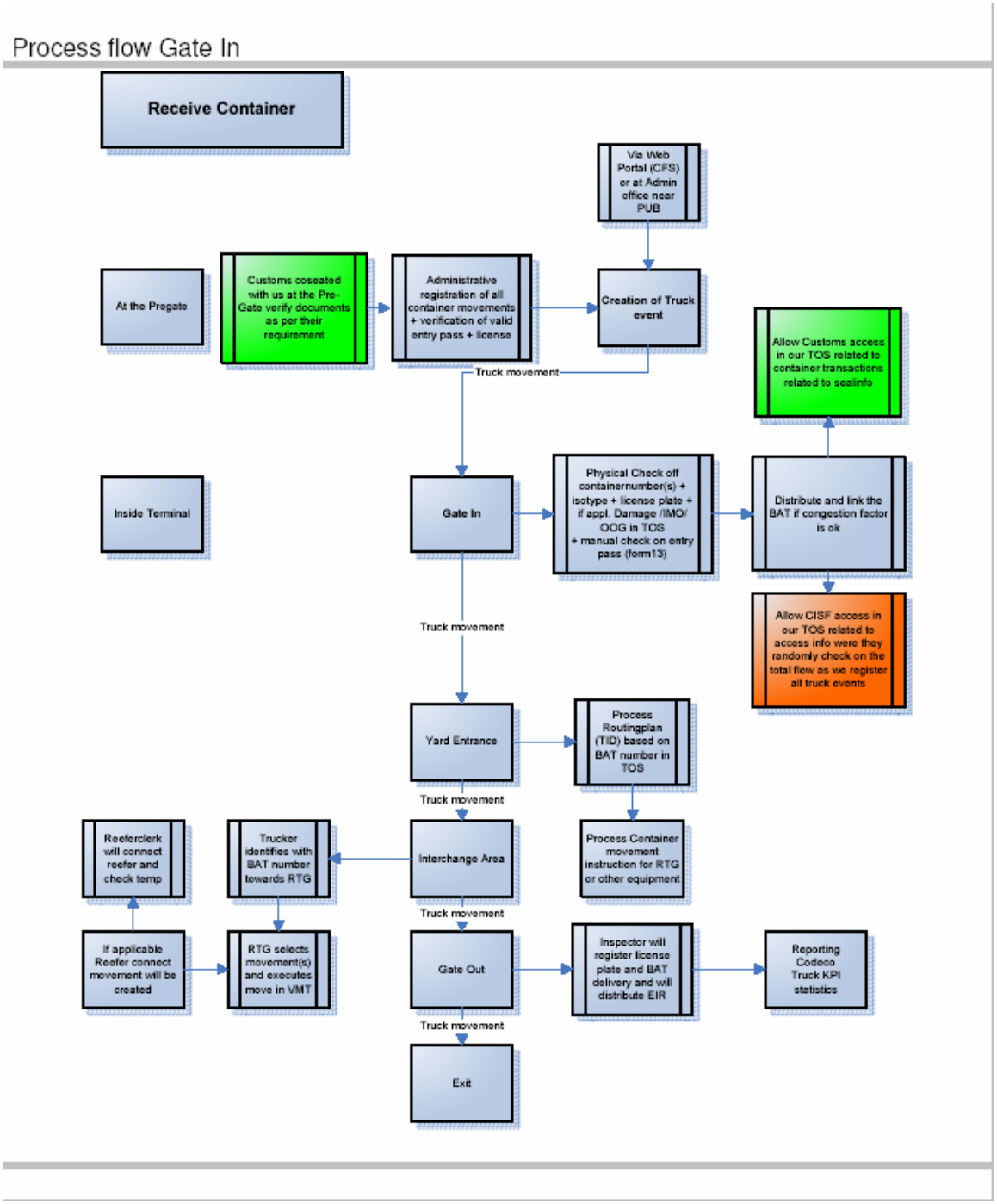


Figure. 4.4 (d): Process flow of Gate in Containers of Gateway Terminals

CCTPL Work Flow :

Import Procedure Flow Chart

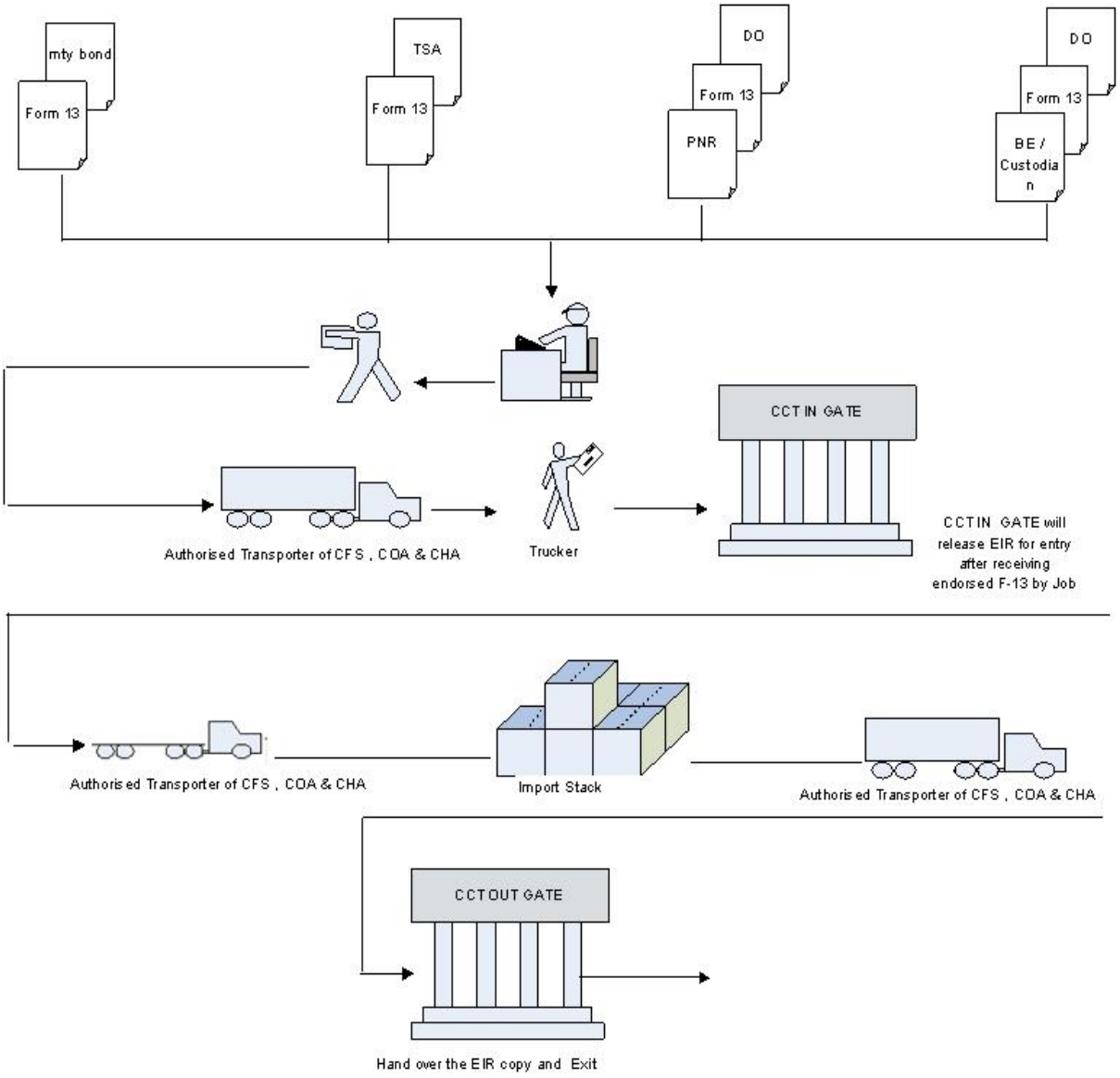


Figure. 4.4 (e): Import flow of Containers at CCTPL

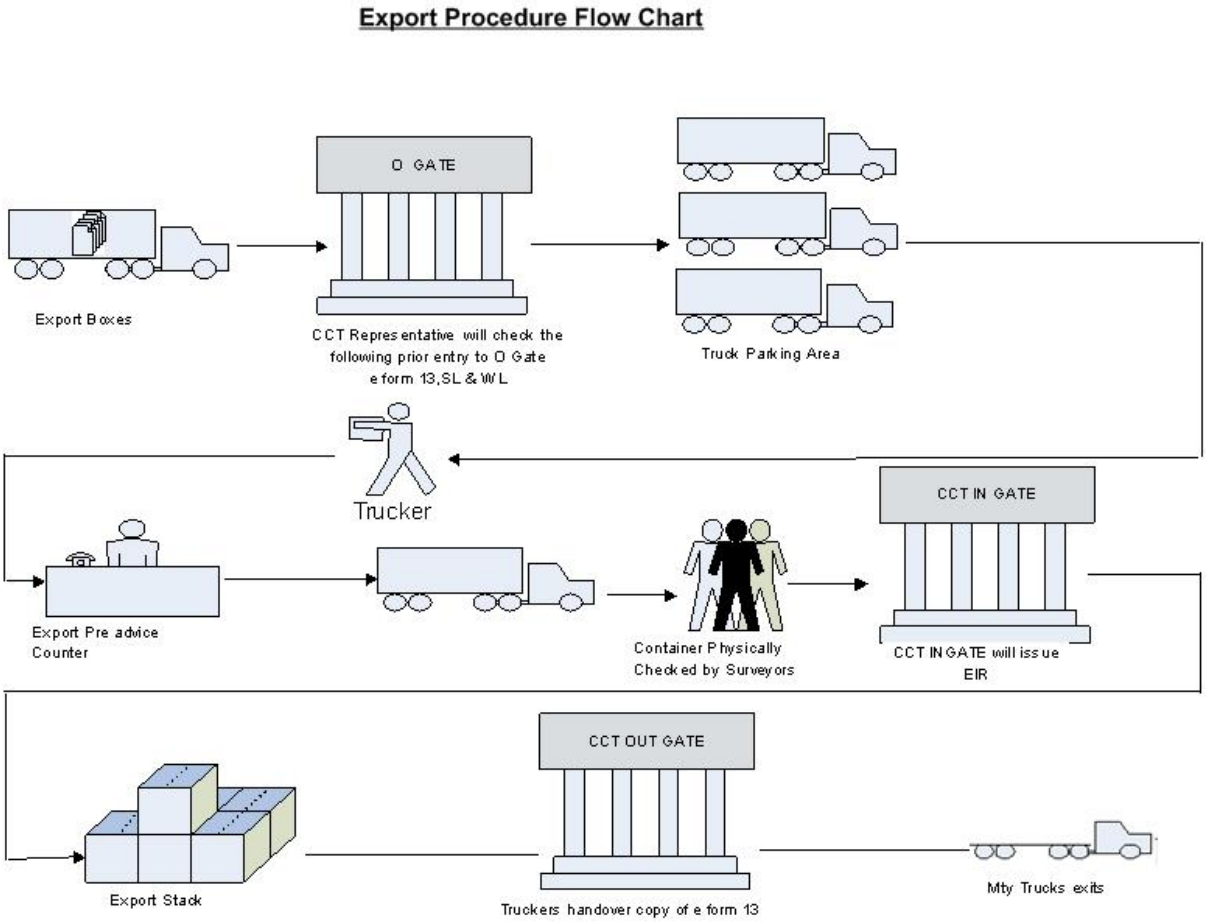


Figure. 4.4 (f): Export flow of Containers at CCTPL

4.5. Constraints in achieving the International norms

In comparing the dwell time at the international ports such as Singapore and Rotterdam with those in Major Ports in India, it is observed that there are vast differences in the availability of infrastructure, connectivity and electronic information exchange. Therefore, the implementation of the recommendations may not bring the average dwell time of cargoes and efficiency at major ports on par with international standards because of the following reasons:

- The aggregation / evacuation of cargo in international ports is very quick due to reasons such as, the seamless connectivity with other modes of transport, the excellent state of the rail / road network, inland waterways, higher carrying capacity of wagons / road carriers, the level of mechanization in the various cargo handling subsystems etc., Most of the International ports handle bulk cargoes like coal, iron ore etc via conveyor systems / mechanized systems from the mines to the port, which has very less aggregation time.

- International ports do not face the constraints of space and congestion within and outside the port.

- Due to the presence of adequate infrastructure, planning of vessels and cargo is done 72 hours in advance and through electronic means by shipping lines, haulers, freight forwarders, shippers and government agencies. The port community system supported by the PORTNET, allows ordering of berths and pilot services, documentation, enquiry and tracking and billing. The entire berth system, ship planning, yard planning system, resource allocation system and flow through gate is done electronically. This can be introduced and put into operation in Indian ports only after a comprehensive introduction of EDI which will facilitate paperless business transaction.

5. ANALYSIS OF FACTORS CONTRIBUTING TO DWELL TIME AND PORT'S EFFICIENCY

The Factors contributing to the Dwell Time and those affecting the port efficiency parameters in Major Indian Ports in this report are grouped into two categories namely factors attributable to Port and to the other stakeholders.

5.1 Analysis of Factors Attributable To Port

The following factors affecting dwell time and port efficiency parameters are attributable to the port.

5.1.1. Infrastructure Constraints

5.1.1.1. Inadequate Port Capacity

The total cargo handling capacity of Indian Major Ports for 2005-06 has been estimated at 660 million tonnes as against 397.5 million tonnes in the year 2004-05. The total cargo handled in Indian Major Ports for 2005-06 and 2004-05 was 423.13 MT and 383.66 MT respectively. While the cargo handled was within the overall capacity available at the ports, a closer analysis reveals that in some of the most important streams of cargo, ports are handing more than their designed capacity. The growth in cargo has been phenomenal whereas the concurrent growth in capacity has not been able to keep pace with it. The details about the capacity and cargo handled are given in Tabel.4.6 of Appendix 4. The growth in container traffic and the lack of corresponding growth of capacity can be cited to illustrate this point. Further, the Ports are projected to handle more and more traffic in view of the anticipated GDP growth of 8%. Therefore immediate enhancement of capacity of the ports is imperative. Inadequate port capacity leads to congestion thereby leading to increased TRT and dwell time.

5.1.1.2 Inadequate Navigational Aids And Facilities:

Certain Ports like Mumbai are already equipped with Vessel Traffic Management System (VTMS), whereas most of the other Ports are not equipped with such facilities. In most of the international Ports, VTMS facilities are used for regular berthing / deberthing of ships.

Most of the Ports have sufficient number of marine crafts like Tugs and Launches and Marine Crew / Pilots for handling the present vessel traffic. These may not be sufficient to meet the increased vessel traffic in the coming years. Therefore, there is a need for replacing the existing crafts with sophisticated and modern marine crafts and augment the fleet strength to meet the projected growth in the traffic.

In the international Ports such as Port of Rotterdam, Port of Singapore etc. the floating crafts and their services are privatized but under the command of the Harbour Master.

5.1.1.3 Bunching Of Vessels

The bunching of vessels may arise due to:

- **Entrance Channel Restrictions:** Channel width restrictions leading to unidirectional vessel movements causes waiting of vessels for service.

- **Non-availability of berth:** Due to want of suitable draught or the available berth being occupied by other working vessel, the vessels calling at Indian Ports have to wait for want of berths. The number of dedicated berths available for handling specialized cargoes / containers are limited e.g. berths with pipeline for handling liquid cargo, mechanized ore handling plants for iron ore etc.

5.1.1.4 Poor Road Network Within The Port

The roads within most of the ports are narrow and are not designed to handle the present kind of traffic and load. This results in traffic congestions leading to delays in feeding and evacuation of cargo, which in turn lowers productivity of vessel. Lack of route planning for optimization of existing road network with suitably located weighbridges, too many criss-crossing of roads result in multiple congestion points.

5.1.1.5 Low Cargo Handling Capabilities

The cargo handling capabilities of Ports in general is low. The productivity at berth is very low in many ports on account of a combination of the following factors:

5.1.2.1. Inadequate Cargo Handling Equipments / Machinery

The cargo handling equipments / machinery at the Ports were commissioned years ago and have outlived their designed life span. The productivity of these equipments does not conform to the requirements of the modern vessels now calling at the ports. Further, the right type of cargo handling accessories like container spreader, special gears for handling wood pulp, newsprint, logs etc., required by the trade are either not available or is insufficient. Sophisticated container handling equipments like Quay Gantry Crane (QGC) are available only in few Ports like Chennai, Cochin, Mumbai, Vizag and JNPT and the rest of the Ports are left to handle containers with conventional cranes or vessel's cranes. Further, the other types of container handling equipments at the Terminal like Rubber Tyred Gantry Crane (RTG), Rail Mounted Gantry Cranes (RMGC), Top Lift Trucks (TLTs), Reach Stackers (RS) are yet to be provided in sufficient numbers in most of the Ports.

For example, the QGC productivity on container vessels at Indian and International Ports are as under:

Port	Quay crane productivity (no. of moves/hr.)	Vessel rate (No. of Container/hr.)
Indian Ports	20	40 @ 2 QC/Vessel
Port of Rotterdam	25	70 @ 3 QC/Vessel
Port of Singapore	25-30	100 @ 4 QC/Vessel

Table 5.1.2.1: Details of QC Productivity and vessel rate

For ports predominantly handling dry bulk cargoes, productivity depends on the capacity of wharf cranes and the grabs. These are insufficient to cater to the needs of all the users. It may not be economical to procure all the equipments by the ports but depending upon the demand, the port can either procure or outsource the same.

5.1.2.2. High Down Time of Equipments

The equipments that is available at the ports breakdown frequently due to poor maintenance policies - i.e., reactive maintenance instead of preventive maintenance. The large response time, non-availability of spares, dependence on proprietary parts, and cumbersome purchase procedures results in large down time of equipments.

5.1.2.3. Low Labour Productivity

A one-to-one comparison with each of the Indian ports or with other International ports for labour productivity is not possible as it depends on various factors like degree of mechanization, infrastructure, working conditions etc., which vary from port to port. The manning scale for handling various commodities is based on fixed gang composition in all ports. Further, the manning scale of the gangs is disproportionate to the requirements, Enforcement of discipline amongst the unionized workforce is difficult and poor work ethics such as the tendency to report late and break early at the point of posting lowers productivity of the individual as well as the gang's productivity in the shift.

The labour productivity is measured in terms of output per gang shift which is the tonnage achieved by one gang per shift. The average output per gang shift for all Indian Major ports is 493 tonnes for the year 2005-06.

5.1.2.4. Shortage of Storage Space

The ports are facing acute shortage of storage space to implement their expansion plans to handle additional cargo as economic activities around most of the ports have increased to a large extent burdening the city infrastructure. As a consequence, cargo aggregation/evacuation is seriously affected. The lack of storage space affects the discharge / loading rate of the vessel.

5.1.2.5. Regulatory restrictions on Operation Time

The time lost in meeting the basic needs of the workers during the shift in spite of introducing the concept of reliever causes delays in operations. The major ports in the country are not working 24 X 7 X 365 on account of the statutory holidays, time lost during shift changeovers etc. Safety regulations further restrict the handling of certain commodities only during day light hours like hazardous cargo and over-dimensional project cargoes.

5.1.3. Low IT Application

5.1.3.1. Insufficient IT implementation in Port Operations

The resources at the disposal of the Port are distributed and under utilized in the absence of an enterprise resource planning system This results in some resources being extensively used while others are idling waiting for the availability of other resources. Further, problems are multiplied due to partial automation of the processes, voluminous documentation, inconsistency in data, redundant data entry, associated delays in processing and human errors of judgment and calculation. The information exchange to different levels of operational tiers continues to be manual leading to duplication of work and redundant bookkeeping. Consequently there is lower productivity and longer non-working time at berths. International Ports like Singapore and Rotterdam are supported by IT resource planning system along with a vibrant Port Community system such as PORTNET, PORTINFOLINK etc., resulting in higher productivity levels.

5.1.3.2. Partial Implementation Of EDI

On paper, all Electronic Data Interchange (EDI) messages with Customs are being exchanged in many Indian ports. However, some ports do not possess the software infrastructure to utilize/generate the message so as to benefit in terms of electronic information exchange with even at least one stakeholder namely Customs.

Implementation of EDI in essence should facilitate seamless information transfer amongst all members of the Port Community including exporters, importers, Custom House Agents, Shipping Lines, Shipping Agents, Stevedores, transport operators, Banks, Ports, Terminal Operators, Customs and Other organizations / companies in the maritime logistics chain using the Internet. It will enable each member to transfer vital information to his counterpart so as to perform their functions effectively and to improve the overall efficiency of maritime trade and transportation cycle. The above solution should be an integrated port information system characterized by a common database or distributed database eliminating redundant data entry, multiple data entry points and the need for frequent data verification. The details of EDI Implementation are given in 8.14 & 8.15 of Appendix - 8.

Internationally, the process of standardization of messages being exchanged by the business partners of commercial transactions of the port community is in standards such as UNEDIFACT. Though Information technology has facilitated the instant access and transfer of information through EDI, In India real time implementation of EDI is minimal and consists of the proprietary message exchange format formulated by Customs. This is not compatible to any of the international standards for instance, UNEDIFACT. The port community information exchange is a combination of paper and electronic components with a mismatch in speed causing communication gaps amongst the stakeholders. This information bottleneck is estimated to contribute to about 40% of the documentation.

The present status of EDI in Indian Major Ports, the types of message exchanges between the stakeholders including customs have been enumerated in appendix - 8.

5.1.3.3. Too many Manual Documents:

Paper based systems with manual processing results in redundant record keeping, delayed information transfer and voluminous documents. Each stage of documentation is closely associated with the corresponding documentation of Customs. Unlike other stakeholders in the supply chain, the activities of the port are subjective to the completion of certain activities of other statutory bodies since the port is only a custodian of cargo. There are 12 Pre Arrival Document, the import process has 16 and the export process has 13 major documents that are to be completed before the cargo can exit the port premises. Various documents involved in clearance/shipment of goods are listed for each activity with the names of agencies involved and time taken for completion of respective activity in Table –1 of Appendix-5.

5.1.3.4. Systems and Procedures:

The systems and procedures in vogue in the ports needs simplifications to facilitate e-environment transactions. It is characterized by cumbersome physical data verification, modifications, artificial checks and balances leading to delay in the processing of documents and completion of business transactions. The system is burdened with a scope for personal interpretation instead of simple logic. The process of filing of documents, calculation of port charges, anomalies in the classification of cargo, procedures for refund etc are some of the issues that needs to be addressed. Further, the overlapping roles of various departments have forced various stakeholders to file documents with various departments of the port and customs as well as with other stakeholders. Though many ports have introduced single window processing for providing services under a single roof, the user still has to interact with different departments individually. The entire process is time consuming and can be done way by introduction of e-environment.

5.1.3.5. Limited Time For Payment And Documentation:

For most of the services, the documentation and payment have to be completed during working hours of administrative sections i.e 1000 – 1700 hours, which renders services being unavailable for a minimum of 17 hours each day. This constrains the process of cargo delivery / admittance.

5.2. Factors Attributable to Other Stakeholders

The following factors affecting dwell time and port efficiency parameters is attributable to other stakeholders.

5.2.1. Cargo Evacuation / Aggregation Constraints

5.2.1.1. Non- Aggregation of Cargo in time

The Shippers are not able to declare the Cargo readiness in spite of the arrival of the vessel at the Anchorage due to non-Cargo aggregation on account of constraints like want of space, congestion on the land-sea interface, non-supply of

cargoes by the exporters etc.

5.2.1.2. Slow evacuation of cargoes from the areas leased / licensed to Users

In certain ports, land is made available by port to Shippers / Importers on rental for aggregating /storage of cargo. Importers tend to retain the cargo at the allocated plots or tank farms till a suitable buyer is found. In short, the port area is used as a warehouse of the trader resulting in unavailability of precious space for freshly discharged cargo. Want of storage space in such rented areas to accommodate the entire manifested/booked quantity mainly due to non-clearance of earlier vessel's cargo forces the Agents to keep the vessel idling at anchorage as well as at berths. At International Ports such as Rotterdam there are no constraints of space.

5.2.1.3. Document Readiness

The Agents are unable to make the vessel ready for want of completion of pre-arrival documents like filing of Import General Manifest, Advance payment of port charges, ISPS declaration etc. Multiple documentation to fulfill the mandatory obligations of various regulatory bodies like Police, Customs, PHO also causes delay.

5.2.1.4. Mismatch at transfer points

The speed at which the vessel load / discharge cargo at the berth does not match with the rate of aggregation / evacuation of cargo by consignees from storage point to the hook point and vice versa. For e.g for steam coal the discharge rate of vessel at Chennai Port is 500 T/Hr and the trucks of only 10 tons capacity are deployed i.e., at least 50 trips an hour to remove the discharged cargo. The number and the capacity of trucks deployed by the handling agents for aggregation/evacuation of cargo are insufficient to meet the requirements. The transporter desists from using trucks with greater productivity to move cargo to and from the transit area.

5.2.2. Statutory Inspection And Procedures

5.2.2.1 Procedural Formalities of Regulatory Authorities

The fumigation of the Plant Products, PHO clearance, independent sample collection by different agencies in an uncoordinated manner forces the vessels to wait at anchorage. The Plant Quarantine Authorities report only during the daytime in some ports. The delay in the completion of formalities like Customs examination and clearance hampers the discharge and delivery of cargo especially in respect of cargo meant for direct delivery.

5.2.2.2 Limited working hours by Customs and other Govt. Agencies

Assessment and appraisal units of Customs work only for 5 days a week from 0915 hours to 1745 hours. The Appraiser at the Docks, the examination staff as well

as the bank where duty payment is made works only for 5 ½ days a week. Thus for regular weekends containers/cargo is stranded for want of statutory agencies for the processing work.

5.2.2.3. Lack of inspection / testing facilities for Edible / Plant / Drugs at the port

For edible items testing facilities with Customs, PHO etc. are inadequate and hence such items are sent to specialized laboratories, which take more than two weeks to issue the certificate and consequent delay in Cargo clearance. Plant quarantine and drug controlling officers are not available near the port vicinity and are to be brought from distant places, which cause delays.

5.2.2.4 Restrictions by Local Bodies

Restriction imposed by local bodies affects free movement of heavy vehicles carrying Containers/cargo. Cargo laden vehicles are prohibited to commute on the city roads during the daylight hours restricting the movement of cargo in and out of the port.

5.2.3. Deployment Of Private Cargo Handling Equipments

Ports have permitted the cargo-handling agents (Stevedores) to deploy their own cargo handling equipments. Cargo handling agents do not engage high performance equipments for the discharge / loading of cargo from vessels to cut cost. This results in poor performance of the vessel at berth.

To take advantage of freight earnings agents hire very old vessels especially for bulk cargoes like fertilizers that are equipped with poor quality and low performance gears resulting in a very low discharge / loading rate. There are instances of the ship gears crumbling while in operation at berth.

5.2.3.1 Delay in mobilization of Equipments & trucks by Stevedores

- **Cargo handling equipments: -** Delays in mobilization of specialized equipments / gears by the Agents increases the waiting time.

- **Transportation: -** Delays in the mobilization of suitable trucks in required capacity and numbers for the transportation of cargo on the landside increase the waiting time.

5.2.4. Inadequate IT implementation

The supporting services offered by the private agencies suffer inadequate IT infrastructure and generation of information in compatible form to handle the swift information transfer amongst the business partners. Thus there is delay in processing of documents due to incomplete message exchange.

5.2.5. Shortage of Railway Wagons/Rakes/Heavy duty trucks

Shortage of rail rakes for movement of containers/cargo results in reduced allocation of rakes to different ports and ICDs. This adversely affects quick evacuation of containers/cargo. Prevalence of low axle load wagons and trucks results in less cargo being carried per wagon/truck. The cargo carrying capacity of the connecting transport (road or rail) is well below the requirement. This affects the quick movement of goods.

5.2.6. Manual Customs Examination of Containers

Customs, inspection and examination process mandates opening of the containers, examination of the goods and resealing of the containers. This is a time-consuming process adding to the dwell time.

5.2.7. Poor / Inadequate Hard infrastructure (Road / Rail Network)

The road and rail network and the highways in general are inadequate to handle the kind of volumes of the cargo/containers envisaged, leading to stretching the meager resources. The carting time for cargos becomes very high due to the poor road / rail infrastructure. Further, the congestion in the approach roads to the ports / terminals delays the arrival of the export cargo in time. This results in the cargo missing the vessel and forced to be crossed to other vessels with the connected documentation delays. To meet the expectations of the international maritime industry and to reduce the time mismatch between road / rail with sea transports, it is imperative to upgrade the hard infrastructure in the country to reduce the carting time to a great extent.

5.2.8. Other Factors

5.2.8.1. Onboard Stowage of Cargo

The improper cargo stowage in vessels calling at the ports results in additional operations due to the shifting the cargoes meant for other ports which results in the decrease in productivity levels at the berth and increased time for cargo completion.

5.2.8.2. Draught Survey

The Process of conducting the draught surveys for bulk vessels by different agencies before the commencement of the Cargo operation increases the TRT of vessels especially for vessels carrying cargo for different consignees resulting in lower productivity.

5.2.8.3. Cargo unlashing and lashing

The vessels that are calling at Indian Ports are generally old and have inadequate provisions for secure lashing and unlashing facilities. Therefore, the time taken for completing this process is more. This is highly relevant for break bulk cargo and more so in the case of exports.

5.2.8.4. Delays in Confirmation of loading / unloading plan

Vessels wait at Anchorage for want of confirmation of loading / unloading plan for liquid bulk cargoes from oil companies.

5.2.8.5. Ballasting / Deballasting

Long time is taken for Ballasting/De-Ballasting due to out-dated equipments on board the vessel, which delays the vessel's readiness for cargo operations.

5.2.8.6. Liquid bulk vessels delayed for want of Ullage, Flushing and Survey

Storage tanks of oil companies have limited capacity and non-clearance of cargoes before the arrival of next vessel results in vessel's waiting in the queue. Pipelines need to be cleaned by flushing and cleared by the receiver's surveyor when the same line handles multiple liquid bulk commodities.

6. INITIATIVES UNDERTAKEN BY THE DEPARTMENT OF SHIPPING

1. The Inter Ministerial Group (IMG) noted that the Department of Shipping has already undertaken certain significant steps in the area of enhancing port capacity, facilitation of the trade and simplification of procedures. The Indian Ports Association performs periodic analysis of the performance of the Major Ports.

2. Department of Shipping has already initiated the following actions with the overall objective of improving the efficiency at Major Ports and simplification of procedures for the facilitation of the trade.

I. The process of developing the Port Community System has been commenced in right earnest. National Informatics Center has completed the feasibility study and the software application developer has commenced the process development.

II. The Major Ports have been advised to install the IT infrastructure for the exchange of EDI messages with Customs and other stakeholders.

III. Directions have been issued to the Major Ports to undertake process Re-Engineering to discontinue redundant documents, simplify and merge essential documents and facilitate web-enabled services to other stakeholders e.g Steamer Agents file the Vessel Arrival Intimation through a port user interface in the respective port's websites.

IV. Ports have been advised to undertake study of their internal yard planning to enhance the efficiency of rail movement within the port.

3. The Department of Shipping has formulated projects to be implemented by Major Ports through public and private participation for the creation of new port infrastructure facilities to enhance the port capacity. Procurement of new cargo handling equipments and mechanization of handling systems to enhance productivity at major ports.

4. Pro-active measures have been adopted in imparting training to the workforce to enable multi-skills and multi-tasking.

5. Attractive VRS schemes have been extended to bring down the labour strength to optimum level.

7. RECOMMENDATIONS

A series of recommendations are made for all stakeholders to improve network capacity by deploying advanced technologies that increases gate throughput, expedite cargo and container clearance time, enhance navigation efficiency and information transparency at ports. A strategy that involves cost-shared deployment of automated communications systems that help enhance capacity utilization and cargo-handling capability, provide real-time information on vehicle and cargo location, and improve overall transportation productivity. Capacity and throughput improvements in general involve an array of infrastructure-based solutions that remove access bottlenecks, often involving regional corridor planning and incorporate a mix of technological, infrastructure modernization, and institutional solutions. The recommendations are made with the objective to reduce dwell time and improve the efficiency of the ports, which can be categorized with short term and long term measures.

7.1. Short Term Measures - Port Account

7.1.1 Reduction of Non-working time and improvement of Output per Ship Berthday

There is scope for improvement of the efficiency parameters. The transit time from the anchorage to the berth and vice versa for ships is inevitable. The delays on account of port such as want of pilots, tugs etc can be minimized.

The turn round time for the vessels ranges from 1.77 –4.82 days. The analysis of the same indicates that the non-working time at ports is very high and needs to be reduced. Any reduction in the non-working time has a direct bearing on the turn round time of the vessel.

Some measures that could be adopted immediately are:

- **Optimization of Cargo Handling Systems & Equipments:**

  In the servicing of vessel and handling of cargo especially loading and unloading from vessels, lack of state of art equipments affect the rate of handling thereby leading to high turn round time of vessels and high dwell time of cargo. It is therefore necessary to procure more sophisticated and efficient equipments to achieve enhanced efficiency in cargo handling. In the NMDP, 52 proposals in two phases have been planned for procurement, replacement and up gradation of Port equipments. The particulars are in Annex ***

- Synchronization of the landside operations with the seaside operations such as optimizing the rail operations, removal of road congestion within ports by efficient management of traffic flow etc.
- Introducing programs for attitudinal changes amongst the workforce to imbibe a better work culture.
- Maintenance management of the cargo handling equipments.

As an illustration appendix 7 contains a ready reckoner showing impact of 25% reduced NWT and 10% increased OSB TRT and dwell time.

(Action: All Ports)
(Time Frame: 30-12-2007)

7.1.2. 24 X 365 – Round the clock port working

Round the clock (24 x 365) navigation, operations and documentation is absolutely necessary to ensure higher productivity and eliminate delays owing to restricted working hours and holidays.

.

- Deployment of VTMS and AIS Systems in all ports.
- Implement hot seat exchange system to eliminate time lost in shift changeovers and recess hours. The Non Working Time is reduced from 3 hours to ½ hour each day, TRT will reduce by 10% i.e. 12hrs for Dry / Break Bulk and 5 hrs for containers.

(Action: All Ports)
(Time Frame: 30-12-2007)

- Each port should undertake a specific study to assess the navigational infrastructure requirements and implement the optimum design to ensure round-the-clock navigation.

(Action: All Ports)
(Time Frame: 30-12-2007)

7.1.4 Strengthen the roads to and within the Ports

- Make it mandatory for ports to invest in 4 lane RCC roads laid using state of the art technology with in the port area.
- Port to implement immediately unidirectional traffic flow to eliminate criss crossing and traffic congestion.
- The approach roads to ports to be 6 lanes with no surface crossings.

(Action MOS / all ports)
(Time Frame: 31-06-2008)

7.1.5 Improve labour productivity

- Increase the number of Hoopers used for handling bulk especially foodgrains and fertilizer handling in all ports that are handling dry bulk in conventional methods.
- Rationalization of Manning Scale: Implement the tribunal award on manning scales in all ports. Adopt commodity based manning scale for labour deployment.
- Equip Workforce with Multi Skill & Multi Tasking: The work force to be

trained for multi skills for optimum deployment.

(Action all ports)
(Time Frame: 31-12-2007)

7.1.6. IT as a strategic weapon In the Port Sector

- **Introduce e-environment to eliminate physical interface**
  The presence of physical interfaces in the import-export process flow hinders the smooth flow of information transfer leading to lower productivity. Introduce an e-environment based on paperless office to eliminate the physical interfaces in filing of port documents, assessment and payment of charges, flow through gates.

  (Action all ports)
  (Time Frame: 31-12-2007)

- **Strengthen the IT backbone for Port operations**
  Implement an Enterprise Resource Planning (ERP) system that co-ordinates and integrates every asset of the Port from quay cranes, mobile cranes, Cargo handling equipments to the movement of cargo /containers and the human resources. A system that allows the ports to manage its equipment and human resources seamlessly, flexibly and in real time. The ERP system is equipped with tools such as berthing system, ship planning system, yard planning system, resource allocation system, flow through gate, reefer monitoring etc. Introduction of IT and EDI in vessel management solutions for planning and stowage plan of vessels has to be made mandatory to achieve higher levels of productivity and ensure seamless ness in operations. This would facilitate the intra-port information transfer.

  (Action IPA , all ports)
  (Time Frame: 31-12-2007)

- **Implement Port Community System**
  At the international Ports the IT services are privatized but the Port is the guiding factor in the implementation. In India, Customs have implemented a proprietary message exchange format to cater to their specific needs. The Ministry of shipping is funding the development of a centralized Port community system through IPA. In the port of Singapore, a single window environment for the User to access all the statutory bodies is provided. The user files a single document online and the same is communicated to the various statutory bodies for approval online. One stop-shop solution for traders that fulfills all export, import and transit related regulatory requirements at a single entry point – thus reducing turn round time and labor costs. The following diagram depicts the concept of single window environment.

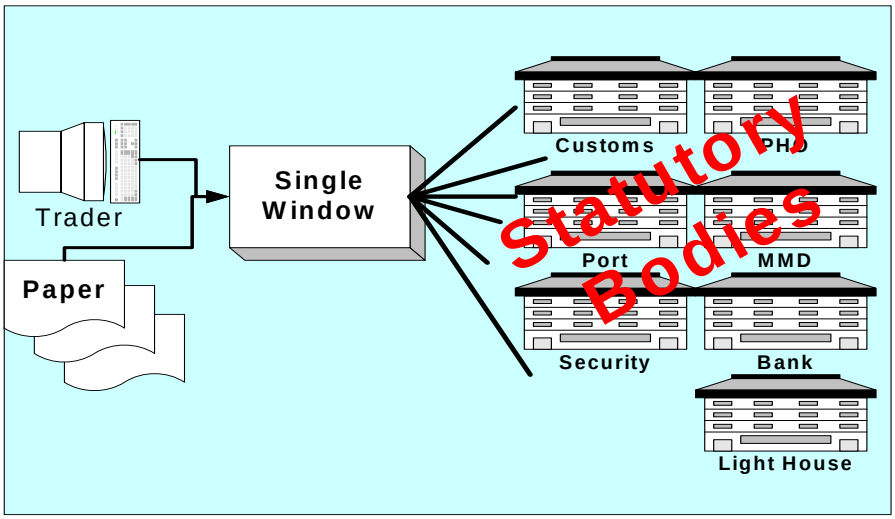


Figure: 7.1.7. Single Window Environment for Port Users

- The extension of this Port community system to implement a single window environment for the stakeholders to interact with all Government agencies through a single interface – uniform form abiding by the UNEDIFACT standards.
- The Port community system should enable the
- Ordering of berth and pilot services
- Documentation
- Enquiry and tracking
- Linkage to Government and Port Authorities systems, as well as Port Users existing systems.
- Billing

Exercising IT as a strategic weap inte on would enhance the visibility of the port and eliminates 23 person-to-person rface and 50 minutes in pre-arrival documentation, 23 hours in Import and 15 hours in export documentation.

(Action IPA,NIC)
(Time Frame: 31-12-2007)

0 **Acceptance Of Digitally Signed Documents**
All stakeholders are to possess digital signature to facilitate secure exchange of electronic documents. Accept digitally signed documents such as Bill of Lading, Packing List, Delivery Order, OOC, BE, SB, LEO, Open Chit, Confiscation / Detention Orders instead of insisting on physical documents. This will facilitate the online filing of import / export applications similar to the BE / SB of Customs in the ICE Gate facility.
(Action IPA)

7.1.7. Norms for Stevedoring License

- o A minimum set of equipments and gears is to be made mandatory for granting Stevedoring License.
- o A minimum set of transport vehicles of higher capacity are to be owned / hired by stevedore to ensure transfer of larger volumes in shorter time and also to decongest the Ports.

(Action: MOS)
(Time Frame: 30-12-2007)

7.1.8. Creation of Off-Dock Facilities for Bulk/Break-Bulk Cargoes

To create more Off-Dock storage and bonded warehousing facilities outside the port limits for storage of bulk and break bulk cargo to decongest city based ports in a phased manner.

(Action all ports)
(Time Frame: 31-12-2008)

7.2 Short Term Measure – Non – Port Account

7.2.1. 24 X 365 – Round the clock port working

- To make 24X7 working effective, it is imperative for 24X365 Working By other Governmental Agencies & Shipping Lines like Customs, Plant Quarantine, PHO etc through the deployment of a mechanism to install a skeletal system, which can perform all the activities round the clock on all days.

(Action MOS , all ports)
(Time Frame: 31-12-2007)

7.2.2. Stipulate age of vessels calling at the port

DG shipping to stipulate stringent conditions pertaining to age, quality, design etc for the vessels calling at Indian ports. Suspect PNI club should be identified and blacklisted. Vessels insured by such clubs should not be entertained at Indian Ports.

(Action MOS /DG Shipping)
(Time Frame: 31-12-2007)

- **Augment Marine Resource Handling Capabilities**

The Marine resources like floating crafts, tugs and crews are just adequate to sustain the present vessel traffic. But to meet the projected escalation in traffic, it is recommended that superior and higher bollard pull capacity tugs (40 Ton Bollard Pull) may be acquired to improve the operational efficiency in Pilotage and towage. Availability of Pilot staff is sometimes an impediment in ensuring just-in-time-service. As a matter of policy, Pilot cadre should be strengthened. Alternatively, entire services of the Pilotage can be outsourced / privatized to provide just-in-time-service for ships.

(Action MOS)
(Time Frame: 31-03-2008)

Other recommendations to improve the efficiency of the Port are shown in Appendix 10 since they are not directly related to the terms of reference for this committee

7.5 Estimated Reduction:

The reduction is to be achieved within 3 years.

•Reduction in Dwell Time for vessels (TRT) - by 0.9 - 1.3 days.

Expected Reduction in Terminal Dwell Time

Cargo Type	Present		Expected	
	Import	Export	Import	Export
Dry Bulk	3.23	3.57	1.60	1.70
Break Bulk	5.62	6.60	1.50	3.30
Container	1.88	3.78	1.00	1.50

7.6 Benefits

7.6.1. All Stakeholders to be benefited

Implementation of the recommendations is expected to benefit all the stakeholders to a large extent by way of reduction in transportation cost and also the country to sustain the growth in the economy.

Given below are the benefits expected to accrue for the Nation and Stakeholders:

7.6.2. Nation

The reduction in dwell time will reduce the transportation cost of Indian goods. This in turn will make Indian goods competitive in global markets. The image of an efficient maritime infrastructure will enable the country to attract more of the maritime trade, thereby increasing the nation's share in the maritime trade.

7.6.3. Ports & Terminals

Any reduction in dwell time will increase the capacity of ports and help in the optimization of port capacity. It will enable the ports to utilize the infrastructure better

and efficiently. The turn round time for vessels will reduce thereby enable the port to attract and handle more vessels.

7.6.4. Importer / Exporter

Reduction in the dwell time will directly reduce the transit time for the cargo. This will reduce the transportation cost as well as the inventory costs. Further, the delivery / receipt of goods in time to the clients will garner greater goodwill enabling the furtherance of the business.

7.6.5. Transport Operators

The Turn Round Time for the transporter fleet will reduce in the event of the reduction of dwell time. This will result in higher productivity of the fleet and higher revenues. There will be reduction in the waiting time for trucks with matching savings in fuel.

7.6.6. Other Stakeholders:

All the stakeholders in the supply chain will be beneficiaries of the reduction in dwell time. Overall the profitability of one and all will increase owing to higher productivity and efficiency.

* * *

APPENDIX – 1: CARGO TRAFFIC AT INDIAN PORTS

1.1. Break-up of cargo handled at Indian Major Ports for 2005-06.

(In 000's Tonnes)

Port	POL	Iron* ORE	Fertilizer		Coal		Container		Others	Total
			Finished	Raw	Therma	Coking	Tonnage	TEUs		
Calcutta	4934	101	-	-	-	-	3234	203	2537	**10806**
Haldia	17689	7939	324	508	3408	5371	1911	110	5187	**42337**
Paradip	910	10273	-	1568	12529	3758	45	4	4026	**33109**
Visakhapatnam	16941	16171	2295	891	2740	7068	630	47	9065	**55801**
Ennore	244	537	-	-	8387	-	-	-	-	**9168**
Chennai	13113	9527	701	371	1914	1183	11757	735	8682	**47248**
Tuticorin	774	42	484	958	6146	-	3428	321	5349	**17139**
Cochin	9641	-	81	598	199	-	2488	203	880	**13887**
New Mangalore	22392	9307	662	-	-	513	149	10	1428	**34451**
Mormugao	833	25314	228	-	378	2895	105	9	1935	**31668**
Mumbai	27781	-	171	434	1844	-	2145	156	11825	**44190**
J.N.P.T.	2545	-	-	-	-	-	33777	2667	1514	**37836**
Kandla	24290	2	1678	252	113	313	2311	148	16948	**45907**
All Ports	142087	79171	6624	5570	37658	21101	61980	4613	69376	**423567**

Source IPA

Table 1.1: Cargo Traffic at Major Ports – (2005-06).

1.2. Traffic handled at Minor and Intermediate Ports during 2005-2006

(In 000 Tons)

Port	POL Crude + Product	Iron Ore	Cement & Clinker	Coal	Fertilizer & FRM	Container Tonnage	Others	Total
GUJARAT	64705	5204	10968	10299	2152	3929	6889	104146
MAHARASTRA	-	5086	1495	1718	-	-	2863	11162
GOA (PANJIM)	-	11428	-	333	-	-	1	11762
TAML NADU	538	-	-	-	56	-	116	710
KARNATAKA	NA	2600	10	NA	NA	NA	1304	3914
KERALA	12	1	7	NA	NA	NA	114	134
PONDICHERRY	NA	NA	51	NA	NA	NA	45	96
ANDHRA PRADESH	9464	3522	849	200	1962	NA	2301	18298
A&N ISLANDS	124	NA	101	NA	12	204	474	915
ALL PORTS	74843	27841	13481	12550	4182	4133	14107	151137

Source IPA

Table 1.2: Traffic handled at Minor and Intermediate Port during 2005-06

APPENDIX – 2 :- STAKEHOLDERS AND THEIR ROLES

CUSTOMS

Assessment and collection of customs duties on import and export cargoes as per Customs laws (Customs Act, 1962 and Customs Tariff Act, 1975); Enforcement of the various provisions of the Customs Act governing imports and exports of cargo, baggage, postal articles and arrival and departure of vessels, air crafts etc.; Discharge of various agency functions and enforcing various prohibitions and restrictions on imports and exports under Customs Act and other allied enactments; Prevention of smuggling including interdiction of narcotics drug trafficking; and International passenger processing.

PORT TRUSTS

Provide infrastructure facilities like berths, equipment, storage space, navigational channels and road/rails network within the Port area. Perform vessel operations like berthing / un-berthing of vessels, Container/cargo handling operations like landing of containers/cargo from vessel, movement to storage yard, stuffing/ de-stuffing of containers facilitating the process of examination through movement of containers to CFSs, delivery / aggregation of containers/cargo. Provides berthing facilities, Cargo handling facilities including manpower and equipment, Cargo storage space in the form of open land or shed space etc. assessment and recovery of Port related charges and documentation formalities for import / export goods.

PORT HEALTH ORGANIZATION (PHO)

The agency that is responsible for the inspection of hygiene in the ship and amongst the crew, so as to control the spread of infectious diseases from incoming vessels and aircraft. Inspecting food/agricultural products entering the Port, for wholesomeness, fitness and compliance with Indian legislation. Some of the cargo samples like edible oil is inspected by PHO and permitted for domestic use based on lab certification.

PLANT QUARANTINE ORGANIZATION

To prevent the entry, establishment and spread of exotic pests in India as per the provisions of The Destructive Insects & Pests Act, 1914 and the notifications issued there under. The authorized officer of the PQ department has to inspect timber and grains in the ship hold before permitting discharge. Inspection of empty ship holds is carried out immediately upon arrival of vessel at the designated port before granting permission for loading of the grain into the vessel. The agency is also responsible for inspection of import cargo before allowing discharge of the same. They also Supervise fumigation of cargo on board the ship, in the shed and subsequent degassing.

IMMIGRATION AUTHORITIES

The agency that is responsible for applying the immigration laws of the country and providing the needed documents for foreign crew and passengers to disembark and embark.

TERMINAL OPERATOR

Manages the terminal operations both at the wharf and the yard, acts as the custodian of the cargo/containers. Most of the functions performed by the Terminal operator and Port trust are common.

VESSEL OPERATING AGENT (STEAMER AGENT/ MAIN LINE OPERATOR)

The authorized representative in a specified territory acting on behalf of a steamship line or lines and attending to all matters relating to the vessels owned by his principals. The steamer agent liaises with the port and other agencies like customs for the completion of formalities related to the various agencies. They compile the vessel plan and co-ordinate with the stevedores and the port operator for loading/ discharge operations.

CONTAINER OPERATING AGENT (NVOCC/ VOCC)

They represent the container Lines and provide the steamer agent with details of the containers belonging to them in the vessel. They also give the delivery order to the Clearing Agent/Importer for clearing the container. Similarly, The liner gives the authorization for loading containers to a vessel to the clearing agent. They recover terminal handling charges and container detention charges as also issue Bill of lading and agent's delivery order to the consignees.

(NVOCC- Non Vessel Operating Common Carrier)
(VOCC- Vessel Operating Common Carrier)

STEVEDORE

A stevedore manages the operation of loading or unloading a ship. A stevedore owns gears and equipments used in the loading or discharge operation and engages labour who actually load and discharge cargo under the direction of a stevedoring company.

IMPORTER / EXPORTER / CUSTOMS HOUSE AGENTS (CHA)

Importers / exporters are the owners of the goods being imported/ exported. And they are mainly responsible for completion of customs and Port formalities either themselves or through a CHA. CHA is a person engaged in providing any service, either directly or indirectly, connected with the clearing and forwarding operation. They are licensed to enter the customs premises and clear the goods through Customs/Port after payment of all duties and port charges on behalf of the importer. Similarly the CHA brings in the export cargo and completes all documentation for loading on behalf of the exporter.

TRANSPORT OPERATORS (RAILWAY / CONCOR / PRIVATE)

Road

The Cargo cleared for delivery from the port or received for export in the Port is transported to/from the consignor /consignees' premises by the private transporter.

Railways

The Railways provide the permanent way and rolling stock for the transportation of the rail bound cargo. The availability of these resources may have an effect on the dwell time of the cargo. The Container Corporation (CONCOR)

handles the rail bound containers. Lack of infrastructure or other resources with the CONCOR/other Private operator affects the Dwell Time of containers.

CONTAINER FREIGHT STATIONS (CFS) / INLAND CONTAINER DEPOTS (ICD)

The primary functions of ICD/CFS can be summed up as - receipt and dispatch/delivery of cargo, stuffing and stripping of containers, transit operations by rail/road to and from serving ports, Customs clearance, consolidation and dis-aggregation of LCL cargo, temporary storage of cargo and containers, reworking of containers, maintenance and repair of container units.

SECURITY AGENCIES

Government security agencies like the CISF or the private security agency, which takes care of the safe keeping of the cargoes inside the port premises. Prevents pilferage/damage of cargoes. The regulatory measurers imposed by these authorities may affect the dwell time of cargoes within the port.

EXTERNAL AGENCIES

The actions of other agencies like Local Police local Governmental agencies etc sometimes affect the movement of cargoes/ containers from and to the port. Traffic restrictions, levy of tax, cess etc and the accompanied documentation affects the dwell time of the cargoes/containers.

APPENDIX – 3: IMPORT – EXPORT PROCEDURES

3.1 Flow Chart For Import Bulk / Break Bulk

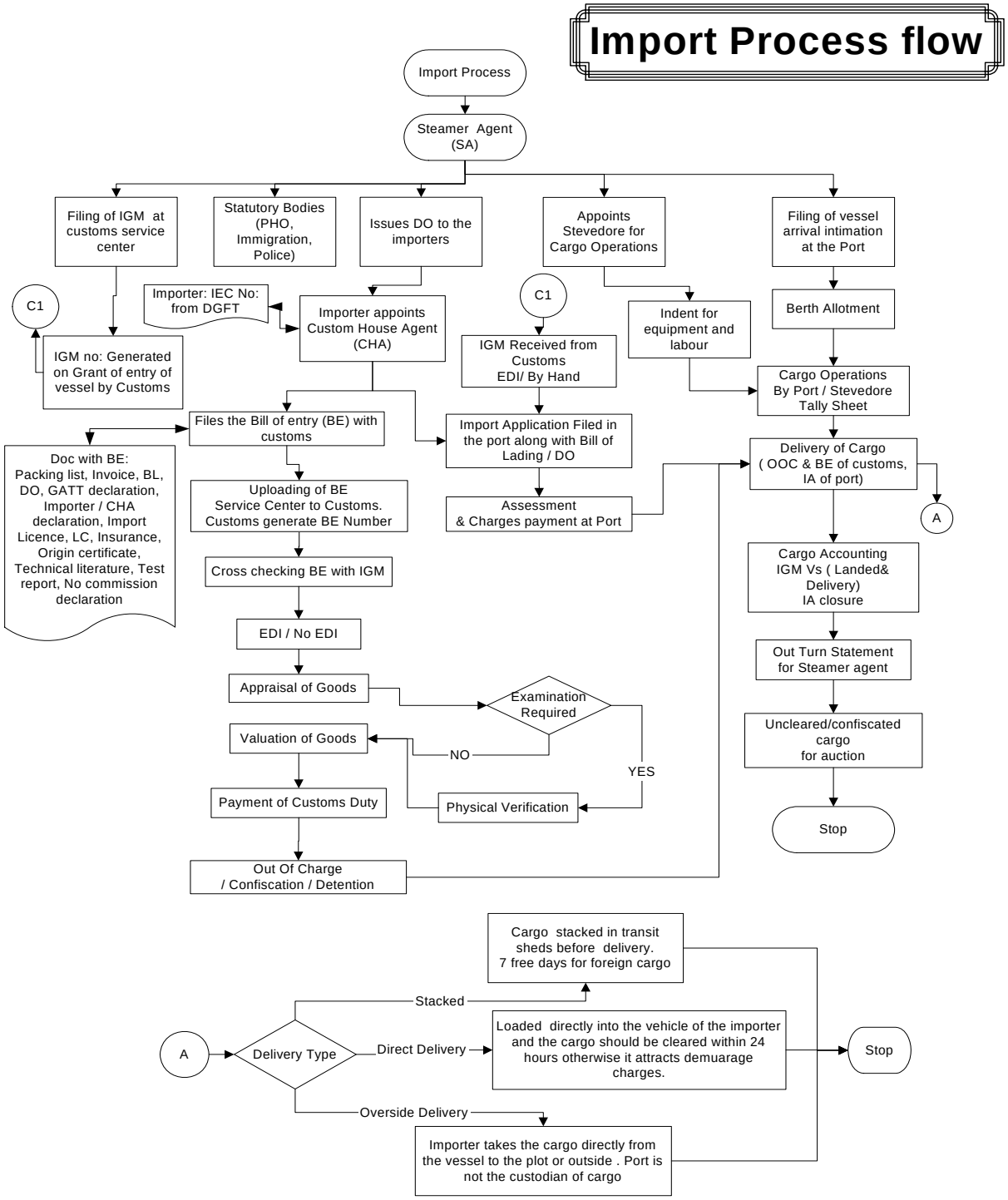


Figure 3.1: Flow chart for the General Import Process.

3.1.1 General Port Procedure for Import - Bulk / Break Bulk Cargo

- The Steamer Agent files the Vessel Arrival Intimation 7 days prior to the expected arrival of the vessel
- The steamer agent files IGM manually or electronically.
- The Port allocates the berth and the vessel is berthed.
- Customs, PHO, Plant Quarantine, Immigration etc officials board the vessel and entry inward is granted.
- Port/terminal operator commences the cargo operations
- The steamer agent pays the Vessel Related Charges in advance.
- Bill of Entry filed by the CHA/Importer and BE number is obtained.
- BE is cross checked with IGM and tallied
- BE is sent for assessment. Assessed and payable duty is arrived at.
- Duty is paid by the importer or CHA
- Stevedore indents for labor and equipment
- Unloading of cargo operation starts with tally
- CHA files import application along with the Delivery Order. Port cargo Related charges are paid. IA is verified with IGM
- Selected packages are opened and Customs examines the cargo.
- On obtaining the Out of Charge from the Customs the CHA approaches the port for delivery of cargo with BE and IA.
- The documents are cross-verified, vehicle ticket is issued and delivery is effected. The delivered goods pass the port gate after physical examination and document check at the gate.

3.2. Flow Chart for Import Flow of containers

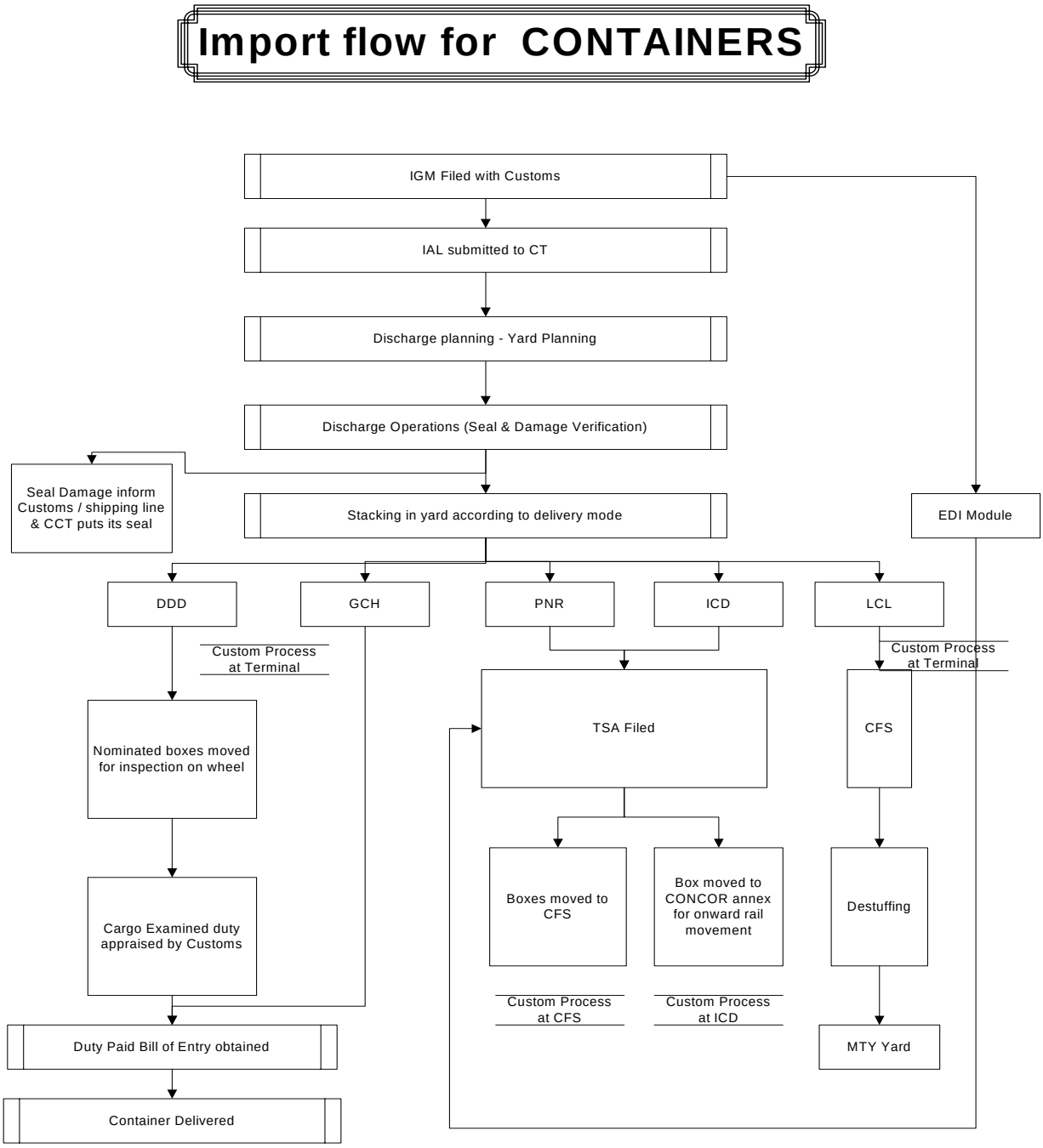


Figure 3.2: Flow Chart for import flow of containers

3.2.1 General Port Procedure for Import - Container

- Vessel Operating Agent (VOA) issues Vessel Identification Advice (VIA) to the Port / Terminal and Customs. VIA is registered.
- VOA files IGM with Customs.
- The VOA registers the Vessel details like vessel profile, stack height, reefer points etc., with the terminal.
- VOA requests berth allotment to the Port and the vessel is berthed. Immigration / Customs / PHO completes their formalities.
- Discharge starts and containers are moved to the Yard / delivery point.

Delivery procedures for direct delivery containers.

- VOA issues container arrival notice to Container Operating Agent (COA).
- COA issues delivery Order to CHA.
- BE is registered parallelly and duty is paid and request for delivery of containers is made to terminal by the CHA.
- The terminal operator issues job order intimating the location of the container to the CHA.
- The hauler enters the terminal with requisite documents
- Container is located and equipment interchange request is prepared by the terminal operator
- Container is loaded and the container is moved out of the terminal with gate pass and customs endorsed EIR

Delivery procedures for CFS designated containers

- Delivery order issued by VOA to COA
- COA nominates CFS and container list is issued to the CFS/Terminal
- Request for movement by PNR is made to the terminal
- PNR approved and permission given for movement of containers.
- Location of the containers is intimated to the hauler by the terminal operator
- Copy of the job order and copy of EIR is given to the Hauler.
- Container is located and loaded on to trailer and moves out of the terminal.

Delivery Procedures for ICD Containers.

- Delivery order issued by VOA to COA
- COA submits Transshipment Advice to Customs.
- COA requests movement of container to ICD terminal.
- Containers are moved to ICD through EIR.
- Containers are received at ICD terminal and EIR is endorsed.
- Containers loaded to trailers, wagons. Inland Waybill is prepared parallelly and containers move out.

Delivery Procedures for LCL Cargo (Delivery to Terminal / CFS)

- Terminal operator moves the LCL containers to CFS.
- Permission to open the container obtained from the Customs by CHA and Open Chit generated.

- DO issued and terminal charges paid.
- BE registered, duty paid,
- Container de-stuffed under tally.
- Hauler enters terminal / CFS gate.
- Cargo loaded onto the hauler. EIR generated.
- Receipt for cargo obtained from CHA.
- EIR endorsed by Customs and cargo moved out of the Terminal / CFS.

APPENDIX – 3A: TIME STUDY FOR PORT'S ROLE IN HANDLING CONTAINERS

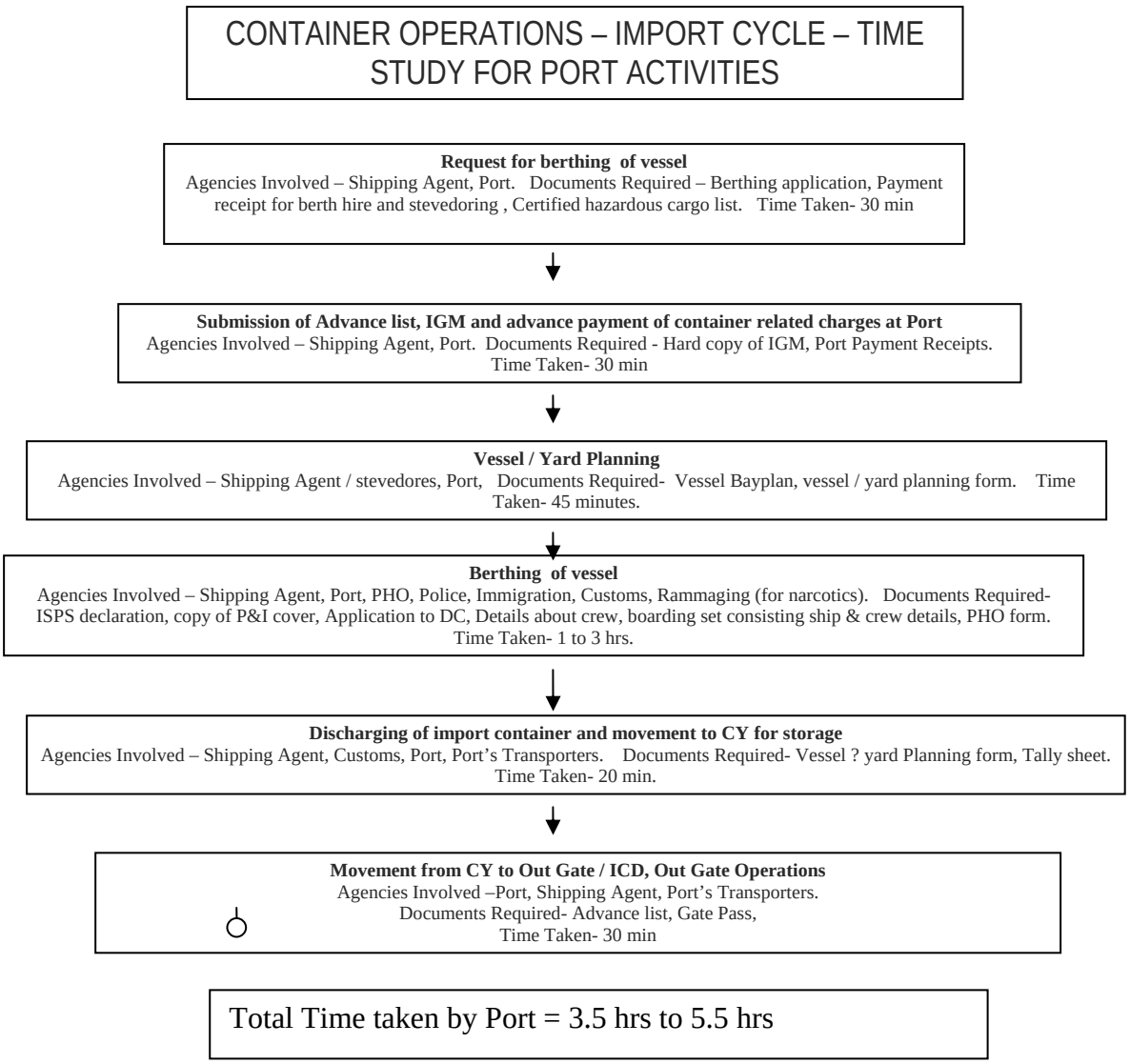


Figure 3 A (a): Time study for Port's role in handling containers-Import

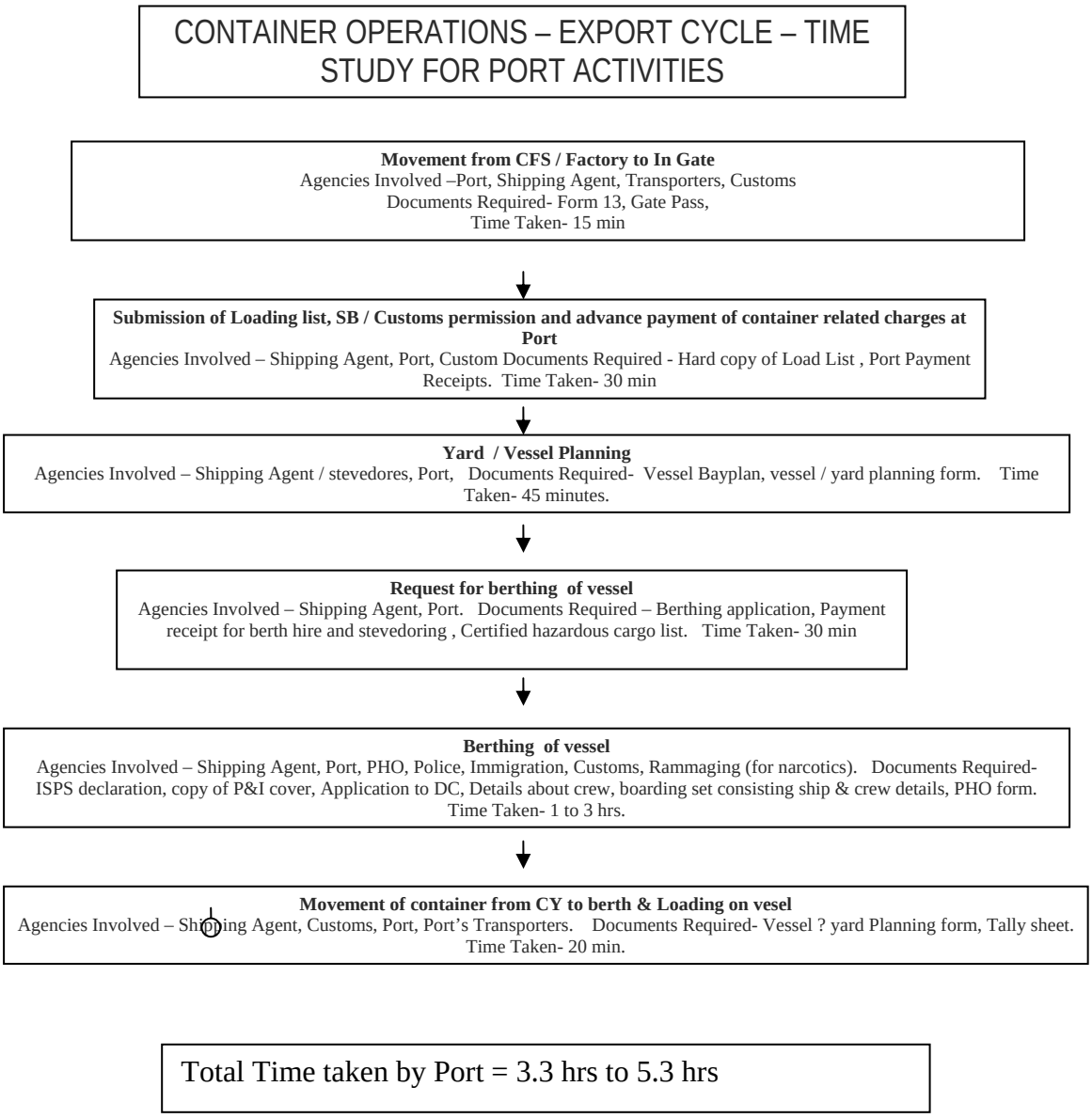


Figure 3 A (b): Time study for Port's role in handling containers-Export

3.3. Flow Chart for Export Bulk/Break Bulk

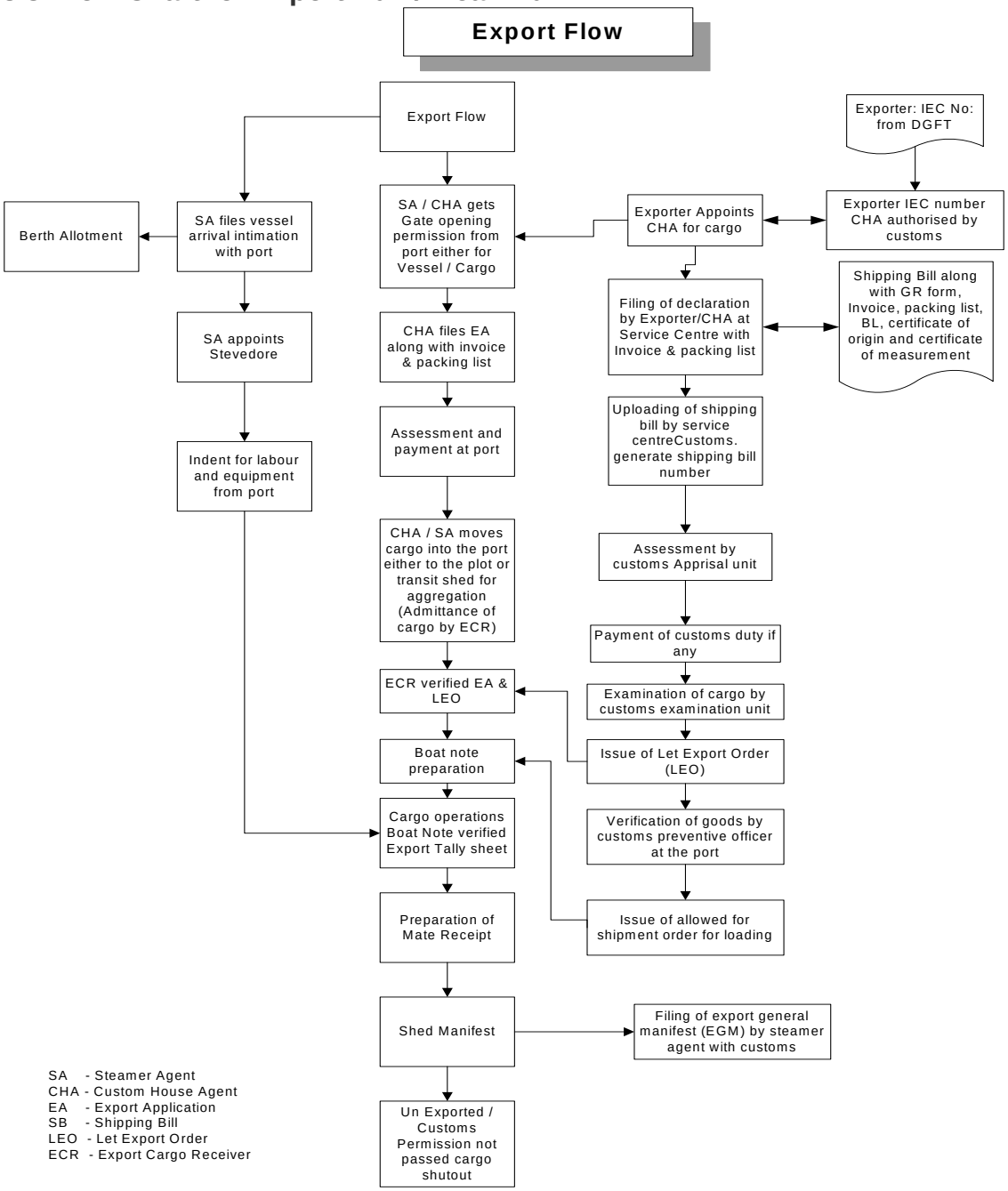


Figure 3.3.: Flow Chart for Export Bulk/Break Bulk

3.3.1 General Procedure for Export - Bulk / Break Bulk Cargo

- Exporter/CHA requests the Traffic Manager for moving the cargo into the port and based on the permission given the cargo is moved into the port with cart chit.
- Exporter/CHA submits Shipping Bill with Customs along with supporting documents like packing list, letter of credit etc
- Customs give a serial number to the shipping bill.
- CHA files Export Application along with invoice, Packing list etc.
- The Steamer Agent files the Vessel Arrival Intimation 7 days prior to the expected arrival of the vessel
- The Port allocates the berth and the vessel is berthed.
- Steamer Agent files for Entry outward
- After passing the shipping bill by the customs export department, goods are presented for appraisal and examination.
- The Vessel Related Charges are paid in advance by the steamer agent
- Customs officer verifies the contents/cargo and permit clearance by giving let export and customs passed Shipping bill.
- Stevedore indents for labor and equipment
- The CHA submits the Export application along with allowed for Shipment by the Customs to the port. The documents are compared and boat note issued.
- Cargo is loaded with proper tally and Mate’s receipt is received. The consolidated cargo exported by the vessel is filed as EGM with Customs.

3.4. Flow Chart for Export Flow of containers

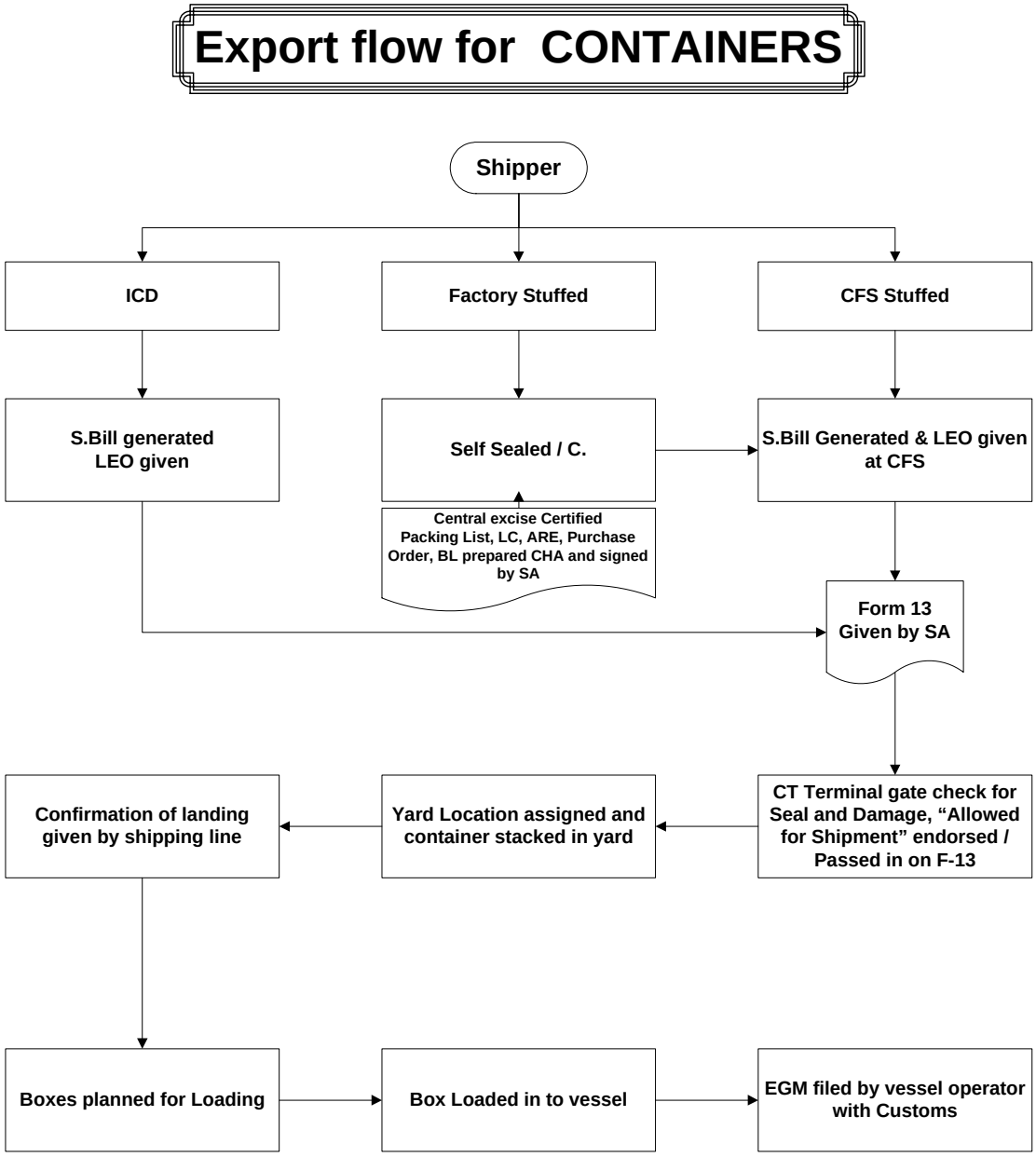


Figure 3.4: Flow Chart for Export FLOW OF CONTAINERS

3.4.1. General Procedure for Export – Containers

Prior to Loading of Container

- VOA issues Vessel Identification Advice (VIA) to Customs/Port Terminal.
- VIA is registered at Port and VIA Number is received.
- VOA registers the vessel details like Vessel Profile, Stack height, Reefer Points, Hatch configuration at the terminal.
- VOA submits the berthing application to the Port.
- The Hauler moves the container through the Port Gate.
- On receipt of Allowed for shipment from the Customs the Hauler moves the container to Terminal.
- Export Containers received at the Port/terminal with export application, weighment Certificate, IMO IMDG Code etc - to the terminal Operator.
- Terminal operator moves the container to the assigned yard and offloads the container with an endorsement of exact location on EIR.
- VOA Plans container loading operation with the terminal operator.
- Immigration, Customs and PHO board the vessel on arrival and the Crew list, store list, restricted item list, boarding set (Ships crew details), and PHO standards are verified.

Export Container Received From ICD By CONCOR

- On arrival of the container at the CONCOR Yard, the container Inland way bill is submitted by COA to CONCOR for movement of container
- The pre-Advice Form, weighment certificate /IMO IMDG Code etc is issued by Hauler to Terminal for verification
- To off load the container to the correct slot in the yard. EIR marked with the Container location is given by Terminal to CHA
- The containers are moved to the yard.

Containers Stuffed At CFS

- Request for carting cargo into the terminal, Cargo Carting Order / Shipping Bill filed by CHA/ Shipper submitted to CFS.
- For Movement of cargo into the CFS, Endorsed Carting Order is submitted by Hauler to CFS
- Examination completed by Customs and Let Export Order issued.
- Stuffing Order is issued by COA to CFS
- Survey is conducted and Survey remark on Pre-Advice Slip is issued by the Surveyor to the CFS
- For Stuffing of Container, a Tally / Stuffing report/CLP is issued by CFS to COA
- Customs seals the Container

Loading of Container on to the Vessel

- VOA submits the loading sequence list to the Terminal For the movement of container from pre-stack to ship side.
- After loading the container to the vessel the Terminal operator gives the Tally Sheet to the shipping agent.
- The VOA facilitates the issuance of Mate Receipts by master of vessel and gives it to the terminal
- On receiving the Port charges receipt the request for Port Clearance is given by terminal to VOA
- For sailing of vessel the application for Port clearance is applied by VOA to the Customs.
- On receiving the Port Clearance and Customs clearance the vessel sails.
- The EGM filed with customs.

APPENDIX–4: PORT EFFICIENCY PARAMETERS

4.1. Pre-Berthing Time on Port a/c and Non-port a/c

AVERAGE PRE-BERTHING TIME – 2005-2006 (In Hours)

PORT	DRY BULK				LIQUID BULK		BREAK BULK		CONTAINER		TOTAL		
	PORT A/C		NON-PORT A/C		PORT A/C	NON PORT A/C	PORT A/C	NON PORT A/C	PORT A/C	NON PORT A/C	PORT A/C	NON PORT A/C	Total
	M	C	M	C									
KOLKATA	NA	NA	NA	14.03	0.09	13.17	0.14	7.76	0.08	8.57	0.09	9.62	9.71
HALDIA	42.5	79.43	21.36	23.49	14.76	26.85	36.43	29.83	4.24	5.08	30.37	21.37	51.74
PARADIP	1.31	1.69	32.13	20.9	1.09	11.72	1.64	17.31	2.11	1.43	1.48	23.61	25.09
VIZAG	0.46	2.92	30.8	30.88	1.02	19.46	0.42	19.45	0.79	1.21	1.54	23.33	24.87
ENNORE	0.36	NA	4.08	NA	NA	NA	NA	NA	NA	NA	0.36	4.08	4.44
CHENNAI	1	1.3	80.1	8.3	1	25.8	0.8	7.7	0.7	5.3	0.9	14.7	15.6
TUTICORIN	6.65	15.83	1.91	7.4	2.23	7.87	1	25.2	0	11.21	3.06	14.4	17.46
COCHIN	10.03	0.73	13.97	8.99	5.75	19.22	1.19	4.4	1.23	7.25	2.94	10.81	13.75
NMPT	0.24	2.88	11.04	17.52	0.48	21.12	0.96	4.56	0	3.36	0.96	17.76	18.72
MORMUGAO	9.88	46.4	74.57	4.63	14.51	3.04	99.48	16.04	4.28	0.42	17.56	33.01	50.57
MUMBAI	NA	1.92	NA	22.8	6.48	21.12	4.08	17.28	2.4	14.64	4.8	19.2	24
J.N.P.T	NA	NA	NA	NA	14.09	16.92	8.53	22.59	5.45	15.63	7.4	14.65	22.05
KANDLA	NA	37	NA	22.28	5.04	19.44	34.04	28.12	9.84	4.32	19.68	19.92	39.6
All Ports	10.66	19.09	30.38	20.98	6.08	20.25	9.01	18.44	2.82	9.05	8.77	18.38	27.15

NA – Not Applicable. PBD(A) referred to in the pictorial representation of TRT at fig 3.3.5

Factors contributing to Port Account:

1. Non- availability of working berth as the berth is occupied by another working vessel
2. Non- availability of working berth as berth is out of commissioned
3. Non- availability of working berth for any other reason
4. Non- availability of berth as all other berth are fully occupied
5. Discharging/loading in midstream due to non-availability of pberth
6. Berth-don of cargo handling equipment on shore

Factors contributing to Non-Port Account:

1. Documents not ready
2. Cargo not ready
3. Agent's Option
4. Waiting for mother/daughter vessel
5. Lack of storage space in shed/tanks (not/poor clearance)
6. Waiting for barges
7. Mid-stream discharge to meet draft requirement
8. Absence of advance intimation about ETA etc.
9. On ship's account

Source IPA

Table 4.1 : Average Pre-Berthing Detention Time at Major Ports in 2005-06

4.2 AVERAGE NON-WORKING TIME (Port Account And Non-Port Account).

PORT PERFORMANCE INDICATORS: CATEGORY WISE													
AVERAGE NON-WORKING TIME (C)TO TOTAL STAY AT BERTH (2005-2006) (IN DAYS)													
PORT	DRY BULK				LIQUID BULK		BREAK BULK		CONTAINER		TOTAL		
	PORT A/C		NP A/C		PORT A/C	NP A/C	PORT A/C	NP A/C	PORT A/C	NP A/C	PORT A/C	NP A/C	Total
	MECH	CONV	MECH	CONV									
KOLKATA	0	0	0	0.96	0	1.51	0	2.12	0	0.57	0	1.17	1.17
HALDIA	0.18	0.18	0.76	1.35	0	0.44	0.16	1.2	0	0.45	0.07	0.72	0.79
PARADIP	0.14	0.16	0.5	0.78	0	0	0.15	0.96	0.03	0.56	0.15	0.67	0.82
VIZAG	0.32	0.17	0.37	0.52	0.08	0.32	0.18	0.47	0.06	0.08	0.15	0.39	0.54
ENNORE	0.18	0	0	0	0	0	0	0	0	0	0.18	0	0.18
CHENNAI	0	0	1.1	1.5	0	0.3	0	1	0	0	0	0.9	0.9
TUTICORIN	0.02	0.04	0.53	0.96	0.02	0.35	0.04	1.08	0	0.05	0.02	0.6	0.62
COCHIN	0.48	0.68	0.9	1.49	0.06	0.17	0.12	0.67	0	0	0.2	0.45	0.65
NEW MANGALORE	0	0.02	0.37	0.58	0.01	0.24	0.01	1.01	0	0.28	0.01	0.37	0.38
MORMUGAO	0.08	0	0.27	0.54	0	0.27	0	0.63	0	0.08	0.03	0.3	0.33
MUMBAI	0	2.02	0	0	0.4	0	1	0	0.33	0	0.7	0	0.7
J.N.P.T	0	0	0	0	0.3	0	0.16	0	0.06	0	0.08	0	0.08
KANDLA	0	0.02	0	0.5	0.01	0.37	0.01	0.38	0.01	0.23	0.01	0.39	0.4

NWT(C) referred to in the pictorial representation of TRT at fig 3.3.5

Factors contributing to Port Account:

1. Vessel waiting for a working berth after completion of unloading and before commencement of loading
2. Break-down / non-availability of handling equipment
3. Non-availability of port labour gangs
4. Early break-up late reporting of DLB/Port Labour
5. Spillage/grizzly cleaning/chute jamming
6. Ragging / Stitching

Factors contributing to Non-Port Account:

1. For want of cargo / containers
2. For customs formalities-prior / after to commencement / completion of work
3. For unloading/loading instructions from Chief Officer / SA
4. Shed congestion/non or poor clearance of cargo
5. Want of wagons/lorries/trailers for clearance
6. Draught hooking/survey
7. Ship's positioning /wharping/trimming
8. Break-down of ship gear
9. Due to ship bunkering/waiting for bunkering / repairs at berth / ballasting / cleaning
10. Non- availability of private labour
11. For sailing instruction/boat note
12. Due to weather conditions
13. Due to Pollution
14. Want of barges
15. Document not ready

Table 4.2: Average Non-Working Time - port account and Non-port account.

4.3. Turn Round Time at Indian Ports (Port account & Non-Port account)

AVERAGE TURN AROUND TIME (2005-2006)																		
(in days)																		
PORT	DRYBULK						LIQUID BULK			BREAK BULK			CONTAINER			Total		
	PORT A/C		NON-PORT A/C		TOTAL		PORT A/C	NON-PORT A/C	TOTAL	PORT A/C	NON-PORT A/C	TOTAL	PORT A/C	NON-PORT A/C	TOTAL	PORT A/C	NON-PORT A/C	TOTAL
	M	C	M	C	M	C												
KOLKATA	0	3.09	0	1.54	0	4.63	2.01	2.06	4.07	3.94	2.44	6.38	2.16	0.93	3.09	2.55	1.57	4.12
HALDIA	4.63	6.9	0.76	1.35	5.39	8.25	1.71	0.44	2.15	4.92	1.2	6.12	1.15	0.76	1.91	3.28	0.72	4
PARADIP	1.86	3.41	1.34	0.87	3.2	4.28	1.34	0.49	1.83	4.19	0.72	4.91	1.36	0.05	1.41	2.57	0.59	3.16
VIZAG	1.66	3.73	1.88	1.94	3.54	5.67	1.27	1.13	2.4	3.46	1.3	4.76	0.42	0.13	0.55	2.35	1.45	3.8
ENNORE	2.06	0	0.17	0	2.23	0	0	0	0	0	0	0	0	0	0	2.06	0.24	2.3
CHENNAI	2.4	5.2	3.4	0.6	5.8	5.8	1.9	1.1	3	3.4	0.5	3.9	1.2	0.2	1.4	2.6	0.7	3.3
TUTICORIN	3.42	4.34	0.07	0.31	3.49	4.65	1.7	0.33	2.03	2.97	1.05	4.02	0.56	0.46	1.02	2.23	0.6	2.83
COCHIN	7.47	5.96	0.9	1.49	8.37	7.45	1.82	0.28	2.1	1.88	0.53	2.41	0.19	1.13	1.32	1.82	0.31	2.13
N.M.P.T	1.5	3.37	0.82	1.34	2.32	4.71	1.36	1.13	2.49	3.2	1.19	4.39	0.89	0.43	1.32	1.87	1.13	3
MARMUGAO	1.25	7.57	3.38	0.73	4.63	8.3	1.56	0.4	1.96	9.86	1.29	11.15	1.34	0.1	1.44	2.41	1.67	4.08
MUMBAI	0	9.06	0	3.05	0	12.11	0.7	2.14	2.84	3.97	1.18	5.15	1.71	0.83	2.54	2.92	1.17	4.09
J.NP.T.	0	0	0	0	0	0	2.27	0.71	2.98	3.44	0.93	4.37	1.34	0.64	1.98	1.36	0.6	1.96
KANDLA	0	4.88	0	1.55	0	6.43	1.6	1.32	2.92	4.49	1.66	6.15	1.92	0.5	2.42	3.04	1.35	4.39
ALL PORTS	2.55	4.66	0.89	1.32	3.44	5.98	1.66	0.93	2.59	3.65	1.19	4.84	1.3	0.47	1.77	2.52	0.98	3.5
					4.71													
Factors contributing on port account and non-port account towards the TRT are the combination of all the factors mentioned for PBD and NWT.																		
(Source: IPA)																		
M-Mechanical: C-Conventional: NA-Not Applicable																		

Table 4.3: Turn Round Time at Indian Ports during 2005-2006.

4.4. The Average Output per Ship Berth Day (OSB)

PORT PERFORMANCE INDICATORS : CATEGORY – WISE					
AVERAGE OUTPUT PER SHIP BERTHDAY (2005-2006) (In tons)					
PORT	**DRYBULK (in MT)**		**LIQUID BULK (IN MT)**	**BREAK BULK (in MT)**	**CONTAINER** (in Tons)
	MECH	CONV			
KOLKATA	0	2079	9484	627	4147
HALDIA	9575	6223	18151	2233	3000
PARADIP	21535	7714	10414	961	2796
VIZAG	28452	7133	19565	1584	8097
ENNORE	33662	0	0	0	0
CHENNAI	30999	7346	18281	1892	17150
TUTICORIN	13250	6834	5295	1178	12659
COCHIN	2649	3589	18284	1349	5273
N.M.P.T	23578	8499	23232	1560	3528
MORMUGAO	58181	3950	7292	1390	2313
MUMBAI	0	1303	19545	2273	4162
J.NP.T.	0	0	6415	3459	17861
KANDLA	0	5258	19801	2926	5633
ALL PORTS	20820	6494	17439	1844	9270
		*13657			** 538 TEUs

* Avg OSB for dry bulk both for mechanical and conventional methods of handling is 13657 tons.

** 13.4 tons per TEU is conversion factor for containers.

(Source : IPA)

Table 4.4. Average Output Per Ship Berthday during 2005-06.

4.5. TRT (over all) for the major ports are given below for the year 2005-06.

COMPONENTS OF TRT						
PORT	PBD	TRANSIT	NWT	WT	TRT (In days)	OSB (In tones)
	(A)	(B)	(C)	(D)		
KOLKATA	0.40	0.083	1.17	2.46	4.12	3984
HALDIA	2.16	0.083	0.79	0.97	4.00	8755
PARADIP	1.05	0.083	0.82	1.21	3.16	11316
VIZAG	1.04	0.083	0.54	2.14	3.80	10557
ENNORE	0.19	0.083	0.18	1.85	2.30	33622
CHENNAI	0.65	0.083	0.90	1.67	3.30	10378
TUTICORIN	0.73	0.083	0.62	1.40	2.83	5392
COCHIN	0.57	0.083	0.65	0.82	2.13	7767
NEW MANGALORE	0.78	0.083	0.38	1.76	3.00	15048
MORMUGAO	2.11	0.083	0.33	1.56	4.08	16834
MUMBAI	1.00	0.083	0.70	2.31	4.09	6552
J.N.P.T	0.92	0.083	0.08	0.88	1.96	15821
KANDLA	1.65	0.083	0.40	2.26	4.39	8700
ALL PORTS	1.13	0.083	0.58	1.70	3.50	9267
PBD - (A), NWT - (C) WT - (D) as referred to in the pictorial representation of TRT in figure 3.3.5. The transit time is reckoned as 2 hrs on an average for all ports.						

Table 4.5: Components of Trun Round Time

Source: IPA

4.6. Port Capacity:

COMMODITY WISE CAPACITY OF MAJOR PORTS - 2004 -05 & 2005-06									
PORT		TONNAGE							
		POL		CONT.		OTHERS		TOTAL	
		2004-05	2005-06	2004-05	2005-06	2004-05	2005-06	2004-05	2005-06
KOLKATA	CAPACITY	3.60	3.60	3.40	4.00	2.80	5.00	9.80	12.60
	HANDLED	5.53	4.93	2.35	3.23	2.92	1.78	9.94	10.80
HALDIA	CAPACITY	17.00	17.00	1.20	3.00	15.90	22.20	34.10	42.20
	HANDLED	16.41	17.72	2.00	1.71	23.80	16.78	36.21	42.21
PARADIP	CAPACITY	7.50	6.00	NA	NA	31.50	45.40	39.00	51.40
	HANDLED	0.84	0.90	0.03	0.05	32.23	29.16	30.10	33.10
VIZAG	CAPACITY	16.75	16.90	1.00	1.00	31.90	37.05	49.65	54.95
	HANDLED	14.62	16.94	0.64	0.63	40.55	32.57	50.14	55.80
CHENNAI	CAPACITY	10.50	11.25	6.00	12.00	25.35	25.55	41.85	48.80
	HANDLED	11.69	13.20	9.86	11.75	25.69	18.85	43.80	47.24
ENNORE	CAPACITY	NA	NA	NA	NA	12.00	13.00	12.00	13.00
	HANDLED	0.10	0.24	NA	NA	9.06	9.24	9.48	9.16
TUTICORIN	CAPACITY	2.30	2.30	3.60	5.00	9.90	13.25	15.80	20.55
	HANDLED	0.74	0.77	3.20	3.42	13.19	11.62	15.81	17.13
COCHIN	CAPACITY	10.50	11.20	2.00	3.00	3.00	5.15	15.50	19.35
	HANDLED	10.27	9.64	2.31	2.53	1.35	1.92	14.09	13.93
NMPT	CAPACITY	19.20	21.00	NA	NA	11.10	17.00	30.30	38.00
	HANDLED	21.43	22.39	0.14	0.15	12.88	11.35	33.89	34.45
MORMAGOA	CAPACITY	1.50	1.50	NA	NA	27.00	28.00	28.50	29.50
	HANDLED	1.01	0.83	0.12	0.11	30.55	29.72	30.65	31.68
MUMBAI	CAPACITY	32.00	32.00	3.50	3.50	7.40	8.25	42.90	43.75
	HANDLED	19.33	27.78	2.57	2.14	22.29	5.20	35.12	44.19
KANDLA	CAPACITY	31.00	34.00	NA	NA	14.00	12.00	45.00	46.00
	HANDLED	22.12	24.29	2.74	2.31	12.89	14.94	41.54	45.90
JNPT	CAPACITY	5.50	5.50	27.60	30.60	NA	NA	33.10	36.10
	HANDLED	2.46	2.49	28.74	33.77	14.70	NA	32.80	37.75
ALL PORTS	CAPACITY	157.35	162.25	48.30	62.10	191.85	231.85	397.50	456.20
	HANDLED	126.55	142.12	54.69	61.79	242.10	183.13	383.57	423.34

Source: IPA

Table 4.6: Commodity wise Capacity of Major Ports 2004-05 & 2005-06

APPENDIX – 5: DETAILS OF PROPOSED REDUCTION OF DOCUMENTS IN PORTS

	Present	Proposed Reduction		Proposed
	PRE ARRIVAL DOCUMENTS			
1	Last 10 Ports of Call	Six Documents Merged as One Common Document "Vessel Arrival Notice"		
2	Ship Particulars List			
3	Arrival Crew List			
4	Sailing Crew List			
5	Pre Arrival Notice			
6	Berthing Application & Registration		1	Vessel Arrival Notice
7	ISPS Certificate and Ships Certificates		2	ISPS Certificate and Ships Certificates
8	P&I Club Certificates		3	P&I Club Certificates
9	IMDG General Declaration		4	IMDG General Declaration
10	Arrival Report		5	Arrival Report
11	Ship Movement Documents		6	Ship Movement Documents
12	Vessel Planning Form		7	Vessel Planning Form
	IMPORT			
1	Agents Delivery Order	Two Documents merged as One Common Document		
2	Overside Delivery Order			
3	Shed Delivery Order	One Document Dispensed		
4	Gate Pass		1	Delivery Order
5	Container Transshipment Application		2	Gate Pass
6	Customs Permission for Transshipment	One Document Dispensed	3	Container Transshipment Application
7	Request for Gang & Equipment		4	Request for Gang & Equipment
8	Tally Sheet		5	Tally Sheet
9	Application for Landing		6	Application for Landing
10	Final Survey Certificate		7	Final Survey Certificate
11	I G M (Custodian Copy)		8	I G M (Custodian Copy)
12	Import Application		9	Import Application
13	Bill of Entry (Custodian Copy)		10	Bill of Entry (Custodian Copy)
14	OOC (Custodian Copy)		11	OOC (Custodian Copy)
15	Open Chit		12	Open Chit
16	Job Order		13	Job Order

	Present	Proposed Reduction		Proposed
		EXPORT		
1	Carting Chit			
2	Gate Opening Permission	One Document Dispensed	1	Carting Chit
3	Request for Gang & Equipment		2	Request for Gang & Equipment
4	Export Tally Sheet		3	Export Tally Sheet
5	Final Survey Certificate		4	Final Survey Certificate
6	Export Application		5	Export Application
7	Shipping Bill (Custodian Copy)		6	Shipping Bill (Custodian Copy)
8	LEO (Custodian Copy)		7	LEO (Custodian Copy)
9	Open Chit		8	Open Chit
10	Shed Manifest		9	Shed Manifest
11	Allowed for Shipment		10	Allowed for Shipment
12	Boat Note		11	Boat Note
13	Mate Receipt		12	Mate Receipt

Table 5: Details of Proposed Reduction of Documents in Ports

APPENDIX – 6: DOCUMENTS INVOLVED

6.1 Documents involved in each stage of voyage:

I. PRE ARRIVAL DOCUMENTS					
Sl. No:	**Activity**	**Document**	**Mode of Filing**	**Document Flow**	
				From	**To**
1	Cargo Arrival Notice	Letter	M	Steamer Agent	Importer
2	Transfer of BL	BL	M	Owner/Charterer (Principals)	Steamer Agent
3	Bank Guarantee Or Corporate Letter of Indemnity	Form		Consignee	owner
4	Delivery Order Instructions	Form		Owner	Steamer Agent
5	Issue Of Delivery Order	Delivery Order		Agents	consignee
6	Filing of IGM	Prior IGM	Online / Service Center	Steamer Agent	Customs
7	Arrival Intimation	Vessel Arrival Intimation	Port website	Steamer Agent	Port
8	General Information	Form I	Manual	Master / Steamer Agent	Port / Customs / MMD / PHO / Police
9	Arrival Report	Form III	Manual	Master / Steamer Agent	Port / Customs / MMD / PHO / Police
10	Grant entry Inwards	Grant Entry Inwards for vessel	Online	PO Customs	Customs
11	General Declaration	Form II	Manual	Master / Steamer Agent	Port / Customs
12	Import clearance	Permission to grant entry inwards	Manual	Customs	Steamer Agent
13	Rummaging	Shipping Journal	Manual	Master	Preventive Officer Customs
14	Declaration	Gold / Bullion / Silver	Manual	Master	Customs
15	Declaration	Agency for vessel	Manual	Master	Customs
16	Declaration	Same bottom cargo	Manual	Master	Customs
17	Declaration	No opium certificate	Manual	Master	Customs
18	Declaration	No Arms & Ammunition	Manual	Master	Customs
19	Declaration	Deck Cargo	Manual	Master	Customs
20	Declaration	No Passenger on board	Manual	Master	Customs
21	Declaration	Store list	Manual	Master	Customs
22	Draft survey	Survey certificate	Manual	Surveyor	Steamer Agent
23	Receipt	Store list	Manual	Customs	Master
24	Report of arrival of vessel in port	Emigration Journal	Manual	Master	Immigration Officer

II. ARRIVAL OF VESSEL TO SAILING OF VESSEL

Sl. No	Activity	Document	Mode of Filing	Stakeholders	
				From	To
1.	Immigration Officer Boards the vessel verifies the list of crew and passengers if any, Issues Immigration Clearance and Issues Shores Passes	Crew, passenger list, clearance certificate and shore pass	Manual	Immigration Officer	Steamer Agent/passenger/crew
2.	Delivery Over side	Overside Delivery Order	Manual	Steamer Agent	Master
3.	Ships certificates	Receipt	Manual	Steamer Agent	Master
4.	Vessel planning	Vessel planning form	Manual	Steamer Agent	Port
5.	Tally	Tally sheet	Manual	Port	Stevedore agent
6.	Intimation of cargo arrival	Cargo arrival notice	Manual	Steamer Agent	Importer
7.	Draft survey	Surveyor certificate	Manual	Surveyor	Steamer Agent
8.	Completion of discharge	Discharge completion certificate	Manual	Steamer Agent	Customs
9.	Export cargo loading / no discharge	Export Cargo loading / No discharge certificate.	Manual	Steamer Agent	Customs
10.	Consignee appoints C&F Agent				
11.	Tank inspection by Chief Officer/Surveyor Draft Survey for dry bulk, no survey for general cargo	Inspection report Draft survey report		Surveyor/Chief Officer	Steamer Agent/Consignee
12.	Statement of Facts for calculation of lay time			Agents	Signed by master and receiver
13.	Pilot Called		VHF	Master	Port
14.	Delivery Order	Issue of delivery order	Manual	Steamer Agent	CHA
15.	Filing of BE	Bill of entry with Invoice, Packing list, Country of Origin Certificate, Analysis Certificate.	Online	CHA	Customs Service Center
16.	Filing of Import Application	Import Application	Manual	CHA	Port
17.	Print check list	Check list for verification of the BE	Manual	Service Center – Customs	CHA

18.	Issue of Chalan TR6	Chalan TR6		Customs	CHA
19.	Duty value assessed	Duty advice	Manual	Customs	CHA
20.	Examination	Examination order		AO Appraisal	AO Docks
21.	Testing for edible items for human consumption	CFTRI Mysore certificate	Manual	PHO	CHA/SA
22.	Plant quarantine	Phyto/Fumigation certificate, Plant Quarantine clearance certificate	Manual	Plant quarantine officer	Steamer agent
23.	Cargo verification	Out of Charge	Manual / EDI	Customs	CHA
24.	Request for gate opening	Gate opening Application	Manual	CHA /SA	Port
25.	Grant Permission	Permission letter	Manual	Port	CHA /SA
26.	Carting orders	Carting chit	Manual	CHA /SA	Transporter
27.	Filing of Export Application	Export Application	Manual	CHA	Port
28.	Filing of SB	Shipping bill with packing list, Invoice, Exchange Control Declaration (GR) form no. BA	Manual / EDI	CHA	Customs
29.	Permission for direct loading / delivery	Permission letter	Manual	CHA	Port
30.	Passing Cargo for exports	LEO Let export order	Manual / EDI	Customs	CHA
31.	Loading export cargo	Allowed for shipment	Manual	Customs PO	CHA
32.	Filing Labour Indent	Gang Indent	Online / Manual	Stevedore	Port
33.	Filing Equipment Indent	Equipment Indent	Online / Manual	Stevedore	Port
34.	Filing Labour Indent	Gang Indent	Online / Manual	CHA	Port
35.	Filing Equipment Indent	Equipment Indent	Online / Manual	CHA	Port
36.	Delivery of imported cargo	Vehicle ticket	Manual	Port	CHA
37.	Transport instructions	Form-20A	Manual	CHA	Transporter
38.	Receipt of Goods on board	Mate Receipt	Manual	Master	Port / CHA
39.	Port Clearance	Port Clearance certificate	Manual	Port	Steamer Agent
40.	Port Clearance	Port Clearance certificate	Manual	Steamer Agent	Customs

41.	Grant entry outwards	Grant Entry outwards	Online	Customs	PO Customs

Sailing of vessel to closure of the voyage					
S.No:	**Activity**	**Document**	**Mode of Filing**	**Stakeholders**	
				From	**To**
1.	IT returns for the vessel	Authorization letter	Manual	Master	Steamer Agent
2.	Bill	Final Marine Bill	Manual	Port	Steamer Agent
3.	Export Cargo in vessel	Export General Manifest	Manual	Steamer Agent	Customs
4.	Import Cargo lying	Out Turn Statement	Manual	Port	Steamer Agent / Customs

6.2 Documentation - Import Cargo

Agency	**No. of Documents**	**Name of document**
Customs	6	Bill of Entry (B/E), Customs out of charge, Customs permission on Transhipment permit TP, Customs NOC for restricted commodities.
Port	4	Tally Sheet, Shed Delivery Order,payment receipt for wharfage & demurrage, Gate pass
Shipping Agent	17	Application for Rotation with vessel details, Application for Registration, Import General Manifest(IGM), Berthing application, docking application, Advance list, payment receipt for berth hire charges and stevedoring charges, Certified Hazardous cargo list, ISPS declaration, Copy of P&I cover, Stowage plan, Bay plan, Hatch Summary, Application to PHO, Agents delivery order, Railway indent, Transhipment permit (TP), Load list.
CHA / Importer	4	Bill of Lading (B/L), Packing list, Invoice, Cargo inspection certificate
PHO / PQ	2	PHO / PQ report (for perishable cargo), PHO NOC of ship (yellow fevour zone)
MCGM	2	A, B / N form (for octroi charges)
Total	35	

Agency	No. of Documents	**Name of document**
Customs	8	IGM, Inward entry, Customs permission (for CY to CFS), Bill of Entry (B/E), Customs out of charge (OOC), Customs permission on SMTP, Customs NOC for restricted commodities. Open Chit
Port	6	Tally Sheet, Container Movement challan, Shed Delivery Order, payment receipt for wharfage & demurrage, Gate Pass, EIR
VOA / COA	24	Application for Rotation with vessel details, Application for Registration, Import General Manifest(IGM), Berthing application, docking application, Advance list, payment receipt for berthhire charges and stevedoring charges, Certified Hazardous cargo list, ISPS declaration, Copy of P&I cover, Stowage plan, Bay plan, Hatch Summary, Application to PHO, Container load plan, Agents delivery order, Agents CMC permission, Agents gang delivery order, SMTP, Railway indent, Transhipment permit (TP), Load list, Form –13, D.O
CHA / Importer	5	Bill of Lading (B/L), Packing list, Invoice, Cargo inspection certificate, country of Origin
CONCOR	2	Train summary, Inland way bill (For ICD),

PHO / PQ	2	PHO / PQ report (for perishable cargo), PHO NOC of ship (yellow fever zone)
State Govt.	2	A, B / N form (for octroi charges)
Total	**49**	

6.3 Documentation - Export Cargo

Agency	No. of Documents	Name of document
Customs	4	Shipping Bill, let Export Order, Customs NOC for restricted commodities outward entry
Port	2	Tally Sheet, Payment Receipt for Port Charges for wharfage / demurrage charges on Export Cargo.
Shipping Agent	11	Application with vessel details, Application for registration, Application for carting, Berthing application. Advanced payment receipt for berth hire and stevedoring charges, Certified Hazardous cargo list, ISPS declaration, Copy of P&I cover, Mate Receipts, Application for Port clearance, Bill of lading.
CHA / Exporter	3	Check list, Invoice /purchase order, Cart chit
PHO / PQ	1	PHO's Clearance (for Food grains)
Total	21	

Agency	No. of Documents	Name of document
Customs	8	EGM, Outward entry, Shipping Bill (S/B), Let Export Order (LEO), Allowed For Shipment, Customs NOC for restricted commodities. Open Chit, Port Clearance
Port	6	Tally Sheet, Pre Advice Slip, Container Movement Challan, payment receipt for wharfage & demurrage, Gate Pass, EIR
VOA / COA	24	Application for Rotation with vessel details, Application for Registration, Export General Manifest(EGM), Berthing application, docking application, Advance list, payment receipt for berth hire charges and stevedoring charges, Certified Hazardous cargo list, ISPS declaration, Copy of P&I cover, Stowage plan, Bay plan, Hatch Summary, Application to PHO, Container load plan, Agents delivery order, Agents CMC permission, Agents gang delivery order, SMTP, Railway indent, Transhipment permit (TP), Load list, Form –13, D.O
CHA / Importer	5	Packing list, Invoice, Cargo inspection certificate, Carting Order
CONCOR	2	Train summary, Inland way bill (For ICD),
State Govt.	2	A, B / N form (for octroi charges)
Total	**47**	

APPENDIX 7: READY RECKONER

7.1. Reduction of TRT and Dwell Time at 25% reduced NWT and 10% increased OSB

The corresponding reduction in TRT is displayed in the Table below for reference.

TURN AROUND TIME ANALYSIS - 25% REDUCTION IN NON-WORKING TIME PLUS 10% INCREASE IN PRODUCTIVITY

CARGO	AVERAGE TRT (ACTUAL) (In Days)						Expected TRT (In days)					
	Actual TRT	PBD	Transit Time	Average Non-working Time	Vessel Working Time	Average Output per Ship Berth Day	10% Inc in Productivity	Corresp vessel working time	Reduction in Vessel Working Time	25% reduction in Non-working time	Total Reduction in TRT	Expected TRT
	(A)	(B)	(C)	(D)	(E) = A - (B+C+D)	(F)	(G)	(H) = E x (F / G)	(I)	(J) = (D) x 25%	(K) = (I) + (J)	
DRY BULK	4.71	1.68	0.083	0.91	2.04	13657	15023	1.85	0.19	0.23	0.41	4.30
BREAK BULK	4.84	1.14	0.083	0.95	2.67	1844	2028	2.42	0.24	0.24	0.48	4.36
CONTAINERS	1.77	0.49	0.083	0.28	0.92	538	592	0.83	0.08	0.07	0.15	1.62

** Proposed reduction in Turn Around Time is achievable by

(1) Reducing the Idle time by 25%

(2) Increasing the productivity by 10%

Average Transit time is assumed to be 0.083 days for In and Out operations

Table 7.1.: Turn Round Time Analysis – OVRERALL

APPENDIX 8:- ELECTRONIC DATA INTERCHANGE AND PORT COMMUNITY SYSTEM

8.1 Introduction

As Ports are gateways to International Trade, they face new challenges requiring in meeting the demands for sophisticated data communication solutions. Customers and Trading Partners expect ports to have the most sophisticated data technology available for moving data around the terminal/berth.

8.1.1 Electronic Commerce (EC)/Electronic Data Interchange (EDI)

The members of the Port Community depend on the flow of data from other members of the community to perform their functions effectively, since activity in one area will have an impact on the others. If data can be exchanged between them accurately and speedily, the efficiency and throughput will be improved. Electronic Data Interchange (EDI) has therefore become an essential element for maintaining the efficient operation not only of ports but also for the complete trade and transportation cycle.

The EC/EDI implementation is vigorously pursued in the functioning of trade regulating and facilitating organizations like Customs, Ports, Airports, Airlines, Banks, DGFT, AEPC/Texprocil, CONCOR, etc. Implementation of EDI varies from port to port and covers areas like Banks, exchange with Customs and few messages with few users.

Though Indian major ports introduced computers for their operations and management quite early, they could not establish fully integrated EDI with their trading partners. Implementation of EDI varies from port to port and covers areas like banks, exchange with customs and few messages with few users.

In the Indian Port Community also, though some members of the community have computerized their internal operations, it is difficult for them to transfer data electronically to all their trading partners. Therefore, exchanging data, getting status updates from trading partners or transacting business with other members of the community take place manually resulting in re-entry of data into their internal systems at the cost of speed and accuracy affecting their service levels to their customers.

As the dominant players of the community (Customs, Ports, Banks etc.) begin to adopt electronic exchange of data and e-commerce practices, other members of the community are forced to comply. In the near future, the companies that do not reengineer its process to the demands of the trade will either stagnate or perish.

The availability of broadband Internet connection at affordable cost in the country has provided accessibility and uniform interface to all the members and broken the barriers of digital divide.

Hence, integrating all activities across maritime transport chain (from cargo origin to destination) electronically into a common Port Community System, which meets all the requirements of stakeholders, that is dynamic, consistent and easily accessible through the Internet is the need of the hour.

8.1.2 Towards Integration- Port Community System

EDI implementation at Ports is in a piecemeal fashion and hence the real benefits have not realized so far. Therefore, steps have already been initiated to implement Centralized Web based - Port Community System (PCS) at all Major Ports to reap the maximum benefits of EC/EDI and move towards a paperless regime.

Port Community System (PCS) is intended to integrate the electronic flow of information across the trading partners involved in maritime transport chain through a common interface. The PCS will function as the centralized hub for all major ports of India and other stakeholders like Shipping Lines/Agents, Surveyors, Stevedores, Banks, Container Freight Stations, Government Regulatory Agencies, Customs House Agents, Importers, Exporters, Transporters, etc. for exchanging messages electronically in secure manner using the latest technologies.

It will be accessible through a secure and personalized web browser. This central and common facility will definitely save time and money and improve the speed of the services. It will improve track and trace efficiency and shipment/service visibility by automatically posting the current status updates by the system of each member as and when any significant event occurs. The status will be available for all interested parties for viewing or downloading as required.

The ultimate aim is to seamlessly integrate all members of the port community and also to provide and electronic platform to act as a single window to exchange messages.

The main objectives of the PCS are:

- Develop a centralized web-based application, which act as single window, for the community members/stakeholders to exchange messages electronically in secure fashion.
- Data repository for research and analysis

Benefits of PCS :

- ❖ User will be able to file documents for any port from any where in India;
- ❖ User will be able to monitor and track the activities through the web;
- ❖ Provides both web forms as well as message exchange options;
- ❖ Provides gateways for payment, SMS, E-mail, etc. centrally;

- ❖ Minimize hardware, software procurement and maintenance cost by avoiding duplication of resources at each Port Community;
- ❖ Better security, redundancy and providing for Disaster recovery;
- ❖ Building of a repository of information for endless query options and a variety of needs including statistics and research;
- ❖ Over a period of time when the repository of information gets built up the past data can be quite valuable.

Setting up the Centralized Web Based – Port Community System (PCS) and the system is likely to be in placed by end of 2007. The ultimate aim is to seamlessly integrate all members of the port community and also to provide and electronic platform to act as a single window to exchange messages.

8.1.3 Electronic Data Interchange (EDI) in Indian Major Ports:

All EDI messages with customs are being exchanged. However, the port does not possess the software infrastructure to utilize/generate the message so as to benefit in terms of information exchange with at least one stakeholder namely customs. We continue to depend on the corresponding manual documents of customs for completing the port documentation.

8.1.4 Status of EDI and Internal automation

Port – Customs EDI messages exchange	-	All Ports except Paradip and Ennore
Port – Bank messages exchange	-	Exist to some extent in all ports except Vizag and New Mangalore
Port – User interface	-	JNPT/NSICT/PSA/VTPL exchanging UNEDIFACT messages
	-	NMPT exchanging vessel information through FTP (File Transfer Protocol)
	-	Tuticorin/Chennai /MOPT/COPT exchanging messages which are web based

Port Community System	-	Vendor has been selected. Work to commence from August 2006 and likely to complete by Dec 2007

8.1.5 Messages For Information Exchange In PCS

S.No	Messages	From	To
Vessel Related Messages			
1	Vessel Profile	SA	Port
2	CALINF: VIA/VCN Registration/ Vessel Scheduling	SA	Port
3	Allotment of VIA/VCN Registration/ ACK of CALINF	Port	SA
4	BERMAN : Berth Management Message(BERMAN) / Berthing Application/ Un-Berthing Application/ Resource Request/Movement of Vessel from one Berth to other	SA	Port
5	PAXLST : Passenger/Crew List Message	SA	PHO, Immigration, Port
6	BAPLIE: Bay Plan/ Stowage Plan	SA Port/ Surveyor	Port(Import) SA(Export)
7	MOVINS: Stowage Instruction	SA	Port
8	IFTDGN: Dangerous Goods Notification	SA	Port, CHA,Importer
9	Requisition for Resources	SA/ Stevedores	Port
10	Allotment of resources	Port	SA / Stevedores
11	Un-Berthing/Sailing/Shifting/Re-Berthing Application	SA	Port
12	VESDEP : Vessel Movement /Vessel Departure Message	Port	SA
13	TPFREP : Terminal Performance Report	Port	SA
Container Related Messages			
14	COPRAR : Container Loading and Discharge Order/ Advance Container List (Imports and Exports)	SA	Port CONCOR/ RAIL OPERATORS CHA CFS Surveyor Transporter
15	COARRI : Container Loading/Discharge Report	Port	SA
16	COSTOR: Container Stuffing/De-	SA	Port, CFS

	Stuffing Order		
17	Container Load Plan (CLP)	SA	Port, CFS, Surveyor
18	Container special handling order	SA	Port
19	COSTCO: Container Stuffing /De-stuffing report	Port, CFS	SA
20	Gate Open Report / Cut Off Report	Port	Stakeholders
21	CODECO : Container/Cargo Gate-in Gate-Out Report	Port	SA,CHA
22	EIR : Equipment Interchange Report	Port	SA, Transporter
23	COPARN : Empty Container Release Order	SA	Port
24	COEDOR: Container Stock Report	Port	SA/CHA,CFS
25	Request for Carting Permission	SA,CHA	Port
26	Confirmation of Carting	Port	SA,CHA
27	Job Order	CFS	Port, Transporter
28	Stoppage or Release of Containers	Customs	CFS/Port
Finance Related Messages			
29	Request for Assessment of	SA	Port
30	Confirmation of Advance	Port	SA
31	PD Account Balance Details/Shortfall Intimation Notice	Port	SA,CHA
32	INVOIC : Invoice for Vessel / Container/ Stevedoring / Cargo	Port	SA,CHA
33	PAYORD : Pay Order/Refund Order	Port	SA,CHA
34	CREADV : Credit Advice	Bank	SA, CHA,Port
35	DEBADV : Debit Advice	Bank	SA, CHA,Port
36	Daily Transaction Summary Report	Bank	Port
CARGO RELATED MESSAGES			
37	Bill of Lading/ Agent Delivery Order	SA	CHA, Port
38	Mate Receipt Return of Mate Receipt	SA Port	Port SA
39	Application for Log Entry/Short landed/Landing remark certificate	CHA	Port/CFS
40	Grant of Log Entry/Short landed/Landing remark certificate	Port/CFS	CHA
Transport related Messages			
41	COPINO : In-land Way Bill / Container Pre-notification message arriving by Rail/ Placement Memo / In-Land way bill/ Rail Receipt /Export Advance list for Containers arriving by rail	Rail Operator	Port/CHA/ Stevedore
42	Rail Receipt	Rail Operator	Port/CHA/ Stevedores
43	Removal Memo from Rack	Port CHA/	Rail Operator

		Stevedore	Rail Operator/ Port
44	Pendency of Containers with Respect to Destination	Port Rail Operator	SA, Rail CHA / Stevedore
45	Train Schedule/Summary Certificate	Port Rail Operator	SA CHA/ Stevedores
Regulatory Authority Messages			
46	Application for Tonnage Certificate	SA	DG Shipping
47	Tonnage Certificate	DG Shipping	SA/Port
48	License for Vessel Application	Ship Owner	DG Shipping
49	Acknowledgment for License for Vessel Application	DG Shipping	Ship Owner
50	Coastal Voyage Registration	Ship Owner	DG Shipping
51	Acknowledgement for Coastal Voyage Registration	DG Shipping	Ship Owner
52	Multimodal Transport Registration	Transporter	DG Shipping
53	Acknowledgement for Transport Registration	DG Shipping	Transporter
54	Cargo Manifest	SA Customs	Customs Port
55	Container Details	SA Customs	Customs Port
56	Allocation of IGM No	Customs	SA
57	Grant of Entry Inward	Customs	SA, Port
58	Request for Cancellation	SA	Customs
59	Confirmation of Vessel Arrival at Port	Port	Customs
60	Cancellation of IGM No	Customs	SA, Port
61	Landing/Tally Report	Port/ Stevedores	SA, Customs
62	Details of the Containers Landed and Damaged Packages	Port	Customs
63	Excess Landed Cargo	Port	Customs
64	Location of Cargo	Port	Customs
65	Out of Charge	Customs	CHA, Port
66	Containers out of Charge	Customs	CHA, Port
67	Out of Charge-Item Details	Customs	CHA, Port
68	Request for Transshipment	SA	Customs
69	Transshipment Permit	Customs	SA, Port
70	Detention/Confiscation Release Order	Customs	Port

71	Detention/Confiscation Release of Containers	Customs	Port
72	Gate Pass	Port/CFS	CHA, Customs
73	Disposal Order	Customs	Port
74	Item Disposal Order	Customs	Port
75	Cargo Disposal Particulars	Port	Customs
76	Request for Cargo Movement	SA	Customs
77	Cargo Movement Approval	Customs	SA, Port, CFS
78	Arrival of Cargo at CFS	CFS	Customs
79	Transshipment Approval	Customs	SA, Port
80	Acknowledgement Message to Transshipment Request	Customs	SA
81	Application for Rotation No.	SA	Customs
82	Allotment of Rotation Number	Customs	SA, Port
83	Application for Cancellation of Rotation Number	SA	Customs
84	Cancellation of Rotation number	Customs	SA, Port
85	Shipping Bill Details	Customs	Port
86	Shipping Bill - Item Details	Customs	Port
87	Entry of Goods into Port	Port	Customs
88	Entry of Goods into Port-Container	Port	Customs
89	LEO/Stuffing Report	Customs	SA/CHA, Port
90	Stuffing Report - Container Information	Customs	SA/CHA, Port
91	Details of Shutout Cargo	Customs	Port
92	Container/Package Shutout Cargo Details	Customs	Port
93	Application for Entry Outward prior to Loading U/s 39	SA	Customs
94	Grant of Entry Outwards	Customs	SA, Port
95	Application for Port Clearance U/s 42 (Prior to Sailing)	SA	Customs
96	Grant of Port Clearance	Port, Customs	SA
97	Vessel Sailing Report	Port	Customs, SA
98	Export General Manifest	SA	Customs, Port
99	EGM - Container Particulars	SA	Customs, Port
100	Requisition of Stevedoring activities	All Stakeholders	Stevedores/ Port

Table

S. No	Additional Messages	From
1.	Submit Bill of Entry	CHA/Importer
2.	Submit Shipping Bill	CHA/Exporter
3.	ETA	SA
4.	Request Back to town	CHA
5.	Permission Back to town	Customs
6.	Movement Permission from Pre-Shipment to Dock	CHA
7.	Movement Order	Port
8.	Export Cargo Register	Port
9.	Form 13/Annexure C	CHA
10.	Forwarding note	SA
11.	Work Order	SA
12.	Container departure information	Rail Transporter

APPENDIX – 9: FLOW-THROUGH GATE SYSTEM:

A unique and innovative system for passage of trucks in to the various container terminals has been designed at PSA Singapore. As explained earlier, the four terminals (Brani, Keppel, Tanjong Pagar & Pasir Panjang) operate as one seamless terminal. The horizontal integration of the terminals and seamless transfer of containers is the corner stone of efficiency at PSA. Since the terminals are contiguous to the city, quick entry into the terminal is essential to keep the connecting roads free and fast flowing so that congestion at terminal and city roads is avoided. The flow through system has been designed to ensure immediate access of trailer-trucks, on arrival, to the terminal.

The flow-through gate system, introduced in 1997, is a fully automated system that identifies trucks and gives drivers instructions within 25 seconds.

The Flow Through Gate system handles an average traffic flow of 700 prime movers per peak hour, and 8000 prime movers per day.

The fully automated and paperless process clears prime movers going into the port within 25 seconds using the following steps:

A manifest is submitted through PORTNET 36 hours in advance.

- The truck arrives at the gate and is weighed by the weighbridge.
- The driver taps his id card on the card reader and keys in an id number.
- A signal is automatically picked up from the transponder atop the truck's cabin.
- The container number is captured by the Container Number Recognition System via the CCTVs at the gate.
- The weight of the truck, driver's identity, truck's identity, and the container number is all checked against the manifest and cleared.
- The automatic paging system tells the driver the exact position in the yard where the container will be stacked.

In 1999, the Flow Through Gate System was conferred an Innovation Award at the 11th UK Seatrade Awards for its contribution to the Port's excellence.

APPENDIX – 10 Recommendation to Improve the efficiency of the Port

10.1. Other Measures – Port Account

10.1.1. Augmenting capacity at ports

The capacity of Ports is dependent on the number of berths, equipments and handling systems.

- **Berths- More Dedicated Facilities**
  The berth occupancy is higher than 65% for berths with dedicated facilities to handle streams of traffic such as iron ore, fertilizers and container. However, in these specific streams, the capacity to handle vessels should be seen in terms of both berth occupancy as well as pre-berthing detention of vessels. Considering these two factors, more dedicated berths especially to handle dry bulk and containers needs to be developed with respect to the cargo profile of the port. Further more Single Point Moorings (SPM) are to be developed for catering to the traffic in crude oil to exploit the economies of scale, as the Government is encouraging shore based refineries. To improve the productivity at these SPMs and at oil berths suitable superstructures for pumping at international norms are to be developed.

- **Equipments – Higher Capacity superstructures at Berth**
  The level of penetration of mechanization in the general cargo/break bulk cargo stream is quite inadequate when compared to international norms. Further, it varies from port to port and many ports are depending on ship's gears to handle cargo. Equipments are also outdated and have notoriously poor levels of productivity and high downtime. Ports are not able to replace their equipment because of the advisory by the MOS for minimum of 20 years of life span for equipments.
  It is, therefore, recommended that every multipurpose cargo berth should have at least 2 back-up shore cranes (Quay shore cranes) or harbour mobile cranes of minimum capacity of 30 Tons and above / 35 Tons for containers, with ability to fit grabs as well as spreaders for containers. Harbour mobile cranes are versatile in character hence they can be optimally utilized for multi- commodity handling. The codal life of all equipments to be only 10 years as against the existing 20 years.
  (Action MOS , all ports)
  (Time Frame: 31-12-2008)

- **Handling Systems – State of the Art Systems and TQM Implementation**
  Handling systems are relevant in bulk streams, which handle oil, iron ore, coal etc. in large quantities. The dedicated handling systems in vogue are quite old in most ports. These need to be modernized with the State of the Art Handling systems characterized by abilities to handle newly evolving heavy axle wagons (higher capacity hydraulic tippers), conveyor rate of at least 4000 tons per hour (international bench mark) and ship loading rate

4000 tons per hour. Even in some ports where such state of the art systems have been commissioned, the actual productivity achieved is lesser than the designed capacity due to improper maintenance practices and poor work ethics. Therefore, it is recommended that Total Quality Management (TQM) should be enforced and shift changeovers should be made seamless to reduce non-working time.

In most container terminals, the vessel rate is about 45-50 containers per hour, which is below the international benchmark of 75-100. This is mainly due to the deployment of less number quay cranes per vessel and the nature of vessels calling at Indian Ports. It is recommended that in the concession agreement for private terminals, it should be mandated that a minimum of 3-quay crane per ship to be deployed at all times. This will ensure faster turn round of container vessels and more windows available for berthing and also attract bigger vessels to Indian Ports.

(Action MOS / all ports)
(Time Frame: 31-03-2012)

- **Uniform national policy for creating a minimum of (-) 14metres draught at all Major Ports:**

Restrictions of draughts at various Ports seriously impede the ability to handle vessels of a standardized international scale. Minimum draft of –14m will give the major ports the capability to handle post Panamax vessels for dry bulk and mainline mother vessels for containers. At International Ports, the Government funds the dredging and maintenance cost of channels. It is, therefore, recommended that, as a national policy, minimum draft of –14m in all berths of the major ports may be developed. It is also recommended that the Government fund the cost of maintaining the minimum draught.

(Action MOS)
(Time Frame: 31-03-2012)

10.2. Other Measures – Non- Port Account

10.2.1 Additional testing facilities

Permit accredited non-governmental testing laboratories: Government to permit the statutory bodies to accept the test certificates issued by accredited testing laboratories eliminating the need for the samples to be sent to far flung government laboratories only.

(Action MOC)

10.2.2. Create Exclusive Cargo Freight Corridor

Exclusive cargo freight corridor – Road and Rail has to be developed in all-important ports urgently. Also the rail / road connectivity to all ports has to be expedited. This will enable the transporters to operate their fleet round the clock.

(Action: MOS / Ministry of Railways)
(Time Frame: 31-03-2012)

10.2.3. Introduce Heavy Axle Trucks/Wagons

Heavy axle wagons and multi axle trucks to be introduced in the transportation sector. This will improve the Turn Round of trucks and enhance the carrying capacity of vehicles to facilitate expedition evacuation of cargo.

(Action: Other Stakeholders)
(Time Frame: 31-06-2008)

10.2.4. Introduce Unified Transmission Form

Implement a unified and secure Transmission Form that is valid across the country to avoid delays at the check points.

(Action: Ministry of S, RT & H, Dept. of Road Transport / All State Governments)
(Time Frame: 31-06-2008)

OPTIMIZING RAIL OPERATIONS AND REMOVAL OF ROAD CONGESTION											
Name of Port	Name of the Project	Funding Arrangement(Rs. In Crores)					Date of Clearance obtained/to be obtained				Date of commencement of work
		Estimated Cost (Rs in cr.)	Budgetary support	Internal resources	Private	Others	Inprinciple approval of Deptt. of Shipping/ Planning Commission/Port	Selection of BOT Operator byPort/PIB or EFT recommendation/Port Committee recommendation	Govt. approval for the project under Sec-42 of approval for Investment byGovt. Or Port.	Env. Clearance	
KDS	Development of infrastruc-ture in the docks and allied facilities.	12.00	0.00	12.00	0.00	0	To be placed for approval of Brd of Trustees by Dec.205				Dec.05 to March 07
HDC	Dev. Of road infrastructure including drainage etc. inside & outside dock (in phases)	30.00	0	30.00	0	0	04.10.2002 by KoPT Board.	NA			Constn. Work in progress
HDC	Improvement of back up area with railway connectivity inside the dock in phases.	25.00	0	25.00	0	0	20.01.2004 (By KoPT Board)	NA			Constn. Work in progress
PPT	Upgradation of Paradip Rly. Yard signalling, Station Bldg	25.00	0	25.00			Within PPT Board's power	NA			March 2006
PPT	Upgradation of road inside harbour area.	15.00		15.00			Within PPT Board's power	NA			7.2.2005
PPT	Electrification of MCHP Rly. Line tohandle 20MTPA	10.00		10.00			Within PPT Board's power	NA			Works not yet commened
VPT	Improvement to road infrastructure with road, bridges/fly over bridges	30.00		30.00			December 2004				May 05
VPT	Improvement to road infrastructure with road bridges/fly over bridges, phase-II	55.00		41.00		14.00	Sept.,2006				March 2007
VPT	Development of interchange yard at Vadlapudi and Reception and Despatch yard at Mindi and associated facilities.	81.00		58.00		23.00	July 2006				Dec.,200
VPT	Improvement to Port Railway System.	30.00		30.00			Sept 2002				Oct., 200
VPT	Modernization of Railway sidings facilities.	20.00		20.00							

ChPT	Multilevel stackyard for Automobile Export.	48.00		48.00				Within Board's power	31.10.05	NA	01.04.06
TPT	Widening & strengthening of Port roads from Western boundary to Green gate and strengthening of approach road, Ambedkar road with bituminous layer.	17.00		17.00			Board approval on 18.12.04.	NHAI has been requested to take up the work			Jan., 200
TPT	Constn. Of separate signal station including provision for VTMS and proc. Of 2 nos. 32 Ton BP Tug, 1 no. 45 T. Bollard Pull Tug, 2 nos. Pilot Launch, 3 nos Mooring boat	60.00		60.00							
NMPT	Improvement to Port internal roads.	50.00		50.00							
NMPT	Development of Marshalling Yard.	30.00		20.00	10.0		N.A				
MbPT	Road improvements within MbPT Estate.	35.00		35.00			Appvl. Accorded in March 05		Oct. 05	NA	Nov.200
MbPT	Wadala Mahul to Truck Terminous link.	15.00		7.50		7.50	These schemes will be executed by State Govt.				April 06
MbPT	Anik Panjarpol Link	152.00		35.00		117.00					April 05
JNPT	Rail work: Extension of doubling beyond holding yard leading to Terminal-1,2&3	20.00		20.00			JNP Board - March 2006	N.A			Jan.,200
JNPT	Road work: Constn. Of Grade separators through SPV of Port connectivity.	8.00		40.00		40.00	JNP Board - March 2007	N.A	GOI - April 2006	NA	Sept., 06
JNPT	Const. Of addl. Railway lines Jasai yard and holding yard & Extn. Of Electrification	22.00		22.00			JNP Board - Oct., 2006	N.A			April 200
JNPT	Constn. Of sorting yard for handling mix trains.	40.00		40.00			JNP Board - Oct., 2006	N.A			April 07
JNPT	Internal Port road widening, Stage-II	45.00		45.00			JNP Board - Oct., 2006	N.A			April 07
JNPT	Constn. Of 2nd Evacuation road.	45.00		45.00			JNP Board - April 2006	NA	NA	NA	April 07
JNPT	Merry- go- round linkage in JN Port.	72.00		72.00			JNP Board - June 2006	NA	GOI - June 08	NA	Jan.,09
KPT	Extn. Of road and railway network in the rear of back up area from berth No.11 to 18 at Kandla.	57.49		57.49					Oct-05 (Board)	NA	
KPT	Constn. Of addl. Carriage-way for4-lanning ofroad from Kutch salt junction to west gate no.2 at Kandla.								March,04 (Board)	NA	
KPT	Providing Rly network in newly developed cargo jetty.								Jan.,05 (Board)	NA	
KPT	4-lanning of existing road from NH-8A up to Jetty Complex.								April,05 (Board)	NA	

APPENDIX – 11: ABBREVIATIONS

BE	Bill of Entry
BL	Bill of Lading
CCTPL	Chennai Container Terminal Private Limited
CFS	Container Freight Stations
CHA	Custom House Agents
COA	Container Operating Agent
CONCOR	Container Corporation of India
DDD	Direct Delivery
DGFT	Director General of Foreign Trade
DO	Delivery Order
EA	Export Application
ECR	Export Cargo Receiver
EDI	Electronic Data Interchange
EIR	Equipment Interchange Report
GCH	Green Channel Delivery
GPS	Global Positioning System
GTI	Gateway Terminal India
ICD	Inland Container/Clearance Depot
IGM	Import General Manifest
IMDG	International Maritime Dangerous Goods
IRR	Internal Rate of Return
ISPS	International Ship and Port Facility Security
JIT	Just in Time
JNPT	Jawaharlal Nehru Port Trust
LC	Letter of Credit
LEO	Let Export Order
MMD	Mercantile Marine Department
MNC	Multi National Company
MT	Million Tonnes
MTA	Empty Available
MTY	Empty
OOC	Out of Charge
OOG	Out of Gauge
OSB	Output Ship Berth day
PBD	Pre-Berthing Detention Time
PHO	Port Health Organization
PNR	Public Notification Reference
POL	Petroleum Oil Lubricants
RFID	Radio Frequency Identification
TEU	Twenty foot Equivalent Unit
TRT	Turn Round Time
TSA	Transshipment Advise
UIL	Under Inbound Load
UN/EDIFACT	United Nations Electronic data Inter Change for Administration, Commerce and Transport
UOL	Under Outbound Load
VIA	Vessel Identification Advice
VOA	Vessel Operating Agent