Study on Timeline for Export and Import of Containers at Jawaharlal Nehru Port Trust, Chennai Port Trust and APSEZ Mundra

MARCH 2018

Highlights of the Report

- In the first quarter, the port dwell time for import at the JNP was highest in the month of March – 40:37 hours, whereas, Chennai and Mundra recorded their lowest port dwell time in March-18.
- Compared to Jan ad Feb 2018, the port dwell time for exports at Mundra was highest in March, at 112:27 hours.
- The import and export customs release time for the first quarter was highest in the month of March 2018 at JNCH, Mundra and Tughlakabad – 35:45, 33:02 and 25:20 for import and 4:05, 7:17 and 10:34 for export.
- Share of RMS facilitated cargo decreased across all 4 ports from Jan to March – JNP (62% to 60%), Mundra (43% to 40%), Chennai (56% to 55%) and Tughlakabad (52% to 51%).
- CFS Dwell time for import at JNP, Mundra and Chennai decreased in March compared to Feb-18 – 110 to 109 hrs at JNP, 115 to 109 hrs at Mundra and 113 to 79 hrs at Chennai.
- ICD TKD dwell time for import decreased from Feb 128:13 hours to March to 116:18 hours.
- The rake turnaround time increased from 18:45 and 10:26 hours in February to 20:03 and 11:21 hours at Chennai and Mundra Adani terminals respectively.
- JNP-TKD rail transit time for import decreased from 72:18 hours in Feb 63:13 hours in March.
- Share of DPD in the month of March-18 at JNP, Mundra and Chennai was 35%, 6% and 17% respectively.
- Share of DPE containers at JNP and Mundra was 57% and 73% respectively.

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1. Introduction

India's rank in World Bank's Report, Doing Business 2018: Reforming to Create Jobs, has moved up to 100 as compared to 130 in the previous year. This massive jump in the ranking – highest ever recorded – is the result of reforms undertaken in the last four years in nearly thirty seven area covered under the indicators of starting a business, dealing with construction permits, getting credit, protecting minority investors, paying taxes, enforcing contracts and resolving insolvency. India has also been categorized among the top 10 improvers of 2018.

Table 1: India's Ease of Doing Business Ranking

Parameter/Year	2015	2016	2017	2018
Overall ranking	134	131	130	100
Trading Across Borders	126	144	143	146

One of the most crucial indicators for business is 'Trading Across Borders' (TAB) wherein the time and cost required to release the cargo from the customs port in Delhi and Mumbai is captured through a questionnaire which relies on the perception of the traders and trading agents. Here, India's position has slipped by 3 places, currently at 146 out of 190 economies.

The World Bank's Doing Business 2018 estimates for the TAB through Mumbai and Delhi have been given in Table 2 and 3 respectively.

Table 2: World Bank's Estimate of Trading Across Borders through Mumbai

Parameter	Time to Export (Hours)		Time to Import (Hours)	
Year	Documentary Compliance	Border Compliance	Documentary Compliance	Border Compliance
2016	61	88	67	311
2017	58	85	65	307
2018	58	85	65	267

Source: www.doingbusiness.org

1.1. Context of the study

In 2016-17, a study was undertaken by Federation of Indian Export organisations (FIEO) and Bureau of Research on Industry and Economic Fundamentals (BRIEF), which was commissioned by NITI Aayog, for a comprehensive dwell time analysis of the various procedures and agencies involved in the supply chain for export and import through the JNP. It involved an assessment of the time taken at various intervention points - dissecting the dwell time of containers from/to Container Freight Stations (CFS), Inland Container Depot (ICD) as well as Direct Port Entry/Delivery – entailing transportation of containers and other operational aspects, the process of assessment, registration and examination, among others. As a result of this study, a number of initiatives were taken at JNP including, discontinuation of use of physical copies of certain documents at the terminal, mandatory issuance of e-delivery order by shipping lines, introduction of RFID, and initiation of e-sealing facility for self-sealed containers.

In continuation with the previous study, ***Logistics Division*** in the ***Ministry of Commerce*** has entrusted FIEO and BRIEF with the mandate of carrying out the timeline analysis of various processes for different agencies at the ports. The present study has also been extended to Mundra Port and Chennai Port, in addition to the JNP for the year 2018. This study will specifically identify dwell time at various agencies in the EXIM process at the three ports, covering all aspects of border compliance and documentary compliance. This will be done through calculation of the time taken for

import and export of Containers through JNP, Mundra and Chennai ports on a monthly basis along with the details of the time taken at every agency/place involved in the process.

This report also acts as a benchmarking tool for the targets for 2018-19 – for export and import – setting benchmarks for different agencies such as railways, customs, ports, and the partner government agencies. Apart from the dwell time analysis, the report also delves upon the qualitative aspects of activities in the EXIM process to provide a comprehensive picture of the operations impacting the ease of doing business in India.

1.2. Purpose and Objectives

MONTHLY REPORTS

a. To track supply chain of import/ export at JNP, Mundra and Chennai ports through identification of all the procedures, agencies and stakeholders

   - ✓ Inclusive of all formats of port entry and delivery such as Direct Port Delivery, Direct Port Entry, CFS facilitated, Factory stuffed and ICD facilitated through rail, etc.

b. To provide a comparison of processes adopted at the selected ports for EXIM trade.
c. To calculate the time taken for import and export of Containers through JNP, Mundra and Chennai ports on a monthly basis along with the details of the time taken at every agency/place involved in the process.
d. To specifically identify dwell time at various agencies in the EXIM process at the three ports. These would include, but not be restricted to, the following:

   Border Compliance

   - ✓ Customs Clearance and Inspections: Time taken by the Customs for export and import clearances at select ports based on actual data as well as perception.
   - ✓ Port Handling: Time taken by Terminal, select CFS's and select ICD's for export and import.
   - ✓ Allied Agencies: Time taken by agencies such as FSSAI, PQ, etc during the course of import and export including chemical and Pharma sector.
   - ✓ No. of shipments physically inspected i.e. evaluating RMS clearances based on data as well as perception.

1.3. Stakeholders

I. **Port/Terminal:** A port is the point of entry of goods and travellers into the country. It provides facilities for berthing of vessels and loading/unloading of cargo. A terminal is a part of the port, comprising of berth(s) which form a part of the terminal. It may be cargo-specific or designed to handle all types of cargo.

II. **Customs**: It is the official department of the government with the authority to check goods and travellers. In international trade, the customs collect duty on imported goods as levied by the government, and provide clearance on both export and import goods.

III. **Container Freight Station (CFS) and Inland Container Depot (ICD)**: A Container Freight Station is an extension of the port. It is the custodian of goods after they are evacuated from the terminal in case of import and before they are shifted to terminals in case of export. The process of customs clearance takes place inside the CFS. Inland Container Depots are

located in different inland points away from the sea ports, offering services such as handling, temporary storage and clearance of goods.

IV. **Partner Government Agency:** Partner Government Agencies (PGAs) are external agencies allied with the Central Board of Excise and Customs (CBEC) for providing clearance to sensitive goods such as food products, dyes, animal products, drugs etc. In congruence with the Budget, 2016-17, the CBEC initiated the Single Window Interface for Facilitating Trade (SWIFT) on 1st April 2016, as part of the 'Ease of Doing Business' initiative of the central government. The SWIFT – connected with CBEC's Electronic Data Interchange (EDI) gateway – is an electronic platform that enables the importer/exporter to file a single declaration entailing the nature of goods with the customs and the PGAs, in the form of an 'Integrated Declaration'; whereas for the PGAs, the system enables these agencies to upload the reports online. The PGAs which have been integrated with SWIFT include: Food Safety and Standards Authority of India (FSSAI), Plant Quarantine Information System (PQIS), Animal Quarantine and Certification Services (AQCS), Drug Controller (CDRUG), Wild Life Crime Control Bureau (WCCB) and the Textile Committee.

V. **Railways:** Railways is one of the various modes of transporting the consignment between port and the inland destinations.

1.4. Methodology

The report records the time associated with the import and export of containers through the JNP, Chennai, Mundra and ICD Tughlakabad ports. ***Recording of time starts when the container reaches the port till the time it is made available for the importer/CHA in case of imports, and from the time the custody of the container is handed over to ICD/CFS/port to the time the vessel sails off in case of exports.***

As a part of situational appraisal, **preliminary assessment** on parameters of border compliance, customs compliance and documentary compliance was done for all the three ports. **Business Process Analysis (BPA)** charts were developed for Import and Export – entailing the requisite documentation and processes undertaken – as a basis for time difference calculation between different steps, also taking cognisance of any peripheral activity being undertaken, which affects the dwell time. After the BPA charts were developed, **data was collected** from stakeholders such as ports (JNP, Chennai, Mundra and ICD TKD), customs, CFS operators (CFSAI and NACFS), rake operators (CONCOR) ad partner government agencies (FSSAI, PQIS, AQCS, CDSCO, etc.). The data was collected and assembled on the basis of predetermined formats, following which, the process of **data analysis** was conducted, involving cleaning and analysis of the collected data through requisite tools. The analytical process involved stakeholder-wise calculation of dwell time and subsequently, consolidation of the same in the process chain of EXIM trade. Monthly reports are prepared post analysis of data for each month, starting January 2018. The reports summarised average timelines for analysed processes, custodians and finally, the export and import value chains as a whole.

The datasets used in the report were collected from the aforementioned stakeholders in the form of system generated date and time stamps recorded against each activity, as generated/collated by the stakeholder. From each stakeholder's datasets, dwell time was calculated on the basis of custodianship i.e. the time for which a container remained in its custody before being made available for the trader/importer/agent for delivery. For certain stakeholders, the processes are linear and therefore

the time analysis was done on the basis of duration between subsequent activities. For example, in case of terminals, import dwell time was calculated as the duration between container discharge and container out time and for export, the same was calculated as the duration between container in time and container loading time. On the other hand, in case of stakeholders such as customs, where the processes are not linear, dwell time was calculated as the summation of durations for which containers were held by the customs.

The data analysed in the report was recorded against container numbers and collated on a monthly basis. Therefore, dwell time of each stakeholder is calculated, every month, as the average of container-wise time taken from the first activity till the time the consignment was made available to the trader/importer/agent for delivery under each custodian. For instance, the import dwell time of containers at a terminal was calculated as the average time taken from container discharge to container out time. However, for the calculation of dwell time for port, which includes four terminals, weighted average of all the terminals was used.

Broadly, the following parameters have been considered during analysis and report preparation:

a. The report provides the time analysis of import and export of containers through the JNP, Chennai, Mundra and ICD TKD ports.

b. The import and export dwell time has been calculated on the basis of movement of containers, irrespective of size and commodity contained.

c. Out of the total number of containers imported and exported at a port, the sample taken considers the containers under the import and export categories only and not containers meant for transhipment. Further, only Full Container Load (FCL) containers have been considered for this study and not empties.

d. The representation of time in the tables, figures and charts used in this report has been done in the hour format i.e. *[h]:mm:ss*.

e. The total time taken by each custodian has been calculated as the time taken from the arrival of the containers under its custodianship to the release of the time when it was made available to the trader for the delivery, and not as a summation of time taken for individual processes, even if they are linear in nature (except for customs). The reason for the same is that the sample size of each process under an agency differs, and therefore aggregating the time taken for individual processes to arrive at the overall dwell time becomes infeasible.

f. While calculating the dwell time for containers, it was observed that some containers had significantly high dwell time. Since we take the average of the time taken to complete any activity in the complete process, these outliers tend to make the average skewed. In order to overcome this challenge, the calculated durations between any two activities, which were above 30 days (~720 hours), were not included in the calculation of dwell time. This has been done in order to overcome the effect of outliers (consignment that has been dwelling with a particular custodian for some reasons not related to day-to-day trade, such as unclaimed cargo, legal issues, etc.). However, the study also evaluates the percentage of

such outliers. For any data set to be analysed, the percentage of outliers has to be less than 4 per cent.

For maximising accuracy, the following measures have been taken during analysis of data from various stakeholders, which have been summarised as follows:

Port

- Only FCL containers have been taken for dwell time analysis. Empties have not been included in the analysis.
- For imports, only containers with vessel berthing time stamps in the same month as the month under analysis have been taken. For example, while analysing port data for January, only containers corresponding to vessel berthing in the month of January have been taken.
- For exports, only containers with in time in the same month as the month under analysis have been taken. For example, while analysing port data for January, only containers with in time in the month of January have been taken.

ICD Tughlakabad

- Based on the recording done in the datasets received, the segregation of containers for each month has been done by filtering the containers from the date of dispatch and departure in a particular month for export and import containers respectively. For instance, all export containers dispatched and import containers that departed from ICD Tughlakabad in the month of January 2018 have been analysed for the month of January. These container may or may not have arrival date and time in the same month i.e. January.
- Any inconsistent outliers in the datasets have not been considered for calculation.

Customs

- The monthly datasets were segregated on the basis of Out of Charge (OOC) date in case of imports and Let Export Order (LEO) date in case of exports. For instance, for the import dataset of January 2018, all the entries wherein the date of issuance of OOC is from 01-01-2018 to 31-01-2018 have been considered. Similarly, the dataset analysed for exports have all the entries for which the LEO issuance date is between 01-01-2018 and 31-01-2018.

CFS

- The monthly datasets were segregated on the basis of CFS gate out date in case of both imports and exports. For instance, the import and export datasets of January 2018 have all the entries wherein the CFS gate out date is from 01-01-2018 to 31-01-2018.

Rake Handling

- The monthly data has been segregated on the basis of the arrival date. All the entries having the arrival date in the month of January 2018 are used for analysis for the month of January

PGAs

- The monthly data has been segregated on the basis of the Application date. All the entries having the application date in the month of January 2018 have been analysed and presented in the report for the month of January.

1.5. Limitations of the Study

Despite having collected all data directly from the concerned stakeholders, there were certain un-avoidable complications that affected the precision of the average time calculated. These include:

a. *Transit time calculation between port and CFS:* Due to unavailability of the relevant timestamps with all the CFS, the average transit time for Import and export was calculated on the basis of data provided by few CFS.

b. *Missing entries in datasets:* Many entries in the datasets analysed were missing or not recorded by the agencies. Missing or wrong entries for any process under any custodian have been removed, and the 'n' (number of entries) value has been adjusted accordingly.

c. *Incomplete entries:* In many datasets, only the dates were provided for certain processes. Absence of time stamps made these entries redundant, as the time difference between two activities taking place on the same date came out to be zero. For instance, let's assume an activity A took place on 01-01-2017 at 9:00 am and a subsequent activity B took place on the same date at 8:00 pm. The duration between these two activities is 11 hours, but in case of absence of time stamps, the duration comes out to be zero, which adversely affects the average. Further, in case of the dates being different, the time difference can potentially display a skew of up to 24 hours vis-à-vis the original difference, which again posed a limitation to the analysis.

d. *Gaps in Shipping Line Delivery Order data:* Data for shipping line delivery orders (SLDO) was provided by the CFS'. However, not all CFS' could provide the said information.

e. *Missing time stamps in OOC entries:* The Out of Charge (OOC) entries in the CFS datasets did not have time stamps. As such, time difference between seal cutting (which has both date and time) and OOC taking place on the same day came out to be negative. For instance, for a seal cutting entry of 01-03-2017 at 13:56:45 and a corresponding OOC entry of 01-03-2017 only, the time taken from seal cutting to OOC would be negative.

f. *Data errors:* For some agencies, data errors were recorded. For instance, in certain entries, the gate out time recorded preceded gate in time. Further, duplication of entries was observed in the some datasets. Such entries have been removed during calculation.

g. *Calculation of DPD and DPE containers*: Calculations for both DPD and DPE categories have been done using the datasets provided by the terminals. The monthly datasets received from NSICT and NSIGT were segregated – as per mode of transport – into

rail and road categories only. The containers with 'rail' as mode had to be taken as ICD and those with 'truck' as mode had to be taken as DPE (even though the category contains both CFS and factory stuffed containers). Further, in case of GTICT, the segregation – under group type – includes three categories: 'CFS', 'Factory stuffed/ICD by road' and 'ICD by rail', taken for analysis as containers originated from CFS, DPE containers and containers originated from ICD respectively. Therefore, here, ICD containers coming by road get included in DPE. In case of DPD, many containers, post clearance at the terminal, are moved to the designated CFS' for warehousing, after a time period of 48 hours as stipulated by the customs. Their destination is recorded as 'CFS' instead of 'DPD' in the datasets provided by NSICT and NSIGT. Therefore, the actual share of DPD containers are higher as compared to the analysed figures represented in this report.

h. *Unavailability of electronic data for PGAs*: During our field visits and our interactions with various stakeholders including PGA representatives, it was observed that the data (timestamps) for various activities related to clearance by PGAS are not maintained electronically by all the PGAs. The port offices of various PGAs maintain these entries manually and not all activities are recorded. Further, the entries recorded by the PGAs only contain date and no time for the commencement or completion of an activity leading to a statistical challenge where a difference of 24 hours becomes zero. In between submission of Bill of Entry and issuance of NOC by PGAs there are various activities that take place involving filing of application, scrutinising of documents, collection of samples, testing, report generation and issuance of NOC. In the absence of timestamps for all the relevant activities the clearance time for all PGAs could not be calculated.

Port Profiles

2. Port Profile

2.1. Jawaharlal Nehru Port

JNP located on the western coast is the biggest container port in the country. It handles about 56 percent of the container traffic in India through its four dedicated terminals, namely Jawaharlal Nehru Port Container Terminal (JNPCT), Gateway Terminals India Container Terminal (GTIPL), Nhava Sheva International Container Terminal (NSICT) and Nhava Sheva International Gateway Terminal (NSIGT). In addition, there is one liquid cargo berth and shallow water berth. Initially, the port was formed with the objective to reduce the traffic at Mumbai port but ever since its inception it has chronicled persistent increased performance and other achievements for India's foreign trade. The JNPT covers a land area of 2,987 hectares and has connectivity to hinterlands and the major business centres of the country through rail, road, etc.

Year-on-year Traffic:

Table 1: Container Traffic Handled at JNPT

2015-16	2016-17
4.49 million TEUs	4.50 million TEUs

Infrastructure:

Table 2: JNPT Port Infrastructure

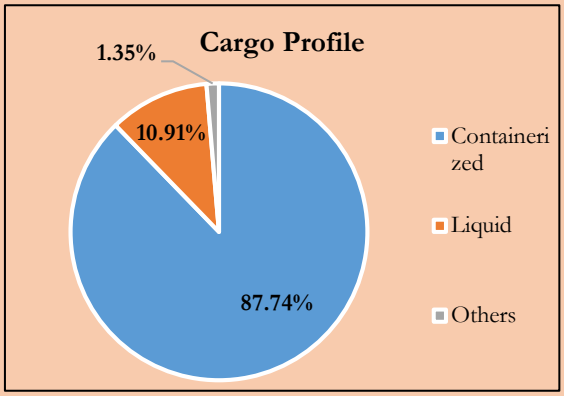
Berth	Draft (m)
12	14

Table 3: Container Capacity and Throughput at JNPT Terminals

Terminal	Capacity (TEU)	Throughput (TEU) (2016-17)
JNPCT	1,500,000	1,533,975
NSICT	800,000	445,111
NSIGT	800,000	445,111
GTICT	1,800,000	1,792,503
Total	**49,00,000**	**42,16,700**

Cargo Profile:

In the financial year 2016-17, JNPT handled a total of 62.15 MT cargoes. The break-up of these cargoes are as under:



Cargo Handling Equipment:

Table 4: Details of Cargo Handling Equipment's

Equipment	Number
RMQCs	34
RTGCs	99
RMGCs	11

Connectivity:

Table 6: JNPT Connectivity

CFS	Rail connected ICD
34 Active Container Freight Stations	9 siding tracks for 12 ICD

Storage:

Table 5: Storage Capacity at the Port

Particulars	Storage Capacity
Liquid Tank	750000 MT
Warehouse Area	1197260 TEU
Open Area Storage	875000 TEU

2.2. Chennai Port: Profile

Port of Chennai located on the eastern coast is among the oldest and major ports in India. Despite being the oldest port, it adopted continuous modernization and provided efficient and convenient services to withstand the competition from the existing and emerging ports. It is the first Indian port to establish the marine pollution management to ensure protection for marine life. The port covers a land area of 237.54 ha and has its own shunting yard and railway operations within the harbour. The connectivity of the port through rail, road and its container market makes it the most preferred choice in the southern region of the country.

Year-on-year Traffic:

Table 1: Container Traffic Handled at Port of Chennai

2015-16	2016-17
1.5 million TEUs	1.4 million TEUs

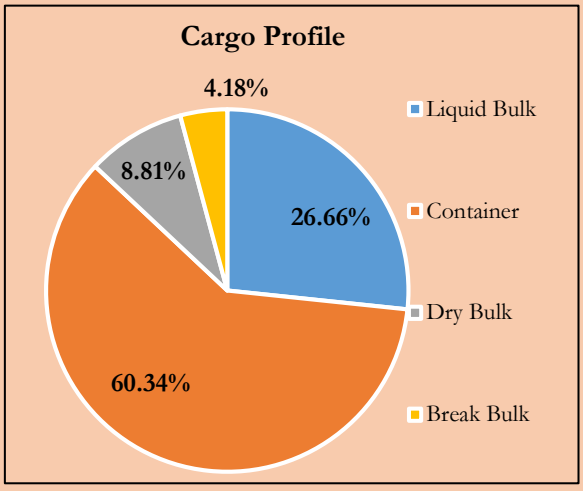
Infrastructure:

Table 2: Port Infrastructure

Berth	Draft (m)
12	14

Cargo Profile:

In the financial year 2015-16, Port of Chennai handled a total of 50.06 million tonnes of cargo:



Storage:

Table 5: Storage Capacity at the Port

Particulars	Storage Capacity
Container parking Yard	2,50,600 sq. mt
Warehouse Area	30,138 sq. mt
Open Space	3,84,611 sq. mt

Table 3: Container Capacity and Throughput at Port of Chennai

Terminal	Capacity TEU	Throughput TEU (2016-17)
Chennai Container Terminal	1,200,000	646,319
Chennai International Terminal	1,250,000	844,694
Total	**24,50,000**	**14,91,013**

Cargo Handling Equipment: (2015-16)

Table 4: Details of Cargo Handling Equipment's

Equipment	Number
Mobile Cranes	3
Diesel Fork Lift Truck	2
Wharf Electric Cranes	6
Diesel Electric Locomotive	10

Connectivity:

Table 6: Chennai Port Connectivity

CFS	Rail connected ICD
25 Active Container Freight Stations	2 siding tracks for 1 ICD

2.3. Mundra Port: Profile

Adani group's Mundra port is the largest commercial port in India, located on the north-western coast in the Gulf of Kutch. The strategically thought out location of the port and different transport facilities provides favourable connectivity to the northern hinterlands of the country.Mundra Port located in Gujarat and the flagship port of APSEZ, is already one of India's biggest port by volumes handled. It was the first Indian port to handle 100 million tonnes (mt) or more of cargo in a year, a feat it achieved in FY14. The port has facilities for handling, storage and evacuation of crude oil, containers, dry bulk, break bulk, automobiles and liquid cargo. The above-mentioned and mechanized facilities at the port make it a preferred port in the region.

Year-on-year Traffic:

Table 1: Container Traffic Handled at Mundra Port

2015-16	2016-17
3 Million TEUs	3.5 Million TEUs

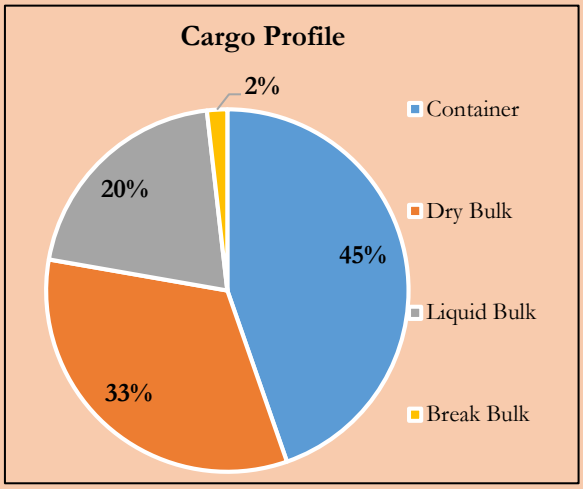
Infrastructure:

Table 2: Port Infrastructure

Berth	Draft (m)
24 berths	14 -18m

Cargo Profile:

In the financial year 2016-17, Mundra Port handled a total of 113.03 MMT of cargo



Storage:

Table 5: Storage Capacity at the Port

Particulars	Storage Capacity
Covered Area	2,03,687 sq. mt
Open yards	7,57,805sq. mt

Table 3: Container Capacity and Throughput at Mundra Port

Terminal	Capacity TEU	Throughput TEU (2016-17
AMCT	1,000,000	860,000
AICT	1,750,000	1,160,000
ACCMT	800,000	276,630
MICT	1,100,000	1,163,055
Total	**46,50,000**	**34,59,685**

Cargo Handling Equipment: (2015-16)

Table 4: Details of Cargo Handling Equipment

Equipment	Number
Mobile Harbor Cranes	16
Goliath cranes	8
Reach Stacker	1
Quay Cranes	16
Rubber Tyre Gantry Cranes	50

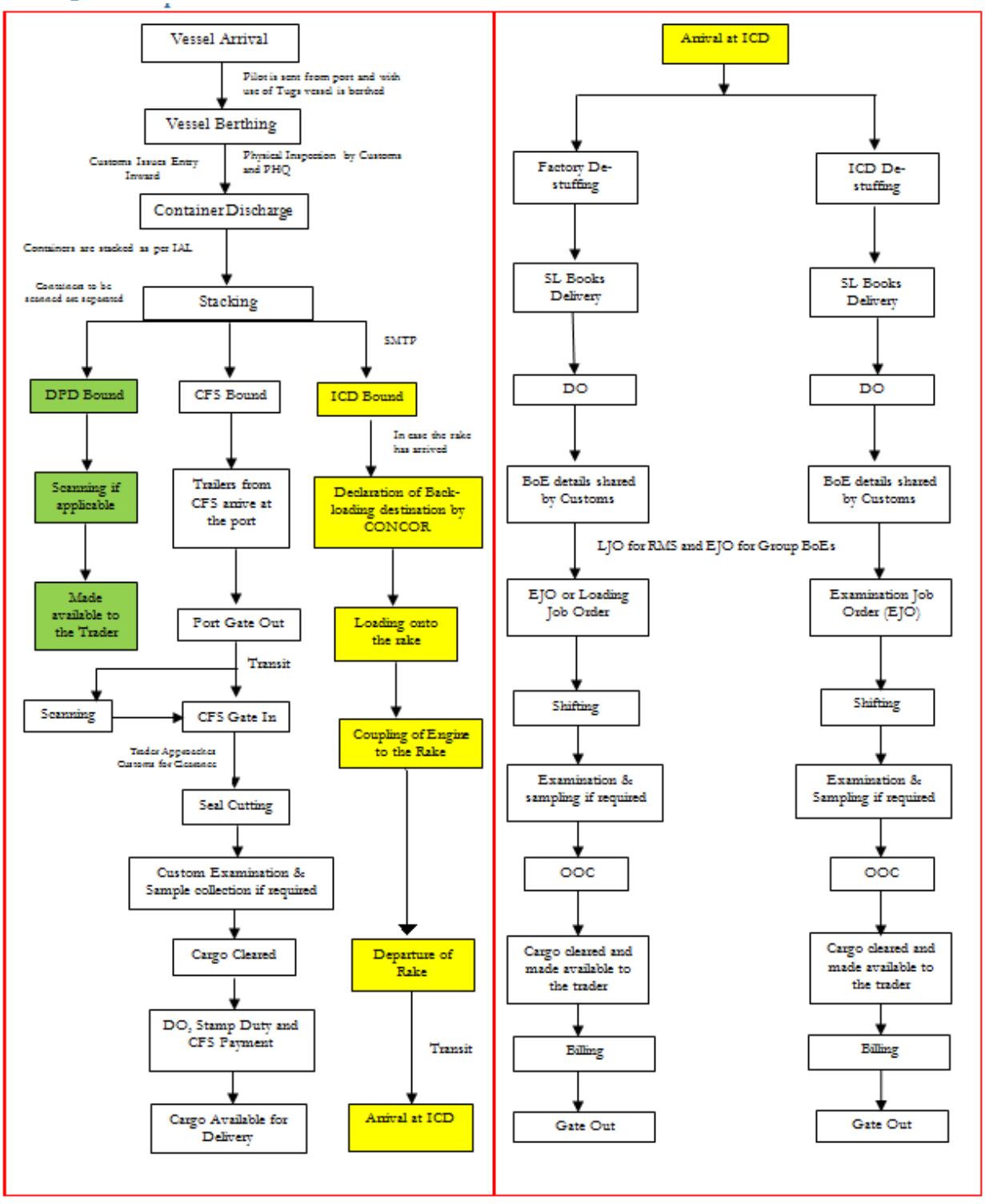
Connectivity:

Table 6: Mundra Port Connectivity

CFS	Rail connected ICD
13 Active Container Freight Stations	11 siding tracks for 30ICDs

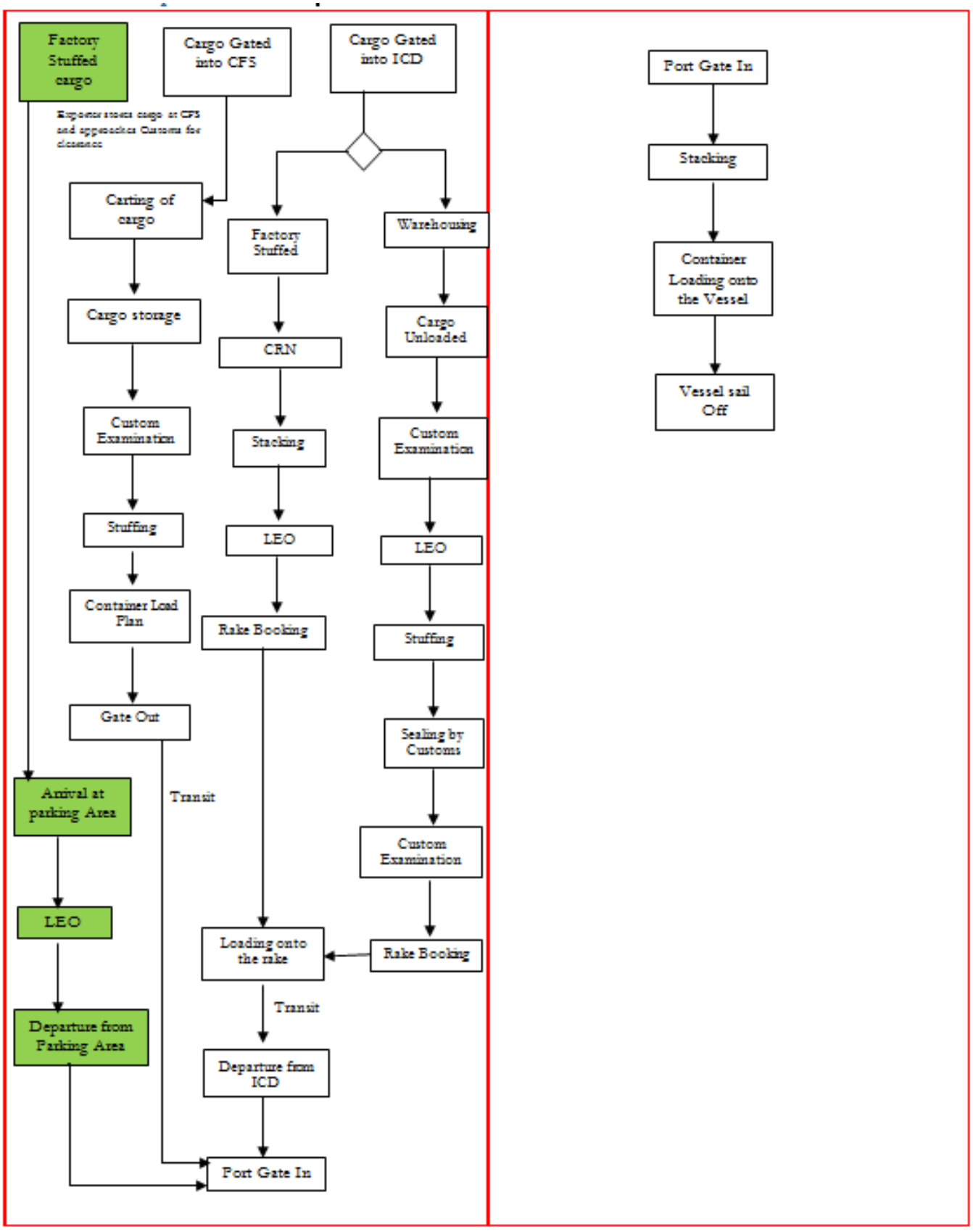
EXIM PROCESS

3. Import Process at Port, ICD and CFS



S.L – Shipping Line: **VOA**- Vessel operating Agent: **IGM**- Import General Manifest: **IAL**- Import Advance List: **SMTP**-Sub Manifest Transhipment Permit: **OOC**- Out of Charge: **NOC**-No Objection Certificate: **PGA**-Partner Government Agency

4. Export Process at Port, ICD and CFS



5. Comparison of Port Processes

Parameter	JNP	Chennai	Mundra
Different entry and exit points at Ports.	The terminal gate and port gate is the same in case of the JNP. During the dwell time calculation of the road bound cargo, time calculation starts from the entry or exit from these gates.	The terminal gate and port gate is not the same in case of Mundra and Chennai port. Terminal gates – usually container yard gates- are inside the port. The terminal records gate out or gate in when the container crosses the terminal gates.	
Presence of Customs personnel at the port gate.	There is no customs personnel stationed at the gates at the JNP. For exports, the customs personnel have been shifted to the holding/parking yard where customs procedures are carried out.	At Chennai and Mundra ports, Customs personnel have been stationed at the port gate. Further, at Chennai port the customs personnel checks all the documents at the port gate thereby leading to escalation of dwell time. The time taken at the port gate in case of Mundra and Chennai is not reflected in the port dwell time figures mentioned in this report owing to the reason mentioned above.	
Free days at the terminal for the road and rail bound EXIM containers.	The terminals at Chennai port and the JNP provides a free period of 72 hours (3 days) for Road bound containers and 168 hours (7 days) for rail bound containers.		At Mundra the terminals provide 3 calendar days (not 2 hours) free period for the road bound containers and 10 calendar days for rail bound. If a container is discharged at 01:00 hrs or 23:00 hrs on 01-01-2018, the free period will be till midnight 03-01-2018.
Different procedure for evacuation of rail bound containers from the port.	The railway lines are within the terminal area. The containers transported through rail are loaded and unloaded from the rake within the terminal. The departure of rake is considered as port out and arrival of rake as port in at the JNP.	In case of Chennai port, there is a separate railway yard outside the terminal gates, operated by CONCOR. The containers transported through rail leave the terminal gate to be shifted to the yard where they are loaded onto the rakes.	Same as the JNP
Entry of Export cargo into the port after customs clearance.	The export containers enter the JNP ad Chennai port only after they are cleared by customs.		At Mundra port the containers are allowed inside the terminal without custom clearance. Therefore, the time the containers spend at the terminals also includes the time for custom clearance, which may result in a higher dwell time for export containers for Mundra compared to the JNP and Chennai port.

TIMELINE ANALYSIS

SNAPSHOT

IMPORT TIMELINES

Stakeholder	Dwell Time	JNP	MUNDRA	CHENNAI	TKD
PORT	Port Dwell Time	40:37 Hr	100:07 Hr	44:07 Hr	116:18 Hr
	Port Dwell Time for CFS Bound Containers	27:32 Hr	35:04 Hr	37:54 Hr	--
	Port Dwell Time for ICD Bound Containers	79:50 Hr	157:02 Hr	38:35 Hr	--
	Port Dwell Time for DPD Containers	40:00 Hr	97:58 Hr	75:33 Hr	--
Customs	Customs Release Time	35:45 Hr	33:02 Hr	29:06 Hr	25:20
CFS	Dwell Time at CFS	109:12 Hr	109:11 Hr	79:44 Hr	--
Port, CONCOR & Railway	Rake Turnaround Time	13:00 Hr	11:09 Hr	20:03 Hr	--
	Rake Handling Time	6:12 Hr	7:46 Hr	07:53 Hr	--

EXPORT TIMELINES

Stakeholder	Dwell Time	JNP	MUNDRA	CHENNAI	TKD
PORT	Port Dwell Time	80:20 Hr	112:27 Hr	68:17 hr	82:22 Hr
	Port Dwell Time Containers Originated from CFS	76:17 Hr	85:04 Hr	69:17 Hr	--
	Port Dwell Time Containers Originated from ICD	125:10 Hr	125:44 Hr	59:56 Hr	--
	Port Dwell Time for DPE Containers	70:23 Hr	115:48 Hr	--	--
Customs	Customs Release Time	4:05 Hr	7:17 Hr	4:07 Hr	10:34
CFS	Dwell Time at CFS	119:17 Hr	232:49 Hr	NA	--

6. Timeline Analysis

6.1. FCL Volume Handled by the Ports

The EXIM volume of FCL containers handled at the select ports has been provided in the chart below. The stats given in the figure 1, should not be confused with the total number of containers handled at the ports, which would be a higher figure than the one mentioned in the graph. The total volume of containers handled at a port also include empties, transhipment containers and containers meant for SEZ around the port.

Figure 1: Number of Import FCL Containers Handled

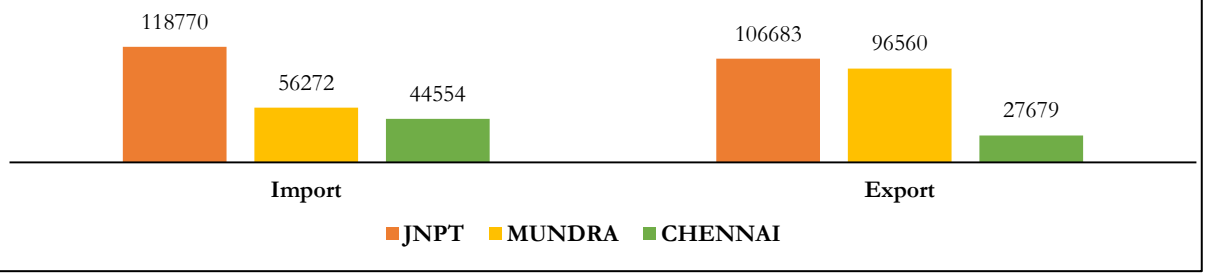
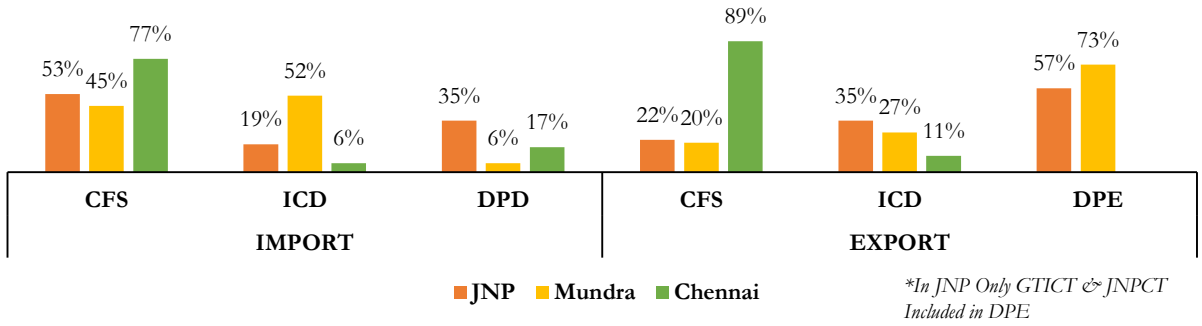
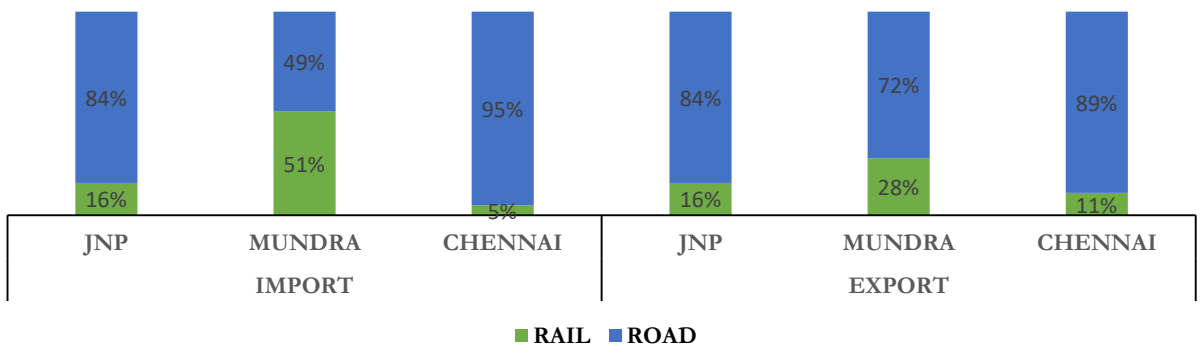


Figure 2: Share of FCL Containers



The DPD percentage has been calculated from the FCL containers excluding the ones going to ICDs. For example, if 100 containers are imported at a port out of which 20 containers are going to ICDs, the share of DPD would be calculated from the remaining 80 containers. This has been done considering the fact that the DPD facility is presently available only to the non-ICD bound containers.

Figure 3: Share of Road and Rail bound Containers



6.2. Port Dwell Time

Port or Terminal dwell time is the calculation of the time a container is at the terminal. It is calculated as the average time taken from container discharge from the vessel to the time of container evacuation from port gate for import and time from the entry of container into the port till it is loaded onto the vessel for export. In case of Mundra, for import, the out time has been taken as gate out from the container yard at the terminal. Terminal dwell time varies with respect to the destination or source of the container – Container Freight Station (CFS), Inland Container Depot (ICD) or Direct Delivery (DPD or DPE).

Figure 4: Average Port Dwell Time (Hours)

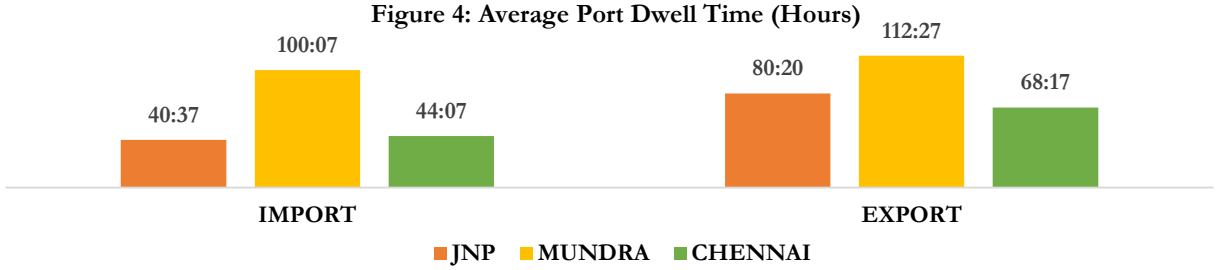
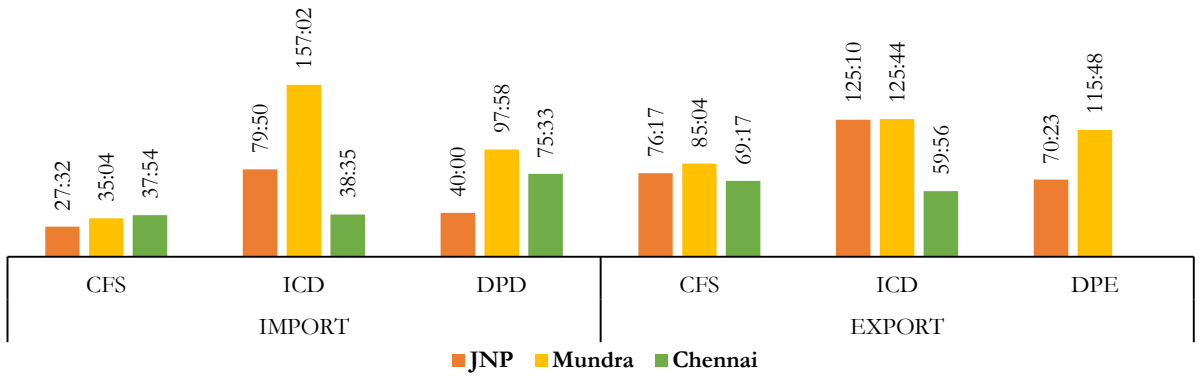
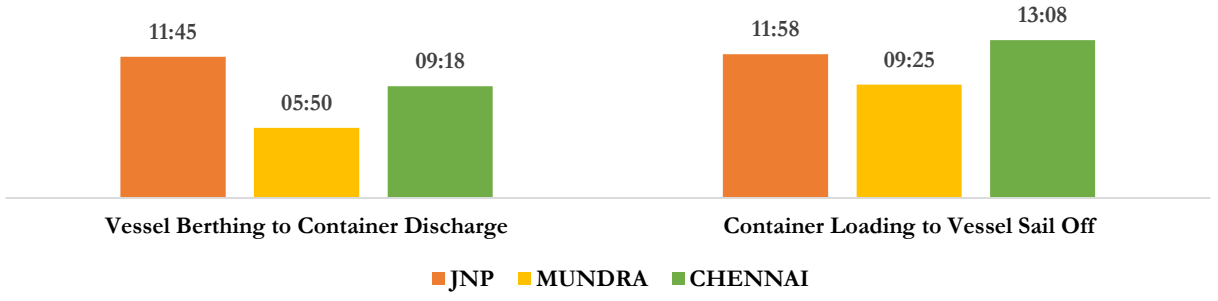


Figure 5: Average Port Dwell Time - Custodian-wise (Hours)



CFS operators have to obtain and submit hard copies of documents to take the delivery at Chennai port unlike the JNP and Mundra leading to a high dwell time. The port dwell time for ICD bound containers at Chennai port is considerably low compared to other two ports. One of the reasons for this metric is that the gate out for ICD bound containers at Chennai port is recorded when the containers move out of the terminal to be shifted to a separate Railway yard operated by CONCOR. The time spent at the railway yard till the departure of the rakes is not captured by terminals at the Chennai port.

Figure 6: Berth Efficiency (Hours)



Before the containers are discharged from the vessel, the customs, immigration and PHQ officials

inspect the ship. Operational factors such as the number of quay crane moves along with external factors such as the tide situation, vessel size, time taken for customs processes, etc. determine this metric. Similarly, post loading of containers during export process, the vessel has to be moved off the berth for sail off. This process is dependent on external factors such as favourable tide, etc. These two processes are representative of the berth efficiency at the select ports.

6.3. Transit Time - Import

Transit time is the time taken for the container to reach the custodian - which can either be a CFS or an ICD. The rail transit time for ICD has been calculated as the difference between the time of departure of rail from the source location to its arrival at the destination. The CFS transit time is taken from the time of exit of a container from port to its arrival (gate-in) at the CFS. The transit time through road for JNP and Chennai has been calculated using data provided by 13 and 3 CFSs respectively.

Table 3: Transit Time of Import Containers			
	JNP		**Chennai**
	Road	**Rail**	**Road**
Average time taken (hr)	**7:46:37**	**63:13:13**	**1:35:39**

6.4. Transit Time – Export

Transit time for CFS and ICD has been calculated as the time taken from departure of containers from ICD or CFS to their arrival at the port. The transit time through road for JNP has been calculated using data provided by 7 CFS. For Chennai port, the transit time could not be calculated due to non-availability of the requisite data.

Table 4: Transit Time of Export Containers			
	JNP		**Chennai**
	Road	**Rail**	**Road**
Average time taken (hr)	**16:04:18**	**65:16:16**	NA

6.5. Customs Release Time

Customs release time is the time taken by the customs authorities, be it at the dock, at CFS or at ICD. In case of imports, the customs release time is calculated as the average time between submission of bill of entry to assessment and registration of goods to OOC [in case of RMS and Group B/E]; and registration of a container to assessment and duty payment to OOC [in case of Group (First Check) B/E]. It must be noted that the process of customs release is not linear; many agencies play a parallel role such as the PGAs, the importer/customs broker for duty payment, shipping line for delivery order and the CFS. In case of exports the release time is the duration between registration of goods and issuance of LEO.

Figure 7: Average Customs Release Time (Hours)

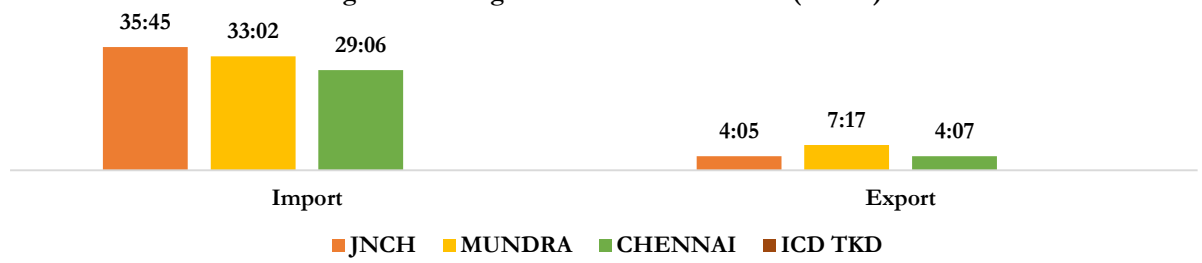


Figure 8: Share of RMS Facilitated Bills of Entry

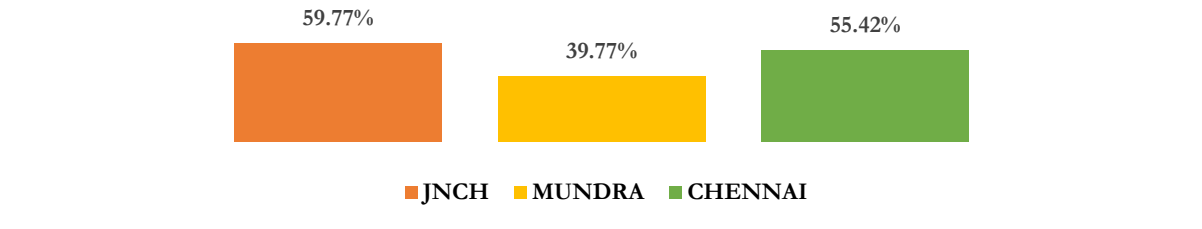


Figure 9: Share of Examined Bills of Entry and Containers

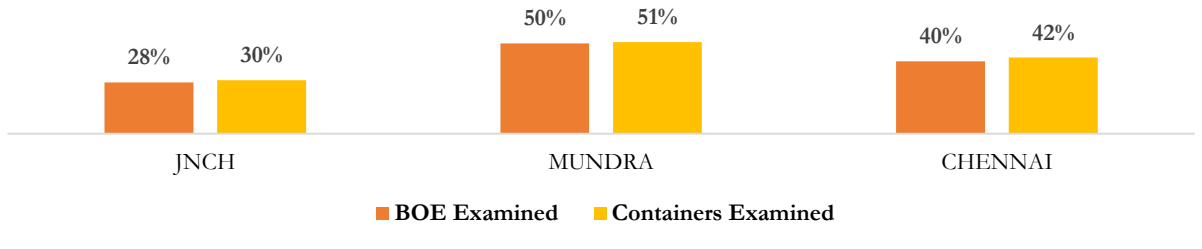


Figure 10: Status of BOE JNCH

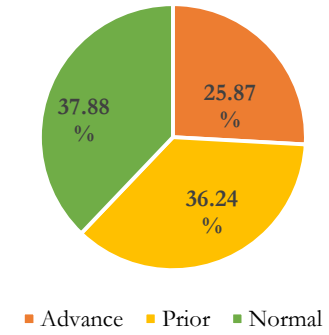


Figure 11: Status of BOE Mundra

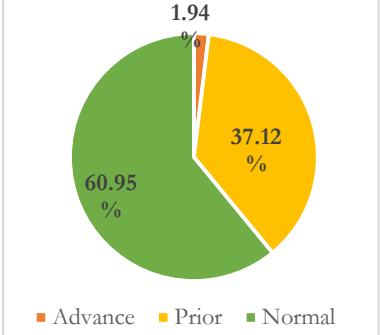
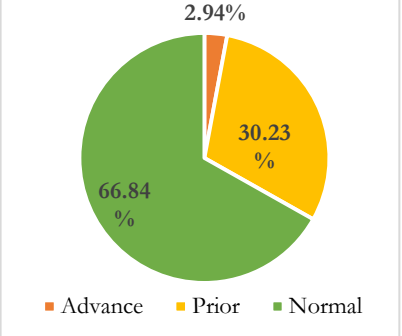


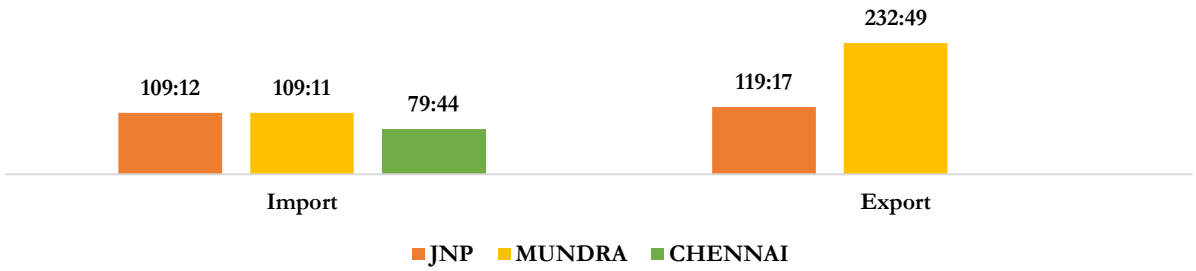
Figure 12: Status of BOE Chennai



6.6. Container Freight Station (CFS)

CFS import dwell time is calculated from the time of gate-in of a container at the CFS to its custom clearance which is issuance of Out of Charge (OOC) by customs in case of imports. For exports, dwell time is calculated from the issuance of export carting order to the gate-out of container from CFS. Please note that the total time taken by CFS is calculated in terms of gate-in to OOC (and not as a linear addition of time taken in the various processes) due to the sample size being different for each process and many parallel processes involving customs, customs brokers and shipping line taking place. The list of CFS along with their dwell time has been provided in the annexure.

Figure 13: Average CFS Dwell Time (Hours)



6.7. Inland Container Depot (ICD) Tughlakabad

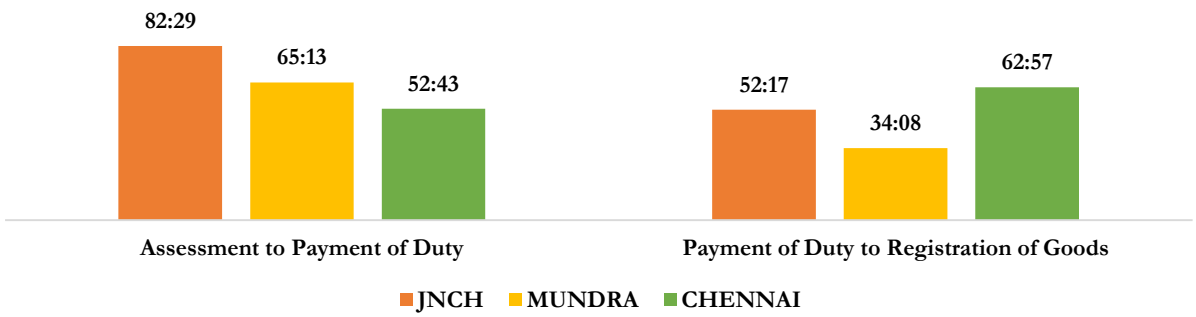
The overall dwell time of containers at ICD Tughlakabad has been computed as the weighted average of overall dwell time figures for all the different categories under analysis viz. green channel factory de-stuffed/stuffed containers, non-green channel factory de-stuffed/stuffed containers, warehouse bound containers and direct de-stuffing/stuffed containers.

Table 5: ICD Tughlakabad Dwell Time	
ICD Time Import (Arrival – OOC)	**116:18 Hr**
ICD Time Export (Arrival – Dispatch)	**82:22 Hr**

6.8. Time Taken by the Trade – Importers/Customs Brokers

It is imperative for time-to-release studies to take into account the time taken by the importers or their customs brokers for completing various procedures like payment of duty and registration of goods with the customs. These procedures substantially add to the custodian release time and the need for factoring in such parameters – to arrive at a clearer view of the role of and time taken by the custodians as well as the trade – is paramount. In a number of cases, delays in payment of duty by the importers or in the clearance process occur due to reasons such as: a) paucity of funds for clearances – as a result of which the cargo remains in the customs bonded area within the CFS/ICD and b) market evaluation by the traders before releasing goods from the custodian. For ease of doing business, it is important that the importer completes the necessary payments and formalities on time to ensure timely completion of rest of the procedures.

Figure 14: Average Time Taken by Trader/Agent (Hours)



6.9. Rake Handling

The turnaround time of rakes at the terminals is the time taken from arrival of rake to its departure from the terminal. The processes that take place during this period include discharge of export containers or empty containers, loading of import containers, submission of rake removal memo and coupling of engine. The time taken by the terminal to unload the export cargo and load the import cargo is called the Rake Handling Time. The turnaround time and the rake handling time at the JNP, Chennai and Mundra port is depicted in Figure 14.

Figure 14: Rake Handling Time (Hours)

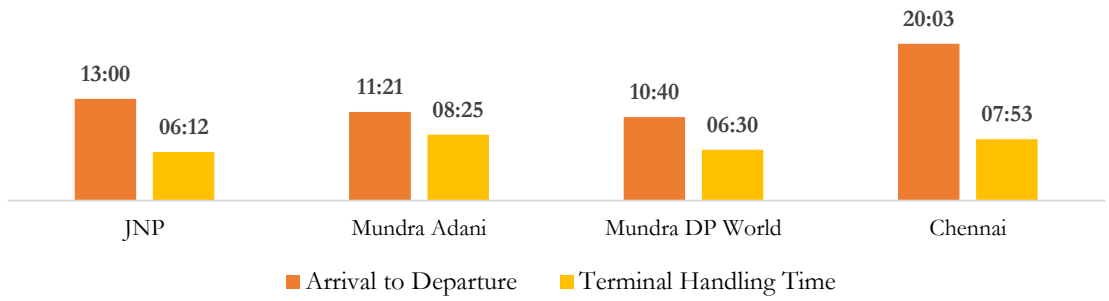
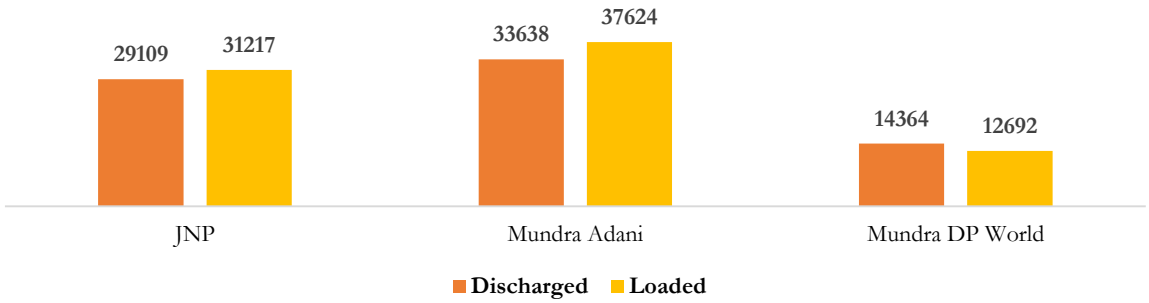


Figure 15: Number of Conatinaers Discharged and Loaded



6.10. Shipping Line Delivery order

The shipping line provides delivery order (DO) as a final confirmation for delivery of cargo to the customs broker. Any delay by the shipping line in providing delivery order gets added to the total time of the container at CFS/ICD. Some DOs are given after issue of OOC by customs, while others are generated at the same time or prior to OOC, Table 6.

Table 6: Average Time Taken for Generation of Delivery Orders by Shipping Lines			
	JNP	**Mundra**	**Chennai**
Total no. of DO	**25720**	**639**	**4151**
No. of DOs prior to OOC	10419	329	758
No. of DOs given post OOC	8931	104	2363
No. of DOs received on same day as OOC	6370	206	1030
Average time taken from CFS gate-in to receiving delivery order	**144:17:34**	**91:48:10**	**167:42:57**

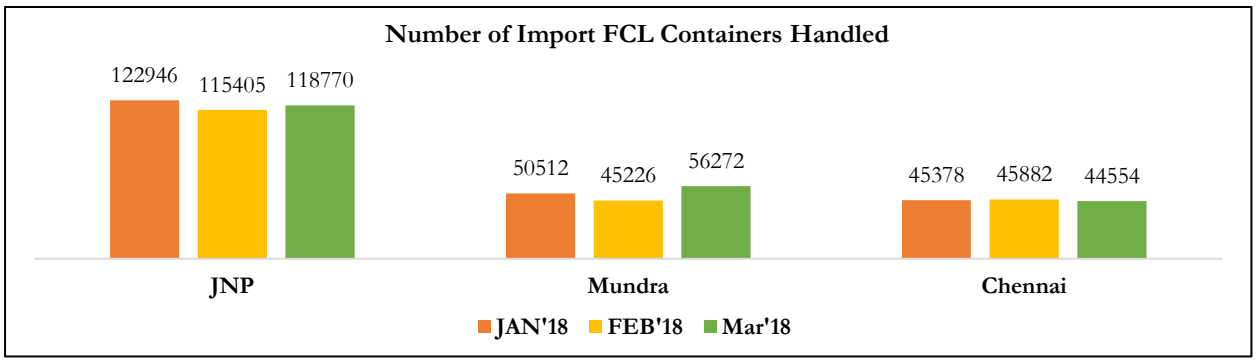
6.11. Partner Government Agencies

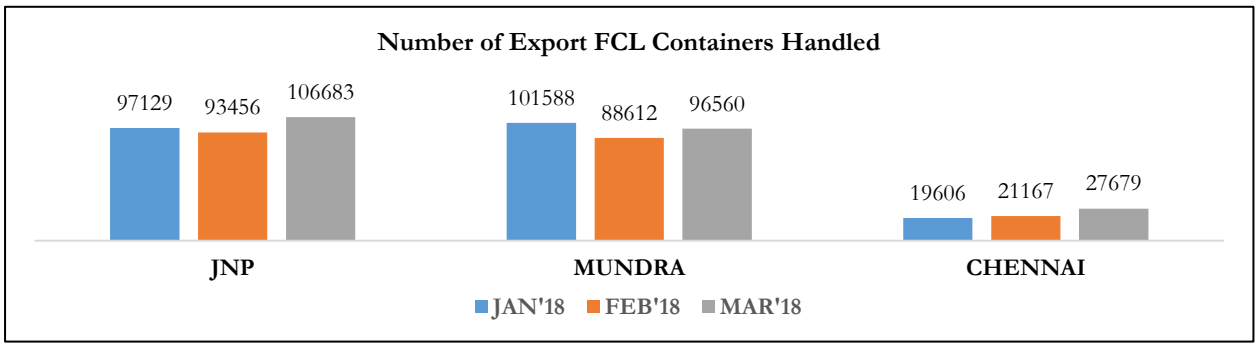
Partner government agencies (PGAs) are the allied agencies that are required to examine and provide clearance to certain types/categories of cargo. They play a key role in the overall process of cargo clearance. In an earlier practise, the time required by these agencies was added in the customs release time, however, some cargo (particularly perishable) is now released before the arrival of report by PGAs on the basis of a bond guarantee. This report analyses the time taken from sample collection to publishing of report by 3 PGAs -Animal Quarantine (AQ) for Mundra and JNP region and Food Safety and Standards Authority of India (FSSAI) for JNP. Please note that the reports for some agencies like PQ and FSSAI may also be received after out-of-charge due to nature of the cargo.

Table 7: Average Time Taken by PGAs			
	AQCS (JNP)	AQCS (Mundra)	FSSAI (JNP)
Total number of entries (n)	**423**	**138**	**2786**
Average Time taken from Application to NOC for all BoEs (hr)	46:19:01	6:18:24	191:02:15
Total number of BoEs	415	136	1717
BOEs for which sample was collected	166	4	1396
Average Time taken from Application to NOC for sample collected BoEs	194:50:32	288:00:00	211:09:04
BoEs for which provisional NOC was issued	157	4	Not Available in the data set
BoEs for which Provisional NOC was issued on the day of application	155	4	Not Available in the data set

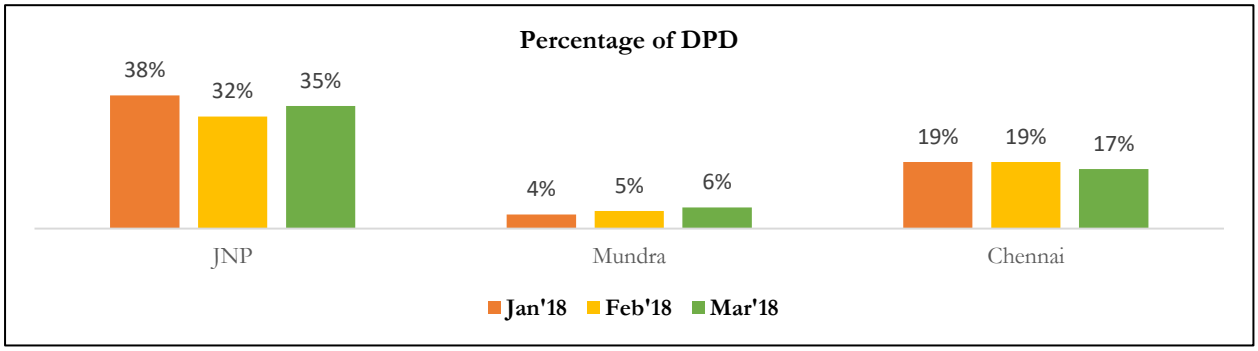
Trend Analysis

Volume of EXIM Cargo Handled

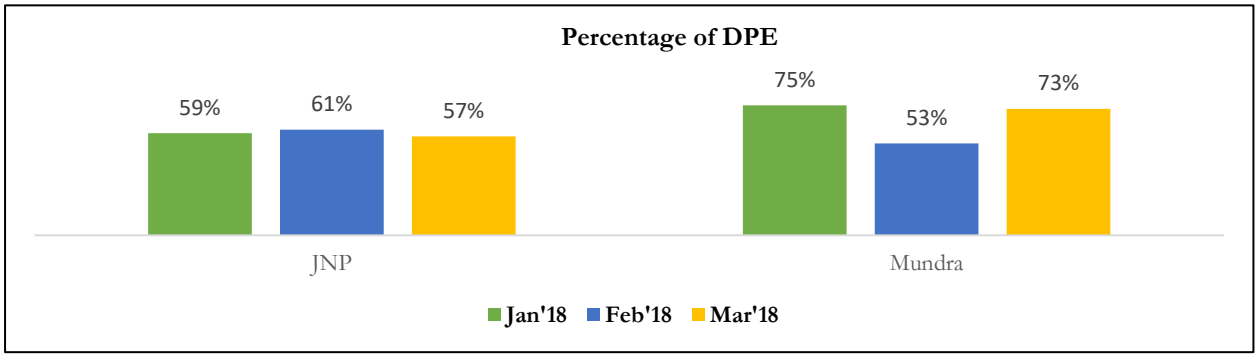




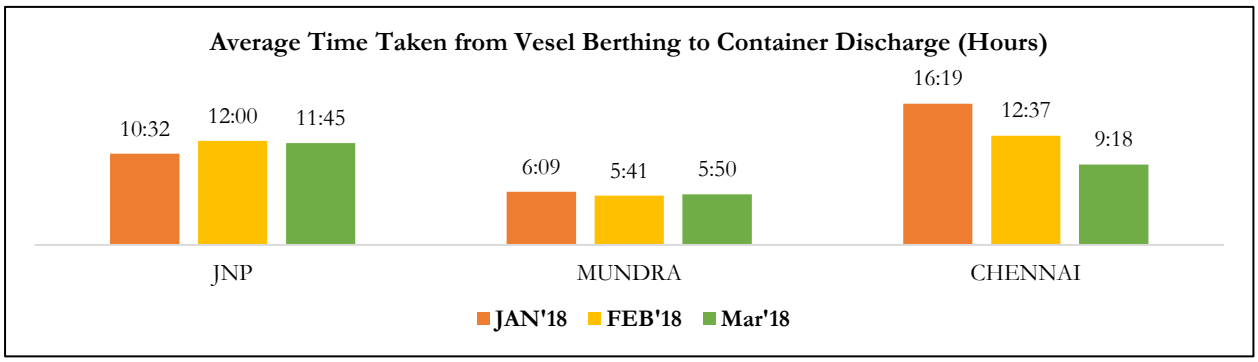
Share of DPD

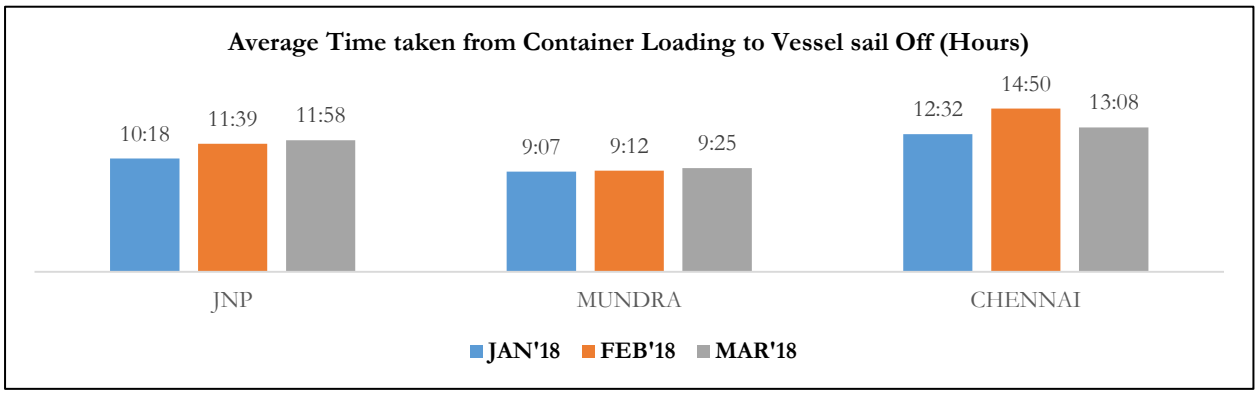


Share of DPE

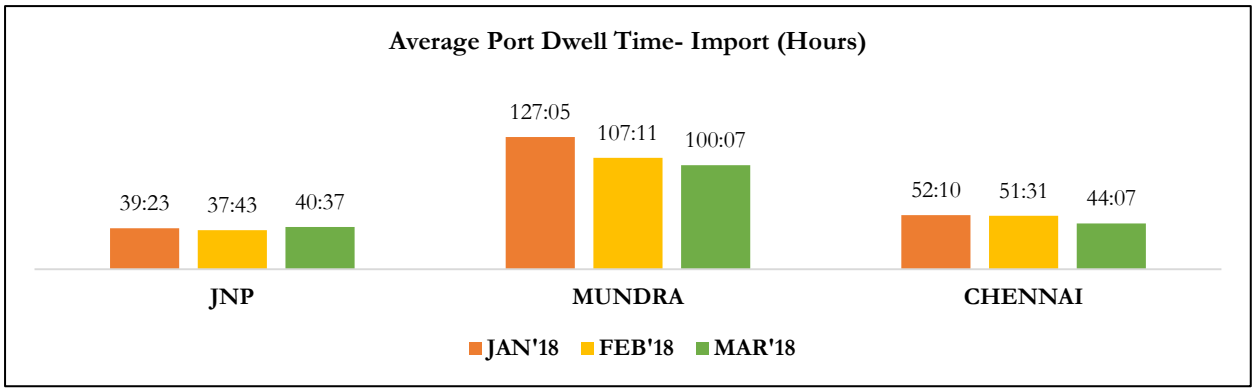


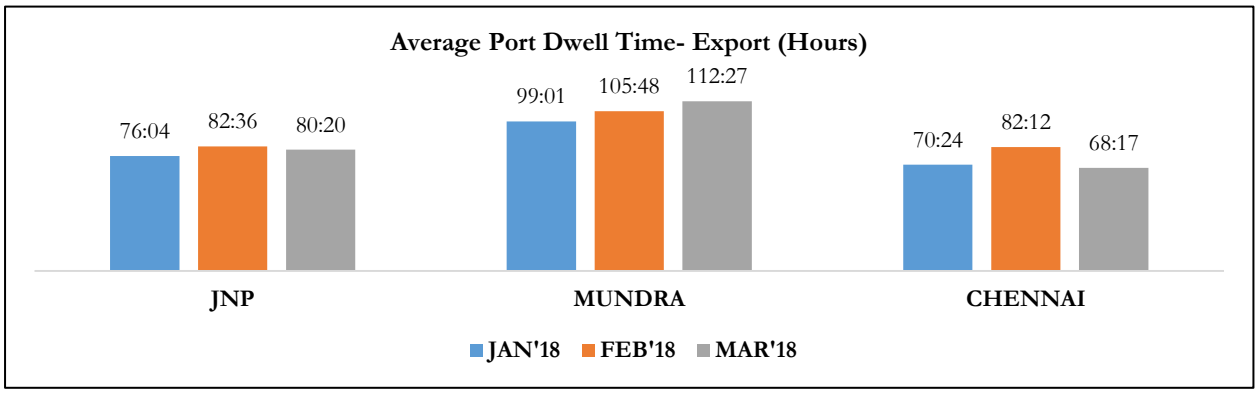
Berth Efficiency



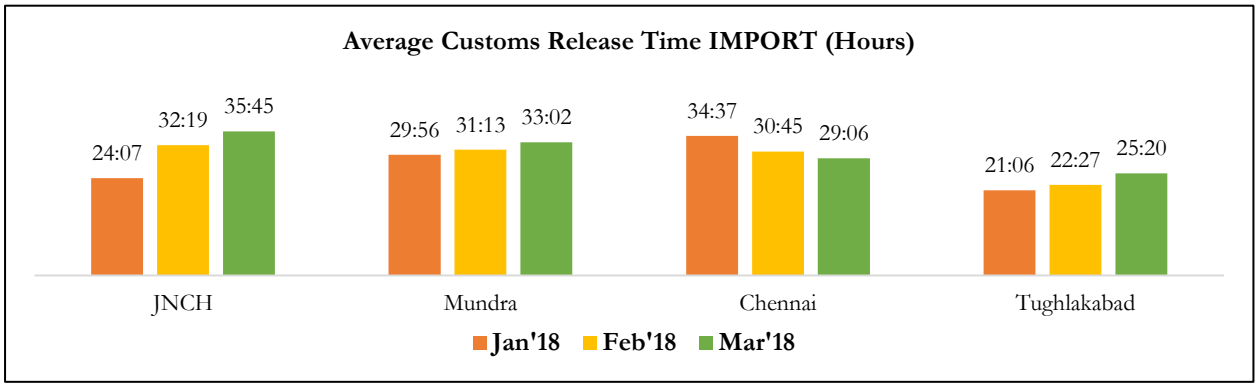


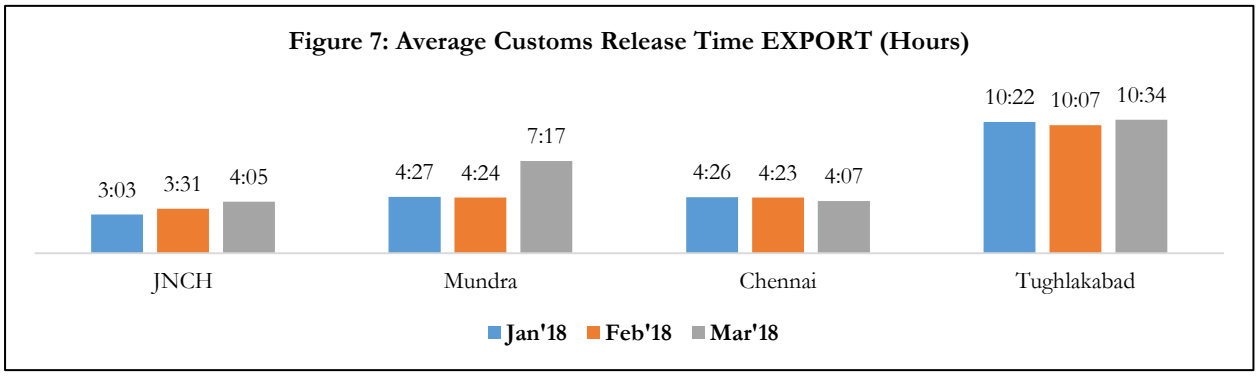
Port Dwell Time



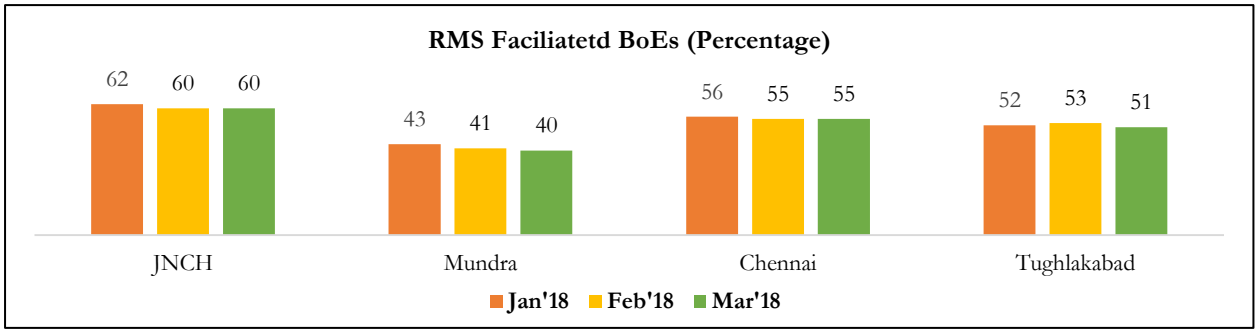


Customs Release Time

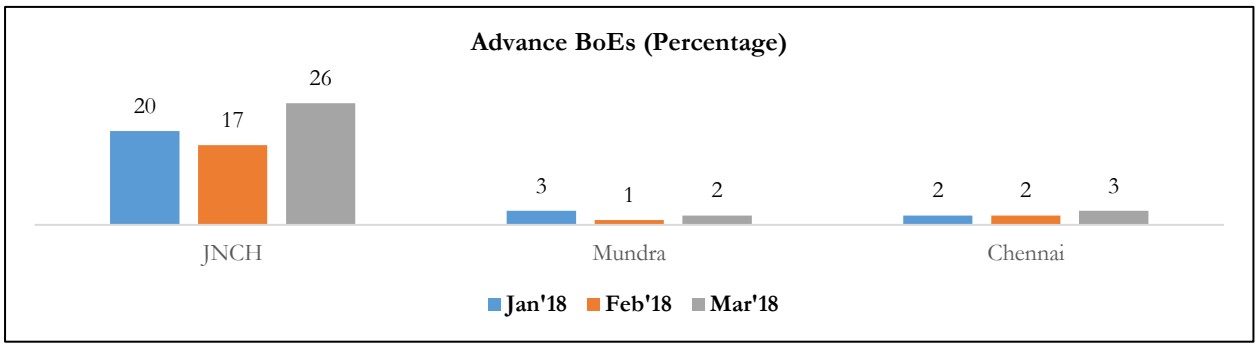




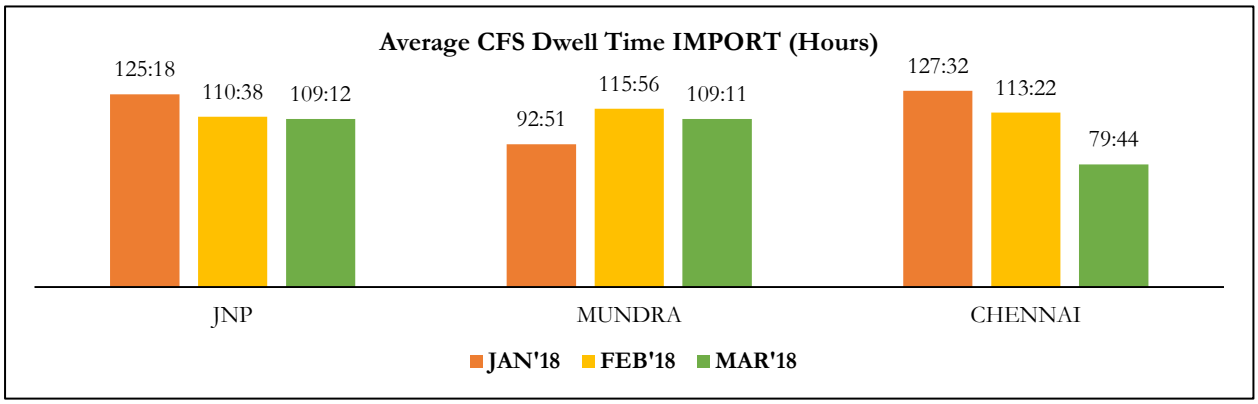
Share of RMS facilitated BoEs

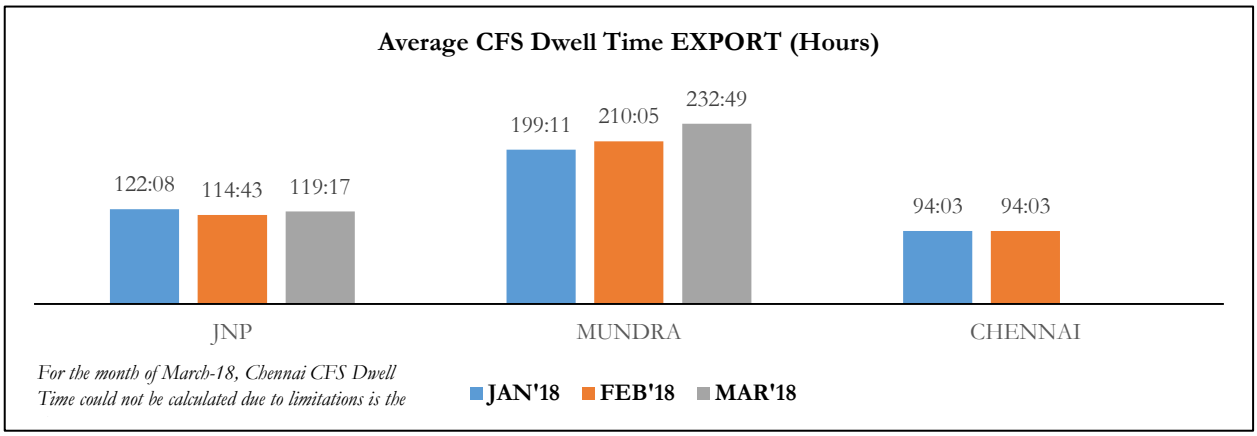


Share of Advance BoE

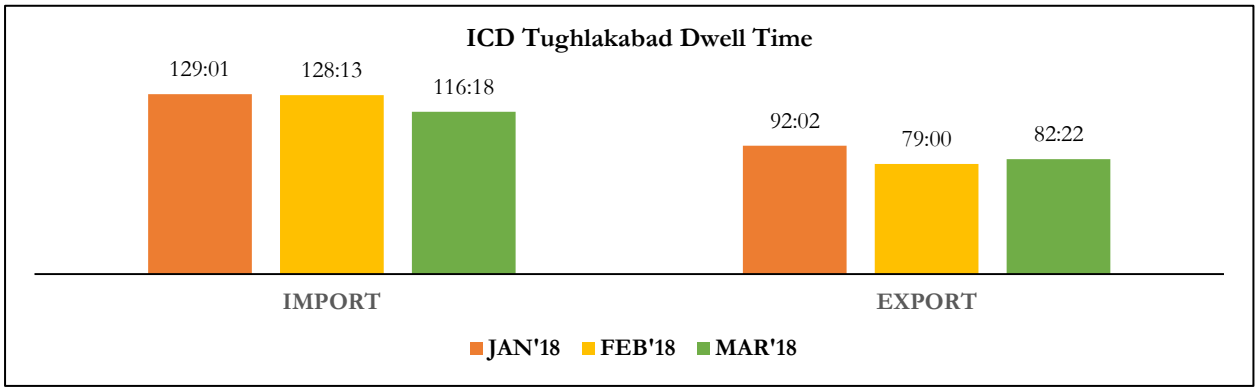


CFS Dwell Time

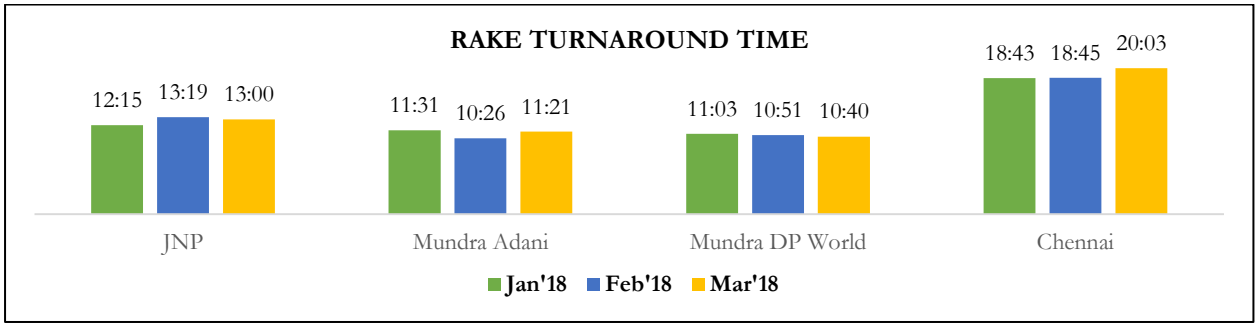


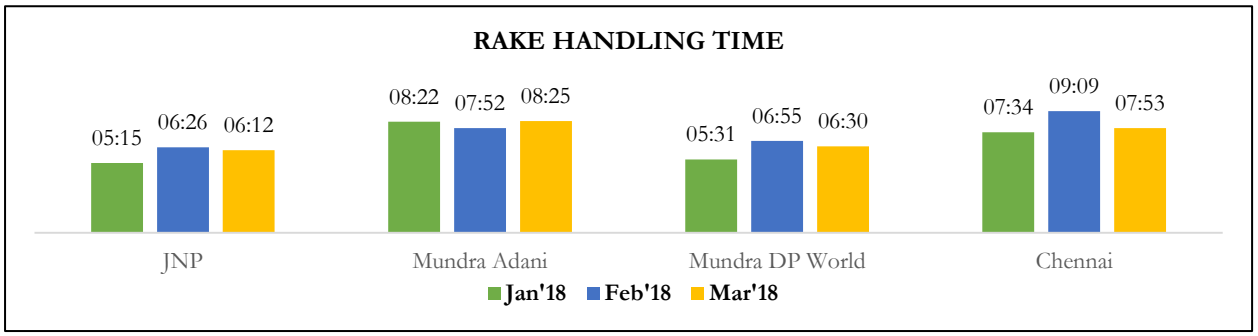


ICD TKD Dwell Time

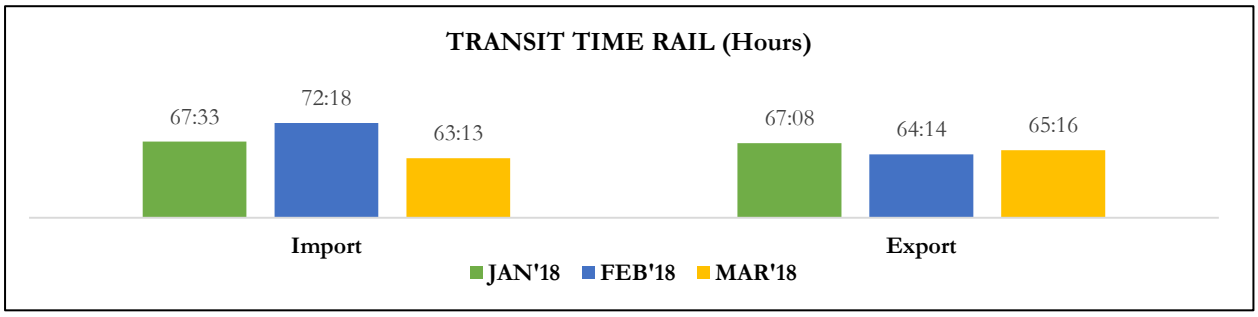


Rake Handling





JNP-TKD Rail Transit Time



Annexure-I

Time Taken from Vessel Arrival to Vessel Berthing

Terminal	Time- Hours
JNPCT	67:56:04

Timelines for the Import of Auto-components from South Korea and Export of Electrical Machinery to US

Import Timeline of Auto components from South Korea	
Parameter	**Value**
Number of BoEs	125
Number of Containers	14452
RMS Facilitated BoEs	106 (84.8%)
Customs Release Time	24:45:32

Export Timeline of Electrical Machinery to US	
Particulars	**Value**
Number of SBs	502
Number of Containers	2602
Customs Release Time	2:20:25

Number of Containers Handled by Ports EXIM

Number of FCL Containers Terminal-wise			
Port	**Terminal**	**Export**	**Import**
JNP	JNPCT	22936	34751
	GTICT	40423	53207
	NSICT	17088	8592
	NSIGT	26236	22220
Chennai	CCTL	15924	19605
	CITPL	11755	24949
Mundra	ACMTPL	13291	5509
	AICTPL	32754	21707
	AMCT	27475	13166
	MICT	23040	15890
Total		**230922**	**219596**

Port Dwell Time Terminal-wise- Import

Terminal Wise Activities (Imports)					
Port	**Terminal**	**Vessel Berthing to Container Discharge**		**Container Discharge to Port Out**	
		N	**Avg.**	**N**	**Avg.**

JNP	JNPCT	34548	17:01:26	34698	38:13:28
	GTICT	53207	8:31:09	52420	35:22:28
	NSICT	8592	6:26:32	8592	48:16:39
	NSIGT	22220	11:14:54	22220	48:16:42
Chennai	CCTL	19605	9:36:37	19605	46:23:35
	CITPL	24949	9:03:47	24949	42:20:14
Mundra	ACMTPL	5509	5:36:18	5509	85:23:14
	AICTPL	21707	6:44:35	21622	134:26:34
	AMCT	13166	5:20:00	13164	63:51:45
	MICT	15890	5:06:13	15872	89:09:12

Port Dwell Time Terminal-wise- Export

Terminal Wise Activities (Exports)					
Port	**Terminal**	**Container In to Container Loading**		**Container Loading to Vessel Sail Off**	
		N	**Avg.**	**N**	**Avg.**
JNP	JNPCT	22936	101:32:39	22380	18:25:55
	GTICT	40423	76:17:18	40423	9:57:45
	NSICT	17088	75:21:23	17088	9:02:37
	NSIGT	23308	70:10:12	23304	11:25:33
Chennai	CCTL	15924	79:44:44	15908	13:01:09
	CITPL	11755	52:46:52	11755	13:19:13
Mundra	ACMTPL	13291	116:04:43	13291	9:11:45
	AICTPL	32754	121:10:22	32754	12:19:10
	AMCT	27474	110:25:49	27475	8:08:26
	MICT	23039	100:24:28	23040	6:59:35

CFS Process Timelines - Import

CFS Process Timelines (Import)								
Port	**CFS**	**Entries**	**N**	**GIN to SC**	**N**	**SC to OOC**	**N**	**GIN to OOC**
	Ameya Logistics	2,162	2162	93:08:06	493	82:34:19	0.021002	1:44:03
	All cargo annex	3,902	3378	77:13:18	2873	17:08:30	0.122391	2:05:53
	All cargo	50	36	48:09:53	29	9:06:12	0.001235	0:00:40
	APM Main & Annex	2,988	2895	122:02:14			0	0:00:00
	Apollo	3,054	2995	121:16:43	692	106:04:12	0.029479	3:07:37
	Ashte	3,196	3196	73:07:08	2373	18:11:04	0.101091	1:50:18
	Balmer Lawrie	1,452	1431	114:57:31	1452	0:00:00	0.061856	0:00:00

JNP	Continental	1,947	1930	93:38:14	905	17:20:37	0.038553	0:40:07
	EFC	971	971	55:38:57	97	34:49:13	0.004132	0:08:38
	GDL	2,983	2960	80:15:44	2870	17:43:42	0.122263	2:10:03
	Hind Terminal	5,634	5476	101:44:30	1619	80:06:44	0.06897	5:31:31
	ICTPL	2,044	2020	96:56:19	1462	33:04:41	0.062282	2:03:37
	JWC	2,627	2615	113:49:37	1578	28:00:56	0.067223	1:53:00
	JWR	14	14	51:51:30	7	9:33:26	0.000298	0:00:10
	KERRY INDEV	363	259	57:27:30	222	0:51:54	0.009457	0:00:29
	OCEANGATE	1,762	1731	125:27:59	333	101:42:01	0.014186	1:26:34
	PWC	1,384	1367	111:51:13	1370	5:48:58	0.058362	0:20:22
	Seabird Marine	2,424	2424	83:03:04	2396	38:25:43	0.10207	3:55:21
	Speedy	2,621	2607	110:06:12	645	84:07:16	0.027477	2:18:41
	ULA	3,195	1619	88:38:10	551	94:00:53	0.023473	2:12:24
	VAISNO	1,042	1039	77:45:35	433	92:44:57	0.018446	1:42:39
	TAKE CARE LOGISTICS PARK	1,601	1574	121:17:15	1074	48:19:49	0.045753	2:12:40
Chennai	CWCNSL, Redhills	557	555	86:21:24	555	26:09:44	557	113:55:29
	CWCNSL-Madavaram	752	752	98:23:16	752	0:00:00	752	98:23:16
	ECCT	1,354	408	79:25:33	182	53:22:04	1227	77:35:42
	GDL	2,797	2314	63:24:28	2308	10:05:49	2307	66:33:39
Mundra	Allcargo Logistics	2,891	2734	108:16:13	1931	40:51:12	2251	110:31:36
	Mundra CFS	639	639	100:51:18	123	28:49:29	594	89:24:04
	TGT Details	816	816	97:53:22	430	48:45:25	816	119:52:56

CFS Process Timelines - Export

CFS Process (Export)								
Port	**CFS**	**Entries**	**N**	**ECO to STUFF**	**N**	**STUFF to MO**	**N**	**ECO to GO**
JNP	All Cargo	229	229	84:04:05	225	50:46:05	226	134:28:31
	All Cargo Annex	2040	2037	85:32:24	1997	38:27:38	1999	106:46:08
	Ameya Logistics	426	424	98:17:51	426	38:17:22	423	137:37:33
	Apollo	1743	1657	130:48:29	1591	23:34:29	1586	180:18:50
	Ashte	544	NA	NA	538	8:29:58	NA	NA
	Balmer Lawrie	417	NA	NA	417	0:00:00	NA	NA
	Continental	1208	1184	122:10:09	1208	23:28:06	1182	154:07:15
	EFC	202	202	77:20:59	199	34:19:52	202	114:53:16
	GDL	7624	7597	97:06:32	7624	19:17:49	7580	128:20:58
	HIND Terminal	5463	5405	85:02:01	5463	27:15:41	5377	115:52:18
	ICTPL	321	320	78:08:42	321	3:09:35	320	123:01:43
	JWC	4279	NA	NA	3163	37:31:37	NA	NA
	JWR	5362	NA	NA	5327	8:44:06	NA	NA
	Kerry Indev	619	618	87:28:54	120	25:03:12	618	101:02:37
	Navkar 1	31	31	93:40:46	26	51:36:03	31	149:56:55
	Navkar 2	1959	1959	74:40:05	1226	38:42:04	1959	108:08:43
	Navkar 3	2620	2597	61:02:50	1917	52:26:27	2618	110:56:38
	Oceangate	993	NA	NA	588	39:04:32		
	PCW	15351	15315	80:57:27	15350	27:35:23	15302	111:34:45
	Seabird	651	NA	NA	516	31:27:28	NA	NA
	Speedy	1738	NA	NA	1601	55:02:44	NA	NA
	Vaishno	NA	NA	NA	969	37:51:17	NA	NA
	TAKE CARE LOGISTICS PARK	72	72	61:21:07	72	21:07:04	72	86:22:39
	ULA	1970	NA	NA	1921	34:20:35	NA	NA
Chennai	CWCNSC Redhill Chennai	3540	NA	NA	3506	0:02:58	NA	NA
	GDL	3705	NA	NA	1635	10:35:53	NA	NA
Mundra	Allcargo Logistics	1498	1425	145:00:16	1498	22:24:28	1422	176:46:30
	Mundra CFS	3558	3329	229:12:00	2382	33:39:53	3317	256:51:26
	TGT Details	2244	NA	NA	2229	33:44:20	NA	NA

ICD Process Timelines- Import

ICD Cumulative (Import)								
Number of Containers	**N**	**GC-FAC**	**N**	**Non-GC-FAC**	**N**	**Warehouse**	**N**	**Direct**
Arrival to EJO			1793	80:34:48	80	51:49:09	222	82:45:51
EJO to DJO					126	97:55:11		
DJO to De-stuffing					107	4:46:16		
EJO to OOC			1790	70:30:15			219	45:38:29
De-stuffing to OOC					75	100:13:23		
OOC to DJO							212	42:13:32
OOC to Gate pass	2039	22:16:34	1684	9:23:29	93	66:18:03		
DJO to Gate Pass							216	3:54:15
Gate Pass to Departure	2168	25:03:32	1807	17:42:22	126	2:01:01	222	3:44:47
Arrival to OOC	**2138**	**90:06:41**	**1763**	**143:22:38**	**122**	**174:37:37**	**221**	**127:55:28**
Arrival to Departure	2135	134:36:03	1761	169:08:46	120	226:30:59	221	174:59:32

ICD Process Timelines- Export

ICD Cumulative (Export)						
Number of Containers	**N**	**GC-FAC**	**N**	**Warehouse**	**N**	**Direct**
Arrival to CRN	475	21:05:34				
Arrival to LEO			284	43:49:27	33	6:18:38
CRN to LEO	475	18:22:17				
LEO to Loading	475	19:49:06				
LEO to Stuffing			283	26:44:26	33	3:37:06
Stuffing to Sealing			276	6:35:10	33	6:14:40
Sealing to Loading			284	43:15:05	33	39:10:27
Loading to Dispatch	407	1:08:57	258	1:09:59	32	1:20:31
Arrival to Dispatch	**427**	**60:12:43**	**282**	**118:57:45**	**33**	**56:38:42**

PGA

PGA Process-wise												
Agency	**N**	**BoE**	**N**	**BoE to APP**	**N**	**APP to SMP**	**N**	**SMP to RPT**	**N**	**RPT to NOC**	**N**	**APP to NOC**
AQCS JNP	423	415	419	166:27:12	166	0:00:00	68	184:35:18	74	44:45:24	328	46:19:01
AQCS Mundra	138	136	138	147:28:42	4	0:00:00	3	264:00:00	3	24:00:00	3	6:18:24
FSSAI JNP	2786	1717	2758	158:46:02	1769	108:57:23	1771	102:50:37			2219	191:02:15

Annexure-II

Methodology

Monthly Segregation of Data		
Stakeholder	**Import**	**Export**
Port	**Vessel Berthing**	**Port In**
Customs	**Out of Charge**	**Let Export Order**
CFS	**Gate Out**	**Gate Out**
ICD	**Departure**	**Departure**
PGA	**NOC**	**NOC**

Dwell Time Calculation		
Stakeholder	**Import**	**Export**
Port	**Container Discharge to Port Out**	**Port In to Container Loading**
Customs	**Submission of BoE to OOC**	**Registration to LEO**
CFS	**Gate in to OOC**	**Carting to Gate Out**
ICD	**Arrival to OOC**	**Arrival to Departure**
PGA	**Application to NOC**	**Application to NOC**
Rake TRT	**Arrival of Rake to Departure**	
Rake RHT	**Unloading to Loading of Containers**	
**TRT- Turn Around Time: RHT- Rake Handling Time*		