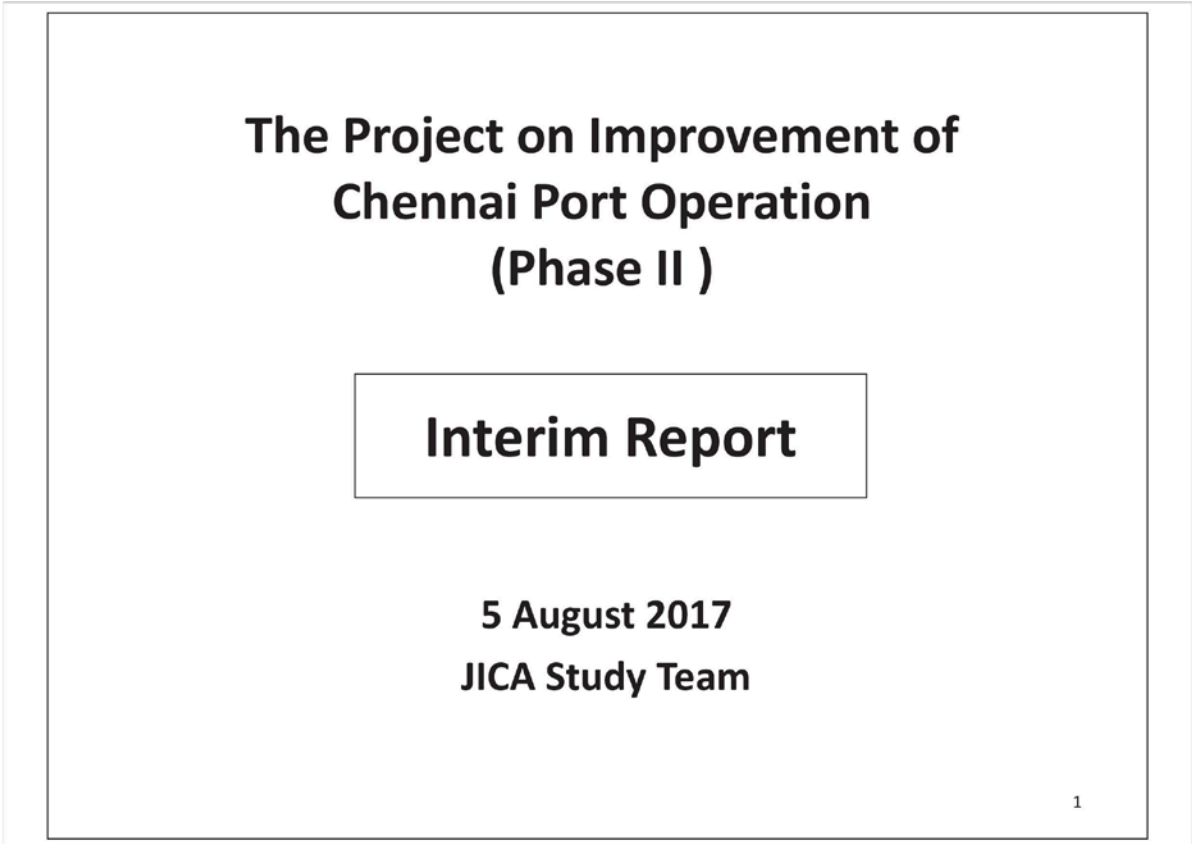
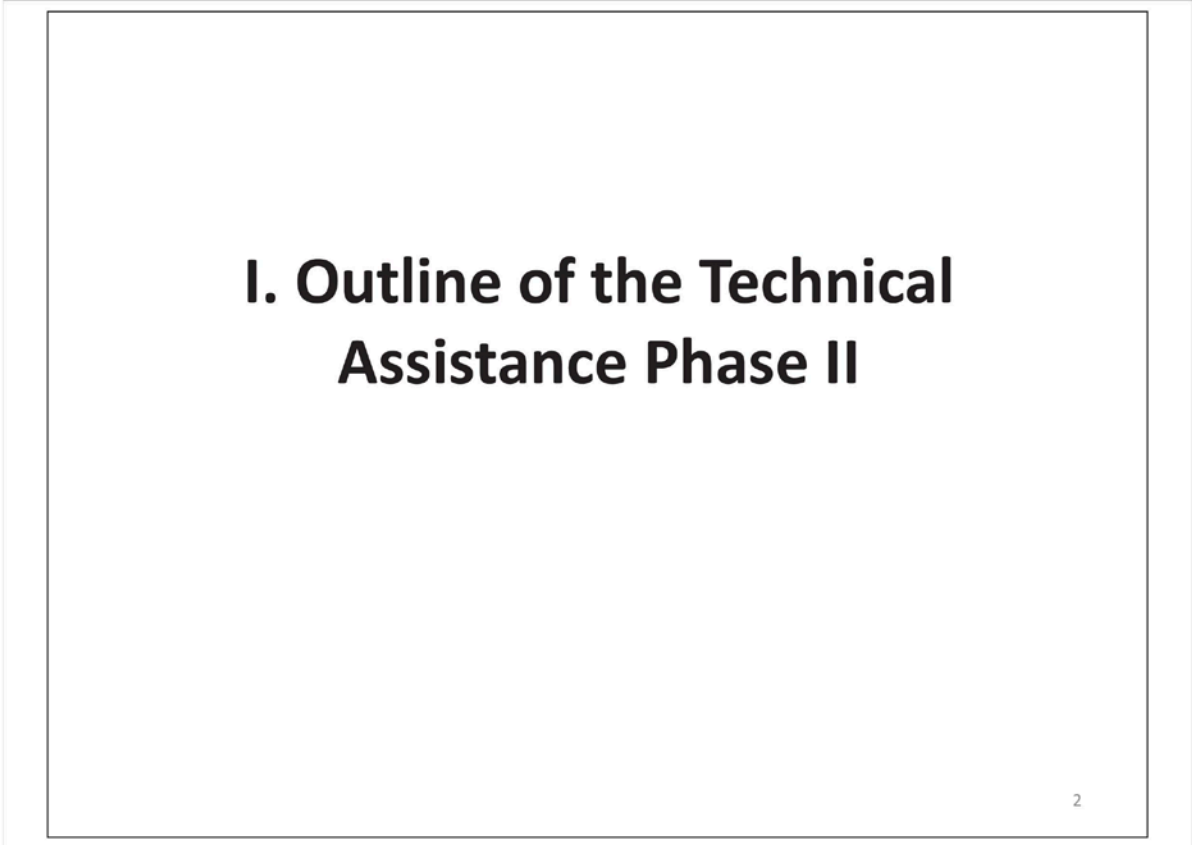
3. Interim Report Presentation (5 August 2017)





Interim Report

1. Objectives of the Project "Phase II"

- To enhance the efficiency of the operation of Chennai port by reducing container movement lead times through following up the activities taken in Technical Assistance Phase I and entrenching congestion alleviation measures to the counterpart (ChPT)
- To examine the validity and effectiveness of possible port infrastructure projects (including IT related projects) for modernizing port operation

2. Dispatched Schedule

Number of Dispatch	Schedule completed
First （Ninth） Dispatch	Sunday, 12th February – Saturday, 11th March, 2017
Second （Tenth） Dispatch	Sunday, 23rd April – Saturday, 20th May, 2017

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Interim Report

2. Contents of the Project "Phase II"

(1) Follow-up of Previous Measures for Improvement of Port Operation

The Study Team will follow-up the several surveys and activities conducted during Phase I for further improvement of port operation.

(2) Modernization of Port Operation through Soft and Hard Measures

The Team will continue to promote operational improvement through utilization of an IT system and development/improvement of port facilities.

4

II. Follow-up of Previous Measures for Improvement of Port Operation

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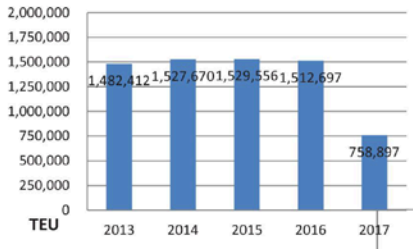
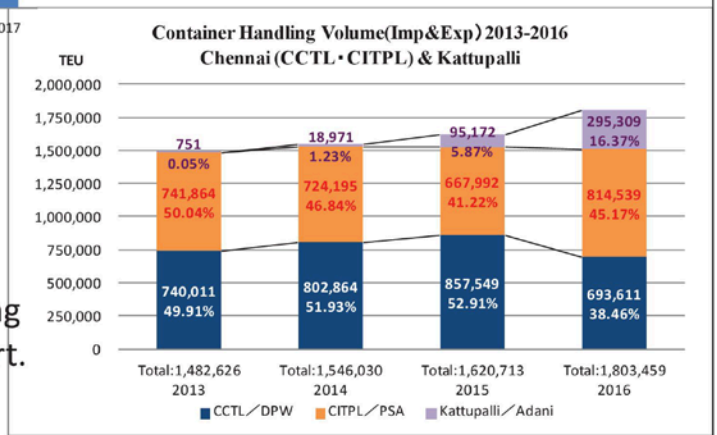
Interim Report

1. Container Handling Volume Trends



The total handling volume has shown a tendency to decline since 2011. Among major cargoes, container cargo and POL are stable.

Container demand in the entire Chennai area has recently been increasing. The increase in container demand seems to be being captured by Kattupalli port.



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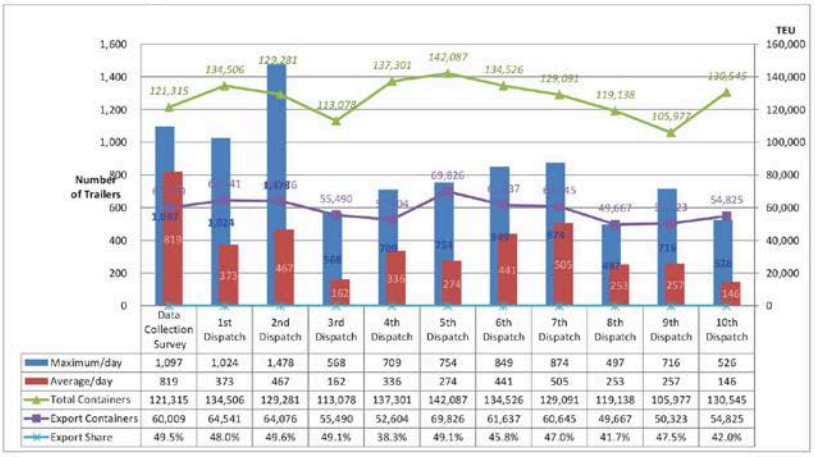
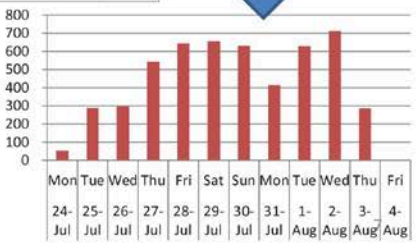
Interim Report

2. Congestion Status – Trends outside the Port



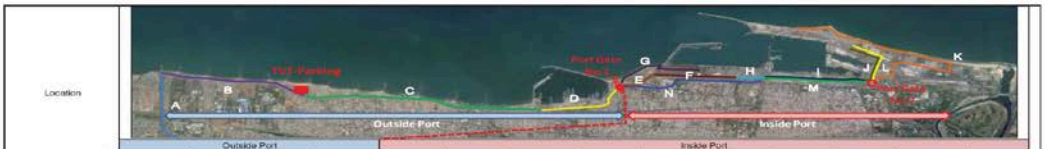
Number of queuing trailers this time



Based on a daily survey by the Team, the number of queuing trailers has decreased even though the number of handling containers has increased in April this year.

Interim Report

2. Congestion Status - inside/outside the Port



Date	Week	Time	A beyond Bhavath Nagar Point	B Bhavath Nagar Point – TVT-Parking	C TVT-Parking – Access Road Entrance	D Access Road Entrance – Port Gate 1	E Port Gate 1 – X-Ray Intersection	F X-Ray Intersection – DPW Entrance	NEW G Port Gate 1 – DPW North Gate (without Container)	H DPW Entrance – DPW Exit	I DPW Exit – Port Gate 7	J Port Gate 7 – PSA Entrance	NEW K Port Gate 7 – PSA Entrance (without Container)	L PSA Exit – Port Gate 7	M Port Gate 7 – DPW Exit	N DPW Exit – Port Gate 1 (Exit)
24th Apr	Mon	15:00	nil	nil	nil	nil	nil	nil	short	nil	nil	nil	short	nil	nil	nil
25th Apr	Tue	***	???	???	???	???	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
26th Apr	Wed	11:30	nil	nil	long	long	nil	nil	short	nil	nil	long	long	nil	nil	nil
27th Apr	Thu	15:30	nil	nil	short	short	nil	nil	long	nil	nil	short	long	nil	nil	nil
28th Apr	Fri	15:30	nil	nil	nil	short	nil	nil	long	nil	nil	long	long	nil	nil	long
29th Apr	Sat	16:00	nil	nil	long	long	nil	nil	short	nil	nil	nil	long	nil	nil	short
30th Apr	Sun	11:30	short	long	long	long	nil	long	short	nil	nil	short	long	nil	nil	long
1st May	Mon	13:30	nil	nil	long	long	long	nil	long	nil	nil	nil	short	nil	nil	long
2nd May	Tue	16:00	nil	nil	nil	short	nil	nil	short	nil	nil	nil	short	nil	nil	short
3rd May	Wed	14:30	nil	short	long	long	nil	nil	short	nil	nil	long	short	nil	nil	nil
4th May	Thu	15:00	nil	nil	long	long	nil	nil	short	nil	nil	long	long	nil	nil	short
5th May	Fri	14:30	nil	long	long	long	nil	nil	long	!	nil	short	long	nil	nil	short
6th May	Sat	15:30	long	long	long	long	nil	nil	short	nil	nil	long	long	nil	nil	short
7th May	Sun	11:30	long	long	long	long	???	long	long	short	long	long	long	nil	nil	long
8th May	Mon	15:30	nil	nil	long	long	???	???	short	short	nil	short	long	nil	short	long
9th May	Tue	15:00	nil	nil	long	long	nil	nil	nil	nil	nil	long	long	nil	nil	nil
10th May	Wed	13:30	nil	long	long	long	nil	nil	nil	nil	nil	long	long	nil	nil	nil
11th May	Thu	15:00	nil	short	long	nil	nil	nil	short	nil	short	long	long	nil	nil	nil
12th May	Fri	15:00	nil	nil	long	long	nil	nil	nil	nil	short	long	long	nil	nil	nil
13th May	Sat	13:00	long	long	long	long	???	???	???	nil	nil	long	long	nil	nil	long
14th May	Sun	12:00	long	long	long	long	short	long	nil	nil	nil	nil	nil	nil	nil	short

Truck Queue : nil, short (less than 30), long (30 or more).

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Interim Report

2. Congestion Status - Summary

- Queues are seldom observed beyond TVT-Parking at 9th and 10th dispatches.
- Incoming trailers are controlled at Port Gate No.1.
- The traffic flow in the area in front of DPW IN gate where heavy congestion was usually observed is now relatively normal.
- Both terminals set up an in-gate and separate route respectively for empty chassis. These measures have been useful in securing normal traffic flows.
- In line with the increase in handlings volumes, congestion toward PSA IN gate shows an increasing trend. When a queue extends near Port Gate No.7, Port Gate No.1 temporarily shuts down entry procedures for trailers.
- Traffic flow is relatively smoother than before, however many parked trailers still occupy roads.
- Then number of queuing trailers has increased this time. The dedicated lane at SH114 cannot be used due to bury pipelines.

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Interim Report

3. Following up of Demonstration Trials

1) Demo 1: Simplification of gate procedures at Port gate No.1

The barcode reading system has not been re-started; however, the reception time has been shortened due to the simplification of the manual procedure.

2) Demo 2: Utilization of TVT-Parking

The TVT-parking was not used as a parking lot although the issuance of HEP is still in operation.

3) Demo 3: Restriction of parking on internal roads

The traffic flow of trailers inside the Port seemed to be smoother due to the separation of traffic flow of empty trailers from laden ones; however, a large number of parked trailers are still observed.

4) Demo 4: Allocation of traffic control persons at intersections together with introduction of traffic flow regulation

Trailer drivers have a greater awareness of the no parking rule at the intersections; however, the instructions by traffic control persons are still required.

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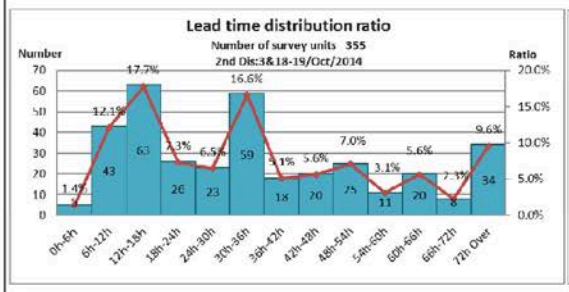
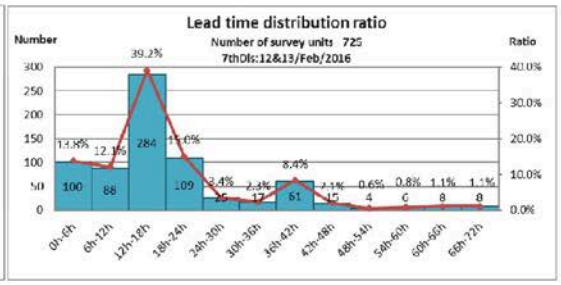
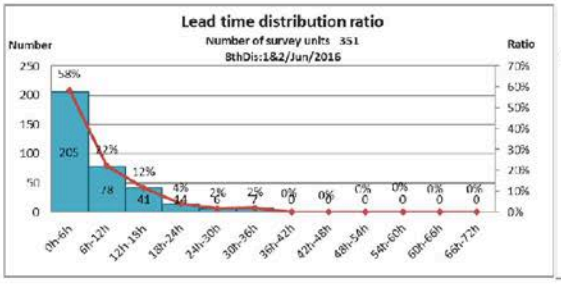
Interim Report

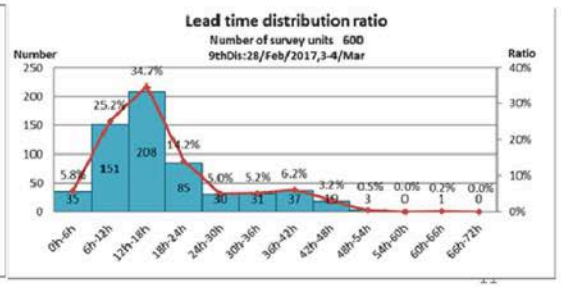
4. Lead Time Analysis

Lead Time: According to the four times survey results, the lead time decreased to less than 20 hours during the 7th and 8th survey from 40 hours recorded during the 2nd dispatch. The lead time during the 9th dispatch was around 20 hours.



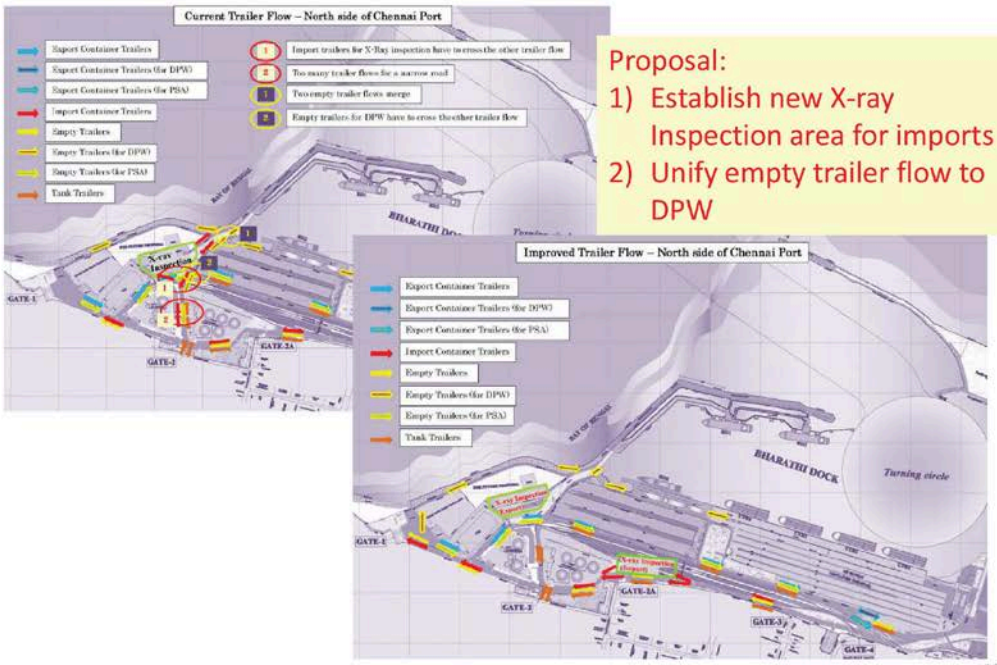






Interim Report

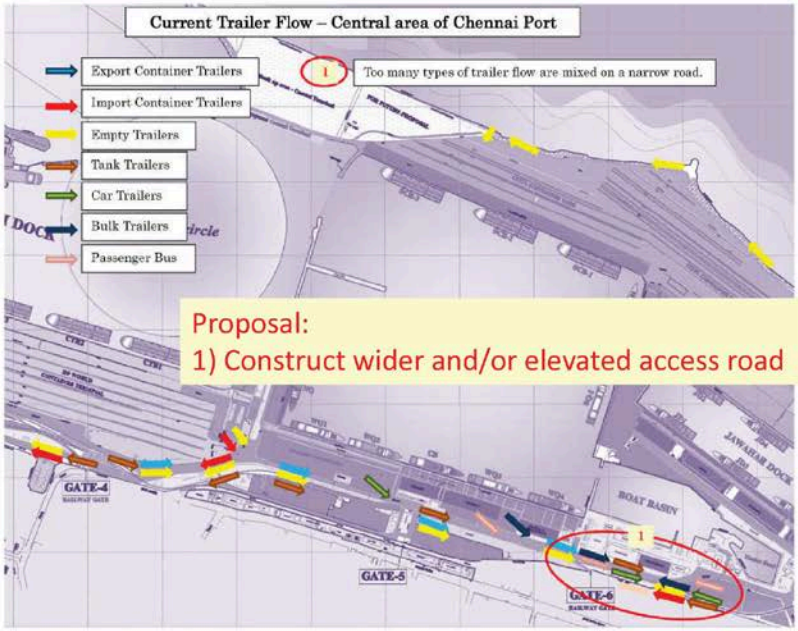
5. Trailer Flow inside the Port



Proposal:
1) Establish new X-ray Inspection area for imports
2) Unify empty trailer flow to DPW

Interim Report

5. Trailer Flow inside the Port



Proposal:
1) Construct wider and/or elevated access road

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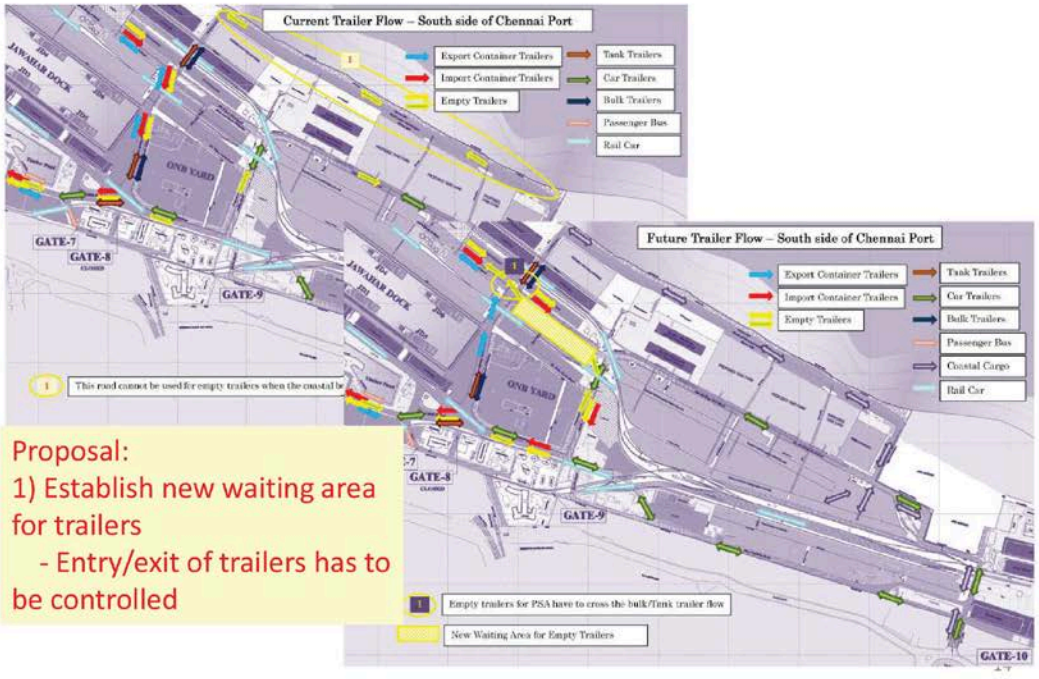
Interim Report

5. Trailer Flow inside the Port



Proposal:
1) Establish new waiting area for trailers
- Entry/exit of trailers has to be controlled

Interim Report

6. Voices from Port Users

- Berth occupancy rates are relatively high. This means either volume might be high or handling efficiency is low. Port System should be modernized
- Smooth traffic flow inside the port is the biggest hurdle in the growth of Chennai port.
- Waiting space should be provided nearby the traffic route.
- Port facilities and cargo handling equipment are old and insufficient.
- Environment of the cargo handling area is not good due to severe dust and the narrow handling area.
- and others

III. Modernization of Port Operation through Soft and Hard Measures

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Interim Report

Priority Projects

1. Basic Policy for Priority Project

- Chennai port plays a vital role on supporting the economy of both the region and India as a whole and this roll will remain in future.
- However, Chennai port faces a variety of pressing issues and competitors have been expanding their business in recent years.
- To overcome the issues mentioned later, Chennai port has to improve the efficiency of port operation, modernize facilities and enhance the port's competitiveness.

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Interim Report

Priority Projects

2. Pressing Issues

1) Normalization of traffic flows inside (and outside) the port
2) Improvement of superannuated facilities
3) Securing sufficient space for cargo handling and storage
4) Improving efficiency of cargo handling
5) Improvement of the environment
6) Accommodating larger vessels
7) Improvement of navigational safety
8) Securing future development space for the next generation of the port

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Interim Report

Priority Projects

3. Feature of the Priority Projects

Mainly redevelopment projects which will improve and realign the existing facilities.

4. Phase of the Projects

I. Short-term projects
- Infra related projects (Project **A** to **F**)
- IT related projects (Project **IT-1** & **IT-2**)

II. Long-term projects (Project **G** & **H**)

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Interim Report

Priority Projects

5. Traffic Projections

Chennai Port - Traffic Projections

Units: MMTPA (except ...) xx Base Scenario xx Optimist

Commodity	2014-15	2020	2025		2035		Remarks
Liquid Cargo							
POL	12.7	13.3	13.1	18.8	14.3	19.2	* CPCL expansion consid optimistic case
Vegetable Oil	1.1	1.7	1.8	2.1	3.0	3.4	
Dry and Break Bulk Cargo							
Thermal Coal (Loading)	0.0	0.0	0.0	0.0	0.0	0.0	
Thermal Coal (Unloading)*	0.0	6.1	0.0	7.0	0.0	12.5	* Traffic projections are co permission to the port by to handle coal
Coking Coal	0.0	0.0	0.0	0.0	0.0	0.0	
Iron Ore	0.1	0.2	0.3	0.3	0.4	0.4	
Steel	1.4	1.9	2.5	2.9	3.0	5.5	
Limestone	2.6	1.5	1.4	1.4	1.2	1.2	
Dolomite	1.0	0.6	0.5	0.5	0.3	0.3	
Fertilizers	0.5	0.7	0.8	0.9	1.0	1.4	
Containers and other Cargo							
Containers (MnTEU)	1.55	0.9	1.2	1.4	2.0	2.4	* Traffic may further reduc Enayam comes up
Others	3.2	4.3	5.7	6.0	9.2	10.8	* Highly fragmented
Total (MMTPA)	52.5	47.7	49.3	66.9	71	101.0	

* Traffic potential include non-power thermal coal consumption in the hinterland and part of the thermal coal requirement projected for Mettur plant
Conversion Factor Used for Containers Projections: 1 TEU = 19.3 Tons

Due to the emerging ports in the vicinity of Chennai port, container volume handled at Chennai port is forecast to fall from about 1.55 million TEUs in 2015 to 0.9 million TEUs in 2020 but will then begin to increase again towards 2025 and beyond.

In 2025, Chennai and Kamarajar ports will handle total of 3.0 -3.5 M TEUs among 3.2 - 3.7 M TEUs, while remaining volume will be handled at Krishnapatnam port according to the report. Kattupalli port are not mentioned.

Traffic Projections in the Chennai Region Unit: Million TEU

Port	2014/15	2020	2025	2035
Chennai	1.55	0.9	1.2 - 1.4	2.0 - 2.4
Kamarajar	0.0	0.8	1.1 - 1.3	1.8 - 2.1
Krishnapatnam	0.08	0.1 - 0.12	0.15 - 0.19	0.25 - 0.34
Chennai Cluster	1.7	2.32	3.0	-
		2.4	3.2 - 3.7	-

Source: Final Report on Cargo Traffic Projections & Logistics Bottlenecks, Ministry of Shipping, July 2016

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Interim Report

Priority Projects

6. Demand and Capacity

Cargo Handled	Berths Assigned	I/E	Current Capacity (MTPA)	2020		2025		2035	
				Projected Traffic (MTPA)	Capacity Augmentation Required (MTPA)	Projected Traffic (MTPA)	Capacity Augmentation Required (MTPA)	Projected Traffic (MTPA)	Capacity Augmentation Required (MTPA)
Crude & POL	BD1, BD 2, BD 3	I	15.00	13.30	0.00	13.10	0.00	14.30	0.00
Dry & Breakbulk	NQ, WQ1 to 3,JD1 to 6, OPB	I/E	17.50	16.30	0.00	12.20	0.00	17.10	0.00
Fertilizers	SQ1 & SQ 2	I	2.50	0.70	0.00	0.80	0.00	1.00	0.00
Containers	CTB1 to 4, SCB1 to 3	I/E	58.00	17.37	0.00	23.16	0.00	38.60	0.00
Total		I/E	93.00	47.67	0.00	49.26	0.00	71.00	0.00

Source: Sagarmala Final Report

The occupancy rate of each berth is relatively high (an average rate is 52% according to the ChPT data). However, because of insufficient space for cargo handling and storage, insufficient preparation of trucks for transit of cargoes and others, cargo handling is inefficient which may also be a factor in the high berth occupancy rate. Therefore, Chennai port should make efforts to improve the productivity and efficiency of operations.

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Interim Report

Priority Projects

+ Project for improvement of the environment inside the port (F)

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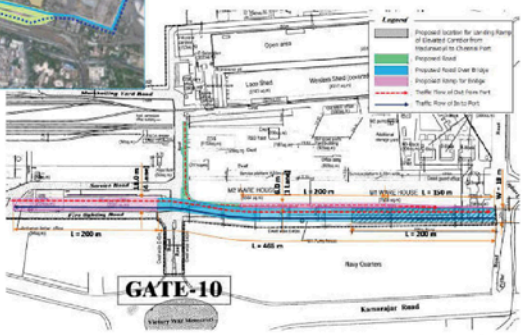
Interim Report

Priority Projects: Short-term project A

Traffic Flow Separation between DPW and PSA



Descending of the Maduravoyal Elevated Road

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Interim Report

Priority Projects: Short-tem project A

	A
Project Name	Realignment/Development of Internal Roads
Target	i)Normalization of traffic flow inside the Port
Purpose	/To improve the traffic flow and ease congestion inside the Port
Scope	/To develop new internal roads for separation of DPW and PSA related traffic and to introduce a flyover section of ; Option A-1: 500m in length Option A-2: 2,000m in length Option H-1: Internal roads are inter-connected with the Maduravoyal elevated road. Descendent points of the said road are explained.
Rationale	(refer to the Interim Report)

Construction Period/Cost		Option A-1: Period: Approximately 36 months Cost: Approximately USD 42 M Option A-2: Period: Approximately 36 months Cost: Approximately USD 129 M
Prescreening		(refer to the Interim Report)
Project Effects	Quantitative Effect	/Reduction of time cost by elimination of congestion: maximum value of 42.4 Crore Rs/year
	Quantitative Effect	/More reliable transport /Shortening of transport time (benefit of trucking company) /Improvement of the environment
Implementation Scheme		/Own fund /Public fund
Issues for Implementation		/Congestion alleviation at specific points is important. /Further study is needed because of the progress of improvement of the internal roads /Careful execution plan is needed in order to avoid further congestion

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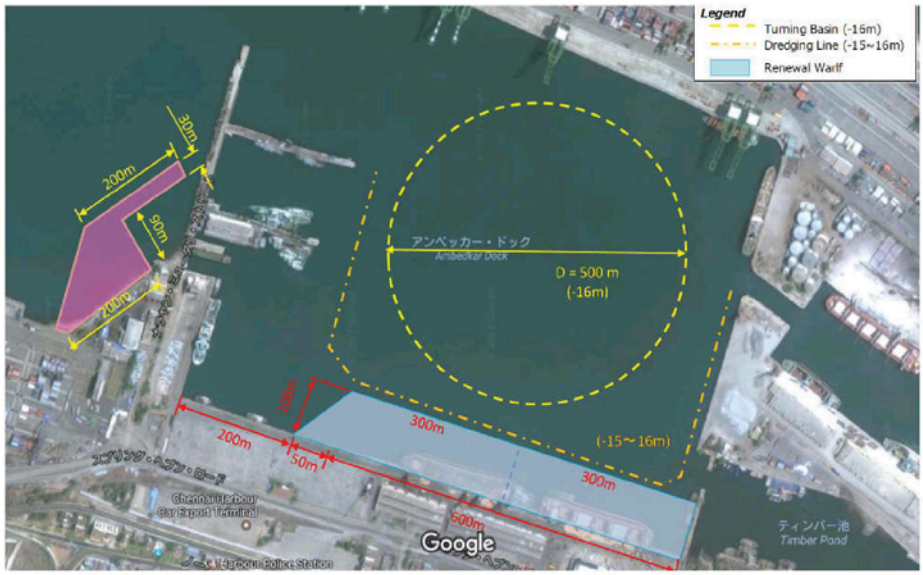
Interim Report

Priority Projects: Short-term project B



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Interim Report

Priority Projects: Short-term project B

	B
Project Name	Redevelopment of Dr. Ambedkar Dock (West Wharf)
Target	ii) Improvement of superannuated facilities, iii) Securing sufficient space for cargo and storage, v) Improvement of the environment, vi)Accommodating larger vessels, vii) Securing navigational safety
Purpose	/To modernize the West Wharf of Dr. Ambedkar Dock and the water area
Scope	/To expand the west wharf by 600m in length and 100m in width /To rearrange the cargo handling area, and /To deepen the water area of the Dock to 15m to 16m
Rationale	(refer to the Interim Report)

Project Effects	**Quantitative Effect**	/Income from the use of the West Wharf: 65.0Crore Rs/year
	Quantitative Effect	/Improvement of cargo handling efficiency /productivity /Decrease of damaged cargo /Expansion of business opportunities /Improvement of navigational safety /Improvement of the environment
Implementation Scheme		/Public fund /Private fund (handling equipment, etc.) (including PPP and/or SPV for operation)
Issues for Implementation		/Detailed use plan of berth is needed /Execution plan to avoid shortage of berths is needed /User's opinion is important /Introduction of warehouses and equipment should be considered in connection with fund raising

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Interim Report

Priority Projects: Short-term project C

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Interim Report

Priority Projects: Short-term project C

Project Name	C
	Widening of Jawahar Dock Entrance
Target	ii) Improvement of superannuated facilities, v) Accommodating larger vessels
Purpose	/To improve superannuated facilities and to accommodate larger vessels
Scope	/To widen the entrance of Jawahar Dock to more than 43m (effective width) in order to accommodate vessels of over-panamax class
Rationale	(refer to the Interim Report)

Construction Period/Cost		Period: Approximately 25 months Cost: Approximately USD 26.4 M
Prescreening		(refer to the Interim Report)
Project Effects	Quantitative Effect	/Loss of income by collapse of the entrance: 13.83Crore Rs/year
	Quantitative Effect	/Improvement of safety
Implementation Scheme		/Public fund /Own fund
Issues for Implementation		/Safe and realistic execution plan should be studied further to avoid negative effects to the tanks located behind the entrance /Securing navigational safety during execution works is important / Execution works should be done from the land side /To make fund raising easier, this project should be combined with others

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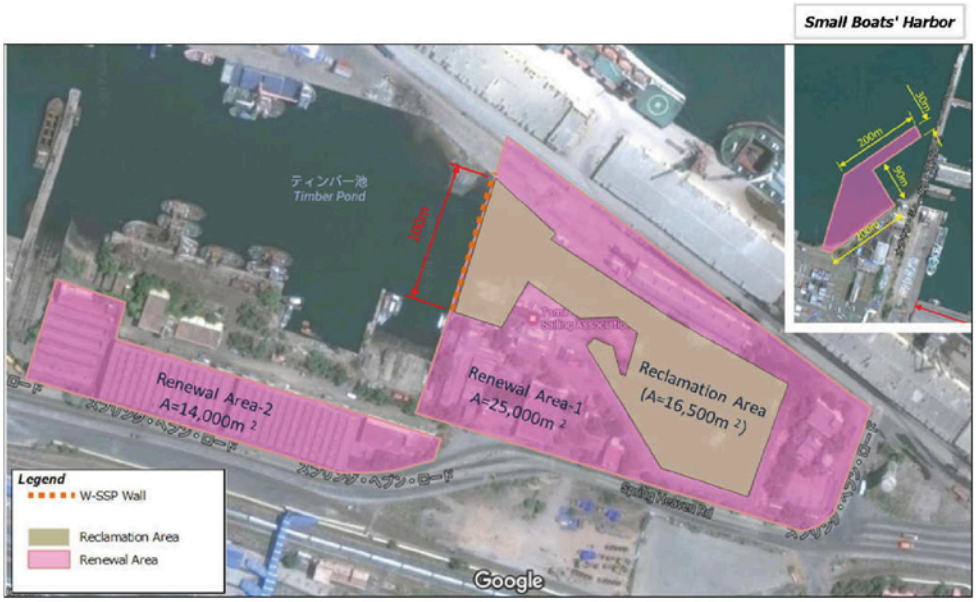
Interim Report

Priority Projects: Short-term project D



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Interim Report

Priority Projects- Short-term project D

	D
Project Name	Reclamation/Redevelopment of Timber Pond (including a base for tug boats)
Target	iii) Securing sufficient space for cargo and storage, iv) Improving efficiency of cargo handling, v) Improvement of the Environment, i) Normalization of traffic flow inside the Port
Purpose	/To secure space for cargo and storage, improve the efficiency of cargo handling and to help the traffic flow be normalized
Scope	/To reclaim Timber Pond and demolish buildings in the surrounding premises for use of cargo handling and storage and new road development /To develop a base for tug boats
Rationale	(refer to the Interim Report)

Construction Period/Cost		Period: Approximately 20 months Cost: Approximately USD 29 M
Prescreening		(refer to the Interim Report)
Project Effects	Quantitative Effect	/Savings of expenditure for improvement of handling efficiency: 7.23Crore Rs/year
	Qualitative Effect	/Improvement of cargo handling efficiency / productivity /Normalization of the traffic flow /Improvement of the environment
Implementation Scheme		/Own fund /Public fund (as a combined project with redevelopment of wharves) /Private fund (in case of installation of super structure) (including PPP scheme and establishment of SPV for operation)
Issues for Implementation		/Use request from ICG should be considered /Integrated use with AD and JD should be considered /Reconstruction of buildings necessary for future use is required /Measures to mitigate impact on the environment are needed during demolishing works

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Interim Report

Priority Projects: Short-term project E

Comprehensive Redevelopment around Jawahar Dock

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Interim Report

Priority Projects- Short-term project E

Project Name	E
	Integrated Redevelopment of Jawahar Dock and Surrounding Area
Target	ii) Improvement of superannuated facilities, iii)Securing sufficient space for cargo handling, iv) Improving efficiency of cargo handling, v) Improvement of the Environment, vi) Accommodating larger vessels, i) Normalization of traffic flow inside the Port
Purpose	/To redevelop the JD entrance and handling yard of surrounding area and to contribute to the alleviation of congestion
Scope	/To widen the JD entrance to more than 43m /To rearrange the yard area behind the JD west wharf integrally with the yard of ONB and the Timber Pond area /To convert the JD west wharf in to a wharf for accommodating RO-RO vessels /To ease traffic congestion caused by car carriers behind Dr. Ambedkar Dock
Rationale	(refer to the Interim Report)

Construction Period/Cost		Period: Approximately 25 months Cost: Approximately USD 44.5 M
Prescreening		(refer to the Interim Report)
Project Effects	Quantitative Effect	/Loss of income by collapse of the entrance: 13.8Crore Rs/year /Normalization of traffic flow between car carriers and trailers: 3.4Crore Rs/year
	Qualitative Effect	/Improvement of safety /Improvement of cargo handling efficiency / productivity /Improvement of the environment
Implementation Scheme		/Public Fund /Own fund /Private Fund (including PPP for introduction of Multilayer car pool
Issues for Implementation		In addition to the issues of Project C & D, /Discontinuation of the use of the road between the JD yard and ONB /Further examination of introduction of multilayer car pool and integrated use with ONB yard

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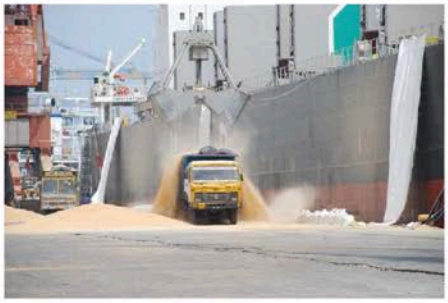
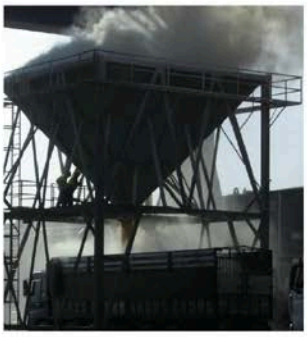
Interim Report

Priority Projects: Short-term project F





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Interim Report

Priority Projects- Short-term project F

	F
Project Name	Improvement of the Environment inside the Port
Target	vi) Improvement of the Environment
Purpose	/To improve the environment of the port; specifically to reduce dust generated from cargo handling
Scope	/To improve cargo handling method /To secure water and power resources /To further develop green areas /To introduce rules on port usage
Rationale	(refer to the Interim Report)

Construction Period/Cost		(refer to the Interim Report)
Project Effects	Qualitative Effect	/Improvement of the environment (such as protecting the health of port workers and users, preventing fatigue, and enhancing safety) /Improvement of productivity (in case of introduction of silo, etc.) /Improvement of the quality of transport service
Implementation Scheme		/Own fund /Private fund (participation in environment management) /Public fund (in case of installation of the large scale equipment)

Measures	Basic Idea
i) Improvement of cargo handling	To generate less dust and prevent dust dispersion by introducing equipment, materials and so on
ii) Securing of water and power resources	To obtain water and electricity necessary for maintaining the quality of the environment from natural surroundings.
iii) Introduction of Greenery	To develop a greenery plan and plant trees and grasses
iv) Improvement of the outdoor working conditions	To install necessary equipment such as sun shade and toile, etc. which are helpful to prevent diseases
v) Notification of and compliance with the rules for using port	To prepare general rules for the usage of the port in order to keep the port in environmentally sound condition

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Interim Report

Priority Projects: Short-term project IT-A

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Interim Report

Priority Projects- Short-term project IT-A

Project Name	IT - A
	Introduction of Web Portal System
Target	i) Visualization of congestion status of container trailers inside and outside the port ii) Sharing Key Performance Indicator (KPI) for traffic congestion among stakeholders
Purpose	To foster cooperation among stakeholders by sharing the common indicator which shows the degree of congestion and its improvement
Construction Period/Cost	Period: Approximately 12 months Cost: Approximately USD 1 M
Project Effects	1) Effects of measures on traffic congestion can be evaluated objectively among stakeholders 2) Cooperation among stakeholders is obtained 3) Image of Chennai Port is improved
Implementation Scheme	/Private fund /Public fund /Own Fund

Scope	1) Computer Server (Web/Database/Application, etc.) - To apply redundant fault tolerant hardware configuration - To include the necessary system software such as OS, DB, WEB, etc. - The implementation cost may be reduced by more than 50 % if these functions are implemented in the existing ChPT Homepage. 2) Cameras and data communication equipment, etc. - To link the existing CCTV system and obtain live pictures inside the Port - To implement Web cameras at key congestion points outside the Port. 3) Application Software - Connection with external systems - Publishing live pictures at congestion points - Publication of trailer movement statistics in real time, etc. - Publishing the statistics of traffic congestion inside and outside the Port. - Statistical functions currently provided in ChPT Homepage can be enhanced in the Web Portal System.

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Interim Report

Priority Projects: Short-term project IT-A

LeadTime among CFS/Port Gate/Terminals

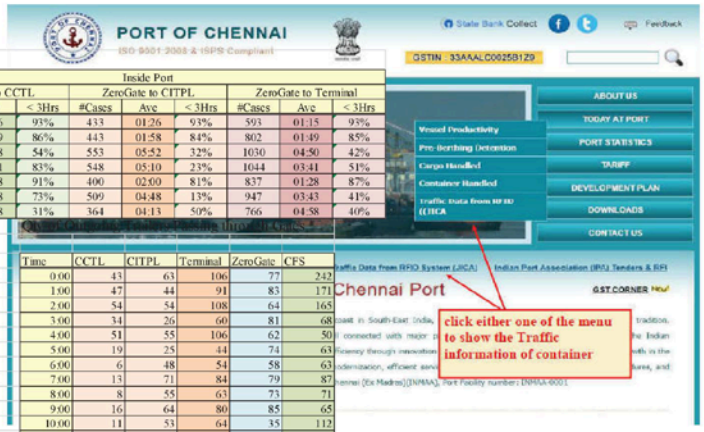
Date	Outside Port CFS to ZeroGate			Inside Port ZeroGate to CCTL			ZeroGate to CITPL			ZeroGate to Terminal		
	#Cases	Ave	< 12Hrs	#Cases	Ave	< 3Hrs	#Cases	Ave	< 3Hrs	#Cases	Ave	< 3Hrs
17/07/2017 (Mon)	925	04:45	96%	160	00:46	93%	433	01:26	93%	593	01:15	93%
18/07/2017 (Tue)	993	10:10	71%	359	01:39	86%	443	01:58	84%	802	01:49	85%
19/07/2017 (Wed)	1218	11:29	61%	477	03:38	54%	553	05:52	32%	1030	04:50	42%
20/07/2017 (Thu)	1176	07:37	86%	496	02:01	83%	548	05:10	23%	1044	03:41	51%
21/07/2017 (Fri)	1276	09:31	77%	437	00:58	91%	400	02:00	81%	837	01:28	87%
22/07/2017 (Sat)	1288	09:38	75%	438	02:28	73%	509	04:48	13%	947	03:43	41%
23/07/2017 (Sun)	779	10:07	75%	402	05:38	31%	364	04:13	50%	766	04:58	40%

Qty of Trailers Passing through CFS/Port Gate/Terminals

Summary for 17/07/2017 (Mon)

Time	CFS	ZeroGate	CCTL	CITPL	Terminal
0:00	140	84	23	29	52
1:00	121	43	6	33	39
2:00	81	36	11	38	49
3:00	92	97	19	24	43
4:00	75	70	19	30	49
5:00	97	59	20	29	49
6:00	94	51	2	19	21
7:00	104	44	4	22	26
8:00	112	32	1	11	12
9:00	103	58	3	30	33
10:00	106	30	3	23	26
11:00	149	82	2	25	27
12:00	177	82	0	11	11
13:00	164	37	2	24	26
14:00	140	88	2	22	24
15:00	146	82	3	22	25
16:00	156	86	6	23	29
17:00	149	95	3	27	30
18:00	197	51	3	22	25
19:00	193	74	8	19	27
20:00	197	72	17	17	34
21:00	176	33	13	31	44
22:00	170	86	18	17	35
23:00	211	79	18	35	53
Total	3350	1551	206	583	789
Average	139.6	64.6	8.6	24.3	32.9
Max	211	97	23	38	53

Time	CCTL	CITPL	Terminal	ZeroGate	CFS
0:00	43	63	106	77	242
1:00	47	44	91	83	171
2:00	54	54	108	64	165
3:00	34	26	60	81	68
4:00	51	55	106	62	50
5:00	19	25	44	74	63
6:00	6	48	54	58	63
7:00	13	71	84	79	87
8:00	8	55	63	73	71
9:00	16	64	80	85	65
10:00	11	53	64	35	112
11:00	7	70	77	91	102
12:00	21	51	72	92	125
13:00	30	59	89	23	110
14:00	14	43	57	92	91
15:00	21	54	75	90	104
16:00	15	62	77	84	139
17:00	19	63	82	85	154
18:00	18	68	86	79	163
19:00	25	55	80	66	196
20:00	17	55	72	47	258
21:00	33	38	71	24	215
22:00	37	41	78	76	241
23:00	47	60	107	84	231
Total	606	1277	1883	1704	3286
Average	25.3	53.2	78.5	71.0	136.9
Max	54	71	108	92	258



Demonstration trial of a Web-Portal system on Chennai HP is ongoing.

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Interim Report

Priority Projects- Short-term project IT-B

	IT - B
Project Name	Introduction of RFID based Harbor Entry Pass System
Target	iii) Improvement of port entry / exit procedures by issuing RFID based Harbor Entry Permit (HEP) iv) Improvement of port security v) Improvement of port entry / exit management functions
Purpose	To expedite port entry / exit procedure as well as improve port Security

Construction Period/Cost	Period: Approximately 12 months Cost: Approximately USD 3M
Project Effects	1) To strengthen Port entry / exit control 2) To utilize RFID based HEP for other purposes
Implementation Scheme	/Private fund /Public fund /Own Fund

Scope	1) Card issuing machine - A machine which issues HEP cards, etc. 2) Kiosk for entry /exit at Port gate - RFID reader for Port entry card, RFID reader for truck, etc. 3) Port entry card for persons x 10,000 - Passive RFID tag, photo of holder, etc. - FeliCa type RFID technology, which is commonly used in Japan and very reliable, is recommended. 4) RFID tags for trailers x 8,000 - To be attached on a front panel of a trailer - It must be examined whether RFID tag of container trailer used in NACFS RFID system can be also utilized for this application. 5) Computer servers - Cloud environment may be applied 6) Application software - To issue HEP and associate with RFID tag, etc. - To extend validity period of HEP - Reception function at Port Gate No.1 - 10 - To output statistical reports - Connection with external systems 7) Operational support - On site support for a few months after commencement of operation, etc.

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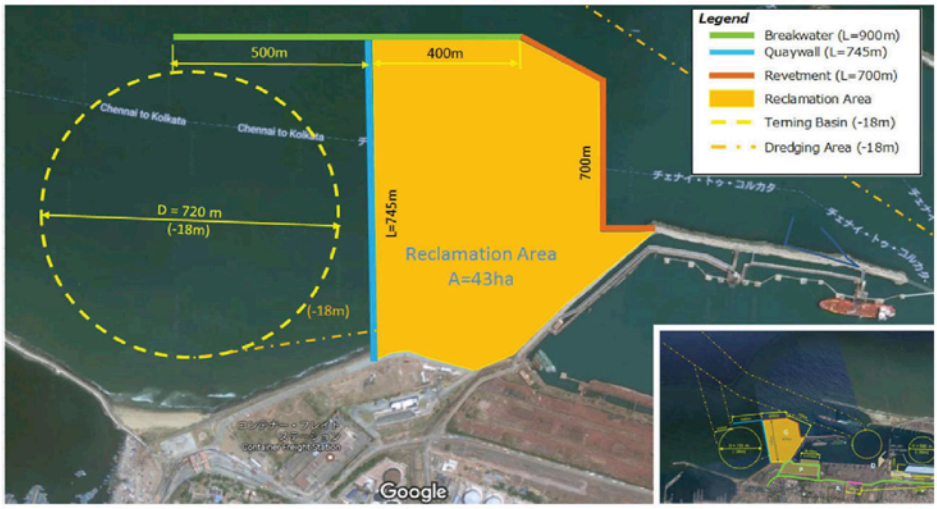
Interim Report

Priority Projects: Long-term project G



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Interim Report

Priority Projects: Long-term project G

Project Name	G
Expansion toward the Northern Area	
Target	vii) Securing future development space
Purpose	/To expand the northern area of the port as a strategic project for securing competitiveness, attracting port users and leading to the future generation of the port
Scope	/To develop large scale berths with the depth of 18m together with handling yard, a breakwater and channel for accepting world's largest class cruise and container vessels
Rationale	(refer to the Interim Report)

Construction Period/Cost		Period: Approximately 36 months Cost: Approximately USD 390 M .
Prescreening		(refer to the Interim Report)
Project Effects	Quantitative Effect	/Income from handling container (under the assumption that one of target cargoes is containers)
	Qualitative Effect	/Strengthening of competitiveness /Making the port more attractive to users /Expansion of business opportunities
Implementation Scheme		/Private fund (including PPP scheme and SPV scheme) /Public fund
Issues for Implementation		/This project is proposed from the long term point of view; therefore preparations should start from now. /Grasping the timing and volume of potential cargo is important /Further technical study is needed (specifically to grasp wave conditions) /Future direction of development and the intention of the Navy should be considered

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Interim Report

Priority Projects: Long-term project H

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Interim Report

Priority Projects: Long-term project H

	H
Project Name	Inter-connection of internal roads with the Maduravoyal elevated road project
Target	i) Normalization of traffic flow inside the Port
Purpose	/To improve the traffic flow and ease congestion inside the Port (Furthermore to ease congestion outside the port)
Scope	Option H-2: the flyover section of Option A-2 is to be connected directly with Maduravoyal elevated road (length of the flyover section is about 3.9km) (further idea: city traffic is to be allowed to pass through the Maduravoyal elevated road using the flyover section of the port.)
Rationale	(refer to the Interim Report)

Construction Period/Cost		Period: Approximately 36 months Cost: Approximately USD 236 M
Prescreening		(refer to the Interim Report)
Project Effects	Quantitative Effect	(refer to Project A)
	Qualitative Effect	/Normalization of the traffic flow /Reduction of congestion outside the port
Implementation Scheme		/Public Fund /Private Fund (including PPP scheme and SPV scheme)
Issues for Implementation		In addition to the issues of Project A, /Further study on project effects and implementation scheme is needed

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Interim Report

Project Considered: Project P

Redevelopment of Bharathi Dock II berth and yard for accommodating RO-RO vessels and car parking with a capacity of about 5,000 – 6,000 vehicles

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Thank you for your Attention

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