Republic of Mozambique
Ministry of Transport and Communications

The Project for Improvement of Nacala Port in Republic of Mozambique

Project Completion Report

March 2015

Japan International Cooperation Agency (JICA)

The Overseas Coastal Area Development Institute of Japan

EI
JR
15-047

Abbreviations

Abbreviation	Description
ADMAR	Administração Maritima
ASEAN	Association of South‐East Asian Nations
BOR	Berth Occupancy Ratio
CDN	Corredor de Desenvolvimento do Norte
CEO	Chief Executive Officer
CFM	Portos e Caminhos de Ferro de Moçambique
CFO	Chief Financial Officer
CHE	Container Handling Equipment
CP	Counterpart
CT	Container Terminal
CTMS	Container Terminal Management System
CY	Container Yard
D/D	Detail Design
EMS	Environmental Management System
FS	Feasibility Study
GAZEDA	Gabinete das Zonas Económicas de Desenvolivimento Acelerado
GDP	Gross Domestic Product
INATTER	Instituto Nacional de Transportes Terrestres
IT	Information Technology
JCC	Joint Coordination Committee
JICA	The Japan International Cooperation Agency
ME, MOE	Ministry of Energy / Ministério da Energia
MLIT	Ministry of Land, Infrastructure, Transport and Tourism
MOFA	Ministry of Foreign Affairs
MPD	Ministry of Planning and Development / Ministério da Planificação e Desenvolvimento
MTC	Ministry of Transport and Communications / Ministério dos Transportes e Comunicações
OCDI	The Overseas Coastal Area Development Institute of Japan
ODA	Official Development Assistance
OJT	On the Job Training
PDCA	Plan-Do-Check-Action
PDM	Project Design Matrix
PETROMOC	Petróleos de Moçambique, S.A.
PN	Portos do Norte, SA
QC	Quay Crane
R/D	Record of Discussion

Abbreviation	Description
RTG	Rubber Tyred Gantry Crane
SG	Ship Gear
TA	Technical Assistance
TEEN	Special Export Terminal in Nacala / Terminal Especial de Exportações de Nacala
TF	Task Force
TIC	JICA Tokyo International Center
TN	Terminais do Norte, SA
TOR	Terms of Reference
TOS	Terminal Operating System
WBS	Work Breakdown Structure
WSR	Waiting Time / Service Time Ratio

Contents

1. Outline of the Project

1.1 Introduction

In response to the request of the Government of the Republic of Mozambique, the Government of Japan has decided to implement "The Project for Improvement of Nacala Port in Republic of Mozambique" (hereinafter referred to as "the Project") based on the mutual understandings described in the Record of Discussions signed on December 22, 2011 between the Mozambican and Japanese sides.

The Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, started the Project in 2012 in close collaboration with pertinent authorities of the Government of the Republic of Mozambique. An expert team of the Overseas Coastal Area Development Institute of Japan (OCDI) (hereinafter referred to as "the Project Team") carried out technology transfer to the Mozambican side based on a contract with JICA.

1.2 Background of the Project

Nacala Port (hereinafter referred to as "the Port") is a gateway port in the Nacala Corridor area. Nacala Corridor area includes not only Northern provinces of Mozambique but also landlocked countries, Republic of Malawi and Republic of Zambia. Development of this area is one of the top priorities of the nation so as to fully realize its industrial potential. The rapid development of the area is generating increasing cargo traffic. In order to respond to the growing cargo, the efficiency of the Port needs to be improved.

1.3 Purpose of the Project

The purpose of the Project is described below:

(1) Overall Goal

The Nacala Corridor area is developed through the enhancement of trade and economic activities.

(2) Project purpose

Nacala Port is operated efficiently.

(3) Project output

1) Port development strategy is developed
2) The implementation structure for short-term development is revised and established

3) Capacity of the port administration and management is developed
4) Cargo handling skill is improved
5) Maintenance skill of the port facility and equipment is developed

1.4 Project site

Project site is Nacala Port and adjacent areas in Nampula Province of the Republic of Mozambique.

1.5 Concerned agencies on the Mozambican side

Following Mozambican agencies are concerned with the Project.

- MTC (Ministério dos Transportes e Comunicação)
- CFM (Portos e Caminhos de Ferro de Moçambique)
- CDN (Corredor de Desenvolvimento do Norte)
- PN (Portos do Norte, SA)

In the course of the Project, PN was established in March, 2013 as a subcontractor of CDN. Most of the employees of PN were transferred from the former Port Division of CDN at that time.

Contractual relationship and capital ties of those agencies are indicated in the figure below.

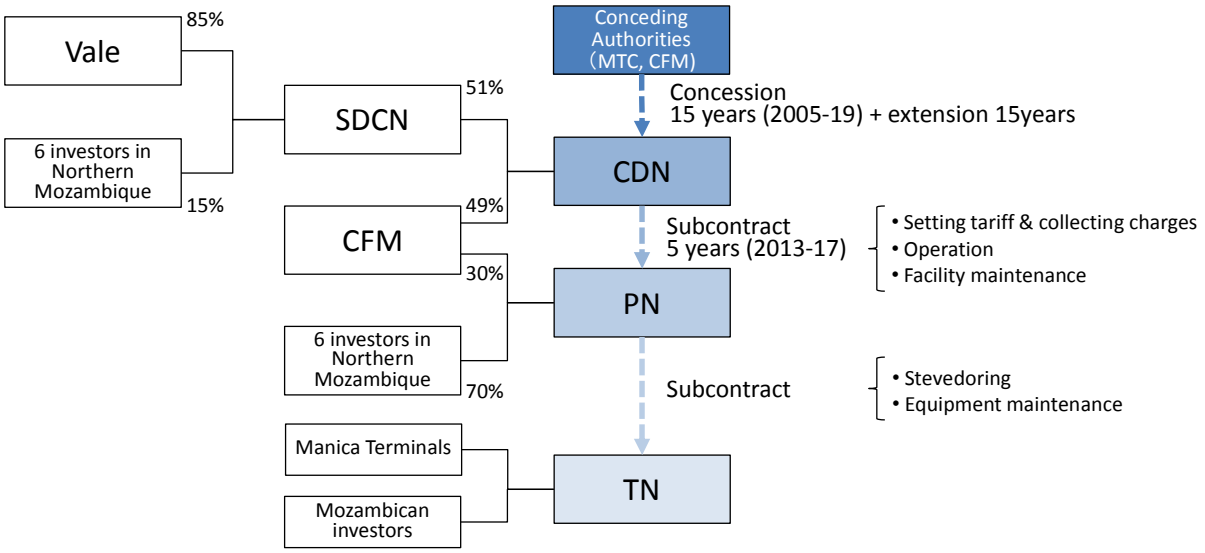


Figure 1.5-1 Concerning Mozambican Agencies

Vale: A Brazilian multinational diversified metals and mining corporation, also the largest producer of iron ore and pellets holding 35% of market share in the world. Vale also produces nickel (second largest), manganese, gold, copper, bauxite, potash etc. Vale runs railway, maritime transportation and power generation businesses as well.

2. Basic approaches to the Project implementation

The Project was implemented based on the following approaches:

2.1 Technical aspects

(1) Due consideration to the latest developments in the Port

Due consideration was given to the latest developments in and around the Port including the following factors:

1) Change in the capital composition of CDN
2) Rapid increase of container cargo exceeding the estimate in "The Preparatory Survey on Nacala Port Development Project in the Republic of Mozambique, June 2011"
3) Sub-concession of the port operation from CDN to PN in 2013
4) Progress of the Japanese ODA projects

(2) Full use of the experience of the Overseas Coastal Area Development Institute of Japan (OCDI)

JICA experts for the Project were provided by OCDI. OCDI fully utilized the experience it acquired through the following projects in which it took leading roles:

1) The Preparatory Survey on Nacala Port Development Project in the Republic of Mozambique, June 2011
2) The Data Collection Survey on the Nacala Port Improvement Project, November 2011
3) The Study on the Improvement of Port Cargo Flows in Major Corridors in the Republic of Mozambique, 2009

(3) Assignment of the most appropriate experts

The members of the Project Team were assigned taking account of their expertise required for its successful completion. Areas of expertise are: port development planning, port administration and management, port cargo handling, and facility and equipment maintenance.

(4) Due consideration to the present conditions of the Port and counterparts

In order to maximize the effects of technology transfer, due consideration was given to the present conditions of hardware and software in the Port as well as the experience and competency of counterparts.

(5) Close coordination with related cooperation projects

The Project was carried out maintaining close coordination with related cooperation projects

including the grant aid contemplated for the urgent rehabilitation of the North Wharf and JICA loans considered for the Port capacity enhancement.

(6) Close coordination among experts

In order to ensure the smooth operation of the Project, JICA experts established close coordination among their activities.

(7) Due consideration to the sustainability of the Project outputs

Due consideration was given to the sustainability of the Project outputs so that the Mozambican side can maintain efficient port operation after the Project is completed.

2.2 Operational aspects

(1) Project management based on the Work Plan

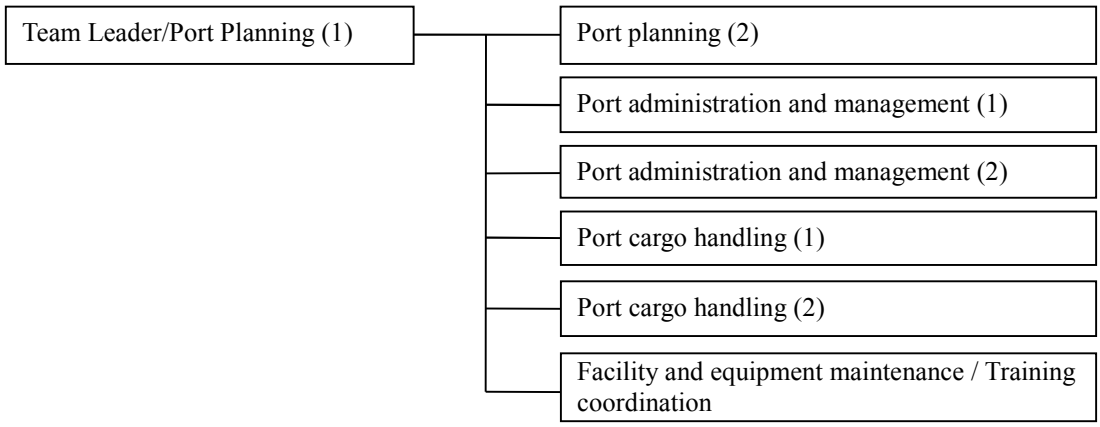
The Project Team and the Mozambican counterpart agencies agreed on the Work Plan in April 2012 and carried out the Project accordingly.

(2) Capacity development through workshops, seminar, OJT, and training

In order to achieve effective technology transfer, the Project employed various methods such as workshops, seminar, OJT (on the job training), and overseas training.

3. Activities

3.1 Dispatch of experts



JICA dispatched expert teams ten times to Mozambique between April 2012 and February 2015.

Table 3.1-1 Assignment of Experts

Field of expertise	Name	Duration
Team Leader/Port Planning (1)	Mr. Mitsuhiko Okada	1st dispatch: 7th Apr - 27th Apr, 2012 2nd dispatch: 1st Jun - 16th Jun, 2012 3rd dispatch: 4th Sep - 24th Sep, 2012 5th dispatch: 6th Apr - 20th Apr, 2013 7th dispatch: 7th Dec -21st Dec, 2013 8th dispatch: 15th Apr - 4th May, 2014 9th dispatch: 30th Aug - 20th Sep, 2014 10th dispatch: 25th Jan – 14th Feb, 2015
Port Planning (2)	Mr. Yutaka Miyaji	4th dispatch: 3rd Dec - 23rd Dec, 2012
	Dr. Osamu Kunita	6th dispatch: 10th Jun- 30th Jun, 2013
Port Administration & Management (1)	Mr. Kiyoshi Nakashima	1st dispatch: 7th Apr - 5th May, 2012 4th dispatch: 3rd Dec - 23rd Dec, 2012 5th dispatch: 6th Apr - 28th Apr, 2013 6th dispatch: 10th Jun - 30th Jun, 2013 8th dispatch: 15th Apr - 4th May, 2014 10th dispatch: 25th Jan – 14th Feb, 2015
Port Administration & Management (2)	Capt. Teruki Eto	2nd dispatch: 1st Jun - 16th Jun, 2012 3rd dispatch: 4th Sep - 24th Sep, 2012 4th dispatch: 3rd Dec - 23rd Dec, 2012 6th dispatch: 11th Jun - 30th Jun, 2013 7th dispatch: 7th Dec - 21st Dec, 2013 9th dispatch: 30th Aug - 20th Sep, 2014 10th dispatch: 25th Jan – 14th Feb, 2015
Port Cargo Handling (1)	Mr. Masao Ichinose	1st dispatch: 7th Apr - 5th May, 2012
Port Cargo Handling (2)	Mr. Susumu Kimura	3rd dispatch: 4th Sep - 27th Sep, 2012 4th dispatch: 3rd Dec - 23rd Dec, 2012 5th dispatch: 6th Apr - 28th Apr, 2013 7th dispatch: 7th Dec - 21st Dec, 2013 8th dispatch: 15th Apr - 4th May, 2014 9th dispatch: 30th Aug - 20th Sep, 2014 10th dispatch: 25th Jan – 14th Feb, 2015

Field of expertise	Name	Duration
Facility and Equipment Maintenance / Training Coordination	Mr. Tatsuo Kawabata	1st dispatch: 7th Apr - 27th Apr, 2012 2nd dispatch: 1st Jun - 16th Jun, 2012 3rd dispatch: 4th Sep - 27th Sep, 2012 5th dispatch: 6th Apr - 28th Apr, 2013
	Mr. Masaomi Komoto	6th dispatch: 10th Jun - 30th Jun, 2013 7th dispatch: 7th Dec - 21st Dec, 2013 8th dispatch: 15th Apr - 4th May, 2014 9th dispatch: 30th Aug - 19th Sep, 2014

3.2 Assignment of counterparts

Project coordinator of MTC appointed counterparts of the Project from pertinent agencies including MTC, CFM, CDN, and PN. Counterparts were nominated for each area of technology transfer: port planning, port administration, cargo handling, and maintenance. The counterparts joined forces with the JICA team to achieve the Project outputs and acted as the focal point of technology transfer in the Project. During the project implementation, more than 30 counterparts were invited to Japan and participated in counterpart training programs.

3.3 Taskforces

In order to effectively carry out technology transfer in Mozambique, the Project Team and Mozambican counterparts set up a taskforce group for each area of technology. Both sides assigned participants in taskforce meetings according to their expertise (See Appendix-2 Record of Task Force Meetings).

Table 3.3-1 Taskforce Groups

TF No.	Taskforce Group	Number of TF meetings held	Number of counterparts participated
General	General	10	125
TF-1	Port Planning	8	120
TF-2	Port Administration & Management	13	170
TF-3	Cargo Handling	16	190
TF-4	Maintenance of Cargo Handling Equipment	10	94
TF-5	Infrastructure Maintenance	15	110
	Total	72	809

Task force meetings were held 72 times in total through experts' dispatches made 10 times during 3 years (Table 3.3-2).

Table 3.3-2 List of Task Force Meetings

No.	Dispatch	Session No.	TF No.	Title	Date
1	4th	1	TF-4	Meeting for Maintenance of CHE (Container Handling Equipment)	2012-12-11
2	4th	2	TF-3	Cargo Handling: IT technology in CT Business and its Necessity	2012-12-11

No.	Dispatch	Session No.	TF No.	Title	Date
3	4th	3	TF-1	Meeting for Port Plan and Meeting for Port Administration and Management	2012-12-12
4	4th	4	TF-1	Meeting for Port Plan (World Shipping Trend)	2012-12-13
5	4th	5	TF-1	Meeting for Port Plan	2012-12-14
6	4th	6	TF-4	Meeting for Maintenance of CHE	2012-12-17
7	4th	7	TF-3	Cargo Handling: Methods of Handling Shipping Data	2012-12-17
8	4th	8	TF-2	Meeting for Port Administration and Management (Port EDI system of Japan)	2012-12-17
9	4th	9	TF-2	Meeting for Process Management Port Administration and Management (Project management)	2012-12-18
10	5th	1	TF-3	Meeting for Cargo Handling: IT System of CT Operation	2013-4-12
11	5th	2	TF-5	Meeting of Maintenance of Port Facilities: Preventive Maintenance / Maintenance Management	2013-4-12
12	5th	3	TF-1	Meeting for Port Plan	2013-4-12
13	5th	4	TF-2	Meeting for Port Administration & Management (Laws and Regulations)	2013-4-12
14	5th	5	TF-4	Meeting for Maintenance of Cargo Handling Equipment: Action Plan on the Improvement of Handling Equipment	2013-4-12
15	5th	6	TF-1	Meeting for Port Plan	2013-4-13
16	5th	7	TF-5	Meeting for Maintenance of Port Facilities: Preventive Maintenance / Maintenance Management	2013-4-13
17	5th	8	TF-1	Meeting for Port Plan	2013-4-15
18	5th	9	TF-2	Meeting for Port Administration and Management (Privatization of CT)	2013-4-15
19	5th	10	TF-4	Training session of Maintenance of Cargo Handling Equipment: Spare Part List for Periodically Replaced Parts and Emergency Parts	2013-4-15
20	6th	3	TF-3	Meeting for Cargo Handling	2013-6-18
21	6th	4	TF-5	Meeting of Maintenance of Port Facilities	2013-6-18
22	6th	5	TF-1	Meeting for Port Plan	2013-6-18
23	6th	6	TF-2	Meeting for Port Administration & Management	2013-6-19
24	6th	7	TF-1	Meeting for Port Plan	2013-6-19
25	6th	8	TF-5	Meeting for Maintenance of Port Facilities	2013-6-20
26	6th	9	TF-3	Meeting for Cargo Handling	2013-6-20
27	6th	10	TF-2	Meeting for Port Administration & Management	2013-6-20
28	6th	11	TF-3	Meeting for Cargo Handling	2013-6-21
29	6th	12	TF-2	Meeting for Port Administration & Management	2013-6-21
30	6th	13	TF-5	Meeting for Maintenance of Port Facilities	2013-6-24
31	7th	1	General	Discussion on TA plan of 7th dispatch and monitoring indicators	2013-12-11
32	7th	2	TF-5	Discussion on the maintenance plan of infrastructures (based on the result of survey by Geoibericos)	2013-12-11
33	7th	3	TF-3	Discussion on the revision of Phaeros system (upgrading plan by Phaeros engineers)	2013-12-12
34	7th	4	TF-5	Survey of infrastructures with Mozambican counterpart	2013-12-12
35	7th	5	TF-2	Discussion on the regulation of safety and the regulation of port operations (based on the comments of JICA TA Team)	2013-12-13
36	7th	6	TF-3	Survey of Nacala 2nd Port (Dry Port)	2013-12-16
37	7th	7	TF-5	Discussion on the result of infrastructure monitoring carried out by Mozambican counterpart	2013-12-16
38	7th	8	TF-4	Discussion on equipment maintenance	2013-12-16
39	7th	9	General	Wrap-up meeting	2013-12-16

No.	Dispatch	Session No.	TF No.	Title	Date
40	7th	10	TF-3	Discussion on productivity of container handling operation including dry port issues (extra session 1)	2013-12-17
41	7th	11	TF-5	Monitoring of infrastructures (extra session 2)	2013-12-18
42	8th	1	General	Discussion on Technical Assistance plan of 8th dispatch	2014-4-21
43	8th	2	TF-5	Discussion on the maintenance plan of infrastructures	2014-4-21
44	8th	3	TF-5	Joint site monitoring of the infrastructure	2014-4-22
45	8th	4	TF-5	Discussion on South Wharf Countermeasures	2014-4-22
46	8th	5	TF-4	Joint site monitoring of the equipment	2014-4-23
47	8th	6	TF-4	Discussion on Equipment Maintenance	2014-4-23
48	8th	7	TF-3	Discussion on the progress of the Phaeros system upgrading	2014-4-24
49	8th	8	TF-3	Discussion on improvement of dry port and procurement of spreaders with flippers	2014-4-24
50	8th	9	TF-2	Seminar for safety regulation of Nacala Port	2014-4-25
51	8th	10	TF-2	Lectures on “5S” and Environmental Management	2014-4-25
52	8th	11	General	Wrap-up Meeting: Steps to be taken until the 9th dispatch (September, 2014) and Progress of the Project based on PDM	2014-4-28
53	9th	1	General	Discussion on Technical Assistance plan of 9th dispatch	2014-9-4
54	9th	2	General	Discussion on Progress since April	2014-9-4
55	9th	3	General	Review of PN statistics	2014-9-5
56	9th	4	TF-3	Visit to the dry terminal and TEEN terminal	2014-9-5
57	9th	5	TF-5	Infrastructure maintenance (1): Infrastructure Monitoring & Basics of Level Survey	2014-9-9
58	9th	6	TF-5	Infrastructure maintenance (2): Joint Inspection	2014-9-9
59	9th	7	TF-4	Equipment maintenance (1)	2014-9-10
60	9th	8-1	TF-5	Infrastructure maintenance (3): Field Training of Level Survey	2014-9-10
61	9th	8-2	TF-4	Equipment maintenance (2)	2014-9-10
62	9th	9	TF-3	Upgrade status of Phaeros system	2014-9-11
63	9th	10	TF-2	“5S” Training: Guidance	2014-9-11
64	9th	11	TF-2	“5S” Training: Field Training (1)	2014-9-12
65	9th	12	TF-2	“5S” Training: Field Training (2)	2014-9-12
66	9th	13	General	Wrap-up meeting	2014-9-15
67	10th	1	General	Presentation of Completion Report	2015-1-30
68	10th	2	TF-4/ TF-5	Site monitoring of the infrastructure and equipment	2015-1-30
69	10th	3	TF-3	Site monitoring of the dry terminal	2015-2-2
70	10th	4	TF-3	Discussion on data compilation	2015-2-2
71	10th	5	TF-3	Countermeasure against high wind in the container yard	2015-2-4
72	10th	6	General	Wrap-up meeting	2015-2-6

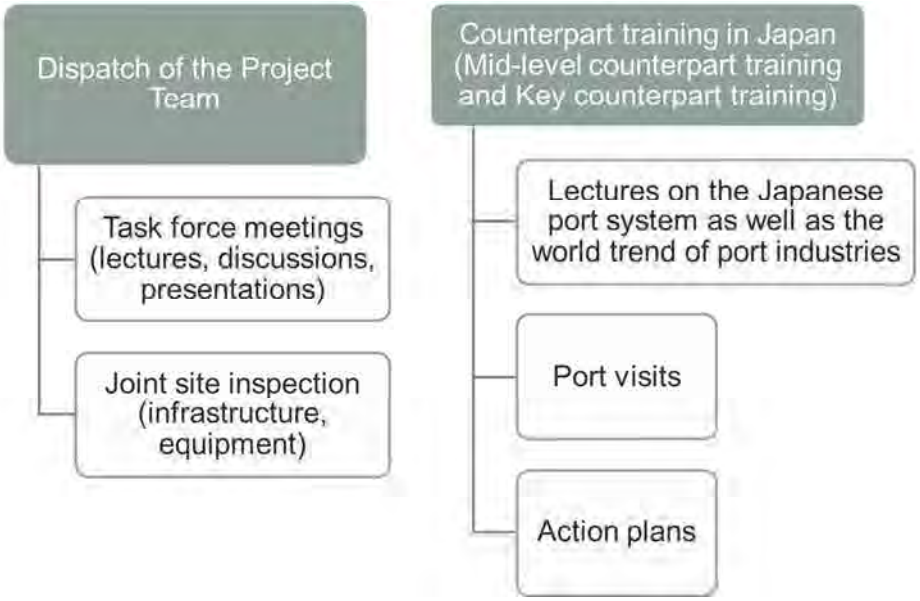


Figure 3.3-1 Methodology of technology transfer

3.4 Counterpart training in Japan

During the course of the Project, the Project Team carried out four counterpart training programs in Japan. Out of the four programs, one was tailored for key counterparts and the other three were prepared for mid-level counterparts.

Table 3.4-1 Participants of counterpart training programs in Japan

Organization	Key counterparts	Mid-level counterparts	Total
MTC/ME	1	3	4
CFM	2	12	14
CDN		6	6
PN	1	8	9
TN		2	2
Total	4	31	35

(1) The 1st counterpart training in Japan (20 Aug 2012 – 31 Aug 2012)

List of Trainees

No.	Full Name	Organization	Job Title	Remarks
1	Maria Fernanda de Carvalho	MTC	Accountant	
2	Critiano Oliveira	CFM	Engineer Civil	
3	Braulio Franco Catutula	CFM	Técnico de Suportes Informáticos	
4	Nauaia Omar Mahonca	CFM	Conferente "A"	
5	Nilsa da Gloria Luis	CFM	Técnica de Contabilidade "C"	
6	Alfredo Rafael Sigola	CFM	Engineer Civil	
7	Lucas Jose Cipriano	CDN	PORT OPERATIONS MANAGER	
8	Bonifacio Alvaro Muassabao	CDN	GENERAL CARGO MANAGER	
9	Eusebio Ananias Ramos Logizela	CDN	Supervisor of Container Handling System	
10	Danilo Abdula Laisse	ME	Superintendent of the Terminal of PETROMOC Nacala Port	

Training Program

Date		Time	Program	Lecturer	Venue
20-Aug	Mon	9:00-11:30	JICA Briefing	JICA,OCDI	Yokohama
		11:30-12:30	JICA Orientation	JICA, OCDI	Yokohama
		13:30-15:00	Moving (Yokohama->Tokyo)	JICA, OCDI	-
		15:00-15:30	Courtesy call to JICA	JICA	Tokyo
		16:00-16:30	Courtesy call to MLIT	MLIT	Tokyo
		17:00-17:30	Courtesy call to OCDI	OCDI	Tokyo
		17:30-19:30	Moving (Tokyo->Yokohama)	JICA, OCDI	-
21-Aug	Tue	9:00-10:00	Moving (Yokohama->Tokyo)	JICA	―
		10:00-11:30	Lecture: Japan's ports and economic development	OCDI (Okada)	OCDI
		13:00-14:30	Lecture: Port Cargo Handling and Nacala Port Operation	OCDI (Eto)	OCDI
		15:00-16:30	Lecture: Maintenance for Cargo handling Equipment	OCDI (Kimura)	OCDI
		17:00-19:00	Welcome Party at Tokyo (17:00-19:00)	JICA, OCDI	Akasaka
		20:00-21:30	Moving (Tokyo->Yokohama)	JICA, OCDI	―
22-Aug	Wed	10:00-11:30	Lecture: Maintenance for Infrastrucure	OCDI (Kawabata)	YIC
		13:30-16:30	Field Study: Maintenance for Port Infrastructure	OCDI (Kawabata)	Yokohama Port
		16:30-18:00	Moving (to Yokohama)	JICA, OCDI	-
23-Aug	Thu	9:00-10:00	Courtesy Call on Yokohama port administration office	Port authority, JICA, OCDI	Yokohama port
		10:00-12:00	Study: Rolls of port administrator of Yokohama port	Port authority, JICA, OCDI	Yokohama port
		13:30-17:00	Field Study: Daikoku Container Terminal	Port authority, JICA, OCDI	Yokohama port
24-Aug	Fri	10:10-11:20	Field Study: Yokohama Port (Observation by a boat)	Port authority, JICA, OCDI	Yokohama port
		10:40-12:00	Field Study: Yokohama Port passenger terminal	Port authority, JICA, OCDI	Yokohama port
		13:30-16:00	Study: Maintenance of Tokyo Port Infrastructure (including Honmoku Container Terminal Field Study)	Port authority, JICA, OCDI	Yokohama port
25-Aug	Sat	All day	Preparation of Report / Drafting of Action plan / Preparing of Questionnaire	-	PC room in YIC
26-Aug	Sun	All day	Preparation of Report / Drafting of Action plan / Preparing of Questionnaire	―	PC room in YIC
27-Aug	Mon	All day	Moving (Yokohama->Haneda->Oita)	JICA, OCDI	-
28-Aug	Tue	9:00-10:00	Study: Outline of Equipment Manufacturer; MES	MES, JICA, OCDI	MES Oita
		10:15-12:00	Field Study: MES Plant for Port Stevedoring Equipment	MES, JICA, OCDI	MES Oita
		13:30-16:00	Lecture and Field Study: Maintenance of Port Stevedoring Equipment	MES, JICA, OCDI	MES Oita
29-Aug	Wed	All day	Moving (Oita->Haneda->Yokohama)	JICA, OCDI	-
30-Aug	Thu	9:00-10:30	Report: Preparation of Final Report and Action Plan	OCDI	YIC
		10:30-11:30	Discussion : Issues of Nacala Port	OCDI	YIC
		11:30-12:30	Discussion : Countermeasures to solve the issues of Nacala Port	OCDI	YIC
		14:00-16:30	Discussion : Action Plan for Nacala Port Development	OCDI	YIC
		16:30-18:00	Report: Preparation of Final Report and Action Plan	OCDI	YIC
31-Aug	Fri	10:00-12:00	Moving (Yokohama->Tokyo)	-	JICA Tokyo
		13:00-15:00	PRESENTATION; Final Report and Action Plan Preparation	JICA and OCDI	JICA Tokyo
		16:00-16:00	Evaluation discussions and Closing ceremony	JICA and OCDI	JICA Tokyo
		16:00-17:30	Moving (Tokyo->Yokohama)	-	JICA Tokyo

(2) The 2nd counterpart training in Japan (2 Sep 213 – 13 Sep 2013)

List of trainees

No.	Full Name	Country	Organization	Department	Position
1	Ms. SIMTE Lineza Amarpope	Mozambique	Portos do Norte('07)	Port Operations	Lecturer
2	Mr. QUINANE Atumane	Mozambique	Portos do Norte('13)	Port Operations	Port Operations Coordinator
3	Mr. MADEIRA Cremildo Rafael Da Silva	Mozambique	Portos do Norte('08)	Environment, Health and Safety	Coordinator
4	Mr. JUNIOR Afonso Vasco Da Cunha	Mozambique	Portos do Norte('13)	Maintenance Division	Maintenance Division Chief
5	Mr. INDUNA Neimo Da Esperanca Albert	Mozambique	Portes do Norte('13)	Port operations	Container Yard Manager
6	Ms. MATSINHA Anabela Emilia	Mozambique	Mozambique Ports and Railways('08)	Executive Directorate - CFM South	Civil Engineering and Transport
7	Mr. BAINHA Arceliu Lopes	Mozambique	Mozambique Ports and Railways, CFM Soth ('07)	Executive Directorate	Civil Engineer
8	Mr. MAFUCA Alfredo Artur	Mozambique	Mozambique Ports and Railways, CFM North('08)	Nacala Port Bulk Liquid Terminal	Manager
9	Ms. BENE Filomena Jose	Mozambique	CFM CENTRO('13)	Port Infrastructure Maintenance	Head of Department
10	Mr. BINZE Cesar Tomocene	Mozambique	CFM CENTRO('10)	Port Infrastructure Maintenance	Civil Engineer

Training Program

Date		Time	Program	Lecturer	Venue
2-Sep	Mon	9:00-12:00	JICA briefing on the stay in Japan	JICA	TIC
		13:30-14:30	Program Orientation	JICA, OCDI	TIC
		14:30-15:30	Moving (TIC->MLIT)	JICA, OCDI	-
		15:30-16:00	Courtesy call to MLIT	MLIT	MLIT
		16:00-16:30	Moving (MLIT->OCDI)	JICA, OCDI	-
		16:30-17:00	Courtesy call to OCDI	OCDI	OCDI
		17:30-19:30	Moving (OCDI->TIC)	JICA, OCDI	-
3-Sep	Tue	9:00-10:00	Moving (TIC->OCDI)	JICA	-
		10:00-11:30	Lecture: Japanese ports and economic development	OCDI (Okada)	OCDI
		13:00-14:30	Lecture: General consideration on cargo handlings, Operations at Nacala Port	OCDI (Eto)	OCDI
		15:00-16:30	Lecture: Maintenance of cargo handling equipment	OCDI (Kimura)	OCDI
		17:00-19:00	Welcome Party at Kojimachi, Tokyo (17:00-19:00)	JICA, OCDI	Tokyo
		19:00-20:00	Moving (venue->TIC)	JICA, OCDI	-
4-Sep	Wed	9:00-10:00	Lecture: Maintenance of port infrastrucure	OCDI (Komoto)	TIC
		10:00-11:00	Safety During Construction Work	TOA (Tomita)	TIC
		11:30-13:30	Lunch, moving (TIC->Toa Yokohama->Yokohama Port, Minami Hommoku),	JICA, OCDI	-
		13:30-16:30	Field study: Maintenance of port infrastructure (Yokohama Port)	TOA (Mikutsu)	Yokohama
		16:30-18:00	Moving (Yokohama->TIC)	JICA, OCDI	-
5-Sep	Thu	9:00-14:00	Moving (TIC->Tokyo Station->Sendai)	JICA, OCDI	-
		14:00-15:30	Lecture: Reconstuction of ports in Tohoku region after the earthquake disaster	MLIT (Tohoku)	Sendai
		15:30-17:00	Field study: Sendai City	JICA, OCDI	Sendai
6-Sep	Fri	9:30-10:00	Moving (Hotel->Sendai Port)	JICA, OCDI	-
		10:00-10:50	Field study: Sendai Port (Takasago Container Terminal)	MLIT (Tohoku)	Sendai
		11:00-12:00	Field study: Sendai Port (JX oil refinery)		Sendai
		12:00-17:00	Lunch - field study: Ishinomaki City - Sendai Station		Ishinomaki
		17:26-20:00	Moving (Sendai Station->Tokyo Station->TIC)	JICA, OCDI	-
7-Sep	Sat	All day	Preparation of report/action plan/questionnaires	-	TIC
8-Sep	Sun	All day	Preparation of Report / Drafting of Action plan / Preparing of Questionnaire	-	TIC
9-Sep	Mon	All day	Moving (TIC->Haneda->Oita->Beppu)	JICA, OCDI	-
10-Sep	Tue	8:20-9:00	Moving (Beppu->MES Oita)	JICA, OCDI	-
		9:00-10:00	Lecture: Overview of Mitsui Engineering & Shipbuilding (MES); stevedoring equipment manufacturer	MES	MES
		10:15-12:00	Field Study: MES Oita Plant		
		13:30-16:30	Lecture and field study: Maintenance of stevedoring equipment		
11-Sep	Wed	All day	Moving (Oita->Haneda->TIC)	JICA, OCDI	-
12-Sep	Thu	9:00-10:30	Discussion : Issues of Nacala Port	OCDI	TIC
		10:30-12:00	Discussion : Countermeasures to solve the issues of Nacala Port		
		13:00-15:00	Discussion : Action plan for the development of Nacala Port		
		15:00-17:00	Preparation of final report and action plan		
13-Sep	Fri	10:00-11:00	Presentation; final report and action plan	JICA and OCDI	TIC
		11:00-12:00	Evaluation discussions and closing ceremony		

(3) The 3rd counterpart training in Japan (28 Jul 2014 – 8 Aug 2014)

List of Trainees

No.	Full Name	Position, Department, Organization	Remarks
1	Mr. ADUDOSSOMADO Zacarias Andarusse	Safety technician, Maritime services, Corredor de Desenvolvimento do Norte S.A(2013)	
2	Mr. CANDIDO Antonio Frederico	Deputy manager of port operations, Port-marit,ime services, Corredor de Desenvolvimento do Norte S.A(2014)	
3	Mr. MUSSA Ibraimo Nazimo	Port operations analyst, Maritime services, Corredor de Desenvolvimento do Norte S.A(2013)	
4	Ms. RIBEIRO Loni Jacqueline	Commercial Manager, Commercial division, Portos do Norte(2013)	
5	Mr. DIOGO Luis Alvito	Equipment manager, Maintenance division, Portos do Norte, S.A.(2014)	
6	Mr. FAQUIHE Abudo Sele	Civil Engineer Manager, Project Management Unit, Portos do Norte, S.A(2014)	
7	Mr. SALOMAO Helvio Jesus Correia	Manager of Operations, Port operations, Terminais do Norte S.A.(2010)	
8	Mr. LANGA Jaime Pedro	Operations, Port operations, Terminais do Norte S.A.(2013)	
9	Mr. JORGE Edgar Frederico	Chief supervisor, Engineering division, Mozambique ports and rail ways(2014)	
10	Mr. NGOCA Tomas Fortunato	Trainee on locomotive mechanic, Motor equipment department, Railways of Mozambique(2013)	
11	Mr. LANGA Samuel Joao	Lawyer, Legistics (Laws), National Institute for Land Transports(2007)	

Training Program

Date		Time	Contents		Lecturer / Attendant	Venue
28-Jul	Mon	9:30-12:00	Orientation	JICA briefing on the stay in Japan	JICA	TIC
		13:30-14:00	Orientation	Program Orientation	Komoto (OCDI)	
		14:00-15:00		TIC -> Kasumigaseki		
		15:00-15:30	Courtesy Call	Courtesy call to MLIT	Mr. Nakazaki (MLIT)	MLIT
		15:30-17:00		Kasumigaseki -> Hanzomon		
		17:00-17:30	Courtesy Call	Courtesy call to OCDI	OCDI	OCDI
		17:30-19:00		Welcome Party at OCDI	Komoto (OCDI)	
29-Jul	Tue	10:00-11:30	Lecture	Industrial Development Strategy of Mozambique	Nakashima (OCDI)	OCDI
		13:00-14:30	Lecture	Cargo handling operations at Nacala Port	Capt. Eto (OCDI)	
		15:00-16:30	Lecture	Maintenance of port infrastrucure	Prf. Iwanami (TIT)	
30-Jul	Wed	10:00-12:00	Field Study	Minamihonmoku Container Terminal Construction Site	Mr. Mikutsu (TOA)	Yokohama
		12:00-14:00		Minamihonmoku -> Kurihama		
		14:00-16:30	Lecture & Field Study	Measures against deterioration in port structures	Mr. Yamaji (PARI)	PARI
31-Jul	Thu	10:00-11:30	Lecture	General Presentation for Container Handling Cranes	Mr. Ichimura (MES)	OCDI
		13:00-14:30	Lecture	Safety during construction	Mr. Tomita (TOA)	
		15:00-16:30	Lecture	Environment control during construction		
1-Aug	Fri	10:00-12:00	Lecture	History and current operation of Yokohama Port	POY / YPC	Yokohama Port
		13:30-14:30	Field Study	Yokohama Port by ship		
		14:30-16:00	Field Study	Daikoku Container Terminal		
2-Aug	Sat					
3-Aug	Sun					
4-Aug	Mon			TIC->Haneda->Oita->Beppu		
5-Aug	Tue	9:00-10:00	Lecture	Overview of Mitsui Engineering & Shipbuilding; cargo handling equipment manufacturer	MES Oita	MES Oita
		10:15-12:00	Field Study	MES Oita Factory Tour		
		13:10-16:30	Lecture	Maintenance of cargo handling equipment		
6-Aug	Wed	10:00-12:00	Field Study	JX Oita Refinary Tour	JX Oita	JX Oita
				Oita->Haneda->TIC		
7-Aug	Thu	10:00-11:30	Discussion	Issues of Nacala Port	Komoto (OCDI)	TIC
		13:00-14:30	Discussion	Countermeasures to solve the issues of Nacala Port		
		15:00-16:30	Discussion	Action plan for the development of Nacala Port		
8-Aug	Fri	10:00-11:00	Presentation	Final report and action plan	JICA and OCDI	TIC
		11:00-12:00	Closing	Evaluation discussions and closing ceremony		

(4) Key counterpart training in Japan (8 Jul 2013 – 19 Jul 2013)

List of trainees

No.	Full Name	Organization	Position
1	Dr. Ana Dimande	Ministry of Transport and Communications	Project Manager, Nacala Port Rehabilitation Unity
2	Paulo Jafar Tarmamade	Mozambique Ports and Railways	Advisor and Team Leader of CFM Team, Board of Directors, Nacala Port
3	Jeremias Fernando Numes do Rego	Mozambique Ports and Railways	Terminal Manager, Port of Beira, Oil Jetty, Quay #12
4	Agostinho F. Langa Jr.	Portos de Norte, SA	Chief Operations Officer (COO), Port of Nacala

Training program

Date		Time	Contents	Lecturer / Attendant	Venue
8-Jul	Mon	9:00-11:30	JICA Tokyo Briefing	JICA	TIC
		11:30-12:00	Orientation by OCDI	OCDI	TIC
		12:00-14:30	Lunch (TIC) and Moving (TIC => Kojimachi)		-
		14:30-15:00	Courtesy call to JICA Head office	JICA	Tokyo
		15:30-16:00	Courtesy call to Ministry of Foreign Affairs	MOFA	Tokyo
		16:30-17:00	Courtesy call to MLIT	MLIT	Tokyo
		17:30-18:00	Courtesy call to OCDI	OCDI	Tokyo
		18:30-20:00	Welcome Party	JICA, MLIT, MOFA, OCDI	Tokyo
9-Jul	Tue	10:00-11:30	Lecture: Port and regional development	Professor Ikeda	OCDI
		13:00-14:30	Lecture: Updated situations and future development of world-wide port	IAPH	OCDI
		14:30~15:30	Moving (Kojimachi => Ooi Terminal)		
		15:30-17:00	Lecture: Japanese port stevedoring and transporting industry	Utoku Corporation	Tokyo Port (Ooi Terminal)
10-Jul	Wed	10:00-10:15	Courtesy Call on Yokohama port administration office	OCDI (Komoto)	Yokohama port
		10:15-11:00	Study: Rolls of port administrator and History of Yokohama port development	Port authority, JICA, OCDI	Yokohama port
		11:15-12:00	Study: Rolls of port operation company and maintenance of cargo handling equipment and infrastructure	Yokohama Port Corporation	Yokohama port
		13:30-14:30	Field Study: Yokohama port tour	Port authority, JICA, OCDI	Yokohama port
		14:30-16:00	Field Study: Honmoku Container Terminal	Yokohama Port Corporation	Yokohama port
11-Jul	Thu	9:00-9:30	Courtesy Call to Embassy of Mozambique	Embassy of Mozambique	Tokyo
		9:30-10:00	Moving (Tamachi => Kojimachi)		
		10:00-11:30	Lecture: Business of world shipping industry	OCDI (Nakashima)	OCDI
		13:00-14:30	Discussion : Understanding of Nakala Port Status-quo	OCDI	OCDI
		15:00-16:30	Discussion : Development of Nakala Port in near future	OCDI	OCDI
12-Jul	Fri	10:00-12:00	Field Study: Research & Development Center - TOA	TOA Corporation	TOA

Date		Time	Contents	Lecturer / Attendant	Venue
			Corporation		
		12:00-14:00	Lunch and moving (Tsurumi => Honmoku)		
		14:00-16:00	Field Study: Japanese largest and deepest container terminal development	TOA Corporation	Yokohama port (Honmoku)
13-Jul	Sat	All day	Preparation of presentation / Action plan / Answering of Questionnaire	-	PC room in TIC
14-Jul	Sun	All day	Preparation of presentation / Action plan / Answering of Questionnaire	-	PC room in TIC
15-Jul	Mon	All day	Preparation of presentation / Action plan / Answering of Questionnaire	-	PC room in TIC
16-Jul	Tue	10:00-12:00	Lecture: Operation of regular shipment to Africa	MOL	MOL
		13:30-16:00	Lecture: Manufacturing and maintenance of cargo handling equipment (QC+RTG)	MES	MES
17-Jul	Wed	10:00-11:00	Lecture: Port EDI	MLIT or OCDI	OCDI
		11:00-12:00	Lecture: Safety operation during port rehabilitation period	TOA Corporation	OCDI
		15:00-15:20	PRESENTATION; The Nacala Port Development Project	MTC (Dr.Ana Dimande)	Kasumigaseki
		15:20-15:40	PRESENTATION; The railway and port operation by CFM in Mozambique	CFM (Paulo Jafar Tarmamade)	Kasumigaseki
		15:40-16:00	PRESENTATION; Operation and Services in Beira Port	CFM (Mr. Jeremias Fernando Numes do Rego)	Kasumigaseki
		16:00-16:20	PRESENTATION; PN's Operation and Services in Nacala Port	PN (Mr.Langa)	Kasumigaseki
		16:30-17:00	Questions and answers with Japanese private sector		Kasumigaseki
		17:30-18:30	Exchanging of greetings with Japanese private sector		Kasumigaseki
18-Jul	Thu	10:30-11:30	Discussion : (Nakala Port Development in Future)	OCDI	PC room in TIC
		11:30-12:00	Submission : Filled questionnaires	OCDI	PC room in TIC
		13:00-13:30	Discussion on Grant Aid Project	JICA, Ecoh	PC room in TIC
		13:30-16:30	Report: Preparation of Final Report and Action Plan	OCDI	PC room in TIC
19-Jul	Fri	10:00-11:00	PRESENTATION; Final Report and Action Plan Preparation	JICA and OCDI	JICA HQ
		11:00-12:00	Evaluation discussions and Closing ceremony	JICA and OCDI	JICA HQ

3.5 Progress reports

The activities and progress of the Project are described below by the outline of consecutive progress reports.

(1) Progress Report 1 (September 2012)

This Report summarized the progress of the Project from April to August 2012 and was submitted in the third dispatch (September 2012). During this period, JICA dispatched the Project Team twice to Mozambique, in April and June. This report set the course of the technical assistance based on the needs in Nacala Port identified through two dispatches of experts. The Project Team established indicators designed to monitor the efficiency of the Port. It also prepared training programs for Mozambican counterparts both in Mozambique and Japan.

The Project Team analyzed changes in the economic environment surrounding Nacala Port since the completion of "The Preparatory Survey on Nacala Port development Project in the Republic of Mozambique (hereinafter referred to as "the Feasibility Study"). It prepared a port development strategy based on the concepts proposed in the Feasibility Study but with some modifications. The Project Team bundled the project components (infrastructure and equipment) in three sets of investment package taking into account the priority, consistency to the overall plan, and conformity to the funding schemes (Table 3.5-1, Figure 3.5-1 and Figure 3.5-2).

Table 3.5-1 Basic concepts of investment package

New Funding Scheme		Main Package	Effects	Comments	Cost (US$)
Concept	Grant Aid	Installation of rubber fenders to the north wharf Apron pavement to the north wharf Yard pavement at land-side of the north wharf Reach stacker 2 sets RTG 2 sets Firefighting equipment Loading arm	To enhance efficiency of container handling capacity (60% UP) Corresponding to the demand around year 2015	Listed packages are urgently required.	
	Loan-1	By-pass access road Gate construction Widening of entrance road Dredging (V=80,000m3) (*) Yard pavement at land-side of the north wharf RTG 3 sets Rail container terminal	To enhance efficiency of cargo handling relaxing port congestions To accelerate dredged soil, preparing soil disposing area Corresponding to the demand around year 2018	High standard environment protection technique shall be introduced from the experienced Japanese Consultant and Contractor.	
	Loan-2	Reconstruction of wharf (-14m) Quay gantry crane 2 sets (**) Dredging (V=115,000m3) RTG 3 sets Container yard pavement (Land-side) Container terminal management system including yard management system Others	Renovation to the high capacity deep water container terminal operation by Quay gantry crane Corresponding to the demand around year 2020	High standard environment protection technique shall be introduced from the experienced Japanese Consultant and Contractor.	

Cost estimates are based on the data of the Preparatory Study and thus need further reviews

Note: (*) To be dredged except the area adjacent to the new Wharf

(**) Electricity for Quay Gantry Crane shall be provided by Mozambique side.

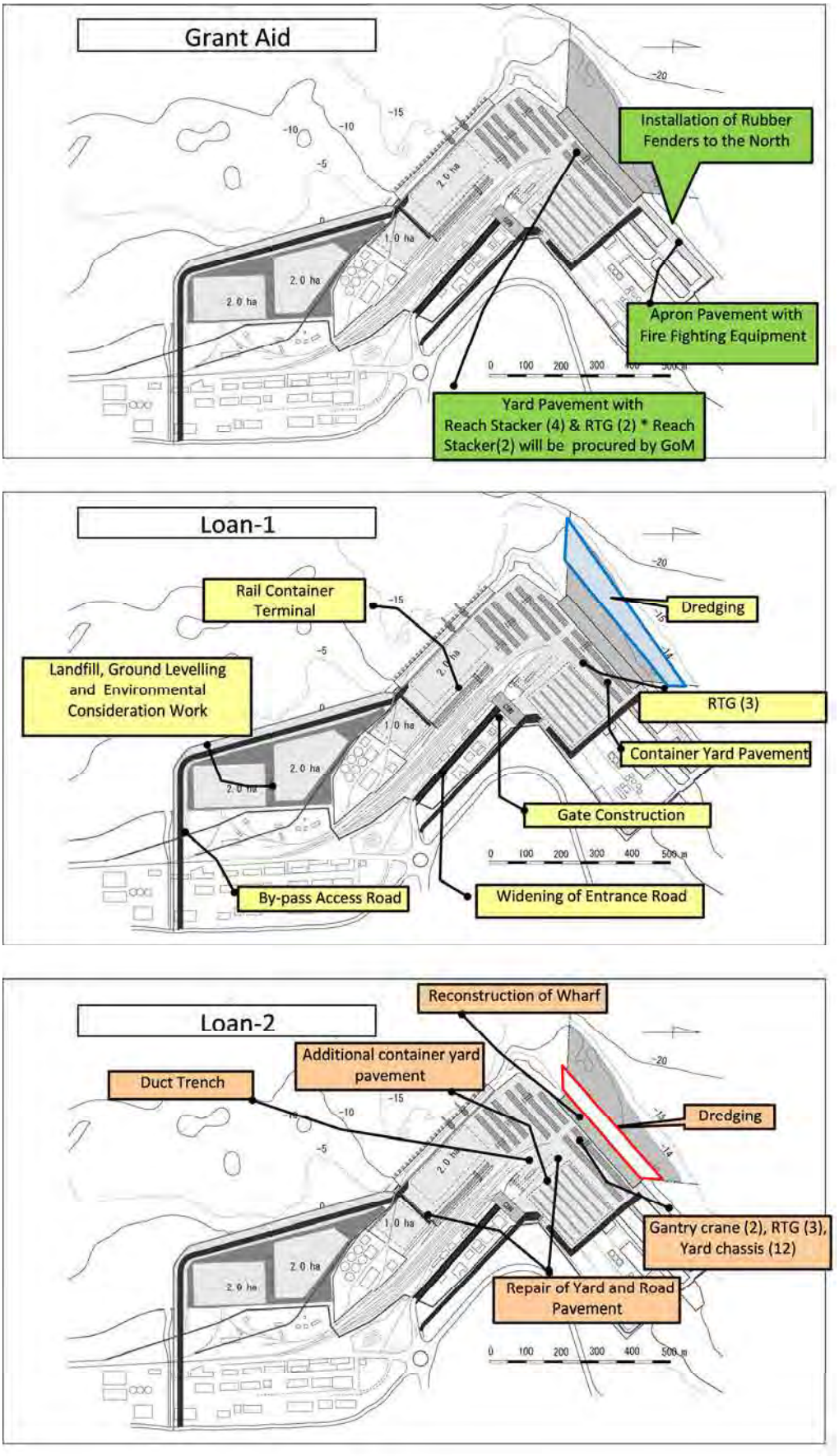


Figure 3.5-1 Phased port development

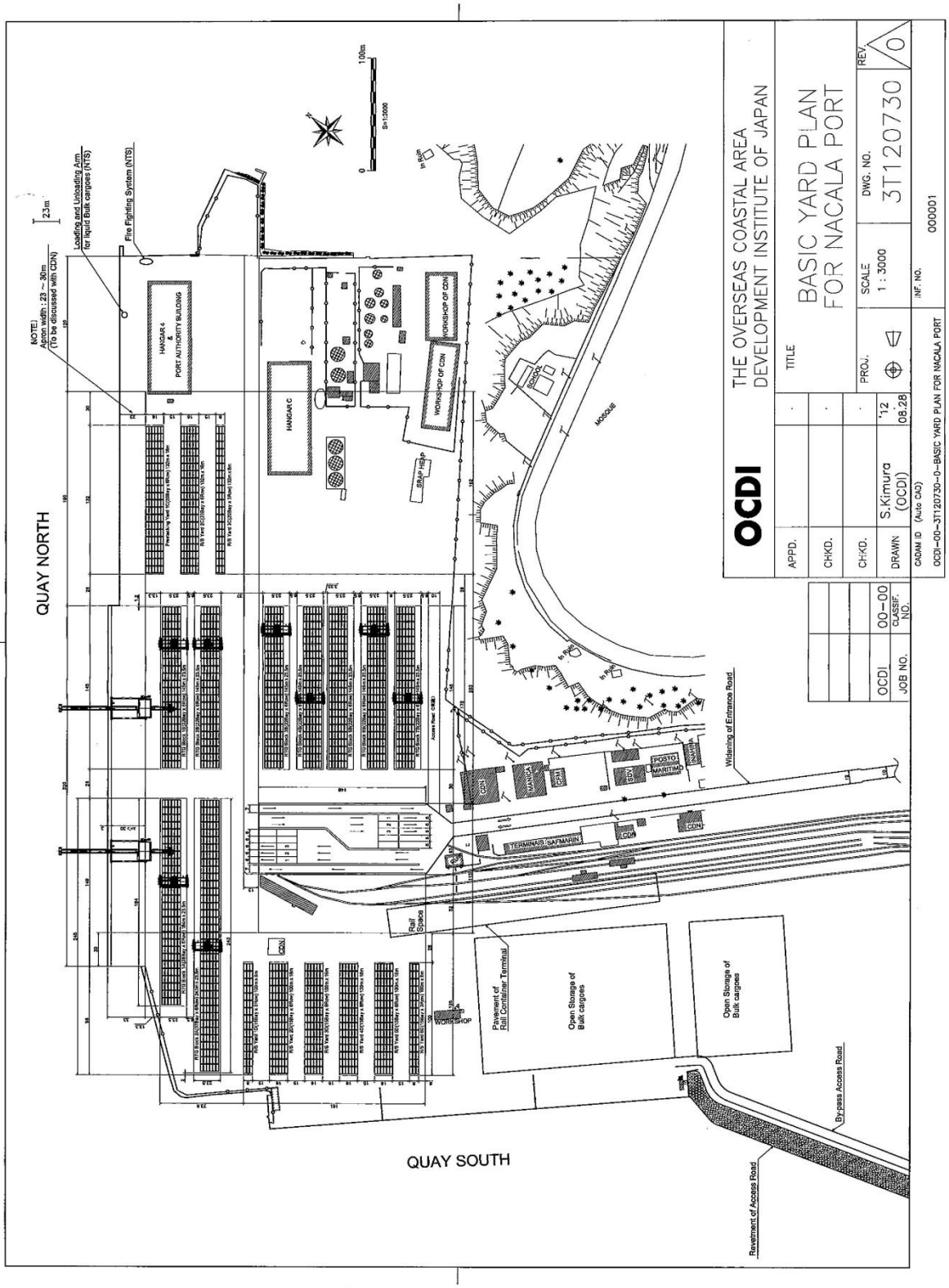


Figure 3.5-2 Basic yard plan

(2) Progress Report 2 (April 2013)

This Report summarized the progress of the technical transfer from October 2012 to March 2013 and was submitted in the fifth dispatch (April 2013). Based on internal discussions, the Mozambican side proposed its needs of training in October 2012 (Table 3.5-3). The Project Team highly appreciated the initiative of the Mozambican side and prepared the technology transfer program accordingly (Table 3.5-2). Technology transfer needs encompass broad areas including planning, management, administration, maintenance, and cargo handling.

Table 3.5-2 Technology transfer program

Area	Subject	2012	2013			2014		2015
		Dec	Apr	Jun	Dec	Apr	Sep	Jan
Cargo Handling	Cargo Handling Equipment	●		●				
	Handling Productivity			●	●	●	●	●
	IT System for CT Operation	●	●	●	●	●	●	
	Yard Planning			●	●			●
	Capacity Building - Skill	●		●				
Maintenance (port facilities, cargo handling equipment)	Preventive Maintenance	●	●	●	●			
	Maintenance Manuals			●	●	●		
	Maintenance Management	●	●		●	●	●	●
	Spare Parts Inventory	●	●		●	●	●	
	Port Safety			●	●			●
	"5S" [*1]						●	
Port Planning	Port Planning System	●	●					
	Demand Forecast		●					
	Grain Terminal Planning			●		●		
	World Shipping Trend	●						
	Environmental Considerations	●						
	Safety during Construction Works			●				
	Need of Revised Master Plan					●		
	Stacking Capacity					●		
Port Administration and Management	Laws and Regulations	●	●	●	●	●		
	Facilitation of Port Procedures	●			●	●	●	●
	Privatization of CT		●					
	Port Promotion		●					
	Port Security							
	"5S"					●		
Process Management	PDCA Cycle	●						
	Mapping of Critical Process	●						
	Leadership and Alignment	●						

[*1] Japanese work place management system (sort, straighten, shine, standardize and sustain)

Table 3.5-3 Needs of Training Proposed by Mozambican Side

► Maintenance Plans + 06 Steps Plan – Achieve International Standards of Port Services Level

TARGETS:	**1. Ships Productivity:** **Net 10 Lifts / Ship-gear / hour**
	2. CY Turn-Time: **30 minutes from Gate-in to Gate-out**

■ Equipment Maintenance:	Optimization and Better Control of Equipment Maintenance Plan						
Objective	**Action Plan**	**Term**	**Person In Charge**	**Involved**	**Training**	**Cost**	**Improvements**
To improve Productivity assuring higher availability rate of Port equipment	1. Perform contract of PASICO – Company contracted to carry out maintenance (with parts supply) of all machines of the Port and carry out passing of knowledge to CDN professionals (3 months). 2. Define CDN Focal Points to receive specific training on Maintenance. 3. Hire 2 or 3 outsourcing personnel capable of carrying out and training CDN professionals in Maintenance – Estimative of a 1-year contract. Assist in the creation of an area of management and control of maintenance. 4. Acquisition of spare parts. Increase of 10% in 2013 budget for acquisition of spare parts. 5. Carry out Training in specific fields of maintenance (Electronics, Hydraulics, Mechanics) – Linked to Item 03	1.13/01/31 2. 12/10/16 3. 13/01/30 4. 13/03/01 5. 13/03/01	- Langa - Matos Fernandes	- TBA	- Maintenance (Hydraulics, Electronics and Mechanics) - Maintenance Management (Implementation, Quality Control Plans)	- TBD	1. Increase of Availability Rate of Equipment 2. Greater absorption of market demands.

■ Infrastructure Maintenance:	Optimization / Creation and Better Control of Infrastructure Maintenance Plan						
Objective	**Action Plan**	**Term**	**Person In Charge**	**Involved**	**Training**	**Cost**	**Improvements**
To improve Port infrastructure assuring more safety and agility for the operation.	1. Hiring of a Civil Engineer responsible for the Elaboration and Implementation of the Infrastructure Maintenance Plan. 2. Create an infrastructure inspection plan. 3. Allocate Budget for infrastructure maintenance.	1. 13/06/01 2. 13/08/01 3. 13/03/01	- Langa - Matos Fernandes	N/A	N/A	- TBD	1. Reduce number of breakdowns in infrastructure increasing its availability 2. Reduce number of accidents

■ Step 01:	Use Attachment With Flippers - Controlling it by Two Ropes						
Objective	**Action Plan**	**Term**	**Person In Charge**	**Involved**	**Training**	**Cost**	**Improvements**
To identify how loading / unloading operations from ships are carried out in order to optimize productivity.	1. Adjust Spreaders with Flippers and Ropes for guiding. 2. Carry out training of stevedores for the new operation.	1. 13/02/01 2. 13/04/01	- Lucas Cipriano	- Terminais do Norte	Required for the new operation model	0	1. Higher Productivity by smooth Ship Gear (SG) Ops 2. Less Damage to containers due to gentle contact of attachment

■ Step 02:	Modify the Container Yard (CY) & Re-naming / Striping						
Objective	**Action Plan**	**Term**	**Person In Charge**	**Involved**	**Training**	**Cost**	**Improvements**
To organize the Container Yard to simplify the operation and create more capacity.	1. To paint Letters and Numbers of the current Layout	1. 13/04/01	- Lucas Cipriano	N/A	N/A	- US $ 15,000	1. Able to increase in 25% the capacity of CY. 2. Easy management of the CY by allocating the space/blocks by status/kinds of containers. 3. Easy access to the assigned CY by truckers.

■ Step 03:	Prepare Enough Number of Cargo Handling Equipment (CHE) for Both CY-Gate & Ship Operations						
Objective	**Action Plan**	**Term**	**Person In Charge**	**Involved**	**Training**	**Cost**	**Improvements**
To guarantee a minimum quantity of equipment per operation to achieve the expected efficiency of the Port. - MINIMUM REQUIREMENTS: Ship Ops: 01 RS/2-SG at Apron (Dis. Only) 01 RS/SG at CY 02 Tractor-Chassis/SG CY - Gate Ops: 01 RS / 10~15 Gate Moves / Hour	0. Nacala Port has the necessary equipment for operation in the presented model for 01 Ship. 1. To discuss with JICA Team the hastening of the acquisition process of 02 Reach Stackers planned in the Grant Aid. 2. The acquisition of Tractor-Chassis will not be necessary, since it can be contracted in local market.	1. 12/10/20	- Ana Dimande - Langa	N/A	N/A	N/A	1. Higher productivity due to covering both Ship & CY-Gate Ops by enough CHE. 2. CY Turn time of external customers should become fewer than the present.

■ Step 04:	Manage the address of all the containers existing in the Container Yard						
Objective	**Action Plan**	**Term**	**Responsável**	**Involved**	**Training**	**Cost**	**Improvements**
To manage the exact “address” of all containers existing in the Container Yard all the time. NOTE: This is considered to be the first step to become a Terminal Container within international standards.	1. To map all cargo flows and modes of transport (physical and administrative) 2. To process the announcement of cargo; 3. To register entries (by land and ship); 4. To set the park by type of handling, ship owner and ship; 5. To localize the containers and their movements;	2013/6/30	- Matos Fernandes	PN / CDN notifying shipping agents and companies	To train internal agents in two phases 1 - Generalist on systems (3 days); 2 - Use of application (3 days) 3 - Sensitization seminar for external agents	20,000 USD for system upgrading + cost of training + 7,500 USD / month to keep the system active	1. Increase of efficiency in cargo handling and lifting since it is strictly localized 2. Reduction of errors and elimination of informality in management and lifting ops.

Based on the program, the Project Team started technology transfer in the fourth dispatch in December 2012. The Project Team held 9 workshops in Nacala attended by in total 133 participants from MTC, CDN, CFM and PN. Through the technology transfer process, the Project Team emphasized the importance of "participatory approach", whereby counterparts actively participate in lectures and feedback what they learned to planning, operation, management, and evaluation.

As for cargo handling works, the Project Team proposed six steps to be taken in the Nacala Port container terminal so that it can achieve the internationally acceptable service level (Figure 3.5-4).

Figure 3.5-3 Focus of technology transfer

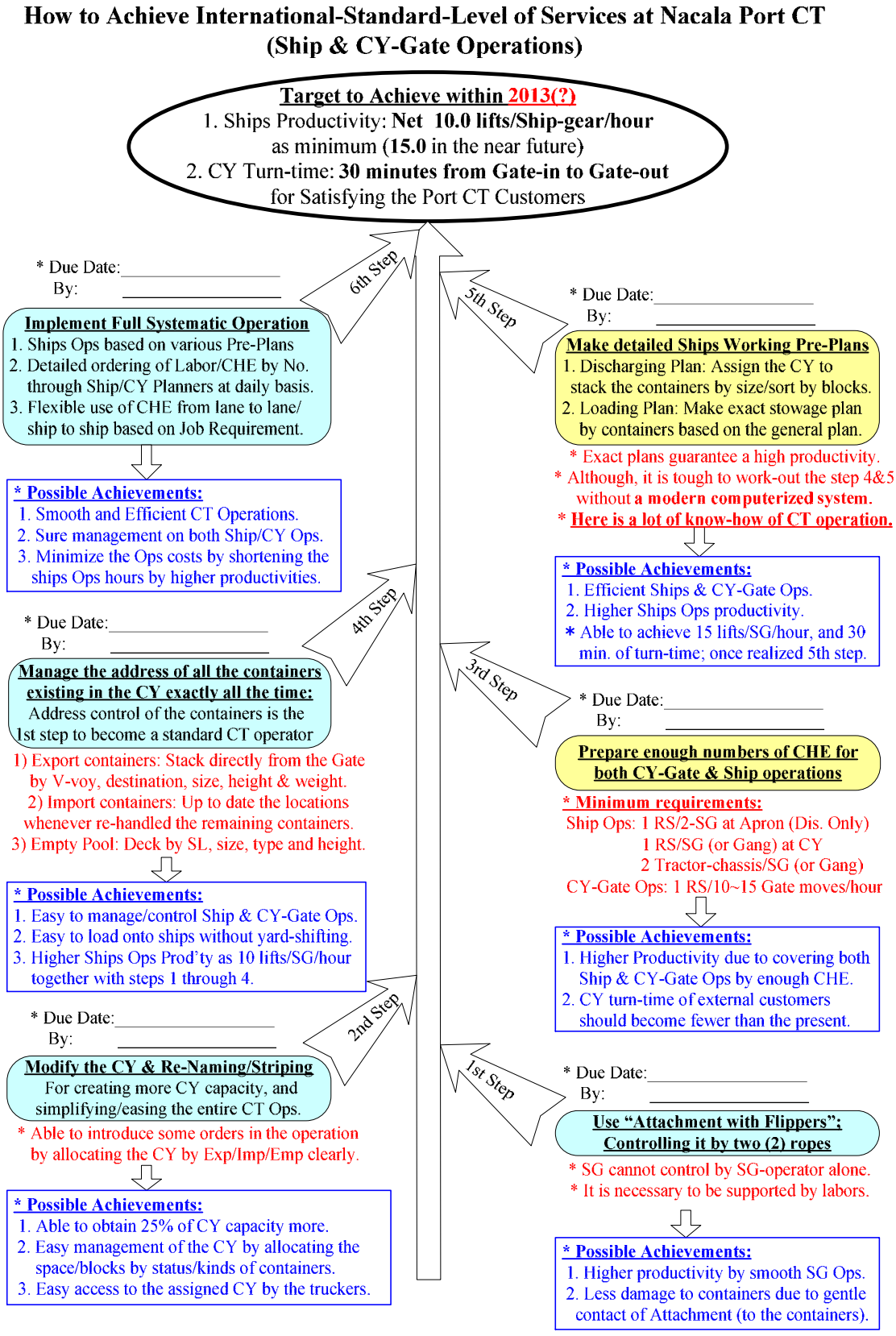


Figure 3.5-4 Six-step approach toward the internationally acceptable service level

(3) Progress Report 3 (November 2013)

This Report summarized the progress of the technical transfer from April to October 2013 and was submitted in the seventh dispatch (December 2013). During this period, JICA dispatched the Project Team twice to Mozambique, in April and June. JICA also carried out two counterpart training courses, "Key Counterpart Training" in July and "Mid-level counterpart training" in September. In the course of their stay in Mozambique, the Project Team provided 24 lectures participated by 272 counterparts. The Project Team also carried out site surveys and inspections. As for the counterpart training, the Project Team conducted special training for four key counterparts from MTC, CFM, and PN as well as practical training for ten mid-level counterparts from CFM and PN. During the mid-level counterpart training, Mozambican counterparts and Angolan trainees jointly received technology transfer while sharing the experience in their ports.

The progress of the technical transfer was summarized as follows:

1) Port planning

The Project Team presented basic tools of port planning so that the Mozambican side can carry out port planning on its own in the future. The first tool is berth occupancy ratio (BOR) and waiting time/service time ratio (WSR). The Project Team explained how to calculate and evaluate these indicators using actual berth occupancy records at Nacala Port. The Mozambican side will be able to use them to evaluate the congestion of the terminal and find ways to improve productivity. The second tool is macro forecast method for cargo projection. The Project Team explained basics of macro forecast methods by means of GDP using the macro forecast carried out in JICA FS of Nacala Port as an example.

The Project Team also made a presentation and provided materials that will help the port allocate an appropriate space for an efficient grain terminal in the future corresponding to the Pro-SAVANA Project.

2) Port administration and management

The Project Team started to review the existing draft of "Regulamento do Porto de Nacala" in April 2013. Taking importance and urgency into consideration, the regulations of safety (as stipulated in Chapter 7 of the draft Regulamento) and port operations (Chapter 3 of the same) were given priority in the review. Having checked article-by-article the opinions solicited from the Mozambican side, the Project Team determined that the contents of the existing draft of Chapter 3 were almost acceptable, while some additional provisions would be required in consideration of the difference in the extent of shipping line's liability between conventional cargoes and container cargoes, and the documentation specific to container cargoes.

A new draft of "Porto de Nacala Regulamento de Segurança (Nacala Port Safety Regulation)" was presented by the Mozambican side. In response, the Project Team lectured on the "Kobe Port Container Terminal Safety Policy", as it was considered appropriate as an example of a safety regulation to be introduced to Nacala Port after it is reborn as a full-fledged container terminal. The Project Team also presented the importance of making known the improvement in operational quality

to the international market, basics of tariff setting policy from the theoretical viewpoint of "revenue management", and port promotion strategy targeting shipping lines and cargo owners.

3) Cargo handling works

The Project Team lectured on basics of the container terminal management system in the workshop so that the Mozambican side can establish a plan as to what kind of IT system should be introduced in Nacala Port to improve the terminal efficiency. In response, PN explained its plan of upgrading and activating the Phaeros system, the existing terminal operating system (TOS) of PN hiring experts from STRING, a Mozambique system company.

Container handling volume of the port has been more than 70,000 TEU per annum in recent years; thus, it is very hard to manage and operate the CT without an effective TOS. Phaeros has been successfully introduced in the ports managed by the Tanzanian Ports Authority such as Dar es Salaam or Mtwara; hence, the system is expected to work well for supporting PN's operations at Nacala Port.

However, Phaeros is just a tool; even if the system is good, PN needs to train staff adequately for it to be effective. This especially applies to the personnel assigned in the operation planning functions, such as yard and ship planners. The planning works are new for PN (PN makes some plans at present too, but they are at the elementary level), and it will take time for the PN staff to master the required skills and acquire necessary knowledge. For this reason, the Project Team recommended that PN should hire 3 or 4 well-experienced professionals (with at least 5-year experience) as ship and or yard planners from abroad for one or two years and have them pass on various technologies and skills to Mozambican counterparts by OJT.

4) Maintenance of civil infrastructure

The Project Team lectured on basics of maintenance planning so that the Mozambican side can establish the periodical inspection plan for the infrastructure of Nacala Port. Since PN was planning to contract out the establishment of the infrastructure maintenance plan, the Project Team suggested that a civil engineer of PN should be involved in its preparation and implementation.

Through the site inspection, the Project Team found that the South Wharf container yard area 30-m behind the quay line suffered significant settlement due to the continued deterioration of the Wharf. Accordingly, the Team prepared a technical paper and suggested that the South Wharf deck structure should avoid excessive forces and/or loads. The Project Team suggested that the laden containers placed at the container yard just behind the wharf deck should be relocated to reduce the load on the pavement, thus avoiding further settlement. The Team also requested periodical inspections of the structures to monitor further degradation.

The Project Team lectured on the structural integrity of the existing South and North Wharves, concept of infrastructure maintenance, concept of inspection/monitoring as well as practical inspection/monitoring method using available equipment. The measuring instruments the Project team prepared were handed over to CFM so that they can carry out inspection /monitoring works by themselves.

5) Maintenance of equipment

The Project Team gave the maintenance staff Excel format lists of spare parts for periodical replacement and emergency replacement. The Project Team lectured the participants from Pemba Port on how to fix the reach stacker whose boom became stack. The Team also suggested that the maintenance section of Pemba Port should be empowered to procure spare parts without the prior approval of the higher authority in Nampula and Maputo so that it can respond to needs in a timely manner.

(4) Progress Report 4 (April 2014)

This report summarized the progress of the technical transfer from December 2013 to March 2014 and was submitted in the eighth dispatch (April 2014). During this period, JICA dispatched the Project Team to Mozambique in December 2014. In the course of their stay in Mozambique, the Project Team had 11 working sessions with the Mozambican side in which 80 counterparts participated. The Project Team and the Mozambican side jointly carried out site surveys and inspections as well.

The Japanese side and Mozambican side confirmed the steady progress of the Project in the third Joint Coordination Committee (JCC) held on December 19, 2013 in Maputo. In the JCC, both sides agreed on further steps to be taken to realize the project goals (Table 3.5-4).

Table 3.5-4 Steps to be taken to make Nacala Port more efficient

	Steps	Timeline	
		January	before April 2014
Mozambican side	◦Start of infrastructure monitoring and maintenance based on the Geoibericos report and employment of a civil engineer (PN, CDN, CFM)	✓	
	◦Review of the JICA Team's comments on Phaeros upgrading and start of the Phaeros system (PN)		✓
	◦Review of the JICA Team's comments on the safety regulations (CDN)	✓	
	◦Monitoring of the container handling productivity based on 3 indicators (PN)	✓	
	◦Determination of the pavement design of the dry terminal (TN, PN)		✓
	◦Review of the rehabilitation measures for the South Wharf indicated in the Geoibericos report (CDN, CFM)		✓
	◦Procurement of spreaders with flippers (TN)		✓
JICA Team	◦Review of rehabilitation measures for the South Wharf indicated in the Geoibericos report	✓	
	◦Review of the infrastructure maintenance plan proposed in the Geoibericos report	✓	
	◦Preparation of lecture materials on "5S"		✓
	◦Preparation of lecture materials on environmental management		✓
	◦Start of the procurement process for survey equipment (preparation of an equipment list needed for quantitative monitoring)		✓

The progress of the technical transfer was summarized as follows:

1) Port planning

Up to September 2012, the Project Team had focused its efforts on reviewing the development plan of Nacala Port and formulation of project packages suitable for Japanese ODA programs. Through the presentation from the Project Team, the Mozambican side understood the reasoning behind the preparation of the project packages and basically agreed to them. That process is understood as a part of technology transfer on port planning. Since then, the ODA project implementation became a matter of government to government negotiation. Accordingly, the Project Team refocused its attention to technology transfer on more general planning skills. In order to respond to the future need of a grain terminal in Nacala Port, general planning skills on grain terminals were also transferred.

Since the congestion of the existing container yard was worsening, the Project Team visited the dry terminal during the seventh dispatch and made several suggestions to make this terminal fully

functional.

2) Port administration and management

Since April 2013 onwards, the Project Team has been working on the review of "Regulamento do Porto de Nacala (Regulation of Nacala Port)" which was once drafted by the General Director of CDN but has not been approved by the CDN management. Among a variety of subjects covered in the "Regulamento", priority was given to the urgent issues; "safety policy" was taken up in the workshop in April 2013, and "port operations" in June 2013. In December 2013, CDN presented a revised draft of safety regulations reflecting some of the Project Team's comments. In response, the Project Team made additional suggestions such as the need for regulations regarding container/general cargo handling. Since the grant aid construction works would start before long, the Mozambican side acknowledged the urgency of the completion of the safety regulations.

As for the operational regulations, the Project Team suggested that some provisions should be added in relation to container cargoes, as the procedures for containers on documentation and liability would be different from those for general cargoes.

Another key area which the Project Team has been focusing on since April 2013 is the "marketing" function of the Port, as that function of CDN and PN doesn't seem very active and needs to be strengthened. The workshops for this theme covered overall aspects of marketing activities; not only "port promotion" but also "quality of service", "pricing" etc. as defined by the established theory of "4Ps for marketing".

3) Cargo handling works

In December 2013, the Project Team suggested that the following functions be installed (or confirmed) in the Phaeros system. These automatic yard-location assignment functions of the Phaeros should help PN not only by reducing clerks' jobs in the CY-gate and the CY, but also eliminating errors in inputting yard addresses of containers.

- Automatic yard-location assignment program of export containers when receiving them at the CY gate
- Automatic yard-location assignment program when shifting containers at the CY

For operating and managing the container terminal more efficiently and utilizing the Phaeros system fully, PN has to re-organize and strengthen some key functions such as a documentation team (which handles data and information to/from external customers like shipping lines, cargo owners, truckers and Customs), CY operation planning and control team (which plans and controls all the CY works in cooperation with Ship Planners) and ship operation planning and supervising team (which plans and supervises all the ships works cooperating with CY Planners).

In December 2013, the Project Team prepared a modification plan for the CDN dry terminal so that it can handle laden containers upon completion of pavement and made it available to the Mozambican side (Figure 3.5-3). By the modification, capacity of the dry port becomes 3,640 TEU/time as the dead max capacity (almost 3 time of the current capacity) and 2,730 TEU as the

workable max capacity when stacking containers at 4 high there on average. At the new dry terminal, A through F blocks are good for stacking empty containers sorted by shipping lines, size, and height; then G through L blocks can be used for laden import ones too sorted by same B/L numbers or consignees.

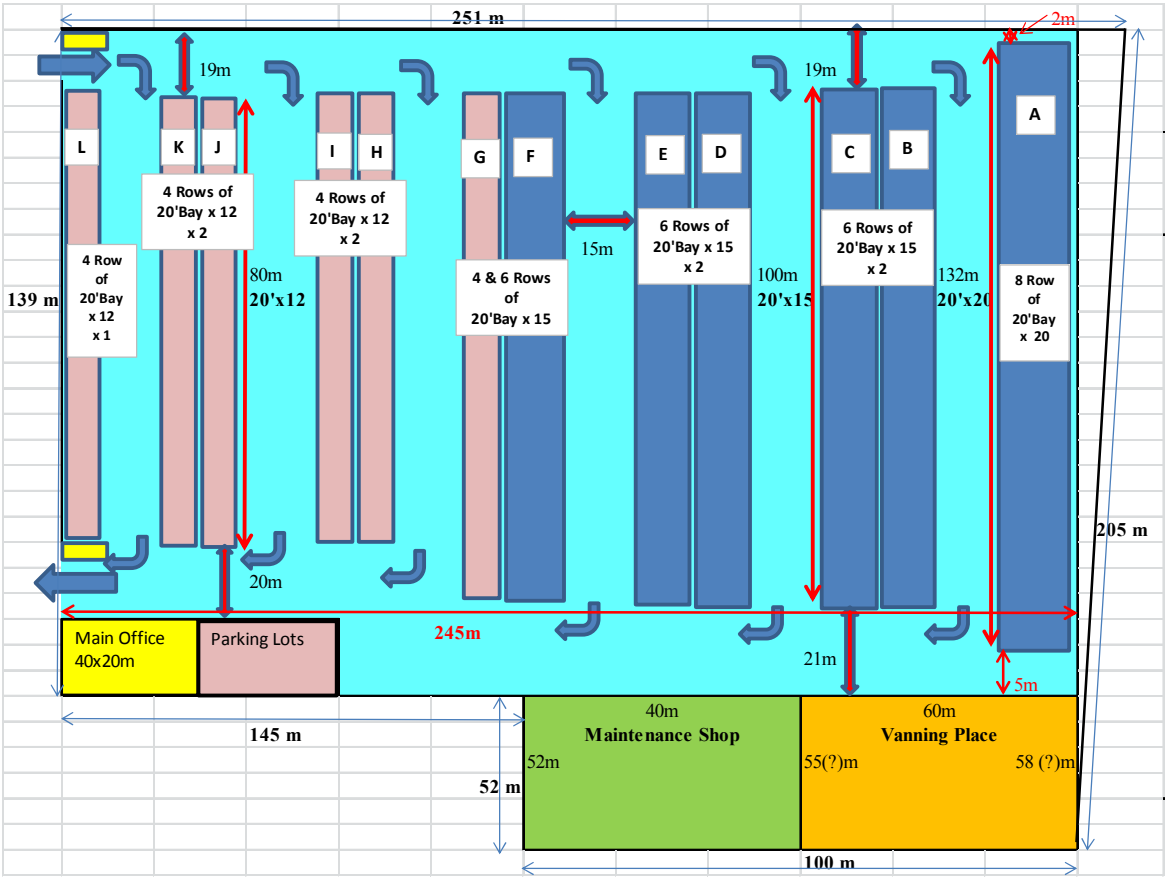


Figure 3.5-3 Modification Plan of the CDN dry port

4) Maintenance of civil infrastructure

Until April 2013, training on civil infrastructure maintenance has been done only by lectures because no civil engineer was assigned for this by the Mozambican side. Therefore, lectures were carried out on a theoretical basis explaining how to prepare a maintenance plan of the infrastructure based on the method adopted in Japanese ports and harbors.

In June 2013, the counterpart organization assigned three civil engineers in charge from CFM. It was a good sign to see that the counterparts had a genuine interest in infrastructure maintenance. The program in June 2013 included rather practical aspects of infrastructure maintenance as well as joint infrastructure inspection to allow participants to know the real situation of the infrastructure by themselves.

Since then the Mozambican side started proactive actions. During the seventh dispatch in December 2013, the Mozambican side presented several documents including structural inspection

and maintenance plan (PN) as well as a report of on-site inspections at the South Wharf (CFM). These progresses indicated that the area of infrastructure maintenance was becoming self-sustainable.

5) Maintenance of equipment

Up to the sixth dispatch in June 2013, the Project Team lectured on fundamentals of Terminal Operation System (TOS) so that the counterparts can establish plans to introduce the IT system to improve the terminal efficiency of the Nacala Port themselves. During the seventh dispatch in December 2013, the Project Team made several suggestions to make this system fully functional.

The Project Team has been stressing the need of "Reservation of Budget" system to smoothly purchase spare parts and emergency replacement parts, and also the need of the delegation of purchasing authority to the maintenance department to reduce non-working time of cargo handling equipment. During the seventh dispatch, PN stated that it had introduced the "Reservation of Budget" system. PN reported that the average equipment availability ratio had improved significantly due to these improved purchasing procedures.

(5) Progress Report 5 (September 2014)

This report summarized the progress of the technical transfer from April 2014 to August 2014 and was submitted in ninth dispatch (September 2014). During this period, JICA dispatched the Project Team to Mozambique in April 2014. JICA also carried out a counterpart training course in Japan from July 27 to August 9, which was the fourth and last counterpart training course for the Project.

In the course of their stay in Mozambique, the Project Team had 11 working sessions with the Mozambican side participated by 99 counterparts. The Project Team and the Mozambican side jointly carried out site surveys and inspections as well. The Project Team assessed the overall progress of the Project based on the PDM (Project Design Matrix) agreed on at the beginning of the Project. The Japanese side and Mozambican side confirmed the steady progress of the Project in the wrap-up session held on April 28, 2014 in Nacala. In the session, both sides agreed on further steps to be taken to realize the project goals.

Progress achieved so far

Both sides agreed that the following progress had been achieved:

- ✓ For port planning, the Project accomplished the target resulting in the start of ODA projects.
- ✓ For port administration/management, significant progress has been made resulting in drafting of safety and operation regulations.
- ✓ For cargo handling, significant progress has been made in such areas as upgrades of the Phaeros (container terminal operation system), strengthening of the dry terminal functions, and procurement of new spreaders.

- ✓ For maintenance, some progress has been made in such areas as the assignment of civil engineers of CFM and PN for infrastructure maintenance and decrease in the equipment downtime.

Further actions to be taken

Both sides agreed that the following actions should be taken to fully materialize the potential of Nacala Port:

- ✓ For port planning, a new port master plan needs to be formulated outside the scope of the Project in response to the changing needs of the port and hinterland.
- ✓ For port administration/management, the drafts of safety and operation regulations need to be finalized and implemented as soon as possible. In order to clearly define the responsibility of the pertinent organizations, the revision of the concession agreement needs to be finalized.
- ✓ For cargo handling, steady progress and implementation of the Phaeros system upgrading need to be monitored. Since the Phaeros does not include automatic yard planning functions, yard planners need to be trained either by overseas training or on-site OJT for a considerable amount of time. Monitoring of container handling productivity by three universally applied indicators (berth productivity, gross productivity per crane, and net productivity per crane) is also recommended.
- ✓ For maintenance, periodical inspection/monitoring of infrastructure should be started immediately. The Project Team will provide technical assistance for this area by means of on-site training during the next dispatch. Further study and policy decision on the rehabilitation of the South Wharf are needed in consideration of the Project Team's suggestions. Delivery of spare parts needs to be expedited to further reduce the equipment downtime.

3.6 Joint Coordination Committee (JCC)

Joint Coordinating Committee (hereinafter referred to as "the JCC") was established in order to facilitate inter-organizational coordination. The JCC was held four times during the project implementation. The JCC approved the work plan, reviewed overall progress, monitored and evaluated the progress of the Project.

JCC comprised the following members:

[Japanese side]
- ✧ JICA experts
- ✧ Representative(s) from JICA Mozambique Office
- ✧ Representative(s) from the Embassy of Japan (as observer)
- ✧ Other mutually agreed personnel

[Mozambican side]
- ✧ Project Director of Ministry of Transport and Communications (MTC)
- ✧ National Director of Portos e Cominhos de Ferro de Mozambique E.P. (CFM)
- ✧ National Director of Corredor de Desenvolvimento de Norte (CDN)
- ✧ Other mutually agreed personnel

The main topics of the JCC are summarized below.

	Date	Main topics and outcomes of discussions
1st JCC	April 23, 2012	1) Approval of the Work Plan The Work Plan was approved as proposed by the Project Team 2) Assignment of Mozambican counterparts 14 officials were nominated from MTC, MOE, CFM, and CDN 3) Approval of the container yard plan and berth allocation plan Port development plan and berth allocation plan up to 2018 were approved 4) Approval of the plan for the 1st training in Japan The training plan will be prepared responding to the needs identified by the Project Team in the first and second dispatch
2nd JCC	September 20, 2012	1) Progress of the first six months Reports of the Project Team on phased planning,10 areas in need of improvement, and technology transfer program were approved 2) Technology transfer and monitoring indicators Monitoring indicators were set for each area (port planning, port administration and management, cargo handling,

		infrastructure maintenance, equipment maintenance) based on the current conditions in Nacala Port 3) Discussions on Nacala Port development Changes in the operating entity of Nacala Port will be closely monitored
3rd JCC	December 19, 2013	1) Progress of the Project Progress was confirmed in such areas as preparation of a maintenance plan, site inspection of infrastructure, improvement in the work time ratio of equipment, and upgrade of the terminal operation system 2) Steps to be taken to make Nacala Port more efficient Further actions were found necessary in such areas as improvement in container handling productivity, effective use of the dry terminal, start of periodical infrastructure inspection, and determination of rehabilitation measures for the South Wharf
4th JCC	February 10, 2015	1) Achievements of the Project Projects achievements were confirmed based on the PDM and monitoring indicators updated with the latest data acquired in Nacala 2) Further need of technical assistance Continuation of Japanese technical assistance was agreed. It will comprise dispatch of short-term experts and overseas training

3.7 Seminar

JICA and MTC co-hosted a seminar in Nacala to make the pertinent agencies informed of the Project achievements and to exchange views on the future functions of Nacala Port. Over 40 people from a variety of organizations participated in the seminar. The seminar turned out successful thanks to the active participation of the Mozambican side which delivered five presentations.

(1) Time and venue

February 5, 2015 at Nacala

(2) Hosts

Cohosted by MTC and JICA

(3) Participants

- Mozambican side: MTC, CFM, CDN, PN, TN、Customs, Immigration office, port users etc. (35 registered participants)
- Japanese side: JICA Mozambique, Project Team (6 participants)

(4) Presentations

- Project Team (Mitsuhiko Okada): JICA technical assistance for Nacala Port – achievements and future challenges
- CFM (Mr. Arzilio Josué Mata): Improvement in infrastructure and equipment
- CDN (Mr. Ibraimo Mussa): Strengthening of port functions at Nacala, the gateway of the Nacala Corridor
- PN (Mr. Neimo Induna): Improvement in terminal operation
- Port users (Mr. Hinelder Ferreira (CMA CGM) and Mr. Simon Kanjanga (MSC): Expectations for future development of Nacala Port

3.8 Project implementation flow chart

The Project was conducted based on the Work Flow Chart (Figure 3.8-1) with minor modifications.

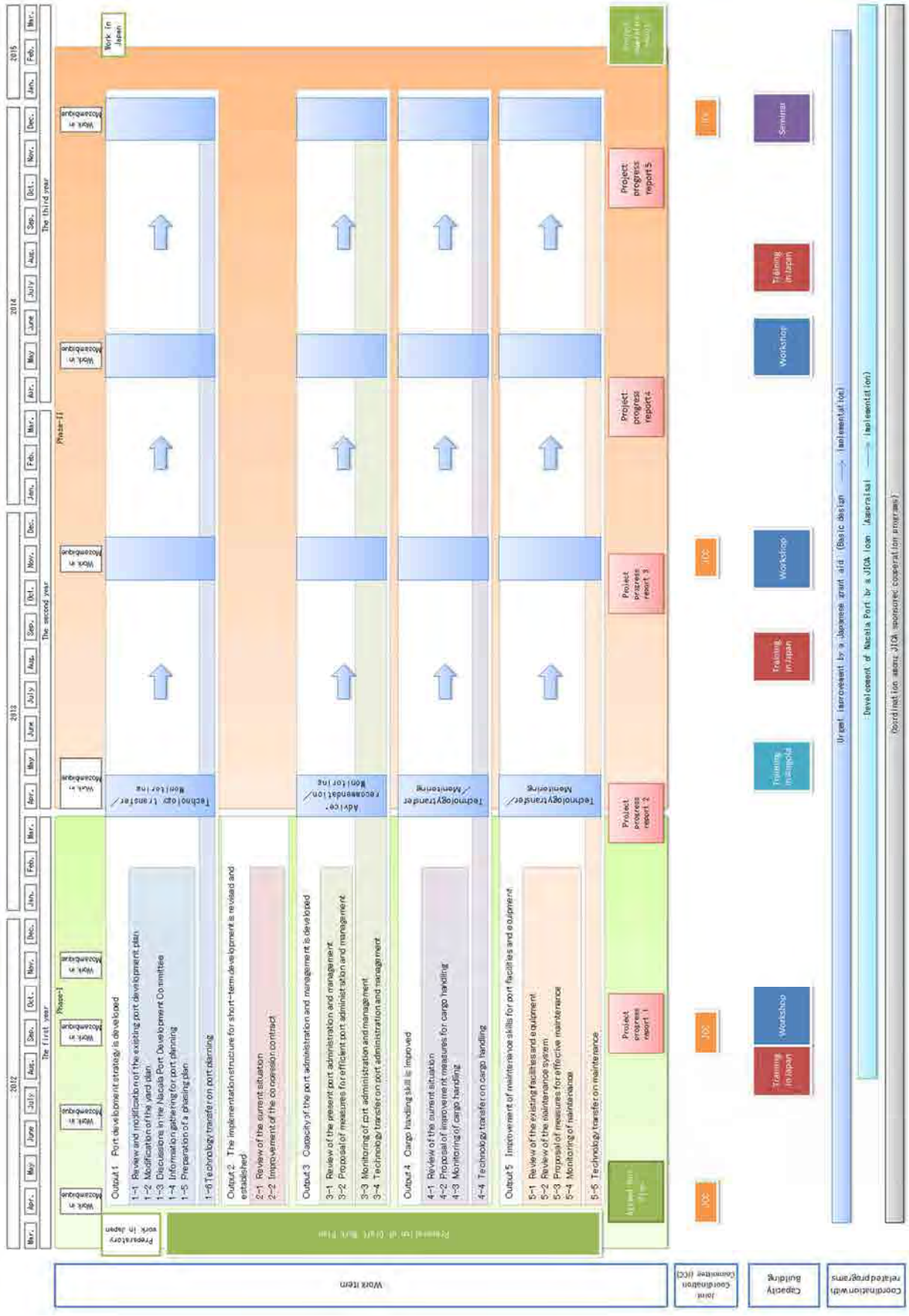


Figure 3.8-1 Work Flow Chart

3.9 Work schedule

The Work schedule is shown in Figure 3.9-1.

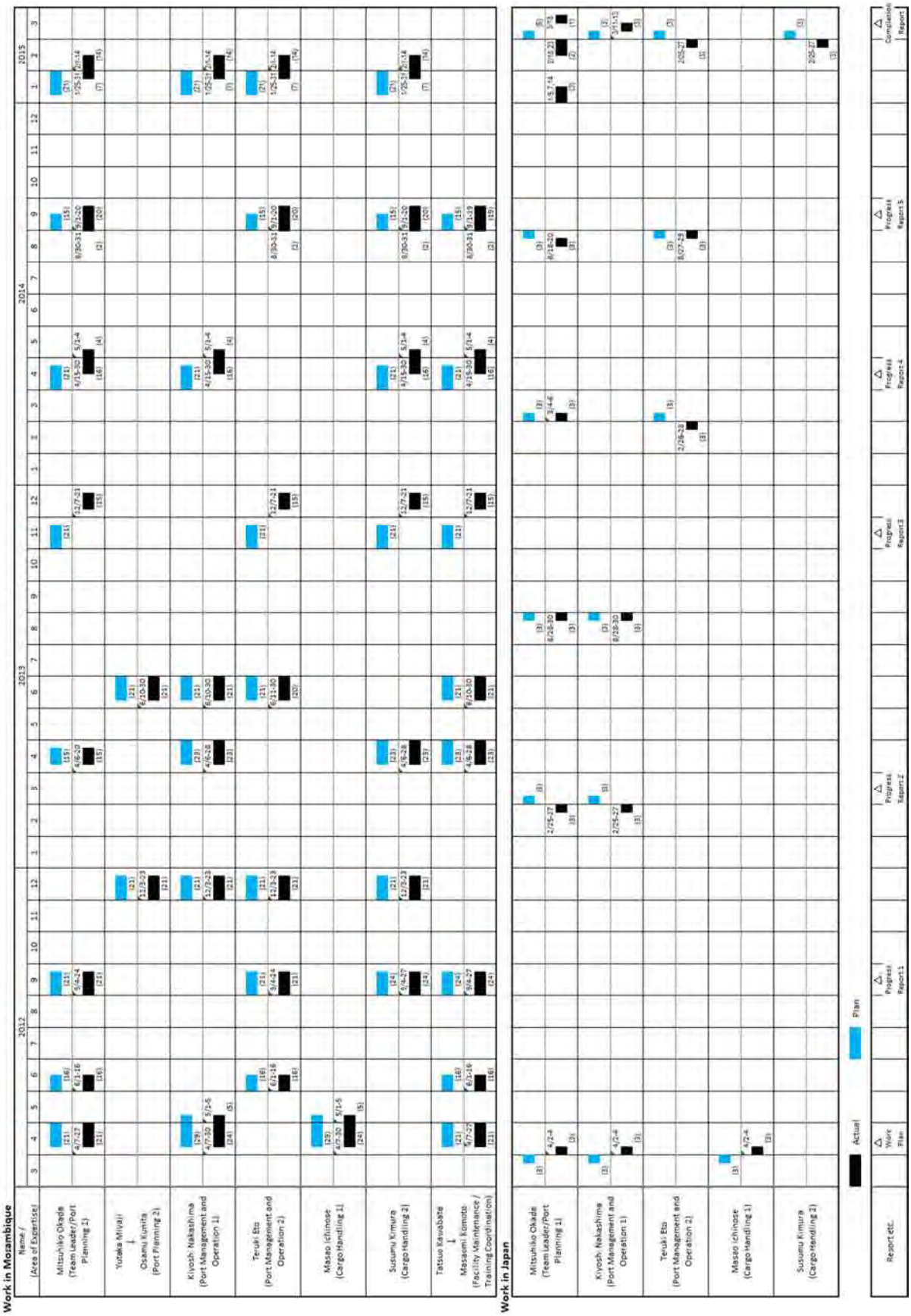


Figure 3.9-1 Work Schedule

3.10 Project Management

In order to smoothly implement the Project, works were broken down and described in WBS (Figure 3.10-1 ~ Figure 3.10-5). Project management was monitored based on the WBS. Level 1 shows the outputs of the PDM. Level 2 shows the summary of achievement of the works. Level 3 shows project management categories. Level 4 shows work package categories. Level 5 shows each activity.

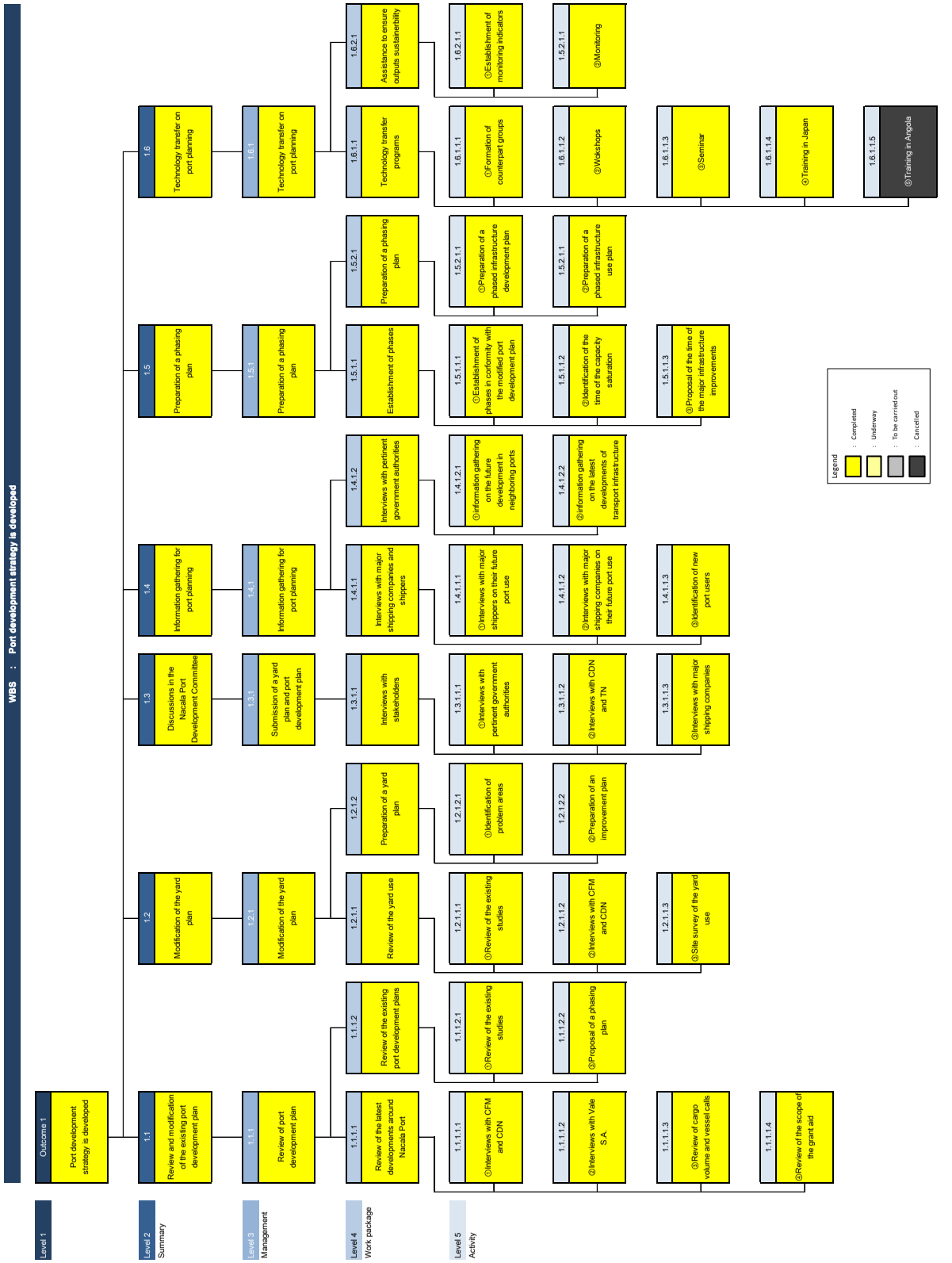


Figure 3.10-1 WBS for Port Planning

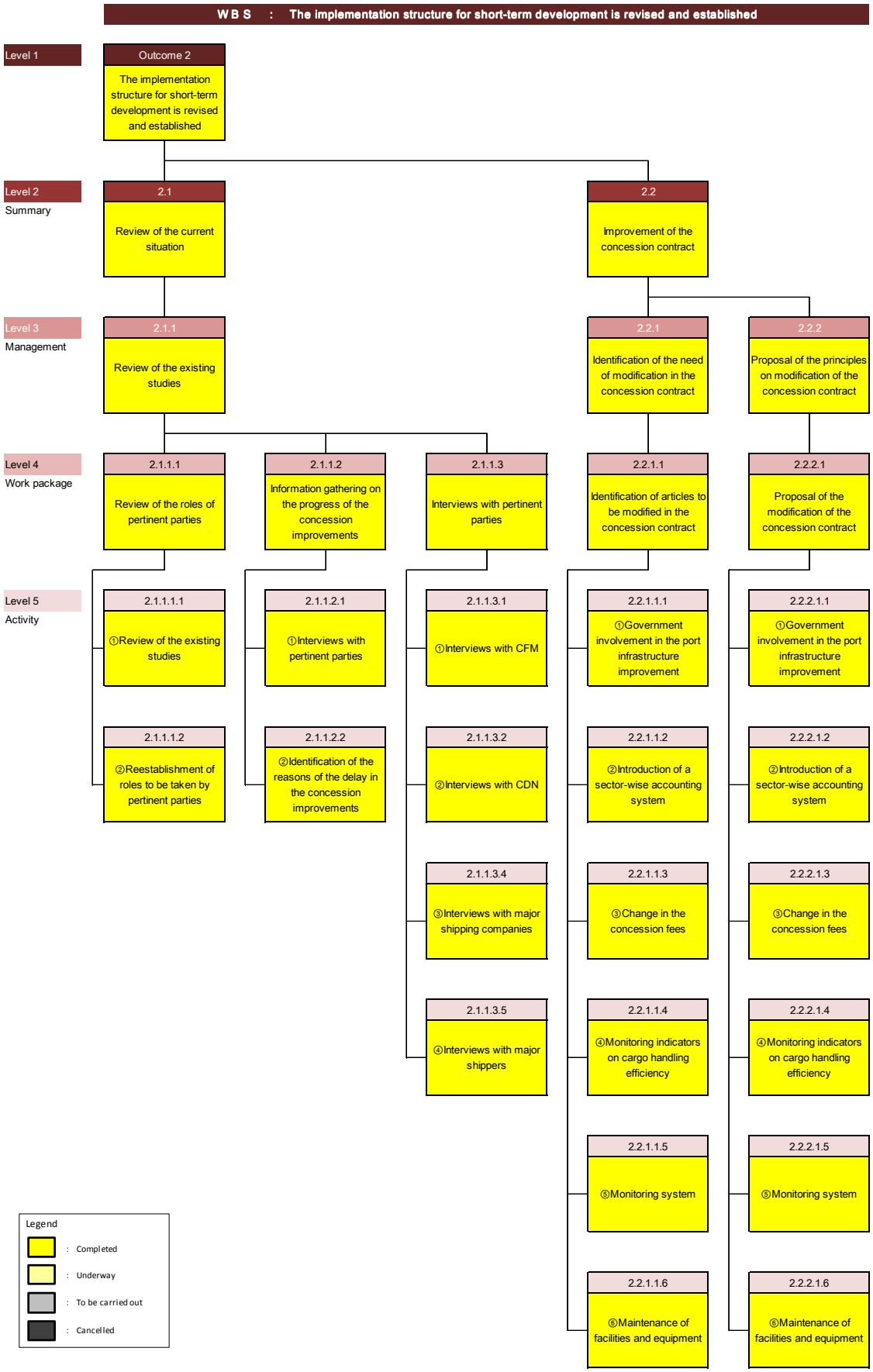


Figure 3.10-2 WBS for Implementation Structure

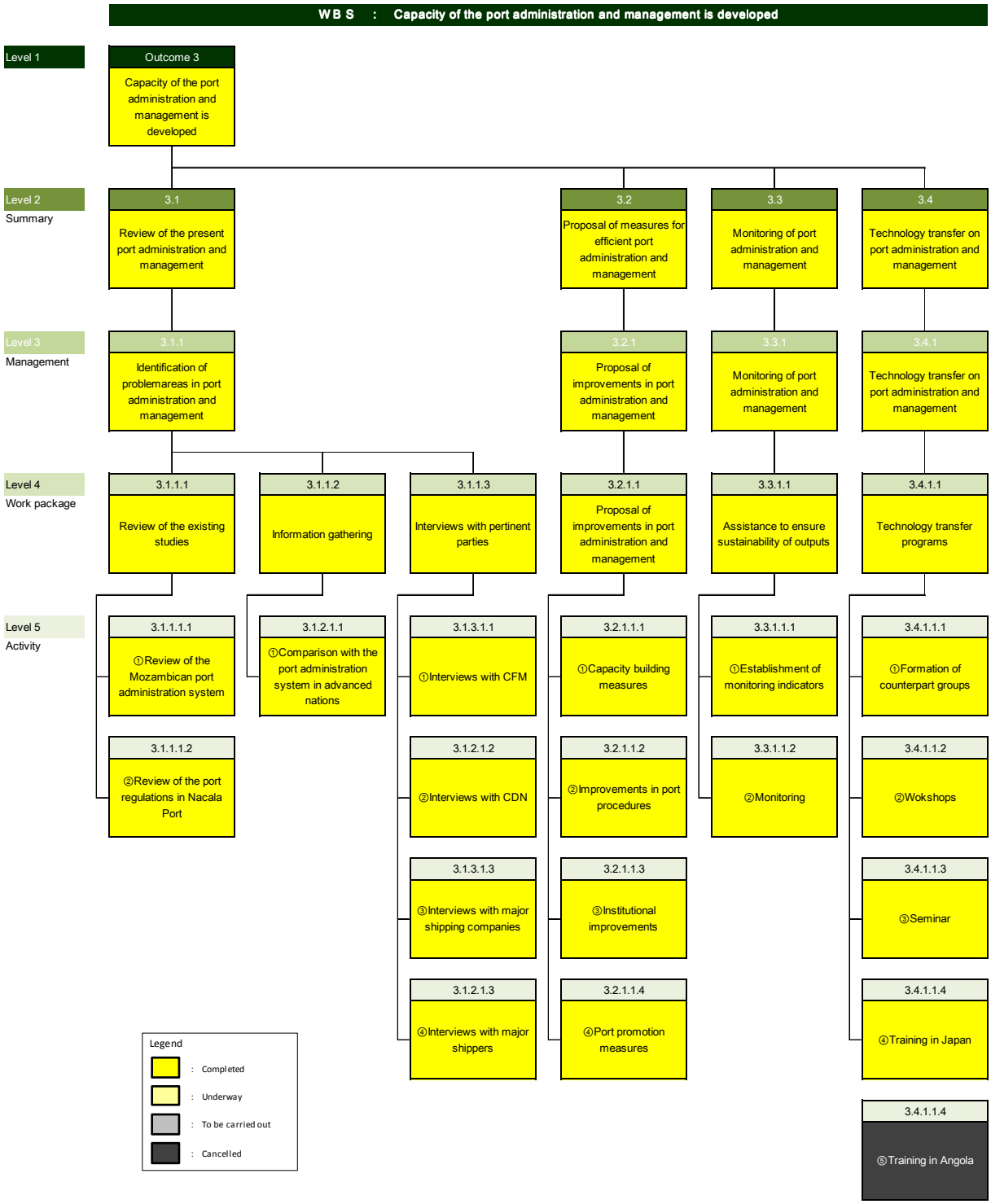


Figure 3.10-3 WBS for Port Administration and Management

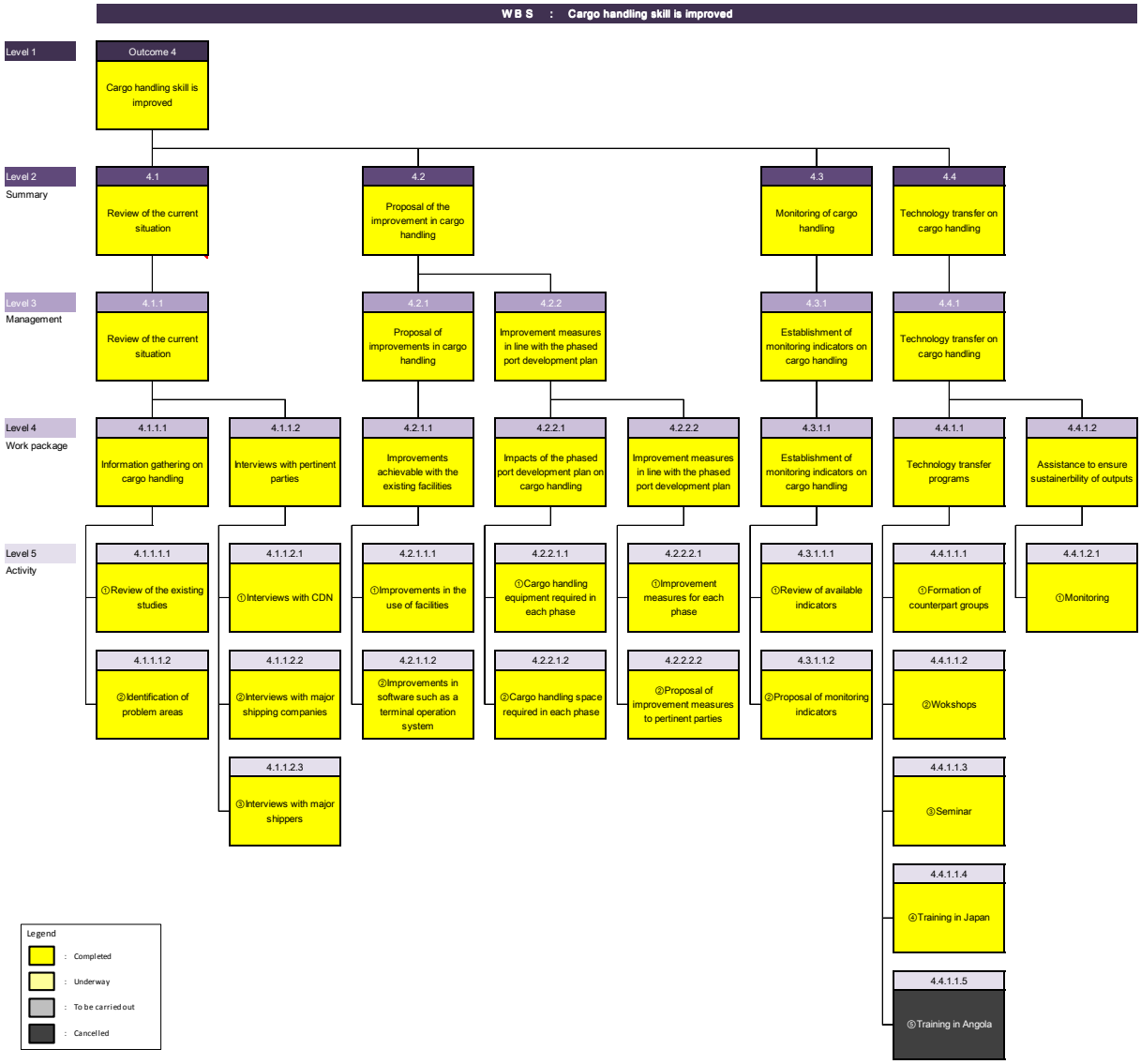


Figure 3.10-4 WBS for Cargo Handling

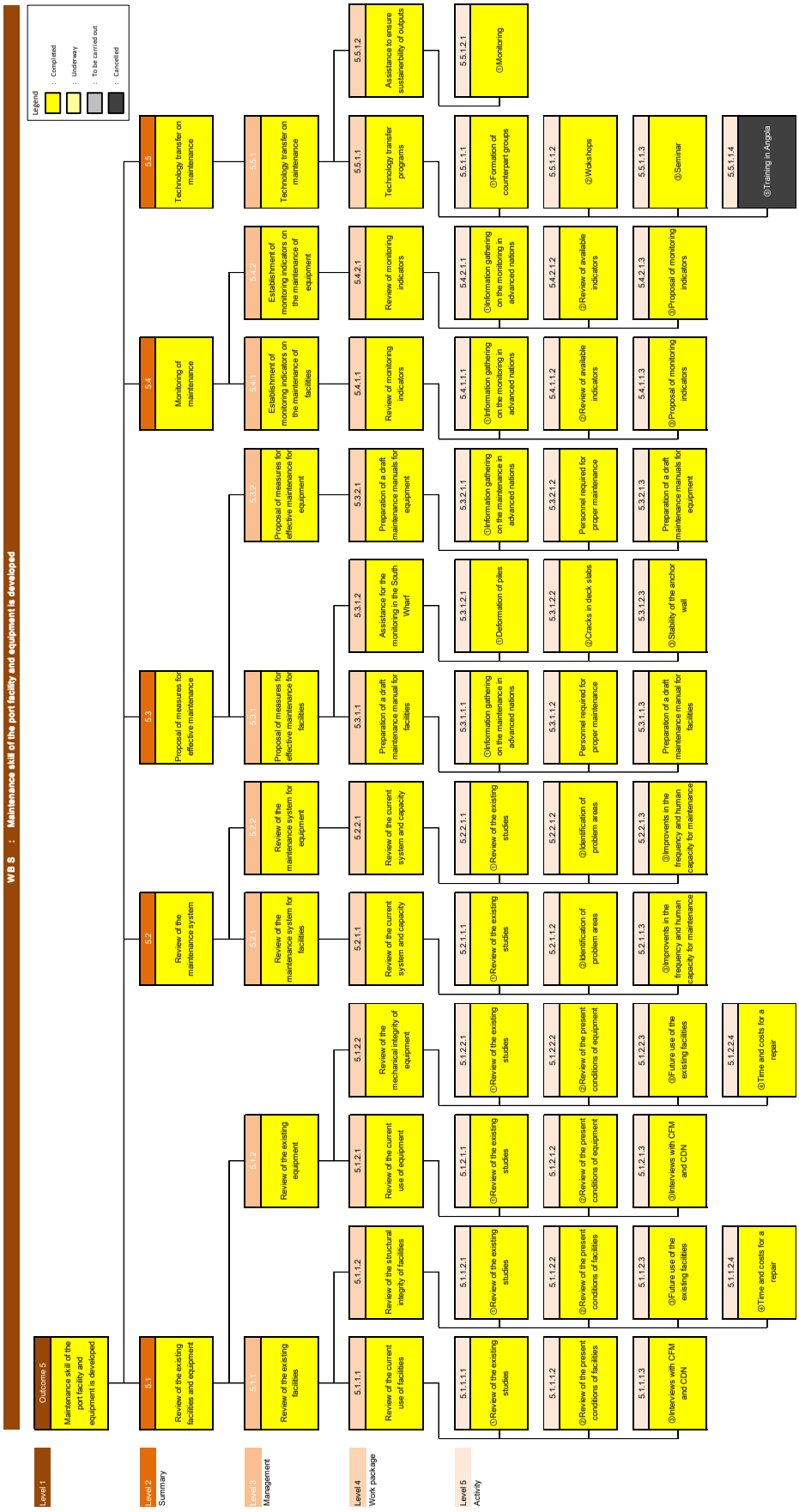


Figure 3.10-5 WBS for Maintenance

4. Achievements

4.1 Evaluation based on the Project Design Matrix

(1) Evaluation as of September 2014

The Project Team assessed the overall progress of the Project based on the PDM (Project Design Matrix) agreed on at the beginning of the Project (see Appendix-1 Project Design Matrix). At the wrap-up meeting on September 18, 2014, the Project Team and Mozambican counterparts discussed and agreed on how far the Project had progressed and what additional measures should be taken.

Progress achieved

At the wrap-up meeting on September 18, 2014, both sides agreed that the following progress had been achieved:

- ✓ With respect to port planning, the Project accomplished the target resulting in the start of ODA projects.
- ✓ With respect to port administration/management, significant progress has been made resulting in the implementation of the safety regulation and drafting of the operational regulation.
- ✓ With respect to cargo handling, significant progress has been made in such areas as upgrades of the Phaeros (container terminal operation system), strengthening of the dry terminal functions, and procurement of new spreaders.
- ✓ With respect to maintenance, significant progress has been made in such areas as the assignment of civil engineers of CFM and PN for infrastructure maintenance, start of periodical inspection/monitoring of infrastructure and decrease in the equipment downtime.

Further actions to be taken

At the wrap-up meeting on September 18, 2014, both sides agreed that the following actions should be taken to fully materialize the potential of Nacala Port:

- ✓ With respect to port planning, a Nacala Port land use plan covering the Nacala Bay needs to be formulated outside the scope of the Project in response to the changing needs of port and hinterland. A new port master plan would be a part of the land use plan.
- ✓ With respect to port administration/management, the operational regulation needs to be finalized and implemented as soon as possible. In order to clearly define the responsibility of the pertinent organizations, the revision of the concession agreement needs to be finalized. With respect to safety, additional attention should be paid during the rehabilitation projects. Lessons learned from accidents need to be circulated to all employees.

- ✓ With respect to cargo handling, their steady progress in efficiency improvement needs to be monitored. Since the Phaeros does not include automatic yard planning functions, yard planners need to be trained by overseas training and onsite OJT for a considerable amount of time. Monitoring of container handling productivity by three universally applied indicators (berth productivity, gross productivity per crane, and net productivity per crane) is also recommended. (As for the Phaeros, the Project Team believes that the Mozambican side will sooner or later have to upgrade it or replace it with an internationally-recognized computerized terminal operation system. The Project Team would also like to suggest that the Mozambican side should nominate three or four vessel planners and yard planners (nominees should preferably be logical thinkers) and then train them either overseas training or by onsite OJT. In the case of OJT, hiring two or three experienced experts from abroad for at least six months is a good idea (Spence Atkin working for TN at present can be a good resource for providing such experts). The training has to be completed before the new container yard in RTG system becomes operational).
- ✓ With respect to infrastructure maintenance, Mozambican civil engineers need to be trained by overseas training and onsite OJT. The Mozambican side needs to clarify the responsible party and the preparation for the maintenance of equipment introduced in ODA projects. A policy decision on the rehabilitation of the South Wharf is needed in consideration of the Project Team's suggestions.

Actions taken since September 2014

- ✓ Mozambican counterparts have taken decisive actions to improve the management of Nacala Port. On one occasion, the Mozambican side requested a technical meeting with the Project Team and JICA to exchange views on the future use of the South Wharf. Both sides discussed this subject in Tokyo in November 2014 and identified points to be clarified. The counterparts similarly took the initiative in the implementation of the safety regulation in December 2014. CDN drafted this regulation following the suggestions of the Project Team and held a seminar to disseminate it to stakeholders in November 2014. These actions show the Mozambican side is gradually becoming self-sustainable.

(2) Evaluation as of February 2015

PDM was updated through the 10th dispatch. At the wrap-up meeting on February 6, 2015 and the subsequently held 4th JCC on February 10, 2015, the Japanese side and Mozambican side jointly assessed the Project achievements based on the PDM and agreed that the Project had accomplished the targets (Table 4.1-1).

Table 4.1-1 Evaluation of the Project based on the PDM

Description of PDM		Achievements and future actions		
Narrative summary of outputs	Objectively verifiable indicators	Outputs up to January 2015	Evaluation of the progress as of January 2015	Forthcoming actions and recommendable actions (Items in parenthesis are out of the scope of the current TA project)
Port development strategy is developed	Port development strategy is drafted	# Revised port development plan was prepared and agreed on among pertinent parties (September 2012)		# (Master plan beyond the short-term development) # (Rehabilitation plan of the South Wharf)
The implementation structure of the short-term development is revised and established	Short-term development plan is revised	# Grant aid project started (March 2014) # Loan-1 project started D/D	Targets accomplished	
The capacity of the port administration and management is developed	# Regulation on port administration and management is drafted # Port is administered and managed according to the regulation	# Operational regulation and safety regulation are drafted # Safety regulation was announced to stakeholders in a seminar (April and November 2014), approved by the CDN board (June 2014) and then implemented (December 2014)	Targets accomplished	Operational regulation will be finalized and implemented (targeted for May 2015)
Cargo handling skill is improved	# Cargo handling capacity per hour increases # Accident rate decreases # Number of seminar/training and participants who pass the training exam increases	# Cargo handling efficiency is gradually improving through the introduction of Phaeros and segregation of containers which has resulted in a decrease in vehicle turn-round time # Accidents are recorded and preventive measures are analyzed # 170 counterparts participated in 16 sessions of lecture/discussions on cargo handling # Phaeros (terminal operation system) is operational and all agents are participating in the system # Leveling of the dry terminal was completed (September 2014) but severe rain falls caused damages requiring the terminal to be paved # New spreaders arrived (September 2014) and are now in use	Targets accomplished	# Wireless data transmission will be installed before mid-March # Container handling productivity needs to be monitored by 3 universally applied indicators # 4 yard planners will be hired # Lessons learned from accidents should be circulated among all employees
Maintenance skills of the port facility and equipment is developed	# Number of maintenance technicians increases # Maintenance cost for existing facility	# Three civil engineers (two from CFM and one from PN) are assigned for infrastructure maintenance # Counterparts received infrastructure monitoring	Targets accomplished	# Further study and policy decision on the rehabilitation of the South Wharf considering the suggestions of JICA Team # Compilation of an spare

Description of PDM		Achievements and future actions		
	and equipment decreases # Number of seminar / training and participants who pass the training exam increases	training using survey equipment (September 2014) # Downtime ratio of equipment decreased (from 39 % in 2012 to 21 % in 2014) # In daily operation meetings, equipment conditions are reported and shared among all people concerned # 110 counterparts participated in 15 sessions of lecture/discussions on infrastructure maintenance # Counterparts understood the survey and analysis needed to determine the measures to rehabilitate the South Wharf # A Mozambican delegation had a technical meeting on the South Wharf with Japanese counterparts in Japan (November 2014) # 94 counterparts participated in 10 sessions of lecture/discussions on equipment maintenance # Periodical maintenance plan for equipment is developed and implemented		parts inventory list

4.2 Evaluation based on monitoring indicators

In September 2012, the Project set indicators to monitor the progress of the improvement in Nacala Port. At the wrap-up meeting on February 6, 2015 and the subsequently held 4th JCC on February 10, 2015, the Japanese side and Mozambican side jointly assessed the monitoring indicators and confirmed most of them have shown significant progress through the technical assistance (Table 4.2-1).

Table 4.2-1 Evaluation of the Project based on the monitoring indicators

Subject	Indicators	Milestones/goals	Baseline	Achievements
Port development planning	Progress of investment packages	Start of Grant aid Start of Loan-1 Start of Loan-2	Investment packages not started yet as of April 2012.	Grant aid project started (March 2014) # Loan-1 project started D/D (May 2014)
Port administration and management	Number of participants in seminars and workshops	Training in Japan in 2012, 2013 and 2014 Training in Angola in 2013 Training in Nacala and Maputo		Training in Japan in 2012, 2013, 2014 (In total, 31 counterparts received technical transfer in Japan) Key counterpart training in 2013 substituted for Training in Angola
Cargo handling	1. Gross vessel productivity of container handling 2. Net vessel productivity of container handling 3. Net gang productivity of container handling 4. Dwelling time of containers	10 boxes (=13.0 TEU) /SG/hour as Net Productivity	1. 6.7 box/hour/vessel (2011) 2. 7.6 box/hour /vessel (2011) 3. 5.0 box/hour/gang (2011) 4. 8.55 days for transit containers (2012)	1. 8.2 box/hour/vessel (2014) 2. 10.6 box/hour/vessel (estimated by the Project Team, 2014) 3. 6.3 box/hour/gang (estimated by the Project Team, 2014) 4. Average dwelling time is not recorded
Maintenance of facilities	Frequency of port area patrol (regular inspection)	Regular inspection is started Budget for maintenance is allocated.	No regular inspection No budgetary allocation	Inspection of infrastructure started in August 2014 MT 15,380,000 is requested to the management for FY 2015 budget
Maintenance of equipment	Working time ratio of equipment Annual budgetary allocation for facility maintenance	60-70 % Sufficient amount of budget	51.77 % (2012) MT 27,770,000 (2011)	79 % (2014) MT 92,369,000 is allocated in FY 2015 budget

5. Further needs of technical assistance

As described in section 4, the Project has successfully achieved its goal envisaged at its commencement. In order for Nacala Port to keep up with changing economic environment, however, the Port needs to further improve its efficiency. At the 4th JCC, JICA and the Mozambican side exchanged views on the progress of the Project and further needs of technical assistance. Both sides agreed that JICA would respond to the needs by dispatching short-term experts and carrying out overseas training of counterparts (Table 5-1).

Table 5-1 JICA Technical Assistance Program Agreed at the 4th JCC

Item	Description	Remarks
Form of Technical Assistance	Dispatch of short-term Japanese experts and overseas training of counterparts	Not as the form of project type
Field of Experts	1) Port Administration 2) Terminal Operation 3) Infrastructure Maintenance 4) Equipment Maintenance	The first dispatch will be around June 2015 taking into considerations the lead time for procurement
Duration	2 Years (Start from around June 2015)	
Frequency of Dispatch	About 3 weeks at one time About 3 times a year (About 6 times in 2 years in total)	1) Timing of each dispatch will be decided in a timely manner 2) Seminar and/or workshop can be held as necessary
Counterpart Agency	1) MTC 2) CFM 3) CDN 4) PN	

6. Conclusions and Recommendations

6.1 Conclusions

As described in Chapter 4, the targets set in this Project have been successfully reached. The Mozambican side has requested continued technology transfer from Japan as stated in Chapter 5, which reflects increased expectations and trust in Mozambique toward Japanese technical assistance. This section describes the background of how the Project has come this far.

(1) First stage – packaging of ODA projects and establishment of trustful relations

This three-year Project comprises ten dispatches of experts and can be divided into two stages. The first stage corresponds to the period between April and September in 2012 in which three dispatches were carried out. The second stage corresponds to the period between December 2012 and January 2015 in which seven dispatches were carried out. In the first Stage, the Project was focused on the preparation of ODA project packages. The Project Team prioritized the project components proposed in the Feasibility Study in consideration of the Japanese ODA scheme, requests of the Mozambican side, and their urgency. The Project Team then bundled them into three investment packages, grant aid, loan 1, and loan 2. In this process, the Project Team and Mozambican counterparts maintained close communications through the joint site visit (in the first dispatch) and presentations on the Japanese ODA schemes and urgency of each project component. The Mozambican side thus came to understand the reasoning of the project package proposed by the Japanese side and basically agreed to the proposal (in the third dispatch).

The first stage was significant in three areas: 1) expediting the implementation of ODA projects implementation based on mutually agreeable project packages; 2) technology transfer on rational port planning; 3) establishment of trustful relations through exhaustive discussions between the two sides. The third area was no less important than the first two and instrumental in the smooth implementation of technology transfer in the second stage.

(2) Second stage – implementation of technology transfer and cultivation of self-initiative

In September 2012 (the third dispatch), Mozambican counterparts requested that the Project be thereafter focused on technology transfer and capacity building. In response to the Project Team's suggestions for the improvement of Nacala Port, the Mozambican side had internal discussions and submitted its itemized requests for technology transfer in December. It was during this time that Mozambican counterparts began to take the initiative in regards to technology transfer. The Mozambican side is determined to manage Nacala Port by Mozambicans, in contrast to the other major Mozambican ports which are managed under foreign-invested companies. The Mozambican side therefore hopes that the benefit of technology transfer will not be limited to Nacala Port but extended to officials stationed in Nampula and Pemba.

In the second stage, the Project Team first gave general presentations on port management (in

December 2012) and then focused its program on areas in need of urgent attention. The Project Team took a two-way approach where only a limited amount of time was allocated for lectures by Japanese experts while more time was dedicated to counterparts' presentations, discussions, and joint site monitoring. This approach was successful in cultivating self-initiative among counterparts as evidenced by the strong content of their presentations at the seminar held in February 2015.

The Project Team identified areas in need of urgent attention in each dispatch based on site monitoring and discussions. Just to name a few, the Team identified ten points at the third dispatch and seven areas in the seventh dispatch. Mozambican counterparts showed initiative in sincerely responding to those suggestions (Table 6.1-1). They took several proactive measures such as: implementation of safety regulations, upgrades of the terminal operation system (Phaeros), improvement of the dry terminal, procurement of spreaders, preparation of maintenance plans for infrastructure and equipment. These actions indicate that Mozambican counterparts have appreciated the Project Team's suggestions and take necessary steps to secure budgetary requirements. The leadership displayed by the chief counterpart, Dr. Ana Dimande (MTC), was particularly noteworthy.

Table 6.1-1 Recommendations of the Project Team and responses by the Mozambican side

Recommendations made in the third dispatch (September 2012)	Responses by the Mozambican side	Recommendations made in the seventh dispatch (December 2013)	Responses by the Mozambican side
Establishment of monitoring indicators	Monitoring indicators were established in the third dispatch		
Strengthening of monitoring functions of MTC/CFM on the port's performance	Involvement of MTC and CFM is stronger than before		
Strengthening of marketing functions of CDN	PN opened its website (August 2013). President of PN visited the HQ of CMA CGM. PN assigned a marketing official in the Commercial department		
Enforcement of the regulations of Nacala Port	Operational Regulations were drafted and will be enforced in May 2015		
Achievement of higher container productivity using attachment with flippers and ropes	A spreader with flippers manufactured by CDN was tested but caused damages to containers	Procurement of spreaders with flippers	TN asked a South African firm to manufacture new spreaders. They are currently undergoing further upgrades
Renaming and striping of the container yard	Terminal congestion made it impossible	Upgrading and start of the Phaeros system	Following provisional upgrades, the Phaeros became operational with the participation of all shipping agents
Addition of reach stackers	Addition of a reach stacker was confirmed in the fifth dispatch		Two more reach stackers were added
Employment of civil engineers for infrastructure maintenance	PN employed a Portuguese advisor and assigned a PN official for infrastructure maintenance		
Monthly maintenance of infrastructure	PN contracted Geoibericos, a Portuguese consultant, to formulate a periodical maintenance plan	Start of infrastructure monitoring based on the Geoibericos report and employment of a civil engineer	CFM and PN have started site inspections, however, frequency is still unsatisfactory. CFM and PN respectively assigned two civil engineers and one civil engineer
Establishment of a maintenance management plan for cargo handling	Prepared by PN. TN employed Sri Lankan engineers		
		Review of the safety regulations	Following a seminar cohosted by MTC and JICA, the safety regulations entered into force in December 2014
		Determination of the pavement design of the dry terminal	Compaction works were completed before September 2014. Pavement works are needed to overcome the damage inflicted by heavy rainfall
		Review of the rehabilitation measures for the South Wharf indicated in the Geoibericos report	A Mozambican delegation visited Japan in November 2014 and had technical discussions with the Japanese side
		Monitoring of the container handling productivity based on three indicators	The Project Team has given lectures on the method to calculate the indicators

(3) Training in Japan – introduction of Japanese technology and deepening of counterparts' understanding of Japan

During the Project, four training courses in Japan were implemented. In total, 35 counterparts from six agencies visited Japan and learned about Japanese technology and its application to port construction and port management as well as the latest trends of the port and shipping industries in the world. JICA invited four key counterparts in response to a request from the Mozambican side. The key counterpart training program included a networking session where key counterparts made presentations on Mozambican ports and railways to Japanese business people. This occasion was found to be meaningful in deepening the economic ties between the two countries. All participants were impressed with Japan's state-of-the-art technology and developed an understanding of Japanese culture and trust in Japan.

(4) Expectations and trust toward technology transfer from Japan

As described earlier, Mozambican counterparts requested continued technology transfer from Japan in September 2012 (in the third dispatch). They appreciated Japanese technology transfer consisting of programs responding to needs in Nacala Port and aiming to cultivate self-sustainability. As a result, the Mozambican side expressed its request for the extension of the Project as early as December 2014 (in the seventh dispatch). The trustful relations developed between the two sides lead to the visit of a Mozambican delegation to Japan in November 2014 where they had discussions with Japanese consultants and JICA on the rehabilitation of the South Wharf.

(5) Flexibility in responding to the needs in Nacala Port

In the initial stage, the Project focused on the packaging of ODA projects, with roughly half of the Project resources being assigned to this task. In June 2012 (in the second dispatch), MTC requested technology transfer in four areas (port planning, port management, cargo handling, maintenance) in each dispatch. The Project Team also recognized the importance of technology transfer in the four areas in consideration of the capacity of counterparts and present conditions of Nacala Port. The need of technology transfer on cargo handling and maintenance, in particular, was found greater than previously expected. Considering these circumstances, JICA approved an increase in the Project resources through contract modifications and thus made the required technology transfer possible (Table 6.1-1, Table 6.1-3).

Table 6.1-2 Expert dispatch plan after November 2012 (original plan)

	FY 2012 (after November)	FY 2013	FY 2014	Total
Port planning	1	2	2	5
Port administration and management	1	2	3	6
Cargo handling	0	1	1	2
Maintenance	1	0	0	1

Table 6.1-3 Expert dispatch plan after November 2012 (modified plan)

	FY 2012 (after November)	FY 2013	FY 2014	Total
Port planning	1	3	3	7
Port administration and management	1	3	3	7
Cargo handling	1	3	3	7
Maintenance	1	3	3	7

(6) JICA expert as the resident project coordinator

JICA stationed Mr. Nobuaki Kuribayashi in Nacala as the resident project coordinator from September 2012 to February 2015. Designation of Mr. Kuribayashi, a fluent Portuguese speaker, was instrumental in the effective arrangement of technology transfer programs. The continuous presence of a JICA expert in Nacala can be credited with the development of trust in the Mozambican side for Japanese technical assistance.

6.2 Recommendations

(1) Continuation of Japanese technical assistance

The Project Team carried out technology transfer tailored to the needs found in Nacala Port through the dispatch of experts (ten times) and implementation of counterpart training programs in Japan (four times). This technology transfer made counterparts aware of the importance of efficiency and maintenance resulting in proactive actions such as designation of civil engineers, formulation of regulations, improvement of facilities, and implementation of studies. The Mozambican side highly appreciates Japanese technical assistance aimed at self-sustained and continuous capacity building. At the same time, delivery of equipment and development of infrastructure by Japanese ODA are underway in Nacala, which are increasing expectations and trust on the Mozambican side toward Japanese assistance. It is important to continue technical assistance at Nacala Port in future. Bearing this in mind, both sides agreed to continue Japanese technical assistance in February 2015 (in the tenth dispatch). Japanese technical assistance is expected to aim at continuous development of self-sustainability.

As described in section 6.1, designation of a resident project coordinator was effective in facilitating implementation of technology transfer programs. Mozambican counterpart agencies in Maputo and Nacala need to carry out program coordination if no resident coordinator is assigned in the next phase of technical assistance. The Project Team would like to emphasize that the assignment of middle-level counterparts in Maputo is particularly important for port administration for which the central government is responsible.

(2) Toward the achievement of the overall goal

In order to achieve the overall goal of the Project (“The Nacala Corridor area is developed through the enhancement of trade and economic activities”), Nacala Port should provide modern and efficient services. Development of a natural gas field in northern Mozambique may give rise to the creation of gas-chemical industries in the vicinity. In order to create a large number of jobs and thus spread the benefit of economic development among people in the region, however, development of manufacturing industries capitalizing on resources in the hinterland such as coal and agricultural products is needed. In this regard, Nacala Port needs to provide efficient services that are competitive with neighboring ports taking full advantage of infrastructure and equipment developed by Japanese ODA. Nacala Port has been suffering from inefficient cargo handling due to a lack of gantry cranes.

However, the improvement of the North Wharf and development of a modern container terminal equipped with gantry cranes and RTGs through Japanese ODA will completely change the picture. Since counterparts lack experience in operating these facilities and equipment, Japanese technical assistance at the initial stage would be effective.

(3) Strengthening of port-related governmental agencies

Throughout the Project, lack of periodical infrastructure monitoring at Nacala Port has remained an issue of concern. This is because the complex relationship among MTC, CFM, CDN, PN is not clearly sorted out leaving the distribution of responsibilities unclear. In addition, governmental functions for port administration are weak due to the port privatization and restructuring of CFM recommended by the World Bank. Administrative functions for the port sector need to be strengthened in the central government to prevent disorderly port development and promote port development that contributes to the growth of the Mozambican economy.

7. Appendix

Appendix-1: Project Design Matrix
Appendix-2: Minutes of Meetings
Appendix-3: Record of Task Force Meetings
Appendix-4: Seminar on Nacala Port held on 5th Feb 2015
Appendix-5: Statistical Trends of Port Performances

Appendix-1: Project Design Matrix

ANNEX – 1 : PDM(Tentative)
Title of the Project:PROJECT FOR IMPROVEMENT OF NACALA PORT
Target Area: Nacala Port　　Project Period: Feb 2012 – Feb 2015(Three years)　　Date: 10th December, 2011

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal To promote trade and economic activity and to develop the Nacala Corridor area.	GRDP in the Nacala corridor area, traffic volume in the Nacala corridow area (train, car)	Statistical data and analysis	
Project Purpose To improve efficiency of the Port	Carloadings amount, Loading time	Statistical data	
Outputs 1. Port development strategy is developed	1-1. Port Development Strategy is drafted	1-1 Exsitence of port development plan	
2. The implementation structure for short-term development is revised and established	2-1. Short-term Development Plan is revised	2-1 Exsitence of implementation structure	
3. The capacity of the port administration and management is developed	3-1. Regulation on port administration and management is drafted 3-2. Port is administered and managed according to the regulation	3-1 Exsitence of the concession contract	
4. Cargo handling skill is improved	4-1. Cargo handling capacity per hour increases	4-1. Statistical data	
	4-2. Accident rate decreases	4-2. Interview survey	
	4-3. Number of seminar/training and participants who pass the training exam increases	4-3. Statistical data	
5. Maintenance skill of the port facility and equipment is developed	5-1. Number of maintanance technician increases	5-1. Interview survey	
	5-2. Maintenance cost for exisiting facility and equipment decreases	5-2. Interview survey	
	5-3. Number of seminar/training and participants who pass the training exam increases	5-3. Statistical data	
Activities	**Input**		
(1-1) To review and modify the existing port plan by stakeholder	**Japanese side**	**Mozambique side**	
(1-2) To modify existing yard plan	1. Experts	(a) Services of MTC' s counterpart personnel and administrative personnel	
(1-3) To subeit modified plans to technical committee for Nacala port which has already been established in the Republic of Mozambique	JICA will provide the services of the Japanese experts	(b) Suitable office space with necessary equipment	
(1-4) To collect necessary information for future port development	(a-1) Dispatch of Expert (Long Term Expert)	(c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the imp ementation of the Project other than the equipment provided by JICA	
(1-5) To formulate practical stage plan taking into consideration of rehabilitation and expansion plans	Coordination, Port Promotion	(d) Necessary information for the suitable furnished accommodation for the JICA experts and their families	
(1-6) To provide technical advice for port development	(a-2) Dispatch of Experts (Short Term Expert)	(e) Information as well as support in obtaining medical service	
(2-1) To review the roles and the responsibilities among MTC, CFM and CDN	Port Development Plan	(f) Credentials or identification cards	
(2-2) To develop instruction for revising the concession contract for smooth implementation of port development project	Port Administration and Management	(g) Available data (including maps and photographs) and information related to the Project	
(3-1) To review the present port administration and management	Facility and Equipment Maintenance	(h) Running expenses necessary for the implementation of the Project	
(3-2) To propose efficient port administration and management	Cargo Handling	(i) Expenses necessary for transportation within the Republic of Mozambique of the equipment as well as for the installation, operation and maintenance thereof	
(3-3) To monitor operation and management of administrative organization for administration	(c) Machinary and Equipment	(j) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds introduced into the Republic of Mozambique from Japan in connection with the implementation of the Project	
(3-4) To provide technical advice for port administration and management	Necessary office machinery for office space		
(4-1) To review the situation of cargo handling	2. Counterpart Training in JAPAN and/or the third countries		
(4-2) To propose the improvement plan for cargo handling	Port Development Plan		
(4-3) To develop the indicators for monitoring of cargo handling	Port Administration and Management		
(4-4) To conduct technical transfer for cargo handling	Facility and Equipment Maintenance		
(5-1) To review the situation of the port facilities, cargo handling equipment, and so on	Cargo Handling		
(5-2) To review the maintenance situation of the port facilities, cargo handling equipment and so on.	Other necessary fields		
(5-3) To propose appropriate maintenance of the port facilities, cargo handling equipment and so on			
(5-4) To develop the indicator for monitoring the maintenance of the port facilities and cargo handling equipment			
(5-5) To conduct technical transfer for maintenance			

Appendix-2: Minutes of Meetings

1. The 1st JCC (1st Dispatch, 2012-04)

Conclusion
of
The First Joint Coordination Committee
for
The Project for Improvement of Nacala Port
in Republic of Mozambique

With regard to the Annex 1 of the "Record of Discussions on The Project for Improvement of Nacala Port in Republic of Mozambique Agreed upon between The Government of The Republic of Mozambique and Japan International Cooperation Agency" signed on December 22, 2011 (hereinafter referred to as "the R/D), the first meeting of the Joint Coordination Committee (hereinafter referred to as "JCC") for the Project for Improvement of Nacala Port in Republic of Mozambique (hereinafter referred to as "the Project") was held on April 23 following an on-site meeting in Nacala on April 16. The attendance list of the first JCC and the on-site meeting are attached hereinafter.

At the meeting of JCC, the Work Plan of the Project was presented by the JICA expert team for the Project (hereinafter referred to as "the Project Team"). Following the presentation and discussions, JCC approved the Work Plan.

Responding to the request of the Project Team, the Mozambican side assigned the following officials as counterparts:

(Planning/Administration)

Dr. Ana Dimande, Director of Nacala Port Development, MTC
Mr. Anibal Manave, Adviser of the Board, CFM
Mr. Christiano Oliveira, CFM
Mr. Agostinho F. Langa Jr., Executive Director of Port, CDN

(Capacity building)

Mr. Inacio Rodrigues Junior, CFM

(Operation/Cargo handling)

Mr. Danilo Laisse, MOE
Mr. Alfredo Artur Mafuca, CFM
Mr. Lucas Jose Cipriano, Operational Director, CDN
Mr. Freeman Dickie, Chief of Container Terminal, CDN

(Maintenance)

Mr. Orland Manhique, MTC
Mr. Francisco Rogerio Martins, Ship engineer, MTC
Mr. Antonio Frederico Candido, CDN

Mr. Afonso Vasco da Cunha Junior, CDN

(Statistics)

Mr. Ali Abdala, Statistics Staff, CDN

The Mozambican side requested that the training program should be further discussed between the Project Team and Mr. Inacio Rodrigues Junior, CFM. The Project Team responded that it would elaborate on the training program based on the needs of the Mozambican side it finds thorough the first and second visit to Mozambique and include the program in the Progress Report (1) to be presented in September 2012.

Based on discussions held in the on-site meeting on April 16, the Project Team proposed the future development strategy of Nacala Port up to 2018 including a layout plan and berth allocation plan. The Project Team explained that the urgent rehabilitation project would be a part of the future layout plan and act as the first step of the development strategy. The Project Team also stated that the rest of the port development components would need financing sources other than the Japanese grant aid. JCC basically accepted the proposal of the Project Team and requested that the Project Team further elaborate on the development strategy. The Project Team responded that the development strategy with reasoning would be included in the Project Progress Report (1).

JCC concurred on the importance and urgency of the development of Nacala Port. Recognizing the issues identified in R/D and Work Plan as Output 1 to 5, JCC agreed to work on those issues.

Maputo, April 23, 2012

Mitsuhiko Okada	Dr. Ana Matusse Dimande
JICA Team Leader	Coordinator,
The Project for Improvement of	Nacala Port Development Project
Nacala Port in Republic of Mozambique	Ministry of Transport & Communications

Participants of the 1st Joint Coordination Committee (Maputo, April 23, 2012)

Name	Organization	Position
Dr. Ana Matusse Dimande	MTC	Coordinator
Mr. Anibal Manave	CFM	Adviser of the Board
Mr. Inacio Rodrigues Junior	CFM	
Ms. Marilia ~~Beae~~ Bene	CFM	
Dr. Antonio Luis	MPD	Japan Desk
Ms. Jorgina Manhengane	Ministry of Energy	Advisor, Office of The Minister
Mr. Yuki Aratsu	JICA Headquarters	Deputy Director General, Economic Infrastructure Department
Mr. Yutaka Araki	JICA Headquarters	Economic Infrastructure Department
Mr. Kota Sakaguchi	JICA Headquarters	Assistant Director, Africa Department
Mr. Ryuichi Nasu	JICA Mozambique office	Resident Representative
Mr. Akihiro Miyazaki	JICA Mozambique office	Assistant Chief Representative
Ms. Harumi Maruyama	JICA Mozambique office	Assistant for Project Formation
Mr. Mitsuhiko Okada	JICA Expert	Team Leader / Port Planning (1)
Mr. Masao Ichinose	JICA Expert	Port Cargo Handling (1)
Mr. Kiyoshi Nakashima	JICA Expert	Port Management & Operation
Mr. Tatsuo Kawabata	JICA Expert	Facility & Equipment Maintenance / Training Coordination
Mr. Masafumi Ito	JICA Team (Urgent Rehabilitation)	Chief Consultant / Port Planning
Ms. Sanae Tanabe	JICA Team	Interpreter

Participants of the on-site meeting (Nacala, April 16, 2012)

Name	Organization	Position
Dr. Ana Matusse Dimande	MTC	Coordinator
Ms. Jorgina Manhengane	Ministry of Energy	Advisor, Office of The Minister
Ms. Natálie M.Teodor	Ministry of Energy	
Mr. Miguel Nhaca Gebuza	CFM	Executive Board Director
Mr. Anibal Manave	CFM	Advisor of the Board
Ms. Marilia ~~Beae~~ Bene	CFM	
Mr. Agostinho F. Langa Jr.	CDN	Executive Director of Port
Capt. Antonio F. Cândio	CDN	
Mr. Lucas Jose Cipriano	CDN	Operational Director
Mr. Mitsuhiko Okada	JICA Expert	Team Leader / Port Planning (1)
Mr. Masao Ichinose	JICA Expert	Port Cargo Handling (1)
Mr. Kiyoshi Nakashima	JICA Expert	Port Management & Operation
Mr. Tatsuo Kawabata	JICA Expert	Facility & Equipment Maintenance / Training Coordination
Mr. Masafumi Ito	JICA Team (Urgent Rehabilitation)	Chief Consultant / Port Planning
Mr. Isao Hino	JICA Team	Port Facility Design / Natural Condition Survey
Mr. Kazutoshi Tsuchiya	JICA Team	Cargo Handling Equipment Plan
Mr. Yuhei Yamamoto	JICA Team	Construction Planning / Cost Estimate
Mr. Yuji Hatakeyama	JICA Team	Environmental & Social Consideration
Ms. Sanae Tanabe	JICA Team	Interpreter

2. The 2nd JCC (3rd Dispatch, 2012-09)

Conclusion
of
The Second Joint Coordination Committee
for
The Project for Improvement of Nacala Port
in Republic of Mozambique

The second meeting of the Joint Coordination Committee (hereinafter referred to as "JCC") for the Project for Improvement of Nacala Port in Republic of Mozambique (hereinafter referred to as "the Project") was held on September 20 at the MTC office in Maputo. The attendance list of the second JCC is attached (Attachment A).

At the meeting of JCC, the JICA expert team for the Project (hereinafter referred to as "the Project Team") presented the progress of the Project for the first six months highlighting phased planning, areas in need of improvement, and technology transfer programs. The Project Team also presented what were discussed and suggested at the Work Shop held on September 11 at the CDN Nacala office. The meeting record with CDN Nacala is attached (Attachment B).

The Project Team requested that it would be kept informed of the change in the management and operation of Nacala Port so that it could properly respond to the needs of technology transfer on the Mozambican side.

JCC appreciated the progress of the Project and concurred on the importance and urgency of further technology transfer aimed to the improvement of Nacala Port. Toward this goal, the Project Team and the Mozambican side will jointly monitor the improvement of Nacala Port based on the monitoring indicators attached in Attachment B. The next visit of the Project Team is expected from December 4 to 22, 2012.

Maputo, September 20, 2012

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port in Republic of Mozambique

Dr. Ana Matusse Dimande
Coordinator,
Nacala Port Development Project
Ministry of Transport & Communications

(Attachment A)

Participants of the 2nd Joint Coordination Committee (Maputo, September 20, 2012)

Name	Organization	Position
(Mozambican side)		
Dr. Ana Matusse Dimande	MTC	Coordinator
Eng. Anibal Manave	CFM	Adviser
Mr. Radames Bongece	CFM	Engineer
Ms. Carmen Paula Quembo	GAZEDA	Technical
Ms Jeorgina Manhengane	Ministry of Energy	Adviser
Mr. Joao P.M. Fernandes	Porto de Norte	Administrator Adviser
Mr. Fabio T. P. Duarte	CDN	Executive Adviser
(Japanese side)		
Mr. Akihiro Miyazaki	JICA Mozambique office	Assistant Chief Representative
Ms. Yukiko Ohno	JICA Mozambique office	Assistant for Project Formation
Mr. Mitsuhiko Okada	JICA Expert	Team Leader / Port Planning (1)
Mr. Tatsuo Kawabata	JICA Expert	Facility & Equipment Maintenance / Training Coordination
Mr. Teruki Eto	JICA Expert	Port administration and management (2)
Mr. Susumu Kimura	JICA Expert	Port cargo handling (2)
Mr. Nobuaki Kuribayashi	JICA Expert	Liaison officer
Ms. Rosa Machava	JICA team	Assistant

Meeting Records
of
The Project for Improvement of Nacala Port
in Republic of Mozambique

The JICA expert team for the Project (hereinafter referred to as "the Project Team") visited Nacala from September 8 to September 18, 2012. In addition to interviews, meetings, and site surveys, the Project Team held a workshop on September 11 at the CDN Nacala office as a measure of technology transfer to Mozambican counterparts (Attachment 1).

At the workshop, the Project Team made presentations on the first progress report, port planning, port operation and management, infrastructure maintenance, and equipment maintenance. The Project Team explained how project components were prioritized and bundled into three investment packages and made several suggestions aimed to improve Nacala Port. Following are main points of the suggestions in need of urgent attention.

1. Establishment of monitoring indicators (Attachment 2)
2. Strengthening of monitoring functions of MTC/CFM on the port's performance
3. Strengthening of marketing functions of CDN
4. Enforcement of the Regulation of Nacala Port
5. Achievement of higher container productivity using attachment with flippers and ropes
6. Renaming and striping of the container yard
7. Addition of reach stackers
8. Employment of civil engineers for infrastructure maintenance
9. Monthly maintenance of civil infrastructure
10. Establishment of a maintenance management plan for cargo handling equipment

The Mozambican side will take into account these suggestions in the future management and operation of Nacala Port. Both sides will jointly monitor the improvement of Nacala Port based on the monitoring indicators.

The Mozambican side will keep the Project Team informed as to how the transition of the management and operation of Nacala Port from CDN to Porto de Norte will be progressing. Accordingly, the Project Team will continue to tailor its technology transfer program to the needs

of the Mozambican side. The next visit of the Project Team to Nacala is expected from December 9 to December 20, 2012. Mr. Nobuaki Kuribayashi, a JICA expert, started his activity as the resident coordinator of the Project on September 5, 2012 and will act as a liaison officer for the Project.

Nacala, September 13, 2012

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port

Mr. Agostinho E. Langa Jr.
Executive Director of Port
CDN

(Attachment 1)

Participants of the 1st Workshop in CDN Nacala

Name	Organization	Position
1. Braulio F Catutula	CFM - Norte	MGT& OPS officer
2. Eusebio A.R.logiveca	CDN – Port DNCL	Phaeros System Supervisor
3. Lucas Jose CePrian	CDN – Nacala Port	Port operations manager
4. Antonio Frederico Candido	CDN – Nacala Port	Maintenance Director
5. A. Langa	CDN	Port Director
6. Cristiono de Oliveira	CFM	Infrastructure Supervisor
7. Jose Jogfoim Lands	CFM - Norte	Delegado / NCL
8. Danilo A. Laice	Petromoc	Superintendence
9. W.G.D Nishantha	Terminas do Norte	Port Operation Manager
10. I.H.Sumbane	CDN - Nacala	CH maintenance service
11. Afonso Vasco da cunha junior	CDN - Port	Instalacoet Portuartis
12. Bonifacio A Muassabao	CDN - Porto	General cargo manager
13. Eusebio Armando	CDN - Porto	DOP-CCOP
14. Loni Shott	CDN	Logistics manager
15. Freeman Dickle	CDN	Container Terminal manager
16. Fernanda de Carvalho	Admar - Nacala	Accountant
17. A. Bafael Sigola	CFM	Mainatenance
1. Mitsuhiko Okada	OCDI	Team Leader
2. Teruki Eto	OCDI	Expert
3. Susumu Kimura	OCDI	Expert
4. Tatsuo Kawabata	OCDI	Expert
5. Nobuaki Kuribayashi	JICA	Expert

(Attachment 2) Monitoring Indicators

Subject	Indicators	Milestones/goals	Baseline
Port development planning	Progress of investment packages	Start of Grant aid Start of Loan-1 Start of Loan-2	Investment packages not started yet as of September 2012.
Port administration and management	Number of participants in CP training in Japan Number of participants in seminars and workshops	Training in Japan in 2012, 2013 and 2014 Training in Angola in 2013 Training in Nacala and Maputo	10 counterparts received training in Japan in August /September 2012 Workshop was held in Nacala in September 2012 and attended by 17 Mozambican participants
Cargo handling	1. Gross vessel productivity of container handling 2. Net vessel productivity of container handling 3. Net gang /crane productivity of container handling 4. Dwelling time of containers	3. 10 boxes (=13.0 TEU) /ship gear/hour as net productivity 4. Dwelling time of 6.6 days	1. 6.7 box/hour/vessel (2011) 2. 7.6 box/hour /vessel (2011) 3. 5.0 box/hour/gang (2011) 4. 8.55 days (2012)
Maintenance of facilities	Frequency of port area patrol (regular inspection) Annual budgetary allocation for facility maintenance	Regular inspection is started Budget for maintenance is allocated.	Number of patrol is zero. Annual budget is zero.
Maintenance of equipment	Working time ratio of equipment Annual budgetary allocation for equipment maintenance	60 – 70 % Sufficient amount of budget is allocated	51.77% (as of 1 Jun 2012) MT27,770,000- (Year 2011)

3. The 5th Dispatch (2013-04)

Progress
of
The Project for Improvement of Nacala Port
in Republic of Mozambique

The JICA expert team for the Project (hereinafter referred to as "the Project Team") visited Mozambique from April 7 to April 19, 2013. On April 10, The Project Team presented the progress and technical assistance plans of the Project to the Mozambican side in a meeting attended by representatives of MTC, CFM, CDN, and PN (The attendance list of the meeting is attached (Attachment A)).

1. At the meeting, the Mozambican side gave a presentation on the transfer of the port operation from CDN to PN.
2. PN expressed its commitment to achieve efficient and professional port operation following the suggestions of the Project Team emphasizing that PN's introduction of a new reach stacker in March was an example of the commitment.
3. The Mozambican side appreciated the progress of the Project and expressed its strong interest in receiving continued technical assistance from the Project Team. The Project Team expressed its intention to continue its technical assistance responding to the needs arising from recent developments surrounding Nacala Port. The Project Team also highly appreciated the Mozambican side's proactive actions in responding to the Team's suggestions aimed to improve Nacala Port.
4. The Mozambican side agreed to this year's counterpart training plan in Japan (One for three key counterparts planned in July and another for up to ten middle-level counterparts planned in September).
5. Both sides agreed that PN should appoint focal persons for the Project Management Unit for the following areas: port planning, port administration, cargo handling, and maintenance (The record of discussions of the meeting is attached (Attachment B)).

The Project Team gave several lectures at Nacala for Mozambican counterparts including participants from Pemba Port (The lecture program is attached (Attachment C)). The Team also carried out site inspections of infrastructure (South Wharf and North Wharf) and equipment as well as interviews and confirmed the latest monitoring indicators related to cargo handling and maintenance (February/March 2013) as follows:

1. Net crane/gang productivity: 7 Box/vessel/hour
2. Working time ratio of equipment: 67 %

The Project Team found that the South Wharf container yard area 30-m behind the quay line suffered significant settlement due to the continued deterioration the Wharf. The Team is therefore suggesting that the South Wharf deck structure should avoid excessive forces and/or loads (The Team's findings and suggestions are attached (Attachment D)). The use of heavy equipment on the South Wharf deck structure is not recommendable.

The Project Team suggested to the Mozambican side that a civil engineer of PN should be involved in the preparation and implementation of the maintenance action plan for infrastructure. The Project Team also requested the Mozambican side to regularly provide the record of latest monitoring indicators. The next visit of the Project Team is expected from June 4 to 22, 2013.

Maputo, April 18, 2013

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port in Republic of Mozambique

Dr. Ana Matusse Dimande
Coordinator,
Nacala Port Development Project
Ministry of Transport & Communications

(Attachment A)

Technical Coordination Meeting of the Project for Development of Nacala Port

Date: 14:30 - 17:30, April 10, 2013

Venue: PN Conference Room

No.	Name	Title / Section	Org.
1	Ana Dimande	Project Coordinator	MTC
2	Jose Joaquim Daude	Representative	CFM
3	Paulo Tarmamade		CFM
4	Aderval Acioli	Port Operation	CDN
5	Fernando Couto	CEO	PN
6	Agostinho Langa	Operational Dierctor	PN
7	Matos Fernandes	Advisor	PN
8	Mitsuhiko Okada	JICA Expert/ Team Leader	JICA
9	Kiyoshi Nakashima	JICA Expert	JICA
10	Tatsuo Kawabata	JICA Expert	JICA
11	Susumu Kimura	JICA Expert	JICA
12	Nobuaki Kuribayashi	JICA Mozambique	JICA

April, 10th 2013

RECORD OF THE MEETING
ON NACALA PORT TECHICALL ASSISTANCE PROJECT

BETWEEN
JICA TECNHICAL ASSISTANCE TEAM
AND
MINISTRY OF TRANSPORT AND COMMUNICATIONS-PMU

The Port of Nacala is since 15th March 2013, under the management of a new Terminal Operating Company by subcontract between Corredor de Desenvolvimento Norte,SARL (the concessionaire with the Government of Mozambique for the Nacala Port and the Nacala railway system) and Portos de Norte (a Mozambican private company).

As follow up of the meetings held in Maputo on March, 22nd 2013 and April 2nd 2013 a technical coordinating meeting was held in Nacala on 10th April 2013 from 14.30hrs with JICA Technical Assistance Team (TAT) from OCDI (Overseas Coastal Development Institute of Japan) with the following objectives:

1. To Adjust and harmonize the Existing Plans and Programs of the Technical Assistance to the with the new management of the Port;
2. Present the Progress Report on the recommendations made by the TAT in September 2012
3. To Review the training Plan Out of Mozambique

The meeting was Chaired by the Project Coordinator and attend by representatives from CFM, CDN, Portos do Norte and the JICA TAT from OCDI (**the list attached I**).

Introductory Remarks
The chair person explained the objectives of the meeting and informed about the changes on the management of the Nacala Port.

Following the agenda Mr F Couto the chairperson for Portos do Norte did a brief statement of their commitment on the Nacala Port Development Project and presented the summary of challenges that count to encourage the project to continue be implemented, such as the need of the improvement of the capacity of the port . Informed that Portos do Norte purchase a new reach starker and the other one is to be placed before the end of 2013; Portos do Norte is in the process of introducing CCTV System for surveillance of the port area; there is ongoing activity to name the container yard and to introduce circulation ways for vehicles within the port.He also committed to assign a representative as counterpart to the project to work within the PMU.

CDN informed the conditions of the contract with Portos do Norte and the area of interventions and responsibilities of each company in the Ports and Portos do Norte were invited to present the Progress report (**attached II**) as the new entity directly involved on the TA, due to the workers of the port having been transferred from CDN to Portos do Norte.

Portos de Norte confirmed to the meeting their commitment to implement the with the existing Steps Plan for Nacala port Operations and Traing Programs, to follow the established KPIs and

1

informed that the harmonization was finished with CD, MTC and CFM (**attached III, doc 1,2,3**).

JICA TAT made a presentation of the Progress Report2 on the TA (**attached IV**) and after that where made the considerations and recommendations:

Considerations

The meeting noted with that :

1. The changes on the management of the Port from CDN to Portos do Norte did not affect the progress of the implementation of the Nacala Port Development Project.
2. That there is a strong commitment and support of Portos do Norte to the Project.
3. The Port is already congested before the new expected shipping line start to call Nacala
4. The need of standardization of the equipment to be acquired for the port within Portos do Norte and the Consultant could contribute for a better training plan on the maintenance. In the other hand it was noted that the 2 Reach Starker supported by Grant Aide should be available to the port before the end of the year 2013.

Recommendations

1. The Traing Programs need to be focus on the specific needs of the CFM Portos do Norte and CDN. Therefore the Consultant will receive from those institution the appropriate list of trainee in Mozambique and Japan.
2. Portos do Norte as part of the project will assign before end of April their counterpart to the TA project.
3. JICA TAT in the next step will help the Mozambican side to produce the draft Port Regulations and will help the PMU to prepare the Working Document binding the Contractor, Portos do Norte, CFM, CDN and the PMU during the construction phase.
4. Portos do Norte should avail their organization chart to the TAT

The meeting ended at 18hrs.20 with notes from the representatives of participants

Ministério dos Transportes e Comunicações
Dra. Ana Matusse Dimande_____
(Project Coordenator)

Empresa Corredor de Desenvolvimento do Norte
Eng. Adeval Acioli_____
(Port Operatios)

Empresa Portos e Caminhos-de-ferro
Dr Paulo Tarmamade_____
(Advisor to the Board)

Portos do Norte
Fernando Amado Couto
Chief Executive Oficer_____

JICA Technical Assistance Team
Mitsuhiko Okada
Team Leader_____

(Attachment C)

Schedule for Technical Transfer in April, 2013

Area	Subject	April 12	April 13	April 15	Expert
Cargo Handling	IT system for CT Operation	9:30-11:00	10:00-11:00		Kimura
Maintenance for cargo handling equipment	Preventive Maintenance	Review of Dec'12 session	-		Kimura
	Maintenance Management	Review of Dec'12 session	-	-	Kimura
	Spare Parts Inventory	Review of Dec'12 session	-	10:00-16:00 (Field training with mechanical engineer and store keeper in charge)	Kimura
Maintenance for port facilities	Preventive Maintenance	11:00-12:00	9:00-10:00	11:00-12:30 (Field training with civil engineer in charge)	Kawabata
	Maintenance Management				Kawabata
Port planning	Port Planning system	14:00-15:00	11:00-12:00	-	Okada
	Demand Forecast	-	-	14:00-15:00	Okada
Port administration and management	Laws and Regulations	15:00-16:00	-	-	Nakashima
	Marketing of the port	-	-	15:00-16:00	Nakashima

Lecture

Field Study

(Attachment D)

Issues on the South Wharf of Nacala port

2013 April 17th
JICA TA team

1. F/S report's recommendation and conclusion on the South Wharf
(Page 4-22 ～ Page 4-25)

① (Recommendation of F/S report)
Measures for extending residual life for South Wharf
i) Installation of fenders (DONE)
ii) Minimization of surcharge loads (NOT done)
✓Clearance of loaded containers from the deck as stated above
iii) Measures for the alleviation of excessive forces by infrastructure management (NOT done)
✓Control of approaching velocity of ships to be less than 10cm/sec
✓Prohibition of mooring ships in a cyclone

iv)Monitoring of the structure (NOT done)
✓Regular monitoring of cracks on piles and front/rear walls once in three months
✓Regular monitoring of openings between the concrete deck and container yard
✓Regular measurement of compression strength of the structural members with a rebound hammer

② (Conclusion of F/S report)
Even when the renovation of rear wall and anchor wall is successfully completed, the vulnerability of the structure will remain unchanged because it is impossible to recover bending resistance of damaged piles head. Therefore, the realistic method of overall repair of the structure would be to demolish the entire structure and to construct a new structure.

2. Issues on South Wharf (as of 2013 April)

①The Pavement behind the rear wall has settled more than 9 cm from the original level. This settlement was not noticeable in 2010 during F/S stage.

②Laden Heavy containers are stacked on the deck of the South Wharf.

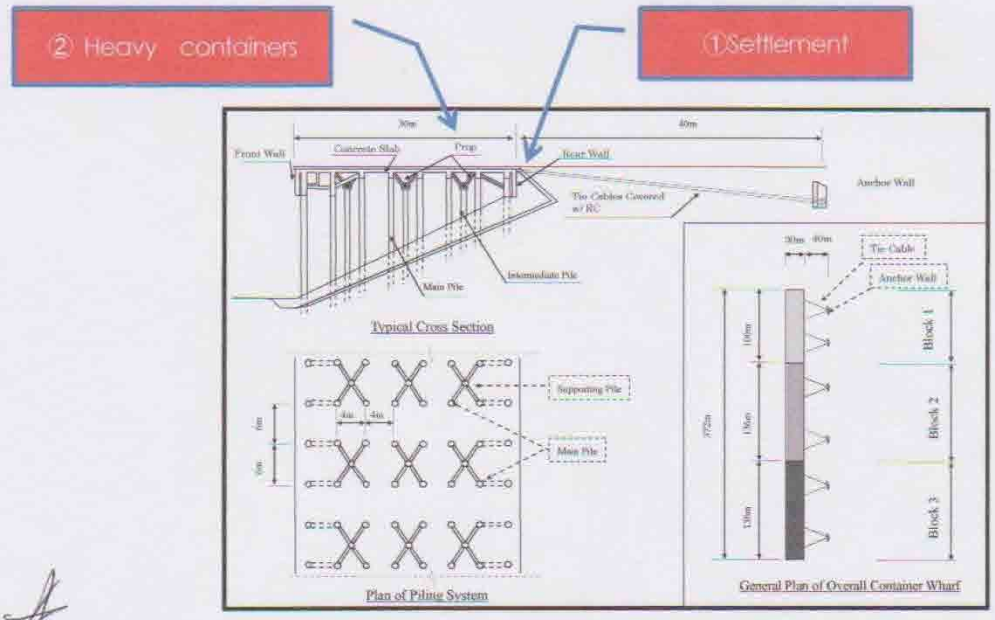
as observed in the photos below

April 2013

7

Photo-① Settlement behind the rear wall (2013 April)

Photo-② Laden containers stacked on the deck of South Wharf (2013 April)



April 2013

3. Recommendations of JICA TA team

①As recommended in F/S report (page 4-24), monitoring of the deck structure and settlement shall be implemented on a regular basis according to the maintenance action plan.

②As recommended in F/S report (page 4-23), clear all the laden containers from the deck and minimize the active loads for handling containers by heavy equipment.

4. The 6th Dispatch (2013-06)

Progress
of
The Project for Improvement of Nacala Port
in Republic of Mozambique

The JICA expert team for the Project (hereinafter referred to as "the Project Team")visited Mozambique fromJune11 to June29, 2013 as its 6th dispatch.

1. Training program for 6th dispatch

On June 14,The Project Team presented the program of technical assistancefor the Team's 6th dispatch to the Mozambican side in a meeting attended by representatives of MTC, CFM, CDN, and PN(the attendant list is as per Attachment B, and the program as per Attachment C). According to the program, the Project Team organized 13 sessions of discussions and lectures at Nacala for Mozambican counterparts including participants from CFM South and Central.The Project Team also carried out site inspections and interviews with counterparts.

2. Discussions in Nacala

Following issues have been discussed in Nacala between the Mozambican side and the Project Teamon June 14 and 18, 2013 (the attendant lists areas per Attachment B):

1) Facility maintenance:

Being the entity responsible for the regular inspection of the facilities as per the Concession Contract, CFM nominated 3 civil engineers who would hereafter become a part of the counterpart.

2) South Wharf issues:

The Project Team revised its previous report "Issues on the South Wharf of Nacala Port" based on the discussion above and findings through the site inspection on June 19 (the revised report is as per Attachment A).

The Project Team agreed to give a technical assistance for those measures taken by Mozambican side as a part of its scope of work for facility maintenance.

3) Safety regulation:

Following to the suggestion of the Project Team duringits last dispatch, the Mozambican side elaborated and presented its draft of the Safety Regulation of Nacala Port to the Project Team. The Project Team agreed to feed back its comments by the end of July, so that the Mozambican side can complete the draft for approval.

4) Phaeros system

PN explained that it would have discussions with IT technicians and Phaeros' agent from mid-July to September to identify the functions supported by the system and evaluate cost-effectiveness of the system, then it would make decision to use the system or not.

3. Assistance of the Project Team to PN's own training program

In addition to 1.and 2. above, the Project Team gave an assistance to the training program organized by PN's own on June 17, 2013.The Project Team highly appreciated this voluntary program organized by Mozambican side's initiative.

4. Training programs in July, September and November, 2013

1) Study program in Japan in July, 2013

The Mozambican side agreed to the detailed study program for 4 key counterparts in

June 2013

1

Japan in July, 2013 including the receptions.

2) Training program in Japan in September, 2013

The Project Team explained that the tentative schedule for training program for 10mid-level counterparts is considered from August 30 to September 15, 2013.

3) The next dispatch of the Project Team

The Project Team explained that its next dispatch is considered tentatively from October 27 to November 15, 2013.

Maputo, June 27, 2013

Kiyoshi Nakashima
The Project Team
The Project for Improvement of
Nacala Port in Republic of Mozambique

Dr. Ana MatusseDimande
Project Coordinator,
Nacala Port Development Project
Ministry of Transport & Communications

Meeting Records
of
The Project for Improvement of Nacala Port
in Republic of Mozambique

The JICA expert team for the Project (hereinafter referred to as "the Project Team") visited Nacala from June 13 to 27, 2013 as its 6th dispatch. The Project Team organized 14 sessions of discussions and lectures for the technical transfer including the assistance to PN's own training program on June 17, 2013 (the program as per the attachment). The Project Team also carried out site inspections and interviews with PN staffs.

In the wrap-up meeting on June 24, 2013, PN and the Project Team confirmed on the progress of technical transfer in line with the items of suggestion made by the Project Team on September 13, 2012 as follows:

1. Strengthening of marketing functions
   - PN will establish its own web site in August, 2013, which will contribute a lot to the strengthening of its marketing functions.
   - PN will soon assign the personnel in charge of marketing in its Commercial Dept.
   - The CEO of PN has made a sales call at CMA CGM's head quarter in France. PN is planning to visit other existing and potential users time to time.
2. Enforcement of the Regulation of Nacala Port
   - This issue shall be under the primal responsibility of CDN.
3. Achievement of higher container productivity using attachment with flippers and ropes.
   - PN will order TN to use ropes for the loading/discharge of containers, and request TN in writing to purchase the spreaders with flippers.
4. Renaming and striping of the container yard
   - This has not been realized yet due to PN's limited budget, while PN will soon carry out the marking of traffic signs in the container yard.
5. Addition of reach stackers
   - In addition to 3 units of the reach stackers (No. 5, 6, 7) that were available at the time of September, 2012, 1 unit (No. 8) newly joined in operation in May, 2013, and 1 unit (SMV 5) is now under repair. In August or September, 2 units of Sany are supposed to join in operation. Furthermore, 2 units will be given by the Grand Aid. Number of top lifters has remain unchanged as 3 units (No.1 & 2 for laden, No.4 for empty).
6. Employment of civil engineers for infrastructure maintenance
   - PN has contracted a Portuguese private company "Geoibéricos" to conduct a survey and make a plan of regular inspections and repairs under the supervision of CFM. The contract period will be 90 days commencing from the end of June, 2013.

June 2013

- CFM has assigned 3 civil engineers (Ms. Anabela Matsinha, Ms. Camona Mocobora and Mr. Crisiano Oliveira) who will supervise the above, and carry out periodical inspections of the port facilities.
- 2 staffs of PN (Mr. Neimo Induna, Container Yard Manager & Mr. Matos Fernandes, Adviser) will be involved in the facility maintenance time to time, as both have a background in civil engineering.

7. Monthly maintenance of civil infrastructure
   - The plan for periodical inspections and maintenance will be established in reference to the advice to be given by Geoibéricos as per the contract.
8. Establishment of a maintenance management plan for cargo handling equipment
   - PN has contracted Aitken Spence to establish maintenance management plan. The contract period is 2 years commencing from May, 2013, in which 4 technicians of Aitken Spence will be assigned.
9. The latest monitoring indicators related to cargo handling and maintenance (April/May 2013) were as follows:
   - Net crane/gang productivity: 7 boxes/vessel/hour
   - Working time ratio of equipment: 65 %

Training programs in July, September and November, 2013 are expected as follows:

- Japan study program for 4 key counterparts (fixed) from July 6 (leave Maputo) to July 22 (arrive at Nacala), 2013.
- Japan training program for mid-level counterparts (temporary) from August 31 (leave Maputo) to September 15 (arrive at Maputo), 2013.
- The next dispatch of the Project Team (temporary) from October 28 (arrive at Maputo) to November 15 (leave Maputo), 2013.

Nacala, June 26, 2013

Kiyoshi Nakashima
The Project Team
The Project for Improvement of
Nacala Port in Republic of Mozambique

Mr. Agostinho F. Langa Júnior
Comissão Executiva
Director de Operações
Portos do Norte, SA

(Attachment)

Technical Assistance Program in Nacala Port in June 2013

Day		Time	Session No.	Category	Lecturer	Title	Type
14-Jun	Fri	9:00-10:30	1	General	All TA Team	Kick-off meeting with CP	Discussion
		10:30-12:00	2	General	All TA Team	Discussion for PN's training on 17th	Discussion
17-Jun	Mon	7:00-18:00			All TA Team	Assistance to PN's training program	
18-Jun	Tue	9:00-10:30	3	Port Administration & Management	Capt. Etoh	Discussion on the terminal operation system (Phaeros)	Discussion
		10:30-12:00	4	Facility & Equipment Maintenance	Mr. Komoto	Discussion on structure integrity of South Wharf	Discussion
		15:00-16:30	5	Port Planning	Dr. Kunita	Grain terminal planning	Lecture
19-Jun	Wed	9:00-10:30	6	Port Administration & Management	Mr. Nakashima	Discussion on the Safety Regulation of Nacala Port	Discussion
		10:30-12:00	7	Port Planning	Dr. Kunita	Discussion on the safety during construction works	Lecture
		15:00-16:30		All		Site inspections & on-site suggestions	
20-Jun	Thu	9:00-10:30	8	Facility & Equipment Maintenance	Mr. Komoto	Discussion on the progress of the facility maintenance action plan	Discussion
		10:30-12:00	9	Port Administration & Management	Capt. Etoh	Lecture on container terminal operations	Lecture
		15:00-16:30	10	Port Administration & Management	Mr. Nakashima	Lecture on the regulation of port operations	Lecture
21-Jun	Fri	9:00-10:30	11	Port Administration & Management	Capt. Etoh	Discussion on the use of flippers	Discussion
		10:30-12:00	12	Port Administration & Management	Mr. Nakashima	Lecture on the regulation of port operations	Lecture
		15:00-16:30				Site inspections, on-site suggestions & interviews	
24-Jun	Mon	9:00-12:00	13	General	All TA Team	Wrap-up meeting, review of the progress of 10 suggestions	Discussion
		14:00-15:30	14	Facility & Equipment Maintenance	Mr. Komoto	Monitoring of civil infrastructures	Lecture
26-Jun	Wed	9:00-17:00				Site inspections, on-site suggestions & interviews	

June 2013

(Attachment A)

Issues on the South Wharf of Nacala Port

2013 April 17th
Updated on 2013 June 14th and 18th
JICA TA team

1. F/S reports' recommended measures and conclusions on the South Wharf (Page 4-22 ～ Page 4-25)

① (Recommendation of F/S reports)
Measures for extending residual life for South Wharf

i) Installation of fenders (DONE)

ii) Minimization of surcharge loads (NOT done)

➔ PN explained that they have set limits to the stacking of containers at maximum of 2 rows x 3 layers of laden 40' on the land side edge of concrete deck at Block 3, and maximum of 1 row x 3 layers of laden 40' on the land side edge of concrete deck at Block 2. The Project Team appreciated their actions but explained that it would be difficult to identify the exact loads allowed on the deck since there is no design data or drawing available.

iii) Measures for the alleviation of excessive forces by infrastructure management (NOT done)

✓Control of approaching velocity of ships to be less than 10cm/sec

➔ It will be included in the "Safety Regulation of Nacala Port".

✓Clearance of loaded containers from the deck as stated above

➔ As above

✓Prohibition of mooring ships in a cyclone

➔ It will be included in the port regulation but it must be a common sense known by everybody working in the port.

iv) Monitoring of the structure (NOT done)

✓Regular monitoring of cracks on piles and front/rear walls once in three months

➔ It will be discussed in an additional session scheduled on June 24 PM.

✓Regular monitoring of openings between the concrete deck and container yard

➔ As above

✓Regular measurement of compression strength of the structural members with a rebound hammer

➔ As above

② (Conclusion of F/S reports)
Even when the renovation of rear wall and anchor wall is successfully completed, the vulnerability of the structure will remain unchanged because it is impossible to recover bending resistance of damaged piles head. Therefore, the realistic method of overall repair of the structure would be to demolish the entire structure and to construct a new structure.

➔ C/P has an intention to somehow find a way to prolong its life not by demolition but through partial repairs.

2. Issues on South Wharf (as of 2013 April)

①The Pavement behind the rear wall has settled more than 9 cm from the original level. This settlement was not noticeable in 2010 during F/S stage.

➔ PN has contracted with a private company to conduct a survey and make a plan of regular inspections and repairs under the supervision of CFM. The

June 2013

Project Team suggested that an investigation needs to be done by this company to identify the reason of the settlement and establish further countermeasures.

➔ The Project Team suggested that the laden containers placed just behind the deck slab shall also be relocated to reduce unnecessary load on the concrete/interlocking block pavement where further settlement or collapsing may take place due to underground voids.

②Laden Heavy containers are stacked on the deck of the South Wharf.

➔ See 1 ① ii)

as observed in the photos below

Photo-① Settlement behind the rear wall (2013 April)

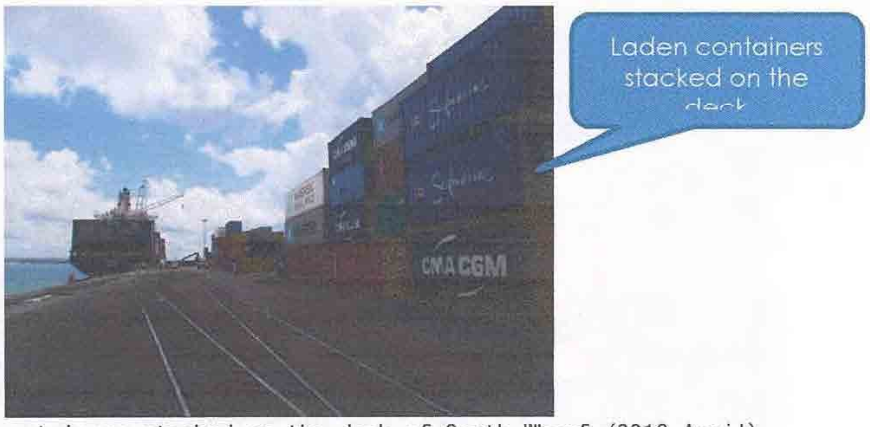
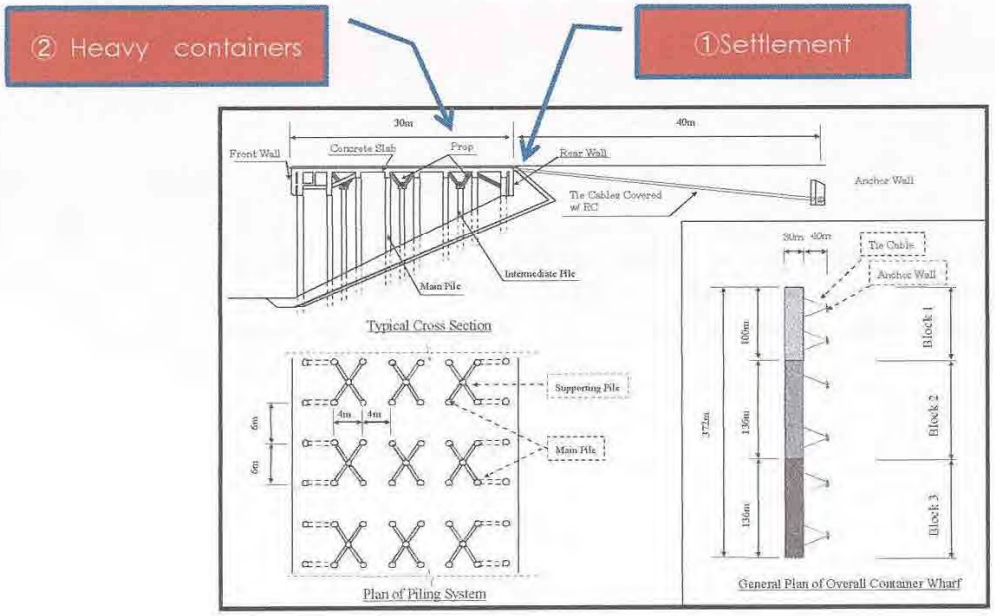


Photo-② Laden containers stacked on the deck of South Wharf (2013 April)



3. Recommendations of JICA TA team

① As recommended in F/S report (page 4-24), monitoring of settlement shall be implemented.

➔ It will be discussed in an additional session scheduled on June 24.

②As recommended in F/S report (page 4-23), clear all the laden containers from the deck and to minimize the active loads for handling containers by heavy equipment.

➔ See 1 ① ii)
➔ C/P has limited their container operation on the deck to 1 laden container at a time.

Photos taken on June 17

Number of containers on the deck has been limited to 2 rows x 3 layers at Block 3

Number of laden containers on the deck has been limited to 1 row x 3 layers at Block 2
Laden containers just behind the deck are recommended to be relocated to reduce unnecessary load onto the pavement.

(Attachment B)

Attendance List for the Training Sessions provided by the JICA expert team (June 2013)

Name	Kick-off meeting with CPs	Session No.	01
Date & Time	9:00 10:30, June 14, 2013		
Participants	All JICA Team with CPs		
Venue	PN Conference Room		

No	Name	Title / Section	Org.	Signature
1	Ana Matesse Dimande	Project Coordinator	MTC	
2	Anastácio [illegible]anga Jr	Chief Operational Officer	PN	
3	Kyuei NAKASHIMA	JICA Expert	JICA	
4	Osamu KUNITA	JICA Expert		
5	Tetsuo [illegible]	JICA Expert		
6	Masaomi KOMOTO	JICA Expert		
7	Nobuaki KURIBAYASHI	JICA Mozambique		
8	[illegible]	[illegible]	[illegible]	
9	[illegible]	[illegible]	[illegible]	
10	[illegible]	[illegible]	[illegible]	
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The Project for the Improvement of the Nacala Port

Attendance List for the Training Sessions provided by the JICA expert team (June 2013)

Category/Area of Training	Facility & Equipment Maintenance	Session No.	31
Title	Discussion on Structural Integrity of Steel Wharf		
Date & Time	10:00-12:00, June 16, 2013		
Lecturer	Mr. Komoto, JICA Expert		
Venue	PM Conference Room		

No.	Name	Title / Section	Org.	Signature
1	Assu Matusse Dimande	Project Coordinator	VTC	
2	Anabela Matalinha	Civil Engineer	CFM	
3	Aquilo Agy Ibraimo	Mechanical Engineer		
4	Arsenio Zimba	Hydraulic Engineer		
5	Afonso Neves	Mechanical Engineer		
6	Cristina de Oliveira	Civil Engineer		
7	Miguel Lemisse	Mechanical Engineer		
8	Agostinho F. Langa Jr.	Operation Director/Executive Director	PN	
9	Afonso Mesquita Dunfai J.	Chief of the Maintenance Division		
10	Nelma Pereira	Container Yard Manager		
11	Sérgio Sousa	Nacala Port Manager	CFM	
12	Paulo Tomás	CFM - Superintendente - Adjunto	CFM	
13	[illegible]	[illegible]	CFM	
14	[illegible]	[illegible]	CFM	
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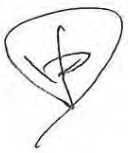
The Project for the Improvement of the Nacala Port

(Attachment C)

Day		Time	Session No.	Category	Lecturer	Title
14-Jun	Fri	9:00-10:30	1	General	All TA Team	Kick-off meeting with CP
		10:30-12:00	2	General	All TA Team	Discussion for CP's training on 17th
17-Jun	Mon	9:00-17:00			All TA Team	Reserved for CP's training
18-Jun	Tue	9:00-10:30	3	Port Administration & Management	Capt. Etoh	Discussion on the terminal operation system (Phaeros)
		10:30-12:00	4	Facility & Equipment Maintenance	Mr. Komoto	Discussion on structure integrity of South Wharf
		15:00-16:30	5	Port Planning	Dr. Kunita	Bulk terminal planning
19-Jun	Wed	9:00-10:30	6	Port Administration & Management	Mr. Nakashima	Discussion on the safety policy of Nacala Port
		10:30-12:00	7	Port Planning	Dr. Kunita	Discussion on the safety during construction works
		15:00-16:30		All		Site inspections & on-site suggestions
20-Jun	Thu	9:00-10:30	8	Facility & Equipment Maintenance	Mr. Komoto	Discussion on the progress of the facility maintenance action plan
		10:30-12:00	9	Port Administration & Management	Capt. Etoh	Lecture on container terminal operations
		15:00-16:30	10	Port Administration & Management	Mr. Nakashima	Lecture on the regulation of port operations
21-Jun	Fri	9:00-10:30	11	Port Administration & Management	Capt. Etoh	Discussion on the use of flippers
		10:30-12:00	12	Port Administration & Management	Mr. Nakashima	Lecture on the regulation of port operations
		15:00-16:30				Site inspections & on-site suggestions
24-Jun	Mon	9:00-12:00	13	General	All TA Team	Wrap-up meeting, review of the progress of 10 suggestions
		13:00-16:30				Spare (depending on the progress of discussions/lectures)
26-Jun	Wed	9:00-17:00				Spare (depending on the progress of discussions/lectures)



5. The 3rd JCC (7th Dispatch, 2013-12)

Conclusion
of
The Third Joint Coordination Committee
for
The Project for Improvement of Nacala Port
in Republic of Mozambique

The third meeting of the Joint Coordination Committee (hereinafter referred to as "JCC") for the Project for Improvement of Nacala Port in Republic of Mozambique (hereinafter referred to as "the Project") was held on December 19, 2013 at the MTC office in Maputo. The attendants are listed in Attachment A.

At the meeting of JCC, the JICA expert team for the Project (hereinafter referred to as "the Project Team") presented the progress of the Project since April, 2013 (Attachment B) and steps to be taken to make Nacala Port more efficient identified during its 7th dispatch (Attachment C).

The Project Team commended significant progress achieved in such areas as the preparation of maintenance plan, implementation of on-site infrastructure monitoring, improvement in equipment availability ratio, and upgrading of the Phaeros system. The Project Team emphasized that further efforts would be needed to improve Nacala Port in such areas as: increase in container handling efficiency, effective use of the dry terminal, start of the periodical infrastructure maintenance, and determination of reinforcement of the structures of the South Wharf.

JCC appreciated the progress of the Project and concurred on the need of further efforts aimed to the improvement of Nacala Port. Toward this goal, the Mozambican side and the Project Team will jointly monitor the improvement of Nacala Port and pursue technology transfer. The next visit of the Project Team is expected in April 2014.

Maputo, December 19, 2013

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port in Republic of Mozambique

Dr. Ana Matusse Dimande
Coordinator,
Nacala Port Development Project
Ministry of Transport & Communications

(Attachment A)

Participants of the 3rd Joint Coordination Committee (Maputo, December 19, 2013)

Name	Organization	Position
(Mozambican side)		
Dr. Ana Matusse Dimande	MTC	Coordinator
Mr. Paulo Tarmamade	CFM	Advisor to the Board of Directors
Mr. Amado Mabasso	CDN	CEO
Mr. Pedro Barreto	CDN	CFO
Ms. Leonilde Loide Bazar	PN	Director of Administration & Human Resources
(Japanese side)		
Mr. Katsuyoshi Sudo	JICA Mozambique office	Resident Representative
Ms. Chiharu Morita	JICA Mozambique office	Assistant Resident Representative
Mr. Mitsuhiko Okada	JICA Expert	Team Leader / Port Planning (1)
Mr. Masaomi Komoto	JICA Expert	Facility & Equipment Maintenance / Training Coordination
Mr. Teruki Eto	JICA Expert	Port administration and management (2)
Mr. Susumu Kimura	JICA Expert	Port cargo handling (2)
Mr. Nobuaki Kuribayashi	JICA Expert	Liaison officer

Attachment B

Third Progress Report

The Project for Improvement of Nacala Port

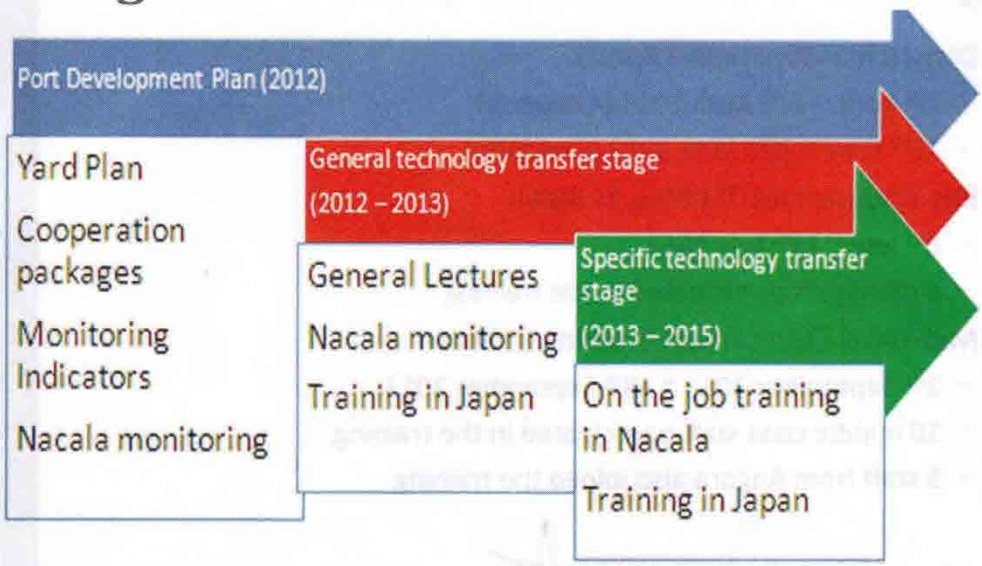
November 2013

Japan International Cooperation Agency (JICA)

The Overseas Coastal Area Development Institute of Japan (OCDI)

1

Concept of Technology Transfer Program



Concept of Technology Transfer

2

Attachment (C)

Steps to be taken to make Nacala Port more efficient

2013-12-19

	Steps	Timeline	
		January	before April 2014
Mozambican side	◦Start of infrastructure monitoring and maintenance based on the Geoibericos report and employment of a civil engineer (PN, CDN, CFM)	✓	
	◦Review of the JICA Team's comments on Phaeros upgrading and start of the Phaeros system (PN)		✓
	◦Review of the JICA Team's comments on the safety regulations (CDN)	✓	
	◦Monitoring of the container handling productivity based on 3 indicators (PN)	✓	
	◦Determination of the pavement design of the dry terminal (TN, PN)		✓
	◦Review of the rehabilitation measures for the South Wharf indicated in the Geoibericos report (CDN, CFM)		✓
	◦Procurement of spreaders with flippers (TN)		✓
JICA Team	◦Review of rehabilitation measures for the South Wharf indicated in the Geoibericos report	✓	
	◦Review of the infrastructure maintenance plan proposed in the Geoibericos report	✓	
	◦Preparation of lecture materials on "5S"		✓
	◦Preparation of lecture materials on environmental management		✓
	◦Start of the procurement process for survey equipment (preparation of an equipment list needed for quantitative monitoring)		✓

6. The 8th Dispatch (2014-04)

Progress
of
The Project for Improvement of Nacala Port
in the Republic of Mozambique

The JICA expert team for the Project (hereinafter referred to as "the Project Team") visited Mozambique from April 16 to May 3, 2014. After a series of discussions, presentations, and site monitoring, the Project Team and Mozambican counterparts had a wrap-up meeting on April 28 (the attendance list of the meeting is as attached (Attachment A)). In the meeting, the Project Team summarized the outcome of the 8th dispatch (Attachment B). Both sides then examined and acknowledged the progress of the Project in reference to the Project Design Matrix (Attachment C) and agreed on the following main points:

1. With respect to port planning, the Project accomplished the target resulting in the start of ODA projects. In response to the changing needs of port and hinterland, a new port master plan needs to be formulated outside the scope of the Project.
2. With respect to port administration/management, significant progress has been made resulting in drafting of safety and operation regulations. These regulations need to be finalized and implemented as soon as possible. In order to clearly define the responsibility of the pertinent organizations, the revision of the concession agreement needs to be finalized.
3. With respect to cargo handling, significant progress has been made in such areas as upgrades of the Phaeros (container terminal operation system), strengthening of the dry terminal functions, and procurement of new spreaders. Their steady progress and implementation need to be monitored. Since the Phaeros does not include automatic yard planning functions, yard planners need to be trained either by overseas training or onsite OJT for a considerable amount of time. Monitoring of container handling productivity by three universally applied indicators (berth productivity, gross productivity per crane, and net productivity per crane) is also recommended.
4. With respect to maintenance, some progress has been made in such areas as the assignment of civil engineers of CFM and PN for infrastructure maintenance and decrease in the equipment downtime. On the other hand, periodical inspection/monitoring of infrastructure are not yet started. The Project Team will provide technical assistance for this area by means of onsite training during the next dispatch. Further study and policy decision on the rehabilitation of the South Wharf are needed in consideration of the Project Team's suggestions. Delivery of spare parts needs to be expedited to further reduce the equipment downtime.

The Project Team and Mozambican counterparts confirmed the latest monitoring indicators related to cargo handling and maintenance as follows:

1. Gross productivity: 8 Box/gang/hour (December 2013)
2. Working time ratio of equipment: 85 % (March 2014)

The next visit of the Project Team is expected in September 2014.

Nacala, April 28, 2014

1

April 2014

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port in Republic of Mozambique

Agostinho F. Langa Junior
Operation Director
Portos do Norte, SA

Attendance List for the Training Sessions provided by the JICA Expert Team (April 2014)

Category/Area of Training	General	Session No.	11
Title	# Wrap-up Meeting		
Date & Time	09:30-11:30, April 28, 2014		
Lecturer	Mr. Okada(JICA)		
Venue	PN Conference Room		

No.	Name	Title / Section	Org.	Signature
1	Ana Matusse Dimande	Project Coordinator	MTC	[signature]
2	Anabela Matsinha	Civil Engineer	CFM	[signature]
3	Alfredo Lipeque	Branch Manager	CFM (North)	
4	Alfredo Sigola	Maintenance Manager		
5	Abubacar Mecuta	Inspection Manager		
6	Alfredo Mafuca	Operations Manager		
7	Braulio Catutula	I.T. Manager		
8	Agostinho F. Langa Junior	Chief Operating Officer	PN	[signature]
9	Loni Shott	Chief of the Commercial Division		[signature] 28.4.14
10	Luis Machado	Chief of the Port Operation Division		[signature]
11	Lucas José Cipriano	Project Management Unit		[signature]
12	Vasco da Cunha	Maintenance Division		
13	Luis Alvito Diogo	Maintenance Division		
14	Abudo Sele	Project Management Unit		[signature]
15	Mitsuhiko Okada	JICA Expert	JICA	[signature]
16	Kiyoshi Nakashima			[signature]
17	Susumu Kimura			[signature]
18	Masaomi Komoto			[signature]
19	Nobuaki Kuribayashi	JICA Mozambique		[signature]
20	Ibraimo Musa	CDN - Port Nacala	CDN	[signature]
21	Antonio F. Candido	CDN	CDN	[signature]
22				
23				
24				
25				

April 2014

3

Outcome of the 8th dispatch – Steps to be taken to make Nacala Port more efficient

JICA Technical Assistance Team
April 2014

1

Session 1 (Morning, Apr. 21) Technical assistance plan of 8th dispatch

- Both sides agreed on the time table of the 8th dispatch presented by JICA Team
- JICA Team presented a tentative plan of the this year's counterpart training in Japan and asked for the designation of participants

2

Progress of the Project based on the PDM (Project Design Matrix)

April 28. 2014

Description of PDM		Progress and further actions		
Narrative summary of outputs	Objectively verifiable indicators	Outputs up to April 2014	Evaluation of the progress as of April 2014	Recommendable actions (Items in parenthesis are out of the scope of the current TA project)
Port development strategy is developed	Port development strategy is drafted	# Revised port development plan was prepared and agreed on among pertinent parties (September 2012)	Targets accomplished	# (Master plan beyond the short-term development) # (Rehabilitation plan of the South Wharf)
The implementation structure of the short-term development is revised and established	Short-term development plan is revised	# Grant aid project started (March 2014) # Loan-1 project is starting D/D		
The capacity of the port administration and management is developed	# Regulation on port administration and management is drafted # Port is administered and managed according to the regulation	# Operational regulation and safety regulation are drafted # Safety regulation was announced to stakeholders in a seminar (April 2014)	In progress	Operational regulation and safety regulation need to be finalized and implemented (soon)

Description of PDM		Progress and further actions		
Cargo handling skill is improved	# Cargo handling capacity per hour increases # Accident rate decreases # Number of seminar/training and participants who pass the training exam increases	# Cargo handling efficiency is gradually improving # Accidents are recorded and preventive measures are analyzed # 98 counterparts participated in 7 sessions of lecture/discussions on cargo handling # Phaeros (terminal operation system) is in a trial (April 2014) # Upgrades of the dry terminal was started (January 2014) # Purchase order for new spreaders was placed	In progress	# Container handling productivity needs to be monitored by 3 universally applied indicators (constantly) # (Yard planners need to be trained either by training overseas or onsite OJT (for a considerable amount of time))

Description of PDM		Progress and further actions		
Maintenance skills of the port facility and equipment is developed	# Number of maintenance technicians increases # Maintenance cost for existing facility and equipment decreases # Number of seminar/training and participants who pass the training exam increases	# Two civil engineers of CFM is assigned for infrastructure maintenance # A civil engineer of PN is assigned for infrastructure maintenance # Downtime ratio of equipment decreased (from 20 % to 15 %) # 86 counterparts participated in 11 sessions of lecture/discussions on infrastructure maintenance # Counterparts understood the survey and analysis needed to determine the measures to rehabilitate the South Wharf # 74 counterparts participated in 8 sessions of lecture/discussions on equipment maintenance # Periodical maintenance plan for equipment is developed and implemented	In progress	# Start of the periodical inspection/monitoring of infrastructure (immediately) # Preparation for the on-site infrastructure monitoring (before September 2014) # On-site infrastructure monitoring training using survey equipment (September 2014) # Further study and policy decision on the rehabilitation of the South Wharf considering the suggestions of JICA Team

7. The 9th Dispatch (2014-09)

Progress
of
The Project for Improvement of Nacala Port
in the Republic of Mozambique

The JICA expert team for the Project (hereinafter referred to as "the Project Team") visited Mozambique from August 31 to September 19, 2014. After a series of discussions, presentations, and site monitoring, the Project Team and Mozambican counterparts had a wrap-up meeting on September 15 (the attendance list of the meeting is as attached (Attachment A)). In the meeting, the Project Team summarized the outcome of the 9th dispatch (Attachment B). Both sides then examined and acknowledged the progress of the Project in reference to the Project Design Matrix (Attachment C) and signed a record of discussions (Attachment D).

The Project Team and Mozambican side had a wrap-up meeting in Maputo on September 18 (the attendance list of the meeting is as attached (Attachment E)). In this meeting, both sides had additional discussions and revised the common understanding as follows:

1. With respect to port planning, the Project accomplished the target resulting in the start of ODA projects. In response to the changing needs of port and hinterland, a Nacala Port land use plan covering the Nacala Bay needs to be formulated outside the scope of the Project. A new port master plan (a draft TOR is attached as Attachment F) would be a part of the land use plan. The Mozambican side will submit its request for the land use plan study to JICA.

2. With respect to port administration/management, significant progress has been made resulting in the implementation of the safety regulation and drafting of the operational regulation. The latter needs to be finalized and implemented as soon as possible. In order to clearly define the responsibility of the pertinent organizations, the revision of the concession agreement needs to be finalized.

3. With respect to cargo handling, significant progress has been made in such areas as upgrades of the Phaeros (container terminal operation system), strengthening of the dry terminal functions, and procurement of new spreaders. Their steady progress and implementation need to be monitored. Since the Phaeros does not include automatic yard planning functions, yard planners need to be trained by overseas training and onsite OJT for a considerable amount of time. Monitoring of container handling productivity by three universally applied indicators (berth productivity, gross productivity per crane, and net productivity per crane) is also recommended.

4. With respect to maintenance, significant progress has been made in such areas as the assignment of civil engineers of CFM and PN for infrastructure maintenance, start of periodical inspection/monitoring of infrastructure and decrease in the equipment downtime. Mozambican civil engineers need to be trained by overseas training and onsite OJT. The Mozambican side needs to clarify the responsible party and the preparation for the maintenance of equipment introduced in ODA projects. On the other hand, a policy decision on the rehabilitation of the South Wharf is needed in consideration of the Project Team's suggestions. A seminar on the South Wharf (which could be developed as Phase 3) and the North Wharf can be held in Japan in November 2014 (The Mozambican side will soon propose the date).

September 2014

1

5. With respect to safety, additional attention should be paid during the rehabilitation projects. Lessons learned from accidents need to be circulated to all employees.
6. With respect to the arrangement of the last dispatch, the Mozambican side requested a two-week delay from the proposed schedule due to the difficulty in allocating the new fiscal year budget. In this case, the last dispatch will start around January 23.
7. With respect to the need of the future technical assistance, a preliminary TOR (Attachment G) was prepared based on the requests from the Mozambican side.

Maputo, September 18, 2014

Mitsuhiko Okada	Ana MM Dimande
JICA Team Leader	Project Coordinator,
The Project for Improvement of	Nacala Port Development Project,
Nacala Port in Republic of Mozambique	Ministry of Transport and Communications

Attachment A

Attendance List for the Training Sessions provided by the JICA Expert Team (September 2014)

Category/Area of Training	General	Session No.	13
Title	# Progress of the Project Based on PDM and Review of PN Statistics (CFM, CDN, PN, TN, JICA) # Wrap-up Meeting		
Date & Time	09:30 - 11:30, September 15, 2014		
Lecturer	-		
Venue	PN Meeting Room		

No.	Name	Title / Section	Org.	Signature
1	Martinho F. Mafumo	Maritime Administrator	MTC	
2	Edgar Jorge	Superviser Chief Engineer	CFM	
3	Anabela Matsinha	Supervisor Civil Engineer		
4	Alfredo Artur Mafuca	Oil Terminal Manager		
5	Alfredo Rafael Sigola	CFM Nacala Infrastructure Chief		
6	Braulio Franco Catutula	Port Operation		
7	Arzilio Mata	Supervisor Civil Engineer		
8	Milione Changala	Supervisor Electrical Engineer		
9	Abubacar Mecuta	Port security		
10	Tomas Ngoca	Supervisor Mechanical Engineer		
11	Goncalves Chizuzu	Port Operation		
12	Ibraimo Mussa	Port Operations Analyst	CDN	
13	Fabio Frasao	Port Director		
14	Antonio Frederico	Chief of Infrastructure Mainantance department		
15	Zacaria Andarusse	Safety Assistant Oficcer		
16	Francisco David	Safety Consultant Officer		
17	Loni Shott	Chief of the Commercial Division	PN	
18	Luis Machado	Chief of the Port Operations Division		
19	Lucas Cipriano	Project Management Unit (PMU)		
20	Denilson Hamide	Branch Manager	TN	
21	Sunil Ratnasiri	TN Officer		
22	Hélvio Salomão	TN Officer		
23	Mitsuhiko OKADA	JICA Expert/ Team Leader	JICA	
24	Teruki ETO	JICA Expert		
25	Susumu KIMURA	JICA Expert		
26	Masaomi KOMOTO	JICA Expert		
27	Nobuaki KURIBAYASHI	JICA Mozambique		
28	Abudo Sale	Project Management Unit	PN	
29	Fleclando	CFM	CFM	
30	Chanio	CFM	CFM	

The Project for the Improvement of the Nacala Port

Attachment B

OUTCOME OF THE 9TH DISPATCH
- STEPS TO BE TAKEN TO MAKE NACALA PORT MORE EFFICIENT

JICA Technical Assistance Team
September 2014

Session 1 (Morning, Sep. 4)
Technical assistance plan of the 9th dispatch

- Both sides agreed on the program of the 9th dispatch presented by JICA Team
- Mozambican counterparts were requested to participate and present the progress since the 8th dispatch in relevant sessions

Attachment C

Progress of the Project based on the PDM (Project Design Matrix)

September 15 2014

Description of PDM		Progress and further actions		
Narrative summary of outputs	Objectively verifiable indicators	Outputs up to September 2014	Evaluation of the progress as of September 2014	Recommendable actions (Items in parenthesis are out of the scope of the current TA project)
Port development strategy is developed	Port development strategy is drafted	# Revised port development plan was prepared and agreed on among pertinent parties (September 2012)	Targets accomplished	# (Master plan beyond the short-term development) # (Rehabilitation plan of the South Wharf)
The implementation structure of the short-term development is revised and established	Short-term development plan is revised	# Grant aid project started (March 2014) # Loan-1 project started D/D		
The capacity of the port administration and management is developed	# Regulation on port administration and management is drafted # Port is administered and managed according to the regulation	# Operational regulation and safety regulation are drafted # Safety regulation was announced to stakeholders in a seminar (April 2014) and approved by the CDN board (June 2014)	In progress	Operational regulation needs to be finalized and implemented (soon)

Description of PDM		Progress and further actions		
Cargo handling skill is improved	# Cargo handling capacity per hour increases # Accident rate decreases # Number of seminar/training and participants who pass the training exam increases	# Cargo handling efficiency is gradually improving # Accidents are recorded and preventive measures are analyzed # 114 counterparts participated in 9 sessions of lecture/discussions on cargo handling # Phaeros (terminal operation system) is in a trial participated by 2 shipping agents (September 2014) # Leveling of the dry terminal was completed (September 2014) # New spreaders arrived (September 2014)	In progress	# Use of Phaeros by all shipping agents (soon) # Review of the Phaeros system to decide whether it is useful for the entire container terminal operation # Use of new spreaders (soon) # Container handling productivity needs to be monitored by 3 universally applied indicators (constantly) # (Yard plannersand vessel planners need to be nominated and then trained either by training overseas or onsite OJT (for a considerable amount of time)) # Lessons learned from accidents should be circulated among all employees (immediately)

Description of PDM		Progress and further actions		
Maintenance skills of the port facility and equipment is developed	# Number of maintenance technicians increases # Maintenance cost for existing facility and equipment decreases # Number of seminar/training and participants who pass the training exam increases	# Three civil engineers (two from CFM and one from PN) is assigned for infrastructure maintenance # Counterparts received infrastructure monitoring training using survey equipment (September 2014) # Downtime ratio of equipment decreased (from 39 % in 2012 to 21 % in 2014) # 102 counterparts participated in 14 sessions of lecture/discussions on infrastructure maintenance # Counterparts understood the survey and analysis needed to determine the measures to rehabilitate the South Wharf # 94 counterparts participated in 10 sessions of lecture/discussions on equipment maintenance # Periodical maintenance plan for equipment is developed and implemented	In progress	# Periodical inspection/monitoring of infrastructure (constantly) # Further study and policy decision on the rehabilitation of the South Wharf considering the suggestions of JICA Team # Compilation of an spare parts inventory list (immediately) # Clarification of the responsible party and start of preparation for the maintenance of equipment introduced in ODA projects (soon) # Sharing the information on the conditions of each equipment (immediately)

Attachment E

REPÚBLICA DE MOÇAMBIQUE
MINISTÉRIO DOS TRANSPORTES E COMUNICAÇÕES
PROJECTO DE DESENVOLVIMENTO DO PORTO DE NACALA

TECHNICAL ASSISTANCE MISSION - PHASE II PDPN **18-09-2014**

Ord. Nr.	Name	Position	Institution	Contacts		Signature
				Email	Cell	
1	Ana dimande	Project Manager	INATTER/PDPN	anadimande@yahoo.com.br	825308568	
	Martinho Mafumo	ADMAR NACALA	INAMAR - Nampula	timpswalo@yahoo.com.br	849794983	
2	Anibal Manave	ASSESSOR	CFM	anibal.manave@cfm.co.mz	824346430	
3	Amado Mabasso		CDN	amado.mabasso@cdncear.com	823013863	
4	Agostinho Langa		Portos do Norte	paulobauque@ane.gov.mz	823229519	
5	Antonio Bulande	Jurista	INATTER	antoniobulande@yahoo.com.br	824691060	
6	Nitsuhiko Okada		JICA	m-okada@ocdi.or.jp	827076128	
7	Susumu Kimura		JICA	kimura@ocdi.or.jp	82370773	
8	Masaomi Komoto		JICA	komoto@ocdi.or.jp	820007877	
9	TERUKI ETO		JICA	eto@ocdi.or.jp	826449754	
10	FABIO TERRA DUARTE	EXECUTIVE COMMITTEE ADVISOR	CDN	FABIO.DUARTE@CDNCEARA.COM	823080967	
11	Rosa Machava	Assistant	MTC/PDPN	rosamachava@gmail.com	829168190	

Attachment F

(DRAFT)

Terms of Reference
for Master Plan Study of Nacala Port
in
the Republic of Mozambique

May 2014

1. Project Title

Master Plan Study of Nacala Port in the Republic of Mozambique

2. Executing Agency

Ministry of Transport and Communications

3. Proposed Source of Assistance

Japanese Government through the Japan International Cooperation Agency (JICA)

4. Background

JICA and the Ministry of Transport and Communications of Mozambique are implementing a grant aid project for the rehabilitation of Nacala Port, and preparing for a Yen Loan project for further development of the port. These projects will greatly contribute to the economic development of the country as Nacala Port is the cornerstone of northern Mozambique and will serve as a regional hub of maritime and land transportation.

Recently a huge gas field was found off the northern coast of Mozambique. This will have great impacts on port activities and industrial activities in northern Mozambique including Nacala. At the same time, ProSAVANA-JBM, a large-scale tripartite agricultural development project, is underway along the Nacala Corridor and poised to produce export products. Inland road and railway networks are being rapidly improved by both public and private sector. A large-scale coal export facility is about to start operation in Nacala-a-Velha. In 2013, CDN, the concessionaire of Nacala Port, subcontracted the port operation to a newly created entity, PN. These developments, though having significant impacts on port development and port administration, were not envisaged when the existing master plan was formulated with the assistance of JICA. Therefore, there is a strong justification for the formulation of a new comprehensive port master plan responding to the changing needs in and around Nacala Port.

5. Study Area

The Study shall cover Nacala Port and its hinterland including the Nacala Corridor.

6. Objectives of the Study

The objectives of the Study are:

1) To identify the potential of port development around Nacala in providing an efficient maritime transport system as well as sustaining industrial activities behind the port, taking into account future economic, industrial and trade policies of Mozambique.
2) To prepare a strategic concept for port development.
3) To prepare a comprehensive master plan for Nacala Port in the port's vicinity (Target year 2030).
4) To prepare an urgent development plan for prioritized projects including facility requirements and

implementation schemes (Target year 2020).

5) To give technical advice on the development and maintenance of the port.
6) To examine measures to minimize negative environmental impacts.
7) To make recommendations on the project implementation scheme including PPP
8) To make recommendations on efficient port administration including proper distribution of functions among pertinent agencies
9) To carry out technology transfer through the conduct of the Study.

7. Scope of the Study

To achieve the objectives mentioned above, the Study shall cover the following items:

7-1 Preparation of a strategic concept of port development

1) To set up a future socio-economic framework in the port's hinterland.
2) To assess the future demand for maritime transport and industrial activities in northern Mozambique paying due consideration to the evolving maritime network in East Africa. Implications of grain export originating inland, impacts of gas exploitation in northern Mozambique, and the growing potential of Nacala Port as a fuel import/distribution hub for the hinterland shall be duly considered as well.
3) To examine appropriate port and industrial functions to be provided by Nacala Port.
4) To prepare a strategic concept of port development in Nacala.

7-2 Preparation of a port development master plan (target year 2030)

1) To forecast the future maritime transportation demand.
2) To acquire data on natural conditions and environmental conditions around the development area.
3) To prepare a development master plan including physical port development/layout plans and industrial land-use plans.
4) To recommend technical measures to efficiently develop the port.
5) To recommend appropriate managerial/institutional settings for port administration and project implementation.
6) To make a rough cost estimate of the plans.

7-3 Preparation of an urgent development plan (target year 2020)

1) To prioritize the development projects proposed in the master plan.
2) To prepare an urgent development plan including development requirements of the selected projects, physical facility planning, and cost estimate.
3) To examine funding schemes for the priority projects including PPP.
4) To evaluate the urgent development plan from the economic, financial, institutional and environmental viewpoints.

7-4 Utilization of Japanese Cooperation Schemes

Applicability of Japanese ODA scheme options would be examined for the effective implementation of the urgent development plan.

7-5 Technology Transfer

During the study period, technology transfer to the counterparts shall be pursued. A series of seminars on various planning issues shall be held with the attendance of counterparts. Some of the counterpart personnel shall be invited to Japan to participate in relevant port training courses.

8. Tentative Schedule

The Study will be completed in approximately twelve (12) months after commencement and be carried out according to the study schedule attached below. The following reports in English /Portuguese shall be submitted to the relevant authorities.

#1 Inception Report
Detailed contents and schedule of the study work

#2 Progress Report
Strategic concept for port and industrial development

#3 Interim Report
Development master plan

#4 Draft Final Report
Provisional results of the Study

#5 Final Report
Final results of the Study prepared in consideration of the feedback from the Mozambique side to the Draft Final Report

Study Schedule (tentative)

	1	2	3	4	5	6	7	8	9	10	11	12
Work in Mozambique	←	→		←	→		←	→		←	→	
Work in Japan			←	→		←	→		←	→		←
Reports	#1			#2			#3			#4		#5

Attachment 6

Phase 2 of the technical assistance for the improvement of Nacala Port (draft)

1. Duration
   Start from April 2015 and last until a few months after the completion of the rehabilitation projects

2. Counterpart agency
   MTC, INATTER, CFM, CDN, PN

3. Scope
   Port administration, cargo handling, terminal operation, infrastructure maintenance, equipment maintenance

4. Objectives
   1) To strengthen the counterpart agencies aiming to develop sustainable port administrative capacity in Mozambique
   2) To help optimize the use of the facility and equipment provided by Japanese ODA aiming to increase the cargo handling productivity
   3) To help maintain the facility and equipment in good condition aiming to prolong their serviceable life
   4) To reform legal frameworks regarding Mozambican ports.

5. Backgrounds
   Since 2012, JICA has been extending technical assistance to the Mozambican side for the improvement of Nacala Port and achieved considerable capacity development for counterparts. Continuing the technical assistance will strengthen the institutional capacity of the Mozambican side and thus maximize the benefit of the port rehabilitation projects currently carried out by JICA and MTC. INATTER, a newly created governmental entity, will serve as a regulator for the port sector as well and is in need of capacity building.

6. Programs of technical assistance
   The technical assistance team and Mozambican counterparts will jointly carry out the following programs through discussions, lectures in Mozambique and Japan, and site monitoring. With respect to port administration, Nacala Port will be taken

up as a showcase of conceded ports in Mozambique.

1) Port administration (Counterparts: MTC (INATTER), CFM, CDN)
   A) Review of the legal frameworks regarding Mozambican ports in comparison with those in other countries
   B) Prepare guidelines to build a proper legal framework for Mozambican ports
   C) Suggestions on the desirable legal framework for Mozambican ports responding to the draft legislation prepared by the Mozambican side
2) Terminal operation (Counterparts: CDN, PN)
   A) OJT for Vessel operation planning
   B) OJT for Yard operation planning
   C) Documentation works
   D) Terminal operation management
3) Infrastructure maintenance (Counterparts: MTC, CFM, CDN, PN)
   A) Suggestions on the rehabilitation of the South Wharf
   B) Suggestions on time-series analyses of the periodically monitored data
   C) On-site study of civil works
4) Equipment maintenance (Counterparts: CFM, CDN, PN)
   A) OJT for RTG maintenance
   B) OJT for RTG operation

8. The 4th JCC (10th Dispatch, 2015-01)

Conclusion
of
The Fourth Joint Coordination Committee
for
The Project for Improvement of Nacala Port
in Republic of Mozambique

The fourth meeting of the Joint Coordination Committee (hereinafter referred to as "JCC") for the Project for Improvement of Nacala Port in Republic of Mozambique (hereinafter referred to as "the Project") was held on February 10, 2015 at the MTC office in Maputo. The attendants are listed in Attachment 1.

At the meeting of JCC, the JICA expert team for the Project (hereinafter referred to as "the Project Team") presented the project completion report outlining the project achievements (Attachment 2). In the presentation, the Project Team appreciated proactive actions taken by the Mozambican side in such areas as the clarification of technology transfer needs, preparation of infrastructure inspection report and maintenance plan, compilation of safety regulations, implementation of on-site infrastructure monitoring, improvement in equipment availability ratio, and upgrading of the Phaeros system. The Project Team applied PDM (project design matrix) and monitoring indicators to show that the Project had achieved the expected outcomes. PDM and monitoring indicators were completed and confirmed in the wrap-up meeting in Nacala (Attachment 3). The Project Team also identified areas in need of further improvement such as port administration, terminal operation, infrastructure maintenance, and equipment maintenance.

JCC agreed that the Project was successfully completed and commended the active participation of all parties concerned. JCC also concurred on the importance of further improvement of Nacala Port. The Mozambican side requested technical support from JICA in pursuing efforts to further improve Nacala Port. JICA responded that it would support those efforts through dispatch of short term experts and overseas training, and the Mozambican side agreed to the basic concept of the idea proposed by JICA.

Maputo, February 10, 2015

Masahiro Yoshimi
Executive Technical Advisor to
Director General
Infrastructure and Peacebuilding
Department, JICA

Dr. Ana Matusse Dimande
Coordinator,
Nacala Port Development Project
Ministry of Transport & Communications

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port in Republic of Mozambique

(Attachment 1)

REPÚBLICA DE MOÇAMBIQUE
MINISTÉRIO DOS TRANSPORTES E COMUNICAÇÕES
PROJECTO DE DESENVOLVIMENTO DO PORTO DE NACALA

TECHNICAL ASSISTANCE FOR NACALA PORT REHABILITATION

4th JCC

10-02-2015

Ord. Nr.	Name	Institution	Contacts		Signature
			Email	Cell	
1	Ana dimande	INATTER/PDPN	anadimande@yahoo.com.br	825308568	
2	Mitsuhiko Okada	OCDI	m-okada@ocdi.or.jp		岡田光彦
2	Kihoshi Nakashima	OCDI	nakashima@ocdi.or.jp		中島 薫
3	Teruki Eto	OCDI	eto@ocdi.or.jp		江藤輝記
4	Susumu Kimura	OCDI	kimura@ocdi.or.jp		木村 進
5	Antonio Bulande	INATTER/PDPN	antoniobulande@yahoo.com.br	824673105	
6	Filipe Mapangane	INATTER/PDPN	filipe.mapangane@gmail.com		
7	Antonio Quimisse	MTC/PDPN	aquimise@yahoo.com.br		
8	Rosa Machava	MTC/PDPN	rosamachava@gmail.com	829168190	
9	FERNANDO OLIVEIRA	MTC/DEI	[illegible]	[illegible]	
10	Anibal Nhanave	CFM	anibal.nhanave@cfm.co.mz	824346430	
11					

REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO DOS TRANSPORTES E COMUNICAÇÕES

PROJECTO DE DESENVOLVIMENTO DO PORTO DE NACALA

TECHNICAL ASSISTANCE FOR NACALA PORT REHABILITATION

4th JCC

10-02-2015

Ord. Nr.	Name	Institution	Contacts		Signature
			Email	Cell	
12	KATSUYOSHI SUDO	JICA	Sudo. Katsuyoshi@jica.go.jp	82 31 7103 00	須藤勝義
13	Chiharu Morita	JICA	Morita. Chiharu@jica.go.jp	82 32 095 00	森田千春
14	Akiko Shimchira	JICA	Shimchira. Akiko@jica.go.jp	82 305 85 15	下平 明子
15					
16	Tetsuaki Kurihayashi	JICA	Kurihayashi.tetsuaki@gmail.com	82 29 [illegible]	
17	Masahiro YOSHIMI	JICA HQ	Yoshimi.Masahiro@jica.go.jp	86 2947116	吉見昌弘
18	Yoshimoto koyanagi	JICA HQ	koyanagi.yoshimoto@jica.go.jp	86 258 4907	小柳 桂泉
19					
20					
21					
22					
23					

(Attachment 2)

PROJECT COMPLETION REPORT

THE PROJECT FOR IMPROVEMENT OF NACALA PORT

FEBRUARY 2015

Japan International Cooperation Agency (JICA)

The Overseas Coastal Area Development Institute of Japan (OCDI)

Outline of the Project

Based on the Record of Discussions signed on December 22, 2011 between the Mozambican and Japanese sides

The first technical assistant mission (Project Team) arrived in Mozambique in April 2012

JICA dispatched10 missions to Mozambique and received 35 counterparts in Japan during the course of the Project

The Project Team and Mozambican counterparts jointly held 66 taskforce meetings dealing with specific needs in Nacala Port

(Attachment 3)

Records of activities of the JICA Project Team in Nacala

The JICA expert team for the Project for Improvement of Nacala Port (hereinafter referred to as "the Project Team") visited Nacala from January 29 to February 7, 2015. During the visit, the Project Team and Mozambican counterparts jointly carried out various activities including discussions, presentations, and site monitoring. At the wrap-up meeting on February 6 (Attendant list is as attached (Attachment A)), both sides confirmed that the Project had achieved the expected outcomes as indicated by the Project Design Matrix (Attachment B) and monitoring indicators (Attachment C). Mozambican counterparts appreciated the achievements of the Project and expressed expectations of continuous technical assistance from Japan. The Project Team suggested that following steps would be meaningful for the efficient operation of Nacala Port:

1. To enhance storm readiness, Nacala Port should establish a special committee responsible for measures to be taken against strong winds. Nacala Port needs to keep track of wind conditions by installing anemometers and following weather forecast (CDN).
2. To provide off-dock container storage capacity, the dry terminal should be paved when the rainy season ends in April (PN/TN).
3. To prevent excessive congestion of the container yard, Nacala Port should keep track of container inventory and keep it under sustainable condition. It is advisable to move out long dwelling containers to off-dock container yards (PN).
4. To keep the container yard behind the South Wharf in operable condition, subsided areas should be repaired when the rainy season ends in April. Periodical inspection would be useful to know the progress of deterioration (CFM/CDN/TN).

On February 5, JICA and MTC jointly organized a seminar to make pertinent agencies informed of the Project achievements and to exchange views on the future functions of Nacala Port among people concerned. This seminar turned out successful thanks to the active participation of port-related organizations (Seminar program and attendant list are as attached (Attachment D)).

Nacala, February 6, 2015

Mitsuhiko Okada
JICA Team Leader
The Project for Improvement of
Nacala Port in Republic of Mozambique

Martinho F. Mafumo
Maritime Administrator,
Maritime Administration of Nacala

February 2015

(Attachment-A)

Attendance List for the Technical Transfer Sessions provided by the JICA Expert Team (Jan.-Feb. 2015)

Category/Area of Training	General	Session No.	6
Title	Wrap-up Meeting		
Date & Time	14:00-16:00, February 06, 2015		
Lecturer	JICA Expert Team		
Venue	PN Conference Room		

No.	Name	Title / Section	Org.	Signature
1	Martinho F. Mafumo	Maritime Administrator	MTC	
2	Arzílio Josué Mata	Supervisor/ Civil Engineer	CFM (Office of Nacala Port Rehabilitation Project)	
3	Anabela Emilia Matsinha	Supervisor/ Civil Engineer		
4	Tomás Fortunato Ngca	Supervisor/ Mechanical Engineer		
5	Milione Changala	Supervisor/ Electrical Engineer		
6	José Osias Cherinda	Supervisor/ H.S.T		
7	Carmona Macobola	Civil Engineer	CFM (DEPE)	
8	Alfredo Rafael Sigola	Chef of Infrastructure Dept.	CFM North (Nacala)	
9	Drasnildo Luis Monteiro	Chef of Infrastructure Dept.		
10	Alfredo Artur Mafuca	Oil Terminal Manager		
11	Braulio Franco Catutula	Port Operation		
12	Nino Jorge Lobo	Port Operation		
13	Abubacar Mecuta	Port Security		
14	Fabio Frasao	Port Director	CDN	
15	Francisco David	Safety Consultant		
16	Ibraimo Mussa	Operation Analyst		
17	Agostinho Langa	PN Director/COO	PN	
18	Loni Shott	Chief of Comercial Division		
19	Luis Machado	Chief of Port Operations Division		
20	Abudo Selle	Project Management Unit		
21	Vasco Cunha	Chief of Maintenance Division		
22	António Gabriel	Chief of Security Division		
23	Neimo Induna	CCOP		
24	Denilson Hamide	Branch Manager	TN	
25	Helvio Salomao	Operation Manager		
26	Carmen Amaral	Safety Officer		
27	Abdurremane cadre	General Cargo Supervisor		
28	Mitsuhiko OKADA	JICA Expert/ Team Leader	JICA	
29	Kiyoshi NAKASHIMA	JICA Expert		
30	Teruki ETO	JICA Expert		
31	Susumu KIMURA	JICA Expert		
32	Nobuaki KURIBAYASHI	JICA Mozambique		
33	Camilo Madeira	EHS PN	PN	
34	Anibal Hamve	Adviser to the Boards	CFM	

(Attachment B)

Project Design Matrix

Description of PDM		Achievements and future actions		
Narrative summary of outputs	Objectively verifiable indicators	Outputs up to January 2015	Evaluation of the progress as of January 2015	Forthcoming actions and recommendable actions (Items in parenthesis are out of the scope of the current TA project)
Port development strategy is developed	Port development strategy is drafted	# Revised port development plan was prepared and agreed on among pertinent parties (September 2012)		# (Master plan beyond the short-term development) # (Rehabilitation plan of the South Wharf)
The implementation structure of the short-term development is revised and established	Short-term development plan is revised	# Grant aid project started (March 2014) # Loan-1 project started D/D	Targets accomplished	
The capacity of the port administration and management is developed	# Regulation on port administration and management is drafted # Port is administered and managed according to the regulation	# Operational regulation and safety regulation are drafted # Safety regulation was announced to stakeholders in a seminar (April and November 2014), approved by the CDN board (June 2014) and then implemented (December 2014)	Targets accomplished	Operational regulation will be finalized and implemented (targeted for May 2015)
Cargo handling skill is improved	# Cargo handling capacity per hour increases # Accident rate decreases # Number of seminar/training and participants who pass the training exam increases	# Cargo handling efficiency is gradually improving through the introduction of Phaeros and segregation of containers which has resulted in a decrease in vehicle turn-round time # Accidents are recorded and preventive measures are analyzed # 148 counterparts participated in 13 sessions of lecture/discussions on cargo handling # Phaeros (terminal operation system) is operational and all agents are participating in the system # Leveling of the dry terminal was completed (September 2014) but severe rain falls caused damages requiring the terminal to be paved # New spreaders arrived (September 2014) and are now in use	Targets accomplished	# Wireless data transmission will be installed before mid-March # Container handling productivity needs to be monitored by 3 universally applied indicators # 4 yard planners will be hired # Lessons learned from accidents should be circulated among all employees
Maintenance skills of the port facility and equipment is developed	# Number of maintenance technicians increases # Maintenance cost for existing facility and equipment decreases # Number of seminar/training and participants who pass the training exam	# Three civil engineers (two from CFM and one from PN) are assigned for infrastructure maintenance # Counterparts received infrastructure monitoring training using survey equipment (September 2014) # Downtime ratio of equipment decreased (from 39 % in 2012 to 21 % in 2014) # In daily operation meetings	Targets accomplished	# Further study and policy decision on the rehabilitation of the South Wharf considering the suggestions of JICA Team # Compilation of a spare parts inventory list

Description of PDM		Achievements and future actions		
	increases	equipment conditions are reported and shared among all people concerned # 110 counterparts participated in 15 sessions of lecture/discussions on infrastructure maintenance # Counterparts understood the survey and analysis needed to determine the measures to rehabilitate the South Wharf # A Mozambican delegation had a technical meeting on the South Wharf with Japanese counterparts in Japan (November 2014) # 84 counterparts participated in 9 sessions of lecture/discussions on equipment maintenance # Periodical maintenance plan for equipment is developed and implemented		

(Attachment C)

Monitoring Indicators

Subject	Indicators	Milestones/goals	Baseline	Achievements
Port development planning	Progress of investment packages	Start of Grant aid Start of Loan-1 Start of Loan-2	Investment packages not started yet as of April 2012.	Grant aid project started (March 2014) # Loan-1 project started D/D (May 2014)
Port administration and management	Number of participants in seminars and workshops	Training in Japan in 2012, 2013 and 2014 Training in Angola in 2013 Training in Nacala and Maputo		Training in Japan in 2012, 2013, 2014 (In total, 31 counterparts received technical transfer in Japan) Key counterpart training in 2013 substituted for Training in Angola
Cargo handling	1. Gross vessel productivity of container handling 2. Net vessel productivity of container handling 3. Net gang productivity of container handling 4. Dwelling time of containers	10 boxes (=13.0 TEU) /SG/hour as Net Productivity	1. 6.7 box/hour/vessel (2011) 2. 7.6 box/hour /vessel (2011) 3. 5.0 box/hour/gang (2011) 4. 8.55 days for transit containers (2012)	1. 8.2 box/hour/vessel (2014) 2. 10.6 box/hour/vessel (estimated by the Project Team, 2014) 3. 6.3 box/hour/gang (estimated by the Project Team, 2014) 4. Average dwelling time is not recorded
Maintenance of facilities	Frequency of port area patrol (regular inspection)	Regular inspection is started Budget for maintenance is allocated.	No regular inspection No budgetary allocation	Inspection of infrastructure started in August 2014 MT 15,380,000 is requested to the management for FY 2015 budget
Maintenance of equipment	Working time ratio of equipment Annual budgetary allocation for facility maintenance	60-70 % Sufficient amount of budget	51.77 % (2012) MT 27,770,000 (2011)	79 % (2014) MT 92,369,000 is allocated in FY 2015 budget

(Attachment D)

Nacala Port Development Project
Technical Assistance Project in Nacala-Porto

República de Moçambique
Ministério dos
Transportes e Comunicaçoes

Japan International Cooperation Agency

Seminar Program

5th February, 2015

1. Venue

Conference Center, Afrin Nacala Hotel, Nacala
(Rua 1, Talão A7, Bairro Maiaia, Nacala-Porto, Tel:26-526 600)

2. Time & Date

09:30-12:00, 5th February, 2015

3. Program (6 presentations, 20 minutes each = 120 minutes)

(1) JICA technical assistance for Nacala Port – achievements and future challenges (by JICA Team)
Mr. Mitsuhiko Okada, Team Leader, Japan International Cooperation Agency (JICA)

(2) Improvement in infrastructure and equipment (by CFM)
Mr. Arzílio Josué Mata, Supervisor/ Civil Engineer, Portos e Caminhos de Ferro de Moçambique (CFM)

(3) Strengthening of port functions at Nacala, the gateway of the Nacala Corridor (by CDN)
Mr. Fabio Frasão, Port Director, Corredor de Desenvolvimento do Norte (CDN)
Mr. Ibraimo Mussa, Operation Analyst, Corredor de Desenvolvimento do Norte (CDN)

(4) Improvement in terminal operation (by PN)
Mr. Neimo Induna, CCOP, Portos do Norte (PN)

(5) Expectations for future development of Nacala Port (by CMACGM and MSC)
Mr. Hinelder Ferreira, Branch Manager, CMA CGM Mozambique
Mr. Simon Kanjanga, Branch Manager, Mediterranean Shipping Company (MSC) Mozambique

12:00-13:30 Lunch

Attendance List for the Seminar on Nacala Port (February 05, 2015)

Category/Area of Training	General	Session No.	-
Title	Seminar on Nacala Port		
Date & Time	09:30 - 12:00, February 05, 2015		
Organizer	JICA Expert Team		
Venue	Conference Center, Nacala Afrin Hotel		

No.	Name	Title / Section	Org.	Signature
1	Mitsuhiko OKADA	JICA Expert/ Team Leader	JICA	
2	Kiyoshi NAKASHIMA	JICA Expert		
3	Teruki ETO	JICA Expert		
4	Susumu KIMURA	JICA Expert		
5	Akiko SHIMOHIRA	JICA Mozambique		
6	Nobuaki KURIBAYASHI	JICA Mozambique		
7	Dionísio Vinhereck	Interpreter		
8	Martinho F. Mafumo	Maritime Administrator	MTC	
9	Anibal Manave	Advisor of the Board	CFM (Maputo)	
10	Arzílio Josué Mata	Supervisor/ Civil Engineer	CFM (Office of Nacala Port Rehabilitation Project)	
11	Anabela Emilia Matsinha	Supervisor/ Civil Engineer		
12	Tomás Fortunato Ngca	Supervisor/ Mechanical Engineer		
13	Milione Changala	Supervisor/ Electrical Engineer		
14	José Osias Cherinda	Supervisor/ H.S.T		
15	Carmona Macobola	Civil Engineer	CFM (DEPE)	
16	Alfredo Manuel Lipeque	CFM Nacala Director	CFM North (Nacala)	
17	Alfredo Rafael Sigola	Chef of Infrastructure Dept.		
18	Drasnildo Luis Monteiro	Chef of Infrastructure Dept.		
19	Alfredo Artur Mafuca	Oil Terminal Manager		
20	Braulio Franco Catutula	Port Operation		
21	Nino Jorge Lobo	Port Operation		
22	Abubacar Mecuta	Port Security		
23	Fabio Frasão	Port Director	CDN	
24	Francisco David	Safety Consultant		
25	Ibraimo Mussa	Operation Analyst		

No.	Name	Title / Section	Org.	Signature
26	Agostinho Langa	PN Director/COO	PN	
27	Loni Shott	Chief of Comercial Division		
28	Luis Machado	Chief of Port Operations Division		
29	Neimo Induna	CCOP		
30	António Gabriel	Chief of Security Division		
31	Vasco Cunha	Chief of Maintenance Division		
32	Abudo Sele	Project Management Unit	PN	
33	Cremildo/Márcio	DASSO		
34	Denilson Hamide	Branch Manager	TN	
35	Helvio Salomao	Operation Manager		
36	Carmen Amaral	Safety Officer		
37	Jose Samo	RH/Adm		
38	Abdurremane Cadre	General Cargo Supervisor		
39	Domingos Magaia	Representative	Custom Office in Nacala	
40	Renato Manuel Furruma	Chief Officer	Migration Office in Nacala	
41	Emilia Miranda Abuchir	Officer	INAHINA	
42	Stelio Rodrigues	General Director	Kudumba Investments	
43	Geoffrey Chintingiza	Operation manager	Mocargo Nacala	
44	Ibraimo Assumane	Branch Manager	Manica Freight Services	
45	Hinelder FERREIRA	Branch Manager	CMA-CGM	
46	Simon Kanjanga	Branch Manager	MSC	
47	Carolyn Kathewera	Nacala Branch Manager	Maersk Line	
48			CMCN	
49				
50		Maintenance	PN	

Appendix-3: Record of Task Force Meetings

1. General

Dispatch	Session No.	Title
7th	1	Discussion on TA plan of 7th dispatch and monitoring indicators
7th	9	Wrap-up meeting
8th	1	Discussion on Technical Assistance plan of 8th dispatch
8th	11	Wrap-up Meeting: Steps to be taken until the 9th dispatch (September, 2014) and Progress of the Project based on PDM
9th	1	Discussion on Technical Assistance plan of 9th dispatch
9th	2	Discussion on Progress since April
9th	3	Review of PN statistics
9th	13	Wrap-up meeting
10th	1	Presentation of Completion Report
10th	6	Wrap-up Meeting

Session 1 (General)	**Discussion on TA plan of 7th dispatch and monitoring indicators**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 11th December, 2013 **Time:** 09:30 to 11:30

Participants

CFM North	Braulio Catutula	Operations Officer
	Abubacar Mecuta	Chief of Security & Safety
	Draisnildo Luis Monteiro	Civil Technician A
CDN	Antonio Frederico Candido	Deputy Port Director
	Ibraimo Mussa	Port Operation
PN	Loni Shott	Deputy Port Director
	Lucas Jose Cipriano	Port Operation Director
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Ohno and Kuribayashi	

Agenda

1. JICA TA Team presented the 7th dispatch program and was basically agreed.
2. JICA TA Team presented the 3rd Progress Report.

Session 9 (General)	**Wrap-up meeting**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 16th December, 2013 **Time:** 17:00 to 18:00

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Paulo Tarmamade	Advisor of the Board of Directors
	Abubacar Mecuta	Chief of Security & Safety
CDN	Ibraimo Mussa	Port Operation
PN	Lucas Jose Cipriano	Port Operation Director
	Afonso Vasco da Cunha	Maintenance Director
	Neimo da Esperanca Indunia	Maintenance/CCOP
	Bonifacio Muassabao	Port Operation Division (POD)
	Cremildo Rafael Madeira	Environment, Health & Safety
	Gabriel Joao Antonio	Security
TN	Julio	Supervisor
	Sunil Ratnasiri	Supervisor
	Carmen	Security
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. Steps to be taken until the 8th dispatch (scheduled in April 2014) were discussed.

Session 1 (General)	**Discussion on Technical Assistance plan of 8th dispatch**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 21st April, 2014 **Time:** 09:30 to 11:30

Participants

CFM	Braulio Catutula	IT Manager
	Alfredo Artur Mafuca	Operations Manger
	Alfredo Segola	Maintenance Manager
CDN	Antonio Frederico Candido	Deputy Port Director
PN	Loni Shott	Deputy Port Director
	Lucas Jose Cipriano	Project Management Unit
	Luis Jorge Machado	Chief of Port Operation Division
	Abudo Sele	Project Management Unit
TN	Denilson Hamide	Director
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. Both sides agreed on the time table of the 8th dispatch presented by JICA Team
2. JICA TA Team presented the 4th Progress Report
3. JICA Team presented a tentative plan of the this year's counterpart training in Japan and asked for the designation of participants

Session 11 (General)	**Wrap-up Meeting: Steps to be taken until the 9th dispatch (September, 2014) and Progress of the Project based on PDM**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 28th April, 2014 **Time:** 09:30 to 11:30

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Anabela Matsinha	Civil Engineer
CDN	Antonio Frederico Candido	Deputy Port Director
	Ibraimo Mussa	CDN Officer (Port Operation)
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Lucas Jose Cipriano	Project Management Unit
	Luis Jorge Machado	Chief of Port Operation Division
	Loni Schott Ribeiro	Deputy Port Director
	Abudo Sele	Project Management Unit
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

It was agreed that the following steps should be taken by both sides before the 9th dispatch.

1. By the Mozambican counterparts
   - Start of the periodical monitoring of infrastructure
   - Preparation for the introduction of survey equipment
   - Completion of the dry terminal upgrades
   - Introduction of new spreaders with flippers
   - Monitoring of the three container handling productivity indicators (Berth productivity, Gross productivity per crane, net productivity per crane)
   - Implementation of the safety regulation and operation regulation
   - Monitoring of EMS for urgent rehabilitation
   - Review of JICA Team's suggestions on the South Wharf
2. By the JICA Team
   - Procurement of survey equipment
   - Preparation of an onsite training program for infrastructure monitoring

Session 1 (General)	**Discussion on Technical Assistance plan of 9th dispatch**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 4th September, 2014 **Time:** 09:30 to 10:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Alfredo Artur Mafuca	Oil Terminal Manager
	Alfredo Rafael Sigola	Ncala Infrastructure Chiel
	Anabela Matsinha	Supervisor Civil Engineer
	Alfredo Manuel Lipeque	Branch Manager
	Edgar Jorge	Supervisor Chief Engineer
CDN	Ibraimo Mussa	Port Operations Analyst
	Fabio Frasao	Port Director
PN	Agostinho F. Langa Jr.	Director/COO
	Lucas Jose Cipriano	Project Management Unit
	Loni Schott Ribeiro	Chief of the Commercial Division
	Abudo Sele	Project Management Unit
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. Both sides agreed on the program of the 9th dispatch presented by JICA Team
2. Mozambican counterparts were requested to participate and present the progress since the 8th dispatch in relevant sessions

Session 2 (General)	**Discussion on Progress since April**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 4th September, 2014 **Time:** 14:30 to 16:00

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Alfredo Rafael Sigola	Ncala Infrastructure Chiel
	Edgar Jorge	Supervisor Chief Engineer
	Goncalves Chizuzu	Port Operation
CDN	Ibraimo Mussa	Port Operations Analyst
PN	Lucas Jose Cipriano	Project Management Unit
	Luis Jorge Machado	Chief of Port Operation Division
	Afonso Vasco da Cunha Jr.	Maintenance Director
	Loni Schott Ribeiro	Chief of the Commercial Division
	Abudo Sele	Project Management Unit
TN	Sunil Ratnasiri	Supervisor
	Denilson Hamide	Director
	Jose Samu	Operation
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

JICA Team reminded the participants of the steps to be taken agreed on in April.

1. For Mozambican counterparts
   - Start of the periodical monitoring of infrastructure [done]
   - Preparation for the introduction of survey equipment [done]
   - Completion of the dry terminal upgrades [underway]
   - Introduction of new spreaders with flippers [underway]
   - Monitoring of the three container handling productivity indicators (Berth productivity, Gross productivity per crane, net productivity per crane) [underway]
   - Implementation of the safety regulation [done] and operation regulation [underway]
   - Monitoring of EMS for urgent rehabilitation [not done]
   - Review of JICA Team's suggestions on the South Wharf [not done]
2. For JICA Team
   - Procurement of survey equipment [done]
   - Preparation of an onsite training program for infrastructure monitoring [done]

Session 3 (General)	**Review of PN statistics**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 5th September, 2014 **Time:** 9:30 to 11:00

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Braulio Franco Catutula	Port Operation
	Edgar Jorge	Supervisor Chief Engineer
	Goncalves Chizuzu	Port Operation
CDN	Antonio Frederico Candido	Cheif of Infrastructure Maintenance Dept.
	Ibraimo Mussa	Port Operations Analyst
PN	Lucas Jose Cipriano	Project Management Unit
	Loni Schott Ribeiro	Chief of the Commercial Division
	Mohamad Richard	Commercial Division
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

JICA Team made a presentation on the performance of Nacala Port based on the PN statistics

Through discussions, backgrounds of the statistical trend were identified and suggestions were made accordingly

1. For accidents:
   - In 2013, registered accidents increased significantly due to the improved awareness of safety issues and the increase in oversize cargo
   - JICA Team suggested that a safety committee should be organized and lessons learned from accidents should be circulated to all employees
   - JICA Team urged that people should exercise additional caution responding to the port congestion during urgent rehabilitation projects
2. For cargo volume:
   - The decrease in 2012 and the remarkable increase in 2013 was due to the decline of transit cargo for Malawi and the increase in project cargo respectively
   - Natural gas exploitation related cargo and timber pallets are among the additional prospective cargo
   - JICA Team suggested that Nacala Port should keep track of the progress of PROSAVANA
3. For container cargo:
   - PN explained that coastal container traffic decreased due to its costs higher than trucking
   - PN referred to a recent stakeholder meeting aimed to reduce the coastal shipping costs
   - JICA Team responded that coastal shipping was generally more economical and eco-friendly than trucking and encouraged the efforts currently undertaken among stakeholders
4. For vessel calls:
   - PN explained that the increase of vessel calls in 2013 was due to gas exploration activities and

would not be sustainable

5. For container handling productivity
   - Container handling productivity has not improved during the last two years
   - PN explained that the continued use of inefficient ship gears and a lack of spreaders with flippers were the main reasons behind the lack of improvement
   - JICA Team suggested that PN should request shipping agents to improve vessel plans and also have its own ship planners
6. For available time ratio of equipment
   - Availability of cargo handling equipment has remarkably improved due to the following factors: introduction of new equipment resulting in less strain in old equipment, OJT for maintenance personnel, and improvement in the spare parts procurement system
   - Both sides recognized the need of renewed efforts to deal with the increase in the number of models of reach stackers

Session 13 (General)	**Wrap-up meeting**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 15th September, 2014 **Time:** 9:30 to 11:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Anabela Matsinha	Supervisor Civil Engineer
	Arzilio Mata	Supervisor Civil Engineer
	Milione Changala	Supervisor Electrical Engineer
	Goncalves Chizuzu	Port Operation
	Floclordo Cumbane	Port Operation
	Ohairo Mario	Port Security
CDN	Ibraimo Mussa	Port Operations Analyst
PN	Lucas Jose Cipriano	Project Management Unit
	Luis Jorge Machado	Chief of Port Operation Division
	Abudo Sele	Project Management Unit
TN	Sunil Ratnasiri	Supervisor
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

Both sides confirmed the progress of the Project and agreed that the following areas were in need of continuous efforts and attention

1. Infrastructure
   - Periodical inspection
   - Policy decision on the rehabilitation of the South Wharf
2. Cargo handling
   - Nomination of yard planners and vessel planners and their capacity development
   - Start of handling laden containers in the dry terminal upon completion of its upgrades and introduction of reach stackers
   - Review of the Phaeros system to decide whether it is useful for the entire container terminal operation
   - Monitoring of 3 container handling productivity indicators
3. Equipment
   - Clarification of the responsible party and start of preparation for the maintenance of equipment introduced in ODA projects
   - Sharing the information on the conditions of each equipment
   - Compilation of an spare parts inventory list
4. Safety/Operation
   - Additional attention during urgent rehabilitation projects

- Circulation of the lessons learned from accidents among all employees
- Finalization and implementation of the Operational Regulations

The need of continued technical assistance was discussed and the following subjects were identified as priority areas

1. Port administration
   - Review of the Mozambican port administration system in comparison with those in other countries
   - Suggestions on the desirable distribution of administrative functions among pertinent agencies (government, concessionaire, and operator)
   - Suggestions on the desirable legal framework for national port administration
2. Terminal operation
   - OJT for Vessel planning
   - OJT for Yard planning
   - Documentation works
   - Terminal operation management
3. Infrastructure maintenance
   - Suggestions on the rehabilitation of the South Wharf
   - Suggestions on time-series analyses of the periodically monitored data
   - On-site study of civil works
4. Equipment maintenance
   - OJT for RTG maintenance
   - OJT for RTG operation

2. TF-1: Port Planning

Dispatch	Session No.	Title
4th	3	Meeting for Port Plan and Meeting for Port Administration and Management
4th	4	Meeting for Port Plan (World Shipping Trend)
4th	5	Meeting for Port Plan
5th	3	Meeting for Port Plan
5th	6	Meeting for Port Plan
5th	8	Meeting for Port Plan
6th	5	Meeting for Port Plan
6th	7	Meeting for Port Plan

Session 3 (TF-1)	**Meeting for Port Plan and Meeting for Port Administration and Management**
4th Dispatch	**Date:** 12th December, 2012 **Time:** 14:00 pm to 16:30 pm **Place:** Conference Room of CDN Nacala

Participants

MTC	Dr. Ana Dimande	Project Coordinator
CFM	Alfredo Mafuca	Manager, Port Operations/Data Handling
	Abubacar Mecuta	Manager, Port Environment
	Assane Daudo	Manager, Port Operations/Data Handling
	Ossufo Bacar	Coordinator, Port Operations
	Braulio Catutula	Coordinator, Port Operations
	Lucilia Mangue	Coordinator, Port Operations
	Cesar Antonio	Coordinator, Maintenance/Infrastructures
	Jose Muapalame	Coordinator, Maintenance/Infrastructures
	Emanuel Rosse	Floorwalker, Port Operations
	Goncalves Chizuzu	Floorwalker, Port Operations
	Nino Lobo	Floorwalker, Port Operations
CDN	Loni Shot	Director, Logistics
	Lucas Cipriano	Director, Port Operations
	Bonifacio Muassabao	Manager, Port Operations
	Eusebio Amando	Pilot/Manager, Port Operations
	Eusebio Anania	Coordinator, Port Operations
	Atumane Quinane	Coordinator, Port Operations
PN	Rui Fonseca	
TN	Denilson Hamide	Director
	Raime Pachinuapa	Manager
	Julio	Coordinator
JICA Expert Team	Nakashima, Miyaji, Eto, Kimura and Kuribayashi	

Agenda

1. Port management
2. Port planning system
3. World trends related to Ports and Harbours
4. Laws and regulations for port planning

Materials

1. Port Management
2. Japan's Port Management and The United States' Port Management

Session 4 (TF-1)	**Meeting for Port Plan (World Shipping Trend)**
4th Dispatch	**Date**: 13th December, 2012 **Time**: 14:00 pm to 16:00 pm **Place**: Conference Room of CDN Nacala

Participants

CFM	Alfredo Mafuca	Manager, Port Operations/Data Handling
	Abubacar Mecuta	Manager, Port Environment
	Assane Daudo	Manager, Port Operations/Data Handling
	Ossufo Bacar	Coordinator, Port Operations
	Braulio Catutula	Coordinator, Port Operations
	Lucilia Mangue	Coordinator, Port Operations
	Cesar Antonio	Coordinator, Maintenance/Infrastructures
	Jose Muapalame	Coordinator, Maintenance/Infrastructures
	Draisnildo Monteiro	Supervisor, Port Operations
	Emanuel Rosse	Floorwalker, Port Operations
	Goncalves Chizuzu	Floorwalker, Port Operations
	Nino Lobo	Floorwalker, Port Operations
CDN	Loni Shot	Director, Logistics
	Lucas Cipriano	Director, Port Operations
	Eusebio Anania	Coordinator, Port Operations
	Atumane Quinane	Coordinator, Port Operations
JICA Expert Team	Nakashima, Miyaji, Eto, Kimura and Kuribayashi	

Agenda

1. World Shipping Trend

Materials

1. Business of Shipping

Main Discussion Points

1. Mr. Nakashima, a JICA expert, made a presentation on the business of shipping and its recent trend.

Session 5 (TF-1)	**Meeting for Port Plan**
4th Dispatch	**Date**: 14th December, 2012 **Time**: 14:00 pm to 16:30 pm **Place**: Conference Room of CDN Nacala

Participants

MTC	Dr. Ana Dimande	Project Coordinator
CFM	Alfredo Mafuca	Manager, Port Operations/Data Handling
	Abubacar Mecuta	Manager, Port Environment
	Assane Daudo	Manager, Port Operations/Data Handling
	Ossufo Bacar	Coordinator, Port Operations
	Braulio Catutula	Coordinator, Port Operations
	Lucilia Mangue	Coordinator, Port Operations
	Cesar Antonio	Coordinator, Maintenance/Infrastructures
	Jose Muapalame	Coordinator, Maintenance/Infrastructures
	Draisnildo Monteiro	Supervisor, Port Operations
	Emanuel Rosse	Floorwalker, Port Operations
	Goncalves Chizuzu	Floorwalker, Port Operations
	Nino Lobo	Floorwalker, Fie Fighting Team
CDN	Loni Shot	Director, Logistics
	Lucas Cipriano	Director, Port Operations
	Bonifacio Muassabao	Manager, Port Operations
	Eusebio Anania	Coordinator, Port Operations
	Atumane Quinane	Coordinator, Port Operations
TN	Julio	Coordinator
JICA Expert Team	Nakashima, Miyaji, Eto, Kimura and Kuribayashi	

Agenda

1. Environment considerations
2. Coastal Zone Management and Bay Ares Management

Materials

1. Coastal Zone Management and Bay Ares Management

Main Discussion Points

1. Mr. Miyaji, who is JICA expert made a speech of reviews of previous lecture.
2. Mr. Miyaji made a special presentation of Coastal Zone Management and Bay Ares Management
3. In addition, Tokyo Bay Area was introduced as a case study including the history of reclamation, port's activities and navigation of channels

Session 3 (TF-1)	**Meeting for Port Plan**
5th Dispatch	**Date:** 12th April, 2013 **Time:** 14:00 to 15:00 **Place:** Conference Room of CDN, Nacala

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Braulio Catutula	Coordinator, Port Operations/Data Handling
	Alfredo Artur Mafuca	Manager, Port Operations/Data Handling
	Emanuel Rosse	Floorwalker, Port Operations
	Gonçalves Chizuzu	Floorwalker, Port Operations
	Abubacar Mecuta	Manager, Port Environment
	Ossufo Bacar	Coordinator,
CDN	Aderval Acioli Matos	Port Director
	Candido Frederico	Maintenance Department
	Antonio F. Candido	
PN	Agositnho F. Langa	Operation Director/Executive Committee
	Lucas Cipriano	Port Operations
	Eusebio Ananias	Port Operations
	Atumane Quinane	Port Operations
	Gabriel Joao	Port Operations
	Cremildo Madeira	EHS/Safety
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata, and Kuribayashi	

Agenda

1. How to evaluate the congestion of the terminal
2. How to find ways to improve productivity
3. How to come up with the appropriate berth number

Materials

Port planning tools (1) berth occupancy

Session 6 (TF-1)	**Meeting for Port Plan**
5th Dispatch	**Date:** 13rd April, 2013 **Time:** 11:00 to 12:00 **Place:** Conference Room of CFM, Nacala

Participants

CFM	Jose Muapalame	Coordinator, CFM Pemba
	Assane Daude	Manager, Port Operations, CFM Pemba
	Cesar Antonio	Coordinator, Maintenance / Infrastructure, CFM Pemba
	Ossufo Bacar	CFM Pemba
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata and Kuribayashi	

Agenda

1. How to evaluate the congestion of the terminal
2. How to find ways to improve productivity
3. How to come up with the appropriate berth number

Materials

Port planning tools (1) berth occupancy

Session 8 (TF-1)	**Meeting for Port Plan**
5th Dispatch	**Date:** 15th April, 2013 **Time:** 14:00 to 15:00 **Place:** Conference Room of CDN, Nacala

Participants

CFM	Braulio Catutula	Coordinator, Port Operations/Data Handling
	Alfredo Artur Mafuca	Manager, Port Operations/Data Handling
	Emanuel Rosse	Floorwalker, Port Operations
	Ossufo Bacar	Coordinator,
	Assane Daudo	
CDN	Candido Frederico	Maintenance Department
PN	Agositnho F. Langa	Operation Director/Executive Committee
	Lucas Cipriano	Port Operations
	Neimo Induma	Port Operations
	Luis Machado	Port Operations
	Evaristo Simoco	Law
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata, and Kuribayashi	

Agenda

1. Macro forecast and micro forecast
2. Difference between ASEAN ports and sub-Saharan ports
3. Impacts of the productivity increase on the future cargo volume of Nacala Port
4. Strength of Nacala Port

Materials

Port planning tools (2) demand forecast

Session 5 (TF-1)	**Meeting for Port Plan**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 18th June, 2013 **Time**: 15:00 pm to 16:30 pm

Participants

CFM	Balamade Andinane	Technician (Category A)
	Nauria Mahonca	Technician (Category A)
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
	Sergio Simao	Manager of Mosala
PN	Eusebio Ananias Ramos	Coordinator, Port Operations
	Cremildo Madeira	EHS/Safety
	Gabriel Joao	Chief of the Security Division
	Neimo Induna	Container Yard Manager
	Lucas Cipriano	Port Operation Manager
	Bonifacio Musabao	Port Operation
	Atmane Quinane	Port Operation
TN	Aboul Cadre	Technician
	Maricio Cleosego	Technician
	Denilson Hanli Pasolnard	Technician
JICA Expert Team	Nakashima, Eto, Kunita, Komoto, and Kuribayashi	

Agenda

Discussion on Safety During the Construction Works

Materials

Safety and Health Guide Osamu Kunita.pptx

Main Discussion Points

1. Dr.Kunita, who is JICA expert made a presentation on safety issues during the construction period.
2. Dr. Kunita made a presentation on the systematic way how to prevent the accident.
3. As the result, it is confirmed that the material provided by Dr. Kunita will be utilized to prevent or decrease the accidents.

Session 7 (TF-1)	**Meeting for Port Plan**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 19th June, 2013 **Time**: 10:30 am to 12:00 noon

Participants

CFM	Anabela Matsinha	Civil Engineer
	Balamade Andinane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
	Eusebio Ananias Ramos	Coordinator, Port Operations
	Sergio Simao	Matola Port Manager
CDN	Aderval Acioli Matos	Port Director
PN	Afonso Vasco da Cunha Jr.	Chief of the Maintenance Division
	Cremildo Madeira	EHS/Safety
	Gabriel Joao	Chief of the Security Division
	Neimo Induna	Container Yard Manager
	Marsio Connea	PN-SP Euope Coastal Engineer
JICA Expert Team	Nakashima, Eto, Kunita, Komoto, and Kuribayashi	

Agenda

Bulk Terminal Planning

Materials

Grain_Terminal_Kunita 2013_6.pptx

Main Discussion Points

1. Dr. Kunita, who is JICA expert made a presentation on grain terminal in the world and in Japan.
2. Dr. Kunita made a presentation on the key issues for planning the grain terminal.
3. The reserved area for grain terminal in the short term plan of Nacala Port was reviewed and confirmed as suitable.

3. TF-2: Port Administration and Management

Dispatch	Session No.	Title
4th	8	Meeting for Port Administration and Management (Port EDI system of Japan)
4th	9	Meeting for Process Management Port Administration and Management (Project management)
5th	4	Meeting for Port Administration & Management (Laws and Regulations)
5th	9	Meeting for Port Administration and Management (Privatization of CT)
6th	6	Meeting for Port Administration & Management
6th	10	Meeting for Port Administration & Management
6th	12	Meeting for Port Administration & Management
7th	5	Discussion on the regulation of safety and the regulation of port operations (based on the comments of JICA TA Team)
8th	9	Seminar for safety regulation of Nacala Port
8th	10	Lectures on “5S” and Environmental Management
9th	10	“5S” Training: Guidance
9th	11	“5S” Training: Field Training (1)
9th	12	“5S” Training: Field Training (2)

Session 8 (TF-2)	**Meeting for Port Administration and Management (Port EDI system of Japan)**
4th Dispatch	**Date**: 17th December, 2012 **Time**: 15:30 pm to 17:00 pm **Place**: Conference Room of CDN Nacala

Participants

CFM	Alfredo Mafuca	Manager, Port Operations/Data Handling
	Assane Daudo	Manager, Port Operations/Data Handling
	Ossufo Bacar	Coordinator, Port Operations
	Braulio Catutula	Coordinator, Port Operations
	Lucilia Mangue	Coordinator, Port Operations
	Emanuel Rosse	Floorwalker, Port Operations
	Goncalves Chizuzu	Floorwalker, Port Operations
	Nino Lobo	Floorwalker, Port Operations
CDN	Lucas Cipriano	Director, Port Operations
	Antonio Candido	Director, Maintenance
	Bonifacio Muassabao	Manager, Port Operations
	Eusebio Ananias	Coordinator, Port Operations
	Atumane Quinane	Coordinator, Port Operations
	Gabriel Cossa	Coordinator, Port Operations
JICA Expert Team	Nakashima, Miyaji, Eto, Kimura and Kuribayashi	

Agenda

1. Government to business relation and business to business relation
2. Port procedures of shipping company
3. Port procedures and locations where applications should be submitted
4. Convention on facilitation of international marine traffic
5. The past and future of the single window system of Japan

Materials

1. Port EDI system of Japan

Main Discussion Points

1. Mr. Miyaji made a special presentation on port EDI system of Japan
2. Present condition of port procedures in Nacala port

Session 9 (TF-2)	**Meeting for Process Management Port Administration and Management (Project management)**
4th Dispatch	**Date**: 18th December, 2012 **Time**: 14:00 pm to 16:00 pm **Place**: Conference Room of CDN Nacala

Participants

CFM	Alfredo Mafuca	Manager, Port Operations/Data Handling
	Assane Daudo	Manager, Port Operations/Data Handling
	Abubacar Mecuta	Manager, Port Environment
	Feliciano Antonio	Manager, Maintenance/Infrastructures
	Ossufo Bacar	Coordinator, Port Operations
	Braulio Catutula	Coordinator, Port Operations
	Gabriela Cossa	Coordinator, Port Operations
	Draisnildo Monteiro	Supervisor, Port Operations
	Emanuel Rosse	Floorwalker, Port Operations
CDN	Loni Shott	Director, Logistics
	Lucas Cipriano	Director, Port Operations
	Antonio Candido	Director, Maintenance
	Bonifacio Muassabao	Manager, Port Operations
	Atumane Quinane	Coordinator, Port Operations
	Eusebio Ananias	Coordinator, Port Operations
JICA Expert Team	Nakashima, Miyaji, Eto, Kimura and Kuribayashi	

Agenda

1. Process Management
2. Phases of project such as plan, design ,implementation, operation, and management
3. Matters to manage such as quality, time, budget, human resource, information, risk, and environment and social considerations
4. Tools for project management
5. PDCA cycle

Materials

1. Project Management for Port Development

Main Discussion Points

1. Mr. Miyaji made a special presentation on project management for port development
2. Mr. Miyaji made a special presentation of project management including PDCA
3. Mr. Nakashima, who is JICA expert made a closing remarks of workshops at Nacala.

Session 4 (TF-2)	**Meeting for Port Administration & Management (Laws and Regulations)**
5th Dispatch	**Time:** 15:00 to 16:00 **Place:** Conference Room of CDN, Nacala **Date:** 12th April, 2013

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Braulio Catutula	Coordinator, Port Operations/Data Handling
	Alfredo Artur Mafuca	Manager, Port Operations/Data Handling
	Emanuel Rosse	Floorwalker, Port Operations
	Gonçalves Chizuzu	Floorwalker, Port Operations
CDN	Aderval Acoale Hatos	Port Director
	Antonio F. Candido	
	Candido Frederico	Maintenance Department
PN	Agositnho F. Langa	Operation Director/Executive Committee
	Lucas Cipriano	Port Operations
	Eusebio Ananias	Port Operations
	Atumane Quinane	Port Operations
	Gabriel Joao	Port Operations
	Cremildo Madeira	EHS/Safety
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata, and Kuribayashi	

Agenda

"Regulation of Nacala Port" ; Chapter 7–Occupational Safety

Materials

Kobe Port Container Terminal Safety Policy (English)

Session 9 (TF-2)	**Meeting for Port Administration and Management (Privatization of CT)**
5th Dispatch	**Date:** 15th April, 2013 **Time:** 15:00 to 16:00 **Place:** Conference Room of CDN, Nacala

Participants

CFM	Braulio Catutula	Coordinator, Port Operations/Data Handling
	Alfredo Artur Mafuca	Manager, Port Operations/Data Handling
	Emanuel Rosse	Floorwalker, Port Operations
	Ossufo Bacar	Coordinator,
	Assane Daudo	Manager, Port Operations/Data Handling
CDN	Candido Frederico	Maintenance Department
PN	Agositnho F. Langa	Operation Director/Executive Committee
	Lucas Cipriano	Port Operations
	Neimo Induma	Port Operations
	Luis Machado	Port Operations
	Evaristo Simoco	Law
JICA Expert Team	Okada, Nakashima,	Kimura, Kawabata, and Kuribayashi

Agenda

1. Marketing of the Port
    1) 4Ps for marketing; Product, Price, Place & Promotion
    2) How a shipping line determines an extra port calling

Materials

1. Marketing of the Port
2. Calculation of marginal TEUs required for extra calling at Nacala

Session 6 (TF-2)	**Meeting for Port Administration & Management**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 19th June, 2013 **Time**: 09:00 am to 10:30

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Paulo Tarmamade	Advisor to the Board of Directors
	Seirgio Simao	Matola Port Manager
	Anabela Matsinha	Civil Engineer
	Balamade Andinane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
CDN	Aderval Acioli Matos	Port Director
PN	Cremildo Madeira	EHS/Safety
	Gabriel Joao	Chief of Security Division
	Loni Schott Ribeiro	Chief of Commercial Division
	Lucas Cipriano	Port Operation Manager
	Marcio Correia	DASSO
TN	Arlindo Noellete	Advocado
	Carmen Amaral	PortOperations
JICA Expert Team	Nakashima, Eto, Kunita, Komoto, and Kuribayashi	

Agenda

Discussion on the Safety Regulation of Nacala Port

Materials

1. Nacala Port Safety Regulation (PowerPoint slides in English)
2. Draft of Nacala Port Safety Regulation (Word document in Portuguese)

Main Discussion Points

1. Mr. Aderval Matos of CDN made a presentation to summarize the draft of Nacala Port Safety Regulation.
2. Q & A on the contents of draft regulation.
3. Mozambican side requested JICA Expert Team to feed back with comments on the draft by the end of July 2013.

Session 10 (TF-2)	**Meeting for Port Administration & Management**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 20th June, 2013 **Time**: 15:00 am ~ 16:30 am

Participants

CFM	Anabela Matsinha	Civil Engineer
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Balamade Andinane	Technician (Category A)
	Miguel Jamisse	Mechanical Engineer
	Sergio Simao	Electronic Engineer (Matola Port Manager)
PN	Cremildo Madeira	EHS/Safety
	Lucas Cipriano	Port Operation Manager
	Neimo Induna	Container Yard Manager
	Luis Jorge Machado	Asst. Port Operation
JICA Expert Team	Nakashima, Kunita, Eto, Komoto, and Kuribayashi	

Agenda

Regulation of Port Operations

Materials

Points to be discussed/clarified (Word document), Chapter 3 of Nacala Port Regulation (Portuguese original), Chapter 3 of Nacala Port Regulation (English version)

Main Discussion Points

1. The contents of Charpter 3 of Nacala Port Regulation were checked article by article.
2. The contents of Article 45 to 74 were confirmed almost as per the original.

Session 12 (TF-2)	**Meeting for Port Administration & Management**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 21st June, 2013 **Time**: 10:30 am ~ 12:00 am

Participants

CFM	Paulo Tarmamade	Adviser to the Board of Directors
	Anabela Matsinha	Civil Engineer
	Balamade Andinane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
	Sergio Simao	Electronic Engineer (Matola Port Manager)
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
PN	Agostinho F. Langa Jr	Operation Director/Executive Comittee
	Loni Shott Ribeiro	Chief of Commercial Division
	Lucas Cipriano	Port Operation Manager
	Cremildo Madeira	EHS/Safety
	Luis Jorge Machado	Asst. Port Operation
	Neimo Induna	Container Yard Manager
	Evaristo Joao Simoco	Jurist
JICA Expert Team	Nakashima, Kunita, Eto, Komoto, and Kuribayashi	

Agenda

Regulation of Port Operations

Materials

Points to be discussed/clarified (Word document), Chapter 3 of Nacala Port Regulation (Portuguese original), Chapter 3 of Nacala Port Regulation (English version)

Main Discussion Points

1. The contents of Charpter 3 of Nacala Port Regulation were checked article by article.
2. The contents of Article 75 to 117 were confirmed almost as per the original.
3. Mr. Nakashima commented that :
   1) the difference in the extent of shipping line's liability between conventional cargoes and container cargoes shall be reflected in Chapter 3.
   2) the provisions on the documentation for container cargoes such as EIR shall be added to Chapter 3.

Session 5 (TF-2)	**Discussion on the regulation of safety and the regulation of port operations (based on the comments of JICA TA Team)**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 13th December, 2013 **Time:** 09:30 to 11:30

Participants

CFM North	Abubacar Mecuta	Chief of Security & Safety
CDN	Antonio Frederico Candido	Deputy Port Director
	Ibraimo Mussa	CDN Officer (Port Operation)
	Zacarias Andalusse	CDN Officer (Safety & Security)
	Francisco Davide	CDN Officer (Safety & Security)
PN	Roni Shott	Deputy Port Director
	Lucas Jose Cipriano	Port Operation Director
	Cremildo Eafael Madeira	Environment, Health & Safety
	Gabriel Joao Antonio	Security
	Neimo da Esperanca Indunia	Maintenance/CCOP
	Luis Machado	CCOP
TN	Helvio	Supervisor
	Julio	Supervisor
	Sunil Ratnasiri	Supervisor
	Carmen	Security
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. CDN presented a revised draft of the safety regulation.
2. JICA TA Team suggested further review incorporating specific rules on cargo handling.
3. CDN requested a lecture material on "5S" (Japanese workplace management methodology – Seiri[sort], Seiton[Straighten], Seisou[Shine], Seiketsu[Standardize] and Shitsuke[Sustain]).
4. JICA TA Team suggested that productivity of container handling shall be based on 1) berth productivity, 2) gross productivity per ship gear (gang) and 3) net productivity per ship gear (gang).
5. JICA TA Team reminded that the goal of Nacala port productivity was set at 10 boxes/hour as net productivity per ship gear (gang).

Session 9 (TF-2)	**Seminar for safety regulation of Nacala Port**
8th Dispatch	**Place:** Afrin Nacala Hotel **Date:** 25th April, 2014 **Time:** 10:00 to 11:30

Participants

CFM	Alfredo Artur Mafuca	Operations Manager
	Abubacar Mecuta	Inspection Manager
	Anabela Matsinha	Civil Engineer
	Alfredo Manuel Lipeque	Branch Manager
CDN	Aderval Acioli Matos	Port Director
	Ibraimo Mussa	CDN Officer (Port Operation)
	Zacarias Andaluss	CDN Officer (Safety & Security)
	Francisco Davide	Consultant
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Lucas Jose Cipriano	Project Management Unit
	Cremildo Rafael Madeira	EHS/Safety
TN	Helvio Salomao	Supervisor
	Denilson Hamide	Director
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. MTC and JICA Team jointly organized a seminar on the Nacala Port Safety Regulation
2. CDN gave a presentation on the draft regulation formulated in consideration of JICA Team's suggestions
3. PN emphasized its commitment to make Nacala Port a respectable port in the region
4. Participants from port-related agencies/companies actively gave their feedback


Session 10 (TF-2)	**Lectures on "5S" and Environmental Management**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 25th April, 2014 **Time:** 14:30 to 16:30

Participants

CFM	Braulio Catutula	IT Manager
	Anabela Matsinha	Civil Engineer
	Alfredo Manuel Lipeque	Branch Manager
	Alfredo Segola	Maintenance Manager
CDN	Francisco Davide	Consultant
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Lucas Jose Cipriano	Project Management Unit
	Cremildo Rafael Madeira	EHS/Safety
	Marcio Correia	EHS/Safety
	Abudo Sele	Project Management Unit
	Emmanuel Rassul	EHS/Safety
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA Team made presentations on "5S" and environmental management systems (EMS)
2. JICA Team encouraged the Mozambican side to try "5S" in the workplace. For smooth implementation, commitment of the top management and identification of benefits for the company and employees are important
3. JICA Team pointed out that EMS targeted to the urgent rehabilitation should be prepared and monitored in cooperation with the contractor/consultant

Session 10 (TF-2)	**"5S" Training: Guidance**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 11th September, 2014 **Time:** 14:30 to 16:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Braulio Franco Catutula	Port Operation
	Nino Jorge Lobo	Port Operation
	Milione Changala	Supervisor Electrical Engineer
PN	Lucas Jose Cipriano	Project Management Unit
	Luis Jorge Machado	Chief of Port Operation Division
	Cremildo Rafael Madeira	EHS/Safety
	Afonso Vasco da Cunha Jr.	Maintenance Director
	Loni Schott Ribeiro	Chief of the Commercial Division
	Marcio Correia	EHS/Safety
TN	Helvio Salomao	Supervisor
	Carmen Amaral	Security
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA Team made a presentation on a practical application of "5S" (Japanese workplace organization system) in the PN maintenance shop
2. JICA Team gave a detailed explanation on the field training of "5S" scheduled on Sep. 12 aimed to identify unnecessary parts and materials
3. JICA Team suggested that PN should decide the official criteria for red-tagging and yellow-tagging by themselves taking into account the lessons learned in the field training

Session 11/12 (TF-2)	**"5S" Training: Field Training**
9th Dispatch	**Place:** PN Maintenance Shop **Date:** 12th September, 2014 **Time:** 9:30 to 11:30 and 14:30 to 16:30

Participants

Session 11

PN	Jaime Jerafe	Secretary
	Santos Damião	Maintenance Manager
	Loni Schott Ribeiro	Chief of the Commercial Division
	Vitria Matsinhe	HR
	Abudo Hadulale	
TN	Helvio Salomao	Supervisor
	Carmen Amaral	Security
	Denilson Hamide	Director
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Session 12

PN	Luis Jorge Machado	Chief of Port Operation Division
	Afonso Vasco da Cunha Jr.	Maintenance Director
	Luís Alvito Diogo	Maintenance Division
	Santos Damião	Maintenance Manager
	Vitria Matsinhe	HR
	R. P. A. Arunna Shathe	Maintenance
	Lozato Plasselo	Maintenance
TN	Carmen Amaral	Security
JICA Expert Team	Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA Team and Mozambican counterparts jointly carried out field training of "5S" in the PN maintenance shop
2. Red-tagged parts will be listed and the Management will authorize their disposal based on the list

4. TF-3: Cargo Handling

Dispatch	Session No.	Title
4th	2	Cargo Handling: IT technology in CT Business and its Necessity
4th	7	Cargo Handling: Methods of Handling Shipping Data
5th	1	Meeting for Cargo Handling: IT System of CT Operation
6th	3	Meeting for Cargo Handling
6th	9	Meeting for Cargo Handling
6th	11	Meeting for Cargo Handling
7th	3	Discussion on the revision of Phaeros system (upgrading plan by Phaeros engineers)
7th	6	Survey of Nacala 2nd Port (Dry Port)
7th	10	Discussion on productivity of container handling operation including dry port issues (extra session 1)
8th	7	Discussion on the progress of the Phaeros system upgrading
8th	8	Discussion on improvement of dry port and procurement of spreaders with flippers
9th	4	Visit to the dry terminal and TEEN terminal
9th	9	Upgrade status of Phaeros system
10th	3	Site Monitoring (Dry Terminal)
10th	4	Discussion on Data Completion
10th	5	Countermeasure against Strong Wind in the Container Yard

Session 2 (TF-3)	**Cargo Handling: IT technology in CT Business and its Necessity**
4th Dispatch	**Date**: 11th December, 2012 **Time**: 15:00 pm to 16:30 pm **Place**: Conference Room of CDN Nacala

Participants

MTC	Ana Dimande	Project Coordinator
CFM	Gabriel Cossa	Coordinator
	Alfred Mafuca	Manager
	Braulio Catutula	Coordinator
	Draisnildo Monteiro	Floor worker
	Assante Daudo	Manager
	Ossufo Bacar	Coordinator
CDN	Loni shott	Director
	Lucas Ciprriano	Director
	Bonifacio Muassabao	Manager
	Eusebio Amando	Pilot/Manager
	Eusebio Anania	Coordinator
	Atumane Quinane	Coordinator
	Raime Pachinuapa	Manager
	Denilson Hamide	Director
	Nish	Manager
	Helvio Salomao	Coordinator
	Julio	Coordinator
	Sunil Ratnasiri	TN-Stevedoring
JICA Expert Team	Kiyoshi Nakashima	
	Yutaka Miyaji	
	Teruki Eto	
	Susumu Kimura	
	Nobuaki Kuribayashi	Liaison Officer / Operational Coordinator

Agenda

1. Why is a Computerized Container Terminal Management System (CTMS) Necessary?
2. Information and Data Interchanging between CT and the Customers.
3. How the Container data is shown in a System?
4. Information Flow at Modern CT.
5. Conclusion: By introducing a modern computerized system.

Materials

1. Copy set of the presentation material.

Main Discussion Points

1. CTM System providers (makers) in the world and their qualities.
2. Importance of the error-free data and information of CT Operators.

Session 7 (TF-3)	**Cargo Handling: Methods of Handling Shipping Data**
4th Dispatch	**Date**: 17th December, 2012 **Time**: 14:00 pm to 15:30 pm **Place**: Conference Room of CDN Nacala

Participants

MTC	Ana Dimande	Project Coordinator
CFM	Gabriel Cossa	Coordinator
	Alfred Mafuca	Manager
	Braulio Catutula	Coordinator
	Draisnildo Monteiro	Floor worker
	Assante Daudo	Manager
	Ossufo Bacar	Coordinator
CDN	Loni shott	Director
	Lucas Ciprriano	Director
	Bonifacio Muassabao	Manager
	Eusebio Amando	Pilot/Manager
	Eusebio Anania	Coordinator
	Atumane Quinane	Coordinator
	Raime Pachinuapa	Manager
	Denilson Hamide	Director
	Nish	Manager
	Helvio Salomao	Coordinator
	Julio	Coordinator
	Fuanvi Rods	Floor worker
JICA Expert Team	Kiyoshi Nakashima	
	Yutaka Miyaji	
	Teruki Eto	
	Susumu Kimura	
	Nobuaki Kuribayashi	Liaison Officer / Operational Coordinator

Agenda

1. Roles of Modern CTs in the World for Operating CTs Efficiently and Productively.
2. Required Capabilities for Key Persons/Teams to Operate Modern CTs Effectively.
3. Key Functions/Teams to Operate & Manage CTs Efficiently.
4. Recommendable Organization/Teams of Nacala Port CT & Its Roles.
5. Work Flows in between Functions/Teams in Modern CTs to Operate & Manage CTs Efficiently.

Materials

Copy-set of the presentation material.

Main Discussion Points

1. How to introduce systematic CT operation and management in Nacala Port CT.
2. Importance of well-trained experts in various sections of CT, and their cooperative works.

Session 1 (TF-3)	**Meeting for Cargo Handling: IT System of CT Operation**
5th Dispatch	**Date:** 12th April, 2013 **Time:** 09:30 to 11:00 **Place:** Conference Room of CDN Nacala

Participants

CFM	Braulio Catutula	Coordinator, Port Operations/Data Handling
	Alfredo Artur Mafuca	Manager, Port Operations/Data Handling
	Emanuel Rosse	Floorwalker, Port Operations
	Gonçalves Chizuzu	Floorwalker, Port Operations
	Ossufo Bacar	Coordinator, Port Operations/Data Handling
	Jose Muapalame	Coordinator, CFM Pemba
	Assane Daude	Manager, Port Operations/Data Handling, CFM Pemba
	Cesar Antonio	Coordinator, Maintenance/Infrastructure, CFM Pemba
	Ossufo Bacar	CFM Pemba
PN	Agostinho F. Langa	Operation Director/Executive Committee
	Joao Matos Fernandes	Advisor
	Lucas Cipriano	Port Operations
	Neimo Induma	Port Operations
	Bonifacio Muassabão	Port Operations
	Eusebio Ananias	Port Operations
	Luis Machado	Port Operations
	Atumane Quinane	Port Operations
	Gabriel Joao	Security
	Cremildo Madeira	EHS / Safety
CDN	Aderval Acioli Matos	Port Director
	Abubacar Meanto	Manager, Port Operations
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata and Kuribayashi	

Agenda

1. Merits of the introduction of TOS (CTMS)
2. System Configuration
   - Yard Plan Computer System (YPCS)
   - Yard Planning System (YP)
   - Vessel Planning System (VP)
   - Job Control (JC)
   - Yard Operation System (YO)
   - Radio Handheld Terminal (RHT)
   - Integrated Gate System (IGS)
   - Web System (WEB)
3. In case of Nacala Container Terminal

Session 3 (TF-3)	**Meeting for Cargo Handling**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 18th June 2013 **Time**: 9:00 am ~ 10:30 am

Participants

CFM	Balamade Andinane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
	Paulo Tarmamade	Adviser of the Board of Directors
	Sergio Simao	Electronic Engineer (Matola Port Manager)
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Leonel do Rodorigues	IT Technician
	Neimo Induna	Container Yard Manager
	Lucas Cipriano	Port Operation Manager
	Luis Jorge Machado	Asst. Port Operation
	Eusebio Ananias Ramos	Coordinator, Port Operations
JICA Expert Team	Nakashima, Kunita, Eto, Komoto, and Kuribayashi	

Agenda

Restructuring of Phaeros, a Terminal Operating System (TOS)

Materials

1. Restructuring Plan prepared by PN for Improving their existing TOS, Phaeros.
2. Possible Operational Data Flows by a TOS at Nacala Port CT as an example/reminder.

Main Discussion Points

1. Mr. Eto, a JICA expert, started the discussion by presenting "Possible data flow in various operation phases at Nacala Port CT" through some figures.
2. Mr. Eto, also, emphasized that Phaeros (TOS) is just a tool, not a solution; accordingly, operation staff in PN must master basic technologies and skills (know-how) on CT Operation to run the CT properly.
3. Mr. Eto and other JICA experts confirmed re-engineering/up-grading schedule of Phaeros through Mr.Eusebio and other attendees.

Session 9 (TF-3)	**Meeting for Cargo Handling**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 20th June, 2013 **Time**: 10:30 am ~ 12:00 am

Participants

CFM	Balamade Andinane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
	Paulo Tarmamade	Adviser of the Board of Directors
	Sergio Simao	Electronic Engineer (Matola Port Manager)
	Anabela Matsinha	Civil Engineer
	Aquital Agy Ibrahimo	Mechanical Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
PN	Neimo Induna	Container Yard Manager
	Lucas Cipriano	Port Operation Manager
	Luis Jorge Machado	Asst. Port Operation
	Eusebio Ananias Ramos	Coordinator, Port Operations
	Bonifacio Muassabao	Port Operations
	Atumane Quinane	Port Operations
	F. Ribeiro	Port Coordinator
CDN	Aderval Acioli Matos	Port Director
TN	Abdui Cadre	Supervisor
JICA Expert Team	Eto, Nakashima, Kunita, Komoto, and Kuribayashi	

Agenda

How to manage Container Yard Operations given current conditions.

(The agenda was changed because Nacala CT (CY) was facing a very critical condition at the time, namely, that a lot of long-dwelling import laden containers were being piled in the CY.)

Materials

Power Point Material: Urgent Necessity on Nacala Port Container Yard (CY) Management

Main Discussion Points

1. Capt. Eto, a JICA expert, started the discussion emphasizing that Nacala Port CY would continue to face problems unless management took the necessary actions immediately.
2. The reason for the difficult situation is that there are more than 3,500 TEU of containers in total in the CY, while it's sustainable Max CY Capacity is 2,520 TEU (stacking containers at 3 highs overall).
3. Mr. Eto, accordingly, made various suggestions to PN for easing the conditions such as;
   1) Secure spaces outside of the Port (Off Dock CY) and move all the available empty containers.
   2) Also, move import laden containers as well after receiving permission from Customs.
4. Mr. Langa, Operation Director of PN, explained that PN has been contacting with Customs since 2-3 months ago but has received no answer from Customs yet.
5. In conclusion, PN and JICA Team confirmed that Mr. Langa will continue his efforts to obtain permission from Customs as soon as possible.

Session 11 (TF-3)	**Meeting for Cargo Handling**
6th Dispatch	**Place**: Conference Room of PN Nacala **Date**: 21st June, 2013 **Time**: 9:00 am ~ 10:30 am

Participants

CFM	Balamade Andinane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
	Paulo Tarmamade	Adviser of the Board of Directors
	Sergio Simao	Electronic Engineer (Matola Port Manager)
	Anabela Matsinha	Civil Engineer
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Miguel Jamisse	Mechanical Engineer
PN	Agostinho F. Langa Jr	Operation Director/Executive Comittee
	Lucas Cipriano	Port Operation Manager
	Eusebio Ananias Ramos	Coordinator, Port Operations
	Bonifacio Muassabao	Port Operations
JICA Expert Team	Nakashima, Kunita, Eto, Komoto and Kuribayashi	

Agenda

Necessity of the use of "Spreader with Flippers"

Materials

Power Point Material: Why it's better to Use "Spreaders with Flippers" at Ship-gear Ops

Main Discussion Points

1. Capt. Eto, a JICA expert, began by discussing the efforts of PN in attaching flippers on their existing spreaders in just several months by themselves.
2. However, spreaders as well as flippers were made by soft irons; thus, the flippers were all bent and broken.
3. PN, then, had intended to purchase some spreaders, but "without" flippers.
4. However, Mr. Eto told PN that they cannot increase a ship's operational productivity with such spreaders without flippers because of the nature of "ships gear" operation.
5. PN understood the importance of using spreaders with flippers, and agreed to purchase a sufficient number of spreaders with flippers.

Session 3 (TF-3)	**Discussion on the revision of Phaeros system (upgrading plan by Phaeros engineers)**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 12th December, 2013 **Time:** 09:30 to 11:30

Participants

CFM North	Braulio Catutula	Operations Officer
	Abubacar Mecuta	Chief of Security & Safety
PN	Matos Fernandes	General Director/Adviser
	Lucas Jose Cipriano	Port Operation Director
	Neimo da Esperanca Indunia	Maintenance/CCOP
	Luis Machado	CCOP
	Eusebio Ananias	Port Operation Division (DOP)
	Leonel Rodorigues	IT Section
	Bruno Perreira	IT Section
TN	Denilson Hamide	Director
	Helvio	Supervisor
	Noroda	TN Officer
	Sunil Ratnasiri	Supervisor
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. PN presented the Phaeros system upgrade program and its timeline which will become operational in March 2014.
2. Detailed configuration of the system is still under review and introduction of EDI is also under discussion.
3. JICA TA Team provided the typical system requirement in flow charts for import and export containers.

Session 6 (TF-3)	**Survey of Nacala 2nd Port (Dry Port)**
7th Dispatch	**Place:** Nacala 2nd Port (Dry Port) **Date:** 16th December, 2013 **Time:** 14:30 to 16:30

Participants

PN	Lucas Jose Cipriano	Port Operation Director
TN	Denilson Hamide	Director
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. The dry port currently handles empty container only.
2. The dry port can reduce the congestion of the container yard inside the port if it handles laden import containers.
3. The following actions are necessary to improve the situation
   - Yard pavement to have enough bearing capacity to handle laden containers with reach stackers
   - Redesigning the yard arrangement to maximize the capacity
   - Consideration of the bonded area

Session 10 (TF-3)	**Discussion on productivity of container handling operation including dry port issues (extra session 1)**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 17th December, 2013 **Time:** 09:30 to 11:30

Participants

CDN	Ibraimo Mussa	Port Operation
PN	Lucas Jose Cipriano	Port Operation Director
	Neimo da Esperanca Indunia	Maintenance/CCOP
TN	Denilson Hamide	Director
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA TA Team provided a modified yard design of the dry terminal aimed to handle containers at a level comparable to the global standard.
2. JICA Team transferred practical knowhow of the efficient and safe use of container yards such as
   - Collection and sorting of ships' data by shipping lines and service loops needed to prepare efficient stacking / marshalling plans
   - Assignment of 3 documentation clerks and 3 ship planners to provide effective yard operations

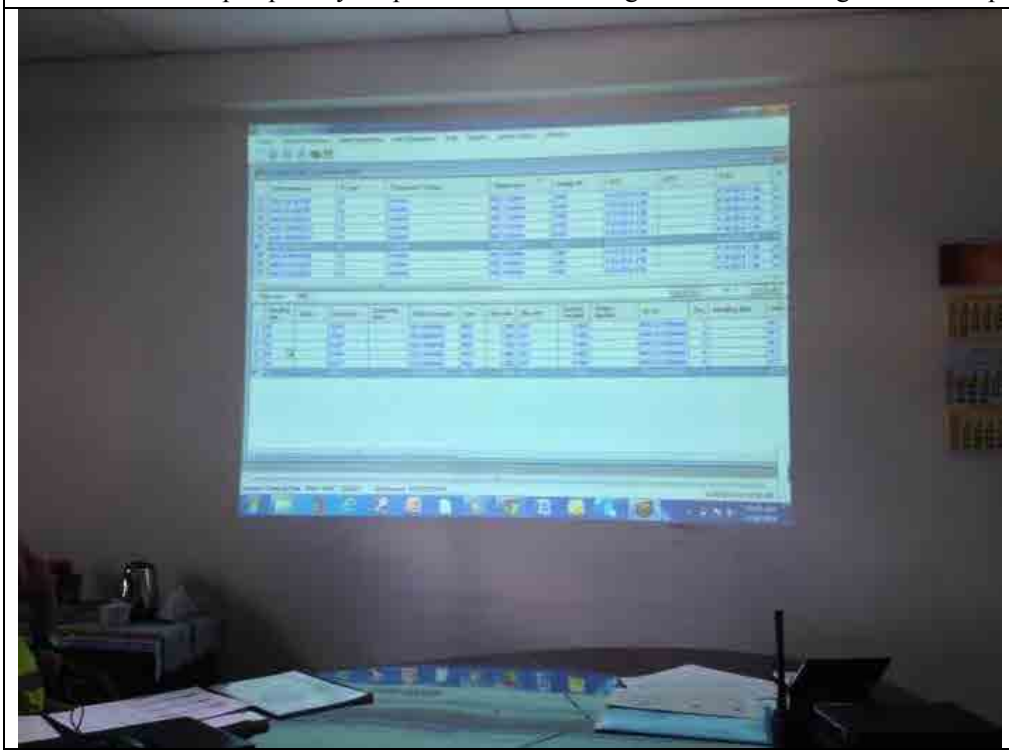
Session 7 (TF-3)	**Discussion on the progress of the Phaeros system upgrading**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 24th April, 2014 **Time:** 09:30 to 11:30

Participants

CFM	Anabela Matsinha	Civil Engineer
	Nino Lobo	Fire Brigade Manager
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Neimo da Esperanca Induna	Maintenance/CCOP
	Eusebio Ananias Ramos	Port Operation Division (DOP)
	Luis Jorge Machado	Chief of Port Operation Division
	Leonel do Rodorigues	IT Technician
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. PN presented the upgraded Phaeros system consisting of several modules including vessel operation, gate operation, yard operation, and tally operation. In future, communication among operators will be done with iPads through wifi
2. The new system is now in a trial in cooperation with two shipping agents and would become fully operational in May.
3. Since this system does not include automatic yard planning functions, JICA Team suggested that PN should develop capable yard planners either through overseas training or onsite expert assistance



Session 8 (TF-3)	**Discussion on improvement of dry port and procurement of spreaders with flippers**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 24th April, 2014 **Time:** 14:30 to 16:30

Participants

CFM	Anabela Matsinha	Civil Engineer
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Lucas Jose Cipriano	Project Management Unit
	Luis Jorge Machado	Chief of Port Operation Division
TN	Denilson Hamide	Director
	Sunil Ratnasiri	Supervisor
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. TN started to upgrade the dry terminal by paving the yard and installing lighting poles. The upgraded terminal will start operation in September 2014
2. Through talks with customs, it was agreed to remove import containers staying in the port terminal for more than 25 days and move them to the TEEN terminal
3. TN has placed an order of four spreaders with flippers to a South African firm
4. JICA Team suggested that Nacala port should keep track of container handling productivity by three universally applied indicators

Session 4 (TF-3)	**Visit to the dry terminal and TEEN terminal**
9th Dispatch	**Place:** Dry Terminal and TEEN Terminal **Date:** 5th September, 2014 **Time:** 14:30 to 16:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Alfredo Artur Mafuca	Oil Terminal Manager
CDN	Ibraimo Mussa	Port Operations Analyst
PN	Lucas Jose Cipriano	Project Management Unit
TN	Jose Samu	Operation
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

JICA Team and Mozambican counterparts visited the dry terminal and TEEN terminal

1. At the dry terminal:
   - Surface leveling and compaction have been completed
   - Lighting poles are under construction
   - Two reach stackers will be introduced in November
   - JICA team asked for the final layout plan
2. At the TEEN terminal:
   - Designed for export containers inspection but used for import containers on an ad-hoc basis when the need arises
   - Annual capacity of 100,000 TEUs with 552 ground slots

Session 9 (TF-3)	**Upgrade status of Phaeros system**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 11th September, 2014 **Time:** 9:30 to 11:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Braulio Franco Catutula	Port Operation
	Milione Changala	Supervisor Electrical Engineer
PN	Lucas Jose Cipriano	Project Management Unit
	Neimo da Esperanca Induna	Maintenance/CCOP
	Eusebio Ananias Ramos	Port Operation Division (DOP)
	Luis Jorge Machado	Chief of Port Operation Division
	Loni Schott Ribeiro	Chief of the Commercial Division
	Leonel Caetano	IT
TN	Sunil Ratnasiri	Supervisor
	Denilson Hamide	Director
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

- JICA Team presented IT system requirements for a modern container terminal
- PN demonstrated the current operations and functions of Phaeros (getting fully operational in September)
- JICA Team and Mozambican counterparts jointly identified what functions are lacking in the current Phaeros system (PN-TN data link, yard planning, vessel planning)
- JICA Team confirmed the progress of the dry terminal upgrading and procurement of spreaders (arriving in September)
- JICA Team presented ways for PN to acquire world-standard operational skills and thereby generate sufficient revenue
- JICA Team emphasized the need of capacity development for ship planners and yard planners

Session 3 (TF-3)	**Site Monitoring (Dry Terminal)**
10th Dispatch	**Place:** PN's dry terminal, Nacala **Date:** 2nd February, 2015 **Time:** 09:30 to 11:00

Participants

CFM North (Nacala)	Nino Jorge Lobo	Port Operation
PN	Luis Machado	Chief of Port Operations Division
	Abudo Sele	Project Management Unit
TN	Denilson Hamide	Branch Mnager
	Jose Samo	RH, Administration
	Castro Juma	Operation Manager
	Julio Quinhane	Port Operations
	Jaime Pedro	
JICA Expert Team	Okada (Team Leader), Eto, Kimura, Nakashima	
JICA Mozambique	Kuribayashi	

Agenda

To identify the current status of the dry terminal

Observation

1. The ground condition of dry terminal has become rough due to the flood happened in early January.
2. The ground needs to be paved when the rainy season ends in April, 2015 to improve durability of the surface against the stacking of empty containers as well as laden containers.

Photo

Session 4 (TF-3)	**Discussion on Data Compilation**
10th Dispatch	**Place:** Conference Room of PN, Nacala **Date:** 2nd February, 2015 **Time:** 14:00 to 16:00

Participants

CFM (Office of Nacala Port Rehabilitation Project)	Arzilio Josué Mata	Supervisor/Civil Engineer
	Tomás Fortunato Ngca	Supervisor/Mechanical Engineer
	Milione Changala	Supervisor/Electrical Engineer
	José Osias Cherinda	Supervisor/H.S.T.
CFM (DEPE)	Carmona Macobola	Civil Engineer
PN	Loni Schott Ribeiro	Chief of Commercial Division
	Luis Machado	Chief of Port Operations Division
	António Gabriel	Chief of Security Division
	Abudo Sele	Project Management Unit
	Neimo Induna	CCOP
	Eusebio Ananias	Port Operation
TN	Denilson Hamide	Branch Mnager
	Sunil Ratnasiri	Operation Assistant
	Niroda	Operation Assistant
JICA Expert Team	Okada (Team Leader), Eto, Kimura, Nakashima	
JICA Mozambique	Kuribayashi	

Agenda

1. CY capacity management through reduction of container dwell time
2. PN's presentation on the current status and issues of CY operations

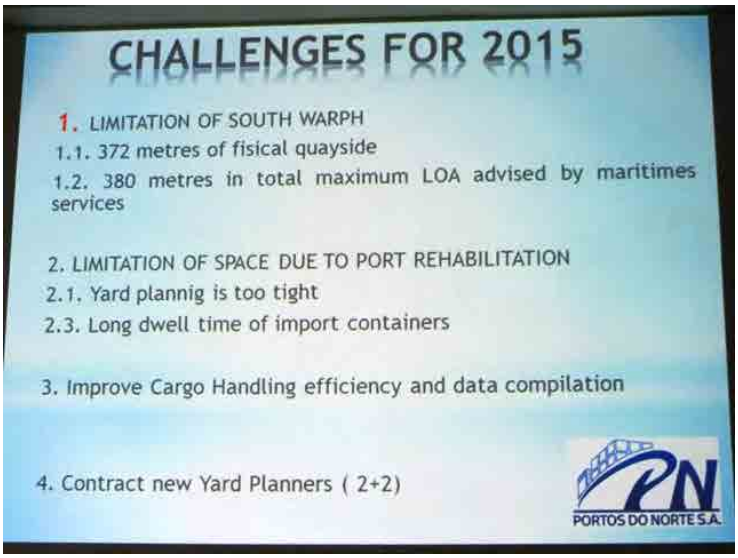
Materials

3. "Key Points on Operation & Management of Nacala Port CT at Present & in the Near Future" (JICA Team)
4. "Cargo Handling" (PN)

Discussions

5. JICA Team presented how to manage CY capacity in a sustainable condition.
   - JICA Team recommended that the container dwell time needs to be measured regularly and reduced to secure more CY capacity
   - Also recommended that an appropriate area of off-dock CYs need to be prepared so that over-flow containers can be accommodated.
   - JICA Team provided a soft copy of Excel sheet to PN so that they can calculate CY capacity.
6. PN presented on the current status of CY operations.
   - In 2014, the Port achieved the largest handling volume ever in both of containers & bulk despite the rehabilitation works of Grant Aid Project.
   - Phaeros is now used online by all shipping lines.
   - Segregation of export containers is now in practice.
   - Vehicle turn-around time has reduced.
   - WiFi will be installed to cover entire CY area by mid-March, followed by RDTs to be equipped.
   - 4 yard planners are considered to be employed.

Photo


CHALLENGES FOR 2015
1. LIMITATION OF SOUTH WARPH
1.1. 372 metres of fisical quayside
1.2. 380 metres in total maximum LOA advised by maritimes services
2. LIMITATION OF SPACE DUE TO PORT REHABILITATION
2.1. Yard plannig is too tight
2.3. Long dwell time of import containers
3. Improve Cargo Handling efficiency and data compilation
4. Contract new Yard Planners (2+2)
PORTOS DO NORTE S.A.

Session 5 (TF-3)	**Countermeasures Against Strong Wind in the Container Yard**
10th Dispatch	**Place:** Conference Room of PN, Nacala **Date:** 4th February, 2015 **Time:** 09:30 to 11:00

Participants

CFM (Office of Nacala Port Rehabilitation Project)	Tomás Fortunato Ngca	Supervisor/Mechanical Engineer
	Milione Changala	Supervisor/Electrical Engineer
	José Osias Cherinda	Supervisor/H.S.T.
CFM (DEPE)	Carmona Macobola	Civil Engineer
CFM North (Nacala)	Alfredo Rafael Sigola	Chief of Infrastructure Dept.
	Alfredo Artur Mafuca	Oil Terminal Manager
	Abubacar Mecuta	Port Security
CDN	Ibraimo Mussa	Port Operations Analyst
	Zacaries Andaluse	Safety Consultant
PN	Agostinho F. Langa Jr.	Director/COO
	Loni Schott Ribeiro	Chief of Commercial Division
	Luis Machado	Chief of Port Operations Division
	Vasco Cunha	Chief of Maintenance Division
	Abudo Sele	Project Management Unit
	Neimo Induna	CCOP
	Cremildo Márcio	DASSO
TN	Denilson Hamide	Branch Mnager
	Helvio Salomao	Operation Manager
	Carmen Amaral	Safety Officer
	Jaime Pedro	
JICA Expert Team	Okada (Team Leader), Eto, Kimura, Nakashima	
JICA Mozambique	Kuribayashi	

Agenda

1. To make a suggestion on the countermeasures against high wind in the container yard
2. To give a numerical base for the decision making related to strong wind

Materials

1. “Countermeasures against Strong Wind in the Container Yard”
2. “Study of Turn-over of Containers”

Discussions

1. JICA Team recommended Mozambican side to establish a special committee responsible for measures to be taken against strong wind.
2. JICA Team made a suggestion how to operate cargo handling equipment and how to stack empty and laden containers in CY in time of strong wind.
3. Also recommended Mozambican side to install anemometers to keep track of wind conditions and follow weather forecasts.
4. Any measures established in the above need to be reflected in the Safety Regulations.

Photo

5. TF-4: Maintenance of Cargo Handling Equipment

Dispatch	Session No.	Title
4th	1	Meeting for Maintenance of CHE
4th	6	Meeting for Maintenance of CHE
5th	5	Meeting for Maintenance of Cargo Handling Equipment: Action Plan on the Improvement of Handling Equipment
5th	10	Training session of Maintenance of Cargo Handling Equipment: Spare Part List for Periodically Replaced Parts and Emergency Parts
7th	8	Discussion on equipment maintenance
8th	5	Joint site monitoring of the equipment
8th	6	Discussion on Equipment Maintenance
9th	7	Equipment maintenance (1)
9th	8-2	Equipment maintenance (2)
10th	2	Site Monitoring (Maintenance Shop, Infrastructure)

Session 1 (TF-4)	**Meeting for Maintenance of CHE**
4th Dispatch	**Date:** 11th December, 2012 **Time:** 14:00 pm to 15:00 pm **Place:** Conference Room of CDN Nacala

Participants

MTC	Ana Dimande	Project Coodinator, Derectorate of Infrastucture
CFM	Gabriel Cossa	Coordinator, Port Operators
	Alfredo Mafuca	Manager, Port Operations/Data Handling
	Braulio Catutula	Coordinator, Port Operations/Data Handling
	Draisnildo Monteio	Floorwalker, Port Operations
CDN	Loni Shot	Director, Logistics
	Lucas Cipriano	Director, Port Operations
	Bonifacio Muassabao	Manager, Port Operations
	Eusebio Amando	Pilot/Manager, Port Operations
	Eusebio Anania	Coordinator, Port Operations
	Atumane Quinane	Coordinator, Port Operations
	Raime Pachinuapa	Manager, TN-Stevedoring Co.
	Denilson Hamide	Director, TN-Stevedoring Co.
	Nishi	Manager, TN-Stevedoring Co.
	Helvio Salomao	Coordinator, TN-Stevedoring Co.
	Julio	Coordinator, TN-Stevedoring Co.
	Suuil Ratuasiri	General Manager, TN-Stevedoring Co.
JICA Expert Team	Kiyoshi Nakashima	
	Yutaka Miyaji	
	Teruki Eto	
	Susumu Kimura	
	Nobuaki Kuribayashi	Liaison Officer / Operational Coordinator

Agenda

1. Explanation of Improvement of Procurement of Parts
   - Current Procurement Flow
   - Review on Procurement of Parts
   - Improvement of Procurement of Parts
2. Explanation of Improvement of Inventory Management
   - List of Stock Parts

Materials

1. PPT of " Improvement of Procurement of Parts and Inventory Management"
2. Procurement Part List (attached in PPT above)
3. List of Stock Parts (Example of RTG) (attached in PPT above)

Main Discussion Points

1. Mr. Kimura, who is JICA expert, made a special presentation on "Improvement of Procurement of Parts & Inventory Management".
2. Existing problems found: Example 1 and 2 – These 2 problems were found during the last visit to Nacala Port
3. The comparison between present procurement method and "Data Base method by Personal computers"

4. The merit in case of adoption of format of Procurement Part List and List of Stock Parts as a first step of Digitization of procurement data by Personal computers

Session 6 (TF-4)	**Meeting for Maintenance of CHE**
4th Dispatch	**Date**: 17th December, 2012 **Time**: 14:00 pm to 15:30 pm **Place**: Conference Room of CDN Nacala

Participants

CFM	Abubacar Mecuta	Manager, Port Environment
	Feliciano Antonio	Manager, Maintenance/Infrastucture
	Draisnildo Monteio	Floorwalker, Port Operations
	Cesar Antonio	Coordinator, Maintenance/Infrastucture
	Jose Muapalame	Coordinator, Maintenance/Infrastucture
CDN	Antonio Candido	Director, Maintenance
	Afonso Vasco	Manager, Maintenance/Infrastucture
	Cremildo Madeira	Manager, EHS
JICA Expert Team	Kiyoshi Nakashima	
	Yutaka Miyaji	
	Teruki Eto	
	Susumu Kimura	
	Nobuaki Kuribayashi	Liaison Officer / Operational Coordinator

Agenda

1. Planning and Management of Lubrication of the Container Handling Equipment
   - Importance of Lubrication (Lubricant Manner, etc.)
   - Guide Drawing of Lubrication Points Lubrication Period (Frequency) and Lube and Lubricant List
   - Guide Drawing of Lubrication Points < Example of Guide Drawing using photos >
   - The Next Actions to be carried out by the end of March
2. Periodical Inspections and Maintenance Management of Container Handling Equipment
   - Purpose and Importance of Periodical Inspections
   - Division of roles between the Owner and User
   - Periodical Inspections and Records
   - Flow of Maintenance Management
   - Maintenance management of Container Handling Equipment

Materials

1. PPT of " Improvement of Procurement of Parts and Inventory Management"
2. PPT of " Periodical Inspections and Maintenance Management of Container Handling Equipment"
3. Examples of Guide Drawing of Lubrication Points Lubrication Period (Frequency) and Lube and Lubricant List
4. Format of Records of Inspection and Measures (Example: Refer to the Figure 1.)

Main Discussion Points

1. Mr. Kimura, who is JICA expert, made a special presentation on "Planning and Management of Lubrication of the Container Handling Equipment".
   - Necessity of Guide Drawing of Lubrication, Points Lubrication Period (Frequency) and Lube and Lubricant List
   - The Next Actions to be carried out by the end of March

2. Mr. Kimura made a special presentation on “Periodical Inspections and Maintenance Management of Container Handling Equipment”.
   - Purpose and Importance of Periodical Inspections and Division of roles between the Owner and User
   - Items of Periodical Inspections and Records

Session 5 (TF-4)	**Meeting for Maintenance of Cargo Handling Equipment: Action Plan on the Improvement of Handling Equipment**
5th Dispatch	**Date:** 12th April, 2013 **Time:** 15:00 to 17:00 **Place:** Conference Room of Warehouse No. 03 0f Nacala Port

Participants

CFM	Tomás Kumwanga	Engineer
	Rafael Sigola	Engineer
PN	Afonso Vasco da Cunha	Director of the Maintenance Division
		Technical Bureau
	Luís Alvito Diogo	Secretary
	Jaime Jerafe	Chief of the Vehicle Maintenance Department
	Santos Damião Lubato Masseco	Supervisor of the Electrical Machinery Section
JICA Expert Team	Susumu Kimura	

Agenda

1. Explanation of "Action Plan on the Improvement of Handling Equipment
2. Examples of Spare Part List

Session 10 (TF-4)	**Training session of Maintenance of Cargo Handling Equipment: Spare Part List for Periodically Replaced Parts and Emergency Parts**
5th Dispatch	**Date:** 15th April, 2013 **Time:** 15:00 to 17:00 **Place:** Conference Room of Warehouse No. 03 0f Nacala Port

Participants

CFM	Tomás Kumwanga	Engineer
	Rafael Sigola	Engineer
PN	Jose Muapalame	Coordinator, Maintenance/Infrastructure
	Afonso Vasco da Cunha	Director of the Maintenance Division
	Luís Alvito Diogo	Technical Bureau
	Santos Damião	Chief of the Vehicle Maintenance Department
	Lubato Masseco	Supervisor of the Electrical Machinery Section
JICA Expert Team	Susumu Kimura	

Agenda

1. List of Parts Periodically Replaced for (2) Year Operation
2. List of Emergency Parts to prevent stoppage of Operation

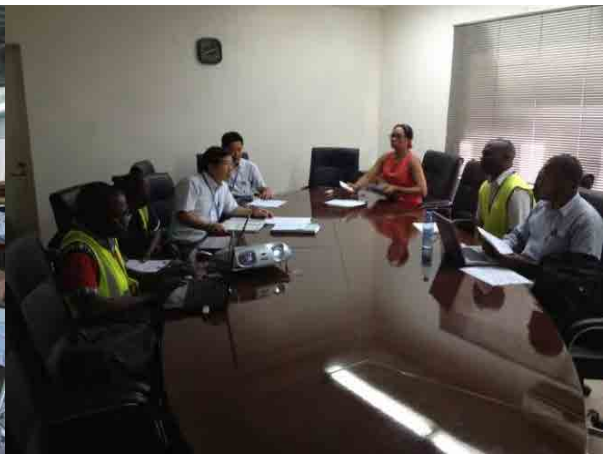
Session 8 (TF-4)	**Discussion on equipment maintenance**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 16th December, 2013 **Time:** 14:30 to 16:30

Participants

CFM	Paulo Tarmamade	Advisor of the Board of Directors
	Abubacar Mecuta	Chief of Security & Safety
CDN	Ibraimo Mussa	Port Operation
PN	Roni Shott	Deputy Port Director
	Lucas Jose Cipriano	Port Operation Director
	Afonso Vasco da Cunha	Maintenance Director
	Neimo da Esperanca Indunia	Maintenance/CCOP
	Luis A. Diogo	Maintenance
	Wilmida C. Juma	Maintenance
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA Team and PN carried out a joint inspection of equipment.
2. PN has presented a preventive maintenance plan, daily equipment checklist, equipment availability records, organization chart and annual maintenance budget.
3. Average equipment availability ratio has improved significantly due to the following reasons;
   - Introduction of new equipment (2 new reach stackers)
   - Streamlining of spare parts procurement



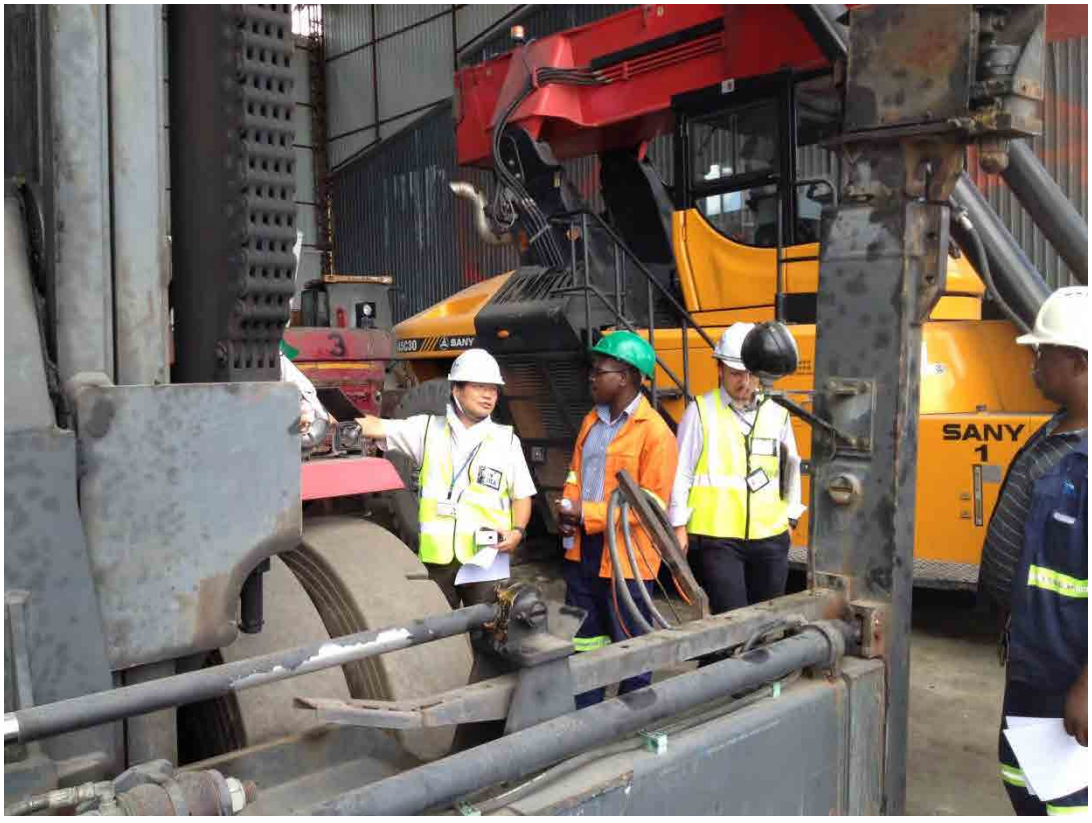
Session 5 (TF-4)	**Joint site monitoring of the equipment**
8th Dispatch	**Place:** Maintenance Workshop **Date:** 23rd April, 2014 **Time:** 09:30 to 11:30

Participants

CFM	Abubacar Mecuta	Inspection Manager
	Alfredo Segola	Maintenance Manager
	Anabela Matsinha	Civil Engineer
CDN	Ibraimo Mussa	CDN Officer (Port Operation)
PN	Lucas Jose Cipriano	Project Management Unit
	Santos Damião	Maintenance Manager
	Luís Alvito Diogo	Maintenance Division
	Wilmida C. Juma	Maintenance
	Abudo Sele	Project Management Unit
JICA Expert Team	Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA Team and Mozambican counterparts carried out a joint site monitoring of the equipment
2. It was found that the delivery of some parts were delayed resulting in prolonged downtime of equipment



Session 6 (TF-4)	**Discussion on Equipment Maintenance**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 23rd April, 2014 **Time:** 14:30 to 16:30

Participants

CFM	Braulio Catutula	IT Manager
	Draisnildo Luis Monteiro	Civil Technician A
	Abubacar Mecuta	Inspection Manager
	Anabela Matsinha	Civil Engineer
	Alfredo Segola	Maintenance Manager
TN	Lucas Jose Cipriano	Project Management Unit
	Luís Alvito Diogo	Maintenance Division
	Wilmida C. Juma	Maintenance
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. PN presented the maintenance record of equipment. Equipment is generally kept in a good condition but some equipment remains out of order due to the delay in the delivery of spare parts
2. JICA Team gave two presentations suggesting major points to be noted and examined by the operation department and maintenance department before the delivery of two RTGs
3. Aiming to reduce the equipment downtime, JICA Team suggested:
   - Periodically replaced parts should be stored in the workshop
   - Comprehensive maintenance service contract with a reliable supplier could be an answer
   - PN Nacala could be authorized for minor expenditure of maintenance procurement

Session 7 (TF-4)	**Equipment maintenance (1)**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 10th September, 2014 **Time:** 9:30 to 11:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CDN	Ibraimo Mussa	Port Operations Analyst
PN	Lucas Jose Cipriano	Project Management Unit
	Afonso Vasco da Cunha Jr.	Maintenance Director
	Luís Alvito Diogo	Maintenance Division
	Loni Schott Ribeiro	Chief of the Commercial Division
TN	Helvio Salomao	Supervisor
	Denilson Hamide	Director
	Johny Verter	Technician
JICA Expert Team	Okada, Eto and Kimura	
JICA Mozambique	Kuribayashi	

Agenda

- PN presented the recent records of the working conditions of cargo handling equipment
- Availability of equipment has increased to as high as 80 % resulting from the implementation of periodical maintenance
- JICA Team suggested that detailed information on each equipment (such as accumulated operation hours, downtime, date of the placement of spare parts orders) should be shared by the management
- JICA Team also suggested that the Mozambican side should decide who is responsible for the maintenance of equipment introduced in ODA projects and get ready for its maintenance.

Session 8-2 (TF-4)	**Equipment maintenance (2)**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 10th September, 2014 **Time:** 14:30 to 16:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Milione Changala	Supervisor Electrical Engineer
CDN	Ibraimo Mussa	Port Operations Analyst
PN	Lucas Jose Cipriano	Project Management Unit
PN	Afonso Vasco da Cunha Jr.	Maintenance Director
PN	Luís Alvito Diogo	Maintenance Division
PN	Santos Damião	Maintenance Manager
PN	Lubato Masseco	Supervisor of the Electrical Machinery Section
PN	Antonio Sitdra	Maintenance
PN	Johnny Venker	TECON:SE
JICA Expert Team	Eto and Kimura	
JICA Mozambique	Kuribayashi	

Agenda

- JICA Team presented components of RTG and its periodical inspection procedures
- JICA Team suggested that monthly maintenance of 2 RTGs should be carried out in 5 hours by 5 mechanics
- Additional lectures will be given in the next dispatch

Session 2 (TF-4)	**Site Monitoring (Maintenance Shop, Infrastructure)**
10th Dispatch	**Place:** Nacala Port, maintenance shop, North Wharf and South Wharf **Date:** 30th January, 2015 **Time:** 14:00 to 15:30

Participants

CFM (Office of Nacala Port Rehabilitation Project)	Arzilio Josué Mata	Supervisor/Civil Engineer
	Tomás Fortunato Ngca	Supervisor/Mechanical Engineer
	Milione Changala	Supervisor/Electrical Engineer
	José Osias Cherinda	Supervisor/H.S.T.
CFM North (Nacala)	Alfredo Rafael Sigola	Chief of Infrastructure Dept.
	Drasnildo Luis Monteiro	Chief of Infrastructure Dept.
	Braulio Franco Catutula	Port Operation
	Nino Jorge Lobo	Port Operation
PN	Vasco Cunha	Chief of Maintenance Division
	Abudo Sele	Project Management Unit
JICA Expert Team	Okada (Team Leader), Kimura, Nakashima	
JICA Mozambique	Kuribayashi	

Observations

1. Maintenance shop
   - (ア) Debris used be found in the reach stacker maintenance house have already been taken away and the house seems to be kept in good order.
   - (イ) The items red-tagged in the 9th dispatch were still found at the warehouses. Those items are supposed to be removed after the new warehouse is built.
   - (ウ) 2 units of Ferrari reach stackers provided by the Grand Aid Project have already been in operation. PN staffs commended for their quicker responses than those of the existing reach stackers.
2. North Wharf
   - (ア) Construction works of the Grant Aid Project seems to be performed in good order, while 1 month delay is reported due to Christmas vacation and the rough weather in early January, 2015.
   - (イ) No accident has been reported at the construction sites until now.
3. South Wharf
   - (ア) The survey of the deteriorated places was conducted by CFM/PN once in November, 2014. The next survey is scheduled in March, 2015 after the rainy season is over.
   - (イ) A simple repair work is under consideration after the Grant Aid Project is completed.

Photo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6. TF-5: Infrastructure Maintenance

Dispatch	Session No.	Title
5th	2	Meeting of Maintenance of Port Facilities: Preventive Maintenance / Maintenance Management
5th	7	Meeting for Maintenance of Port Facilities: Preventive Maintenance / Maintenance Management
6th	4	Meeting of Maintenance of Port Facilities
6th	8	Meeting for Maintenance of Port Facilities
6th	13	Meeting for Maintenance of Port Facilities
7th	2	Discussion on the maintenance plan of infrastructures (based on the result of survey by Geoibericos)
7th	4	Survey of infrastructures with Mozambican counterpart
7th	7	Discussion on the result of infrastructure monitoring carried out by Mozambican counterpart
7th	11	Monitoring of infrastructures (extra session 2)
8th	2	Discussion on the maintenance plan of infrastructures
8th	3	Joint site monitoring of the infrastructure
8th	4	Discussion on South Wharf Countermeasures
9th	5	Infrastructure maintenance (1): Infrastructure Monitoring & Basics of Level Survey
9th	6	Infrastructure maintenance (2): Joint Inspection
9th	8-1	Infrastructure maintenance (3): Field Training of Level Survey

Session 2 (TF-5)	**Meeting of Maintenance of Port Facilities: Preventive Maintenance / Maintenance Management**
5th Dispatch	**Date:** 12th April, 2013 **Time:** 11:00 to 12:00 **Place:** Conference Room of CDN Nacala

Participants

CFM	Assane Daudo	Manager, Port Operations
	Draisnildo Luis	Floorwalker, Port Operations
	Monteiro	Engineer
	Tomas Kumwanga	Engineer
	Rafael Sigola	Manager, Port Environment
	Abubacar Mecuta	Coordinator, Maintenance/Infrastructure
	Cesar Antonio	
CDN	Aderval Acioli Matos	Port Director
PN	Lucas Cipriano	Port Operations
	Neimo Induma	Port Operations
	Eusebio Ananias	Port Operations
	Luis Machado	Port Operations
	Atumane Quinane	Port Operations
TN	Helvio Salomao	Port Operations
	Julio Quinhane	Port Operations
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata and Kuribayashi	

Agenda

1. Review of the recommendation made in September, 2012
2. Explanation of Objectives of Maintenance Planning
3. Concept of Maintenance Plan
4. Flow of preparation of the maintenance plan for existing facilities
5. Preparation of the documented maintenance plan
6. (Homework)
   Maintenance Action Plan to be prepared by CDN/PN by June, 2013
   CDN/PN to organize/assign necessary manpower

Session 7 (TF-5)	**Meeting for Maintenance of Port Facilities: Preventive Maintenance / Maintenance Management**
5th Dispatch	**Date:** 13th April, 2013 **Time:** 10:00 to 11:00 **Place:** Conference Room of CFM Nacala

Participants

CFM	Jose Muapalame	Coordinator, CFM Pemba
	Assane Daude	Manager, Port Operations, CFM Pemba
	Cesar Antonio	Coordinator, Maintenance / Infrastructure, CFM Pemba
	Ossufo Bacar	CFM Pemba
JICA Expert Team	Okada, Nakashima, Kimura, Kawabata and Kuribayashi	

Agenda

1. Review of the F/S report descriptions for Pemba port
2. Explanation of Objectives of Maintenance Planning
3. Discussions for Issues of Pemba port as of today
4. (Recommendations)

   Rubber fenders shall be installed as Nacala port did.

   To organize/assign necessary manpower

   Seek JICA experts' advices for technical transfer to the employees of CFM Pemba

Session 4 (TF-5)	**Meeting of Maintenance of Port Facilities**
6th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 18th June, 2013 **Time:** 10:30 to 12:00

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Sergio Simao	Matola Port Manager
	Paulo Tarmamade	Advisor of the Board of Directors
	Balamade Andiane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
PN	Agostinho F. Langa Jr.	Operation Director/Executive Committee
	Afonso Vasco da Cunha Jr.	Chief of the Maintenance Division
	Neimo Indunia	Container Yard Manager
JICA Expert Team	Nakashima, Kunita, Eto, Komoto and Kuribayashi	

Agenda

Preventive Maintenance / Maintenance Management

Main discussion points

1. Review of "Issues on the South Wharf of Nacala Port – 17 Apr, 2013"
2. Explanation of actions taken by C/P on the issues
3. Explanation of current condition of the South Wharf
4. Discussions for the Issues and future measures
5. (Recommendations)

   Monitoring program shall be established and enforced

   Minimize laden container placement on both wharf deck and yard just behind

   C/P requested to continue the discussion on how to prolong the life of the South Wharf

Session 8 (TF-5)	**Meeting for Maintenance of Port Facilities**
6th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 20th June, 2013 **Time:** 9:00 to 10:30

Participants

CFM	Anabela Matsinha	Civil Engineer
	Aquital Agy Ibrahimo	Mechanical Engineer
	Arsenio Zimba	Hydraulic Engineer
	Atanasio Neves	Mechanical Engineer
	Sergio Simao	Matola Port Manager
	Paulo Tarmamade	Advisor to the Board of Directors
	Balamade Andiane	Technician (Category A)
	Nauaia Mahonca	Technician (Category A)
PN	Agostinho F. Langa Jr.	Operation Director / Executive Committee
	Afonso Vasco da Cunha Jr.	Chief of the Maintenance Division
	Neimo Indunia	Container Yard Manager
JICA Expert Team	Nakashima, Kunita, Eto, Komoto and Kuribayashi	

Agenda

Preventive Maintenance / Maintenance Management

Main discussion points

1. Discussion on the progress of the facility maintenance action plan
2. Explanation of CP's plan to employ an investigation company to do facility mapping, producing maintenance plan etc.
3. Explanation of current condition of the South Wharf based on the result of joint inspection on 19 June
4. (Recommendations)
   Monitoring program shall be established and enforced
   Obtain the result of monitoring to present TA team on the next visit for further discussion

Session 13 (TF-5)	**Meeting for Maintenance of Port Facilities**
6th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 24th June, 2013 **Time:** 14:00 to 15:30

Participants

CFM	Anabela Matsinha	Civil Engineer
	Arsenio Zimba	Hydraulic Engineer
PN	Agostinho F. Langa Jr.	Operation Director / Executive Committee
	Afonso Vasco da Cunha Jr.	Chief of the Maintenance Division
	Neimo Indunia	Container Yard Manager
JICA Expert Team	Nakashima, Kunita, Eto, Komoto and Kuribayashi	

Agenda

Preventive Maintenance / Maintenance Management

Materials

Monitoring of Civil Infrastructure,

Main Discussion Points

1. Brief explanation of every wharf Structures at Nacala Port
2. What shall be inspected/monitored
3. Method of inspection/monitoring
4. Handover of measuring equipment (Rebound hammer, Measuring Tape etc.)
5. (Recommendations)
   Inspection/monitoring shall be started as soon as possible (equipment handed over)
   Present the result of inspection/monitoring to TA team on the next visit for further discussion

Session 2 (TF-5)	**Discussion on the maintenance plan of infrastructures (based on the result of survey by Geoibericos)**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 11th December, 2013 **Time:** 14:30 to 16:30

Participants

CFM North	Braulio Catutula	Operations Officer
	Abubacar Mecuta	Chief of Security & Safety
CDN	Ibraimo Mussa	Port Operation
PN	Joao Matos Fernandes	General Director/Advisor
	Loni Shott	Deputy Port Director
	Lucas Jose Cipriano	Port Operation Director
	Afonso Vasco da Cunha	Maintenance Director
	Neimo da Esperanca Indunia	Maintenance/CCOP
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Ohno and Kuribayashi	

Agenda

1. PN presented the outcome of Geoibericos studies carried out in Jul~Aug 2013.
   The results of investigation show the similar findings as JICA's on deterioration of Southfindings.
   PN will carry out routine maintenance of infrastructures while implementation of pile rehabilitation is required within 2 years according to the study.
2. JICA TA Team presented the latest Nacala Port Development schedule and explained that the South Wharf must be maintained operational until the new North Container berth becomes available.
3. Since the reports have been just issued in Portuguese, JICA TA Team and C/P will study the reports and will discuss in detail during the next dispatch.

Session 4 (TF-5)	**Survey of infrastructures with Mozambican counterpart**
7th Dispatch	**Place:** South Wharf and North Wharf **Date:** 12th December, 2013 **Time:** 14:30 to 16:30

Participants

CFM North	Braulio Catutula	Operations Officer
CDN	Antonio Frederico Candido	Deputy Port Director
PN	Lucas Jose Cipriano Neimo da Esperanca Indunia	Port Operation Director Maintenance/CCOP
JICA Expert Team	Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA TA Team and counterpart jointly inspected current condition of South and North Wharf.
2. JICA TA Team pointed out CY adjacent to the South Wharf seems settled compare with the last dispatch as well as deterioration of the concrete structure generally progressing.
3. Corrupted concrete pavement adjacent to the South Wharf discovered in the last dispatch has been repaired by PN. Photos taken during the repair work were given to JICA TA Team after the inspection.
4. Counterpart explained that the soil underneath the pavement seems seeping out due to the wave and tidal water flow based on their observation from underneath the deck slab.
5. Laden containers in the yard adjacent to the South Wharf have been removed following JICA Team suggestion.

Session 7 (TF-5)	**Discussion on the result of infrastructure monitoring carried out by Mozambican counterpart**
7th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 16th December, 2013 **Time:** 09:30 to 11:30

Participants

CFM	Paulo Tarmamade	Advisor of the Board of Directors
	Alfredo Manuel Lipego	
CDN	Ibraimo Mussa	Port Operation
PN	Roni Shott	Deputy Port Director
	Lucas Jose Cipriano	Port Operation Director
	Afonso Vasco da Cunha	Maintenance Director
	Neimo da Esperanca Indunia	Maintenance/CCOP
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. Discussion on the joint inspection result showing progressing deterioration.
2. JICA TA Team will examine the monitoring plan produced by Geoibericos.
3. PN will soon employ a competent civil engineer in charge of monitoring and maintenance.
4. JICA TA Team will consider providing survey equipment for doing monitoring by counterpart.

Session 11 (TF-5)	**Monitoring of infrastructures (extra session 2)**
7th Dispatch	**Place:** CFM Maputo **Date:** 18th December, 2013 **Time:** 09:30 to 11:30

Participants

CFM	Paulo Tarmamade	Advisor of the Board of Directors
	Anabela Matsinha	Civil Engineer
	Arcelio Lopes Bainha	Civil Engineer
JICA Expert Team	Okada, Eto, Kimura and Komoto	

Agenda

1. CFM presented their report of the site inspection of North/South Wharves carried out on 5th and 6th Dec identifying ongoing degradation.
2. CFM will review the Geoibericos report to decide what to do.
3. JICA TA Team will inform a list of survey equipment needed for quantitative monitoring of the degradation.
4. CFM requested capacity building on the use of survey equipment procured by CFM and/or JICA TA Team.

Session 2 (TF-5)	**Discussion on the maintenance plan of infrastructures**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 21st April, 2014 **Time:** 14:30 to 16:30

Participants

CFM	Paulo Tarmamade	Adviser of the Board of Directors
	Alfredo Manuel Lipeque	Branch Manager
	Braulio Catutula	IT Manager
	Abubacar Mecuta	Inspection Manager
	Alfredo Segola	Maintenance Manager
	Anabela Matsinha	Civil Engineer
CDN	Francisco Davide	Consultant
PN	Loni Shott	Deputy Port Director
	Lucas Jose Cipriano	Project Management Unit
	Afonso Vasco da Cunha	Maintenance Director
	Abudo Sele	Project Management Unit
	Luís Alvito Diogo	Maintenance Division
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Ohno and Kuribayashi	

Agenda

1. JICA Team asked about the progress of the infrastructure maintenance (inspection, monitoring, repair)
2. The Mozambican side responded:
   - The concessionaire (CDN) will remain responsible for the infrastructure maintenance after the concession contract is revised
   - PN has just assigned a civil engineer for infrastructure maintenance
3. JICA Team pointed out:
   - Infrastructure maintenance needs to be started immediately taking into account the Geoibericos report

Session 3 (TF-5)	**Joint site monitoring of the infrastructure**
8th Dispatch	**Place:** Nacala Port South Wharf and North Wharf **Date:** 22nd April, 2014 **Time:** 09:30 to 11:30

Participants

CFM	Alfredo Segola	Maintenance Manager
	Abubacar Mecuta	Inspection Manager
	Anabela Matsinha	Civil Engineer
PN	Lucas Jose Cipriano	Project Management Unit
	Abudo Sele	Project Management Unit
JICA Expert Team	Okada, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

4. JICA Team demonstrated how the elevation of structures would be monitored with survey equipment to be provided later on
5. Mozambican counterparts will have completed preparatory field works before the delivery of the equipment
6. JICA Team demonstrated how to measure the concrete strength with a rebound hammer and a crack scale
7. Mozambican counterparts will start monitoring the state of infrastructure

Session 4 (TF-5)	**Discussion on South Wharf Countermeasures**
8th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 22nd April, 2014 **Time:** 14:30 to 16:30

Participants

MTC	Ana Matusse Dimande	Project Coordinator
CFM	Paulo Tarmamade	Adviser of the Board of Directors
	Alfredo Manuel Lipeque	Branch Manager
	Alfredo Segola	Maintenance Manager
	Braulio Catutula	IT Manager
	Abubacar Mecuta	Inspection Manager
	Anabela Matsinha	Civil Engineer
PN	Lucas Jose Cipriano	Project Management Unit
	Neimo da Esperanca Indunia	Maintenance/CCOP
	Abudo Sele	Project Management Unit
JICA Expert Team	Okada, Nakashima, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

1. JICA Team presented:
   - Necessary steps to be taken before the Mozambican side decides countermeasures
   - Measures to analyze the residual strength of concrete and steel structures
   - Alternative reinforce measures
   - Viewpoints in the comparison of new construction and rehabilitation
   - Points to be noted during the implementation
2. CFM and CDN will consider what to do with the South Wharf taking account of JICA Team's view

Session 5 (TF-5)	**Infrastructure maintenance (1): Infrastructure Monitoring & Basics of Level Survey**
9th Dispatch	**Place:** Conference Room of PN Nacala **Date:** 9th September, 2014 **Time:** 9:30 to 11:30

Participants

MTC	Martinho F. Mafumo	Maritime Administrator
CFM	Anabela Matsinha	Supervisor Civil Engineer
	Arzilio Mata	Supervisor Civil Engineer
	Floclordo Cumbane	Port Operation
	Ohairo Mario	Port Security
PN	Lucas Jose Cipriano	Project Management Unit
	Afonso Vasco da Cunha Jr.	Maintenance Director
	Abudo Sele	Project Management Unit
JICA Expert Team	Okada, Eto, Kimura and Komoto	
JICA Mozambique	Kuribayashi	

Agenda

- PN presented its results on concrete cracks and strength inspection of the South Wharf
- In response, JICA Team suggested periodical inspection at the fixed location
- JICA Team presented basics of level survey and settlement monitoring

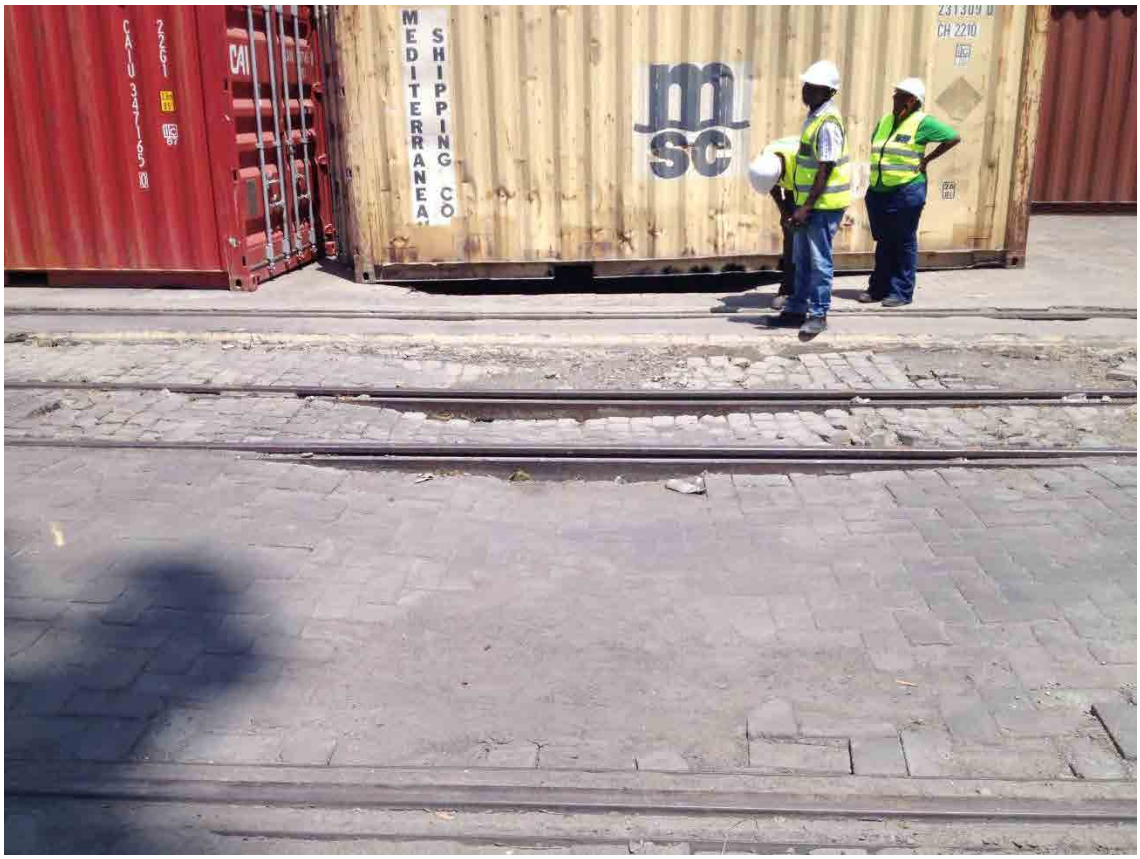
Session 6 (TF-5)	**Infrastructure maintenance (2): Joint Inspection**
9th Dispatch	**Place:** South Wharf and North Wharf **Date and Time:** 14:30 to 16:30 9th September, 2014 and 9:30 to 11:30 10th September, 2014

Participants

CFM	Abubacar Mecuta	Port Security
CFM	Anabela Matsinha	Supervisor Civil Engineer
CFM	Arzilio Mata	Supervisor Civil Engineer
PN	Afonso Vasco da Cunha Jr.	Maintenance Director
PN	Abudo Sele	Project Management Unit
JICA Expert Team	Komoto	
JICA Mozambique	Kuribayashi	

Agenda

- JICA Team and Mozambican counterparts jointly carried out infrastructure inspection
- Inspection of the South Wharf using a small boat was postponed to Sep. 10 due to the high tide
- It was found that most of the preparation works had been carried as requested in the previous dispatch
- Serious deterioration of the South Wharf was confirmed by joint inspection on Sep. 10
- It was also found that rock scouring protection behind the rear wall was partially lost at many locations resulting in a leak of filled soil



Session 8-1 (TF-5)	**Infrastructure maintenance (3): Field Training of Level Survey**
9th Dispatch	**Place:** South Wharf **Date:** 10th September, 2014 **Time:** 14:30 to 16:30

Participants

CFM	Anabela Matsinha	Supervisor Civil Engineer
PN	Neimo da Esperanca Induna	Maintenance/CCOP
PN	Abudo Sele	Project Management Unit
JICA Expert Team	Okada and Komoto	

Agenda

- JICA Team and Mozambican counterparts jointly carried out a field training program on leveling survey
- During the field training, practical methods of leveling survey works were demonstrated by JICA Team and experienced by Mozambican counterparts
- JICA Team provided counterparts with further suggestions so that they would be able to carry out precise surveys on their own

Appendix-4: Seminar on Nacala Port held on 5th Feb 2015

Seminar on Nacala Port

10th Dispatch	**Place:** Conference Center of Afrin Nacala Hotel, Nacala **Date:** 5th February, 2015 **Time:** 09:30 to 12:00, followed by luncheon

Participants

Customs Office in Nacala	Domingos Magaia	Representative
Migration Office in Nacala	Renato Manuel Furruma	Chief Officer
INAHINA	Emilia Miranda Abuchir	Officer
GAZEDA	Carlos Muchigera	Marketing Sector
Conselho Municipal da Cidade de Nacala Port	Chakil Aboobacar	Advisor to the President
Kudumba Investments	Stelio Rodorigues	General Director
Manica Freight Services	Ibraimo Assumane	Branch Manager
CMA-CGM	Hinelder Ferreira	Branch Manager
MSC	Simon Kanjanga	Branch Manager
Maersk Line	Carolyn Kathewera	Branch Manager
MTC (moderator)	Martinho F. Mafumo	Maritime Administrator
CFM (Maputo)	Anibal Manave	Advisor to the Board
CFM (Office of Nacala Port Rehabilitation Project)	Arzilio Josué Mata	Supervisor/Civil Engineer
	Anabela Emilia Matsinha	Supervisor/Civil Engineer
	Tomás Fortunato Ngca	Supervisor/Mechanical Engineer
	Milione Changala	Supervisor/Electrical Engineer
	José Osias Cherinda	Supervisor/H.S.T.
CFM (DEPE)	Carmona Macobola	Civil Engineer
CFM North (Nacala)	Alfredo Manuel Lipeque	CFM Nacala Director
	Alfredo Artur Mafuca	Oil Terminal Manager
	Nino Jorge Lobo	Port Operation
	Abubacar Mecuta	Port Security
CDN	Fabio Frazão	Port Director
	Ibraimo Mussa	Port Operations Analyst
PN	Agostinho F. Langa Jr.	Director/COO
	Loni Schott Ribeiro	Chief of Commercial Division
	Luis Machado	Chief of Port Operations Division
	Vasco Cunha	Chief of Maintenance Division
	Abudo Sele	Project Management Unit
	Neimo Induna	CCOP
	Luis Diogo	Maintenance
TN	Denilson Hamide	Branch Mnager
	Helvio Salomao	Operation Manager
	Carmen Amaral	Safety Officer
	Jaime Pedro	
JICA Mozambique	Akiko Shimohira, Nobuaki Kuribayashi	
JICA Expert Team	Mitsuhiko Okada (Team Leader), Teruki Eto, Susumu Kimura, Kiyoshi Nakashima	

Program.

1. JICA technical assistance for Nacala Port – achievement and future challenges
   (by Mr. Mitsuhiko Okada, Leader of JICA Team)
2. Improvement in infrastructure and equipment
   (by Mr. Arzilio Josué Mata, Supervisor/Civil Engineer, CFM

3. Strengthening of port functions at Nacala, the gateway of Nacala Corridor
   (by Mr. Ibraimo Mussa, Operation Analyst, CDN))
4. Improvement in terminal operation
   (by Mr. Neimo Induna, CCOP, PN)
5. Expectations for future development of Nacala Port
   (by Mr. Hinelder Ferreira, Branch Manager, CMA CGM Mozambique
   and Mr. Simon Kanjanga, Branch Manager, MSC Mozambique)

Materials

- Seminar Program
- The Project for Improvement of Nacala Port – Major Achievements, Roles a Good Port can Play (JICA Team)

Discussions

1. JICA Team, Mozambican side and port users made presentations as per the program above.
2. In Q&A afterwards, CDN and PN explained to the audience that the port's capacity and operational efficiency will be enhanced once the renovation works of the Grant Aid and Yen Loan Projects are all completed, and asked for their cooperation until then.

Photo

Appendix-5: Statistical Trends of Port Performance

Table 1 Historical number of accidents at Nacala Port

Type of accident	2011	2012	2013
Damages to cargoes/properties	5	4	22
Human fatal/injury accidents	8	7	15
Total	13	11	37

Source: CDN, PN (monthly/yearly reports)

Table 2 Number of workers at Nacala Port

Company	Department	Nos of employees
PN	Port Operations	55
	Maintenance	69
	S. Total	124
TN	Stevedoring	575
	Packing	197
	Machine operators	151
	Dry port workers	13
	S. Total	936
Total		1,060

Notes:
i. Number of PN workers based on previous CDN's head-count as of Dec. 31, 2011.
ii. Number of TN workers as of Jul.15, 2014
iii. Clerical workers are excluded

Source: CDN, TN

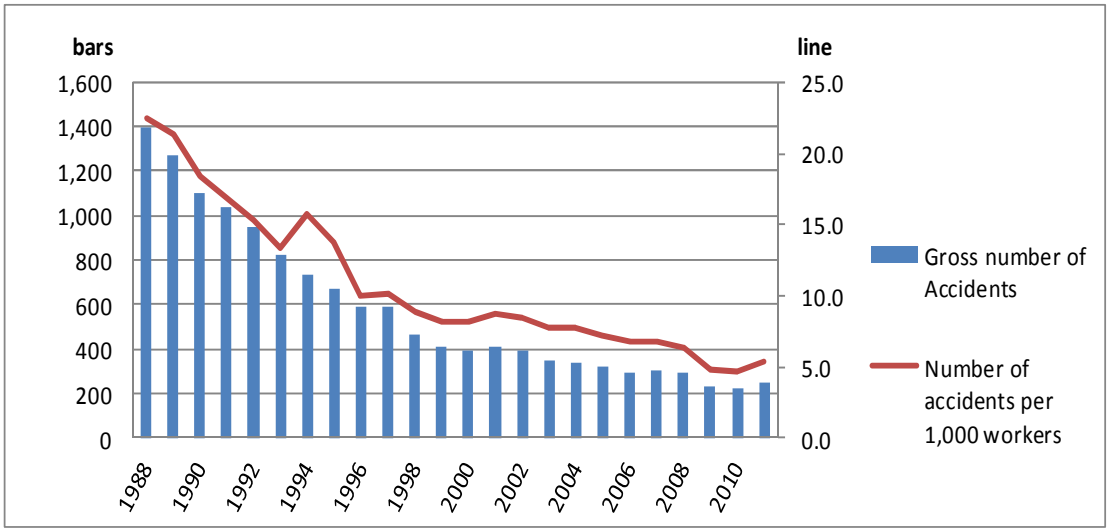


Figure 1 Historical number of fatal/injury accidents in Japan's Port Transport Industry

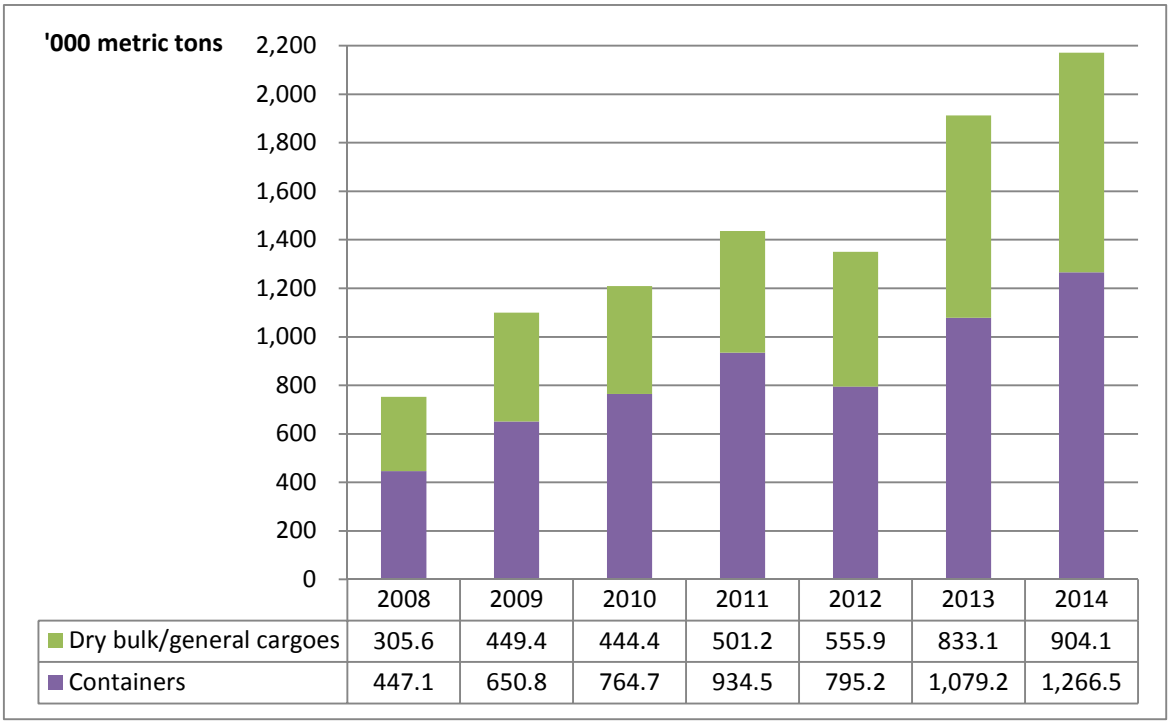
Source: Japan Port Transport Industry Safety & Health Association

Table 3 Historical cargo volume handled at Nacala Port (excluding liquid bulk handled by CFM)

('000 metric tons)

Trade			Commodity	2008	2009	2010	2011	2012	2013	2014
International	Export	Local	Iron Ore							28.5
			Maize	8.9	3.6		29.0			
			Scrap	13.8	5.0	8.0	11.3			
			Machinery						0.5	0.9
			Woods	2.8						
			Others					0.1	6.2	0.1
			Bulk S.total	25.5	8.6	8.0	40.3	0.1	6.7	29.5
			Containers	42.1	225.4	327.8	305.8	294.1	405.2	520.3
			S.total	70.4	234.0	335.8	346.1	294.2	411.9	549.8
		Transit	Scrap				8.3			
			Sugar	28.3	15.7	8.2	6.1	23.2	14.8	25.2
			Bulk S.total	28.3	15.7	8.2	14.4	23.2	14.8	25.2
			Containers	44.6	49.8	40.7	74.4	32.1	65.9	74.8
			S.total	72.9	65.5	48.9	88.8	55.3	80.7	100.0
		Export total		143.3	299.5	384.7	434.9	349.5	492.6	649.8
	Import	Local	Clinker	133.6	134.3	158.5	182.5	153.1	202.7	206.0
			Palm oil	26.5	38.9	49.8	66.9			
			Wheat	54.0	89.7	63.0	59.1	63.2	49.2	128.9
			Machinery			0.8	6.3	10.1	15.3	12.8
			Vehicles						2.6	0.4
			Rails						37.4	50.5
			Crossties						18.3	22.8
			Plaster/gypsum			2.4	5.5	17.0		25.1
			Cement	3.6	53.8	4.6	5.0	75.5	247.8	250.1
			Rice			9.8	4.2	25.1	16.6	12.2
			Vegetable oil				2.0			
			Frozen fish			1.7	1.2	2.1	2.2	1.5
			Others		7.6	1.9	0.7	11.9	27.3	32.2
			Bulk S.total	217.7	324.3	292.5	333.4	358.0	619.4	742.5
			Containers	165.5	201.5	229.5	364.4	396.1	529.3	588.3
			S.total	383.2	525.8	522.0	697.8	754.1	1,148.7	1,330.8
		Transit	Wheat		49.9	97.5	68.4	164.6	163.9	92.6
			Fertilizer	30.0	43.4	36.9	14.3	10.0	11.0	13.6
			Vegetable oil	2.9	7.2		5.2			
			Bulk S.total	32.9	100.5	134.4	87.9	174.6	174.9	106.2
			Containers	76.6	90.7	38.2	38.5	30.0	35.8	44.8
			S.total	109.5	191.2	172.6	126.4	204.6	210.7	151.0
		Import total		492.7	717.0	694.6	824.2	958.7	1,359.4	1,481.8
	Tranship		Wheat				25.0			
			Woods						2.9	0.4
			Bulk S.total	0.0	0.0	0.0	25.0	0.0	2.9	0.4
			Containers	80.2	56.4	99.8	115.9	29.9	20.2	9.2
			S.total	80.2	56.4	99.8	140.9	29.9	23.1	9.6
	Restow		Containers				23.2	10.0	10.9	25.8
	International Total			716.2	1,072.9	1,179.1	1,423.2	1,348.1	1,886.0	2,167.0
Coastal	Loading		Cement						2.8	
			Machinery						0.1	
			Others	0.4			0.2		1.5	
			Bulk S.total	0.4	0.0	0.0	0.2	0.0	4.4	0.0
			Containers	8.8	8.3	7.3	4.4	0.2	1.3	1.0
			S.total	9.2	8.3	7.3	4.6	0.2	5.7	1.0
	Discharging		Cement						10.0	
			Others	0.8	0.3	1.3				0.3
			Bulk S.total	0.8	0.3	1.3	0.0	0.0	10.0	0.3
			Containers	29.3	18.7	21.4	7.9	2.8	10.6	2.3
			S.total	30.1	19.0	22.7	7.9	2.8	20.6	2.6
	Coastal Total			39.3	27.3	30.0	12.5	3.0	26.3	3.6
G.total				755.5	1,100.2	1,209.1	1,435.7	1,351.1	1,912.3	2,170.6

Source: CDN, PN (arranged by the Project Team)



	2008	2009	2010	2011	2012	2013	2014
Dry bulk/general cargoes	305.6	449.4	444.4	501.2	555.9	833.1	904.1
Containers	447.1	650.8	764.7	934.5	795.2	1,079.2	1,266.5

Figure 2 Historical cargo volume handled at Nacala Port (excluding liquid bulk handled by CFM)

Source: CDN, PN (arranged by the Project Team)

Table 4 Containers handled at Nacala Port

(TEUs)

			2008	2009	2010	2011	2012	2013	2014
International	Export	Local	18,758	17,381	26,669	33,253	28,107	35,840	42,511
		Transit	3,246	3,368	2,558	4,303	1,739	2,768	4,123
		S.total	22,004	20,749	29,227	37,556	29,846	38,608	46,634
	Import	Local	18,138	20,881	25,748	37,424	30,160	38,950	45,297
		Transit	2,962	2,810	2,373	1,937	1,744	1,791	2,259
		S.total	21,100	23,691	28,121	39,361	31,904	40,741	47,556
	Transhipment		2,879	3,824	8,114	10,149	2,084	1,490	519
	Rehandling		0	0	0	0	1,004	1,317	1,953
	Total		45,983	48,264	65,462	87,066	64,838	82,156	96,662
Coastal	Loading		1,501	2,133	2,899	1,516	123	210	229
	Discharging		2,286	2,223	2,978	1,132	202	442	190
	Total		3,787	4,356	5,877	2,648	325	652	419
G.total			49,770	52,620	71,339	89,714	65,163	82,808	97,081

Source: CDN, PN (arranged by the Project Team)

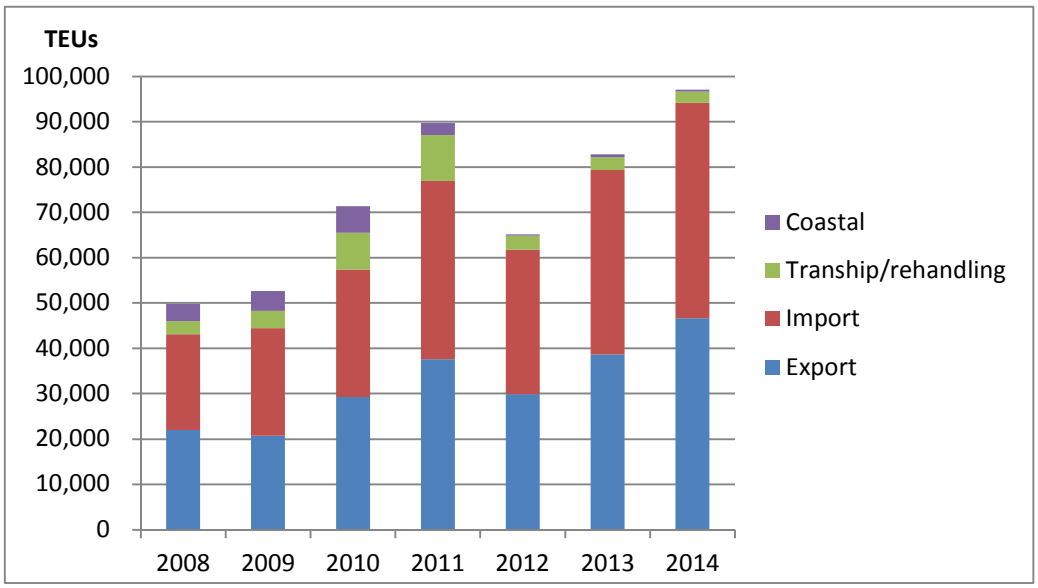


Figure 3 Containers handled at Nacala Port

Source: CDN, PN (arranged by the Project Team)

Table 5 Number of vessel calls at Nacala Port

		2011	2012	2013	2014
International	Container vessels	155	156	183	173
	Tankers	52	49	47	53
	Dry bulk vessels	23	21	38	32
	G/C & others	28	53	165	70
	S. Total	258	279	433	328
Coastal	Tankers	26	27	21	30
	Container vessels			8	
	G/C & others			9	6
	S. Total	26	27	38	36
Non -commercial	Utility ships		46	8	1
	Fishing boats	3	6		
	S. Total	3	52	8	1
Total		287	358	479	365

Source: CDN, PN (arranged by the Project Team)

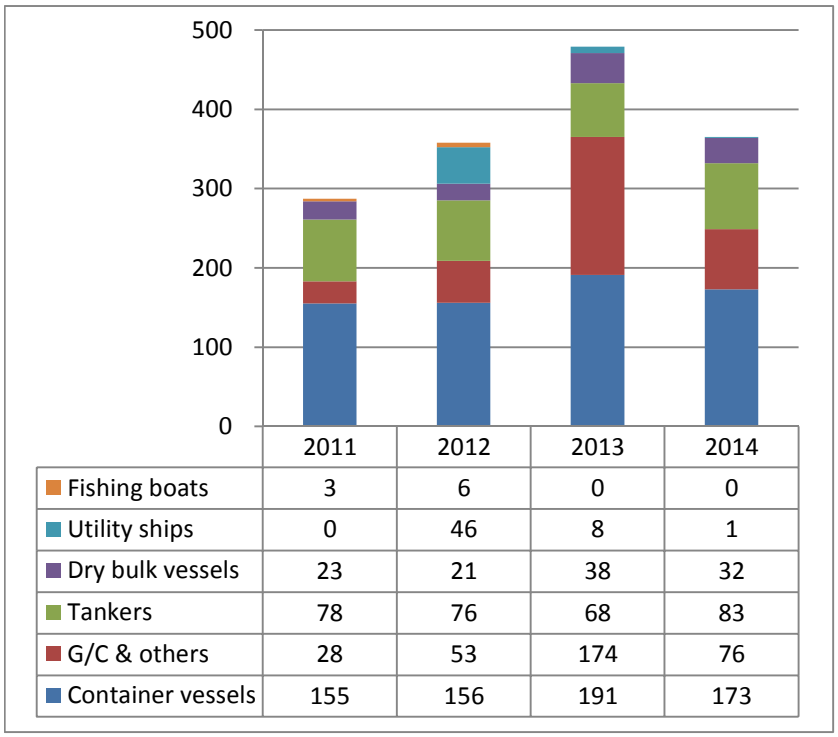


Figure 4 Number of vessel calls at Nacala Port (by vessel type)

Source: CDN, PN (arranged by the Project Team)

Table 6 Liner services/vessels calling at Nacala Port (as of June 30, 2014)

Shipping Line (slot charterer)	Service Area	Service Name	Vessel Name	Capacity (TEU)	LOA (m)	Draft (m)	Beam (m)	DWT	GT	Service Freqency	Calling Ports
CMA CGM, Maersk Line	East Asia	Mozex	Ada S	2,546	208.91	11.60	29.85	34,334	26,435	weekly	Maputo-Beira-**Nacala**-Port Louis-Port Klang-Tanjung Pelepas-Pointes des Galets-Toamasina-Maputo
			Amalia C	2,452	199.95	11.55	29.80	34,362	25,500		
			CMA CGM La Tour	2,272	195.60	11.01	30.20	30,442	26,050		
			Em Chios	2,506	207.20	11.40	29.80	32,321	25,294		
			Jula S	2,474	207.40	11.40	29.80	33,796	25,414		
			Marie Delmas	2,207	195.60	11.01	30.20	30,453	26,061		
			Natalie Schulte	2,474	207.40	11.40	29.80	33,651	25,674		
			RT Aegir	2,468	208.16	11.40	30.08	34,015	25,608		
CMA CGM (Emirates Shipping Line)	Middle East, East Africa	Swahili Express	Apulia	2,764	207.89	11.50	32.24	35,741	30,047	weekly	Jebel Ali-Khor Fakkan-Mombasa-Dar es Salaam-Zanzibar-**Nacala**-Mombasa-Jebel Ali
			Auguste Schulte	2,590	210.00	11.52	30.17	34,622	27,093		
			Bella	2,674	207.92	11.50	32.24	35,600	30,024		
			Commodore	2,764	275.00	13.62	37.19	61,152	51,836		
			HS Challenger	2,755	207.95	11.50	32.24	35,924	30,024		
			Katharina	2,452	199.85	11.55	29.84	33,900	25,535		
PIL (MOL)	East Asia, East Africa	EA2	Kota Fajar	2,135	193.90	10.27	32.20	28,879	25,497	weekly	Huangpu-Shekou-Nansha-Singapore-Colombo-Dar es Salaam-**Nacala**-Colombo-Pasir Gudang-Singapore-Huangpu
			Kota Nasrat	1,810	179.63	10.70	27.64	25,985	20,902		
			Kota Nebula	1,810	179.67	10.70	27.64	25,985	20,902		
			Kota Nanhai	1,810	179.65	10.70	27.64	25,985	20,902		
			Kota Naga	1,810	179.65	10.70	27.64	25,985	20,902		
			Kota Nabil	1,810	179.65	10.70	27.65	26,000	20,902		
			Kota Nelayan	1,810	179.64	10.70	27.66	25,985	20,902		
			Kota Nekad	1,810	179.67	10.70	27.64	25,985	20,902		
MSC	Feeder	Saf-Moz	MSC Jasmine	2,073	198.91	12.20	32.20	41,771	31,430	weekly	Durban-Maputo-Beira-Mombasa-Dar es Salaam-**Nacala**-Beira-Maputo-Durban
			MSC Nicole	2,073	198.25	12.20	32.24	41,787	31,430		
			MSC Chiara	2,073	198.89	12.20	32.26	41,815	31,430		
			MSC Positano	2,468	206.00	11.42	29.80	34,083	25,713		
			MSC Denisse	2,073	198.89	12.20	32.20	41,771	31,430		
United Africa Feeder Line	Feeder	Mozambique Coastal Express	Falshoeft	903	134.15	8.35	20.40	12,007	8,861	every 36 days	Durban-**Nacala**-Longoni-Mutsamudu-Mtwara-Durban
		Mozambique Coastal Express 2	MCP Linz	629	117.00	6.45	19.74	7,852	5,272	every 12 days	Durban-Maputo-Beira-**Nacala**-Pemba-Durban
			Onego Buran	1,162	117.00	6.40	18.00	7,661	5,338		

Source: Shipping lines' web sites

Table 7 Container handling productivity and the relevant handling data in 2012 ~ 2014

2012	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total / Ave.
Container Handling Volume (TEU)	7,672	5,254	4,913	4,724	4,381	3,908	6,194	5,635	5,960	6,899	4,495	5,128	65,163
Number of Container Ships Berthed (ship)	13	14	12	12	14	9	16	11	14	15	13	13	156
Average Container Volume (TEU) per Call	590	375	409	394	313	434	387	512	426	460	346	394	418
Average Berthing Time per Ship (hour)	68.60	47.70	47.30	43.60	43.90	56.60	45.60	56.20	52.30	55.56	49.62	57.70	
Total Berting Time (hour)	789.1	607.6	487.2	522.0	512.4	428.4	684.8	596.2	687.4	815.7	617.1	725.0	7,472.9
Average Container Handling Volume per Ship Berthing Time (box/hour)	7.0	8.0	7.0	7.0	6.0	8.0	4.0	6.0	6.0	7.0	7.0	3.0	6.3
Average Container Handling Time per Ship (hour)	53.8	34.2	32.3	31.4	26.7	35.2	30.3	47.5	40.7	43.4	37.9	52.7	
Total Container Handling Time (hour) Number of Ships x Average Handling Time	699.0	478.5	387.6	376.8	373.8	316.8	484.8	522.2	569.7	651.0	492.8	685.6	6,038.6
Average Container Handling Volume per Container Handling Time (box/hour)	8	10	9	9	9	9	6	7	7	9	9	4	8.0
Dwelling Time (Average) (day)													

2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total / Ave.
Container Handling Volume (TEU)	7,404	5,646	7,196	6,498	6,450	6,650	5,394	6,953	7,318	7,684	7,644	7,971	82,808
Number of Container Ships Berthed (ship)	15	11	13	12	15	16	18	18	18	16	15	16	183
Average Container Volume (TEU) per Call	494	513	554	542	430	416	300	386	407	480	510	498	453
Average Berthing Time per Ship (hour)													
Total Berting Time (hour)	789.1	607.6	487.2	522.0	512.4	428.4	684.8	596.2	687.4	815.7	617.1	725.0	7,472.9
Average Container Handling Volume per Ship Berthing Time (box/hour)													
Average Container Handling Time per Ship (hour)													
Total Container Handling Time (hour) Number of Ships x Average Handling Time													
Average Container Handling Volume per Container Handling Time (box/hour)				5	7	10	9	8	10	8	9	8	8.2
Dwelling Time (Average) (day)													

2014	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total / Ave.
Container Handling Volume (Box)	5,592	6,413	5,436	3,594	4,992	5,461	5,261	6,575	6,926	7,681	6,865		64,796
Container Handling Volume (TEU)	7,208	8,752	7,658	5,986	7,403	7,596	7,247	8,826	8,873	10,113	9,140		88,802
Number of Container Ships Called (Ship/mth)	14	17	16	15	20	17	15	16	10	16	15		171
Average Container Volume (Box/ Call)	399	377	340	240	250	321	351	411	693	480	458		393
Average Container Volume (TEU/Call)	515	515	479	399	370	447	483	552	887	632	609		535
Gross Ships Working Hour by 1~3 Gang (Hr)	622.2	930.8	659.2	581.1	624.7	732.4	630.0	739.1	644.0	897.0	868.0		7,928.5
Ave. Gross Ships Working Hour (Hour/Call)	44.4	54.8	41.2	38.7	31.2	43.1	42.0	46.2	64.4	56.1	57.9		46.4
Gross Productivity per Ships Working Hour (Box/hour by 1~3 Ship-gears)	9.0	6.9	8.2	6.2	8.0	7.5	8.4	8.9	10.8	8.6	7.9		8.2
Gross Productivity per Ships Working Hour (TEU/hour by 1~3 Ship-gears)	11.6	9.4	11.6	10.3	11.9	10.4	11.5	11.9	13.8	11.3	10.5		11.2
Dwelling Time (Average) (day)													

Source: The Monthly and annual reports of the Operation Department of Portos do Norte

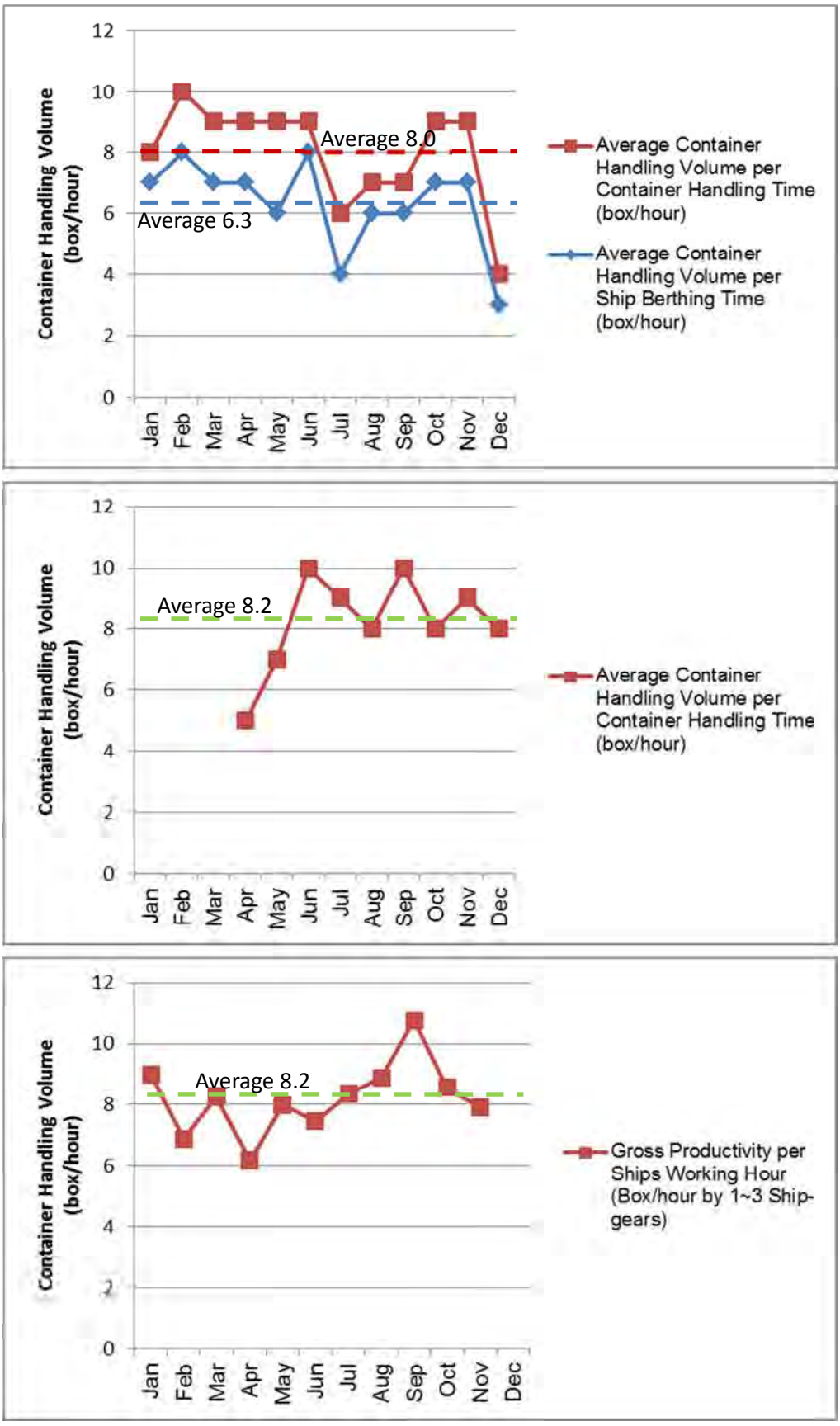


Figure 5 Container handling productivity in 2012 and 2013

Source: The Monthly and annual reports of the Operation Department of Portos do Norte

Table 8 List of Cargo Handling Equipment in the Port of Nacala

No.	MACHINE	TIPE/ CAPACITY	MODEL	PRINCIPAL USE	OPERATION AREA
1	Kalmar nº 6	Reach stacker/45Ton	DRF 450-60S5	Full Container	Container Terminal
2	Kalmar nº 7	Reach stacker/45Ton	DRF 450-60S5	Full Container	Container Terminal
3	Kalmar nº 8	Reach stacker/45Ton	DRF 450-60S5	Full Container	Container Terminal
4	Kalmar nº 9	Forklift/42Ton	DC 42-1200	Empty Container / General cargo	Container Terminal / General cargo Terminal
5	SANY RS01	Reach sacker/45Ton	Private (Semi-registered)	Full Container	Container Terminal
6	SANY RS02	Reach stacker/45Ton	Private (Semi-registered)	Full Container	Container Terminal
7	SANY RS03	Reach sacker/45Ton	Private (Semi-registered)	Full Container	Container Terminal
8	SANY RS04	Reach stacker/45Ton	Private (Semi-registered)	Full Container	Container Terminal
8-05	SANY RS05	Reach stacker/45Ton	Private (Semi-registered)	Full Container	Container Terminal
8-06	SANY RS06	Reach stacker/45Ton	Private (Semi-registered)	Full Container	Container Terminal
9	SMV nº1	Top lift/45Ton	SL 45-1200G4	Full Container	Container Terminal
10	SMV nº2	Top lift/45Ton	SL 45-1200G4	Full Container	Container Terminal
11	SMV nº4	Top lift/16Ton	SMV5/6ECB90	Empty Container	Container Terminal
12	SMV nº5	Reach stacker/45Ton	SC4531 TA 5	Full Container	Container Terminal
13	FOTON nº1	Loader 3m³	LF 958G	Trimming	General cargo
14	FOTON nº2	Loader 3m³	LF 958G	Trimming	General cargo
15	CATERPILLAR	Loader 1.5 m³	IT 12	Trimming	General cargo
16	TOYOTA nº1	Forklift 3 Ton	02-7FD35	Stuff Handling	General cargo/Container Terminal
17	T0YOTA nº2	Forklift 2.5 Ton	02- 6FD25	Workshop Stuff Handling	Workshop
18	Container Transfer Crane	LIEBHERR 25 Ton		Full Container	Container Terminal

Source: The Maintenance Department of Portos do Norte As of May 2, 2015

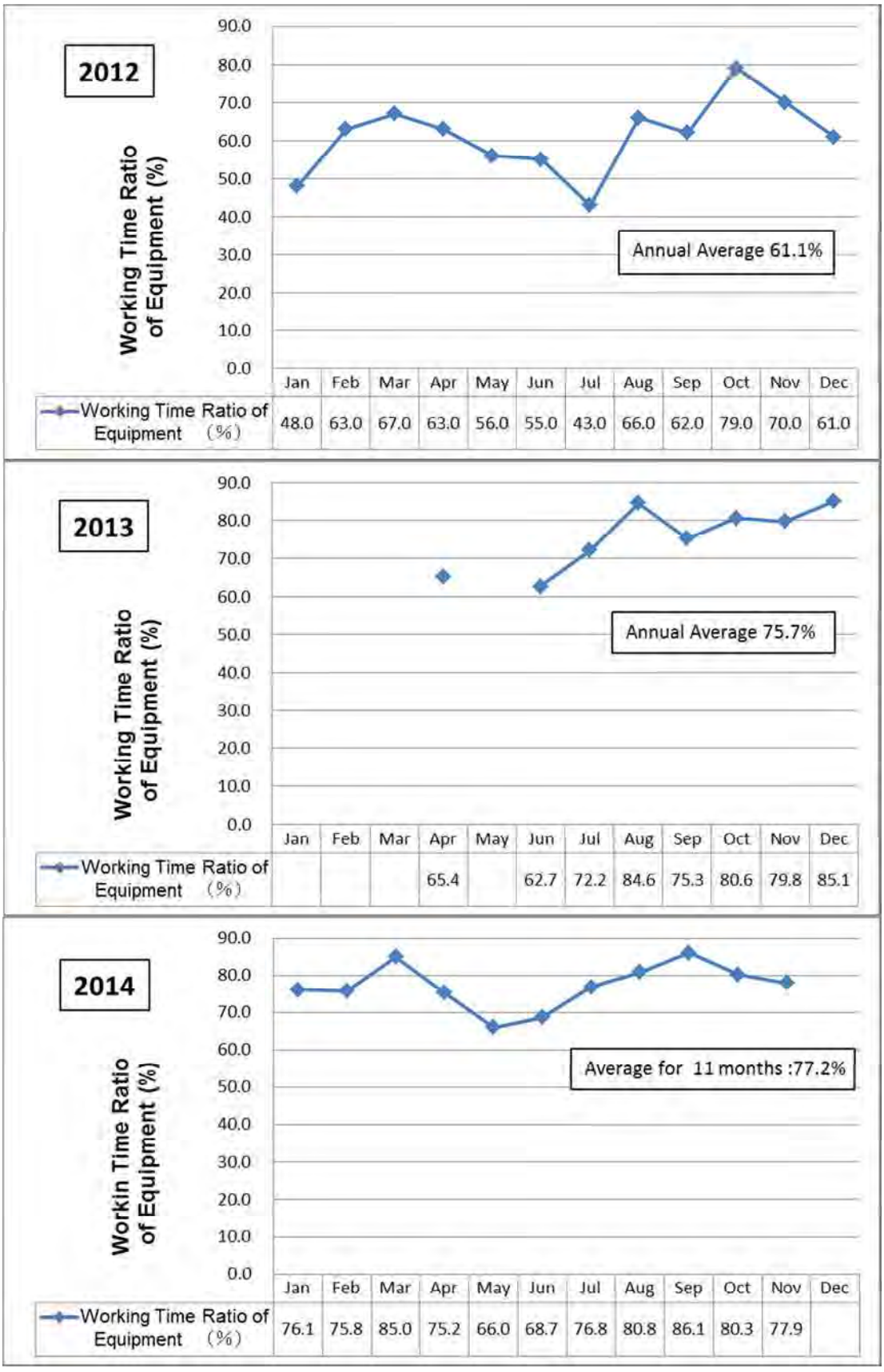


Figure 6 Working time ratio of equipment

Source: Monthly report of the Maintenance Department of Portos do Norte

Table 9 Annual Budget for Maintenance of Container Handling Equipment

2014

CUSTOS DA MANUTENÇÃO 【メンテナンスコスト】
Custos Projectados 予算
MZM
TC = 32,00 MZM

		2014 Jan	2014 Feb	2014 Mar	2014 Apr	2014 May	2014 Jun	2014 Jul	2014 Aug	2014 Sep	2014 Oct	2014 Nov	2014 Dec	Total
	Descritivo 項目	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	
														0.00
63212	Electricidade 電気	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	**2,346,000.00**
632121	Electricidade de Escritorio 事務所電気代	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	195,500.00	**2,346,000.00**
	Gerador (Edificio Principal) 発電機													
63213	**Combustiveis 燃料**	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	630,696.00	**7,568,352.00**
														0.00
632131119	Gasoleo - Maquinas 軽油ー機械	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	28,196.00	**338,352.00**
														0.00
632132	Restantes combustiveis その他の燃料	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	**30,000.00**
														0.00
632133	Lubrificantes 潤滑油	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	**7,200,000.00**
														0.00
63214	Ferrementas e utens. desgast rapido 工具類(消耗品)				50,000.00						50,000.00			**100,000.00**
	Material de Reparação e manutenção 修理・メンテナンス資機材	1,601,977.00	1,601,977.00	1,796,052.00	2,736,325.00	1,601,977.00	1,883,442.00	1,601,977.00	1,601,977.00	1,968,727.00	1,601,977.00	1,601,977.00	1,755,677.00	**21,354,062.00**
														0.00
63215	Material de manutenção e reparação メンテナンス・修理資機材	1,502,977.00	1,502,977.00	1,657,052.00	2,637,325.00	1,502,977.00	1,744,442.00	1,502,977.00	1,502,977.00	1,829,727.00	1,502,977.00	1,502,977.00	1,616,677.00	**20,006,062.00**
632151	De equipat e inst operacionais オペレーション関連資機材				1,134,348.00					147,500.00				**1,281,848.00**
632152	De equipat e inst habitacionais 施設関連資機材													**0.00**
632153	De Viaturas 車輌関連													**0.00**
6321531	Viaturas-Direccao 車輌ー港湾管理事務所			16,600.00			56,965.00			16,600.00			16,600.00	**106,765.00**
6321532	Viaturas-Administracao & Financas 車輌ーアドミ&会計・経理													**0.00**
6321533	Viaturas-R humanos 車輌ー人事			90,375.00			50,000.00			115,550.00			50,000.00	**305,925.00**
6321534	Viaturas-Op portuarias 車輌ーオペレーション			13,600.00			57,300.00			13,600.00			13,600.00	**98,100.00**
6321535	Viaturas-Servico Maritimo 車輌ー航海サービス													**0.00**
6321536	Viatura-Manutencao 車輌ーメンテナンス			69,475.00			69,475.00			29,100.00			29,100.00	**197,150.00**
6321537	Viatura-Gestao Ambiental 車輌ー環境管理			33,500.00			77,200.00			33,500.00			33,500.00	**177,700.00**
632154	Material de maquinas 機械関連機材	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	1,502,977.00	**18,035,724.00**
632155	Material M.Equip.Informatico 情報管理機器													**0.00**
632159	Outros その他													**0.00**
														0.00
63216	**Material de escritório 事務所資機材**													**0.00**
632166	Material Escritorio-Manutencao メンテナンス事務所資機材	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	5,826.00	**69,912.00**
														0.00
63221	Manutenção e reparação メンテナンス・修理	99,000.00	99,000.00	139,000.00	99,000.00	99,000.00	139,000.00	99,000.00	99,000.00	139,000.00	99,000.00	99,000.00	139,000.00	**1,348,000.00**
632211	De instal. e equipament. Operaciona オペレーション関連資機材	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	99,000.00	**1,188,000.00**
632212	De instal. e equipament.habitaciona 施設関連資機材			40,000.00			40,000.00			40,000.00			40,000.00	**160,000.00**
														0.00
														31,438,326.00
Legendas:		2,433,999.00	2,433,999.00	2,628,074.00	3,618,347.00	2,433,999.00	2,715,464.00	2,433,999.00	2,433,999.00	2,800,749.00	2,483,999.00	2,433,999.00	2,587,699.00	**31,438,326.00**

Totais das contas principais 合計
Subtotais 小計

Annual Maintenance Cost 31,438,326.00
Monthly Average Maintenance Cost 2,619,860.50

2015

MAINTENANCE COSTS
Projected costs
MZM

TC = 32,50 MZM TI = 8%

	Descriptive	2015 January	2015 February	2015 March	2015 April	2015 May	2015 June	2015 July	2015 August	2015 September	2015 October	2015 November	2015 December	Total
GLOBAL		**7,101,539.49**	**7,107,499.49**	**7,175,089.49**	**11,130,957.86**	**7,093,213.49**	**7,144,539.49**	**7,199,919.49**	**7,158,763.49**	**10,222,164.86**	**7,247,473.49**	**6,917,323.86**	**6,870,653.86**	**92,369,138.36**
63212	**Electricity**	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	**5,760,000.00**
632121	Port Electricity	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	480,000.00	**5,760,000.00**
63213	**Fuels**	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	1,259,289.69	**15,111,476.28**
6321311116	Diesel for maintenance	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	19,200.00	**230,400.00**
632131119	Diesel for Machines	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	96,040.00	**1,152,480.00**
632132	Petrol	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	**32,400.00**
632133	Lubricants	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	1,160,549.69	**13,926,596.28**
63214	**Tools**				65,000.00						65,000.00			**130,000.00**
63215	**Material Repair and maintenance**	5,342,775.33	5,348,735.33	5,404,325.33	9,307,193.70	5,334,449.33	5,373,775.33	5,441,155.33	5,399,999.33	8,451,400.70	5,423,709.33	5,158,559.70	5,099,889.70	**71,085,968.44**
632151	Oper. equip. and electric. installations	223,885.63	223,885.63	223,885.63	4,195,450.00	223,885.63	223,885.63	223,885.63	223,885.63	3,336,511.00	223,885.63			**9,323,046.04**
632152														**0.00**
632153	Vehicles													**0.00**
6321531	Vehicles - Direction		**53,710.00**	26,250.00		**39,424.00**	26,250.00	**53,710.00**	**39,424.00**	26,250.00	**39,424.00**	**63,710.00**	26,250.00	**394,402.00**
6321532	Vehicles - Administration & Finance	**22,750.00**		10,000.00	**22,750.00**		10,000.00			10,000.00			10,000.00	**85,500.00**
6321533	Vehicles - Human Resources			22,500.00			22,500.00	**53,710.00**	**65,550.00**	22,500.00	**65,550.00**		22,500.00	**274,810.00**
6321534	Vehicles - Port Operations	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	**53,710.00**			**188,710.00**
6321535	Vehicles - Security	20,000.00					35,000.00					**53,710.00**		**108,710.00**
6321536	Vehicle - Maintenance		15,000.00		**32,854.00**	15,000.00		**53,710.00**	15,000.00					**131,564.00**
6321537	Vehicle - Safety	20,000.00		**65,550.00**										**85,550.00**
632154	Parts of machines	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	5,041,139.70	**60,493,676.40**
632155														**0.00**
632159														**0.00**
63216														**0.00**
632166	**Material-Office Maintenance**	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	9,474.47	**113,693.64**
63221	**Maintenance and Repair**	10,000.00	10,000.00	22,000.00	10,000.00	10,000.00	22,000.00	10,000.00	10,000.00	22,000.00	10,000.00	10,000.00	22,000.00	**168,000.00**
632211	Installation and operating equipment	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	**120,000.00**
632212	Installation and Housing equipment			12,000.00			12,000.00			12,000.00			12,000.00	**48,000.00**

Legend
Total of key accounts
Subtotals

Source: The Maintenance Department of Portos do Norte