資料1　調査団員氏名、所属

(1) 第 1 次現地調査　(2017 年 2 月 13 日～3 月 14 日)

氏名	担当業務	所属
小柳　桂泉	総括	JICA 社会基盤・平和構築部 運輸交通・情報通信グループ　企画役
佐藤　渉	協力企画	JICA 社会基盤・平和構築部 運輸交通・情報通信グループ　課長補佐
輿水　正比古	業務主任／港湾計画 1	オリエンタルコンサルタンツグローバル
中西　雅時	港湾計画 3	オリエンタルコンサルタンツグローバル
五島　正明	港湾施設設計	オリエンタルコンサルタンツグローバル
山内　寛人	環境社会配慮	オリエンタルコンサルタンツグローバル
白取　進吾	施工計画／積算（土木）1	オリエンタルコンサルタンツグローバル
樋口　嘉章	運用・維持管理体制	オリエンタルコンサルタンツグローバル （補強：オリエンタルコンサルタンツ）

(2) 第 2 次現地調査　(2017 年 5 月 2 日～5 月 31 日)

氏名	担当業務	所属
薮中　克一	総括	JICA 社会基盤・平和構築部　技術審議役
佐藤　渉	計画管理 1	JICA 社会基盤・平和構築部 運輸交通・情報通信グループ　課長補佐
高橋　至	計画管理 2	JICA 社会基盤・平和構築部 運輸交通・情報通信グループ　副調査役
輿水　正比古	業務主任／港湾計画 1	オリエンタルコンサルタンツグローバル
小野寺　仁	副業務主任／港湾計画 2	パシフィックコンサルタンツ
中西　雅時	港湾計画 3	オリエンタルコンサルタンツグローバル
中島　康弘	建築計画・設計	オリエンタルコンサルタンツグローバル （補強：ウルディスインターナショナル）
山内　寛人	環境社会配慮	オリエンタルコンサルタンツグローバル
伊庭　智生	港湾施設・設備維持管理	パシフィックコンサルタンツ
白取　進吾	施工計画／積算（土木）1	オリエンタルコンサルタンツグローバル
重里　輝夫	施工計画／積算 （建築・機材）	オリエンタルコンサルタンツグローバル
赤崎　敏也	自然条件調査	復建調査設計

(3) 概略設計説明調査　（2017 年 12 月 3 日～12 月 7 日）

氏名	担当業務	所属
薮中　克一	総括	JICA 社会基盤・平和構築部　技術審議役
高橋　至	計画管理 2	JICA 社会基盤・平和構築部 運輸交通・情報通信グループ　副調査役
輿水　正比古	業務主任／港湾計画 1	オリエンタルコンサルタンツグローバル
小野寺　仁	副業務主任／港湾計画 2	パシフィックコンサルタンツ
中西　雅時	港湾計画 3	オリエンタルコンサルタンツグローバル
五島　正明	港湾施設設計	オリエンタルコンサルタンツグローバル
山内　寛人	環境社会配慮	オリエンタルコンサルタンツグローバル
樋口　嘉章	運用・維持管理体制	オリエンタルコンサルタンツグローバル （補強：オリエンタルコンサルタンツ）

(4) コンサルタント国内アサイメント団員

氏名	担当業務	所属
仁保　博	機材計画	オリエンタルコンサルタンツグローバル
室井　高明	施工計画／積算（土木）2	オリエンタルコンサルタンツグローバル
下平　敏嗣	施工計画／積算（土木）2	オリエンタルコンサルタンツグローバル

＊室井高明は 2017 年 9 月 22 日付で下平敏嗣に交代。

資料2　調査日程

(1)　第 1 次現地調査

日数	月日	曜	総　括	計画管理	業務主任/港湾計画1	港湾計画3	港湾施設設計	環境社会配慮	施工計画/積算(土木)1	運用・維持管理体制
			小柳桂泉	佐藤　渉	眞水正比古	中西　雅時	五島正明	山内寛人	白取　進吾	福口　嘉章
1	2/13	月				移動(東京→ヤンゴン)			移動(東京→ヤンゴン)	
2	2/14	火				OCG事務所、DWIR、IWT他			価格及び建設事情調査	
3	2/15	水	移動(東京→ヤンゴン)			同上			同上	移動(東京→ヤンゴン)
4	2/16	木	大使館、JICA、DWIR、IWT						同上	大使館、JICA、DWIR、IWT
5	2/17	金	National Logistic M/P Study Team / Japanese Informal Consortium for Mandalay Deveopment						同上	総括に同じ
6	2/18	土	マンダレーへ移動						同上	同上
7	2/19	日	サイト視察						マンダレーへ移動	同上
8	2/20	月	MCDC　ネピドーへ移動						価格及び建設事情調査/ サイト状況調査	同上
9	2/21	火	Stakeholder Meeting、MOTC、DWIR、IWT						同上	同上
10	2/22	水	ミニッツ協議						同上/ヤンゴンへ移動	同上
11	2/23	木	ミニッツ署名、ヤンゴンへ移動						価格及び建設事情調査	同上
12	2/24	金	大使館、JICA、Visit to Yangon River Channel						同上	同上
13	2/25	土	東京着		資料整理				同上	東京着
14	2/26	日			団内会議				東京着	
15	2/27	月			DWIR/IWTと協議			移動(東京→ヤンゴン)		
16	2/28	火			同上		移動(東京→ヤンゴン)	再委託先選定/ローカルコン・団内会議/DWIRと協議		
17	3/1	水			東京着		DWIR/IWTと協議	DWIRと協議 ローカルコンと調査準備		
18	3/2	木				マンダレーへ移動、サイト踏査		マンダレーへ移動 環境調査　フェーズ1		
19	3/3	金				サイト踏査、ヤンゴンへ移動		同上		
20	3/4	土				資料整理				
21	3/5	日				団内会議				
22	3/6	月				DWIR及びIWTと協議(サイト選定及び桟橋構造形式選定)		環境調査　フェーズ1		
23	3/7	火				同上		同上		
24	3/8	水				同上		同上/ネピドーへ移動		
25	3/9	木				同上		ECDと協議/ヤンゴンへ移動		
26	3/10	金				同上		ローカルコンサルタント及び再委託予定先企業と協議		
27	3/11	土				資料整理				
28	3/12	日				団内会議		団内会議、ヤンゴン発		
29	3/13	月				大使館、JICA報告、ヤンゴン発		東京着		
30	3/14	火				東京着	東京着			

(2) 第2次現地調査

日数	月日	曜	総　括	計画監理1	計画監理2	業務主任/港湾計画1	副業務主任/港湾計画2	港湾計画3	建築計画・設計	環境社会配慮	港湾施設・設備維持管理	施工計画/積算（土木）1	施工計画/積算（建築・機材）
			藪中　克一	佐藤　渉	高橋　至	輿水　正比古	小野寺　仁	中西　雅時	中島康弘	山内寛人	伊庭　智生	白取　進吾	重里　輝夫
1	5/2	火								移動（東京→ヤンゴン）NH813 (16:30着)			
8	5/3	水				移動（東京→ヤンゴン）NH813 (16:30着)	移動（東京→ヤンゴン）TG305 (18:45着)	移動（東京→ヤンゴン）NH813 (16:30着)		再委託先との協議			
9	5/4	木				10:00 JICA事務所				準備作業			
10	5/5	金				10:00 IWT協議、本邦企業へのヒアリング				8】環境社会配慮			
11	5/6	土				資料整理、本邦企業へのヒアリング				同上			
12	5/7	日				資料整理、ネピドーへ移動				資料整理			
13	5/8	月				9:00 MOTC/IWT協議、ヤンゴンへ移動				資料整理			
14	5/9	火				10:30 IWT協議、15:00 JICA事務所、本邦企業へのヒアリング				8】環境社会配慮			
15	5/10	水	ヤンゴン着			資料整理（ミャンマー祝日）				同上			
16	5/11	木	8:30 JICA事務所, 10:00 DWIR/IWT 合同会議、14:00 JICA事務所、本邦企業へのヒアリング			総括に同じ				同上			
17	5/12	金	9:30 IWT協議, 11:00 JICA事務所			総括に同じ				同上	移動（東京→ヤンゴン）TG305 (18:45着)		
18	5/13	土	マンダレーへ移動、シミコン港視察			総括に同じ		資料整理		同上	総括に同じ		
19	5/14	日	マンダレー港、プロジェクトサイト視察、ヤンゴンへ移動			総括に同じ		資料整理、シュエメ港視察		資料整理	総括に同じ、移動マンダレー～ヤンゴン		
20	5/15	月	11:00 大使館, 13:00（DWIR、IWT） 合同関係者会議、ミニッツ協議・署名			総括に同じ				資料整理	【9】運輸交通セクターに関する法令や基準、設計、施工条件の確認		
21	5/16	火	9:30 JICA事務所、10:30 SAマリンヒアリング			9:30 JICA事務所、10:30 SAマリンヒアリング、本邦企業へのヒアリング					同上		
22	5/17	水	JICA　事務所			総括に同じ					同上		
23	5/18	木	JICA 事務所、ヤンゴン発			JICA事務所					同上		
24	5/19	金	東京着			団内会議	団内会議	団内会議 ヤンゴン発 NH 814 (21:45)			同上		
25	5/20	土				資料整理	ヤンゴン発 TG 304 (9:50) 東京着 TG 660 (21:10)	東京着 (06:50)			資料整理		
26	5/21	日				資料整理					団内会議		
27	5/22	月				準備作業			移動（東京→ヤンゴン）TG305 (18:45着)		【9】運輸交通セクターに関する法令や基準、設計、施工条件の確認	移動（東京→ヤンゴン）NH813 (16:30着)	移動（東京→ヤンゴン）TG305 (18:45着)
28	5/23	火				10:00 DWIR/IWT協議			9:00 団内会議、13:00 DWIR協議		9:00 団内会議、13:00 DWIR協議	9:00 団内会議、13:00 DWIR協議	【9】運輸交通セクターに関する法令や基準、設計、施工条件の確認
29	5/24	水				団内会議、14：00JICA事務所 ヤンゴン発 NH 814 (21:45)			マンダレーに移動／サイト視察		団内会議／設計作業	団内会議，14：00JICA事務所	マンダレーに移動／サイト視察
30	5/25	木				東京着 (06:50)			MCDC、電力会社訪問、ヤンゴンへ移動		設計作業	単価調査及び会議準備	価格調査、ヤンゴンへ移動
31	5/26	金							10：00　DWIR協議		10：00　DWIR協議	10：00　DWIR協議	同上
32	5/27	土							資料整理		資料整理	資料整理	資料整理
33	5/28	日							団内会議		団内会議	団内会議	団内会議
34	5/29	月							10:00 DWIR / IWT 協議		10:00 DWIR / IWT 協議	10:00 DWIR / IWT 協議	【9】運輸交通セクターに関する法令や基準、設計、施工条件の確認
35	5/30	火							JICA事務所, ヤンゴン発		JICA事務所	JICA 事務所 ヤンゴン発 NH 814 (21:45)	JICA事務所, ヤンゴン発
36	5/31	水							東京着		ヤンゴン発 TG 304 (9:50) 東京着 TG 660 (21:10)	東京着 (06:50)	東京着

(3)　自然条件調査

日数	月日	曜	自然条件調査 赤崎　敏也	日数	月日	曜	自然条件調査 赤崎　敏也	日数	月日	曜	自然条件調査 赤崎　敏也	日数	月日	曜	自然条件調査 赤崎　敏也
1	4/3	月	現地再委託関連書類の作成/業者選定作業	11	4/26	水	現地再委託業者契約手続き/調査準備	41	5/26	金	現地再委託調査の監督監理	59	7/17	月	調査結果取りまとめ
2	4/4	火	同上	12	4/27	木	同上	42	5/27	土	同上	60	7/18	火	同上
3	4/5	水	同上	13	4/28	金	同上	43	5/28	日	同上	61	7/19	水	同上
4	4/6	木	同上	14	4/29	土	資料整理	44	5/29	月	マンダレー	62	7/20	木	同上
5	4/7	金	同上	15	4/30	日	資料整理	45	5/30	火	マンダレー	63	7/21	金	同上
6	4/8	土	資料整理	16	5/1	月	現地再委託調査の監督監理	46	5/31	水	マンダレー	64	7/22	土	資料整理
7	4/9	日	資料整理	17	5/2	火	マンダレー					65	7/23	日	資料整理
8	4/10	月	現地再委託業者選定作業	18	5/3	水	マンダレー	47	6/12	月	現地再委託調査の監督監理	66	7/24	月	調査結果取りまとめ
9	4/11	火	同上	19	5/4	木	マンダレー	48	6/13	火	同上	67	7/25	火	同上
10	4/12	水	契約準備作業	20	5/5	金	現地再委託調査の監督監理	49	6/14	水	同上	68	7/26	水	同上
				21	5/6	土	同上	50	6/15	木	同上	69	7/27	木	同上
				22	5/7	日	同上	51	6/16	金	同上	70	7/28	金	同上
				23	5/8	月	同上	52	6/17	土	同上				
				24	5/9	火	同上	53	6/18	日	資料整理				
				25	5/10	水	同上	54	6/19	月	現地再委託調査成果確認				
				26	5/11	木	同上	55	6/20	火	同上				
				27	5/12	金	同上	56	6/21	水	同上				
				28	5/13	土	同上	57	6/22	木	同上				
				29	5/14	日	同上	58	6/23	金	同上				
				30	5/15	月	同上								
				31	5/16	火	同上								
				32	5/17	水	マンダレー								
				33	5/18	木	マンダレー								
				34	5/19	金	マンダレー								
				35	5/20	土	現地再委託調査の監督監理								
				36	5/21	日	同上								
				37	5/22	月	同上								
				38	5/23	火	同上								
				39	5/24	水	同上								
				40	5/25	木	同上								

(4)　概略設計説明調査（第 3 次現地調査）

日数	月日	曜	総　括	計画管理	業務主任/港湾計画1	副業務主任/港湾計画2	港湾計画3	港湾施設設計	環境社会配慮	運用・維持管理体制
			藤中　克一	高橋　亜	奥水　正比古	小野寺　仁	中西　福時	玉島正明	山内寛人	福口　嘉章
1	12/3	日	移動(NH813　成田11:00発→ヤンゴン16:30着)		TG 683　羽田発10:35発→TG305 ヤンゴン 18:50着	移動(NH813　成田11:00発→ヤンゴン16:30着)		TG 683　羽田発10:35発→TG305 ヤンゴン18:50着	準備作業	
2	12/4	月	大使館、JICA、DWIR/IWT準備調査報告書(案)及び機材仕様書(案)の説明・協議							TG661 羽田 00:20発→TG303 08:45ヤンゴン着
3	12/5	火	DWIR IWT 準備調査報告書(案)及び機材仕様書(案)の説明・協議							
4	12/6	水	IWTミニッツ署名、大使館、JICA報告、ヤンゴン発							
5	12/7	木	移動(NH814　ヤンゴン　6日　22:10発→成田06:45着)		TG 306 ヤンゴン　6日18:50 発→TG 682 羽田 6:55着	移動(NH814　ヤンゴン　6日　22:10発→成田06:45着)		移動 TG 304 ヤンゴン 9:50発	TG 306 ヤンゴン　6日18:50 発→TG 682 羽田 6:55着	

資料3　相手国関係者（面会者）リスト

運輸・通信省 (Ministry of Transport and Communications)

Mr. Win Khant	Permanent Secretary, MOTC
Mr. Aung Ye Tun	Assistant Secretary, MOTC
山本　大志	運輸交通政策アドバイザー（JICA 専門家）

水資源・河川開発局 (Directorate of Water Resources and Improvement of River Systems)

Mr. Htun Lwin Oo	Director General
Mr. Ko Ko Oo	Deputy Director General
Mr. Tun Naing Win	Director
Mr. Win Hlaing	Director, Yangon, Project Director AIRBM Project
Mr. Khin Maung Zaw	Deputy Director,
Mr. Aung Myo Khaing	Deputy Director,
Mr. Kyaw Zin Than	Deputy Director
Mr. Toe Aung Lin	Deputy Director (Mandalay Branch)
Mr. Thaung Lwin	Deputy Director General, Admin,
Mr. Koreng La Ja	Director

内陸水運公社 (Inland Water Transport)

Mr. Zaw Win	Managing Director
Mr. Aung Than Myaing	Marine Superintendent
Mr. Win Ko Aung	Assistant General Manager (GM) (Ayeyarwady Div.)
Mr. Pyi Nyein	Deputy General Manager, Transport Department
Mr. Nyein Aye	Deputy GM, Inspection Department
Mr. Soe Myint	Deputy GM, Engineering Department

Mr. Lu Mor Tun New	Deputy GM, Cargo Department
Mr. Thi La Thein	Deputy GM, Administration Department
Mr. Htay Aung	

海事局（Department of Marin Administration）

Mr. Maung Maung Oo	Director General
Mr. Soe Myint	Deputy General Manager
Mr. Soe Naing	Director
Mr. Zaw Myint Thein	Deputy Director General (Technical)

建設省 (Ministry of Construction)

Mr. Sai Kyaw Moe	Chief Engineer, Department of Highways,
Mr. Thein Aung	Chief Engineer, Department of Bridge
Mr. Daw Thein Nu	Chief Engineer

ミャンマー港湾公社 (Myanmar Port Authority)

Mr. Soe Thein	Chief Engineer

天然資源環境保全省（MONREC）環境保全局（ECD）

Mr. Hla Maung Thein	Director General
Mr. Htin Aung Kyaw	Assistant Director
Aung Zaw Htun	Staff Officer

マンダレー地域政府 (Mandalay Region Government)

H.E Dr. Zaw Myint Maung	Chief Minister, MRG
Mr. Zar Ni Aung	Minister of Mandalay Region for Ministry of Electrical & Energy
Mr. Zaw Tin Moe	Secretary of Mandalay Region Government
Mr. Myint Kyig	Chairman of Mandalay Town Ship

マンダレー市開発委員会 (Mandalay City Development Committee)

Dr. Ye Lwin	Mayer of Mandalay (MCDC) & Minister for

Development Affaires of Mandalay Region

Mr. Than Htike Kyaw	Head of Division
Ms. Khin May Htay	Head of Water & Sanitation Department

Freight and Handling Committee

Mr. Myo Khing	Chairman of Mandalay Region

電力・エネルギー省 (Ministry of Electricity and Energy)

Mr. Kyaw Kyaw	Assistant Manager

在ミャンマー日本国大使館

丸山　市郎	公使参事官
泰松　昌樹	参事官（第 1 次現地調査）
松尾　秀明	参事官（経済・経済協力担当）
	インフラプロジェクト専門官（第 2 次現地調査）
田公（たきみ）　和幸	参事官（経済・開発協力班長）（第 3 次現地調査）
笠井　良真	二等書記官

JICA ミャンマー事務所

中沢　慶一郎	所長
三條　昭仁	次長（第 1 次現地調査）
西形　康太郎	次長
早川　哲史	所員（第 1 次現地調査）
紀古　鮎美	所員（第 2 次現地調査）
庄子　真由美	企画調査員（第 3 次現地調査）
Mr. Win Ko Ko	Program Officer

資料4　討議議事録

4-1 討議議事録（第1次現地調査　M/D）

Minutes of Meetings
on the Preparatory Survey for
the Project for Development of Mandalay Port

In response to the request from the Government of the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") of the Project for Development of Mandalay Port (hereinafter referred to as "the Project") to Myanmar, headed by Yoshimoto KOYANAGI, Acting Director, Transportation and ICT Group, Infrastructure and Peacebuilding Department, from 13th February to 13th March, 2017. The Team held a series of discussions with the officials of the Government of Myanmar and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Nay Pyi Taw, 23rd February, 2017

小柳 桂泉

Yoshimoto KOYANAGI
Acting Director,
Transportation and ICT Group
Infrastructure and Peacebuilding Department
Japan International Cooperation Agency
Japan

U Win Khant
Permanent Secretary
Ministry of Transport and Communications
The Republic of the Union of Myanmar

ATTACHMENT

1. Objective of the Project

The objective of the Project is to facilitate transport and logistic flows at the Mandalay Port by developing the modernized port facilities and equipment, thereby contributing to sustainable economic growth in Myanmar.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Development of Mandalay Port".

3. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

3-1. The Directorate of Water Resources and Improvement of River Systems (DWIR) and Inland Water Transport (IWT) will be the executing agencies for the Project (hereinafter referred to as "the Executing Agencies"). DWIR plays a role as the owner of the Mandalay Port (hereinafter referred to as "the port"). IWT is responsible for operation and maintenance of the port as approved by Ministry of Transport and Communications (MOTC). The Executing Agencies shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The organization charts are shown in Annex 1.

3-2. The line ministry of the Executing Agency is the Ministry of Transport and Communications (MOTC). The MOTC shall be responsible for supervising the Executing Agencies on behalf of the Government of Myanmar.

4. Selection of the Project site

4-1. Both sides confirmed that MOTC will be the decision making authority for the location of the Project in consultation with the relevant authorities such as Ministry of Construction (MOC), Mandalay Region Government (MRG) and Mandalay City Development Committee (MCDC).

4-2. The Team conducted the preliminary assessment based on the request by the Myanmar side. As a base for the discussion on the assessment, both sides agreed the criteria and ratings of each location as per Annex 2.

4-3. The Myanmar side proposed to remove the Location 2 from the candidates, because any activities such as construction of structure and berthing/de-berthing at least 3,000 feet of upstream and downstream of the bridges, that may harm the stability of the bridge

piers will be prohibited by the MOC's new major bridges law which is to be enacted in near future. The Team agreed to the proposal. The Myanmar side agreed to provide the relevant documents with the Team for future reference.

4-4. Although the preference to the Location 1 was expressed by the Myanmar side, the Myanmar side stated that the final decision will be made after further internal consultation. Both sides agreed that the Myanmar side will finalize the port location and inform JICA in writing by the end of March, 2017. The Team assured to provide continuous support to the Myanmar side to facilitate further discussion on the port location by providing detailed technical information during the first field survey.

4-5. Both sides confirmed that the joint stakeholder meeting (MOTC, DWIR, IWT, MOC, MRG and MCDC) will be held to share the progress of the study during the second field survey, which is expected to be dispatched around in April, 2017.

5. Items requested by the Government of Myanmar

5-1. As a result of discussions, both sides confirmed that the Government of Myanmar requested to construct port along Ayeyarwady River at Mandalay and procure equipment for the port as the pilot project including as follows:

- Jetty
- Cargo yard
- Access road
- Access bridge
- Cargo handling machines
- Warehouse
- Administration building
- Workshop facilities

5-2. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Myanmar side agreed that the procedures and basic principles of Japanese Grant as described in Annex 3 shall be applied to the Project.

As for the monitoring of the implementation of the Project, JICA requires the Myanmar side to submit the Project Monitoring Report in quarterly basis, the form of which is attached as Annex 4.

6-2. The Myanmar side agreed to take the necessary measures, as described in Annex 5, for smooth implementation of the Project. The contents of the Annex 5 will be elaborated

and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report.

The contents of Annex 5 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Myanmar until 13th March, 2017.

7-2. The Myanmar side will inform JICA of the final decision of the port location in writing by the end of March, 2017.

7-3. After receiving above notice for the port location, JICA will dispatch the Team for the second field survey around in April, 2017.

7-4. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Myanmar in order to explain its contents around in November, 2017.

7-5. If the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Myanmar side, JICA will finalize the Preparatory Survey Report and send it to Myanmar around in January, 2018.

7-6. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

8-1. The Myanmar side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as "B" from the following considerations:

The project is not considered to be a large-scale port project, is not located in a sensitive area, and has none of the sensitive characteristics under the JICA guidelines for environmental and social considerations (April 2010), it is not likely to have a significant adverse impact on the environment.

8-3. The Myanmar side agreed to conduct the necessary procedures concerning the environmental assessment (including stakeholder meetings, Environmental Impact Assessment (EIA) /Initial Environmental Examination (IEE) and information disclosure, etc.) and make EIA/IEE report of the Project. The EIA/IEE approval shall be received from the responsible authorities and submitted to JICA preferably before the Cabinet approval of the Project by the Government of Japan which is scheduled around in February, 2018.

8-4. In case the Project that requires involuntary resettlement, the Myanmar side will prepare a Resettlement Action Plan (RAP)/Abbreviated Resettlement Action Plan (ARAP) and make it available to the public. In addition, the Myanmar side agreed to

provide the affected people with sufficient compensation and/or support in accordance with RAP/ARAP, which is consistent with the JICA Guidelines for Environmental and Social Considerations (April, 2010), in a timely manner.

9. Other Relevant Issues

9-1. The Myanmar side emphasized the different roles between the Si Mee Khon Port and the proposed Mandalay Port. Whereas the former is mainly focused on the cargo/container handlings for Myotha Industrial Park, the latter will be solely developed as a public port that handles consumer related cargos for the people in Mandalay as well as those in Upper Myanmar.

9-2. As for the management and operation of the port, the Myanmar side stated that the formulation of the joint venture company between Japanese company or companies and IWT will be preferable option to enhance the capacity of IWT as a port operator. The Japanese side explained that the Team will provide several alternatives for the management and operations, and discuss with the Myanmar side the future capacity development of IWT.

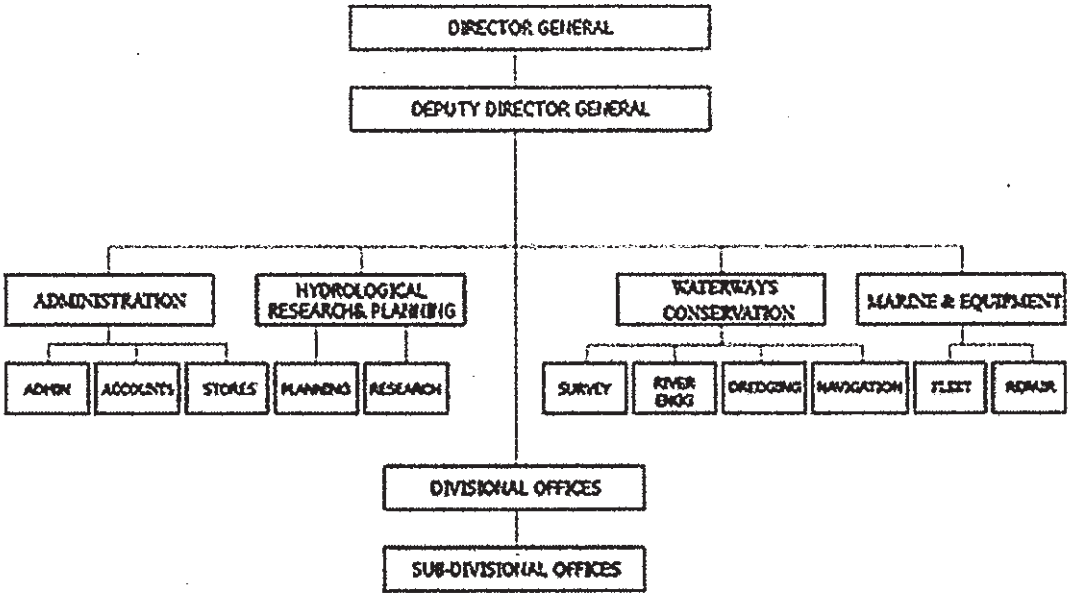
9-3. The Myanmar side agreed that customs duties, internal taxes and other fiscal levies which may be imposed in Myanmar in relation to the Project are exempted under mutual agreement of Exchange of Note (E/N). If any temporary expenses stated before are caused by some reasons such as the delay of execution of tax exemption, the Myanmar side (MOTC / DWIR) shall bear the cost.

Annex 1 Organization Chart
Annex 2 Three Candidates of Port Location and Rating
Annex 3 Japanese Grant
Annex 4 Project Monitoring Report (template)
Annex 5 Major Undertakings to be taken by the Government of Myanmar

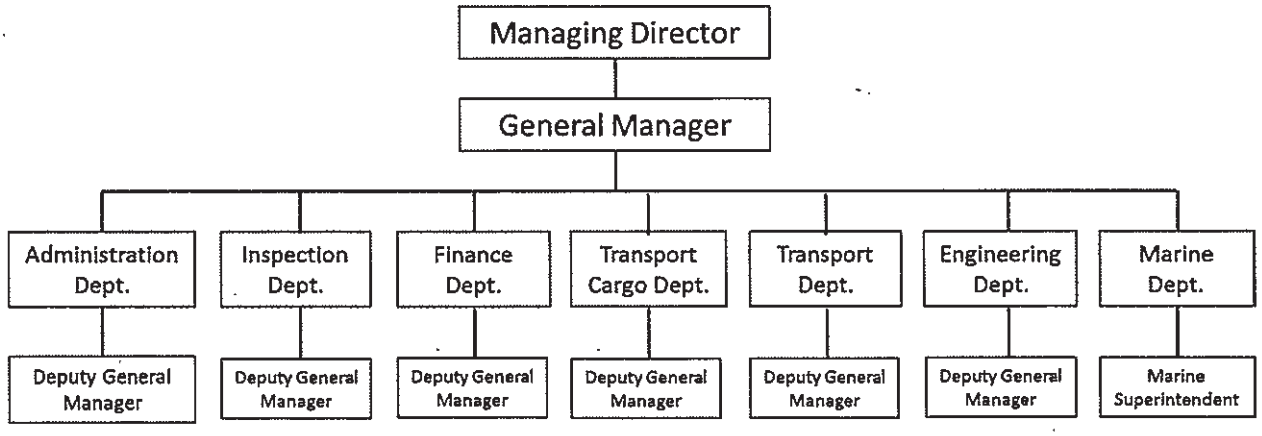
Annex 1

Organization Chart

1) Directorate of Water Resources and Improvement of River Systems

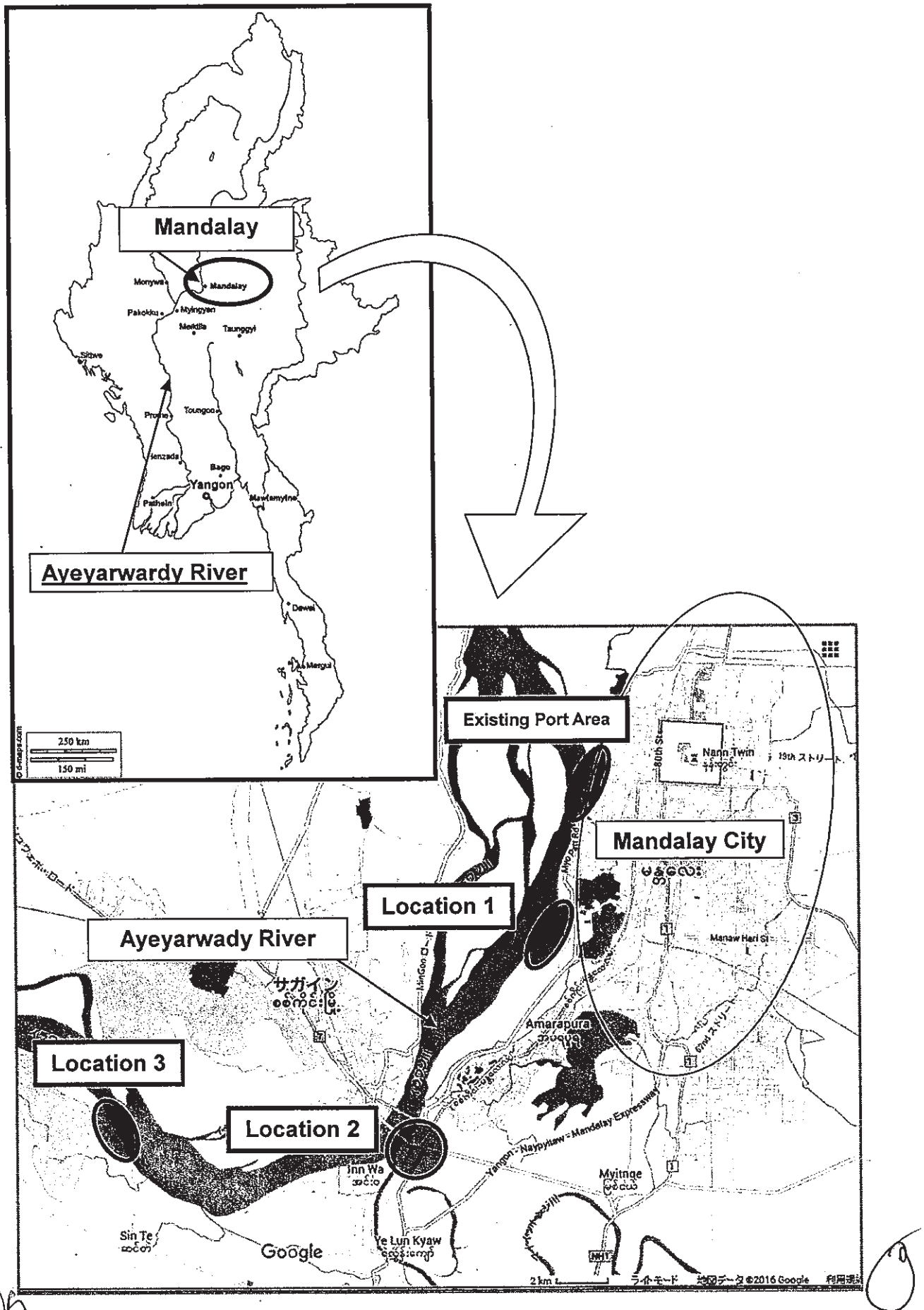


2) Inland Water Transport



Annex 2

Three Candidates of Port Location and Rating



Criteria and Rating for Port Location

No	Criteria	Location 1	Location 2	Location 3
1.	Natural Condition			
1.1	Water Depth	B	C	A
1.2	Sedimentation Risk/Maintenance Dredging	B	C	A
2.	Consistency to City Plan			
2.1	Access to Industrial/Commercial Areas	A	A	C
2.2	Influence to Traffic City Congestion	B	A	A
3.	Social Environment (Resettlement) & Implementation Schedule	B	B(-)	B(-)
4.	Future Expansion Area	A	B	A
5.	Construction Cost	B	A	C
6.	Safety of Ship Maneuvering	A	B	A
7.	Competitiveness against Rail/Road Transport	A	A	C
	Assessment (Preliminary)	A	—*	B

* Legal restriction: In the area of minimum 3,000 feet of upper and lower stream sides from the bridge, it is prohibited for ship berthing and de-berthing. Because of this reason, Location 2 was excluded from the candidate site in the joint stakeholder meeting held on February 21, 2017.

Remarks:

A: suitable

B: fairly suitable

C: poorly suitable

Annex 3

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation
- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal
-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes
-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")
-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")
-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement
-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation
-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the

Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the Recipient necessary for the implementation of the Project.
- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness

and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.

b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient

in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

PROCEDURES OF JAPANESE GRANT

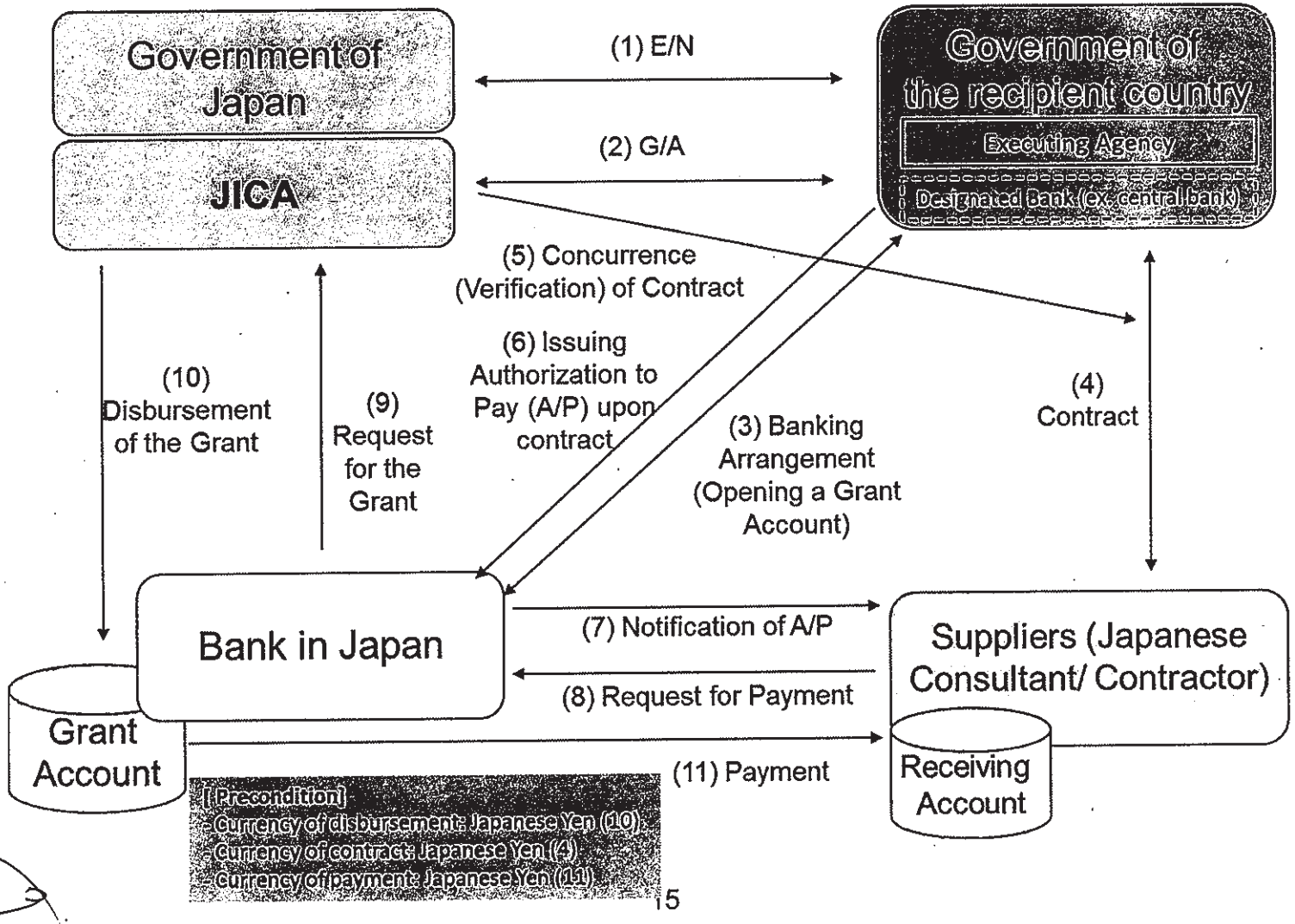
Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
2. Appraisal	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

Financial Flow of Japanese Grant (A/P Type)



Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Executing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Line Ministry	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original 1),2) *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (1,000 Taka)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original 1),2) *(proposed in the outline design)*	Actual
	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*
Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design)*

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):

Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
- Contractor's Main Staff List

4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B (¥)	Condition of payment		
						Price (Decreased) E=C−D	Price (Increased) F=C+D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●t

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st ○○○○, 2015	2nd ○○○○, 2015	3rd ○○○○, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

-

A4-1-23

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

		Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost		(A/D%)	(B/D%)	(C/D%)	
	Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
	others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost		(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost		(A/D%)	(B/D%)	(C/D%)	
Total		(A/D%)	(B/D%)	(C/D%)	

Annex 5

Major Undertakings to be taken by the Government of Myanmar

1. Specific obligations of the Government of Myanmar which will not be funded with the Grant

(1) Before the Tender

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	Ministry of Planning and Finance (MOPF)		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	DWIR		
3	To approve IEE/EIA (Conditions of approval should be fulfilled, if any)	before the Project approval by Japanese Cabinet	MONREC/ DWIR		
4	To secure the necessary budget and implement land acquisition and resettlement (including preparation of resettlement sites), and compensation with full replacement cost in accordance with RAP	before start of the construction	MOTC/ DWIR		
5	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	till land acquisition and resettlement complete	DWIR		
6	To secure and clear the following lands (to be revised) 1) right of way for access road 2) project sites 3) temporary construction yard and stock yard near the Project area 4) borrow pit and disposal site near the Project area	before notice of the bidding document	DWIR		
7	To obtain the planning, zoning, building permit	before notice of the bidding document	DWIR		
8	To clear, level and reclaim the following sites (to be revised) 1) existing facilities (if any) 2) leveling and reclaiming the sites (if required)	before notice of the tender document	DWIR		
9	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding documents	DWIR		

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.

1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	DWIR		
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the singing of the contract	DWIR		
	2) Payment commission for A/P	every payment	DWIR		
3	To ensure prompt unloading and customs clearance at ports of disembarkation in recipient country and to assist the Supplier(s) with internal transportation therein	during the Project	DWIR		
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	DWIR		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOPF/ DWIR		
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the Project implementation	during the Project	DWIR		
7	1) To submit Project Monitoring Report	every quarter	DWIR		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	DWIR		
8	To submit a report concerning completion of the Project	within six months after completion of the Project	DWIR		
9	To construct access roads outside the site	3 months before completion of the construction	DWIR		
10	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site(s)		DWIR		
	1) Electricity The distributing line to the site	before start of the construction	DWIR		
	2) Water Supply The city water distribution main to the site	6 months before completion of the construction	DWIR		
	3) Drainage The city drainage main (for storm, sewer and others) to the site	6 months before completion of the construction	DWIR		
11	To take necessary measure for safety construction - traffic control - rope off	during the construction	DWIR		
12	To implement EMP and EMoP	during the construction	DWIR		
13	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	DWIR		
14	To implement RAP (livelihood restoration program, if needed)	for a period based on livelihood restoration program	DWIR		

15	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between DWIR and JICA.	- until the end of livelihood restoration program (In case that livelihood restoration program is provided)	DWIR		

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To implement EMP and EMoP	for a period based on EMP and EMoP	DWIR		
2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between DWIR and JICA.	for three years after the Project	DWIR		
3	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	DWIR		

2. Other obligations of the Government of Myanmar funded with the Grant

NO	Items	Deadline	Amount (Million Japanese Yen)*
1	To construct the jetty, cargo yard, access road, access bridge, necessary facilities and to procure equipment 1) To conduct the following transportation a) Marine(Air) transportation of the products from Japan / third countries to the recipient country b) Internal transportation from the port of disembarkation to the project site		
	2) To construct access roads a) Within the site		
	3) To construct the temporary building		
	4) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities a) Electricity - The drop wiring and internal wiring within the site - The main circuit breaker and transformer b) Water Supply - The supply system within the site (receiving and/or elevated tanks) c) Drainage - The drainage system (for toilet sewer, ordinary waster, storm drainage and others) within the site d) Furniture and Equipment - Project equipment		
2	To implement detailed design, bidding support and construction supervision (Consulting Service)		
	Total		XXX

*The Amount is provisional. This is subject to the approval of the Government of Japan.

Minutes of Meetings
on the Preparatory Survey for
the Project for Development of Mandalay Port

On the basis of the discussions and field survey in Myanmar in February 2017, and the subsequent technical examination of the result in Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") sent the Preparatory Survey Team for the Second Outline Design (hereinafter referred to as "the Team") of the Project for Development of Mandalay Port (hereinafter referred to as "the Project") to Myanmar, headed by Mr. Katsuichi Yabunaka, Executive Technical Advisor to the Director General, Infrastructure and Peacebuilding Department, JICA, and the Team is scheduled to stay in the country from May 3rd to May 31st, 2017.

The Team held discussions with the officials of the Government of Myanmar, and conducted a field survey. In the course of discussions and field survey, both sides confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare a Draft Report of the Preparatory Survey.

Yangon, 15th May, 2017

藪中克一

Katsuichi Yabunaka
Executive Technical Advisor to the Director General
Infrastructure and Peacebuilding Department
Japan International Cooperation Agency
Japan

Htun Lwin Oo
Director General
Directorate of Water Resources and Improvement of River Systems
Ministry of Transport and Communications
The Republic of the Union of Myanmar

Zaw Win
Managing Director
Inland Water Transport
Ministry of Transport and Communications
The Republic of the Union of Myanmar

ATTACHMENT

1. Reconfirmation of the Minutes of Meetings of the First Field Survey

1-1. Both sides reconfirmed the contents of the Minutes of Meetings of the First Field Survey dated 23rd February 2017 as Annex 1.

2. Procedures and Basic Principles of Japanese Grant

2-1. The Myanmar side agreed to take the necessary measures, as described in Annex 2, for smooth implementation of the Project. The contents of the Annex 2 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report.

2-2. The contents of Annex 2 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

3. Selection of Structure Type of Jetty

3-1. The Team provided technical observations as to the type of jetty with the Directorate of Water Resources and Improvement of River System (DWIR) and Inland Water Transport (IWT) based on the Explanatory Notes which is attached as the Annex 3.

3-2. After reviewing the contents and making internal discussion among relevant stakeholders in the Myanmar side, DWIR adopted the fixed type jetty as the most preferable structure for the Project.

3-3. The Myanmar side expressed their concerns on the sedimentation risk that will not be avoidable even in the case of fixed type jetty. From this view point, the Myanmar side proposed to downgrade the score from "A" to "B" with regard to the criteria of "Applicability of River Bed Deformation". In addition, the Myanmar side mentioned the possibility to collaborate with the World Bank study (Ayeyarwaddy Integrated River Basin Management Project: AIRBM project) that plans to construct the river training structure for navigation enhancement in order to reduce sedimentation risk in the Project area.

3-4. The Myanmar side agreed to provide the information such as the schedule of the study, the schedule of implementation, progress reports of the study, and the output of the multi criteria analysis workshop which will be held in the middle of June, by the end of June 2017. The Team agreed to provide the layout plan, the pile arrangement, and the design depth by the end of May in order for Myanmar side to facilitate the numerical analysis of AIRBM project, that will allow the Myanmar side to take into consideration for the designing of the river training structure.

4. Management and Operation of Mandalay Port

4-1. The Team provided several alternatives for the management and operation with DWIR and IWT, including the future capacity development programme for IWT and DWIR, with Discussion Paper on Management and Operation of Mandalay Port which is attached as the Annex 4. The Team further explained the necessary preparation to establish port management systems including i) to establish organization, ii) to reserve human resources and budget allocations, iii) to establish rules and regulations, guidelines and manuals for management and operation that should be functioned before opening of the Mandalay port which is expected in August 2020. The Myanmar side agreed in principle.

4-2. Although the preference to "Tool Port" was expressed by the Myanmar side, the Myanmar side stated that the final decision will be made after further internal consultation. Both sides agreed that the Myanmar side will finalize the port management and operation option and inform JICA in writing by the end of August, 2017.

4-3. With regard to the implementation structure, the Myanmar side expressed the intention to establish the Management Committee for that jetty in which DMA, DWIR, IWT and Mandalay Regional Government representative will be involved. According to Conservation of Water Resources and River Law (2006), Regulations (2013) and organization structure of DWIR, DWIR is responsible to manage and enable to operate the river ports. DWIR already had port management section in its organization structure.

4-4. IWT will organize the Inland Port Operation Department that will be in charge of the operation of the Mandalay jetty. The Myanmar side explained that cabinet approval is required to establish the new department.

5. Schedule of the Survey

5-1. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Myanmar in order to explain its contents around in November, 2017.

5-2. If the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Myanmar side, JICA will finalize the Preparatory Survey Report and send it to Myanmar around in January, 2018.

5-3. The above schedule is tentative and subject to change.

6. Environmental and Social Considerations

6-1. The Myanmar side understood that the responsibility for environmental and social considerations lies under the Myanmar side and promised to give due considerations before and during implementation and after completion of the Project in accordance

with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

6-2. The Japanese side requested and the Myanmar side agreed for a timely review and submission of the EIA/IEE Report and other related documents to the Ministry of Natural Resources and Environmental Conservation and for taking any necessary follow up actions with the Ministry, in tandem with the Team, so that the Environmental Compliance Certificate (ECC) for the Project could be issued without delay. The Myanmar side also acknowledged that the ECC should be issued and submitted to JICA preferably before the Cabinet approval of the Project by the Government of Japan scheduled in February, 2018. It must be no later than a point of time that would allow the Myanmar side sufficient time to duly clear the project site, which has to come after providing necessary compensation and support to the project-affected persons. Project site needs to be cleared before the tendering stage scheduled in August, 2018.

7. Other Relevant Issues

7-1. The joint stakeholder meeting (MOTC, DWIR, IWT and MOC) was held to share the progress of the study on 15th May, 2017.

7-2. The Team requested the financial records of DWIR for the past 5 years. The Myanmar side agreed to provide the records by the end of May, 2017.

Annex 1 The Minutes of Meetings of the First Field Survey dated 23rd February 2017
Annex 2 Major Undertakings to be taken by the Government of Myanmar
Annex 3 The Explanatory Notes for Selection of Structure Type of Jetty
Annex 4 Discussion Paper on Management and Operation of Mandalay Port

Minutes of Meetings
on the Preparatory Survey for
the Project for Development of Mandalay Port

In response to the request from the Government of the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") of the Project for Development of Mandalay Port (hereinafter referred to as "the Project") to Myanmar, headed by Yoshimoto KOYANAGI, Acting Director, Transportation and ICT Group, Infrastructure and Peacebuilding Department, from 13th February to 13th March, 2017. The Team held a series of discussions with the officials of the Government of Myanmar and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Nay Pyi Taw, 23rd February, 2017

小柳桂泉

Yoshimoto KOYANAGI
Acting Director,
Transportation and ICT Group
Infrastructure and Peacebuilding Department
Japan International Cooperation Agency
Japan

U Win Khant
Permanent Secretary
Ministry of Transport and Communications
The Republic of the Union of Myanmar

ATTACHMENT

1. Objective of the Project

   The objective of the Project is to facilitate transport and logistic flows at the Mandalay Port by developing the modernized port facilities and equipment, thereby contributing to sustainable economic growth in Myanmar.

2. Title of the Preparatory Survey

   Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Development of Mandalay Port".

3. Responsible authority for the Project

   Both sides confirmed the authorities responsible for the Project are as follows:

   3-1. The Directorate of Water Resources and Improvement of River Systems (DWIR) and Inland Water Transport (IWT) will be the executing agencies for the Project (hereinafter referred to as "the Executing Agencies"). DWIR plays a role as the owner of the Mandalay Port (hereinafter referred to as "the port"). IWT is responsible for operation and maintenance of the port as approved by Ministry of Transport and Communications (MOTC). The Executing Agencies shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The organization charts are shown in Annex 1.

   3-2. The line ministry of the Executing Agency is the Ministry of Transport and Communications (MOTC). The MOTC shall be responsible for supervising the Executing Agencies on behalf of the Government of Myanmar.

4. Selection of the Project site

   4-1. Both sides confirmed that MOTC will be the decision making authority for the location of the Project in consultation with the relevant authorities such as Ministry of Construction (MOC), Mandalay Region Government (MRG) and Mandalay City Development Committee (MCDC).

   4-2. The Team conducted the preliminary assessment based on the request by the Myanmar side. As a base for the discussion on the assessment, both sides agreed the criteria and ratings of each location as per Annex 2.

   4-3. The Myanmar side proposed to remove the Location 2 from the candidates, because any activities such as construction of structure and berthing/de-berthing at least 3,000 feet of upstream and downstream of the bridges, that may harm the stability of the bridge

piers will be prohibited by the MOC's new major bridges law which is to be enacted in near future. The Team agreed to the proposal. The Myanmar side agreed to provide the relevant documents with the Team for future reference.

4-4. Although the preference to the Location 1 was expressed by the Myanmar side, the Myanmar side stated that the final decision will be made after further internal consultation. Both sides agreed that the Myanmar side will finalize the port location and inform JICA in writing by the end of March, 2017. The Team assured to provide continuous support to the Myanmar side to facilitate further discussion on the port location by providing detailed technical information during the first field survey.

4-5. Both sides confirmed that the joint stakeholder meeting (MOTC, DWIR, IWT, MOC, MRG and MCDC) will be held to share the progress of the study during the second field survey, which is expected to be dispatched around in April, 2017.

5. Items requested by the Government of Myanmar

5-1. As a result of discussions, both sides confirmed that the Government of Myanmar requested to construct port along Ayeyarwady River at Mandalay and procure equipment for the port as the pilot project including as follows:

- Jetty
- Cargo yard
- Access road
- Access bridge
- Cargo handling machines
- Warehouse
- Administration building
- Workshop facilities

5-2. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Myanmar side agreed that the procedures and basic principles of Japanese Grant as described in Annex 3 shall be applied to the Project.

As for the monitoring of the implementation of the Project, JICA requires the Myanmar side to submit the Project Monitoring Report in quarterly basis, the form of which is attached as Annex 4.

6-2. The Myanmar side agreed to take the necessary measures, as described in Annex 5, for smooth implementation of the Project. The contents of the Annex 5 will be elaborated

and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report.

The contents of Annex 5 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Myanmar until 13th March, 2017.

7-2. The Myanmar side will inform JICA of the final decision of the port location in writing by the end of March, 2017.

7-3. After receiving above notice for the port location, JICA will dispatch the Team for the second field survey around in April, 2017.

7-4. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Myanmar in order to explain its contents around in November, 2017.

7-5. If the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Myanmar side, JICA will finalize the Preparatory Survey Report and send it to Myanmar around in January, 2018.

7-6. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

8-1. The Myanmar side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as "B" from the following considerations:

The project is not considered to be a large-scale port project, is not located in a sensitive area, and has none of the sensitive characteristics under the JICA guidelines for environmental and social considerations (April 2010), it is not likely to have a significant adverse impact on the environment.

8-3. The Myanmar side agreed to conduct the necessary procedures concerning the environmental assessment (including stakeholder meetings, Environmental Impact Assessment (EIA) /Initial Environmental Examination (IEE) and information disclosure, etc.) and make EIA/IEE report of the Project. The EIA/IEE approval shall be received from the responsible authorities and submitted to JICA preferably before the Cabinet approval of the Project by the Government of Japan which is scheduled around in February, 2018.

8-4. In case the Project that requires involuntary resettlement, the Myanmar side will prepare a Resettlement Action Plan (RAP)/Abbreviated Resettlement Action Plan (ARAP) and make it available to the public. In addition, the Myanmar side agreed to

provide the affected people with sufficient compensation and/or support in accordance with RAP/ARAP, which is consistent with the JICA Guidelines for Environmental and Social Considerations (April, 2010), in a timely manner.

9. Other Relevant Issues

9-1. The Myanmar side emphasized the different roles between the Si Mee Khon Port and the proposed Mandalay Port. Whereas the former is mainly focused on the cargo/container handlings for Myotha Industrial Park, the latter will be solely developed as a public port that handles consumer related cargos for the people in Mandalay as well as those in Upper Myanmar.

9-2. As for the management and operation of the port, the Myanmar side stated that the formulation of the joint venture company between Japanese company or companies and IWT will be preferable option to enhance the capacity of IWT as a port operator. The Japanese side explained that the Team will provide several alternatives for the management and operations, and discuss with the Myanmar side the future capacity development of IWT.

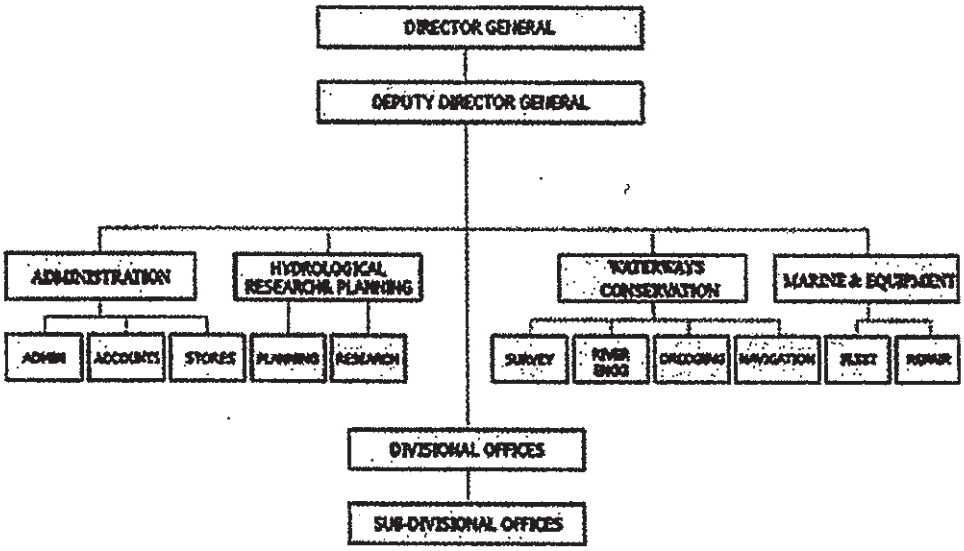
9-3. The Myanmar side agreed that customs duties, internal taxes and other fiscal levies which may be imposed in Myanmar in relation to the Project are exempted under mutual agreement of Exchange of Note (E/N). If any temporary expenses stated before are caused by some reasons such as the delay of execution of tax exemption, the Myanmar side (MOTC / DWIR) shall bear the cost.

Annex 1 Organization Chart
Annex 2 Three Candidates of Port Location and Rating
Annex 3 Japanese Grant
Annex 4 Project Monitoring Report (template)
Annex 5 Major Undertakings to be taken by the Government of Myanmar

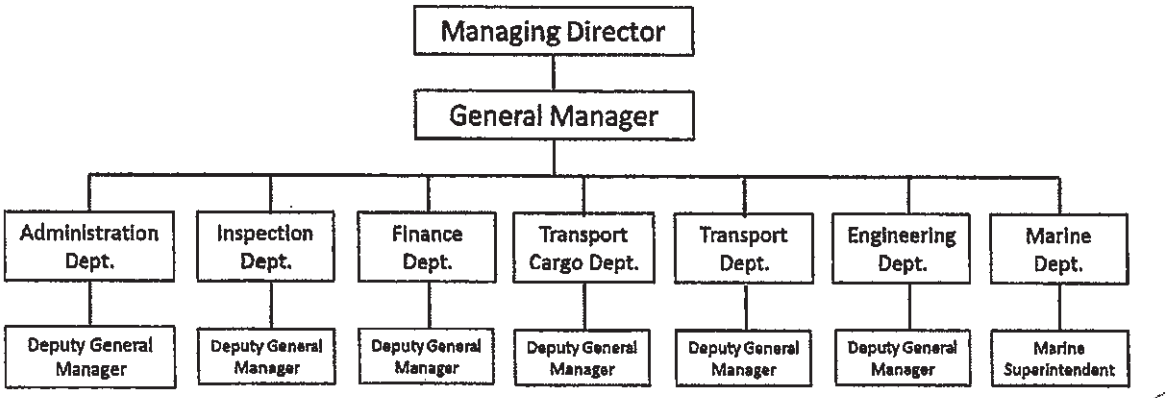
Annex 1

Organization Chart

1) Directorate of Water Resources and Improvement of River Systems

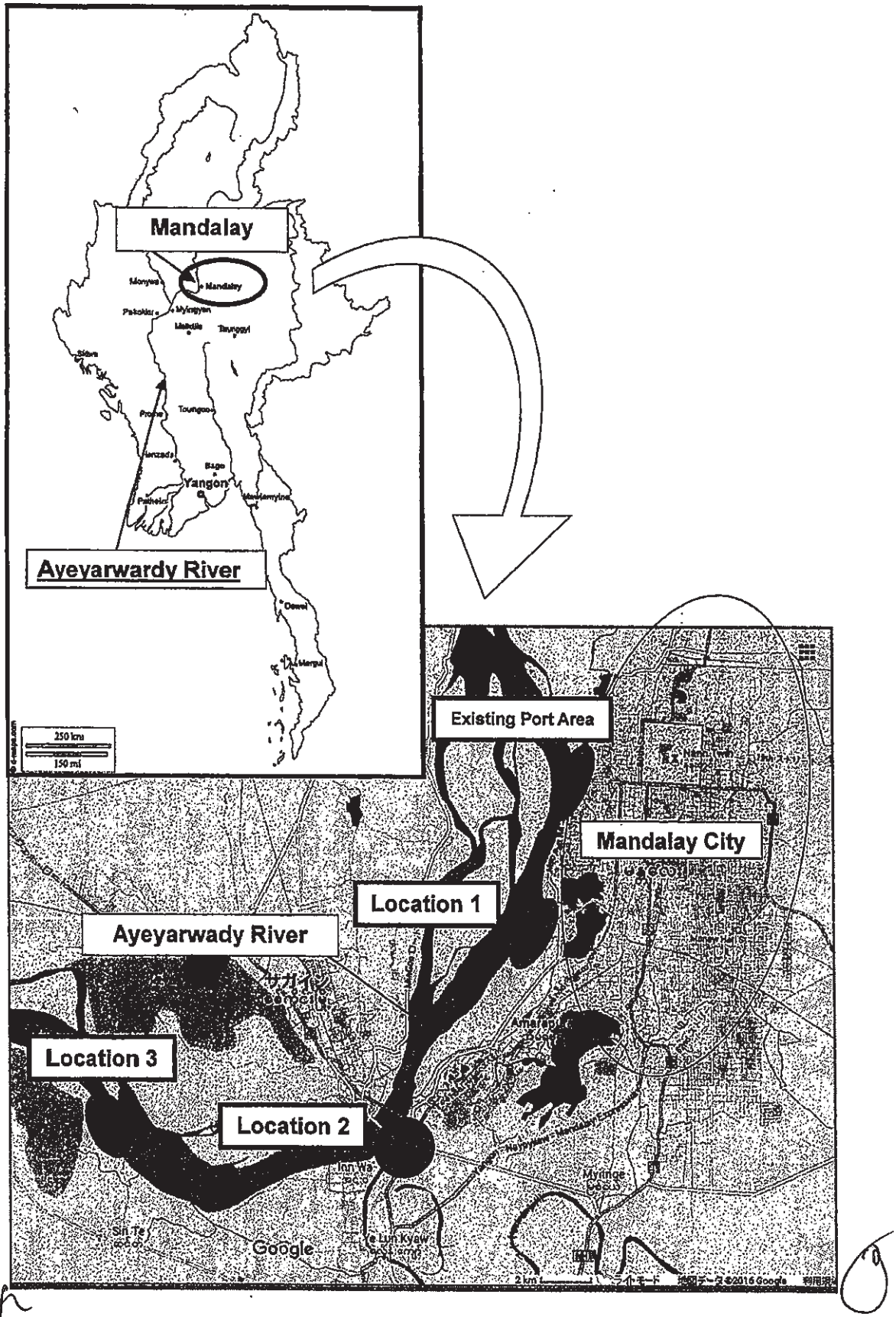


2) Inland Water Transport



Annex 2

Three Candidates of Port Location and Rating



Criteria and Rating for Port Location

No	Criteria	Location 1	Location 2	Location 3
1.	Natural Condition			
1.1	Water Depth	B	C	A
1.2	Sedimentation Risk/Maintenance Dredging	B	C	A
2.	Consistency to City Plan			
2.1	Access to Industrial/Commercial Areas	A	A	C
2.2	Influence to Traffic City Congestion	B	A	A
3.	Social Environment (Resettlement) & Implementation Schedule	B	B(-)	B(-)
4.	Future Expansion Area	A	B	A
5.	Construction Cost	B	A	C
6.	Safety of Ship Maneuvering	A	B	A
7.	Competitiveness against Rail/Road Transport	A	A	C
	Assessment (Preliminary)	A	—*	B

* Legal restriction: In the area of minimum 3,000 feet of upper and lower stream sides from the bridge, it is prohibited for ship berthing and de-berthing. Because of this reason, Location 2 was excluded from the candidate site in the joint stakeholder meeting held on February 21, 2017.

Remarks:

A: suitable

B: fairly suitable

C: poorly suitable

Annex 3

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation
- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal
-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes
-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")
-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")
-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement
-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation
-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the

Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the Recipient necessary for the implementation of the Project.
- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness.

and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.

b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient

in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

PROCEDURES OF JAPANESE GRANT

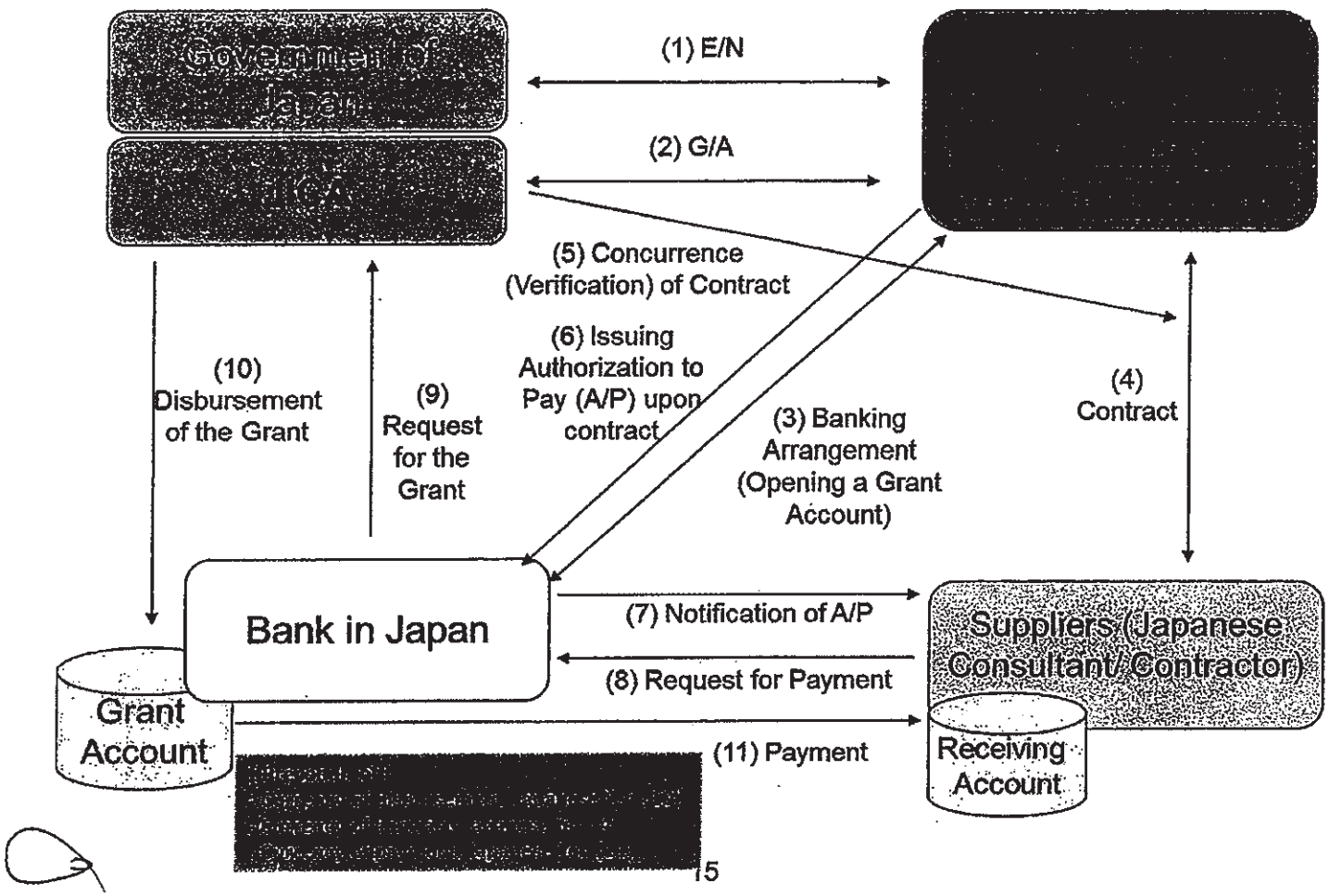
Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
2. Appraisal	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

Financial Flow of Japanese Grant (A/P Type)



Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organizational Information

[redacted]	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
[redacted]	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:

General Information:

[redacted]	
	Signed date: Duration:
	Signed date: Duration:
	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3. Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*
Actual *(PMR)*

4. Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design*)

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):

Actual Situation and Countermeasures	
(PMR)	

5. Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
- Contractor's Main Staff List

4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●t

(2) Result of the Monitoring Survey on Unit Price for each specified materials

1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

-

A4-2-27

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Annex 5

Major Undertakings to be taken by the Government of Myanmar

1. Specific obligations of the Government of Myanmar which will not be funded with the Grant

(1) Before the Tender

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	Ministry of Planning and Finance (MOPF)		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	DWIR		
3	To approve IEE/EIA (Conditions of approval should be fulfilled, if any)	before the Project approval by Japanese Cabinet	MONREC/ DWIR		
4	To secure the necessary budget and implement land acquisition and resettlement (including preparation of resettlement sites), and compensation with full replacement cost in accordance with RAP	before start of the construction	MOTC/ DWIR		
5	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	till land acquisition and resettlement complete	DWIR		
6	To secure and clear the following lands (to be revised) 1) right of way for access road 2) project sites 3) temporary construction yard and stock yard near the Project area 4) borrow pit and disposal site near the Project area	before notice of the bidding document	DWIR		
7	To obtain the planning, zoning, building permit	before notice of the bidding document	DWIR		
8	To clear, level and reclaim the following sites (to be revised) 1) existing facilities (if any) 2) leveling and reclaiming the sites (if required)	before notice of the tender document	DWIR		
9	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding documents	DWIR		

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.

1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	DWIR		
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the singing of the contract	DWIR		
	2) Payment commission for A/P	every payment	DWIR		
3	To ensure prompt unloading and customs clearance at ports of disembarkation in recipient country and to assist the Supplier(s) with internal transportation therein	during the Project	DWIR		
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	DWIR		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOPF/ DWIR		
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the Project implementation	during the Project	DWIR		
7	1) To submit Project Monitoring Report	every quarter	DWIR		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	DWIR		
8	To submit a report concerning completion of the Project	within six months after completion of the Project	DWIR		
9	To construct access roads outside the site	3 months before completion of the construction	DWIR		
10	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site(s)		DWIR		
	1) Electricity The distributing line to the site	before start of the construction	DWIR		
	2) Water Supply The city water distribution main to the site	6 months before completion of the construction	DWIR		
	3) Drainage The city drainage main (for storm, sewer and others) to the site	6 months before completion of the construction	DWIR		
11	To take necessary measure for safety construction - traffic control - rope off	during the construction	DWIR		
12	To implement EMP and EMoP	during the construction	DWIR		
13	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	DWIR		
14	To implement RAP (livelihood restoration program, if needed)	for a period based on livelihood restoration program	DWIR		

15	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between DWIR and JICA.	- until the end of livelihood restoration program (In case that livelihood restoration program is provided)	DWIR		

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To implement EMP and EMoP	for a period based on EMP and EMoP	DWIR		
2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between DWIR and JICA.	for three years after the Project	DWIR		
3	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	DWIR		

2. Other obligations of the Government of Myanmar funded with the Grant

NO	Items	Deadline	Amount (Million Japanese Yen)*
1	To construct the jetty, cargo yard, access road, access bridge, necessary facilities and to procure equipment 1) To conduct the following transportation a) Marine(Air) transportation of the products from Japan / third countries to the recipient country b) Internal transportation from the port of disembarkation to the project site		
	2) To construct access roads a) Within the site		
	3) To construct the temporary building		
	4) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities a) Electricity - The drop wiring and internal wiring within the site - The main circuit breaker and transformer b) Water Supply - The supply system within the site (receiving and/or elevated tanks) c) Drainage - The drainage system (for toilet sewer, ordinary waster, storm drainage and others) within the site d) Furniture and Equipment - Project equipment		
2	To implement detailed design, bidding support and construction supervision (Consulting Service)		
	Total		XXX

*The Amount is provisional. This is subject to the approval of the Government of Japan.

Annex 2

Major Undertakings to be taken by the Government of Myanmar

1. Specific obligations of the Government of Myanmar which will not be funded with the Grant

(1) Before the Tender

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	Ministry of Planning and Finance (MOPF)		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	DWIR		
3	To approve IEE/EIA (Conditions of approval should be fulfilled, if any)	before the Project approval by Japanese Cabinet	MONREC/ DWIR		
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8	To clear, level and reclaim the following sites (to be revised) 1) existing facilities (if any) 2) leveling and reclaiming the sites (if required)	before notice of the tender document	DWIR		
9	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding documents	DWIR		

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.

1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	DWIR		
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the singing of the contract	DWIR		
	2) Payment commission for A/P	every payment	DWIR		
3	To ensure prompt unloading and customs clearance at ports of disembarkation in recipient country and to assist the Supplier(s) with internal transportation therein	during the Project	DWIR		
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	DWIR		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOPF/ DWIR		
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the Project implementation	during the Project	DWIR		
7	1) To submit Project Monitoring Report	every quarter	DWIR		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	DWIR		
8	To submit a report concerning completion of the Project	within six months after completion of the Project	DWIR		
9	To construct access roads outside the site	3 months before completion of the construction	DWIR		
10	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site(s)		DWIR		
	1) Electricity The distributing line to the site	before start of the construction	DWIR		
	2) Water Supply The city water distribution main to the site	6 months before completion of the construction	DWIR		
	3) Drainage The city drainage main (for storm, sewer and others) to the site	6 months before completion of the construction	DWIR		
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(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To implement EMP and EMoP	for a period based on EMP and EMoP	DWIR		
2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between DWIR and JICA.	for three years after the Project	DWIR		
3	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	DWIR		

2. Other obligations of the Government of Myanmar funded with the Grant

NO	Items	Deadline	Amount (Million Japanese Yen)*
1	To construct the jetty, cargo yard, access road, access bridge, necessary facilities and to procure equipment 1) To conduct the following transportation a) Marine(Air) transportation of the products from Japan / third countries to the recipient country b) Internal transportation from the port of disembarkation to the project site		
	2) To construct access roads a) Within the site		
	3) To construct the temporary building		
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2	To implement detailed design, bidding support and construction supervision (Consulting Service)		
	Total		XXX

*The Amount is provisional. This is subject to the approval of the Government of Japan.

April 10, 2017
Ref. No. 635R6710/DOD/002

Attn. Director General
Directorate of Water Resources and Improvement of River System (DWIR)

Sub: Submission of Explanatory Note for Selection of Structure Type of Jetty
Re: The Preparatory Survey on The Project for Development of Mandalay Port

Dear Sir,

First of all, thank you very much for your kind cooperation on the above captioned project.

As you aware that your selection of structure type of jetty, namely floating type or fixed type, is one of the important subject in the project.

In this regard, we provided "Explanatory Note for Selection of Structure Type of Jetty on the Preparatory Survey for the Project for Development of Mandalay Port" as attached herewith. We would like to explain to, and to make discussions with you on this matter in our next visit to Myanmar which is currently scheduling from the end of April or beginning of May, 2017.

Prior to our next visit, it would be appreciated if you would review of the note and to make your internal discussions for your selection of the structure type. The Preparatory Survey Team (JICA Survey Team) expects to make consent of the selected structure type and to confirm in the Minutes of Discussions between Myanmar side and the JICA Preparatory Survey Team to be signed during the next mission.

Thank you very much for your kind attention and cooperation.

Yours Faithfully,

Masahiko Koshimizu
Chief Consultant
Oriental Consultants Global Co., Ltd.
On Behalf of the Preparatory Survey Team

Attachment: Explanatory Note for Selection of Structure Type of Jetty on the Preparatory Survey for the Project for Development of Mandalay Port

Joint Venture of Oriental Consultants Global Co., Ltd., Pacific Consultants Co., Ltd., and Fukken Co., Ltd.
Lead Partner, Oriental Consultants Global Co., Ltd.
3-20-1, Nishishinjuku, Shinjuku-ku, Tokyo, 163-1409, JAPAN
Tel: +81-3-6311-7570 Fax: +81-3-6311-8020 e-mail: global@oriconsul.com

CC 1: Ministry of Transport and Communication, MOTC
2: Mandalay Region Government, MRG
3: Inland Water Transport, IWT
4: JICA headquarters
5: JICA Myanmar Office
6: OCG Yangon Office
7: File

Explanatory Note
for
Selection of Structure Type of Jetty
on
the Preparatory Survey
for
the Project for Development of Mandalay Port

1. Introduction

This explanatory note was prepared by the JICA Study Team to obtain understanding of counterpart authorities of Myanmar on the issue of selection of structure type of jetty for Mandalay Port. JICA study team would like to receive the final consent of the counterpart authorities on the type of jetty structure during the 2nd Field Survey scheduled in the end of April 2017.

2. Brief Explanation of the Past Study (FS 2014)

In the feasibility study on the project for development of Mandalay Port completed in 2014, two types of jetty structures (Floating type and Fixed type) were discussed.

The report described the advantage of floating jetty considering initial river port development which aims to introduce equipment cargo handling operation. The main advantage of the floating type is that the manual cargo handling is very easy because the height of ship's deck and surface of jetty top could be adjusted to the same elevation for all seasons. This discussion was derived from the existing circumstance that main type of the ships running inland waterway were "passenger-cum cargo ships" which has rooftop and were not suitable for equipment operation by using lifting crane. The Study Team of the feasibility study assumed that numbers of existing type of ships will not disappear very soon, and the large sized floating jetty was designed (L 90 m x W 25 m) so that lifting crane (100 tons capacity) should be workable with less sway and movement of floating jetty, while conventional worker's manual cargo handling should also be very easy.

However, the feasibility study pointed out the serious risk of the floating type jetty that river siltation might cause damage on the floating body. If the water depth under the large floating jetty would become shallower than the draft of the floating jetty, the jetty bottom will touch to the riverbed, which causes uneven bending moment in the floating body and may cause damage. It is not easy to repair the large floating body if this risk occurs.

The feasibility study conducted a numerical analysis (preliminary level) of riverbed movement around the planned jetty location for flood season in order to estimate the risk of siltation. The result of the analysis implied some risk of siltation though the risk was not crucial.

Feasibility study had not reached a conclusion, recommending further accurate analysis and continuous observation of riverbed movement at the jetty location to finalize the type of jetty structure.

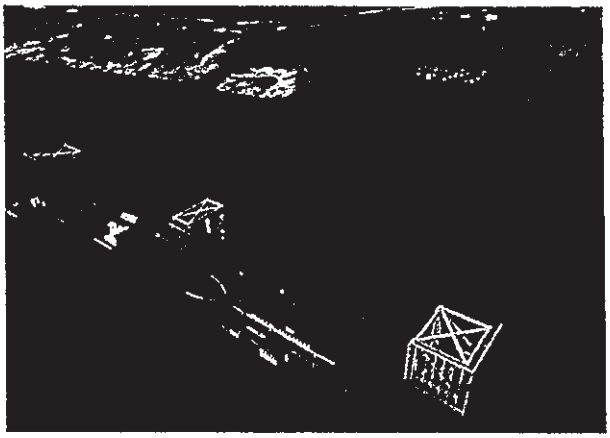

Fig.1 Floating Type Jetty

Fig.2 Fixed Type Jetty

3. Updated Recommendation by JICA Study Team

JICA Study Team of this Preparatory Survey reviewed the updated data and information for the assessment on the selection for the type of jetty structure. They would recommend that the jetty for Mandalay Port should be designed as the fixed type, considering the following points are the most critical factor.

1) Future demand of container handling should be considered. Fixed type jetty will achieve better handling efficiency than floating type jetty.
2) The risk of damage for floating jetty due to siltation of the riverbed is crucial, observing yearly change of riverbed during flood seasons.
3) Because the Mandalay Port is a pilot project for further application to the other river ports, the structure should be designed with less maintenance and repairing. In this viewpoint, fixed type jetty is thought to be more suitable for Mandalay Port.

4. Comparison Table and Evaluation Criteria

(1) Comparison Table

Followings are the evaluated comparison table of floating type and fixed type structures.

Table 1. Comparison Table

Criteria		Floating Structure	Fixed Structure
Applicability to Cargo Type	Container	B	A
	General Cargo	A	A
	Passenger	A	B
Applicability for River Bed Deformation		C	A
Ease of Maintenance & Repairing		B	A
Duplicability to Other River Port		A	A
Construction Cost		(under re-estimate)	A

Remark: A: suitable
B: fairly suitable
C: poorly suitable
☐ Items with high priority

(2) Explanation of Criteria

Outlines of the evaluation criteria in Table 1 are as explained in below. Reasons and viewpoints to determine the Suitability (A, B or C) are explained in Item 5 below in detail.

1) Applicability to Cargo Type

a) Container **(high priority)**

From current trend of cargo transportation as well as recent rapid economic growth of Myanmar, the demand for container cargo transportation will be raised very soon[1]. Therefore, it is considered the priority of container handling facility in Mandalay Port should be high.

b) General Cargo **(high priority)**

Existing major cargoes are bagged cargo (rice, beans or cement). These cargoes shall be handled by new jetty.

c) Passenger

It is pointed that the jetty is designed primarily for cargo handling. It is noted that passenger will face a danger of accident if both operations (passenger and cargo) are carried out at the same time. In addition, passenger operation has less revenue benefit for the port operator's side.

2) Applicability for River Bed Deformation **(high priority)**

Floating structure will have the serious risk of damage if the body of jetty touches on the riverbed ground during dry season.

Fig. 3. Image of Damage to the Floating Jetty due to Siltation

Fig. 4. shows the image of damage to the jetty structure. When riverbed touches to the floating jetty, strong bending moment will act to the body which causes damage. When it is damaged, repairing will should be made in the dry docks. The dredging of the riverbed shall be made after the floating jetty moved from the place.

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[1] The following facts were confirmed during 1st Field Survey.

- Myanmar Industrial Development Visions (MIDV: METI Japan) proposes to develop inland waterway network to strengthen the function of national transportation which will support the growth of industries. In practice, it will be important to develop waterways, inland ports and inland logistic bases (such as ICD; Inland Container Depot), etc.
- One of the on-going projects "Rehabilitation and Modernization of Yangon - Mandalay Railway" (JICA project) will make the rail carry containers from Yangon to Mandalay, which will be completed in the middle of 2020's. The project is to fulfil the future demand of container transportation between Yangon and Mandalay. Inland waterway will also be able to lead such demand of transportation.
- SA Marine Co. started container transport service by river barge from Thilawa MMIT to the Industrial estate located north Yangon, cooperated with IWT. SA Marine Co. expresses its intention to work for container barge transportation between Yangon and Mandalay when Mandalay Port was constructed.

3) Ease of Maintenance & Repairing **(high priority)**

The maintenance of the structure is important for both types of jetty structure. However, the easy-maintenance structure will be suitable for this project from the following points of view.

- IWT and DWIR are not used to manage maintenance & repairing of jetty structures
- If it is assumed that the similar type of structure would be applied to the future smaller inland ports, the structure should be designed for maintenance-free as much as possible.

4) Duplicability to Other River Port

Mandalay Port Project has the aim of a pilot project for inland waterways in Myanmar. The similar type of structure will be referred to other river ports in future. Therefore, the structure type should be easily applied to the other ports under the similar design conditions.

5) Construction Cost

Under the assumption that the floating deck was to be fabricated outside Myanmar, estimated the construction cost of floating type jetty higher than fixed type jetty[2]. However, the facility of manufacturing in Myanmar has been much developed recently, domestic fabrication will be possible at present.

It is assumed both fixed type and floating type will be constructed in similar cost burden within the project budget.

5. Detailed Explanation on Comparison Table

1) Applicability to Cargo Type

a) Container

✓ Suitability:

Floating (C): If the lifting equipment was designed for 40 ft container handling, 200 ton class capacity will be required. The Fig. 3 shows the image of 200 ton class crane is equipped on the floating jetty. From theoretical stability calculation of floating body, crane boom mounted on the floating jetty will sway approx. 50 cm when it lifts a 30.4 tons 40 ft container, which will cause the reduction of cargo handling efficiency.

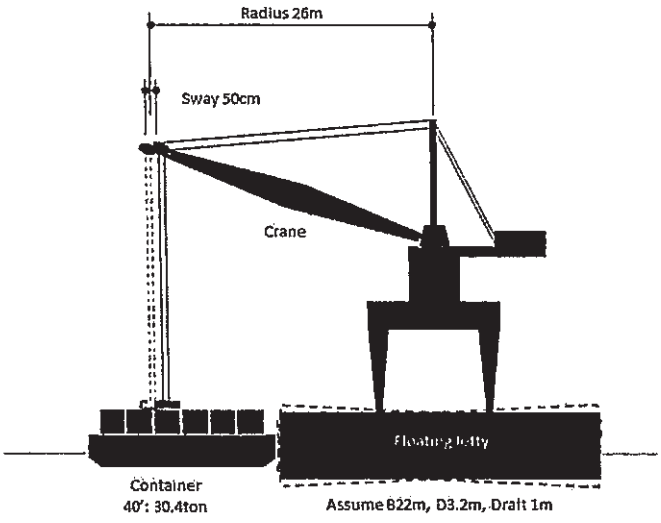


Fig. 4 Image of Sway for Floating Type Jetty

It is roughly estimated that 15~30% of cycle time will be extended due to the time required for

[2] In the FS study 2013, the floating deck was assumed to be fabricated outside Myanmar, which was the reason of high cost estimate.

stabilization of the jetty for handling next container.

Fixed (A): Fixed structure supports the lifting crane without swaying, the cargo handling efficiency will be higher than floating type jetty.

b) General Cargo

✓ Suitability:

Floating (A): Manual cargo handling is very easy and cargo handling.

Floating jetty is easy for cargo handling of currently operating "passenger-cum cargo ships" which has rooftop type.

Fixed (A): There are no risks for handling general cargo for both types of jetty.

c) Passenger

✓ Suitability:

Floating (A): Floating jetty can accommodate passengers easily.

Fixed (B): Passengers will have to climb up staircase to about 10 m higher deck level from passenger ship during dry season.

2) Applicability for River Bed Deformation

✓ Suitability:

Floating (C): Observing the annual movement of riverbed configuration from survey data (by DWIR), the riverbed is continuously moving, where high spots are moving downstream to some hundreds meters during every rainy season. For the candidate area (Location 1) as an example, approximately 2 m change in the depth was observed referred to the bathymetric data from 2012 to 2016 (minimum -2.0 m, maximum -4.0 m) . There is the risk of damage to floating jetty in the candidate area.

Fixed (A): Fixed jetty will have less risk of damage due to riverbed movement. Deck structure is supported by piles, where no unexpected force will act to the jetty.

3) Ease of Maintenance & Repairing

✓ Suitability:

Floating (B): Floating-type jetty contains movable joints between access-bridge and floating jetty. Berthing force of cargo barge will cause a risk of damages to these movable joints. Frequent inspections, maintenances and repairing works will be required.

Fixed (A): Fixed jetty will have less risk of damage because it has no movable joint.

4) Duplicability to Other River Port

✓ Suitability:

Floating (A): Floating jetty is suitable for applying to the other ports, where the port has a small to medium scale of cargo handling volume. Medium size of lifting equipment (approximately 100 ton

capacity crane or less) could be applied for equipment cargo handlings.

Fixed (A): Fixed jetty is suitable for applying to the other ports, where cargo volume is large. In such ports, heavy equipment with high efficiency will be required. Considering container handlings, more than 200 t capacity crane will be required.

5) Construction Cost

- ✓ Suitability: Floating (A), Fixed (A): Both types are assumed to be constructed within the budget. (A)

6. Study from Past Projects

1) General

Here, several projects were described to be referred to the decision of structural type of the jetty for Mandalay Port. Typical river ports are selected with the similar natural conditions. Two domestic ports were also described in along Ayeyarwady River.

2) Projects in Overseas

2)-1 Phnom Penh Port Cambodia - Fixed Type Jetty

Fig. 5 Old Port (Phnom Penh Port)

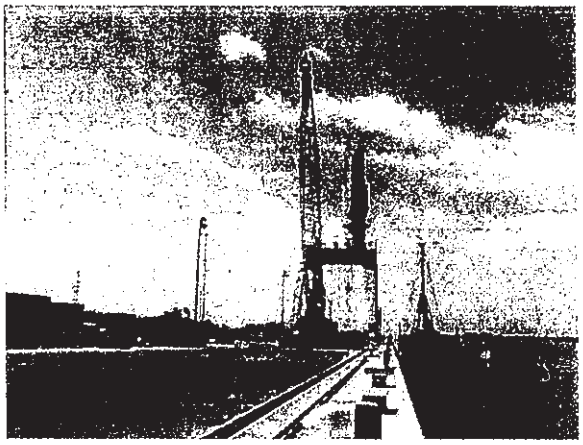


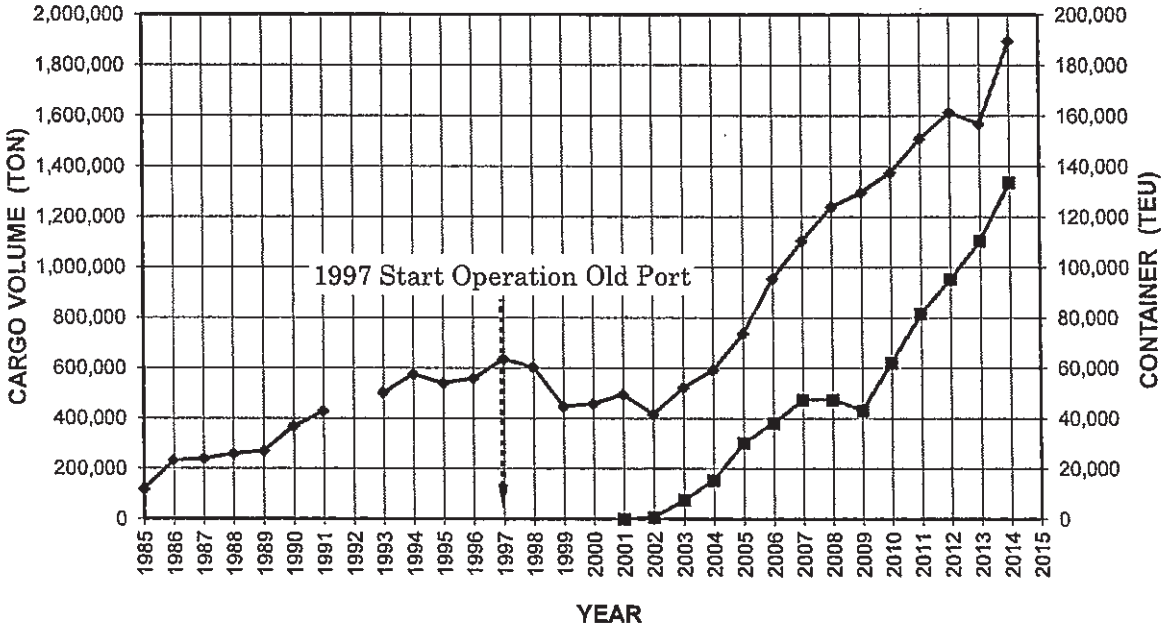
Fig. 6 New Port (Phnom Penh Port)

The Port of Phnom Penh was built in 1990's by Japan's Grant-Aid project. Considering the scale of the city (Phnom Penh has approx. 2 million population) and the fact that the port was designed for the initial introduction of equipment cargo handling to the existing manual operations before building port, the project of Mandalay Port is similar to the Phnom Penh Port in terms of its scale and purpose of the project.

In the case of Phnom Penh Port, the total cargo volume during the opening of the port (Old Port, end of 1996 start operation) was approximately 600,000 tons/year. Before opening this port, all cargoes were handled by labors without equipment, which is similar to the condition of the present Mandalay Port.

After installation of crane equipment, the cargo volume has been rapidly increased, particularly the port became to handle containers. The containerization has been rapidly spread taking the event of this project, as shown in the Fig.7 below, the latest handling volume is approximately 130,000TEU/year (2014).

Taking into account the rapid increase of the cargo volume, Port Authority has built a new port facilities at 30km downstream of Mekong River in 2013 (New Port). New Port is equipped with the rail-mounted quay gantry cranes which can handle both container and general cargoes.



2)-2 Jambi Port, Indonesia - Floating Type Jetty

Fig 7. Jambi Port

Jetty of Jambi Port was designed as floating type in initial phase to accommodate 1,000 DWT barge (approx. L 40 m B 16 m D 2.5 m). Since initial opening of the port, there have been frequent damage and repairing at movable joints between bridge and floating jetty. In order to deal with the increasing cargo volume, the port constructed fixed type jetty to accommodate large vessels, while the initial floating type jetty is currently used for smaller vessels (up to 200 DWT).

3) Projects in Myanmar

3)-1 Semeikhon Port, Myanmar - Floating Type Jetty

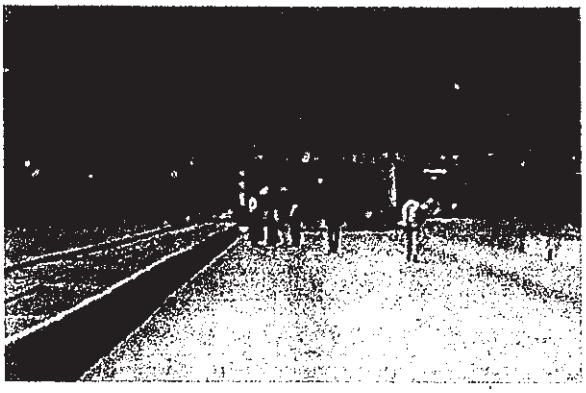


Fig 8. Semeikhon Port

Fig 9. Semeikhon Port (Movable Bridge)

The floating jetty was installed at the port in 2016. During flood season in 2016, the surrounding area of jetty was suffered from river siltation. A remedial measure against future siltation is under construction at present. It is needed to see the effect of remedial measure until full operation will be achieved.

3)-2 Takaung Port, Myanmar - Fixed Type Jetty)

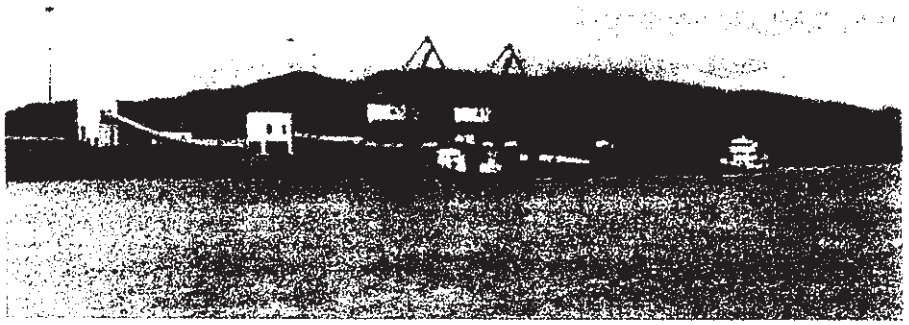


Fig. 9 Takaung Port

Takaung jetty was built for private nickel factory. The jetty is used for loading container cargoes enclosing nickel mine products. (Takaun jetty will be surveyed during the 2nd Field Survey scheduled in the end of April)

4) Summary and Recommendation from the past projects

Looking through the aforesaid typical river port projects, the following points are raised.

- In order to achieve convenience in cargo handling under the conditions of large change in water levels of river port, floating type jetties were installed such as Jambi Port and Semeikhon Port. However, Jambi was required to carry out frequent repairing, while Semeikhon is still conducting remedial measures against siltation of the river. Both floating type jetty projects needed much effort for practical operation.
- Phnom Penh Port is one of the similar projects of Mandalay Port, where fixed type jetty was installed during transition period between primitive manual cargo handling and utilization of heavy equipment.

Fixed type jetty is useful for heavy equipment because the jetty is not moving or swaying caused by wave, current or operation of equipment on the top of jetty, in which higher rate of operation could be achieved. It is thought to be a successful project where fixed type jetty was installed in the initial development stage of river port development.

- In Ayeyarwady River, both floating and fixed type jetties are in operation. Floating jetty in Semeikhon faces troubles by unforeseen river siltation affects and is still under construction of remedial measure at present. Takaung jetty seems in normal operation by using gantry cranes for container handling (to be confirmed in 2nd Field Survey).

From these observations, JICA Study Team would like to recommend to adopt the fixed type jetty for Mandalay Port, considering the scale of existing cargo volume, size of the city and natural river conditions regarding siltation of Ayeyarwady river.

Discussion Paper
on
Management and Operation of Mandalay Port

1. Basic Description on Port Management and Port Operation

(1) Port Management

Port management means to undertake public functions on the port activities, usually undertaken by Port Authority, such as;

1) own infrastructure including major equipment
2) allow vessels to berth and collect port charge for berthing
3) undertake maintenance and repairing (M&R) for the infrastructure
4) future port planning, port statistics monitoring
5) authorize port rule/regulation and port tariff
6) manage/control private operators under the contract.

Activities of port management, except for 2) and 6), do not create any income, and thus are usually undertaken by public sector.

(2) Port Operation

Port operation refers to the actual cargo handling operation employing port workers and investing required equipment.

Port operation can be done either by the public sector or by the private sector as it creates cash flow.

2. Options of Port Management Model for IWT

2.1 Port Management Models

(1) Basic Port Management Models

Style of port management is classified into four categories as shown in Table 1.

Table 1. Basic Port Management Model

Type of Management	Infrastructure	Equipment	Port Labor	Example
Public Service Port	Public	Public	Public	Colombo, JN, Dar es Salam
Tool Port	Public	Public	Private	Chittagong
Landload Port	Public	Private	Private	Rotterdam, Antwerp, New York, Singapore (MITT Yangon)
Private Service Port	Private	Private	Private	Ports in UK, New Zealand (Semeikhon)

(2) Public Service Ports

Service ports have a predominantly public character. The port authority offers the complete range of services required for the functioning of the port system. The port owns, maintains, and operates every available assets (fixed and mobile) and cargo handling activities are executed by labor employed directly by the port authority. Service port are usually controlled by (or even part of) the ministry of transport (or communications) and the chairman (or director general) is a civil servant appointed by or directly reporting to, the minister concerned.

(3) Tool Ports

In the tool port model, the port authority owns, develops, and maintains the port infrastructure as well as the superstructure, including cargo handling equipment such as quay cranes and forklift trucks. Port authority staff usually operates all equipment owned by the port authority. Other cargo handling on board vessels as well as on the apron and on the quay is usually carried out by private cargo handling firms contracted by the shipping agents or other principals.

(4) Landlord Ports

The landlord port is characterized by its mixed public-private orientation. Under this model, the port authority acts as regulatory body and as landlord, while port operations (especially cargo handling) are carried out by private companies.

(5) Private Ports

Fully privatized ports (which often take the form of a private service port) are few in number, and can be found mainly in the United Kingdom (U.K.) and New Zealand. Semeikhon port is categorized private port. Full privatization is considered by many as an extreme form of port reform. It suggests that the state no longer has any meaningful involvement or involvement or public policy interest in the port sector. In fully privatized ports, port land is privately owned, unlike the situation in other port management models. This requires the transfer of ownership of such land from the public to the private section. In addition, along with the sale of port land to private interests, some governments may simultaneously transfer the regulatory functions to private successor companies. In the absence of a port regulator in the U.K., for example, privatized ports are essentially self-regulating.

2.2 Option Models for IWT

2.2.1 Focus

Under this Project, port facilities and cargo handling equipment are planned to be implemented and procured by the Japanese Grant Aid, and IWT is the responsible organization of the operation and maintenance of the port facilities and cargo handling equipment after completion of the Project.

In this stand point, "Public Service Port" or "Tool Port" management models are suitable and recommendable for port operation by IWT.

If the port operation is made by "Land Load Port", equipment operation (equipment procurement itself in some case) and terminal operation are conducted by private sector. In such a case, port service tariffs are generally expensive because the costs for operation and maintenance, initial investment (equipment procurement cost as an example) will be add on the service tariffs such as cargo handling service charges, cargo storage service charges and so on.

Mandalay port is a domestic port and domestic port services generally stands on the policy of more accessibility to the public and less profitability, since conservation of domestic industries, public service fees are commonly set in the very cheap range compere with those of international ports.

Additionally, waterway transportation will face hard competition against road transportation services. If river port service set high tariff rates, the cargo demand will go to road transport.

Because of these conditions, to provide inexpensive service tariffs is important role of Mandalay port. Therefore, "Public Service Port" or "Tool Port" are suitable models to operate under the less profitability policy.

2.2.2 Options

(1) Option-1 Public Service Port

Model Description: IWT owns infrastructure, cargo handling equipment and cargo handling operation is done by IWT staffs or IWT employed port workers.

Merits:
- All management and operation activities are the responsibility of the same organization (IWT's unity of command).

Demerits:
- There is a risk of lacking of internal competition, leading to inefficiency
- Operations are not user or market oriented
- Operation and maintenance works may conduct less innovation

(2) Option-2 Tool Port

Model Description: IWT owns infrastructure, cargo handling equipment, and makes contract with private company to supply port workers.

Merits:
- All investments of port infrastructure and equipment are decided by the public sector (IWT), thus avoiding duplication of facilities.

Demerits:
- The port administration and private company jointly share the cargo handling services. This operation (split operation) may lead to conflict situations.
- Private operators do not own major equipment, and thus are unconcerned about future expansion of services.
- There are similar risks as Option-1, operations not being market oriented and lack of innovation.

2.2.3 Necessary Preparations and Actions by IWT Prior to the Port Operation

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.
In this regard, Myanmar side is requested to ensure and to commit for the operation and to take proper actions and preparations for the operation and maintenance.

To start the port operation and management, IWT shall be prepared the following items.

- ✓ To establish organizations for port operation and management,
- ✓ To reserve and train human resources, and if the port will be managed by tool port, it is necessary to hire of operators/labors for cargo handling works from private firm(s),
- ✓ To manage finances such as budget allocations and executions, to collect service fees etc.,
- ✓ To confirm and/or establish applicable laws and/or regulations
- ✓ To establish operation, maintenance manuals, equipment manuals and other necessary manuals and/or

guidelines,

- ✓ To conduct port, equipment and other necessary operations such as cargo handling, port and terminal operations,
- ✓ To conduct periodical inspections and maintenance of port infrastructures, equipment and other assets in the port, and
- ✓ To conduct other necessary port administrative works such as personnel affairs, general affairs, port statistical affairs and so on.

Whichever the port operation will be conducted by "Public Service Port" or "Tool Port", above mentioned matters shall be ready to perform prior to the port operation which is expected middle of August, 2020.

3. Points to be Discussed

(1) What is the important role of IWT for Mandalay Port management ?

With respect to discuss the type of management organization, it is quite important to consider the following role of the management body of Mandalay port.

1) Primary role of Mandalay Port project is to introduce modern cargo handling system and equipment to the existing primitive way of labor force cargo handling.
2) The second role of the project is to be a pilot project of the river port management system for other river ports to be developed in future.

These roles are purely public (governmental) considerations, thus port management and operation should be led by the public sector (such as IWT) with limited private sector involvement.

(2) Is initial operation of Mandalay Port profitable ?

In the beginning term of port operation, it will not be easy to obtain enough profit from operating revenue. The following reasons are pointed out.

1) Service fees will be less than those of international ports

From the point of conservation of domestic industries, public service fees are commonly set in the very cheap range compared to those of international port terminals in other countries. In the feasibility study in 2014, the berthing fee and port charges were assumed to be set at 50% of international ports. Therefore domestic port services stands on the policy of more accessibility to the public and less profit ability.

Whilst international port terminal can obtain revenue in foreign currency (usually in US$), domestic port service can obtain only local currency (MMK) for revenue.

These factors might decrease the interest on port operation business for private sectors.

2) Competition against other transport mode

The major benefit of waterway transport is the cheap unit cost by enabling large volume of cargo transport using barges. However, it has the weakness of longer transportation time and lack of door-to-door services

like truck transportation (road transport). Waterway transportation will face hard competition against road transportation services. If river port service set high tariff rates, the cargo demand will go to road transport. In order to keep the sustainable growth of the waterway business in accordance with the government policy, port service fee should be set in the low range, i.e., port operation could face less profit.

The port operation business of domestic river port may not always be attractive for the private sector, particularly for major foreign operators.

It is necessary for governmental authority to control river port management setting lower port fees under the circumstance with less competition of domestic market, which is different from the international port always facing to competition with other international ports.

(3) What kind of organization is needed ?

In the practice of the port management and operation, the management body should have the public functions, while the operation body should concentrate on cargo handling efficiency and earning revenue/saving expenditure. For example, the organization should have the following scale of employment. For the case of Option 1 (Public Service Port), IWT directly employs all staffs & workers. For the case of Option 2 (Tool Port), equipment operators and workers should be outsourced by employing through an employment agency. For the case of Option 2' (Tool Port operated by JV including IWT), the operation body will be undertaken by Joint Venture between IWT and private operator.

Example of Organization

●Management Body		●Operation Body	
Function	Staffs	Function	Staffs
- Management organization	2	- Management organization	2
- Legal/contract	1	- Administration/cargo document	5
- Tariff/port regulation	1	- Accounting	5
- Finance/accounting	3	- Operation control (office)	10
- Port planning	3	- Equipment operators	15
- Port statistics	3	- Foremen & workers	100
- Maintenance facilities	3	- Warehouse control	5
- Safety management	2	- Warehouse workers	20
- Environmental protection	2	- Workshop workers	10
(Total)	20	(Total)	172

4. Next Step

(1) Selections of Port Management Option

Considering the public role of Mandalay Port development project and that the scale of the initial development is not large enough for privatization, Option 1 (Public Service Port) or Option 2 (Tool Port) seem to be the most suitable options. However, the final decision could be made by IWT.

(2) Preparation for Port Operations

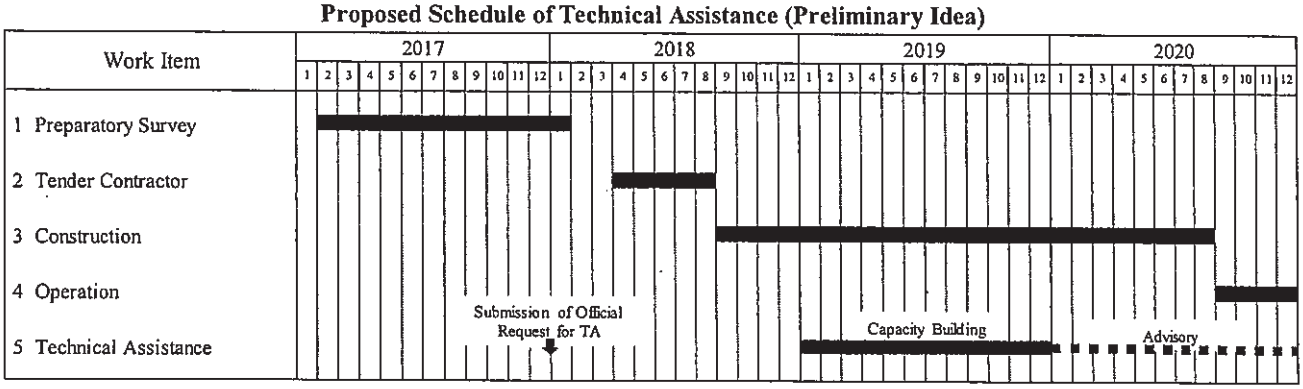
After the decision of the port management option, it is necessary to establish the port management system including i) to establish organization, ii) to reserve human resources and budget allocations, iii) to establish the rules and regulations, guidelines and manuals for operation and maintenance (including ship allocations, cargo handling, passenger traffic management, asset management, port administration, port statistical recordings, etc.) and others accordingly. Based on these preparations, the port operation and maintenance works shall be ready before opening the Mandalay port which is expected middle of August in 2020.

(3) Capacity Building by JICA Technical Assistance

Taking into account the present capability of IWT for port management and operation, where IWT has no experience in such activities, therefore, it is very tough to develop the port management system by IWT by themselves. Therefore the consultant team pointed out that to receive technical assistance by JICA is one of the option to start with the capacity development of the port management by IWT.

To receive the technical assistance by JICA, official request from the government of Myanmar is necessary and the request shall be adopted by the Japanese side. The proposed schedule of the technical assistance is shown below.

Proposed Schedule of Technical Assistance (Preliminary Idea)



5. Items to be Confirmed during Second Field Survey Mission

(1) Financial Records of IWT

For the purpose of investigating the financial capability of the executing organization, JICA Study Team requests IWT to provide financial records for 10 years. An example format of the financial record is attached to this document.

(2) Laws and Regulations to implement the Port Management and Operation

JICA Study Team needs to confirm whether each type of management structure is consistent with Myanmar's national law. If any insufficient laws/regulations for the port management and operation were found, it would be necessary to prepare them before commencing the port operation.

Table 2. Check List for Legal Consistency

Type of Management Structure	Common Item	For Each Structure
Option 1. Public Service Port	✓ Legal document for the establishment of IWT ✓ Legal restrictions for IWT to be port management body ✓ Legal restrictions for IWT to become owner of port facility and equipment ✓ Legal restrictions for establishing port regulation (if any conflict against DWIR regulation)	✓ Legal restrictions for IWT to be the port operator by direct employment of staffs/workers
Option 2. Tool Port		✓ Legal restrictions for tendering labor supplier or port operator
Option 3. Tool/Landload Port		✓ Legal restrictions for establishment of Joint Venture entity between IWT and private firm

Attachment

1. Copy of "Port Reform Toolkit" Module 3 (omission)
2. A sample form of financial records of IWT

Attachment 2: A sample form of financial records of IWT

Revenue	2013	2014	2015	2016	2017
Deferred revenue/Authorized income					
Rental income					
Interest income					
Income from operation					
Tag boat					
Cargo transport					
Passenger					
Sand income					
Equipment hired					
Slipway					
Floating restaurant					
Other income					
Gain/Loss on sales of fixed assets					
Total Revenue					

Expenditure	2013	2014	2015	2016	2017
Operational expenditure					
Audit fees					
Board expenditure					
Salaries and wedges					
Employees benefit					
Staff bonus					
Finance costs					
Other professional fees					
Loss on disposal of fixed assets					
Loss on foreign exchange					
Total operational Expenses					

Note: above items are example purpose only.

Minutes of Meetings on the Preparatory Survey for the Project for Development of Mandalay Port (Explanation of Draft Preparatory Survey Report)

With reference to the minutes of discussions on the Preparatory Survey for the Project for Development of Mandalay Port (hereinafter referred to as "the Project") signed among Directorate of Water Resources and Improvement of River Systems (hereinafter referred to as "DWIR") of the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), Inland Water Transport (hereinafter referred to as "IWT") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on May 15, 2017, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Katsuichi Yabunaka, Executive Technical Advisor to the Director General, Infrastructure and Peacebuilding Department, JICA, to Myanmar for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") of the Project from December 3 to 6, 2017.

As a result of the discussions between authorities concerned of the Government of Myanmar and JICA, both sides agreed on the main items described in the attached sheets.

Yangon, December 6, 2017

藪中克一

Katsuichi Yabunaka
Executive Technical Advisor to the Director General,
Infrastructure and Peacebuilding Department
Japan International Cooperation Agency
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Htun Lwin Oo
Director General
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Ministry of Transport and Communications
The Republic of the Union of Myanmar

Zaw Win
Management Director
Inland Water Transport
Ministry of Transport and Communications
The Republic of the Union of Myanmar

Attachment

1. Objective of the Project

   The objective of the Project is to facilitate transport and logistic flows at the Mandalay Port by developing the modernized port facilities and equipment, thereby contributing to sustainable economic growth in Myanmar.

2. Contents of the Draft Report

   After the explanation of the contents of the Draft Report by the Team, the Myanmar side agreed to its contents.

3. Cost Estimate

   The Team explained to the Myanmar side that the rough estimate of the Project Cost as described in Annex 1. Both sides confirmed that the cost estimate includes the contingency in Annex 1 is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc.

4. Confidentiality of the Cost Estimate and Technical Specifications

   Both sides confirmed that the cost estimate and technical specifications in the Draft Report should never be duplicated or disclosed to any third parties until all the contracts under the Project are concluded.

5. Timeline for the Project Implementation

   The Team explained to the Myanmar side that the expected timeline for the project implementation is as attached in Annex 2.

   The Team explained to DWIR that it is necessary for DWIR to complete land acquisition including all compensation to the project-affected persons (PAPs) based on the ARAP by the end of July, 2018.

   DWIR explained that necessary budget for compensation could not be included in its next six month budget (i.e. April to September, 2018). Both sides confirmed that DWIR shall take necessary measures to secure the budget by inter alia submitting a request to the Ministry of Transport and Communications (MOTC) for providing sufficient compensation to the PAPs in a timely manner. DWIR suggested that it has an intention to discuss with the PAPs in order to secure the project site and make it ready for commencement of construction before making compensation to the PAPs based on an agreement between DWIR and the PAPs.

   The Team explained to DWIR that compensation shall be made to the PAPs before they are relocated in accordance with the JICA Guidelines for Environmental and Social

Considerations (2014). Both sides acknowledged that if necessary budget could not be secured and compensation could not be completed in time, tender would not be able to be announced, and in consideration of the rainy season, the project may be delayed by one year or so.

DWIR agreed to report to JICA by the end of January, 2018 the state and progress made with regards to securing the budget for compensation and land acquisition after DWIR has submitted a request to the Minister of MOTC.

6. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Myanmar side will be responsible for the achievement of agreed key indicators targeted in year 2023 and shall monitor the progress based on those indicators.

[Quantitative Effects]

Indicators	Baseline Value (Year 2017)	Target Value (Year 2023) 3 years after completion of the Project
Handled cargo volume by mechanized cargo handling in Mandalay port	0	200,000
Cargo handling efficiency (ton/hour)	17	100
Ship mooring time (day/ship)	14	0.5～1

[Qualitative Effect]

- Promotion of economic and social development
- Traffic congestion relief on road
- Promotion of modal shift from road traffic to inland water transport
- Improvement of transportation quality
- Evacuation of large-scale, heavy cargo transportation demand

7. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 3. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in (2)-5 of Annex 3, both sides confirmed that such customs duties, internal taxes and other fiscal levies include VAT, commercial tax, income tax and corporate tax, which shall be clarified in the bid documents by DWIR during the implementation stage of the Project.

The Myanmar side assured to take the necessary measures and coordination including allocation of the necessary budget which is preconditions of implementation of the Project. With regard to land acquisition, DWIR shall coordinate with relevant

organization and acquire necessary land and ensure that it is ready for construction by the end of July, 2018. Both sides confirmed that the delays in the undertakings such as land acquisition would have negative impact on schedule of the Project.

It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that the Annex 3 will be used as an attachment of G/A.

8. Monitoring during the Project Implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 4. The timing of submission of the PMR is described in Annex 4.

9. Project Completion

Both sides confirmed that the Project completes when all the facilities constructed and equipment procured by the grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

10. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, and Sustainability). The result of the evaluation will be publicized. The Myanmar side is required to provide necessary support for the data collection.

11. Schedule of the Study

JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Myanmar side around February 2018.

12. Environmental and Social Considerations

12-1. General Issues

12-1-1 Environmental Guidelines and Environmental Category

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as B because the project is not considered to be a large-scale port project, is not located in a sensitive area, and has none of the sensitive characteristics under the JICA Guidelines for Environmental and Social Considerations(April 2010), it is not likely to have a significant adverse impact on the environment.

12-1-2 Environmental Checklist

The environmental and social considerations including major impacts and mitigation

measures for the Project are summarized in the Environmental Checklist attached as Annex 5. Both sides confirmed that in case of major modification of the content of the Environmental Checklist, the Myanmar side shall submit the modified version to JICA in a timely manner.

12-1-3 Approval of IEE report

Both sides agreed that DWIR shall take necessary actions to facilitate the review process of the Environemental Conservation Department (ECD) of the Ministry of Natural Resources and Environmental Conservation (MONREC) on the IEE report in cooridnation with relevant government agencies such as MOTC and obtain the approval (i.e. environmental compliance certificate) as early as possible yet no later than February, 2018.

12-2 Environmental Issues

12-2-1 Environmental Impact Assessment (EIA)

Both sides confirmed the EIA report is not required but an IEE report is required for the Project in the country's legal system.

12-2-2 Environmental Management Plan and Environmental Monitoring Plan

Both sides confirmed Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP) of the Project is as Annex 6, respectively. Both side agreed that environmental mitigation measures and monitoring shall be conducted based on the EMP and EMoP, which may be updated during the detailed design stage.

12-3 Social Issues

12-3-1 Land Acquisition and Resettlement

Both sides confirmed the 12 ha of land would be aquired and 3 Households, 21 people and 1 comapny would be affected due to the implemenation of the Project.

Such land acquisition and resettlement shall be implemented based on the Abbreviated Resettlement Action Plan (ARAP) as Annex 7 which was prepared in line with the Guidelines and authorized by the Myanmar side in November, 2017. Both sides confirmed that compensation including that for land to the people who have registered their land under the Department of Agriculture and Land Management and Statistics, Ministry of Agriculture, Livestock and Irrigation forms an indispensable part of the compensation package to be adopted under the Project and that such compensation should be made in a way that enables project-affected persons to improve their standard of living, income opportunities, and production levels, or at least to restore these to pre-project levels.

12-3-2 Other specific environmental issues which need to be confirmed/agreed between the parties.

Both sides confirmed that DWIR shall take necessary measures to prevent people from settling to, erecting buidlings in, or using the project site in any other way that may hinder a smooth implementation of the Project.

12-4 Environmental and Social Monitoring

12-4-1 Environmental Monitoring

Both sides agreed that the Myanmar side will submit results of environmental monitoring to JICA by using the monitoring form attached as Annex 8. The timing of submission of the monitoring form is described in Annex 5.

12-4-2 Social Monitoring

Both sides confirmed that the Myanmar side will implement social monitoring about land acquisition and resettlement plan proposed in the ARAP. The Myanmar side and the Team agreed that DWIR will submit results of social monitoring to JICA by using the monitoring form attached as Annex 8.

12-4-3 Information Disclosure of Monitoring Results

Both sides confirmed that the Myanmar side will disclose results of environmental and social monitoring to local stakeholders through their website / in their field offices.

The Myanmar side agreed JICA will disclose results of environmental and social monitoring submitted by the Myanmar side as the monitoring forms attached as Annex 8 on its website.

13. Other Relevant Issues

13-1 Management and Operation of Mandalay Port

13-1-1 Method and Role of DWIR and IWT

Based on the discussions in the second site survey in May, 2017, Myanmar side officially informed to the Team about the Myanmar's preference to "Tool Port" for port management and operation by his letter dated June 7, 2017 (Letter No. 222(a)/Ah Kha Na/Ah Kha-13(1)/2017). In addition to the above, following four (4) points were clarified by Myanmar side by his letter on September 20, 2017. (Letter No. 222(b)/ Ah Kha Na/Ah Kha-13(1)/2017)

- Counterpart
  DWIR (implementation phase) and IWT (operation phase)
- Management Committee
  The committee will be organized later and member will be from DWIR, IWT, DMA and part time member from Mandalay Regional Government.
- Role of DWIR for Mandalay port operation and management
  DWIR is the owner of the port
- Role of IWT for Mandalay prt operation and management
  IWT is the port operator for port operation and management.

13-1-2 Discussions on the Port Operation and Management

Based on the above mentioned information, JICA Team provided the recommendation paper for "Proposed Initial Organization and Budget Estimate for Operation of Mandala Port" and the paper was sent to DWIR/IWT on October 24, 2017.

The discussions were held based on the recommendation paper and both side agreed on the following matters on the future direction for the operation and management of the Port.

(1) Organizationn

- IWT will organize a new department named "River Port Operational Department" for the port management and operation for the Mandalay port.
- DWIR and IWT are under organizing the staff allocations based on the recommendation.

(2) Budget Allocations

- DWIR and IWT are requested to budget allocation to MOTC and the preparation on this initiative will be done in line with the Government Regulation procedures.

13-2 Technical Cooperation

Regarding to the Port Opertion and Management, Myanmar side submitted application form for Japan's Technical Cooperation on the Project for Development of Mandalay Port to JICA. JICA received the application form and it is under evaluation.

13-3 Coordination with AIRBM Project and AUDP Project

DWIR confirmed that the Project for Development of Mandalay Port is the first priority as the National Project. DWIR will take necessary coordination with relevant stakeholders including Mandalay Region Government, MOTC and AUDP to secure the project area including temporary yard as shown in Annex 9.

DWIR agreed to report to JICA by the end of January, 2018 the state and progress made with regards to its coordation with the stakeholders.

13-4 Future Expansion Plan

The Team reccomended Myanmar side to reserve the southward area for the future expansion development as Annex 10. The Team also explained that the northward area would be not recommended because of lack of enough space for land facilities.

Annex 1: Cost Estimate of the Project
Annex 2: Project Implementation Schedule
Annex 3: Major Undertakings to be taken by the Government of Myanmar
Annex 4: Project Monitoring Report (template)
Annex 5: Environmental Check List

Annex 6: Environmental Management Plan/Environmental Monitoring Plan
Annex 7: Abbreviated Resettlement Action Plan (omitting)
Annex 8: Environmental and Social Monitoring Form
Annex 9: Area to be necessary for the Project
Annex 10: Proposed Future Development Plan

Annex 1: Cost Estimate of the Project

1. Cost Estimate borne by the Government of Japan

入札関連情報につき非公開

2. Cost Estimate borne by the Government of Myanmar

入札関連情報につき非公開

Notes:

1) Conditions of cost estimation
   - Estimated timing: June 2017
   - Exchange rates: USD 1.00 = JPY 112.84
     Myanmar Kyat 1.00 = JPY 0.0823

2) Others
   The project is implemented in accordance with the system of Japanese Grant. The above cost estimation does not assure the ceiling cost on the E/N and will be reviewed by the Government of Japan before the conclusion of E/N between the two governments.
   Cost estimate borne by the Government of Myanmar in the above is provisional, and requires review for implementation.

Annex 2: Project Implementation Schedule

Estimated Timeline for the Project Implementation is as follows:

- E/N and G/A: March 2018
- Detailed Design and Procurement of the Contractor: April – November 2018
- Construction of Civil and Building Facilties December 2018 – November 2020
- Manufacturing, Delivery and Installation of the Equipment: December 2018 – November 2020
  (including operation and maintenance training at site)
- Warrantee Period: December 2020 – December 2021

Annex 3: Major Undertakings to be taken by the Government of Myanmar

1. Specific obligations of the Government of Myanmar which will not be funded with the Grant

(1) Before the Tender

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	Ministry of Planning and Finance (MOPF)	-	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	DWIR	-	
3	To approve IEE/EIA (Conditions of approval should be fulfilled, if any)	before the Project approval by Japanese Cabinet	MONREC/ DWIR	-	
4	To secure the necessary budget and implement land acquisition and resettlement (including preparation of resettlement sites), and compensation with full replacement cost in accordance with RAP	Budget allocatioin: before approval by Japanese Cabinet Implementation: before tender notice	MOTC/ DWIR	2,353 Million	
5	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	till land acquisition and resettlement complete	DWIR	5.7 Million	
6	To secure and clear the following lands 1) right of way for access road 2) project sites 3) temporary construction yard and stock yard near the Project area 4) borrow pit and disposal site near the Project area	before notice of the bidding document	DWIR	Included in the above item 4.	
7	To obtain the planning, zoning, building permit	before notice of the bidding document	DWIR	-	
8	To clear the sites as follows 1) removal of sunken ship at site 2) site clearance (removal of huts in the project area)	before notice of the tender document	DWIR	33.5 Million	
9	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding documents	DWIR	-	

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
	入札関連情報につき非公開				
3	To ensure prompt unloading and customs clearance at ports of disembarkation in recipient country and to assist the Supplier(s) with internal transportation therein	during the Project	DWIR	-	
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the	during the Project	DWIR	-	

	Recipient and stay therein for the performance of their work				
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOPF/ DWIR	-	
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the Project implementation	during the Project	DWIR	-	
	1) Office furnitures such as desk and chair, bookshef, PCs and priners, stationaries and other necessary materials to start for the operations in port office.	Before starting operation	DWIR/IWT	91 MIllion	
	2) 2ton truck, welding machine, gus cutting tool, ceiling mini cane, chain block, desk and chair, bookshelf and other furnitures and apparatus and materials to start for the operation in workshop.	Before starting operation	DWIR/IWT	70 Million	
	3) Pallet for the cargo handling operation (2,300 pcs.) , necessary furniture in the office space and other necessary apparatus and materials in warehouse.	Before starting operation	DWIR/IWT	33 Million	
7	1) To submit Project Monitoring Report	every quarter	DWIR	-	
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	DWIR	-	
8	To submit a report concerning completion of the Project	within six months after completion of the Project	DWIR	-	
9	To construct access roads outside the site	3 months before completion of the construction	DWIR	-	
10	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site(s)		DWIR		
	1) Electricity The distributing line to the site and connection work at the tie-in point.	before start of the construction	DWIR	6.1 Million	
11	To take necessary measure for safety construction - traffic control - rope off	during the construction	DWIR	-	
12	To implement EMP and EMoP	during the construction	DWIR	39 Million	
13	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	DWIR	-	
14	To implement RAP (livelihood restoration program, if needed)	for a period based on livelihood restoration program	DWIR	-	
15	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between DWIR and JICA.	- until the end of livelihood restoration program (In case that livelihood restoration program is provided)	DWIR	Included in the above item 7, 12, 13.	

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost (MMK)	Ref.
1	To implement EMP and EMoP	for a period based on EMP and EMoP	DWIR	8.3 Million	

2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between DWIR and JICA.	for three years after the Project	DWIR	-	
3	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	DWIR	1,215 Million	2)

Note: 1) Estimated necessary cost under the full rate operation conditions of the port.

2. Other obligations of the Government of Myanmar funded with the Grant

NO	Items	Deadline	Amount (Million Japanese Yen)*
1	To construct the jetty, cargo yard, access road, access bridge, necessary facilities and to procure equipment To conduct the following transportation a) Marine(Air) transportation of the products from Japan / third countries to the recipient country b) Internal transportation from the port of disembarkation to the project site		
	To construct access roads a) Within the site		
	To construct the temporary building		
	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities a) Electricity - The drop wiring and internal wiring within the site - The main circuit breaker and transformer b) Water Supply - The supply system within the site (receiving and/or elevated tanks) c) Drainage - The drainage system (for toilet sewer, ordinary waster, storm drainage and others) within the site d) Furniture and Equipment - Project equipment		
2	To implement detailed design, bidding support and construction supervision (Consulting Service)		
3	Contingency Cost		
	Total		XXX

*The Amount is provisional. This is subject to the approval of the Government of Japan.

Annex 4: Project Monitoring Report (template)

G/A NO. XXXXXXX
PMR prepared on DD/MM/YY

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Executing Agency	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Line Ministry	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description	

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant (Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (1,000 Taka)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spare parts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*
Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design*)

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):

Actual Situation and Countermeasures
(PMR)

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
- Contractor's Main Staff List

4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)
8. Pictures (by JPEG style by CD-R) (PMR (final) only)
9. Equipment List (PMR (final) only)
10. Drawing (PMR (final) only)
11. Report on RD (After project)

Attachment 6 of the PMR: Monitoring Sheet on Price of Specified Materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C−D	Price (Increased) F=C+D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

-
-
-

Attachment 7 of the PMR: Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

		Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost		(A/D%)	(B/D%)	(C/D%)	
	Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
	Others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost		(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost		(A/D%)	(B/D%)	(C/D%)	
Total		(A/D%)	(B/D%)	(C/D%)	

Annex 5: Environmental and Social Consideration Check List

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) Y (b) N (c) N (d) N	(a) Since the project is categorized to be an IEE Type Project in accordance with EIA Procedure (2015) in Myanmar, an initial environmental examination (IEE) report has been prepared and submitted by DWIR to the Ministry of Natural Resources and Environmental Conservation (MONREC) through MOTC by a letter dated Sep 4, 2017. (b) The Environmental Conservation Department (ECD)/MONREC is expected to complete its review on the IEE report within 60 working days in accordance with EIA Procedure (2015), which is early Dec, 2017. (c) Refer to (b) above. (d) There is no other environmental permit required for implementation of the project.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) A notification in both English and Burmese was put up at the township and ward GAD offices and related department offices as well as DWIR's webpage (http://dwir.gov.mm/index.php/news-events/advertisement) in June, 2017 upon commencement of the IEE. In addition, a stakeholder meeting was carried out and particpants views' reflected to the project through a stakeholder meeting held on June 27, 2017. The stakeholder meeting was attended by the people potentially affected by the project (i.e. project-affected persons/PAPs) in addition to relevant government organizations including ECD/MONREC and regional governments, community-based and social organizations and the media, 74 in total. Contents of the project and the potential impacts been adequately explained here and no voices against the project was heard. (b) Comments from the stakeholders, including those from the local residents, have been reflected to, inter alia, finalizing the impact

				evaluation, environmental mitigation measures including means of compensation, and environmental monitoring plans..
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Project alternatives were compared with each other in different stages of the project. During the F/S carried out in 2014, three different locations were compared against each other reaching a conclusion that the current location was most suitable primarily as no involuntary resettlement was expected in the area. In the basic design stage, a comparison was made in terms of the jetty structure and access road design. Similarly, a conclusion was made in consideration of the environmental and social impacts that are expected to be generated by each option.
2 Pollution Control	(1) Air Quality	(a) Do air pollutants, such as sulfur oxides (SOx), nitrogen oxides (NOx), and soot and dust emitted from ships, vehicles and project equipments comply with the country's emission standards? Are any mitigating measures taken?	(a) N/Y	(a) Ambient (i.e. pre-project) air quaity for PM 2.5, PM 10 and SO2 was in excess of the National Environmental Quality (NEQ) Guidelines of Myanmar. That for NO2 and ozone was within the guideline values. Mobilization and operation of heavy equipment, construction machinery and trucks is expected to generate exhaust gas and dust from construction activities possibly causing air pollution in the construction stage and minor level of air quality degradation is expected in the O&M stage. From a broader perspective, on the other hand, modal shift from trucks to ships in cargo transportation is expected to contribute to reduction of greenhouse gases such as carbon dioxide. Mitigation measures will be taken in both stages (e.g. spraying water on the ground, proper storage of construction materials such as covering sand and gravel, limiting maximum speed of vehicle to 20km/h within the project area, and air quality measurement/monitoring).
	(2) Water Quality	(a) Do effluents from the project facilities comply with the country's effluent and environmental standards? (b) Do effluents from the ships and other project equipments comply with the country's effluent and environmental standards? (c) Does the project prepare any measures to prevent leakages of oils and toxicants?	(a) Y (b) Y (c) Y (d) N (e) Y	(a) Domestic waste and sewage from passenger and port worker as well as wastewater used after cleaning cargoes can cause water pollution. There is also a possibility of oil spill and leakage of other substances. By adopting countermeasures (e.g. proper storage and collection of used oil and lubrication using a drum, development of closed drainage canal, installation of sanitary facilities such as temporary toilets or septic tanks), the environmental standards in Myanmar are expected to be met. By the way, the level of total suspended solids was higher than the NEQ Guidline value of Myanmar. (b) Effluents from the ships and other project equipments are not expected to be significant enough to exceed the environmental standards in Myanmar.

		(d) Does the project cause any alterations in coastal lines and disappearance/appearance of surface water to change water temperature or quality by decrease of water exchange or changes in flow regimes? (e) Does the project prepare any measures to prevent polluting surface, sea or underground water by the penetration from reclaimed lands?		(c) Refer to (a) above. (d) Such impact is not expected. (e) In addition to measures mentioned in (a) above, rules for waste management will be developed and training will be provided to workers to follow them, construction equipment will be well-maintained and a contingency plan against risk of unexpected leakage will be prepared.
	(3) Wastes	(a) Are wastes generated from the ships and other project facilities properly treated and disposed of in accordance with the country's regulations?(b) Is offshore dumping of dredged soil properly disposed in accordance with the country's regulations?(c) Does the project prepare any measures to avoid dumping or discharge toxicants?	(a) Y(b) NA(c) Y	(a) Wastes willl be properly collected and disposed with reference to, and in consultation with, MCDC and its rules. (b) Dredging is not expected to take place under this project. Necessary sand will be purchased from a river sand collection company operating nearby. (c) The following measures are planned to be adopted to avoid dumping or discharge toxicants: preparation of a temporary waste dumping site during storage; prohibition of dumping into the river or any other place unless approved by the consultant; appropriate storage of oil residue including used lubricant; reuse of material in proper ways; and development of rules for waste management and training workers to follow them.
2 Pollution Control	(4) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country's standards?	(a) Y	(a) Impact of noise and vibration is expected from construction machinery and equipment but only temporarily and at an insignificant level during construction. In the O&M stage, loading machines and moving vehicles during port operation are expected to generate some level of noise and vibration. However, the impact is expected to be limited given the size and scale of vehicles used and proximity to the sensitive receptors. The ambient noise level was within the NEQ Guideline value.
	(5) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will	(a) N	(a) The project is not expected to involve extraction of a large volume of underground water that can cause ground subsidence.

		cause subsidence?		
	(6) Odor	(a) Are there any odor sources? Are adequate odor control measures taken?	(a) N	(a) No specific source of offensive odor is expected in the project. Waste will be properly collected and disposed.
	(7) Sediment	(a) Are adequate measures taken to prevent contamination of sediments by discharges or dumping of hazardous materials from the ships and related facilities?	(a) Y	(a) Activities that directly contaminate bottom sediment is not expected. Refer to '(2) Water Quality' for measures to prevent impact on sediment quality degradation caused via water quality degradation.
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) N/A
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Is there a possibility that the project will adversely affect aquatic organisms? Are adequate measures taken to	(a) N (b) N (c) N/A (d) Y (e) Y	(a) N/A (b) There is no protected habitats of endangered species designated by the country's laws or international treaties and conventions. According to the 'Feasibility study for the Inland Water Transport Facilities Improvement and Development Project Final Report (2014)', Ayeyarwady dolphins rarely come to the area. (c) No significant ecological impacts are anticipated. (d) (e) According to the 'Feasibility study for the Inland Water Transport Facilities Improvement and Development Project Final Report (2014)', none of the fish species in the study area are listed in the IUCN Red List category of endangered fish species for Myanmar and all species around the project site are composed of common species. Turbid water due to construction works may affect those species, however, its intensity is expected to be limited. Refer to '(2) Water Quality' for measures taken to reduce negative impacts on aquatic organisms. No plant species that require special care has been identified near the project site either. The project site is not located in or near a coastal zone.

		reduce negative impacts on aquatic organisms? (e) Is there a possibility that the project will adversely affect vegetation or wildlife of coastal zones? If any negative impacts are anticipated, are adequate measures taken to reduce the impacts on vegetation and wildlife?		
	(3) Hydrology	(a) Do the project facilities affect adversely flow regimes, waves, tides, currents of rivers and etc if the project facilities are constructed on/by the seas?	(a) N	(a) According to the 'Feasibility study for the Inland Water Transport Facilities Improvement and Development Project Final Report (2014)', river flow and speed is expected to decrease under and near the project site yet no significant change is expected to the river flow. The project site is not located in or near the sea.
	(4) Topography and Geology	(a) Does the project require any large scale changes of topographic/geographic features or cause disappearance of the natural seashore?	(a) N	(a) N/A
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and	(a) N (b) Y (c) Y (d) Y (e) Y (f) Y (g) N (h) Y/N (i) Y (j) Y	(a) No involuntary resettlement is expected in this project but only land acquisition. Efforts have been made to minimize the adverse socio-economic impacts. (b) No involuntary resettlement is expected in this project but only land acquisition. A stakeholder meeting has been held with the PAPs and other stakeholders in Burmese and with visual aids where compensation policy had been explained to the PAPs. (c) While no involuntary resettlement is expected, an ARAP has been prepared including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socio-economic studies. (d) Yes. (e) It has been documented in the ARAP. (f) The project pays particular attention to vulnerable groups. But no particular vulnerable groups that require special support have been identified in this project. (g) Agreements with the affected people will be obtained prior to securing of land (i.e. project

		living standards developed based on socioeconomic studies on resettlement? (d) Are the compensations going to be paid prior to the resettlement? (e) Are the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?		site). (h) Organizational framework has been established. Necessary budget will be secured after the IEE report has been approved by ECD/MONREC. (i) Plans have been developed to monitor the impacts on land acquisition in both the implementation and O&M stages. No involuntary resettlement is expected to take place under this project but only land acquisition. (j) It has been established and depicted in the IEE report.
	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary?(b) Is there a possibility that changes in	(a) Y(b) N(c) Y(d) Y	(a) There is no inhabitant in the project site. Adequate measures are considered to reduce the impacts on PAPs' living and livelihood.(b) Changes in water uses is not expected by the project. No fishing activity has been identified as a result of the study.(c) Water traffic and road traffic in the surrounding areas may increase to some extent as a result of the project. (d) An influx of construction/immigrant workers into the project area is expected especially during the construction phase, which can heighten the

		water uses (including fisheries and recreational uses) in the surrounding areas due to project will adversely affect the livelihoods of inhabitants?(c) Is there a possibility that port and harbor facilities will adversely affect the existing water traffic and road traffic in the surrounding areas?(d) Is there a possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are considerations given to public health, if necessary?		risk of transmission of infectious diseases. Education and awareness-raising will be carried out of construction workers (and local people as necessary) about prevention of infectious diseases such as HIV/AIDS.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) There is only one monastery near the project site and one pagoda north of the site but no impact is expected to either of them.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) There is no special landscape within and near the project area and the extent of change to the existing landscape can be considered negligible.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic	(a) N/A (b) N/A	(a) There is no ethnic minorities and indigenous people in or near the project site. (b) N/A

		minorities and indigenous peoples in relation to land and resources respected?		
4 Social Environment	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) Y (c) Y (d) Y	(a) DWIR is not violating any laws and ordinances associated with the working conditions of the country. (b) The following measures are planned to be taken to ensure safety: development of, and compliance with, traffic regulation and rules; prevention of outsiders entering construction sites by installing fence and sign boards and arranging guards; preparation of security boats, life jackets, medical box and so on; preparation of proper personal protective equipment and provision to workers; proper record and analysis of the cases and causes of accidents; and proper lightening of construction sites. (c) In addition to '(b) above', education and awareness-raising will be carried out of construction workers (and local people as necessary) about prevention of infectious diseases. (d) Training will be provided to security guards prior to their assignment.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid	(a) Y (b) Y (c) Y	(a) Adequate measures are considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes). Refer to the environmental management plan in the IEE report for more details.

		water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?		(b) Ecosystem that may be affected by the project is considered to be primarily the aquatic ecosystem. Preventive measures will be adopted as shown in '2. (2) Water Quality' above. In addition, water quality monitoring will be carried out during consutruction and in the O&M stage and appropriate measures considered and taken based on an analysis of the results of such monitoring. Species around the project site is composed of common species. (c) Adequate measures will be considered to reduce impacts generated during construction.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) N/A (c) Y (d) Y	(a) DWIR has developed and is prepared to implement monitoring program for the environmental items that are considered to have potential impacts. (b) Refer to the environmental monitoring plan in the IEE report for details of the monitoring program. (c) DWIR will establish an adequate monitoring framework and carry out monitoring with support from other actors (e.g. consultant) (d) EIA Procedure (2015) states that 'The Project Proponent shall submit monitoring reports to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMP, or periodically as prescribed by the Ministry' (Art. 108).
6 Note	Note on Using Environme	(a) Where necessary, impacts on groundwater	(a) N/A(b)	(a) Noted.(b) Noted.

	ntal Checklist	hydrology (groundwater level drawdown and salinization) that may be caused by alteration of topography, such as land reclamation and canal excavation should be considered, and impacts, such as land subsidence that may be caused by groundwater uses should be considered. If significant impacts are anticipated, adequate mitigation measures should be taken.(b) If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	N/A	

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

Annex 6: Environmental Management Plan (draft)

No.	Impacts	Mitigation Measures	Implementation Organization	Management Organization	Cost (USD)
Planning Phase					
1.	Land Acquisition	1. Compensation for all affected land, structures and crops in accordance with the ARAP 2. Information disclosure and public consultation to understand the concerns and needs of the PAPs and to relieve their stress 3. Installation of notification board concerning the project at the project site in order to prevent any occupation or use in the project site	DWIR	DWIR	1. USD 1,700,000 *refer to EMOP for cost of consultation meetings.
Construction Phase					
1.	Air Pollution	1. Spraying water to suppress dust generated from construction work and site and vehicles carrying construction materials 2. Proper storage of construction materials such as covering sand and gravel that are easily diffused into the atmosphere at construction site and during their transportation 3. Limiting a maximum speed of vehicle to 20km/h within the project area 4. Air quality measurement/monitoring	contractor	consultant/DWIR	refer to EMOP for cost of air quality monitoring
2.	Water Pollution	1. Proper storage and collection of used oil and lubrication using a drum 2. Development of rules for waste management and training workers to follow them 3. Development of closed drainage canal to avoid wastewater spreading to river and farmland 4. Installation of sanitary facilities such as temporary toilets or septic tanks at the construction sites 5. Selection of appropriate construction methods which generates less turbidity during pile driving 6. Good maintenance of construction equipment 7. Preparation of a contingency plan against risk of unexpected leakage 8. Water quality measurement/monitoring especially during disposal of dredging material and collection of landfilling	contractor	consultant/DWIR	to be included in construction cost *refer to EMOP for cost of water quality monitoring

No.	Impacts	Mitigation Measures	Implementation Organization	Management Organization	Cost (USD)
		material			
3.	Waste Disposal	1. Preparation of a temporary waste dumping site during storage and prohibition of waste dumping into the river or any other place unless approved by the consultant 2. Appropriate storage of oil residue including used lubricant 3. Reuse of material in proper ways 4. Proper collection and final disposal of wastes with reference to, and in consultation with, MCDC and its system 5. Development of rules for waste management and training workers to follow them	contractor	consultant/DWIR	to be included in construction cost
4.	Noise and Vibration	1. Development of working rules (e.g. avoid unnecessary use of air horns, keep the speed limit, turn off engines when not in operation) and training to drivers and construction workers to follow the rules 2. Avoidance of construction activities that generate high level of noise and vibration during night time 3. Selection of low-noise emission machines and/or installation of silencers and temporary noise barrier (when required) 4. Appropriate maintenance of construction equipment 5. Noise level measurement/monitoring	contractor	consultant/DWIR	to be included in construction cost *refer to EMOP for cost of monitoring of noise level
5.	Ecosystem	Monitoring of turbidity and water pollution in the river during disposal of dredging material and collection of landfilling material (refer to '2. Water Pollution')	contractor	consultant/DWIR	to be included in construction cost
6.	Bottom Sediment	Monitoring of sediment quality before and after filling	contractor	consultant/DWIR	refer to '2. Water Pollution'
7.	Land Acquisition	Information disclosure and public consultation to understand the socio-economic status, concerns and needs of the PAPs and to relieve their stress	DWIR/consultant/ contractor	Mandalay Region Government, MOTC and local authorities	refer to EMOP for cost of holding consultation meetings
8.	Existing Social Infrastructure and Services	1. Post traffic warning signs for road users notifying that the 'construction site is ahead' and to make people aware of the movement of heavy machines 2. Notification of contents and schedule of construction work 3. Assign flagman for assisting 'entry' to the construction site and 'exit' from the construction site to reduce traffic load	contractor	consultant/DWIR	to be included in construction cost

No.	Impacts	Mitigation Measures	Implementation Organization	Management Organization	Cost (USD)
9.	Sanitary Condition	1. Installation of sanitary facilities such as temporary toilets or septic tanks at the construction sites and operate those appropriately 2. Consultation with MCDC for final disposal of sludge at their sewage disposal facilities	contractor	consultant/DWIR	to be included in construction cost
10.	Infectious Diseases such as HIV/AIDS	Education and awareness-raising of construction workers (and local people as necessary) about prevention of infectious diseases such as HIV/AIDS	contractor	consultant/DWIR	to be included in construction cost
11.	Accidents	1. Development of, and compliance with, traffic regulation and rules 2. Prevention of outsiders entering construction sites by installing fence and sign boards and arranging guards 3. Preparation of security boats, life jackets, medical box and so on 4. Preparation of proper personal protective equipment (PPE) and provision to workers 5. Proper record and analysis of the cases and causes of accidents 6. Proper lightening of construction sites	contractor	consultant/DWIR	to be included in construction cost
Operation Phase					
1.	Air Pollution	1. Limiting a maximum speed of vehicle to 20km/h within the project site 2. Air quality measurement/monitoring	port operator	consultant/DWIR	refer to EMOP for cost of air quality monitoring
2.	Water Pollution	1. Development of closed drainage canal to avoid wastewater spreading to river 2. Development of a contained storage area for oil, chemicals, and others 3. Consultation with MCDC for final disposal of sludge at their sewage disposal facilities 4. Installation of adequate sanitation system with proper treatment facilities for toilet, canteen and so on 5. Training of workers so that they follow waste management rules (e.g. do not throw waste into the river) 6. Water quality measurement/monitoring	port operator	consultant/DWIR	to be included in operation cost *refer to EMOP for cost of water quality monitoring
3.	Waste Disposal	1. Periodic disposal of waste in cooperation with MCDC 2. Training of workers so that they follow waste management	port operator	consultant/DWIR	to be included in operation cost

No.	Impacts	Mitigation Measures	Implementation Organization	Management Organization	Cost (USD)
		rules (e.g. do not throw waste into the river)			
4.	Ecosystem	Refer to '2. Water Pollution'.	port operator	consultant/DWIR	to be included in operation cost
5.	Hydrology	Monitoring and regular dredging to prevent sedimentation and to maintain smooth river flow	port operator	consultant/DWIR	to be included in operation cost
6.	Bottom Sediment	Refer to '2. Water Pollution' and '5. Hydrology'.	port operator	consultant/DWIR	to be included in operation cost
7.	Sanitary Condition	1. Consultation with MCDC for final disposal of sludge at their sewage disposal facilities 2. Installation of adequate sanitation system with proper treatment facilities for toilet, canteen and so on 3. Training of workers so that they follow waste management rules	port operator	consultant/DWIR	to be included in operation cost
8.	Accidents	1. Development of, and compliance with, working rules, traffic regulation and rules through education. 2. Enforcement of workers' use of PPE 3. Installation of proper signboard for safety and security 4. Preparation of security boats, life jackets, medical box and so on 5. Proper record and analysis of the cases and causes of accidents	port operator	consultant/DWIR	to be included in operation cost

Source: JICA Study Team

Environmental Monitoring Plan (draft)

No.	Category	Monitoring Item	Location	Frequency	Implementation Organization	Management Organization	Cost (USD) per year
Planning Phase							
1.	Land Acquisition	1. progress of provision/payment of compensation and social assistance 2. level of information disclosure and public involvement 3. voices and complaints from PAPs 4. state of project site	project site and surrounding area	biweekly during ARAP implementation stage	DWIR	Mandalay Region Government, MOTC and local authorities	to be included in operation cost
Construction Phase							
1.	Air Pollution	NO2, SO2, PM (PM10 and PM2.5) and Ozone, Micro climate (temperature, humidity, wind speed and direction etc. for reference)	2 points (same places as the baseline survey, in principle)	biannually	contractor	consultant/DWIR	USD 4,000 (USD 1,000*2points*2times)
2.	Water Pollution	1. BOD, COD, oil & grease, pH, Total coliform, Total nitrogen, Total phosphorus and TSS 2. turbidity during filling by visual observation	2 points (same places as the baseline survey, in principle) downstream of filling area	1. biannually 2. every day during filling	contractor	consultant/DWIR	USD 4,000 (USD 1,000*2points*2times) to be included in construction cost
3.	Waste Disposal	1. Volume, type and place of disposal of domestic and industrial waste 2. Voices and complaints from local community	project site and surrounding area	monthly and whenever complaints are heard in this regard	contractor	consultant/DWIR	to be included in construction cost
4.	Noise and Vibration	1. LAeq *Measurement is considered necessary for noise only. 2. Voices and complaints from local community	2 points (same places as the baseline survey, in principle) project site and	biannually and whenever complaints are heard in this regard	contractor	consultant/DWIR	USD 4,000 (USD 1,000*2points*2times) to be included in construction cost

No.	Category	Monitoring Item	Location	Frequency	Implementation Organization	Management Organization	Cost (USD) per year
			surrounding area				
5.	Ecosystem	Refer to '2. Water Pollution' above.					
6.	Bottom Sediment	sediment quality before and after filling	downstream of filling area	every day during filling	contractor	DWIR	to be included in construction cost
7.	Land Acquisition	1. extent of livelihood and income restoration 2. level of information disclosure and public involvement 3. level of satisfaction of the PAPs	project site and surrounding area	biannually and whenever complaints are heard in this regard	DWIR/consultant/contractor	Mandalay Region Government, MOTC and local authorities	USD 2,000 (USD 1,000*2 times) for public consultation
8.	Existing Social Infrastructure and Services	voices and complaints from local community	project site and surrounding area	biannually and whenever complaints are heard in this regard	DWIR/consultant/contractor	Mandalay Region Government, MOTC and local authorities	
9.	Sanitary Condition	1. state of sanitary facilities (e.g. toilets, septic tanks and rubbish bins) 2. voices and complaints from local community	project site and surrounding area	monthly and whenever complaints are heard in this regard	contractor	consultant/DWIR	to be included in construction cost
10.	Infectious Diseases such as HIV/AIDS	number of infected patients voices and complaints from local community	project site and surrounding area	biannually and whenever complaints are heard in this regard	contractor	consultant/DWIR, MOTC, MOH, Mandalay Region Government and local authorities	to be included in construction cost
11.	Accidents	1. record of number and type of accidents 2. record of safety awareness training and campaigns 3. state of use of PPE 4. state of safety equipment (e.g. fence, sign board, guards, security boats, life jackets, medical box etc.)	project site and surrounding area	monthly	contractor	consultant/DWIR	to be included in construction cost

No.	Category	Monitoring Item	Location	Frequency	Implementation Organization	Management Organization	Cost (USD) per year
Operation Phase							
1.	Air Pollution	NO2, SO2, PM (PM10 and PM2.5) and Ozone, Micro climate (temperature, humidity, wind speed and direction etc. for reference)	2 points (same places as the baseline survey, in principle)	annually for the first two years	port operator	consultant/DWIR	USD 2,000 (USD 1,000*2points)
2.	Water Pollution	BOD, COD, oil & grease, pH, Total coliform, Total nitrogen, Total phosphorus and TSS	2 points (same places as the baseline survey, in principle)	biannually for the first two years	port operator	consultant/DWIR	USD 4,000 (USD 1,000*2points*2times)
3.	Waste Disposal	1. Volume, type and place of disposal of domestic and industrial waste 2. Voices and complaints from local community	project site and surrounding area	annually and whenever complaints are heard in this regard	port operator	consultant/DWIR	to be included in operation cost
4.	Ecosystem	Refer to '2. Water Pollution'.					
5.	Hydrology	dredging schedule and work	project site and surrounding area	during and before dredging	port operator	consultant/DWIR	to be included in operation cost
6.	Bottom Sediment	Refer to '2. Water Pollution' and '6. Hydrology'.					
7.	Sanitary Condition	1. state of sanitary facilities (e.g. toilets, septic tanks and rubbish bins) 2. voices and complaints from local community	project site and surrounding area	annually and whenever complaints are heard in this regard	port operator	consultant/DWIR	to be included in operation cost
8.	Accidents	1. record of number and type of accidents 2. state of use of PPE 3. state of safety equipment (e.g. fence, sign board, guards, security boats, life jackets, medical box etc.)	project site and surrounding area	biannually	port operator	consultant/DWIR	to be included in operation cost

Source: JICA Study Team

Annex 8: Environmental Monitoring Form

Environmental Monitoring Form (planning stage/draft)

No.	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring		
						Date	Result	Actions to be Taken
1	Land Acquisition	Refer to the form for land acquisition below.						

Environmental Monitoring Form (construction stage/draft)

1. Pollution and Nuisance

No.	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring					
						Date	Result			NEQ GL Value	Remarks/ Actions
1	Air Pollution	NO2, SO2, PM (PM10 and PM2.5) and ozone, micro climate (temperature, humidity, wind speed and direction etc. for reference)	one weekday for 24 consecutive hours per location	2 points (same places as the baseline survey, in principle)	biannually		NO2	µg/m³		200µg/m³	
							SO2,	µg/m³		20µg/m³	
							PM10	µg/m³		50µg/m³	
							PM2.5	µg/m³		25µg/m³	
							ozone	µg/m³		100µg/m³	
							temperature			-	
							humidity			-	
							wind speed/ direction			-	
2	Water Pollution	BOD, COD, oil & grease, pH, total coliform, total nitrogen, total phosphorus and TSS	sampling and measurement using field equipment	2 points (same places as the baseline	biannually (*once during dry season and once		BOD	mg/l		30mg/l	
							COD	mg/l		125mg/l	
							oil & grease	mg/l		10mg/l	
							pH			6-9	
							total	/100ml		400/	

No	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring			NEQ GL Value	Remarks/ Actions
						Date	Result			
			and laboratory analyses	survey, in principle)	during rainy season)		coliform		100ml	
							total nitrogen	mg/l	10mg/l	
							total phosphorus	mg/l	2mg/l	
							TSS	mg/l	50mg/l	
3	Noise	LAeq	one weekday for 24 consecutive hours per location	2 points (same places as the baseline survey, in principle)	biannually			dBA	70dBA	

2. Social and Natural Environment

No	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring		
						Date	Result	Actions to be Taken
1	Waste Disposal	volume, type and place of disposal of domestic and industrial waste voices and complaints from local community	confirmation of records of waste generated confirmation of voices and complaints visual	project site and surrounding area	monthly and whenever complaints are heard in this regard			

No	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring		
						Date	Result	Actions to be Taken
			observation					
2	Ecosystem	Refer to '1.2. Water Pollution' above.						
3	Bottom Sediment	sediment quality before and after filling	visual observation	downstream of filling area	every day during filling			
4	Land Acquisition	Refer to the form for land acquisition below.						
5	Existing Social Infrastructure and Services	voices and complaints from the local community	confirmation of voices and complaints visual observation	project site and surrounding area	biannually and whenever complaints are heard in this regard			
6	Sanitary Condition	state of sanitary facilities (e.g. toilets, septic tanks and rubbish bins) voices and complaints from local community	confirmation of voices and complaints visual observation	project site and surrounding area	monthly and whenever complaints are heard in this regard			
7	Infectious Diseases such as HIV/AIDS	number of infected patients voices and complaints from the local community	confirmation of health check list of workers (and preferably of local community) confirmation of voices and complaints	project site and surrounding area	biannually and whenever complaints are heard in this regard			
8	Accidents	record of number and	confirmation of	project site	monthly			

No.	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring		
						Date	Result	Actions to be Taken
		type of accidents record of safety awareness training and campaigns state of use of PPE state of safety equipment (e.g. fence, sign board, guards, security boats, life jackets, medical box etc.)	records visual observation	and surroundin g area				

Environmental Monitoring Form (operation stage/draft)

1. Pollution and Nuisance

No.	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring				
						Date	Result		NEQ GL Value	Remarks/ Actions
1	Air Pollution	NO2, SO2, PM (PM10 and PM2.5) and ozone, micro climate (temperature, humidity, wind speed and direction etc. for reference)	same as baseline survey	2 points (same places as the baseline survey, in principle)	annually for the first two years		NO2	µg/m³	200µg/m³	
							SO2,	µg/m³	20µg/m³	
							PM10	µg/m³	50µg/m³	
							PM2.5	µg/m³	25µg/m³	
							ozone	µg/m³	100µg/m³	
							temperature		-	
							humidity		-	
							wind speed/ direction		-	
2	Water	BOD, COD, oil &	same as	2 points (same	biannually		BOD	mg/l	30mg/l	

No	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring				
						Date	Result		NEQ GL Value	Remarks/ Actions
	Pollution	grease, pH, total coliform, total nitrogen, total phosphorus and TSS	baseline survey	places as the baseline survey, in principle)	for the first two years (*once during dry season and once during rainy season)		COD	mg/l	125mg/l	
							oil & grease	mg/l	10mg/l	
							pH		6-9	
							total coliform	per 100ml	400 per 100ml	
							total nitrogen	mg/l	10mg/l	
							total phosphorus	mg/l	2mg/l	
							TSS	mg/l	50mg/l	

Social and Natural Environment

No	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring		
						Date	Result	Actions to be Taken
1	Waste Disposal	volume, type and place of disposal of domestic and industrial waste voices and complaints from local community	confirmation of voices and complaints visual observation	project site and surrounding area	annually and whenever complaints are heard in this regard			
2	Hydrology	dredging schedule and work	visual observation	project site and surrounding area	during and before dredging			
3	Bottom	Refer to '1.2. Water Pollution' and '2.2. Hydrology'						

No.	Category	Monitoring Item	Method	Location	Frequency	Results of Monitoring		
						Date	Result	Actions to be Taken
	Sediment	above.						
4	Sanitary Condition	state of sanitary facilities (e.g. toilets, septic tanks and rubbish bins) voices and complaints from the local community	confirmation of voices and complaints visual observation	project site and surrounding area	annually and whenever complaints are heard in this regard			
5	Accidents	record of number and type of accidents state of use of PPE state of safety equipment (e.g. fence, sign board, guards, security boats, life jackets, medical box etc.)	confirmation of records visual observation	project site and surrounding area	biannually			

Environmental Monitoring Form (land acquisition)

No.	Activity	Progress (tasks completed)	Description of the Situation (incl. any necessary actions)	CD (plan)	CD	RD	Recorded by
1.	Formation of Farmland Management Committee	%					
		%					
		%					
		%					
2.	Formation of Grievance Committee	%					
		%					

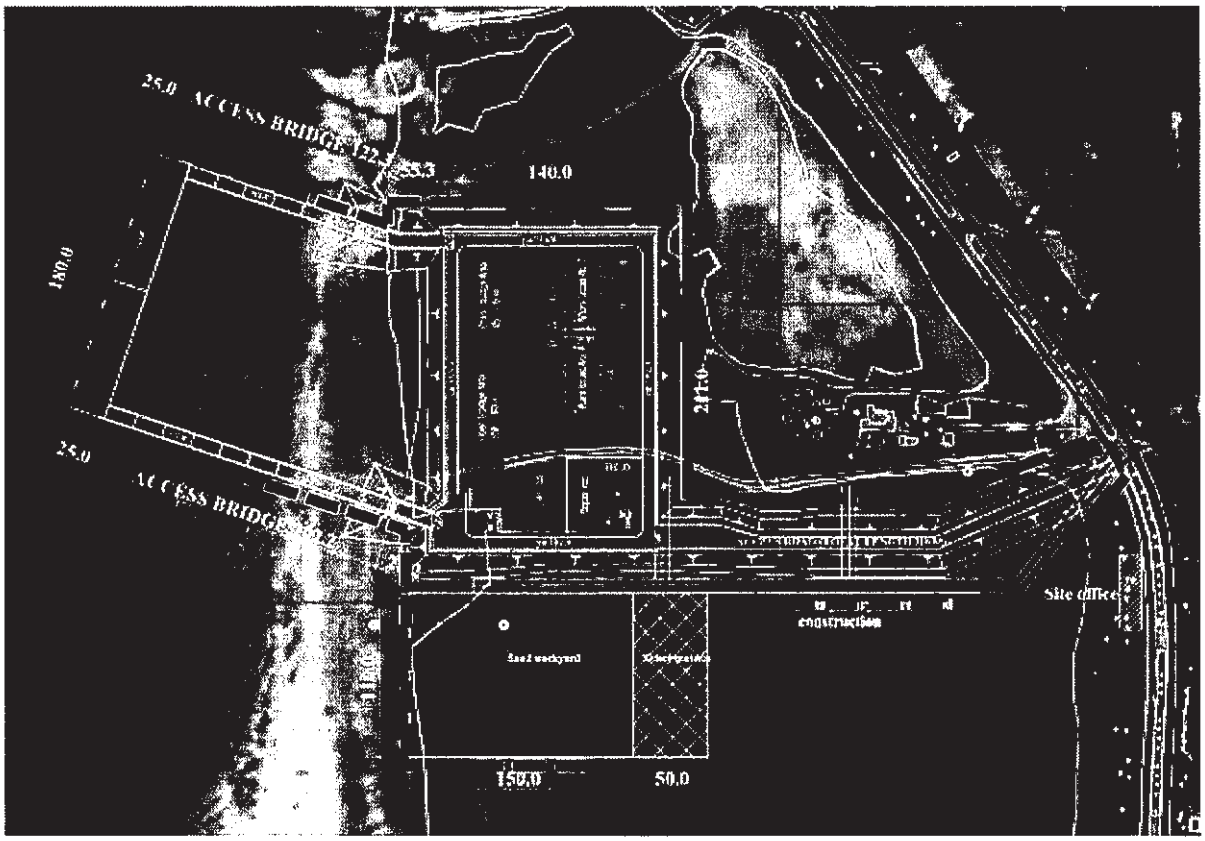
		%					
		%					
3.	Supplementary Survey (if required)	%					
		%					
		%					
		%					
4.	Finalization of Compensation and Support	%					
		%					
		%					
		%					
5.	Agreement with PAPs	HH/ HH					
		HH/ HH					
		HH/ HH					
		HH/ HH					
6.	Provision of Compensation and Support to PAPs	HH/ HH					
		HH/ HH					
		HH/ HH					
		HH/ HH					
7.	Securement of Land (e.g. removal of structures)	acres/ acres					
		acres/ acres					
		acres/ acres					
		acres/ acres					

*CD: completion date; RD: recorded date; HH: household

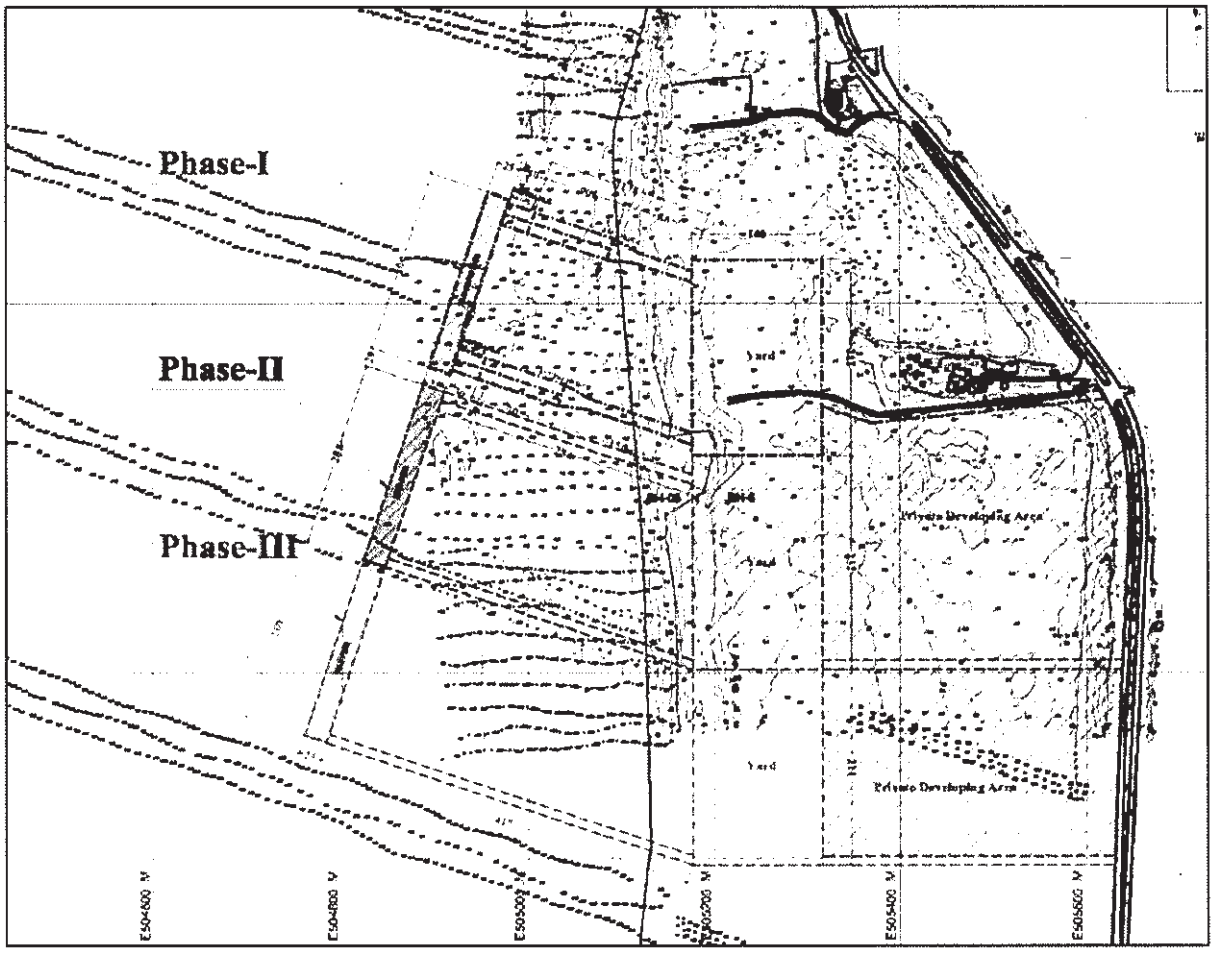
Environmental Monitoring Form (public consultation)

No.	Time and Date	Venue	Participants	Content including Q&A
1				
2				
3				

Annex 9: Area to be necessary for the Project



Annex 10: Proposed Future Development Plan



Source: Final Report on the Feasibility Study on Inland Water Transport Facilities Improvement and Development Project, September 2014, JICA.

Minutes of Discussions for Outline Design on the Preparatory Survey for the Project for Development of Mandalay Port

Directorate of Water Resources and Improvement of River Systems (DWIR) and Inland Water Transport (IWT) of Ministry of Transport and Communications, and Joint Venture of Oriental Consultants Global Co., Ltd., Pacific Consultants Co., Ltd., and Fukken Co., Ltd. on behalf of JICA Study Team (hereinafter referred to as "the Team") are confirmed the following items to conduct a Preparatory Survey on "The Project for Development of Mandalay Port" (hereinafter referred to as "the Project").

1 Outline Design

The outline design of the Project will be conducted in Japan based on the Minutes of Discussions which was signed on May 15, 2017 between the JICA and DWIR/IWT (hereinafter "the Minutes") and the survey results which was conducted by the Team during their stay in Myanmar from May 3 to May 30, 2017.

The Team explained to DWIR and IWT about their survey results and preliminary concept for the outline design of the Project as hereunder. However, contents, components, scale and dimensions and other details of the Project are subject to change or modify based on further study to be finalized based on the discussions in Japanese side.

(1) General Layout Plan

The port layout was planned as shown in Appendix-01. Facilities are planned under the following general concept for operation.

1) Main ships to enter to the port are cargo barges.
2) Cargo loading and unloading operations will be conducted by using equipment.
3) Terminal functions such as temporary cargo storage in open yard and/or warehouse are to be introduced.
4) Port services will be provided to the public.

(2) Jetty and Access Bridge of the Port

General plan and details of jetty and access bridges are as shown in Appendix-02. Main features and dimensions of the facilities are as follows.

1) Fixed type (pile supported deck type) structures,
2) Jetty; 180m long and 25m width,
3) Access bridges and causeway: two (2) accesses between jetty and terminal area about 189m and 230m long with 8m width for vehicle and 1 m for walkway.

(3) Terminal Layout

Layout plan of terminal area is as shown in Appendix-03. The area is about 140m x 211m as shown on the plan.

Following facilities are provided in the terminal area:

1) Warehouse: 48m x 24 m, 2 units,
2) Open storage area: 60m x 35m, 1 lot,
3) Open storage /Container yard: 80m x 35m, 1 lot,
4) Trailer/Equipment pool: 1 lot,
5) Repair yard: 1 lot,
6) Canteen, toilet area, 1 lot,
7) Port office, 2 stories (42m x 18m)
   a. Workshop; Ground floor
   b. Administration office; 1st floor
8) Car parking space,
9) Roads in terminal
10) Gate
11) Access Road to the Port

(4) Building plans

Layout plans of the following buildings are as shown in Appendix-04.

1) Port Office and Workshop
2) Warehouse
3) Canteen

(5) Utilities

Outdoor lightings, rainwater drainage, electrical and water supply facilities will be designed accordingly in conformity with the Japanese Grant Aid Scheme.

2 Major Undertakings by Myanmar side

DWIR and IWT confirmed that the Major undertakings stated in the Annex-2 in the Minutes are the obligation of the Myanmar side. In line with this, following items are confirmed between DWIR, IWT and the Team.

(1) Tie-in point of electrical power line

Tie-in point of electrical power supply line is as shown on the sketch drawings in Appendix-05 in principle.

(2) The following items for the buildings should be excluded from the Project.

1) Kitchen instrument
2) Electric appliance except lighting equipment, outlets, air-conditioners, fire alarm boxes, air fans, telephone outlet
3) Movable furniture
4) The fixed furniture will be finalized within the project budget based on the discussions in Japanese side.

Above items are confirmed and agreed between DWIR, IWT and the Team.

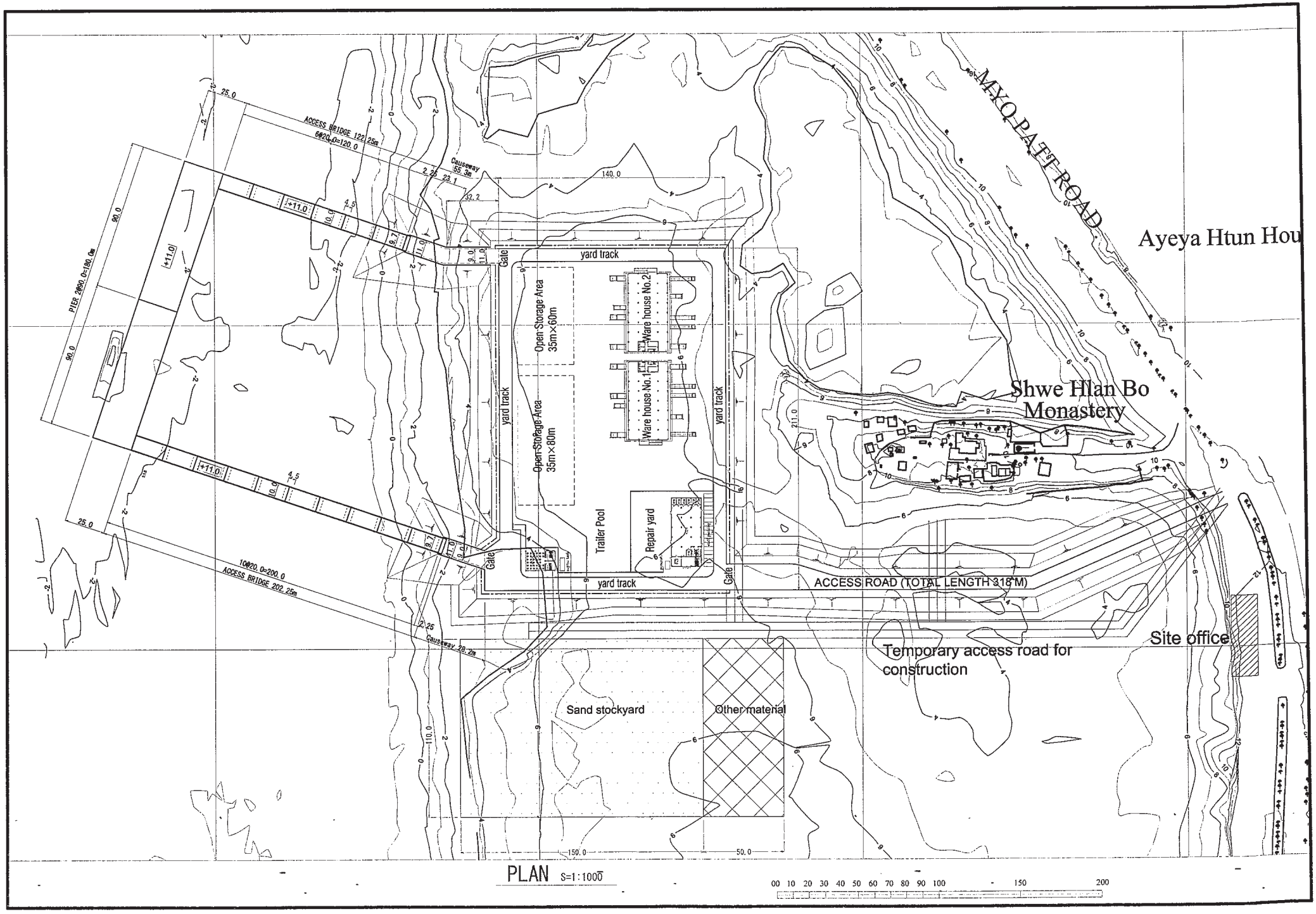
Yangon, May 29, 2017

Mr. Htun Lwin Oo	Mr. Zaw Win	for Mr. Masahiko Koshimizu
Director General Directorate of Water Resources and Improvement of River Systems Ministry of Transport and Communications	Managing Director Inland Water Transport Ministry of Transport and Communications	Chief Consultant, Joint Venture of Oriental Consultants Global Co., Ltd. Pacific Consultants, Co., Ltd. and, Fukken Co., Ltd. on behalf of JICA Study Team

Appendices

Appendix-01	General Layout Plan
Appendix-02	General Plan and Details of Jetty and Access Bridge
Appendix-03	Terminal Layout Plan
Appendix-04	Building Plans
Appendix-05	Tie-in Point of Electrical Power Supply Line

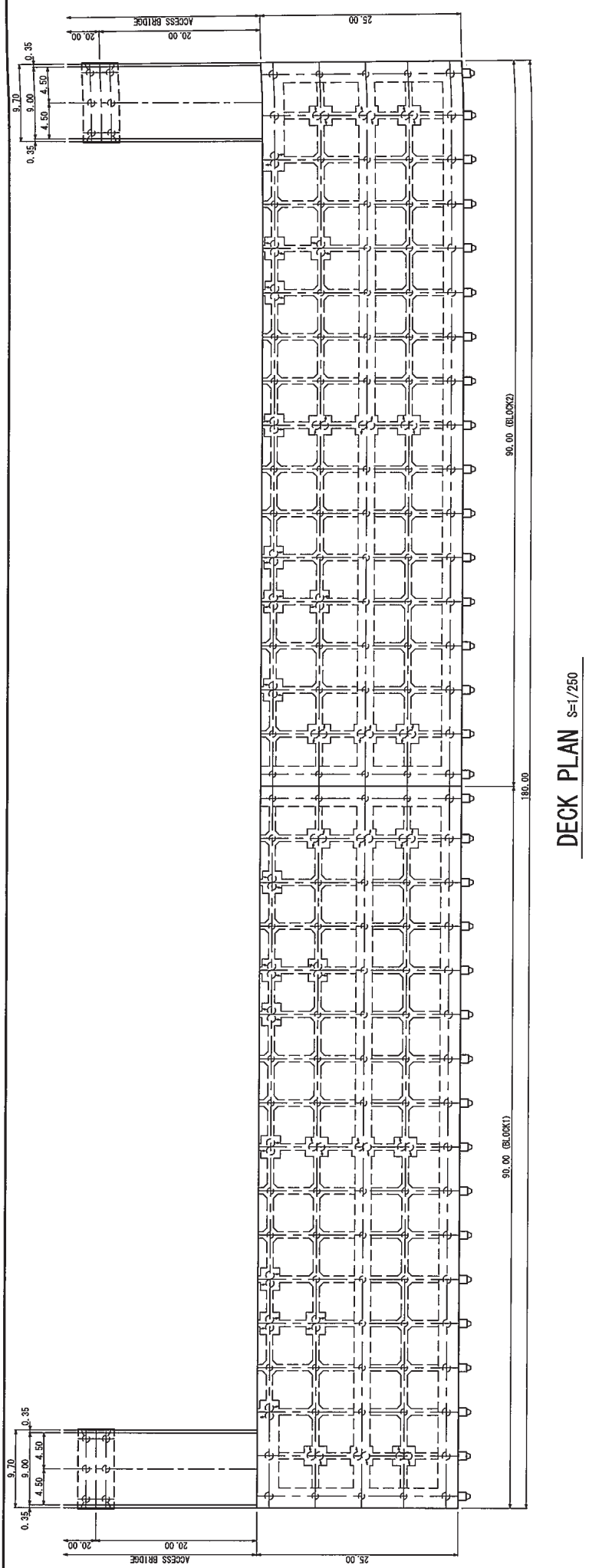
Appendix-01 General Layout Plan



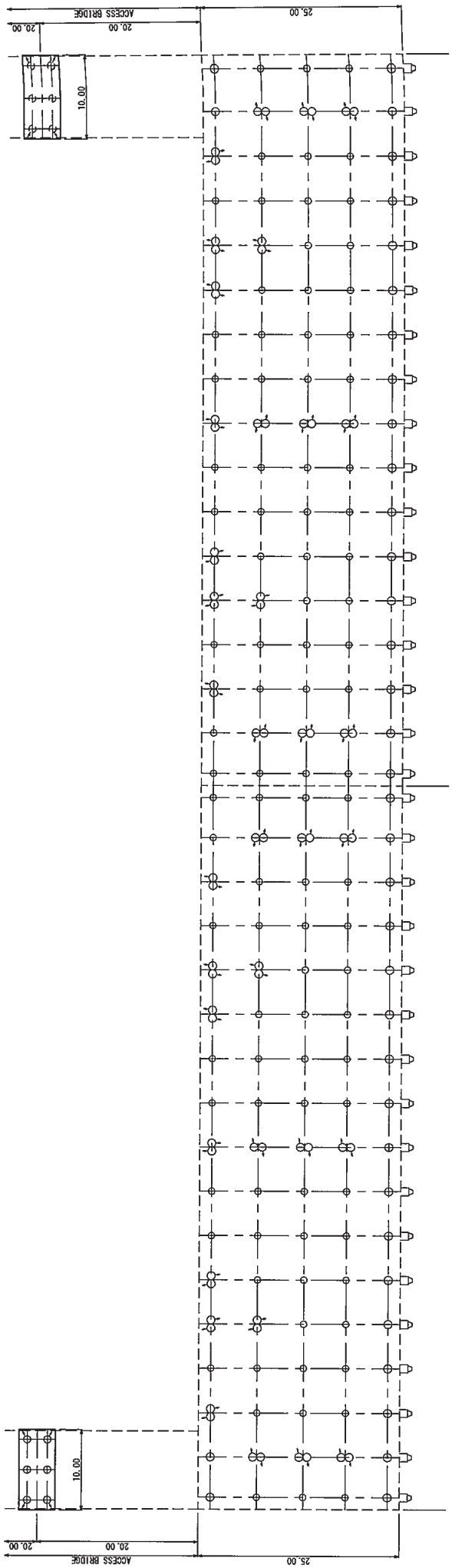
PLAN S=1:1000

00 10 20 30 40 50 60 70 80 90 100 150 200

Appendix-02 General Plan and Details of Jetty and Access Bridge



DECK PLAN S=1/250



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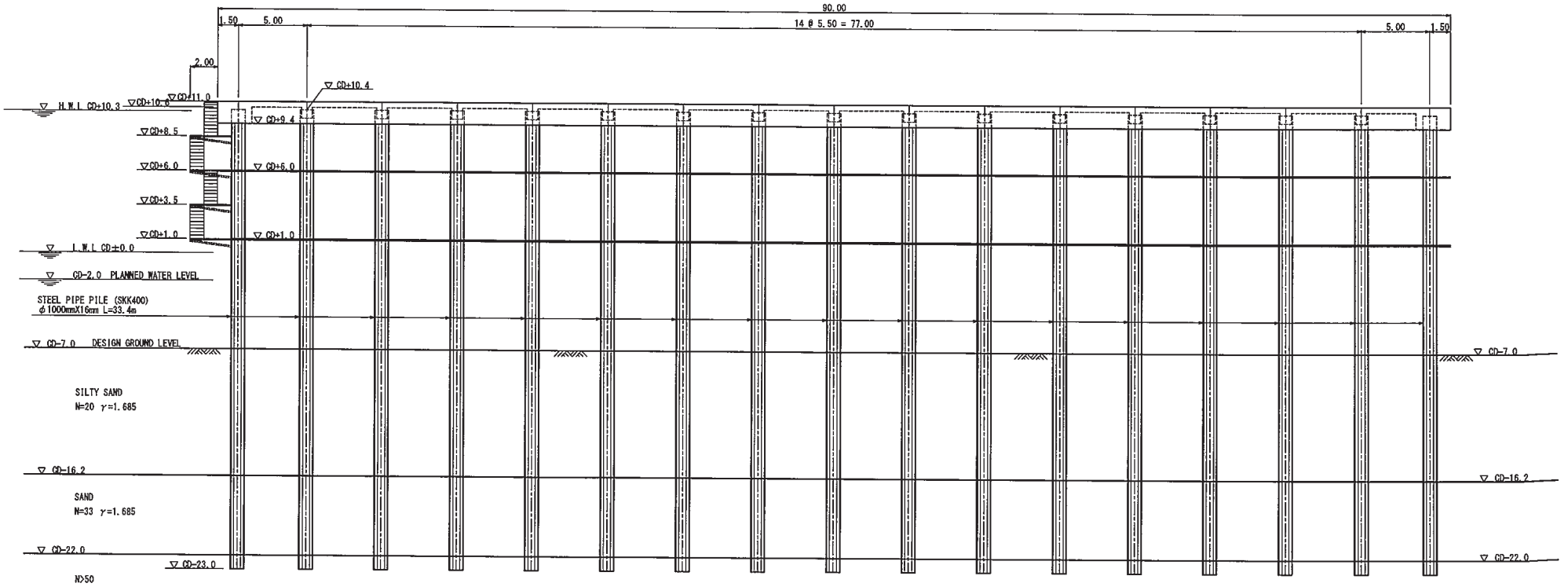

FRONT VIEW S=1:150

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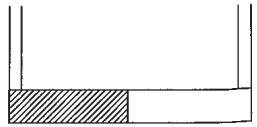
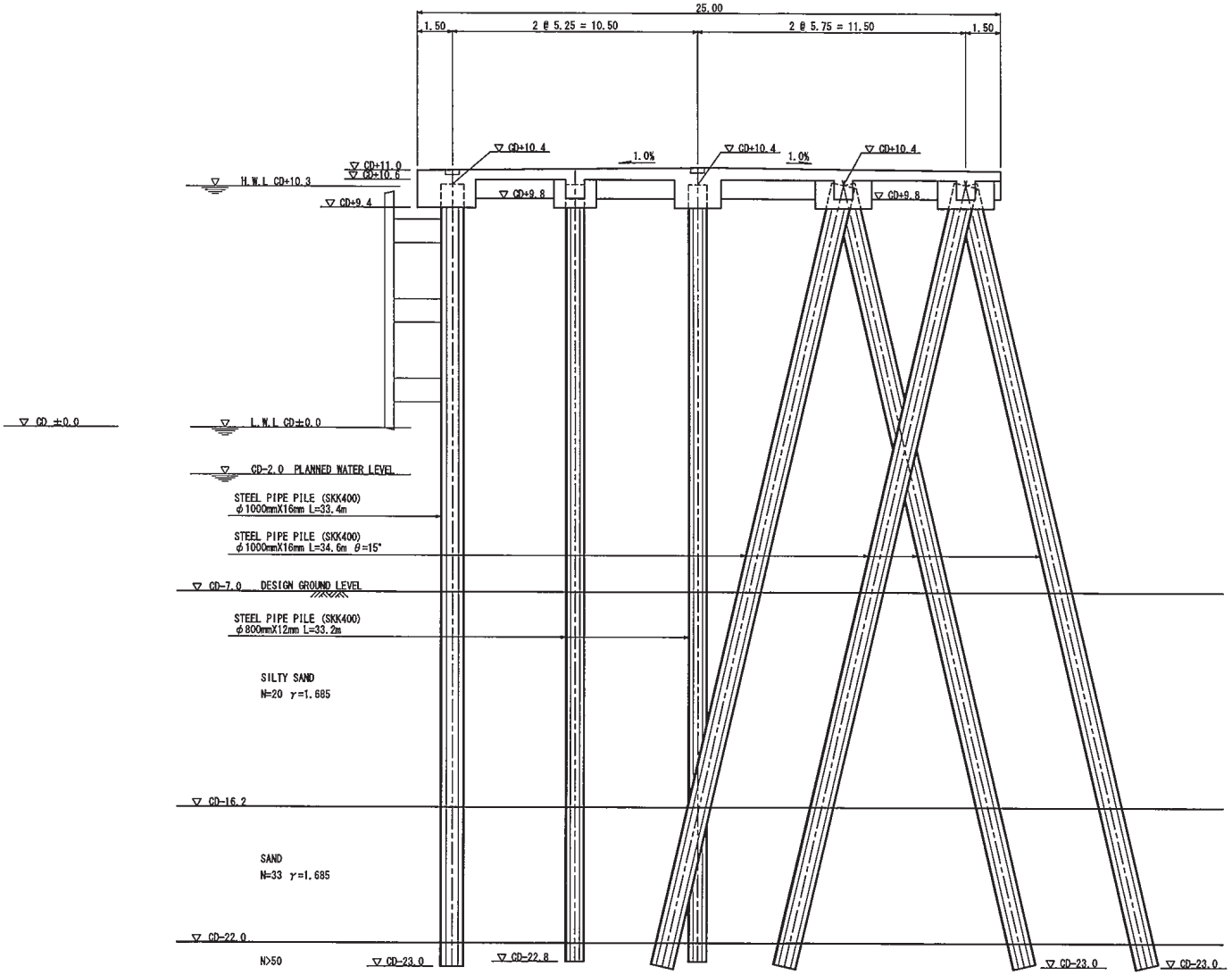


KEY PLAN



SECTION B-B S=1:100

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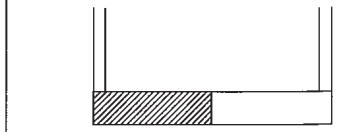

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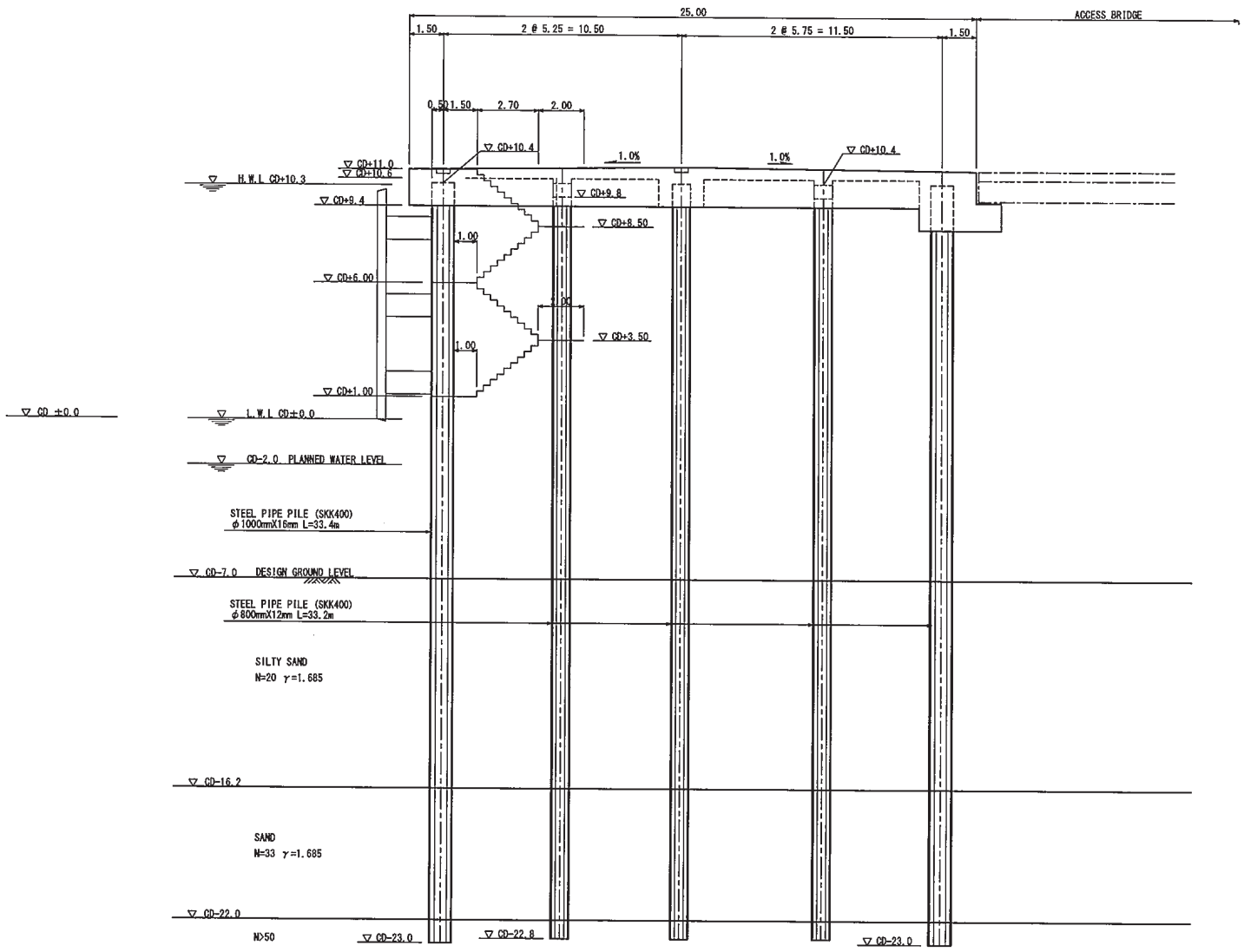

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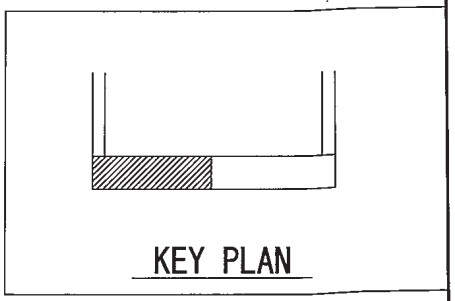

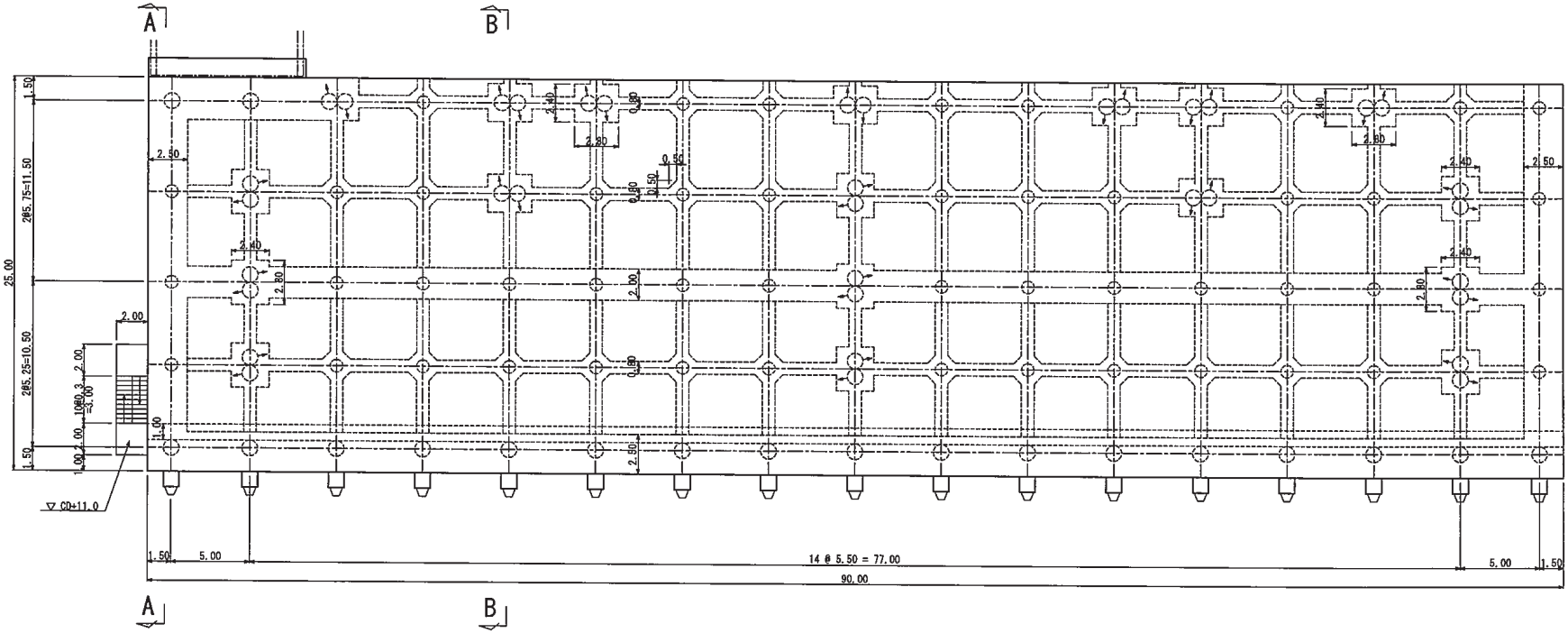

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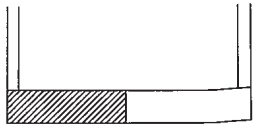
(PIER BLOCK 1)



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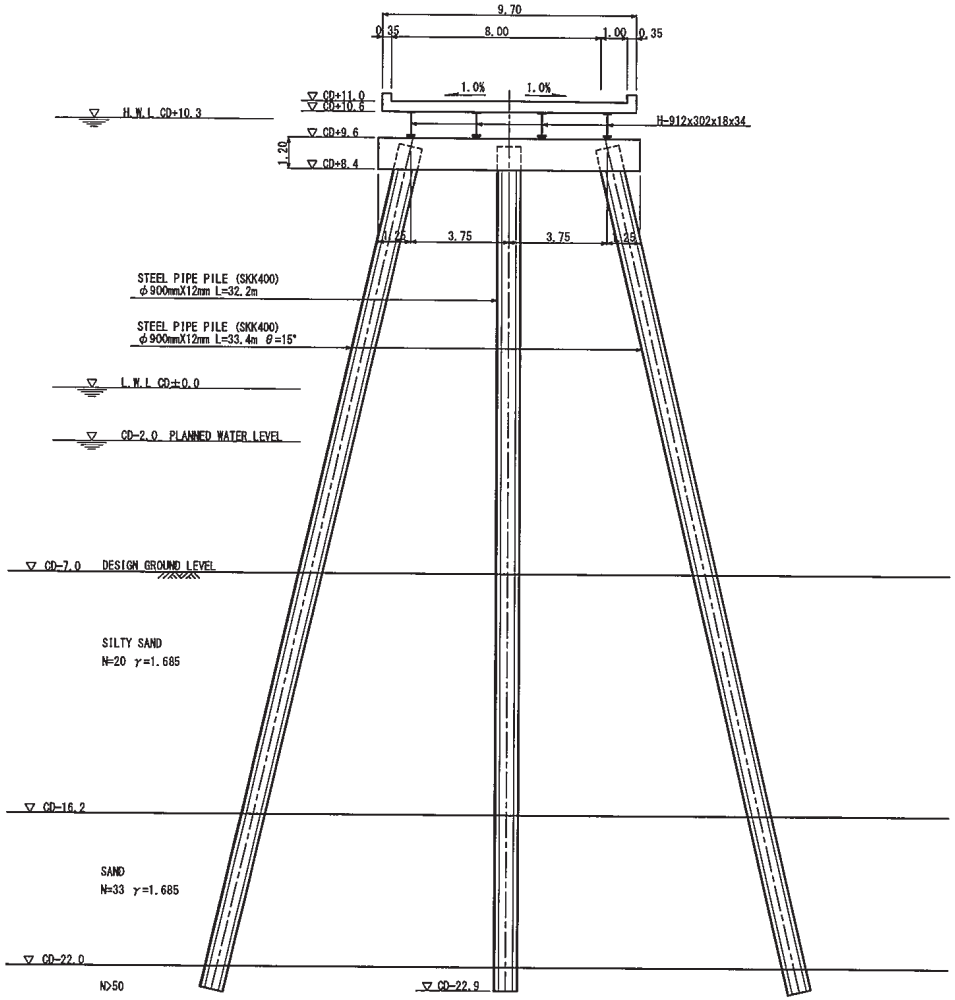

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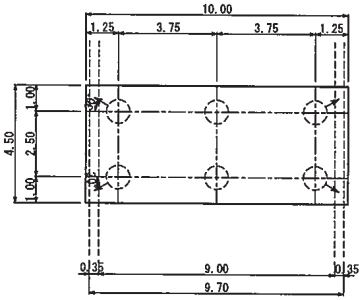
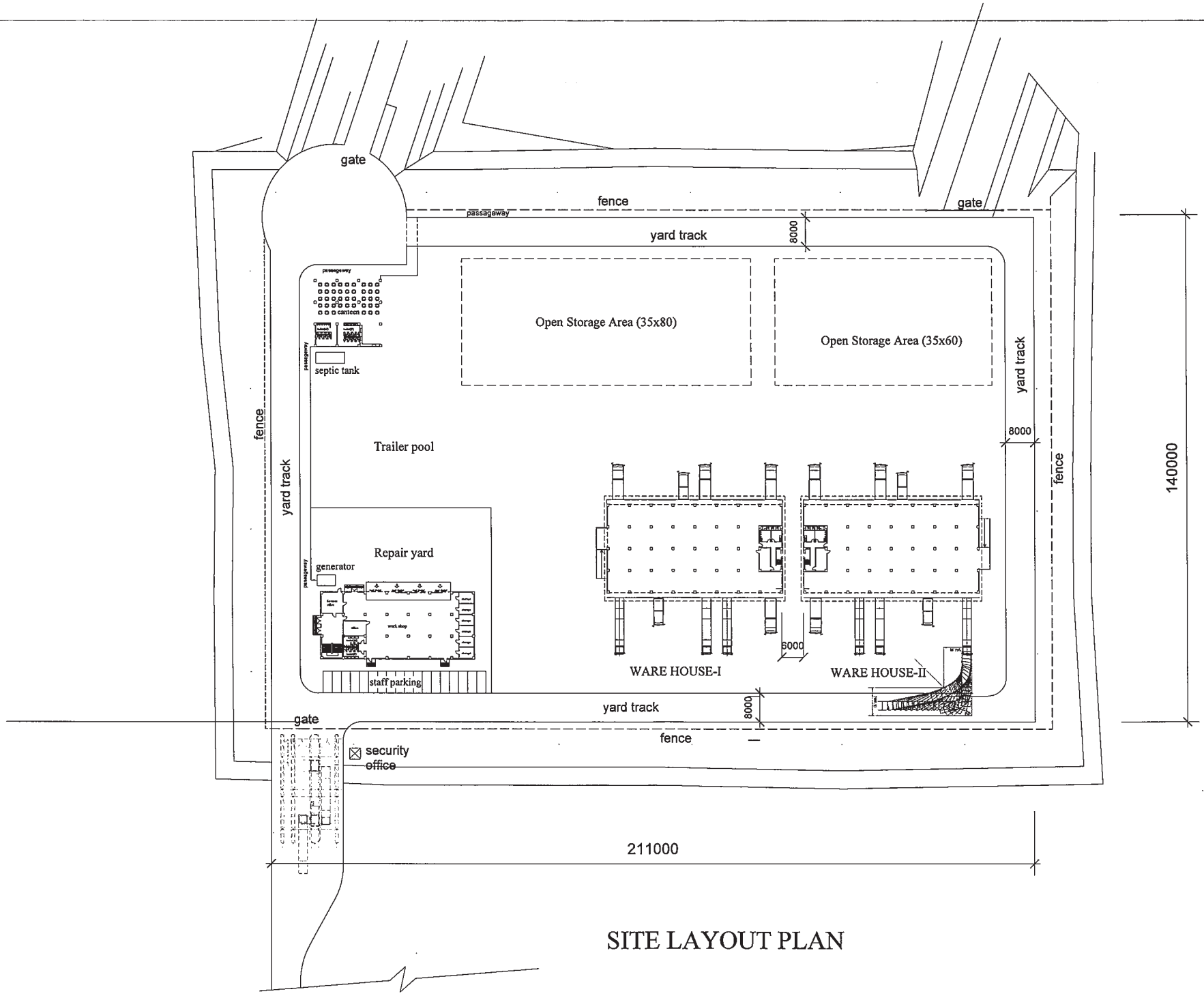


PLAN S=1:100

Appendix-03 Terminal Layout Plan

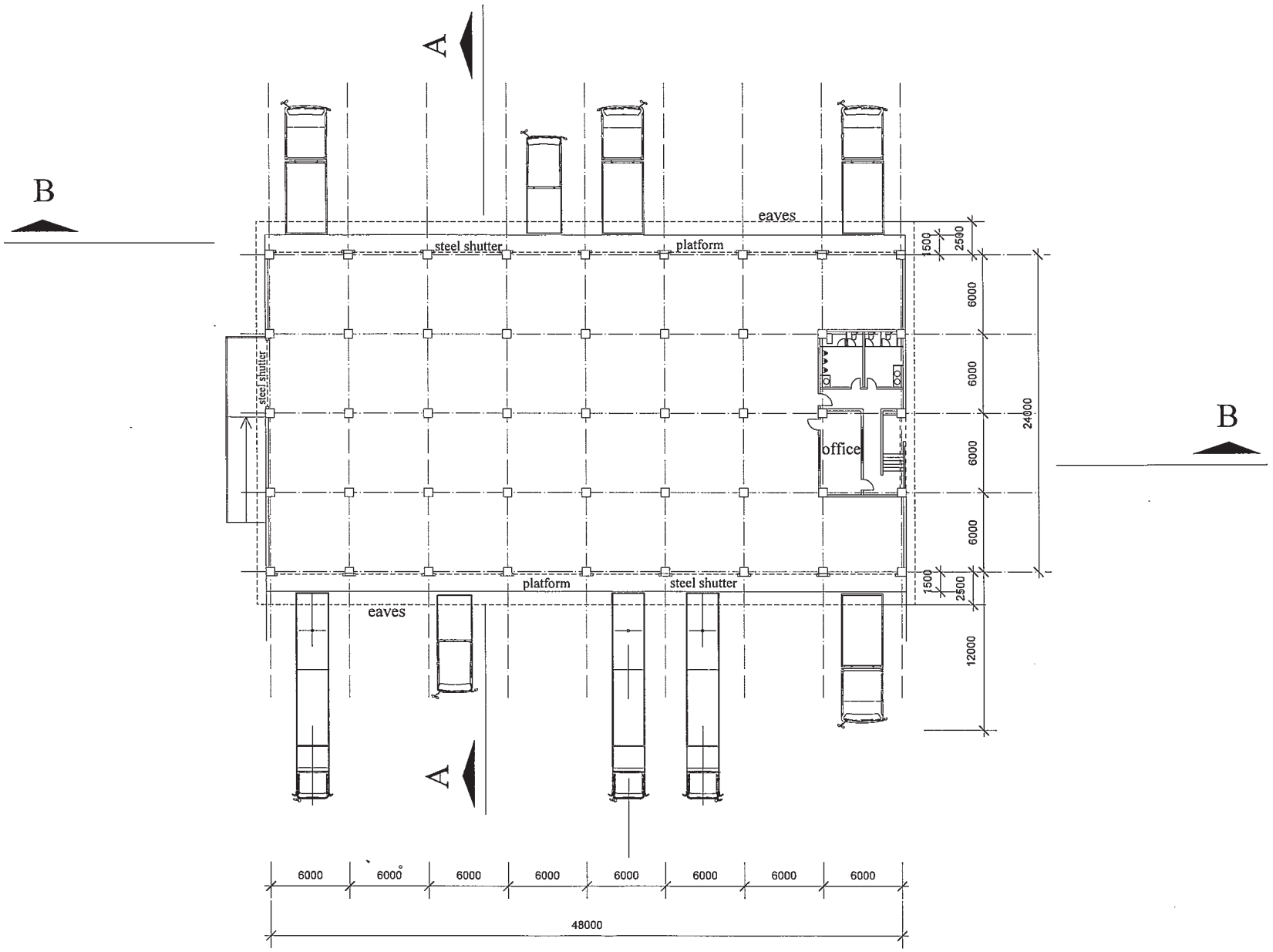


SITE LAYOUT PLAN

1 / 1,000

A4-4-14

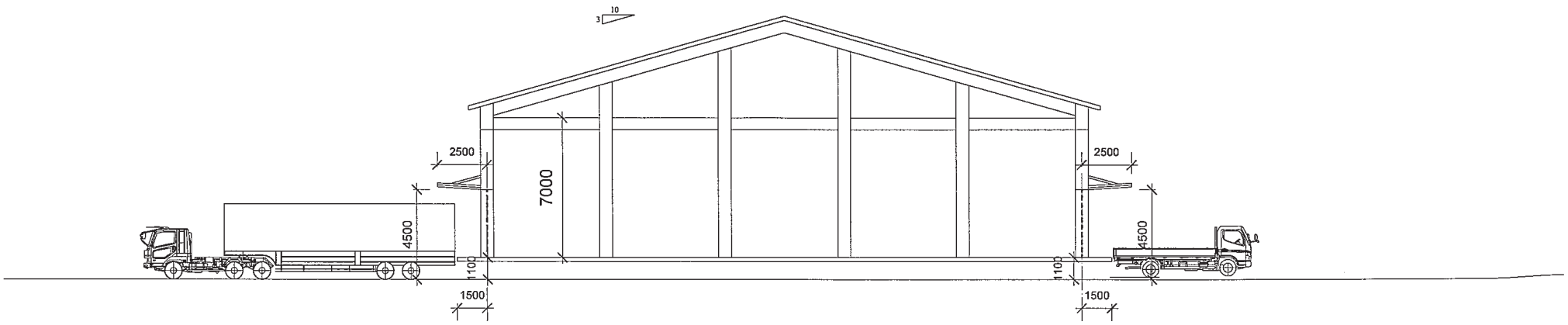
Appendix-04 Building Plans



WARE HOUSE-I GROUND FLOOR PLAN

1/300

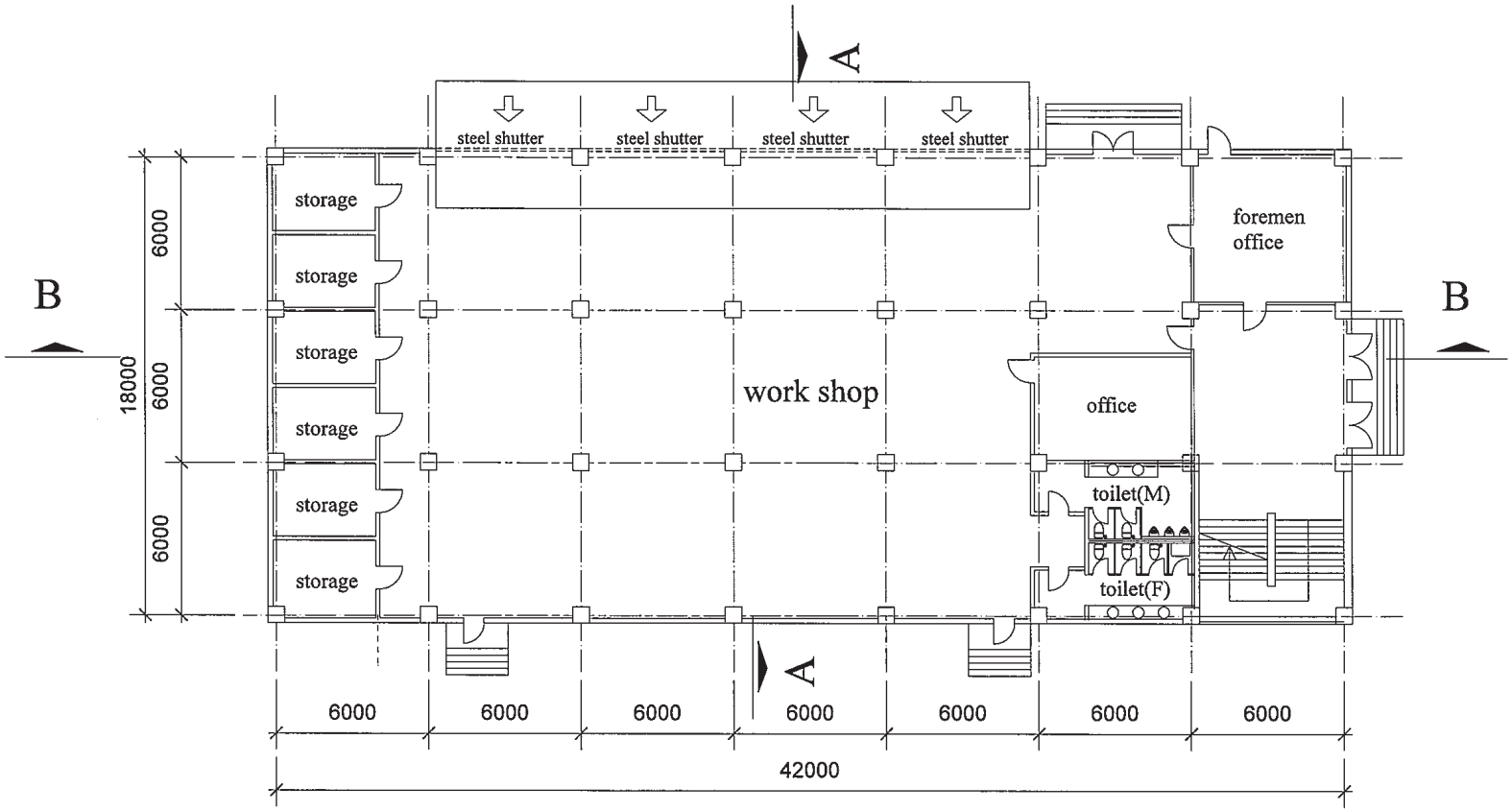
A4-4-16



section A-A

1/200

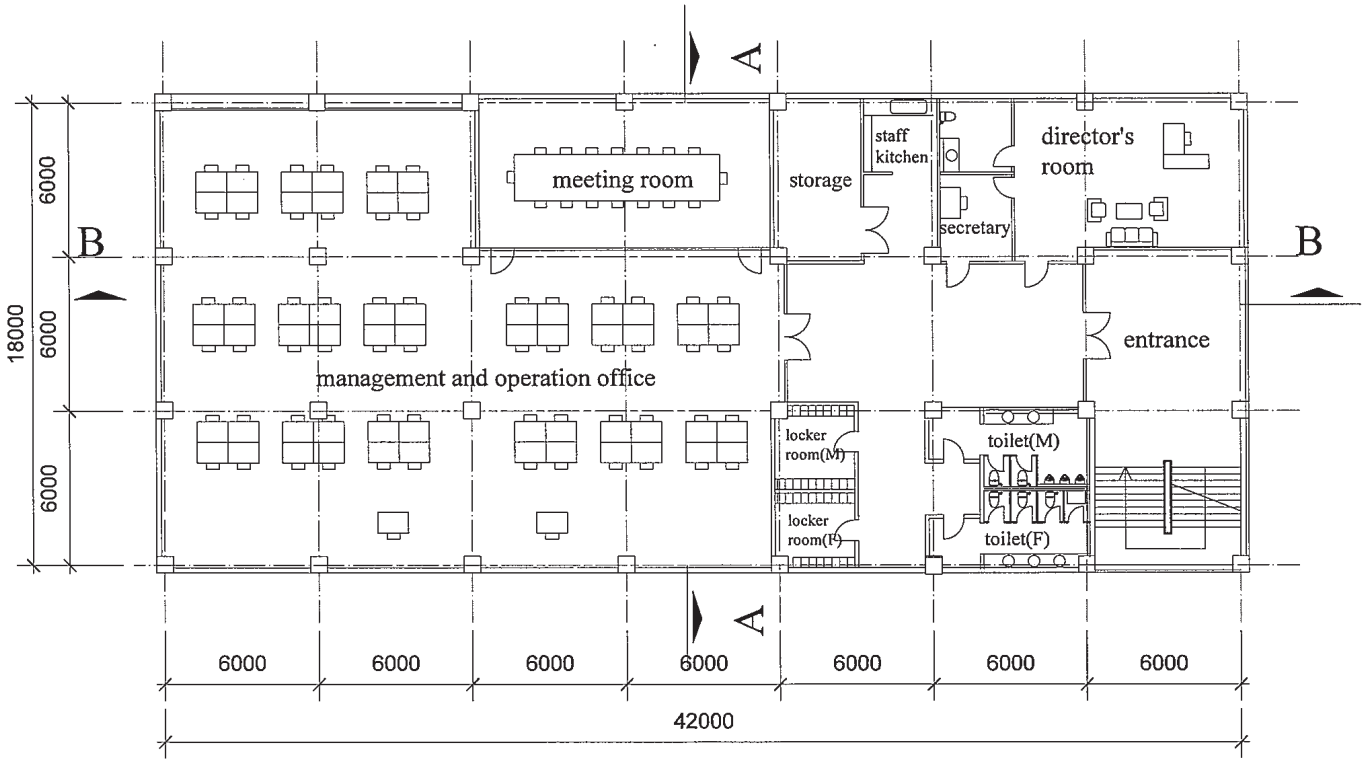
A4-4-17



Ground Floor

A4-4-18

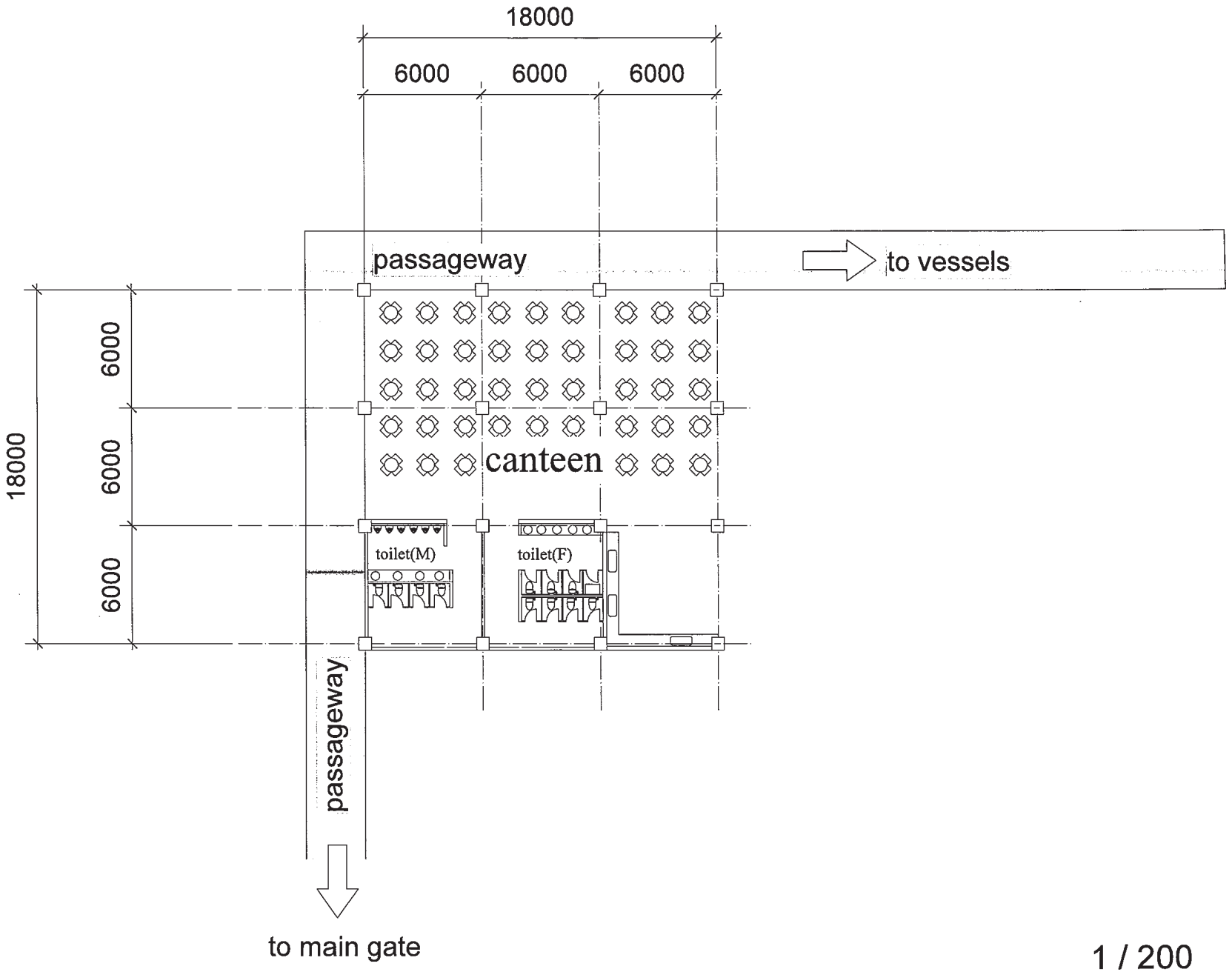
1 / 200



1ST Floor

A4-4-19

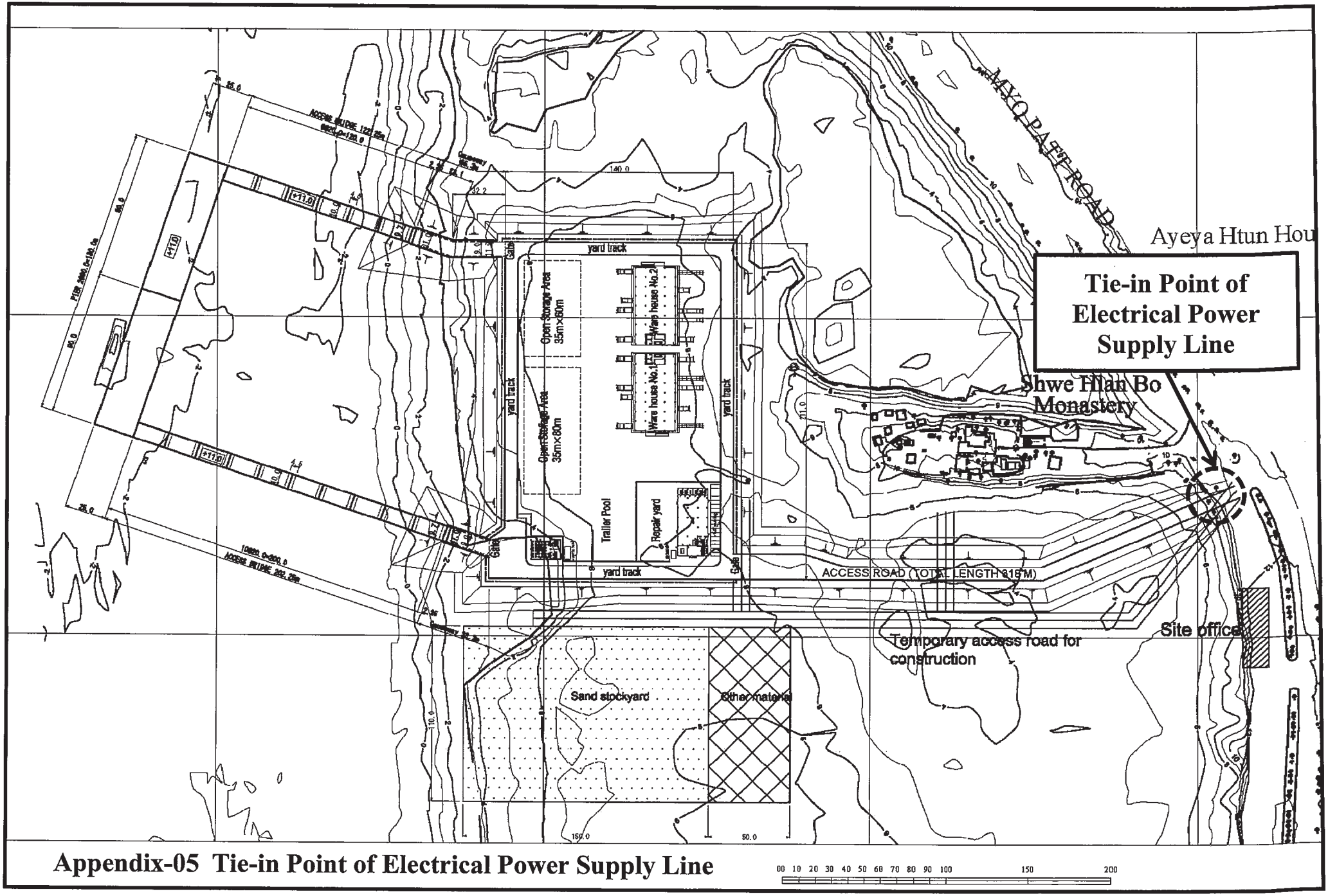
1 / 200


18000
6000
6000
6000
passageway
to vessels
18000
6000
6000
6000
canteen
toilet(M)
toilet(F)
passageway
to main gate

A4-4-20

1 / 200

Appendix-05 Tie-in Point of Electrical Power Supply Line



Appendix-05 Tie-in Point of Electrical Power Supply Line