

【Appendices】

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussion
5. Soft Component Plan
6. Other Relevant Data
7. References

Appendix 1
Member List of the Study Team

Appendix 1 Member List of the Study Team

	Name	Designation	Affiliation
1	Hiroyuki HATORI (Mr)	Team leader	Japan International Cooperation Agency (JICA) Senior Advisor (Forest Environment)
2	Kotaro TANIGUCHI (Mr)	Planning Management 1	Japan International Cooperation Agency (JICA) Deputy Director Forestry and Nature Conservation Division1 Forestry and Nature Conservation Group Global Environment Department
3	Naomi MATSUE (Ms)	Planning Management 2	Japan International Cooperation Agency (JICA) Associate Expert Forestry and Nature Conservation Division1 Forestry and Nature Conservation Group Global Environment Department
4	Hideto YAMAZAKI (Mr)	Chief consultant / Forest management planning / Operation & Management planning	Kokusai Kogyo Co., Ltd.
5	Masashi SUZUKI (Mr)	Plantation planning 1 / Land use survey	Kokusai Kogyo Co., Ltd.
6	Hirokatsu UTAGAWA (Mr)	Plantation planning 2	Kokusai Kogyo Co., Ltd.
7	Dexter CABAHUG (Mr)	Natural condition survey	Kokusai Kogyo Co., Ltd.
8	Chiaki NISHI (Ms)	Social condition survey / Participation planning / Environmental and social consideration	Kokusai Kogyo Co., Ltd.
9	Daisuke SAKAMOTO (Mr)	Facility planning / Construction planning	Kokusai Kogyo Co., Ltd.
10	Katsuki FUKUSHIMA (Mr)	Equipment planning / Procurement planning / Cost Estimation	Kokusai Kogyo Co., Ltd.
11	Kosuke KIKUCHI (Mr)	Coordinator	Kokusai Kogyo Co., Ltd.

Appendix 2

Study Schedule

Appendix 2 Study Schedule

2-1 The First Field Survey

The First Field Survey Schedule: 10 January 2011 to 10 March 2011

		Officials						Consultants									
		Team Leader		Planning Management 1		Planning Management 2		Chief consultant / Forest management planning / Operation & Management planning		Plantation planning 1 / Land use survey		Plantation planning 2		Natural condition survey		Coordinator	
		Mr. Hatori		Mr. Taniguchi		Ms. Matsue		Mr. Yamazaki		Mr. Suzuki		Mr. Utagawa		Mr. Dexter		Mr. Kikuchi	
10-Jan	Mo							YGN	Arrive at YGN		Arrive at YGN		Arrive at YGN		Arrive at YGN		Arrive at YGN
11-Jan	Tu							YGN	Preparation		Preparation		Preparation		Preparation		Data collection
12-Jan	We							YGN	Preparation		Preparation		Preparation		Preparation		Data collection
13-Jan	Th	YGN	Arrive at YGN					YGN	Preparation		Preparation		Preparation		Preparation		Data collection
14-Jan	Fr	YGN	Courtesy call to JICA					YGN	Courtesy call to JICA		Preparation		Preparation		Preparation		Data collection
15-Jan	Sa	NYU	Site observation of Afforestation Project					NYU	Site observation of Afforestation Project		Preparation		Preparation		Preparation		Data collection
16-Jan	Su	NYU	Site observation of Afforestation Project		Arrive at YGN			NYU	Site observation of Afforestation Project		Preparation	YGN	Preparation	YGN	Preparation		Data collection
17-Jan	Mo	BGL	Field Survey	BGL	Field Survey	BGL	Field Survey	BGL	Field Survey		Preparation		Preparation		Preparation		Data collection
18-Jan	Tu	BGL	Field Survey	BGL	Field Survey	BGL	Field Survey	BGL	Field Survey		Preparation		Preparation		Preparation		Data collection
19-Jan	We	NPT	YGN→NPT	NPT	YGN→NPT	NPT	YGN→NPT	NPT	YGN→NPT		Preparation		Preparation		Preparation		Data collection
20-Jan	Th	NPT	Meeting with MECAP	NPT	Meeting with MECAP	NPT	Meeting with MECAP	NPT	Meeting with MECAP		Preparation		Preparation		Preparation		Data collection
21-Jan	Fr	YGN	Report to JICA and EOJ	YGN	Report to JICA and EOJ	YGN	Report to JICA and EOJ	YGN	Report to JICA and EOJ		Preparation		Preparation		Preparation		Data collection
22-Jan	Sa	YGN	Arrive at NRT	YGN	Arrive at NRT	YGN	Arrive at NRT	YGN	Preparation		Preparation		Preparation		Preparation		Data collection
23-Jan	Su							KDK	Land Use Survey	KDK	Land Use Survey	KDK	Land Use Survey	KDK	Natural Condition Survey		Data collection
24-Jan	Mo							KDK	Land Use Survey	KDK	Land Use Survey	KDK	Land Use Survey	KDK	Natural Condition Survey		Data collection

NRT: Narita (Tokyo), BKK: Bangkok, YGN: Yangon, NPT: Nay Pyi Taw, NYU: Nyaung Oo, KDK: Kadonkani, KKP: Kyagankwimbauk, PYN: Pyinalan, LPT: Lapputa, BGL: Bogale

Continued on next page

Appendix 2 Study Schedule

		Consultants							
		Chief consultant / Forest management planning/ Operation & Management planning	Plantation planning 1 / Land use survey	Plantation planning 2	Natural condition survey	Social condition survey / Participation planning / Environmental and social consideration	Facility planning / Construction planning	Equipment planning / Procurement planning / Cost Estimation	Coordinator
		Mr. Yamazaki	Mr. Suzuki	Mr. Utagawa	Mr. Dexter	Ms. Nishi	Mr. Sakamoto	Mr. Fukushima	Mr. Kikuchi
25-Jan	Tu	Preparation	Land use survey	Land use survey	Natural Condition Survey	Arrive at YGN		Arrive at YGN	Data collection
26-Jan	We	Preparation	Land use survey	Land use survey	Natural Condition Survey	Preparation		Data collection	Data collection
27-Jan	Th	Preparation	Land use survey	Land use survey	Natural Condition Survey	Preparation		Data collection	Data collection
28-Jan	Fr	Preparation	Land use survey	Land use survey	Natural Condition Survey	Preparation		Data collection	Data collection
29-Jan	Sa	Preparation	Land use survey	Land use survey	Natural Condition Survey	Preparation		Data collection	Leave for BKK
30-Jan	Su	Social condition survey	Land use survey	Land use survey	Natural Condition Survey	Social condition survey		Data collection	Arrive at NRT
31-Jan	Mo	Social condition survey	Land use survey	Meeting with NGO	Natural Condition Survey	Social condition survey		Data collection	
1-Feb	Tu	Social condition survey	Land use survey	Meeting with NGO	Natural Condition Survey	Social condition survey		Data collection	
2-Feb	We	Social condition survey	Land use survey	Meeting with NGO	Natural Condition Survey	Social condition survey		Data collection	
3-Feb	Th	Social condition survey	Land use survey	Meeting with NGO	Natural Condition Survey	Social condition survey		Data collection	
4-Feb	Fr	Field Survey	Land use survey	Meeting with NGO	Natural Condition Survey	Field Survey		Field Survey	
5-Feb	Sa	Field Survey	Land use survey	Meeting with NGO	Natural Condition Survey	Field Survey		Field Survey	
6-Feb	Su	KDK → YGN	Land use survey	Meeting with NGO	Natural Condition Survey	KDK → YGN		KDK → YGN	
7-Feb	Mo	Data collection	Land use survey	Leave for BKK	Natural Condition Survey	Document Preparation		Data collection	
8-Feb	Tu	Data collection	KDK→PYN	Arrive at NRT	Natural Condition Survey	Document Preparation		Data collection	
9-Feb	We	Data collection	Land use survey		Natural Condition Survey	Document Preparation	Arrive at YGN	Data collection	
10-Feb	Th	Data collection	Land use survey		Natural Condition Survey	Document Preparation	Data collection	Data collection	
11-Feb	Fr	Data collection	Land use survey		Natural Condition Survey	Document Preparation	Data collection	Data collection	
12-Feb	Sa	YGN→LPT	Land use survey		Natural Condition Survey	Document Preparation	LPT	YGN→LPT	Data collection
13-Feb	Su	LPT→PYN	Land use survey		Natural Condition Survey	Document Preparation	LPT→PYN	LPT→PYN	Data collection
14-Feb	Mo	Field Survey	Land use survey		Natural Condition Survey	Document Preparation	Field Survey	Field Survey	Data collection
15-Feb	Tu	PYN→KKP	PYN→KKP		PYN→KKP	Document Preparation	KKP	PYN→KKP	Data collection
16-Feb	We	KKP→YGN	Land use survey		Natural Condition Survey	Document Preparation		KKP→YGN	Data collection
17-Feb	Th	Meeting with MECAF	Land use survey		Natural Condition Survey	Meeting with MECAF		Meeting with MECAF	Data collection
18-Feb	Fr	Meeting with MECAF	Land use survey		Natural Condition Survey	Meeting with MECAF		Data collection	Data collection
19-Feb	Sa	Data collection	Land use survey		Natural Condition Survey	Document Preparation		Data collection	Data collection
20-Feb	Su	Data collection	Land use survey		Natural Condition Survey	Document Preparation		Data collection	Data collection
21-Feb	Mo	Team Meeting	Land use survey		Natural Condition Survey	Team Meeting		Team Meeting	Team Meeting
22-Feb	Tu	Data collection	KKP→YGN		KKP→YGN	Leave for BKK		Data collection	Data collection
23-Feb	We	Data collection	Document Preparation		Document Preparation	Arrive at NRT		Data collection	Data collection
24-Feb	Th	Data collection	Document Preparation		Document Preparation			Data collection	Data collection
25-Feb	Fr	Data collection	Document Preparation		Document Preparation			YGN→BGL	Data collection
26-Feb	Sa	Document Preparation	Document Preparation		Document Preparation			Data collection BGL→YGN	Data collection
27-Feb	Su	Document Preparation	Document Preparation		Document Preparation			Document Preparation	Document Preparation
28-Feb	Mo	Document Preparation	Document Preparation		Document Preparation			Document Preparation	Document Preparation
1-Mar	Tu	Document Preparation	Document Preparation		Document Preparation			Document Preparation	Arrive at YGN
2-Mar	We	Document Preparation	Document Preparation		Document Preparation			Document Preparation	Document Preparation
3-Mar	Th	Document Preparation	Document Preparation		Document Preparation		BGL	YGN→BGL	Document Preparation
4-Mar	Fr	Document Preparation	Document Preparation		Document Preparation			Data collection BGL→YGN	Document Preparation
5-Mar	Sa	Document Preparation	Document Preparation		Document Preparation			Document Preparation	Document Preparation
6-Mar	Su	YGN→NPT	Document Preparation		Document Preparation			Document Preparation	Document Preparation
7-Mar	Mo	Meeting with MECAF	Document Preparation		Document Preparation			Meeting with MECAF	Document Preparation
8-Mar	Tu	Report to JICA	Document Preparation		Document Preparation			Report to JICA	Report to JICA
9-Mar	We	Leave for BKK	Leave for BKK		Leave for BKK			Leave for BKK	Leave for BKK
10-Mar	Th	Arrive at NRT	Arrive at NRT		Arrive at Manila			Arrive at NRT	Arrive at NRT

NRT: Narita (Tokyo), BKK: Bangkok, YGN: Yangon, NPT: Nay Pyi Taw, NYU: Nyaung Oo, KDK: Kadonkani, KKP: Kyagankwimbauk, PYN: Pyinalan, LPT: Lapputa, BGL: Bogale

2-3 The Third Field Survey

The Third Field Survey Schedule: 23 October 2011 to 29 October 2011

		Officials		Consultants	
		Planning Management 1		Chief consultant / Forest management planning/ Operation & Management planning	Equipment planning / Procurement planning / Cost Estimation
		Mr. Taniguchi		Mr. Yamazaki	Mr. Fukushima
23-Oct	Su	YGN	Arrive at YGN	YGN	Arrive at YGN
24-Oct	Mo		Courtesy call to JICA		Courtesy call to JICA
25-Oct	Tu	NPT	YGN→NPT Explanation of M/D	NPT	YGN→NPT Explanation of M/D
26-Oct	We		Explanation of M/D		Explanation of M/D
27-Oct	Th		Signing of M/D NPT→YGN		Signing of M/D NPT→YGN
28-Oct	Fr	YGN	Report to JICA Leave for BKK	YGN	Report to JICA Leave for BKK
29-Oct	Sa		Arrive at YGN		Arrive at YGN

NRT: Narita (Tokyo), BKK: Bangkok, YGN: Yangon, NPT: Nay Pyi Taw, NYU: Nyaung Oo,
KDK: Kardonkani, KKP: Kyagankwimbauk, PYN: Pyinalan, LPT: Lapputa, BGL: Bogale

Appendix 3
List of Parties Concerned in the Recipient Country

Appendix 3 List of Parties Concerned in the Recipient Country

The Myanmar Government

Aye Myint Maung	Director General, Forest Department
Nyi Nyi Kyaw	Deputy Director General, Forest Department
Zaw Win	Director General, Planning and Statistics Department
Tin Tun	Deputy Director General, Planning and Statistics Department
Bo Ni	Deputy Director, Planning and Statistics Division, Forest Department
Min Maw	Assistant Director, Planning and Statistics Division, Forest Department
Than Nai	Assistant Director, Planning and Statistics Division, Forest Department
Maung Maung Than	Director, Training and Research Development Division, Forest Department
Win Naing Thaw	Director, Nature and Wildlife Conservation Division, Forest Department
Maung Maung Kyaw	Director, Natural Forest and Planting Division, Forest Department
San Win	Director, Forest Research Institute, Forest Department
Khin Maung Lwin	Myaung Mya Forest Department Officer
Kan Htun	Bogalay Forest Department Officer
Kyi Lin	Pya Pon Forest Department Officer
Aung Myat San	Range Officer, Forest Department
Htay Aung	Range Officer, Forest Department
Myint Oo	Rector, University of Forestry
Htun Win	Director, Aquaculture Division, Department of Fisheries
Tint Wai	Assistant Director, Head of Section, Inspection and Certificate Section, Department of Fisheries
San San Myint	Manager, Myanmar Agriculture Service
Saw Hlaing	Director, Land Settlement and Records Department
Khin Maung Htay	Foreign Economic Relations Department
Ba Kaung	Assistant Director, Dry Zone Greening Department of Mandalay
Mya Win	Assistant Director, Nyaung Oo Township Dry Zone Greening Department

JICA Myanmar Office

Hideo MIYAMOTO	Formar Chief Representative
Masahiko TANAKA	Chief Representative
Katsuyoshi SAITO	Senior Representative
Hajime MATSUOKA	Representative
Yasuyuki SATO	Representative

Bridge Asia Japan (BAJ)

Yasufumi TUKAMURA	Director
Akiko MORI	Programme Manager

UN RC/HC

Nyunt Nyunt Win	Data Officer
-----------------	--------------

Forest Resource Environment Development and Conservation Association (FREDA)

U OHN	Vice Chaiman
Kyaw Nyein	Professional Assistant

Mangrove and Environmental Rehabilitation Network (MERN)

Dr.Maung Maung Than	Technical Adviser
Aung Thant Zin	Fund Manager

Biodiversity And Nature Conservation Association (BANCA)

U Myint Sein	Field Educator
--------------	----------------

Grow Together Through Networking

Aung Ko Thet	Program Officer
--------------	-----------------

Appendix 4
Minutes of Discussions

Appendix 4 Minutes of Discussions

4-1 Minutes of Discussion (20 January 2011)

**MINUTES OF DISCUSSIONS
ON
THE SECOND PREPARATORY SURVEY
ON
MANGROVE REHABILITATION PLAN FOR ENHANCEMENT
OF DISASTER PREVENTION IN THE AYEYAWADY AREA
IN
THE UNION OF MYANMAR**

In response to the request from the Government of the Union of Myanmar (hereinafter referred to as "Myanmar"), the Government of Japan decided to conduct the Second Preparatory Survey (hereinafter referred to as "the Second Survey") on the Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in the Ayeyawady Delta (hereinafter referred to as "the Project"), and entrusted the implementation of the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA dispatched the Second Preparatory Survey Team (hereinafter referred to as "the Team") to Myanmar. The Team is headed by Mr. Hiroyuki HATORI, Senior Advisor of JICA and is scheduled to stay in the country from 13 January to 9 March 2011.

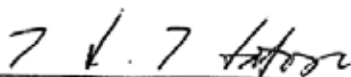
The Team has held series of discussions with the relevant officials of the Myanmar side, and conducted a field survey in the Project area.

As a result of the discussions and the field survey, both sides confirmed the main items described on the attached sheets.

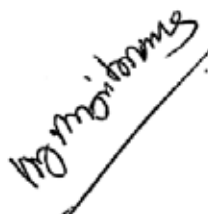
The signing of these Minutes does not imply the commitment of the Japanese side to implement the Project.

The Team will proceed to further works and prepare the Preparatory Survey Report.

Nay Pyi Taw, 20 January 2011



Mr. Hiroyuki HATORI
Leader
The Second Preparatory Survey Team
Japan International Cooperation Agency
Japan



U Aye Myint Maung
Director General
Forest Department
Ministry of Forestry
The Union of Myanmar

ATTACHMENT

1. Objective of the Project

The objective of the Project is to rehabilitate mangrove ecosystems in the Ayeyawady Delta and to recover the function of disaster prevention and mitigation.

2. Contents of the Inception Report

The Team presented the Inception Report of the Second Survey to the Ministry of Forestry and relevant authorities of the Myanmar side. The Myanmar side agreed to and accepted, in principle, the contents of the Inception Report.

3. Project Title

Both sides agreed to change the project title from "Mangrove Rehabilitation Plan for Enhancement of the Cyclone Nargis Affected Area" to 'Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in the Ayeyawady Delta'.

4. Selection of Project Area and Sites

4-1. Both sides confirmed that the following locations and areas will be considered as Project candidate sites within the Ayeyawady Division as indicated in **Annexes 1 to 3**. As for the proposed site i) below, the Myanmar side explained that it was proved that the site of 800 ha is situated not only in Compartment No. 25 but also No. 27 based on the field survey by the Forest Department, Ministry of Forestry. The Team understood the explanation.

i) 800ha of the eastern part of the Kyakankwinpauk Reserved Forest (Compartment Nos: 25 and 27);

ii) 200ha of the south coast of Pyinalan Reserved Forest (Compartment Nos: 63 and 67); and

iii) 2,400ha of the central part of Kadonkani Reserved Forest (Compartment Nos: 43, 44, 50, 53, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, and 68)

The total area of Project sites is no more than 3,400ha. The Japanese side will make the final decision on the locations and areas of plantations based on the result of the Second Survey after the consultation with the Myanmar side.

4-2. Both sides confirmed there was no change in the criteria for the site selection and the justification for each prioritised site, as described in Annexes 2 and 3 of the Minutes of Discussions on 9 June 2010 during the First Preparatory Survey on Mangrove Rehabilitation Plan for Enhancement of the Cyclone Nargis Affected Area (hereinafter referred to as "First Survey"). Both sides also agreed to exclude the areas in which the Team would identify any difficulty for plantations during the Second Survey in terms of social and environmental conditions. In particular, the land which is occupied by local people should be, in principle, excluded from the area of plantation.

4-3. Based on the criteria described in the above Item 4-2, each site will be surveyed by the Team. There will be a possibility that community forest be set up within Kyakankwinpauk Reserved Forest in accordance with the Community Forest Instructions if the Team identifies appropriateness for it in terms of socioeconomic conditions as well as relevant laws and regulations. The Japanese side will take this matter into consideration while conducting the Field Survey I.

4-4. The Myanmar side explained that there was no other development plan for the proposed

project area so far. The Japanese side requested not to change land use on that area, and in case it happened, then to secure the same scale of replacement area and replant the same type and amount of trees by Myanmar's own expense. The Myanmar side agreed it.

5. Requested Schedule of Implementation

The Myanmar side confirmed that it expected five (5) years to implement the Project. The Japanese side explained that in that case, 1st year would be for preparation period (i.e. construction of nurseries, observation towers and temporary roads), 2nd to 4th years for planting, and 5th year for follow-up activities including supplementary planting.

6. Responsible and Implementing Agency

6-1. The responsible organization in the Survey stage and the Implementation stage of the Project is the Forest Department, Ministry of Forestry, the Union of Myanmar.

6-2. The Forest Department confirmed their organization has not been changed after the First Survey as indicated in the Minutes of Discussions on 9 June 2010. The organization chart of the Ministry of Forestry and the Forest Department is described in Annex-4.

6-3. The Myanmar side agreed to establish the coordinating system within the Myanmar side to involve other departments concerned as follows for implementing the Project:

- a) Planning and Statistics Department, Ministry of Forestry;
- b) Department of Fisheries, Ministry of Livestock and Fisheries;
- c) Land Settlement and Records Department, Ministry of Agriculture and Irrigation; and,
- d) Myanmar Agricultural Service, Ministry of Agriculture and Irrigation.

The Myanmar side also agreed to submit to JICA the organization charts with roles and responsibilities **by 14 February 2011**.

6-4. If there is any change in policy and/or organization (the Forest Department and other organizations related to the Project) after the establishment of new government scheduled in February 2011, the Forest Department should inform it to the Japanese side via JICA Myanmar Office by a letter immediately.

7. Outcomes of the Project and Items Requested by the Myanmar Side

7-1. After discussion with the Team, the Myanmar side agreed to focus on the four expected outcomes as below, and confirmed the following items as a request to the Japanese side.

- a) To prevent land and river bank from erosion and destruction caused by storms and floods,
- b) To implement preparedness and preventive plans formulated on the basis of experience and lessons learned from cyclones and storms,
- c) To protect and conserve coastal ecosystems and biological diversity through proper management of mangrove forests, and
- d) To provide environmental and economic benefits for local population.

7-2. The following items requested to the Japanese side would be examined by further survey and be analysed by the Team in Japan.

7-2-1. Establishment of plantations in all the candidate sites

- a) Selecting appropriate tree species in each site
- b) Making seedlings

Voo/
梅

c) Planting and tending works

7-2-2. Construction of Temporal Facilities for the above Item 7-2-1.

The Myanmar side requested to construct temporal facilities (nursery, roads, jetties, facilities for bank erosion, telecommunication facilities and camps), in the proposed project sites. However, the Japanese side explained that such temporal facilities would be considered for the construction and planting works in the Project. The details of those facilities will be estimated by the Team in the Second Survey and be decided by the Japanese side. The Myanmar side understood the explanation.

7-2-3. Construction of Cyclone Shelters with Forest Watch Towers

The Myanmar side explained that they need cyclone shelters as follows based on their necessity:

No.	Number and Site
1.	2 (1 each in Bogalay and Laputta Townships)

The Japanese side requested the Myanmar side to provide a plan or information which includes location, capacity and a reason of this request, to the Japanese side via JICA Myanmar Office by **14 February 2011**. Upon receipt of it, the Japanese side will examine the necessity of these items during their survey and decide the number. The Myanmar side agreed it.

7-2-4. Equipments for Transportation and Construction

No	Item	Number
1	Vehicle	3
2	Truck	3
3	Passenger boat	3
4	Cargo boat	3
5	Heavy Equipment	3

The items Nos. 1 to 5 were requested to provide to the Forest Department. However, the Japanese side explained that construction and planting works would be implemented by a contractor and Item Nos. 2, 4 and 5 were not necessary for the Myanmar side. The Myanmar side agreed that it would explain the details of Item Nos. 1 and 3, such as number, purpose, location, maintenance and a list of existing equipment with the detailed information such as location, number and conditions, and submit it by a letter to JICA Myanmar Office **by 14 February 2011**. It will be examined during the Second Survey and the final decision will be decided by the Japanese side.

8. Japan's Grant Aid Scheme

8-1. In the Second Survey, the Team explained the Japan's Grant Aid Scheme for Environment and Climate Change (Project Type) described in **Annex-5**, which will be applied for the Project. The Myanmar side understood the procedures of the Japan's Grant Aid from the application of a request to follow-up of the Project as illustrated in **Annex-6**.

8-2. The Myanmar side will take the necessary measures, as described in **Annex-7** for smooth implementation of the Project, as the condition for the Japan's Grant Aid to be implemented.

Handwritten signature/initials

9. Schedule of the Survey

9-1. The consultant members of the Team will proceed with further studies as a Field Survey I until 9 March 2011.

9-2. Based on the results, the Japanese side will prepare an interim report in English in April 2011, and dispatch a mission in order to explain the results of the Filed Survey I. The consultant members of the Team will conduct further studies as a Field Survey II from late April 2011. The Myanmar side confirmed their assistance in order for the Team to conduct the Field Surveys-I and II without any difficulty.

9-3. As a result of the field surveys, the Japanese side will prepare a draft preparatory survey report in English in July 2011, and dispatch a mission in order to explain its contents to the Myanmar side in August 2011.

9-4. In the case that the contents of the draft report are accepted in principle by the Myanmar side, the Japanese side will finalise the report and send it to the Myanmar side around November 2011.

9-5. The Myanmar side understands that the execution of the Second Survey does not imply the commitment of the Japanese side to implement the Project.

10. Major Undertakings by the Forest Department, Ministry of Forestry

10-1. Regarding the implementation structure of the Project by the Myanmar side, both sides continued to confirm the items shown below as agreed in Annex 7 of the Minutes of Discussions on 9 June 2010:

a) The Myanmar side would assign the appropriate number of staff in the Forest Department, Ministry of Forestry as **Annex-8**. For information on focal points in the other departments and organizations, the Forest Department, Ministry of Forestry will provide to the Japanese side via JICA Myanmar Office **by 14 February 2011**;

b) The Myanmar side would secure the cost of all the meetings related to the Project and expenses (accommodation, travel allowance, etc.) of participants from the Myanmar side;

c) The Myanmar side would secure the necessary budget for the Project and inform the amount of the budget to the Japanese side via JICA Myanmar Office;

d) The Myanmar side would secure and maintain land for the construction of the facilities in the Item 7-2;

e) After completion of the Project, the Myanmar side would own and preserve the property of plantations and facilities constructed or procured under the Japan's Grant Aid. The responsibility for proper operation and maintenance of the facilities will also be undertaken by the Ministry of Forestry. The plantations will be managed either by Community Forest user groups through the Forest Department, Ministry of Forestry, or directly by the Forest Department, Ministry of Forestry; and

f) The Myanmar side would establish a plan of monitoring and post-evaluation for the Project in consultation with the Japanese side.

11. Other Relevant Issues

11-1. Order of the Implementation

Both sides agreed that in order to implement the Project efficiently and effectively, the plantation work would be started from the largest site, the central part of Kadonkani Reserved Forest.

100/
100

11-2. Tax exemption and Custom Clearance

As agreed in the Minutes of Discussions on 9 June 2010, both sides confirmed that the Myanmar side shall take necessary measures to exempt Japanese nationals who will be engaged in the Project from all duties and related fiscal charges which may be imposed in Myanmar with respect to the import and local procurement of project-specific equipment and services supplied under the verified contract.

Both sides also confirmed that the Myanmar side shall also take necessary measures to implement smooth custom clearance of the materials and equipment for the Project to be imported from Japan or third countries.

11-3. Safety and Security

As agreed in the Minutes of Discussions on 9 June 2010, the Myanmar side promised to take any measures deemed necessary to secure the safety of the Second Preparatory Survey Team members and personnel engaged in the Project.

11-4. Environmental and Social Considerations

The Japanese side explained that the Project was ranked "B" in the JICA Guidelines for Environmental and Social Considerations (the version of April 2004) (hereinafter referred to as "JICA Guidelines") and that the Second Survey should be carried out in accordance with the JICA Guidelines. The Myanmar side committed to take necessary measures for environmental and social consideration based on the JICA Guidelines and obtain the relevant approvals in a timely manner.

The Myanmar side confirmed that it would build consensus with local people in and around the candidate sites regarding mangrove plantation activities.

11-5. Collaboration with the Technical Cooperation Project

Both sides agreed that outputs of the JICA technical cooperation project entitled 'the Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta', should be reflected to the Project in consultation with the JICA technical cooperation experts and counterparts.

11-6. Soft Component Programme

In response to the request from the Myanmar side as indicated in the Minutes of Discussions on 9 June 2010, the Team will study the possibility of soft component programme, such as training for capacity building, and the Japanese side will examine the result. The final decision will be informed to the Myanmar side.

11-7. Monitoring Biodiversity Indicators

Both sides recognised that the Project would contribute mainly to disaster mitigation, but at the same time to mitigation of climate change as well as conservation of biodiversity and ecosystems. Therefore, the Japanese side proposed to include monitoring biodiversity indicators into the Project activities to evaluate effectiveness of the Project from an ecological aspect. The Myanmar side fully agreed to take this idea.

(End of Document)

Attached:

- Annex-1: Map of Selected Sites for Proposed JICA's Grant Aid Project
- Annex-2: Confirmation on the Project sites by the Forest Department
- Annex-3: Confirmation by the Forest Department on the proposed areas of plantation in the Kadonkani Reserved Forest
- Annex-4: The Organization Chart of the Ministry of Forestry and the Forest Department
- Annex-5: Japan's Grant Aid Scheme for Environment and Climate Change (Project Type)
- Annex-6: Flow Chart of Japan's Grant Aid Procedures for Environment and Climate Change (Project Type)
- Annex-7: Major Undertakings to be taken by Each Government
- Annex-8: A List of the Counterparts and Focal Points for the Project

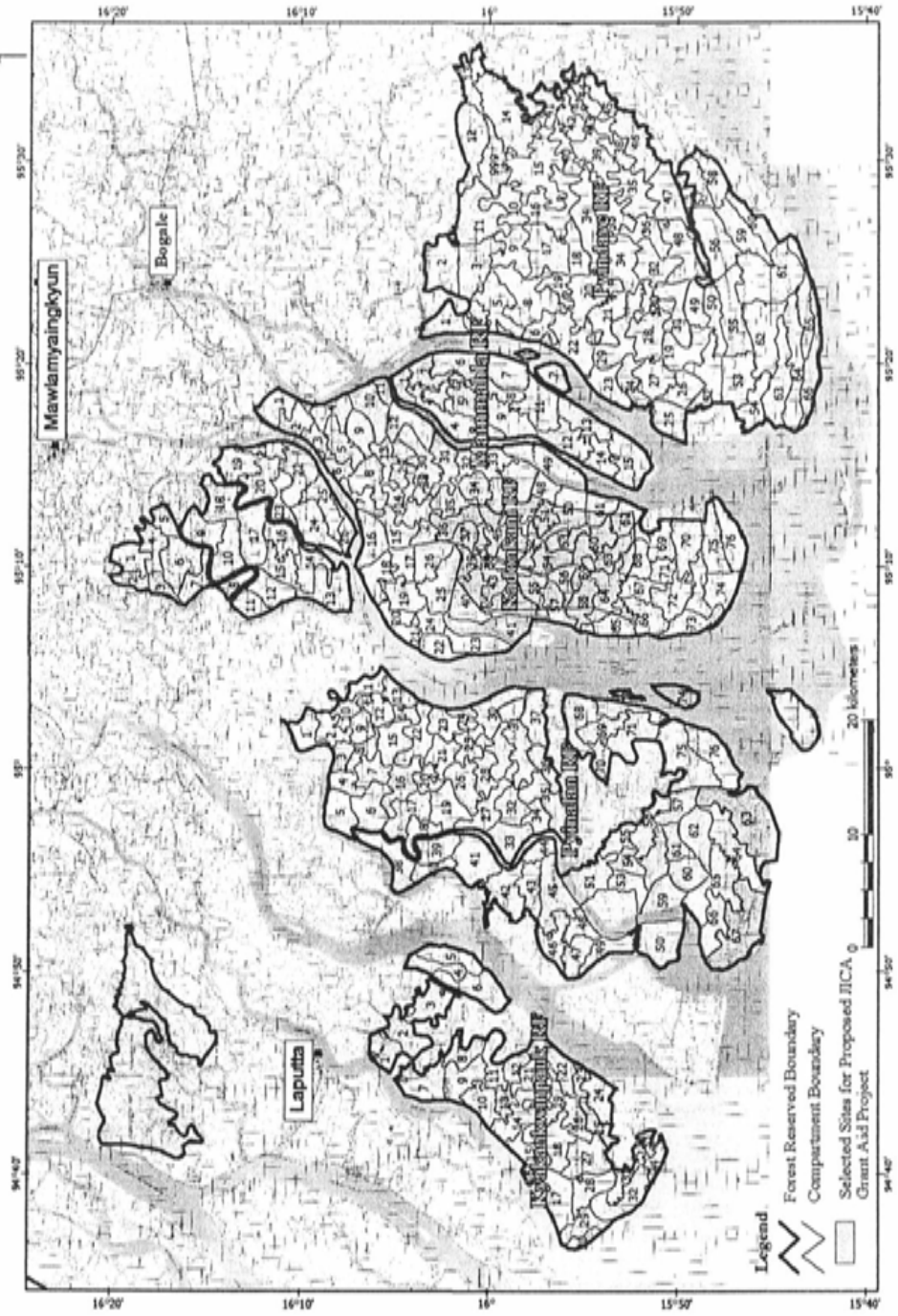
ms
/

ms

Handwritten marks: a checkmark and a signature.

Annex-1:

Map of Selected Sites for Proposed JICA Grant Aid Project



**Annex-2: Confirmation on the Project sites by the Forest Department,
Ministry of Forestry**

FROM :

FAX NO. :

14 Jul. 2010 3:47PM P1

Tel: 067-42017,
067-42016
E-Mail: dp@mpetna.net.mm

Government of the Union of Myanmar
Ministry of Forestry
Forest Department
Headquarters Office of Director General
Nay Pyi Taw

Tel: 067-42017,
067-42016
E-Mail: dp@mpetna.net.mm

Reference: Planning/0201(6317-18/2010)
Date: 13.7.2010

Mr. Hideo MIYAMOTO
Chief Representative
JICA Myanmar Office

**Subject: Confirmation of the Sites for implementation of Proposed Grant Aid
Project in the Ayeyarwady Delta**

As mentioned at the last sentence of sub title 2, Page No. 1 in the Minutes of Discussion signed between the Director General of Forest Department and the Leader of the First Preparatory Survey Team of JICA, Japan, on 9 June 2010, I hereby kindly inform you that Forest Department selects following Sites for the implementation of the proposed project.

1. Site 1: 800 ha of compartment No. 25, at south-eastern edge of Kyakankwinpauk Forest Reserve, Laputta Township, Ayeyawady Division
2. Site 3: 2400 ha in total of bare land in central part of Kadonkani Forest Reserve, Bogalay Township, Ayeyawady Division

The selected Sites are in titled with selection criteria mentioned in annex .2 of the Minutes of Discussion; and I will be very obliged if you kindly convey this information to officials of JICA Headquarters for the further processes necessitated to materialize the proposed project.

With best regards

For Director General

Zaw Win (4)
Director
Planning and Statistics Division
Forest Department

CC:

1. Deputy Director General; 2. Director General's Office; 3. Office Copy

**Annex-3: Confirmation by the Forest Department on the proposed areas of plantation
in the Kadonkani Reserved Forest**

**Areas of selected compartments and designated plantation areas to be established in the
compartments of Kadonkani Reserved Forest**

for

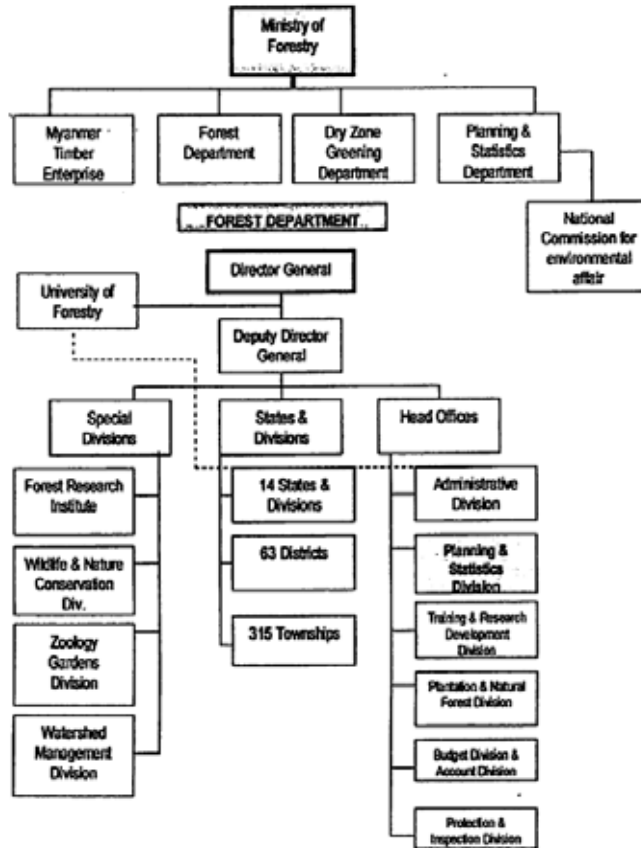
Proposed Grant Aid Project

No.	Compartment No.	Total Area (acre)	Area (acre) to be planted
1.	43	1518	600
2.	44	1576	200
3.	50	3296	300
4.	53	1280	700
5.	55	1805	300
6.	56	1235	500
7.	57	1949	400
8.	58	1957	400
9.	60	2198	800
10.	61	1599	100
11.	62	1880	200
12.	63	2021	300
13.	64	2994	900
14.	65	2101	200
15.	68	1567	100
	Total	28976 acres	6000 acres = 2400 ha

Handwritten initials and a checkmark.

Annex-4: The Organization Chart of the Ministry of Forestry and the Forest Department

Organization Chart of Ministry of Forestry and Forest Department



MS
/

**Annex-5: Japan's Grant Aid Scheme for Environment and Climate Change
(Project Type)**

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organisational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and 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. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures:

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of 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 country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant

mo
梅

Aid Scheme 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 a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever 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 organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered 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 appropriateness of the Project.

3. Japan's Grant Aid Scheme

(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 signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) 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 country to continue to work on the

MO
13

Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

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.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.



(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

MO
✓

植

Annex-6: Flow Chart of Japan's Grant Aid Procedures for Environment and Climate Change (Project Type)

Stage	Flow & Works	Recipient Government	Japanese Government	JICA	Consultant	Contract	Others
Application	Request (TR: Terms of Reference)	✓					
	Screening of Project → Evaluation of T/R → Project Identification Survey*		✓	✓			
Project Formulation & Preparation	Preliminary Survey* → Field Survey Home Office Work Reporting	✓	✓	✓			
	Outline Design → Selection & Contracting of Consultant by Proposal → Field Survey Home Office Work Reporting	✓	✓	✓	✓		
	Explanation of Draft → Final Report	✓	✓	✓	✓		
Appraisal & Approval	Appraisal of Project		✓	✓			
	Inter Ministerial Consultation		✓				
	Presentation of Draft Notes	✓	✓				
	Approval by the Cabinet		✓				
Implementation	E/N and G/A (E/N: Exchange of Notes, G/A: Grant Agreement)	✓	✓	✓			
	Banking Arrangement (A/P: Authorization to Pay)	✓					✓
	Consultant Contract → Verification → Issuance of A/P	✓		✓	✓		
	Detailed Design & Tender Documents → Approval by Recipient Government → Preparation for Tendering	✓		✓	✓		
	Tendering & Evaluation	✓		✓	✓	✓	
	Procurement/Construction Contract → Verification → A/P	✓		✓	✓	✓	
	Construction → Completion Certificate → A/P	✓		✓	✓	✓	
	Operation → Post Evaluation Study	✓		✓			
	Ex-post Evaluation → Follow up	✓	✓	✓			

13/

14/

Annex-7: Major Undertakings to be taken by Each Government

NO.	Items	To be covered by Grant A/B	To be covered by Recipient Site
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To withdraw the existing titanium mining facilities in the Project sites and to level the areas after the withdrawal		●
4	To construct gates and fences in and around the site where necessary		●
5	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
6	To ensure unloading and customs clearance at port of destination in recipient country		
	1) Marine (A) transportation of the products from Japan the recipient	●	
	2) Tax exemption and customs clearance of the products at the port of destination		●
	3) Internal transportation from the port of destination to the project site	●	
7	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
8	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
9	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant		●
10	To bear all the expenses, other than those to be born by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●
11	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
12	To construct the building and to plant trees	●	
13	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and/or elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
6) Furniture and Equipment			
a. General furniture		●	
b. Project equipment	●		

MS

Annex-8: A List of Counterparts and Focal Points for the Project

I. Counterparts for the Project

Forest Department, Ministry of Forestry

U Aye Myint Maung	Director General
Dr. Nyi Nyi Kyaw	Deputy Director General
U Zaw Win (4)	Director, Planning and Statistics Division
U Bo Ni	Deputy Director, Planning and Statistics Division
U Min Maw	Assistant Director, Planning and Statistics Division
U Tual Cin Kai	Staff Officer, Planning and Statistics Division
U Htay Aung	Range Officer, Planning and Statistics Division

Myaung Mya District Forest Department

U Khin Maung Lwin	Assistant Director
U Hla Myo Aung	Staff Officer

Bogalay Township Forest Department

U Kan Htun	Staff Officer
U Myo Min Tun	Range Officer
U Kyaw Kyaw Myo	Range Officer

Laputta Township Forest Department

U Aung Gyi	Staff Officer
U Than Min Aye	Range Officer
U Hla Shwe	Range Officer

II. Focal Points for the Project

Planning and Statistics Department, Ministry of Forestry

Department of Fisheries, Ministry of Livestock and Fisheries

Land Settlement and Records Department, Ministry of Agriculture and Irrigation

Myanmar Agricultural Service, Ministry of Agriculture and Irrigation

MW
↙

真

4-2 Technical Note (7 March 2011)

Technical Notes
on
The Second Preparatory Survey on Mangrove Rehabilitation Plan
for Enhancement of Disaster Prevention in The Ayeyawady Area
in
the Union of Myanmar

In response to the request from the Government of the Union of Myanmar (hereinafter referred to as "Myanmar"), the Government of Japan decided to conduct the Second Preparatory Survey (hereinafter referred to as "the Second Survey") on the Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in the Ayeyawady Delta (hereinafter referred to as "the Project"), and entrusted the implementation of the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA dispatched the Second Preparatory Survey Team (hereinafter referred to as "the Team") to Myanmar.

The Team has held series of discussions with the relevant officials of the Myanmar side, and conducted a first field survey in the Project area.

As the result of the discussions and the first field survey, both side confirmed the main technical items described on the attached sheets.

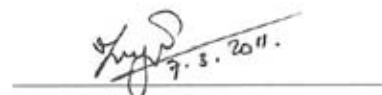
The signing of this note does not imply the commitment of the Japan side for the implementation and components of the Project.

The Team will proceed to further works and prepare the interim report.

Nay Pyi Taw, 7 March 2011



Hideto YAMAZAKI
Chief Consultant
Chief Consultant
The Second Preparatory Survey Team
Kokusai Kogyo Co., Ltd.
Japan



On behalf of Director General
ZAW WIN
Director
Plantation and Statistics Division
Forest Department
the Union of Myanmar

Attachment

1. Mangrove Plantation

(1) Project Area for Mangrove Plantation

1) Policy for the Confirmation of the Project area

Policy 1: Existing cultivated areas shall be excluding in accordance with the Minutes of Discussion signed on 20 January, 2011.

Policy 2: The existing forest areas which canopy ratio are more than 50% shall be excluding, because natural generation is expected.

Policy 3: The low land areas and the bank of rivers and creeks shall be excluding, because the areas are narrow and there are existing forests.

Policy 4: The areas which are not covered by vegetation shall be excluding, because the soil potentials for plantation are not expected.

2) Project Area

During the field survey, Myanmar side declared to cancel the plantation for Pyinalan RF. Because the original request is following Myanmar side's rehabilitation plan which is based on the map of 2008-2009 dry season. The land use in Pyinalan RF has been changed rapidly during these 2 years.

Myanmar side request approximately 2,300 ha for Kadonkani RF and approximately 1,100 ha Kyakankwinpauk RF, in total 3,400 ha, in finally.

The Team has been confirmed the potential for mangrove plantation in Kadonkani RF and Kyakankwinpauk RF as following table.

Table-1 The final request from Myanmar side and its potential

Reserved Forest	Final Requested Are	Potential
Kadonkani RF	approximately 2,300 ha	Confirmed
Kyakankwinpauk RF	approximately 1,100 ha	Confirmed
Total	3,400 ha	

(2) Candidate Species for the project

The candidate species mentioned in the following tables are suggested by the Team and agreed by both parties.

Table-2 Candidate Species for Kadonkani RF

Species
Sonneratia caseolaris (LAMU)
Heritiera fomes (KANASO-YAY)

Table-3 Candidate Species for Kyakankwinpauk RF

Species
Sonneratia apetala (KANTPALAR)
Avicennia officinalis (THAMAE GYI)

Note: There is possibility to change the candidate species by the further analysis.

(3) Necessary Components for Mangrove Plantation

The both parties confirmed followings necessary component for Mangrove plantation

- 1) Preparation work
- 2) Seed collecting work
- 3) Germination work (depend on species)
- 4) Potting work
- 5) Nursery work
- 6) Land preparation work (Cutting grass and Brush)
- 7) Staking work
- 8) Planting work (Including seed transportation)
- 9) Weeding work
- 10) Survival counting work
- 11) Fire protection work
- 12) Necessary temporary work for above works

2. Procurement of Equipment

(1) Vehicles (3 Units)

Myanmar side will submit further information including operation plan and maintenance plan are required for the confirmation of the necessity of vehicles by 10 April 2011 to JICA Myanmar office.

(2) Passenger Boat (3 Units)

Myanmar side will submit further information including operation plan and maintenance plan are required for the confirmation of the necessity of Passenger Boat by 10 April 2011 to JICA Myanmar office.

3. Construction of Cyclone Shelters (2 units)

The requested Cyclone shelter in compartment No.55, Kadonkani RF, has been confirmed by the Team. Myanmar side will submit further information for another Cyclone Shelter by 10 April 2011 to JICA Myanmar office.

4. Soft Component

The both parties confirmed the components of Soft Component activities as follows.

(1) Establishing CF in Kyakankwinpauk RF

Both parties confirmed the establishment of CF in Kyakankwinpauk RF is necessary to protect the rehabilitated forest, establishing a CF which is to serve as a fuel wood forest for the village.

1) The components for the establishment of CF

- Target area: 90 ha of bordering areas of Kwinthonesint village in Compartment 27
- Proposed activities: Planting of trees to be completed by the project
- Consultation with the community for deciding locations.
- Workshops to secure participation of majority of community in CFUG.
- Formulation of CF Management plan in a participatory manner, in line with existing CFL.
- Continuous participatory monitoring of the CF woodlot prior to the hand over


(2) Promotion of Improved (energy-saving) cooking stove

Improved cooking stove was introduced to the area before the Cyclone Nargis devastated the area. The villagers still acknowledge its efficiency. Since the fuel wood is currently the sole energy source for household chores in the project area, and no other alternative energy source is easily available (financially and physically), reduction of consumption is essential to protect

- Introducing Energy-saving stoves to villages near the project plantation area in Kyakankwinpauk RF.
- Monitor changes in consumption of fuel woods in these villages
- Develop an awareness tools for possible expansion to other villages.

(3) Fish inventory as tools of monitoring the impact on the bio-diversity and awareness creation

Inventory survey for fish and other aquatic creatures characteristic to the mangrove forests will be conducted in the project area, to measure the impact of the mangrove forest rehabilitation on the bio-diversity. Participatory survey will also be conducted as a part of the survey where the villages exist, so that the community people will become more conscious of their environment and the beneficial functions of mangrove forests.



5. Project Term

Project term shall be divided into 5 terms. The activities for each term are shown in following table.

Table-4 Activities for the Term

TERM	Activities
TERM 1	Preparation work, Construction of cyclone shelter, Procurement of equipment, Temporary works, Soft-component
TERM 2	Plantation, Temporary works, Soft-component
TERM 3	Plantation, Weeding and Fire protection works for term 2 plantation, Temporary Works, Soft-component
TERM 4	Plantation, Weeding and Fire protection works for term 3 plantation, Temporary Works, Soft-component
TERM 5	Weeding and Fire protection works for term 4 plantation, Temporary works, Soft-component



4-3 Technical Note (8 July 2011)

Technical Notes
on
The Second Preparatory Survey on Mangrove Rehabilitation Plan
for Enhancement of Disaster Prevention in the Ayeyawady Area
in
The Republic of the Union of Myanmar

In response to the request from the Government of the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), the Government of Japan decided to conduct the Second Preparatory Survey (hereinafter referred to as "the Second Survey") on the Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in the Ayeyawady Delta (hereinafter referred to as "the Project"), and entrusted the implementation of the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA dispatched the Second Preparatory Survey Team (hereinafter referred to as "the Team") to Myanmar.

The Team has held series of discussions with the relevant officials of the Myanmar side, and conducted a field survey in the Project area.

As a result of the discussions and the field survey, both sides confirmed the main technical items described on the attached sheets.

The signing of this note does not imply the commitment of the Japan side for the implementation and components of the Project.

The Team will proceed with further works and prepare the Preparatory Survey Report.

Nay Pyi Taw, 8 July 2011



Hideto YAMAZAKI
Chief Consultant
The Second Preparatory Survey Team
Kokusai Kogyo Co., Ltd.
Japan



On behalf of Director General
Maung Maung Kyaw
Director
Planning & Statistics Division
Forest Department
Ministry of Forestry
The Republic of the Union of Myanmar

Attachment

1. Mangrove Plantation

(1) Project Area for Mangrove Plantation

Both parties confirmed the plantation areas for the Project shown in the following table.

Table.1 The Plantation area for the Project

Reserved Forest	Area (ha)	Area (ac.)
Kadonkani RF	2,137	5,278
Kyakankwinpauk RF	1,236	3,052
Total	3,373	8,330

1 hectare (ha) = 2.47 acres (ac.)

(2) Plantation Species for the project

Both parties confirmed the plantation species for the Project shown in the following table.

Table.2 Plantation Species for Kadonkani RF

Species
<i>Sonneratia caseolaris</i> (LAMU)
<i>Avicennia officinalis</i> (THAMAE GYI)

Table.3 Plantation Species for Kyakankwinpauk RF

Species
<i>Sonneratia apetala</i> (KANTPALAR)
<i>Avicennia officinalis</i> (THAMAE GYI)

(3) Necessary Components for Mangrove Plantation

Both parties confirmed the following necessary components for mangrove plantation.

- 1) Preparation work
- 2) Seed collecting work
- 3) Germination work
- 4) Potting work
- 5) Nursery work
- 6) Land preparation work (cutting grass and bushes)




- 7) Staking work
- 8) Planting work (including seed transportation)
- 9) Weeding work
- 10) Fire protection work
- 11) Survival counting work
- 12) Necessary temporary tasks for the above works

(4) Weeding after plantation work

Myanmar side requested that weeding after planting shall be executed by Japanese side until the end of the Project term according to the following schedule.

Table.4 Weeding schedule

Year	First	Second	Third	Fourth	Fifth
Works	Preparation	Planting	Weeding	Weeding	Weeding
		Preparation	Planting	Weeding	Weeding
			Preparation	Planting	Weeding

Myanmar side explained that the weeding work is necessary at least 5 years after plantation. However during the Project period it may be difficult to assign enough staffs and to procure enough skilled workers, because they will take care for the Project activities.

Myanmar side understands the maintenance work including weeding work for the Project should be executed by Myanmar side after handing over the Project.

2. Procurement of Equipment

(1) Vehicles (3 Units)

Myanmar side has submitted the Draft Operation and Maintenance Plan for the Project and the final Draft Operation and Maintenance Plan will be submitted by 16 July, 2011.

The study by the Team found that two cars were not appropriate for the Project and that one car might be appropriate, as shown in the following table.

Table.5 Vehicle procurement

Car for:	Appropriate
1. Bogalay Township (Kadonkani RF)	Yes
2. Laputta Township (Kyakankwinpauk RF)	No
3. FD Headquarters	No

(2) Passenger Boat (2 Units)

Myanmar side has submitted the Draft Operation and Maintenance Plan for the Project and the final Draft Operation and Maintenance Plan will be submitted by 16 July, 2011.

The study by the Team found that two passenger boats were appropriate for the Project.

Table.6 Passenger Boat procurement

Passenger Boat for:	Appropriate
1. Bogalay Township (Kadonkani RF)	Yes
2. Laputta Township (Kyakankwinpauk RF)	Yes

3. Construction of Cyclone Shelters with Forest Watch Towers (2 units)

Myanmar side requested Cyclone shelters in compartment No.55, Kadonkani RF and No.27, Kyakankwinpauk RF.

The team confirmed the necessity of Cyclone Shelter with Forest Watch Tower in compartment 55, Kadonkani RF. However, the team confirmed that there is an existing Cyclone Shelter in No.27, Kyakankwinpauk RF.

Both sides confirmed that the Project shall establish one Cyclone Shelter in compartment 55, Kadonkani RF.

Table.7 Cyclone Shelter construction

Cyclone Shelter with Forest Watch Tower for:	Construction as the project
1. Kadonkani RF	Yes (1 unit)
2. Kyakankwinpauk RF	No

4. Soft Component

Both parties confirmed the components of Soft Component activities with participation as follows.

- (1) Extension activities (Community Forestry) for only in Kyakankwinpauk RF
- (2) Extension activities of importance of mangrove forest
- (3) Promotion of improved (energy-saving) cooking stove
- (3) Establishment of fish inventory
- (4) Training of evacuation from natural disasters

5. Project Term

The Project shall be divided into 5 terms. The activities for each term are shown in the following table.

Table.8 Activities for the Term

TERM	Activities
TERM 1	Preparation work, Construction of cyclone shelter, Procurement of equipment, Temporary works, Soft-component
TERM 2	Plantation, Temporary works, Soft-component, Construction of cyclone shelter
TERM 3	Plantation, Weeding work for term 2 plantation, Temporary Works, Soft-component
TERM 4	Plantation, Weeding work for term 2 and term 3 plantation, Temporary Works, Soft-component
TERM 5	Weeding work for term 2, term 3 and term 4 plantation, Temporary works, Soft-component

6. Priority for the Project

Both parties confirmed the priority for the Project shown in the following table.

Table.9 Priority for the Project

Site	Priority
Kadonkani RF	1
Kyakankwinpauk RF	2

Both parties confirmed that in case of difficulties because of budget limitations etc., Kadonkani RF is priority and Plantation, Soft-component and procurements of equipment for Kyakankwinpauk RF shall be excluded from the Project.

Both parties confirmed that also the area for Kadonkani RF and the Project term may be reduced by the same reasons.

df.

df.

4-4 Minutes of Discussion (27 October 2011)

MINUTES OF DISCUSSIONS
ON THE SECOND PREPARATORY SURVEY
ON MANGROVE REHABILITATION PLAN FOR ENHANCEMENT
OF DISASTER PREVENTION IN THE AYEYAWADY DELTA
IN THE REPUBLIC OF THE UNION OF MYANMAR

(EXPLANATION OF DRAFT OUTLINE DESIGN REPORT)

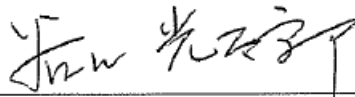
In response to a request from the Government of the Republic of the Union of Myanmar (hereinafter referred to as "GOM"), the Government of Japan (hereinafter referred to as "GOJ") decided to conduct the Second Preparatory Survey (hereinafter referred to as "the Second Survey") on the Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in the Ayeyawady Delta (hereinafter referred to as "the Project"), and entrusted the implementation of the Second Survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA dispatched the Second Survey Team to the Republic of the Union of Myanmar from January to July 2011, and through discussion, field survey and technical examination of the results in Japan, JICA prepared a draft outline design report of the Second Survey.

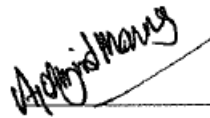
In order to explain and consult with the concerned officials of the GOM on the components of the report, JICA sent the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Kotaro TANIGUCHI, Deputy Director of Forestry and Nature Conservation Division 1, Global Environment Department, JICA, from 23 to 28 October 2011.

As a result of discussions, both sides confirmed the main items described on the attached sheets.

Nay Pyi Taw, 27 October 2011



Mr. Kotaro TANIGUCHI
Leader
Draft Report Explanation Team
Japan International Cooperation Agency



U Aye Myint Maung
Director General
Forest Department
Ministry of Environmental Conservation
and Forestry
The Republic of the Union of Myanmar

ATTACHMENT

1. Components of the Draft Report

The Myanmar side agreed and accepted in principle the components of the Draft Outline Design Report explained by the Team. The components of the Project are shown in Annex-1.

2. Japan's Grant Aid Scheme

The Myanmar side understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the GOM as explained by the Team and described in Annex-7 of the Minutes of Discussions signed by both sides on 20 January 2011 (hereinafter referred to as "the Previous M/D").

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the GOM by the beginning of February 2012.

4. Tentative Schedule of the Project

The Myanmar side understood the tentative time schedule of implementation stage of the Project as shown in Annex-2. The Myanmar side also understood the time schedule is subject to change, depending on the date of Exchange of Notes (hereinafter referred to as "E/N") and Grant Agreement (hereinafter referred to as "G/A").

5. Confidentiality of the Project

(1) Detailed Specifications

Both sides confirmed all the information related to the Project including detailed specifications of plantation, construction, equipment and other technical information shall not be released to any other party/parties before the signing of all contract(s) for the Project.

(2) Current Project Cost Estimation

The Team explained to the Myanmar side the current estimated Project cost to be borne by the GOJ and by the GOM. The Myanmar side agreed to allocate necessary budget in order to bear requested undertakings as shown in Annex-3. The Team also explained that these costs estimations are subject to change since they are provisional and would be examined further by the GOJ for its final approval.

Mon

Both sides also agreed that the Project cost estimation should never be duplicated in any form nor disclosed to any third party/parties before signing of contract(s) for the Project because this confidentiality of the Project cost estimation is essential to ensure fairness of the tender procedure.

6. Other Relevant Issues

(1) Contribution to Climate Change

Both sides recognized the Project is expected to contribute to mitigation of and adaptation to climate change.

Mandy

(End of Document)

Attached:

Annex-1: Components of the Project

Annex-2: Tentative Time Schedule

Annex-3: Current Project Cost Estimation

Handwritten mark

Annex-1: Components of the Project

Component	Contents	Major Specifications and Quantity
1. Plantation	Kadonkani Reserve Forest	<ul style="list-style-type: none"> ● 1,154 ha (2,850 acre) in Compartments No. 38, 39, 43, and 44 ● Species: <i>Sonneratia caseolaris</i> (LAMU) and <i>Avicennia officinalis</i> (THAMAE GYD)
2. Construction	A cyclone shelter with a forest watch tower	<ul style="list-style-type: none"> ● 1 Unit in Kadonkani Reserve Forest in Compartment No. 55 ● Capacity: 150 persons, total floor area 300m²
3. Equipment	Two Vehicles for management	<ul style="list-style-type: none"> ● 1 in Bogalay Township ● 1 in Forest Department Headquarters in Yangon
	A boat for management	<ul style="list-style-type: none"> ● 1 in Bogalay Township
4. Detailed design and supervision		
5. Soft component	Participatory management plan of mangrove	
	Participatory evacuation plan from disaster	
	Establishment of fish inventory	

Mama

✍

Annex-3: Current Project Cost Estimation

CONFIDENTIAL

Total Current Project Cost Estimation (including cost borne by the Japanese side and the Myanmar side)

Note:

1. The cost estimates in the above table are provisional and will be further examined by the GOJ for its final approval.
2. The Project cost was calculated using the average exchange rate in six (6) months from 1 January to 30 June, 2011 as follows:
1 US \$=83.0 Japanese Yen

(2) Obligation of the Myanmar Side

Items	Cost (Myanmar Kyat)
Staff salary related to mangrove operation and management during the Project	15,375,000
Commission for Banking Arrangement (B/A)	9,878,000
Tax for import vehicles	20,000,000
Total	45,613,000

Note:

The Project cost was calculated using the following exchange rate:
1 US \$=800 Myanmar Kyat

Appendix 5

Soft Component Plan

Appendix 5 Soft Component Plan

(1) Background behind planning of soft components

The aim of the "Mangrove Rehabilitation Plan for Enhanced Disaster Prevention in the Coastal Area of the Union of Myanmar" is to plant mangrove trees in an area of 1,154 hectares to bring about the early rehabilitation of mangrove forests, the disaster-prevention function of which against the impact of cyclones has been verified.

The target area has been managed as a reserved forest since the beginning of the 20th century and is dotted with villages of fishers and farmers who collect firewood, lumber and other necessary forestry products from this reserved forest, which is a major cause of deforestation. Whereas the mangrove forest serves as a necessary resource for the local residents, they do not fully understand that the deforestation is weakening its disaster prevention function and is ultimately disadvantageous to the residents.

The mangrove forest where trees are to be planted in this Project is to be managed in principle by the FD, and a mangrove forest management plan in which the Department plays a central part is to be prepared. Before the preparation of the plan, the local residents need to understand the objective of planting the mangrove forest (disaster prevention), and therefore the mangrove forest management plan shall be prepared with the participation of the local residents. This operation shall tie in with the technical cooperation project "Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta" to ensure that the "Standard Plantation Procedures" developed in the project for the staff of the Ministry of Environmental Conservation and Forestry can be used on a practical basis. The FD staff will participate in the training to be provided in collaboration with a training organization of the Ministry of Environmental Conservation and Forestry in line with the aforementioned standard procedures, in order to enable the FD staff to manage the mangrove forest through community participation in cooperation with the technical cooperation project.

At the same time, emergency drills shall be carried out using the existing cyclone shelters, etc. in the villages covered by the Project. The aim of preparing the mangrove forest management plan through community participation and of the emergency drills is to improve the local villagers' understanding of the disaster prevention function of the mangrove forests, their awareness of disaster prevention and their awareness and concern for mangrove forest conservation as well as the continued conservation of the planted mangrove forest in line with the prepared mangrove forest management plan.

(2) Objective of the soft component

The formulation of a mangrove forest management plan through community participation, the commencement of activities for continual conservation of mangrove forests, and deepening of the residents' understanding of the functions of the mangrove forest.

The aim of the soft component is to formulate a mangrove forest management plan through discussion and deliberation between the FD and the local residents in order to deepen the local residents' understanding of mangrove forest conservation and to ensure the continued conservation of the mangrove trees planted in this Project by implementing the established management plan.

(3) Output of the Soft Component

1. The management plan for the planted mangrove trees will be prepared through community participation, led by the FD.

2. The residents' awareness of disaster prevention will be improved.

3. The residents' understanding of the functions of the mangrove forest will be deepened.

(4) Checking outputs and level of achievement

Table: Outputs and how to check achievement

Output	Achievement criteria	How to check level of achievement (draft)
1. The management plan for the planted mangrove trees will be prepared through community participation, led by the FD.	<ol style="list-style-type: none"> 1. Has the mangrove forest management plan been formulated by the FD staff? 2. Do the residents understand the mangrove forest management plan for the target area? 	<ol style="list-style-type: none"> 1. Mangrove forest management plan 2. Hearing survey of the residents who participated in the preparation of the plan
2. The residents' awareness of disaster prevention will be improved.	<ol style="list-style-type: none"> 1. Do the residents understand how to evacuate when a cyclone strikes? 2. Do the FD staff in the target area recognize the position and understand the status of the cyclone shelter? 3. Do the residents understand the disaster prevention effect of the mangrove forest? 	<ol style="list-style-type: none"> 1-1. Hearing survey of the residents 1-2. Identification of the degree of dissemination of the existing disaster prevention maps 2. Hearing survey of the FD staff 3. Hearing survey of the residents
3. The residents' understanding of the functions of the mangrove forest will be deepened.	<ol style="list-style-type: none"> 1. Do the residents understand the functions of the mangrove forest? 2. The residents' dependence on mangrove forests for their living 	<ol style="list-style-type: none"> 1. Hearing survey of the residents 2. Survey of the residents' use of firewood 3. Survey of aquatic life

(5) **Activities (Input plan)**

Year	Overview of activities	Target	Site of activities	Implementation resource
Activities for Output 1: <u>The management plan for the planted mangrove trees will be prepared through community participation led by the FD.</u>				
First year	1.1 Checking the existing mangrove forest management plan 1.2 Examining the policies for formulation of the mangrove forest management plan in the plantation area covered by this Project 1.3 Examining the policies for the selection of villages for community participation, and selection of the villages 1.4 Examining and deciding on the process for formulating future management plans	FD staff, Residents of villages close to the plantation site covered by this Project	FD office in Bogale Township, Villages in and around the Kadonkani RF	FD staff, Japanese consultant, Local consultant
Second year	1.5 Holding workshops with village residents, explaining the mangrove forest management draft plan and hearing opinions from the residents, in line with the policies created for the formulation of a mangrove forest management plan. 1.6 Examining the mangrove forest management draft plan in view of the opinions heard at the workshops			
Third year	1.7 Holding workshops for discussions with village residents on the mangrove forest management draft plan 1.8 Reviewing the mangrove forest management draft plan on the basis of the results of the above workshops			
Fourth year	1.9 Explaining the revised mangrove forest management plan to the residents to notify them that the plan has been formulated and inform them of its content			
Activities for Output 2: <u>The residents' awareness of disaster prevention will be improved.</u>				
First year	2.1 Checking the state of use of the existing cyclone shelters in the target area 2.2 (In addition to 1.3 above) Checking and selecting villages close to the Project site where emergency drills are to be conducted 2.3 Examining and deciding on the policies for conducting emergency drills 2.4 Checking the existing data for this project area such as disaster prevention maps 2.5 Examining how to evacuate to the cyclone shelters to be constructed in this Project	FD staff, Residents of villages close to the plantation site in this Project	FD office in Bogale Township, Villages in and around the Kadonkani RF	FD staff, Japanese consultant, Local consultant
Second year	2.6 Holding workshops with the residents of target villages to hold emergency drills 2.7 Holding emergency drills using the existing cyclone shelters on the basis of the results of the workshops			
Third year	2.8 Holding emergency drills in the target villages 2.9 Studying the results of the emergency drills			
Fourth year	2.10 Holding workshops with the residents of the target villages to discuss the results of the emergency drills and to carry out a survey on disaster prevention awareness			

Year	Overview of activities	Target	Site of activities	Implementation resource
<u>Activities for Output 3: The residents' understanding of the functions of the mangrove forest will be deepened.</u>				
First year	3.1 Examining and deciding on implementation plans for a survey of aquatic life 3.2 (In addition to 1.3 and 2.2 above) Selecting sites and villages where the survey on aquatic life will be carried out	FD staff, Residents of villages close to the plantation site in this Project	FD office in Bogale Township, Villages in and around the Kadonkani RF	FD staff, Japanese consultant, Local consultant
Second year	3.3 Holding workshops with residents of the target villages to explain the aquatic life survey through community participation and the functions of the mangrove forest 3.4 Implementing the aquatic life survey 3.5 Surveying the current situation regarding the use of firewood			
Fourth year	3.6 Implementing the aquatic life survey, summarizing the survey results, and checking them in collaboration with the participating residents 3.7 Summarizing the aquatic life survey results and checking them in collaboration with the participating residents 3.8 Summarizing the firewood use survey results and checking them in collaboration with the participating residents 3.9 Reviewing past activities regarding the functions of the mangrove forest and discuss the functions of the mangrove forest			

(6) Utilization of the local consultant and implementation process

In the soft component activities, the local consultant shall be made optimum use of and the Japanese consultant shall work on a spot-dispatch basis, serving as the general coordinator for the consultants and as the controller in the determination of overall policies. This activity shall be implemented mainly in the dry season of each year in line with the plantation work to be carried out over four terms. The implementation period of this activity is roughly divided into four periods, in which the Japanese consultant shall carry out activities on a spot-dispatch basis four times (4.5 months in total). The local consultant shall assign two employees to carry out activities, each for 14 months.

Table 5-1: Scope of responsibility of the Japanese side and the Myanmar side

	First year	Second year	Third year	Fourth year	Total
Japanese consultant	1.5 months	1.0 month	1.0 month	1.0 month	4.5 months
Local consultant 1	4.0 months	4.0 months	2.0 months	4.0 months	14.0 months
Local consultant 2	4.0 months	4.0 months	2.0 months	4.0 months	14.0 months

(7) Outputs

The outputs (draft) from the soft component activities shall be as shown in the table below for each of the activities in each year.

Table 5-2: Scope of responsibility of the Japanese side and the Myanmar side

	Activities relating to Output 1	Activities relating to Output 2	Activities relating to Output 3
First year	<ul style="list-style-type: none"> • Draft policies for formulation of the mangrove forest management plan 	<ul style="list-style-type: none"> • Draft policies for holding of emergency drills • Policies for evacuation should a cyclone strike during this Project 	<ul style="list-style-type: none"> • Draft plan for holding an aquatic life survey
Second year	<ul style="list-style-type: none"> • Workshop results and mangrove forest management draft plan (second year) 	<ul style="list-style-type: none"> • Workshop results • Emergency drill results (second year) 	<ul style="list-style-type: none"> • Workshop results • Results of the aquatic life survey (second year) • Results of survey on the current situation regarding the use of firewood (second year)
Third year	<ul style="list-style-type: none"> • Workshop results and mangrove forest management draft plan (revised draft) 	<ul style="list-style-type: none"> • Workshop results • Emergency drill results (third year) 	None
Fourth year	Mangrove forest management plan (final)	<ul style="list-style-type: none"> • Workshop results and summary of emergency drills 	<ul style="list-style-type: none"> • Summary of aquatic life inventory surveys • Results of survey on the current situation regarding the use of firewood

The results on the above activities shall be evaluated and examined. During implementation and after completion of the soft component, the following reports shall be submitted:

1. Soft component progress status report
2. Soft component completion report

(8) Obligations of the government of the recipient country

1) Obligations during implementation of the soft component

- Active participation and cooperation by the staff (*i.e.* foresters, rangers and other staff members who are in charge of the areas covered by this Project) of the Bogale Township FD office which is the counterpart in the implementation of this soft component plan
- Permission for travel and activities in Myanmar to be granted to the Japanese consultant and the local consultant engaged in the implementation of this soft component plan
- Provision of offices to serve as field offices for the activities
- Request to relevant ministries and agencies for cooperation in and permission for activities

2) Obligations after completion of the soft component

- Promotion of the mangrove forest management plan
- Dissemination and active use of experience and knowledge acquired in the activities of this soft component

Appendix 6

Other Relevant Data

Appendix 6 Other Relevant Data

The Republic of the Union of Myanmar

Ministry of Forestry

Forest Department

Operation and Maintenance Plan (Draft)

for

The Project for Mangrove Rehabilitation Plan for Enhancement of

Disaster Prevention in the Ayeyawady Area

in the Republic of the Union of Myanmar

(DRAFT)

July 2011

Contents

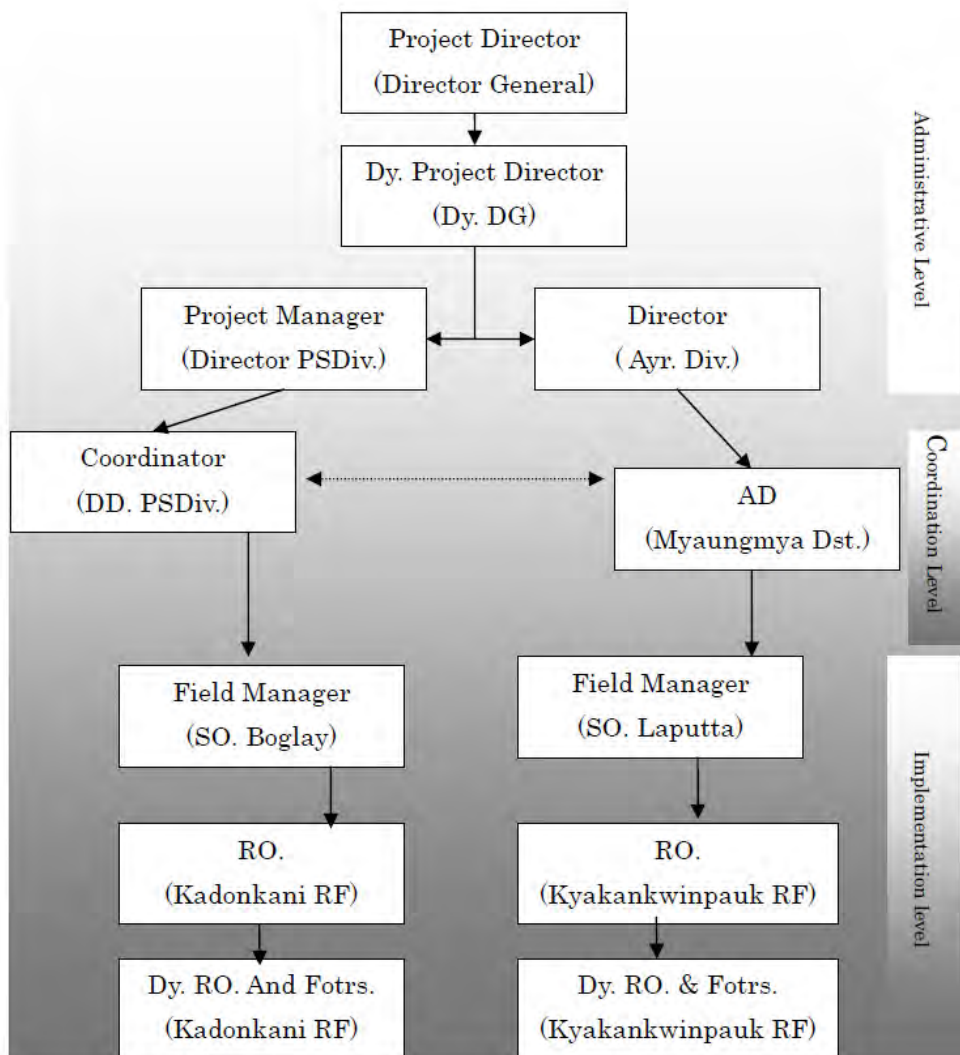
1. Purpose
2. Organization
3. Mangrove Plantation
4. Facilities
5. Equipment
6. Record and Report
7. Operation and Maintenance Cost

1. Purpose

The purpose of this plan is to keep good condition of Mangrove Plantation, Facilities and Equipment which will established by the Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in the Ayeyawady Area in the Republic of the Union of Myanmar (the Project). Ministry of Forestry, Forest Department (FD) shall operate and maintain in accordance with this plan.

2. Organization

- a. FD shall establish the following operation and maintenance structure for the Project.



DD= Deputy Director, AD= Assistant Director, SO= Staff Officer

RO= Range Officer

Fotrs= Foresters

RF= Reserved Forest

b. Staff Plan

FD shall assign the following staff for the Project

1. Planting, construction and procurement stage (including detail design stage)

Position for the Project	Number	Position
Administrative Level		
Project Director	1	Director General
Deputy Project Director	1	Deputy Director General
Project Manager	1	Director of Planning Division
Project Coordinator	1	Deputy Director of Planning Division
Implementation Level		
Field manager for Kyakankwinpauk RF	1	Staff Officer of Laputta township
Field manager for Kadonkani RF	1	Staff Officer of Bogalay township
Field staff for Kyakankwinpauk RF	2	Range Officer of Laputta township
Field staff for Kadonkani RF	2	Range Officer of Bogalay township

c. Operation and Maintenance stage (after handing over the Project)

1. The staff for the central government level shall be same as a. planting, construction and procurement stage.

Position for the Project	Number	Position
Kyakankwinpauk RF		
Field manager	1	Staff Officer
Field staff	1	Range Officer
Field staff assistant	1	Dy. Range Officer
Forest guard	2	Forester
Driver	1	
Boat operator	1	
Kadonkani RF		
Field manager	1	Staff Officer
Field staff	1	Range Officer
Field staff assistant	2	Dy. Range Officer
Forest guard	3	Forester
Driver	1	
Boat operator	1	

3. Mangrove Plantation

a. Operation Plan (Planting, construction and procurement stage (including detail design stage))

1. Inspection work

Inspection work shall be executed with the Japanese Consultant (the Consultant) in accordance with the agreement between FD and the Consultant. The inspection shall be executed following schedule.

Inspection	Participant
Daily Inspection	Field Staff
Weekly Inspection	Field Manager
Monthly Inspection	Project Manager and/or Project Coordinator
Quarterly Inspection	Project Manager
Annual Inspection	Project Director

b. Meeting with Report

Monthly meeting with report shall be held at FD headquarter, Nay Pyi Taw. The participants for the monthly meeting shall be as followed.

Roles	Participant
Chairman	Project Director
Vice Chairman	Deputy Project Manager
Project Report	Project Manager
Site Report	Field Manager
Progress Report	The Consultant

c. Maintenance Plan

After handing over the Project FD shall execute following maintenance works for the Mangrove Plantation. The schedule of maintenance is shown in following figure.

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Fire protection		■										
Weeding						■						
Supplemental Plant						■						
Forest Guard	■											

*Supplemental Plant or patching: If it will be necessary.

1. Fire protection work

Before the high dry season, from February to May, the grass on the fire protection line established by the Project shall be cut and cleaned by FD.

2. Weeding work

During rainy season, from June to October, the grass which will grow around the planted tree shall be cut by FD. The method for the weeding shall be the standard method of FD.

3. Patching

If there are large damage in the plantation area, FD shall consider the replanting or patching.

4. Forest Guard

FD shall appoint the forest guards for the preservation of the plantation area. The forest guard shall patrol to protect the forest fire and illegal logging every day.

5. Survival Counting

FD shall execute the survival counting once a year. The method of survival counting shall be the standard method of FD.

4. Facilities

a. Cyclone Shelter with Forest Watch Tower)

1. location of the facilities

Facility No.	Location
No.1	Compartment No.27 of Kyakankwinpauk RF, Laputta Township
No.2	Center of Kadonkani RF, Bogalay Township

2. Operation Plan

Forest Watch Tower shall be used for the fire outbreak observation by the Forest Guard. An Operation Plan for Cyclone Shelter, the fleeing plan, shall be established by the soft-component activity which will be executed by the Project.

3. Maintenance Plan

Daily cleaning shall be done by the Forest Guard and Dy. Range Officer. Basically the facility is very simple design but the roof shall be coated by waterproof paint every ten years. Some renovation work shall be done whenever necessary.

5. Equipment

a. Vehicles (4WD Pickup, double cabin)

1. Locations of the Equipment

Stations where the vehicles will be allocated are as follows.

Vehicle No.	Place
No.1	Bogalay Township
No.2	Laputta Township
No.3	FD Headquarter

2. Operation Plan of the vehicles for the Project

Vehicle No.	Operation Plan	Operation days/year
No. 1	1. During the project term	
	1) Inspection work by the field staff: The bridge of Bogalay River and the	150 days

	bridge of Kyainchaung Gyi village will be constructed by the end of 2012. In consideration for the safety and saving the fuel consumption and time the field staff shall move to Kyainchaungyi village which is the entrance of the Project site after the construction of these bridges. The field staff shall be sent to the site on Monday and return to Bogalay on Friday.	
	2) Inspection work by the Field manager: The Field manager shall inspect the Project site once a week.	100 days
	3) Meeting: Field Manager shall attend the monthly meeting held in FD headquarter in Nay Pyi Taw.	48 days
	Total	298 days
	2. Maintenance work for the Project	
	1) Fire Protection Work: During this operation the Field staff shall go to the site on Monday and return to Bogalay on Friday. The additional tools and/or shall carry to the site once a week.	66 days
	2) Weeding Work: During this operation the Field staff shall go to the site on Monday and return to Bogalay on Friday. The additional tools and/or shall carry to the site once a week.	66 days
	3) Supplemental Plant: Included in above	Included in above
	4) Forest Guard: The Forest Guard shall return to Bogalay every 2 weeks.	24 days
	5) Report: Field Manager shall report the condition of the project site once a month. And food and consumable goods shall bring to the site once a week.	96 days
	Total	252 days

Vehicle No.	Operation Plan	Operation days/year
No. 2	1. During the project term	
	1) Meeting: Field Manager shall attend the monthly meeting held in FD headquarter in Nay Pyi Taw.	48 days
	Total	48 days
	2. Maintenance work for the Project	
	1) Report: Field Manager shall report the condition of the project site once a month.	48 days
	Total	48 days

Vehicle No.	Operation Plan	Operation days/year
No. 1	1. During the project term	
	1) Inspection work by Project Manager: Project Manager shall inspect the Project site once a month.	60 days
	2) Inspection work by Project Director: Project Director shall inspect the Project site once in three months.	20 days
	Total	80 days
	2. Maintenance work for the Project	
	1) Inspection work by Project Manager: Project Manager shall inspect the Project site once a month.	60 days
	2) Inspection work by Project Director: Project Director shall inspect the Project site once a three months.	20 days
	Total	80 days

b. Boats (10 passengers)

1. Stations where the Boats will be allocated are as follows.

Boat No.	Place
No.1	Bogalay Township
No.2	Laputta Township

Both boats shall use for the daily inspection and supply equipment and consumable goods every day during the project term. And also both boat shall use for the daily patrol and supply equipment and consumable goods every day.

c. Maintenance Plan for vehicles

1. Vehicles (4WD Pickup, double cabin)
2. Daily Maintenance: The driver shall check the vehicles every day.
3. Periodic maintenance: The vehicles shall be inspected and maintained at the official workshop once a half year.

Item	Time
Engine oil	Every 5,000km and/or every 6 month
Engine oil filter	Every 2 time of engine oil changing
Air filter or fuel filter	The cleaning shall be every month. The replacement shall be every year.
Engine Plug	Every 50,000 km
Others	Following the maintenance manual

d. Maintenance Plan for Boats (10 passengers)

1. Daily Maintenance: The operator shall check the boats every day.

2. Periodic maintenance: The boats shall be maintained by the qualified engineer once a half year.

3. Replacement of consumable parts and oil

Item	Time
Engine oil	Every 3 month
Engine oil filter	Every 2 time of engine oil changing
Air filter or fuel filter	The cleaning shall be every month. The replacement shall be every year.
Engine Plug	Every year
Others	Following the maintenance manual

6. Record and Reports

a. Mangrove Plantation (Planting stage)

1. Operation records

2. Inspection records: Inspection are prepared by the Consultant and confirmed by FD.

b. Meeting :

1. Meeting record shall be prepared by the Consultant and confirmed by FD.

2. Progress report and final report: Progress and final report shall be prepared by the Consultant and approved by FD.

3. Maintenance record: FD shall keep the maintenance records.

c. Facilities (Cyclone Shelter with Forest Watch Tower)

1. Operation record: FD shall keep the operation records.

2. Maintenance record: FD shall keep the Maintenance record.

d. Equipment

1. Vehicles (4WD pickup, double cabin)

1. Operation record: FD shall keep the daily operation records.

2. Maintenance record: FD shall keep the maintenance records.

2. Boats (10 passengers)

1. Operation record: FD shall keep the daily operation records.

2. Maintenance record: FD shall keep the maintenance records.

e. Summary Report

1. The summary report of the operation and maintenance for the Project shall be prepared by Project Manager FD every year and submitted to FD Head Office and JICA Myanmar office.

7. Operation and Maintenance Cost

The Operation and Maintenance costs shall be allocated from FD headquarter directly. And salary for the staff shall be allocated from ordinary budget. The estimated Operation and Maintenance Cost are

attached.

JICA Grant Aid Project
The Project for Mangrove Rehabilitation Plan for Enhancement of Disaster
Prevention in the Ayeyawady Delta

Maintenance Costs for Mangrove Plantations and Operation and Maintenance Costs for Vehicles, Boats and Cyclone Shelter

■ **Initial Costs for the project**

1 US \$ = 750 MM Kyats

1 US \$ = 81 Japanese Yen

Item	No.	Unit	Unit cost in MM Kyat	Amount in MM Kyat	Amount in US\$	Amount in Japan Yen
1.Tax						
Vehicle	3		10,000,000	30,000,000	40,000	3,240,000
2.Banking Arrangement						
AP charge	1	set	9,259,259	9,259,259	12,346	1,000,000
Documentation	6	set	55,556	333,333	444	36,000
Total				39,592,592	52,790	4,276,000

■ **Maintenance Costs for Plantation in Kadonkani RF**

Item	No.	Unit	Unit cost in (MM Kyat)	Amount in (MM Kyat)	Amount in (US\$)	Amount in (Japan Yen)
Fire Protection	2,136	ha	2,965	25332960	33777.28	2735959.68
Weeding	2,136	ha	19,768	168897792	225197	18240957
Supplemental Planting	2,136	ha	2,965	25332960	33777.28	2735959.68
Forest Guard (3persons)	48	Month	41,000	1968000	2624	212544
Survival Counting	2,136	ha	2,224	19001856	2535.8	2052200.45
Four Years Total				240533568	297911.4	25977621

■ **Maintenance Costs for Plantation in Kyakankwinpauk RF**

Item	No.	Unit	Unit cost in (MM Kyat)	Amount in (MM Kyat)	Amount in (US\$)	Amount in (Japan Yen)
Fire Protection	1,236	ha	2,965	14658960	19545.3	1583167.68
Weeding	1,236	ha	19,768	37732992	130310.66	10555163.14
Supplimental Plant	1,236	ha	2,965	14658960	19545.28	1583167.68
Forest Guard (3persons)	48	Month	41,000	7872000	10496	850176
Sarvival Counting	1,236	ha	2,224	10995456	14660.6	1187509.25
Four Years Total				85918368	194557.8	15759184

Remark: Fire Protection will be conducted until the plantation is at 5 year age.

■ Operation and Maintenance Costs for Vehicle, Boats and Cyclone Shelter for Kadonkani RF

1 US \$ = 750 MM Kyats

1 US \$ = 81 Japanese Yen

Item	No.	Unit	Unit cost in (MM Kyat)	Amount in (MM Kyat)	Amount in (US\$)	Amount in (Japan Yen)
(1) Salary						
Driver	48	Month	41,000	1968000	2624	212544
Boat Operator	48	Month	41,000	1968000	2624	212544
(2) Fuel						
Vehicle	2400	gal.	3,500	8,400,000	11200	907200
Boat	3000	gal.	3,500	10,500,000	14000	1134000
(3) Facilities						
	4	time	100,000	400,000	533.3	43199.9
(4) Vehicle						
Engine Oil	8	time	50,000	400,000	533.3	43199.9
Oil Filter	4	time	30,000	120,000	168	13608
Air Filter	4	time	20,000	80,000	106.6	8634.6
Engine Plug	4	time	100,000	400,000	533.3	43199.9
Others	4	set	100,000	400,000	533.3	43199.9
(5) Boat						
Engine Oil	4	time	50,000	200,000	267	21,600
Oil Filter	8	time	30,000	240,000	80	6,480
Air Filter	4	time	20,000	80,000	27	2,160
Engine Plug	4	time	100,000	400,000	533.3	43199.9
Others	4	set	100,000	400,000	533.3	43199.9
(6) Others						
Miscellaneous	48	Month	100,000	400,000	533.3	43199.9
4 Years Total				26,356,000	24,289.7	2,821,170

■ Operation and Management Costs for Vehicle, Boats and Cyclone Shelter for Kyakankwinpauk RF

1 US \$ = 750 MM Kyats

1 US \$ = 81 Japanese Yen

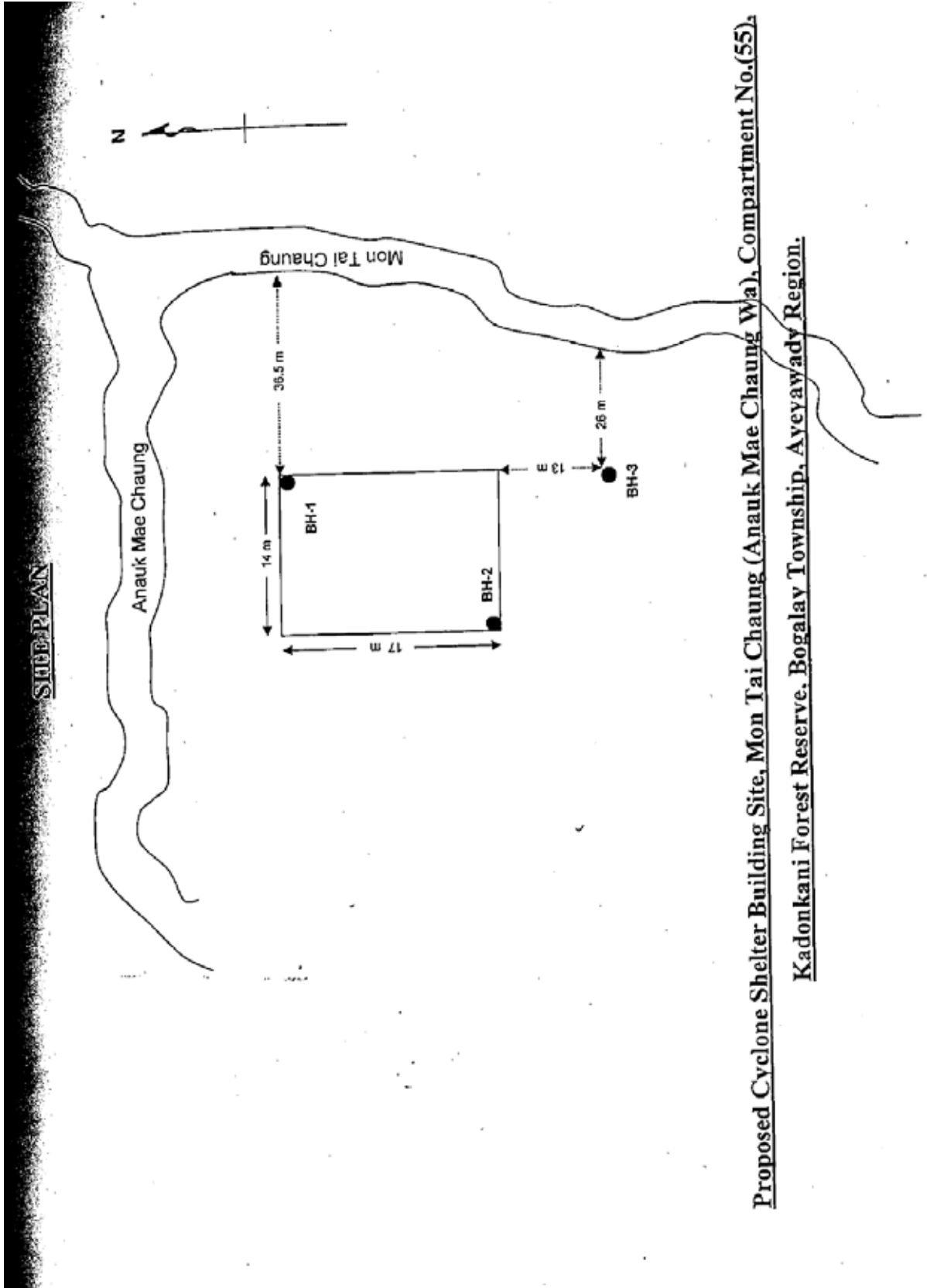
Item	No.	Unit	Unit cost in (MM Kyat)	Amount in (MM Kyat)	Amount in (US\$)	Amount in (Japan Yen)
(1) Salary						
Driver	48	Month	41,000	1968000	2624	212544
Boat Operator	48	Month	41,000	1968000	2624	212544
(2) Fuel						
Vehicle	2400	gal.	3,500	8,400,000	11200	907200
Boat	3000	gal.	3,500	10,500,000	14000	1134000
(3) Facilities						
	4	time	100,000	400,000	533.3	43199.9
(4) Vehicle						
Engine Oil	8	time	50,000	400,000	533.3	43199.9
Oil Filter	4	time	30,000	120,000	168	13608
Air Filter	4	time	20,000	80,000	106.6	8634.6
Engine Plug	4	time	100,000	400,000	533.3	43199.9
Others	4	set	100,000	400,000	533.3	43199.9
(5) Boat						
Engine Oil	4	time	50,000	200,000	267	21,600
Oil Filter	8	time	30,000	240,000	80	6,480
Air Filter	4	time	20,000	80,000	27	2,160
Engine Plug	4	time	100,000	400,000	533.3	43199.9
Others	4	set	100,000	400,000	533.3	43199.9
6) Others						
Miscellaneous	48	Month	100,000	400,000	533.3	43199.9
			4 Years Total	26,356,000	24,289.7	2,821,170

Appendix 7

References

Appendix 7 References

Soil Investigation Result for Candidate Cyclone Shelter Building Site



Proposed Cyclone Shelter Building Site, Mon Tai Chaung (Anauk Mae Chaung Wa), Compartment No.(55)

Kadonkani Forest Reserve, Bogalay Township, Ayeeyawady Region.

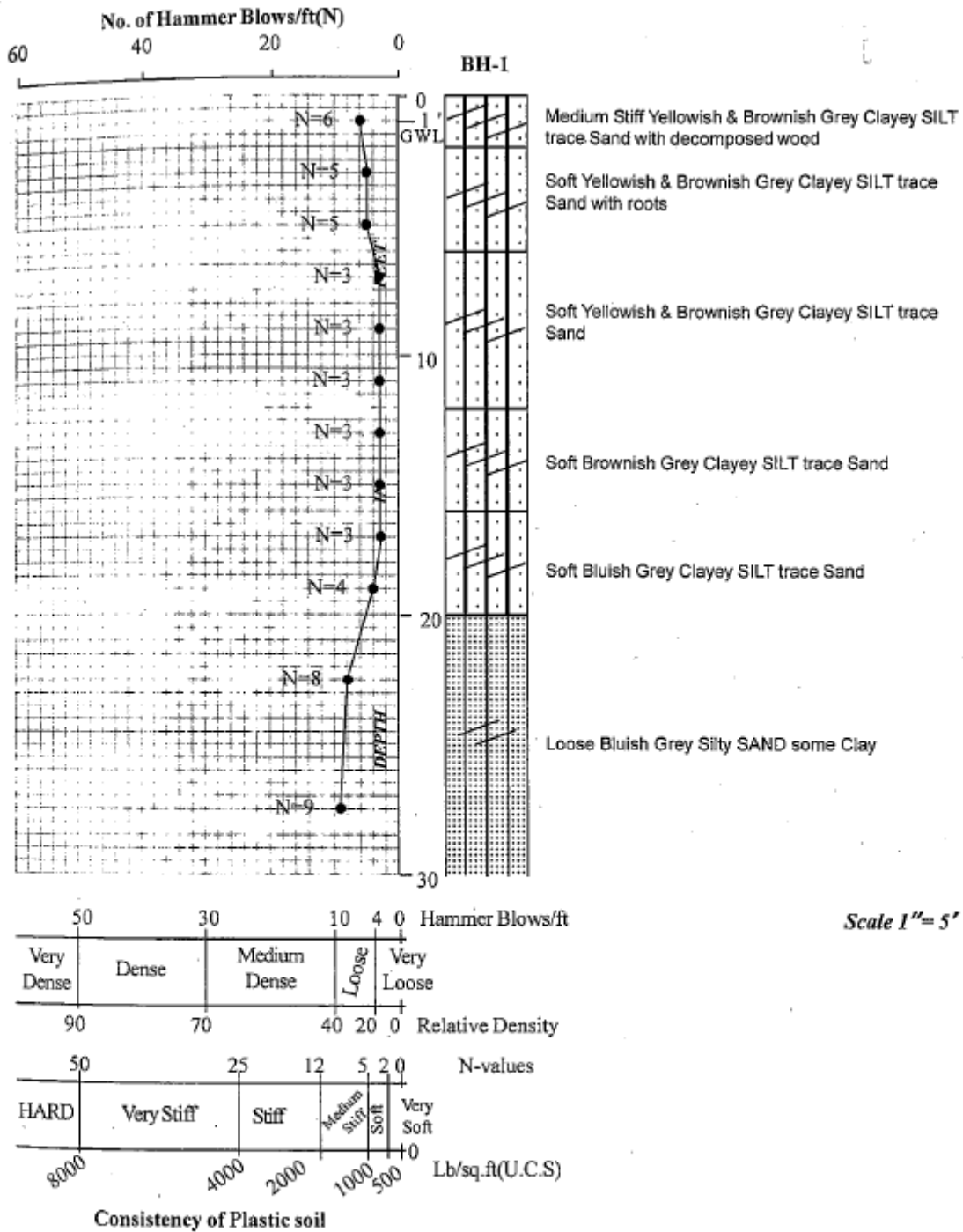
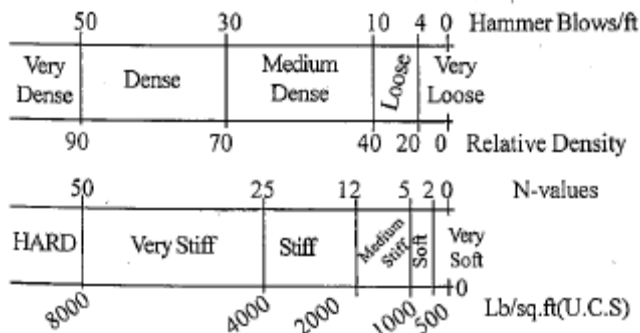
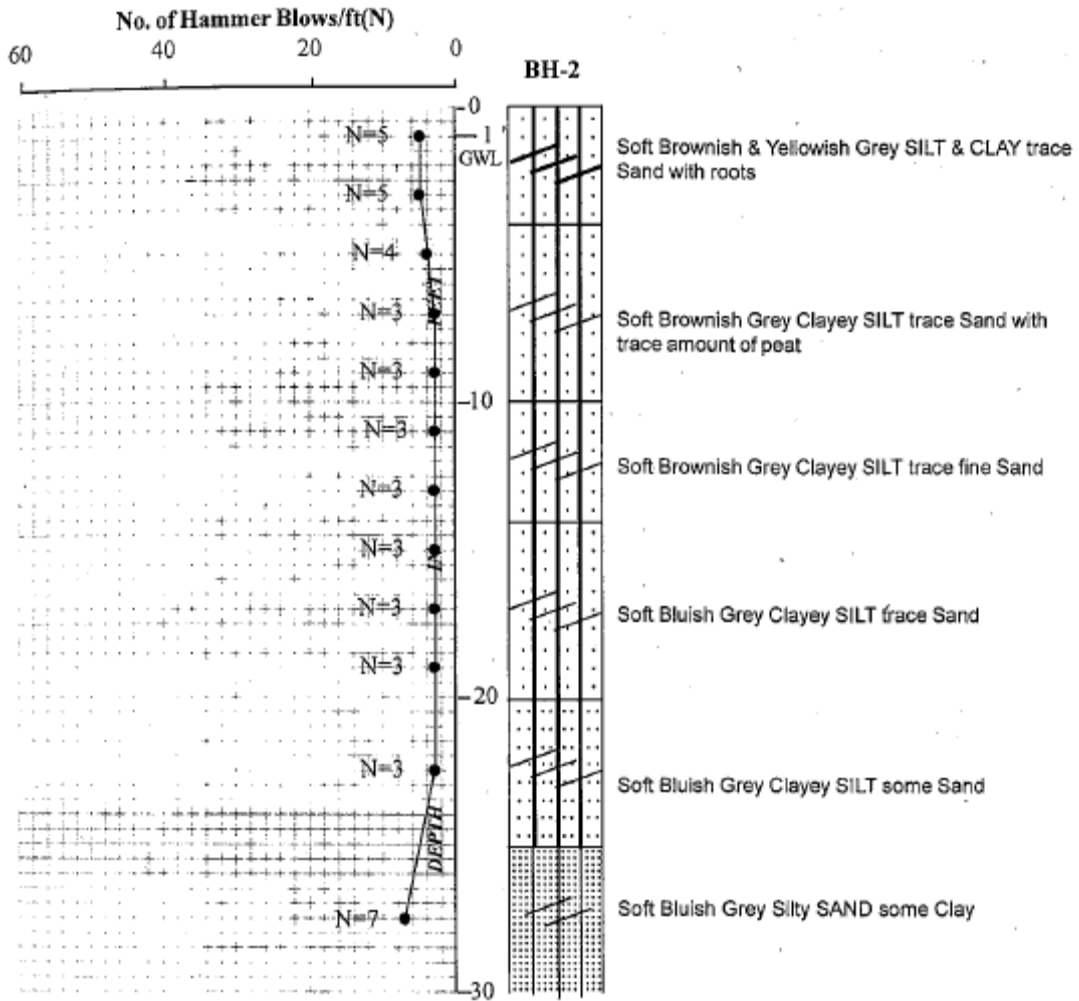


Figure 2.1 **SOIL PROFILE OF BORE HOLE NO.(1)**
PROPOSED CYCLONE SHELTER BUILDING SITE, MON TAI CHAUNG (ANAU MAE CHAUNG WA), COMPARTMENT 55, KADONKANI FOREST RESERVE, BOGALAY TOWNSHIP, AYEYARWADDY REGION.



Scale 1" = 5'

Consistency of Plastic soil

Figure 2.2 **SOIL PROFILE OF BORE HOLE NO.(2)**
PROPOSED CYCLONE SHELTER BUILDING SITE, MONTAI CHAUNG (ANAU MAE CHAUNG WA), COMPARTMENT 55, KADONKANI FOREST RESERVE, BOGALAY TOWNSHIP, AYEYARWADDY REGION.

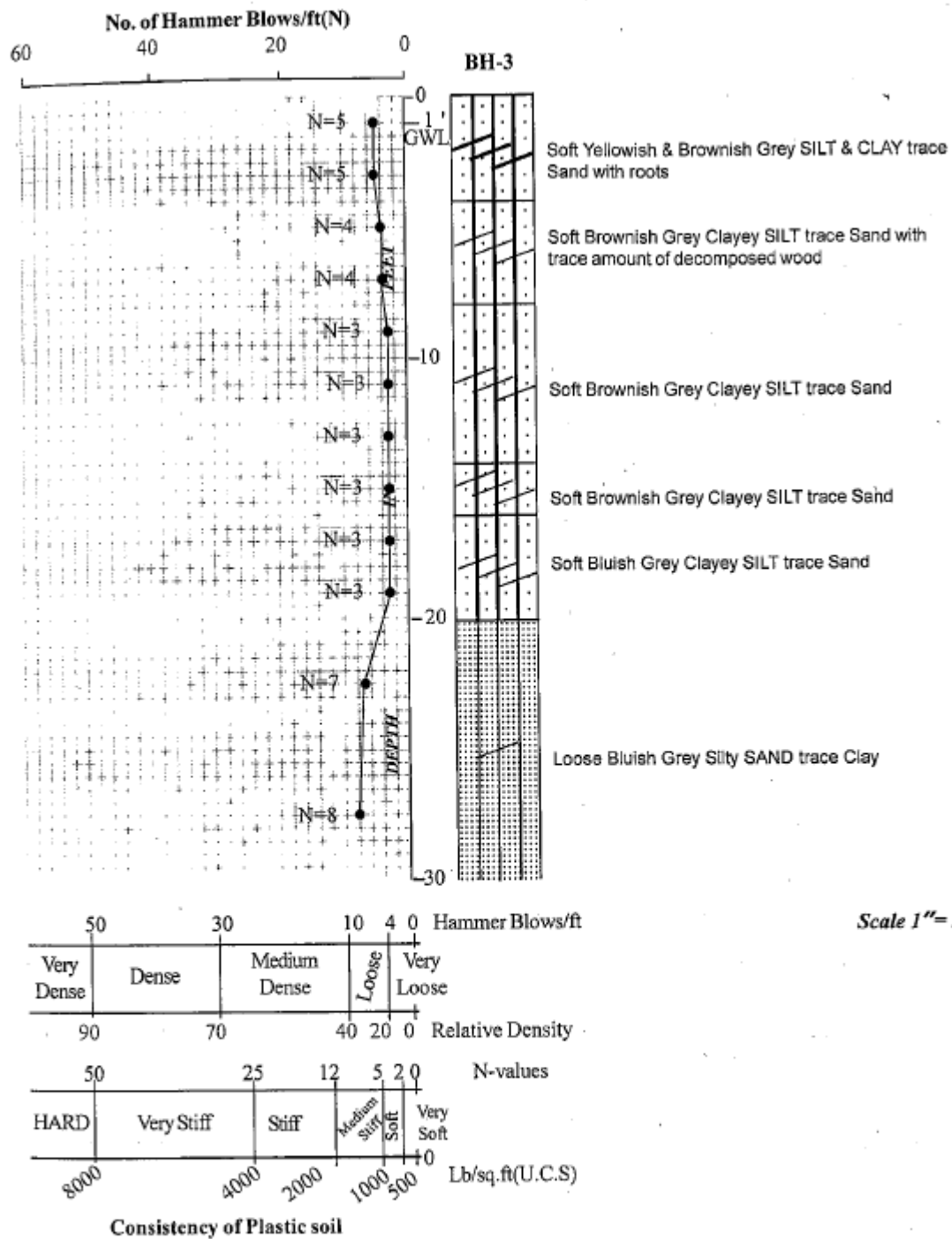


Figure 2.3 **SOIL PROFILE OF BORE HOLE NO.(3)**
PROPOSED CYCLONE SHELTER BUILDING SITE, MON TAI CHAUNG (ANAU MAE CHAUNG WA), COMPARTMENT 55, KADONKANI FOREST RESERVE, BOGALAY TOWNSHIP, AYEYARWADDY REGION.