

添付 13:生計向上活動プロフィールシート

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| 添付 13-1 | Mangrove friendly aquaculture |
| 添付 13-2 | Rehabilitating mangroves and improving food security of the coastal dwellers through enhanced technical capacities and integrated community forestry |
| 添付 13-3 | Traditional snack food making business (12 items of food production) |

添付 13-1 Mangrove friendly aquaculture

Activity Name: Mangrove friendly aquaculture	Activity Suitable for: group level, village level
Resource Organisation Name: EcoDev	Contact Address: No. 41-B, Moe Sandar Street, Kamayut Township Yangon Contact Phone Number: 01 536 437 Contact Person Name: U Win Myo Thu
Brief about the activities/ techniques applied:	
Objectives:	
<ul style="list-style-type: none"> - To verify that mangrove and aquaculture can definitely co-exist - To increase the income generation of the rural people - To gain the successful economy and sustainable development of delta communities 	
Procedures:	
<ul style="list-style-type: none"> - Site selection - Pond construction - Crab and shrimp culture - Mangrove plantation in mangrove friendly aquaculture pond - Pond management 	
Potential benefits/ profits for doing such activity:	
<p>According to the result of the crab culture (fattening) in 6 project villages, crab culture makes profit ranged from 50660 to 58220 kyats in some batches. However, they lost in some batches ranged from 4100 to 110900 kyats when the price is rapidly fall down and low survival rate when harvest. Survival rate was ranged from 24.1% to 91.3% depend on crab quality, water quality and pond management.</p> <p>Moreover, many landless household workers can get short term incomes by participating in the cash for work activities such as pond construction. This activity can create employment opportunities for women in the villages such as knotting crab body with rope before stocking in pond and before selling to market.</p> <p>If aquaculture pond is beside the paddy field, paddy yield in increased by maintaining more fresh water volume and preventing saline water intrusion by pond dikes. It is indirect impact of mangrove friendly aquaculture pond that it can make to increase paddy yield at the farm beside the pond.</p> <p>Capacity building for CFUG members is improved through mangrove friendly aquaculture trainings and their experiences by implementing activities practically after the trainings.</p>	
Period required to gain above benefits/ profits:	
Required period for crab culture is from 3 to 12 days and shrimp culture is about 4 to 4.5 months.	
Initial Investments and Inputs Required:	
<p>Initial investments for pond including required materials such as inlet/outlet pipes, materials for crab culture is 2,990,000 kyats.</p> <p>Cost for crab culture for one production circle is from 100,000 to 250.000 kyats and operation cost is from 19,000 to 78,000 kyats depends on the stock volume.</p> <p>If labours are hired for guarding pond, feeding crab/shrimp etc., labour charges per day is about 3000 kyats.</p>	
Maintenance costs/ inputs required:	
<p>Feed for crab/shrimp = 1000 ~ 22000 kyats/circle</p> <p>Pond repair</p>	
Markets and distributions channels for the activity and products made from the activity:	
Products are sold to the market in nearby town.	
Important assumptions/ preconditions for planning, preparing, implementing the activity:	
<p>Update market information must be monitored to decide whether it should grow or harvest or shut down for a while to avoid loss or make profit.</p> <p>Crab/shrimp should be sold from Monday to Wednesday when price is stable than other days and price is high during neap tide period while crab catch rate is declined in wild and low supply in market.</p>	
Potential risks and issues to be taken into account for conducting the activity:	
Crab price is fragile and fluctuated many times that it depends on supply and demand in crab market in town and quality of crab. Sometimes, the price is rapidly decreased especially during December to January which Christmas, New Year and Chinese festivals are held in this period.	

Activity Name: Mangrove friendly aquaculture	Activity Suitable for: group level, village level
Resource Organisation Name: EcoDev	Contact Address: No. 41-B, Moe Sandar Street, Kamayut Township Yangon Contact Phone Number: 01 536 437 Contact Person Name: U Win Myo Thu

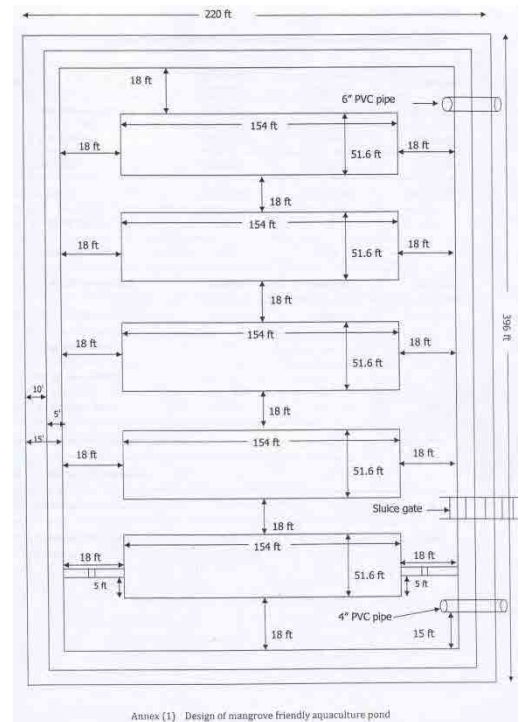
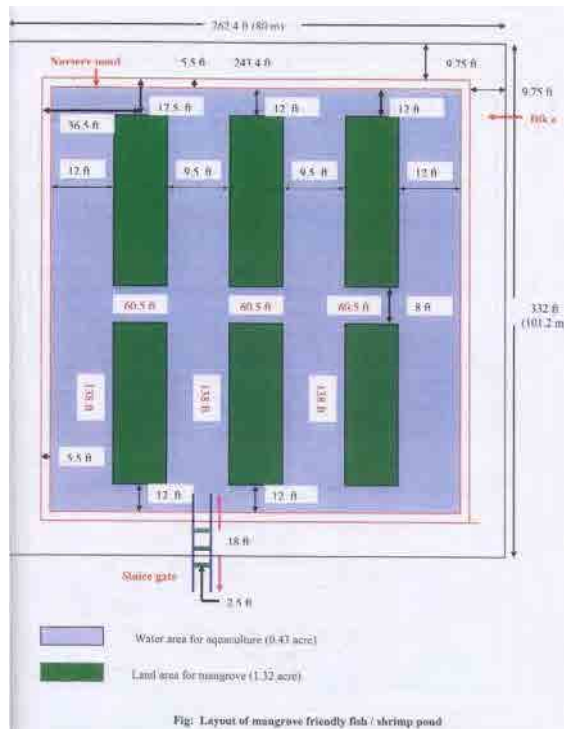
Possible training which can be offered for the above activity:

EcoDev can provide mangrove friendly aquaculture training.

Existing reports/ manuals/ guidelines/ other documents available in relation to the activity:

Technical Report of Mangrove Friendly Aquaculture Activities (July, 2012) submitted by U Htin Aung Kyaw, Aquaculture Specialist (EcoDev), under Sustainable Community Alternative Livelihood Enhancement to Undermine Poverty (SCALE UP) Project, Laputta Township

Illustrations/ Photos which describe about the activity:



Stories, case studies of villages who actually adopted the activity:

The one who practices says...

**添付 13-2 Rehabilitating mangroves and improving food security of
the coastal dwellers through enhanced technical capacities and
integrated community forestry**

<p>Activity Name: Rehabilitating mangroves and improving food security of the coastal dwellers through enhanced technical capacities and integrated community forestry</p>	<p>Activity Suitable for: (individual level , household level, group level, village level, others (specify:)): Village level</p>
<p>Resource Organisation Name: Ecosystem Conservation and Community Development Initiative (ECCDI)</p>	<p>Contact Address: Room 202, Building 74/75, Mingalar Thukha street, Ward 5, Kamayut Tsp, Yangon, Myanmar. Contact Phone Number: 01 510 902; 01 504 225 Contact Person Name: Dr. Kyaw Tint, President</p>
<p>Brief about the activities/ techniques applied: (objectives, expected goals/ contributions to livelihood, advantages/ disadvantages, methodologies and procedures)</p> <p>A. <u>Overall objective:</u> To improve livelihoods and reduce disaster risks.</p> <p>B. <u>Specific objectives:</u></p> <ol style="list-style-type: none"> To restore degraded mangrove forest and satisfy basic needs of the community for forest products; To improve livelihoods and ensure food security of the beneficiary population through increased incomes from agriculture, livestock, fisheries and forestry; and To contribute to disaster risk reduction and climate change mitigation through intensified tree shelter. <p>Expected outputs</p> <ol style="list-style-type: none"> (-- ha) of community mangrove forest rehabilitated or established; Improved wood and non-wood forest products and additional income; Improved fishery habitats, increased fish catch and income; Improved forest cover, aesthetic appreciation and decreasing soil erosion; Expanded forest carbon storage and sink, and reduced disaster risk. <p>Method and procedure</p> <ol style="list-style-type: none"> Develop CF design integrating forestry, agriculture, livestock breeding and fishery Conduct trainings on:- <ul style="list-style-type: none"> forest management and nursery practice community forestry agro-forestry aqua-forestry agriculture and home gardening live stock breeding Prepare site according to the design developed (see figure below) Discuss with and assess the needs of the community (potential members of CFUG) Establish CF Plant fruit trees and cash crops, as chosen by the beneficiaries, on the raised ground Breed live stock (ducks) in one canal <p>The project will distribute -- ducks to each FUG (Forest Users' Group) member. The ducks will be about one and a half years old which are already laying eggs. The households could start collecting eggs in about two weeks and get income. The -- ducks distributed to each family will include about (-) males. (In ECCDI's Labutta CF 30 ducks were distributed to each HH). A building of about 4 m by 8 m will be constructed with bamboos and thatch to house the ducks.</p> <p>Each FUG member enjoying the right of breeding ducks must pay back the cost of the ducks to the Management Committee in terms of eggs. MC (Management Committee) will collect, daily, 50% of the eggs laid by the ducks and value them at market price which will be deducted from the total cost of the ducks which the member received from the project. The money paid back by the members belongs to the UG and will be used for further development of the community.</p> <ol style="list-style-type: none"> Breed fish in the other canal <p>The user will culture fish in one of the canals. The project will provide each member with small fishes worth about Kyats ---. The livestock/fishery consultant will suggest and assist him to breed ducks and fishes. (In ECCDI's Labutta CF, each hh was provided with small fishes worth about 16 FEC.)</p>	

<p>Potential benefits/ profits for doing such activity: (Please describe and quantify profits per year/ production cycle, tangible/ intangible benefits, etc.) Benefits include- DRR, soil protection, improvement of fishery habitats, increased production of agriculture and fisheries, direct benefits from livestock breeding, fish rearing, forest products, etc., and increased environmental awareness and technical capacity through trainings.</p>														
<p>Period required to gain above benefits/ profits: (Please describe and quantify how many months/ years it required to gain benefits/ profits)</p> <p>If there are mangrove trees remaining where CF is established, seeds can be collected starting from the first year and sold. If CF is a new plantation the tangible benefits in terms of forest products will be possible after about 3-5 years. Intangible benefits could start as soon as the CF has been established. The benefits from agriculture, livestock and fisheries could be achieved within about six months.</p>														
<p>Initial Investments and Inputs Required: (Please describe and quantify investments and inputs required) Materials (cost, type of materials and amount of such materials)</p> <p>Materials required include seeds and seedlings for CF & home gardens, exposable materials for nursery and labour quarter construction, ducks and fishes for distribution to the CFUG members, training facilities and materials.</p> <p>Labutta 50-ha CF cost as follows excluding cost for human resource- (all costs are in FEC)</p> <table border="0"> <tr> <td>Training</td> <td style="text-align: right;">3,750</td> </tr> <tr> <td>Establishing 50-ha CF</td> <td style="text-align: right;">16,954</td> </tr> <tr> <td>Planting fruit trees and cash crop</td> <td style="text-align: right;">105</td> </tr> <tr> <td>Cost of ducks</td> <td style="text-align: right;">3,947</td> </tr> <tr> <td>Cost of fish</td> <td style="text-align: right;">789</td> </tr> <tr> <td><u>Digging canals</u></td> <td style="text-align: right;"><u>8,000</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">33,546</td> </tr> </table> <p>Labours (cost, type of labour and amount of such labours)</p> <p>Since it was a CF, users contributed some labour free of charge.</p> <p>Other Inputs</p>	Training	3,750	Establishing 50-ha CF	16,954	Planting fruit trees and cash crop	105	Cost of ducks	3,947	Cost of fish	789	<u>Digging canals</u>	<u>8,000</u>	Total	33,546
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Total	33,546													
<p>Maintenance costs/ inputs required: (Please describe and quantify investments and inputs required) Materials (cost, type of materials and amount of such materials) CFUG will contribute all materials and labour necessary for the sustainability of the action. Labours (cost, type of labour and amount of such labours)</p>														
<p>Markets and distributions channels for the activity and products made from the activity: (Please describe possible markets and distribution channels/ methods to gain benefits/ profits from the activity) All project outputs are primarily meant for food security of the community and environmental improvement and stability of the locality. Excess CF products can be sold to non-CF members and in the local markets. If efficiently applied, this integrated CF design is considered to have the potential to benefit significantly the CFUG and the local community both financially and environmentally in a sustainable manner.</p>														
<p>Important assumptions/ preconditions for planning, preparing, implementing the activity: (Please describe any assumptions/ preconditions for preparing, planning, and implementing the activity)</p> <ul style="list-style-type: none"> • Community Forestry Certificate (CFC) obtained in time • Good understanding and participation of the beneficiaries • No outbreaks of pests, diseases and natural disasters • Favourable climate and assistance from the Forest Department • Funding sufficient and timely 														

Potential risks and issues to be taken into account for conducting the activity:

(Please describe any risks and issues/considerations for preparing, planning, and implementing the activity)

- Suitable land for CF unavailable
- FD not cooperative
- Potential beneficiaries not interested and not mobilised
- Outbreaks of pests and diseases and natural disasters
- Climate unfavourable
- Funding insufficient and untimely

Possible training which can be offered for the above activity:

(Please describe about details on possible training your organization can offer in relevance to the said activity. If training is not available in your organization but if you know other organizations who can provide training please also describe as well)
ECCDI can offer all trainings relevant to the said activity.

Existing reports/ manuals/ guidelines/ other documents available in relation to the activity:

(Please describe name of documents, and information on where someone can obtain or access to such documents)

ECCDI had implemented the above integrated CF design in Labutta Township, Ayeyarwady Delta under the project: "Rehabilitating mangroves and improving food security of the Nargis victims through enhanced technical capacities and community forestry" in 2011. So, concerned documents and information are available at ECCDI.

Illustrations/ Photos which describe about the activity:

(please provide any illustrations/ photos which describe about the activity)

The following figure shows the lay-out of a one-ha plot: an allotment for a CFUG member.

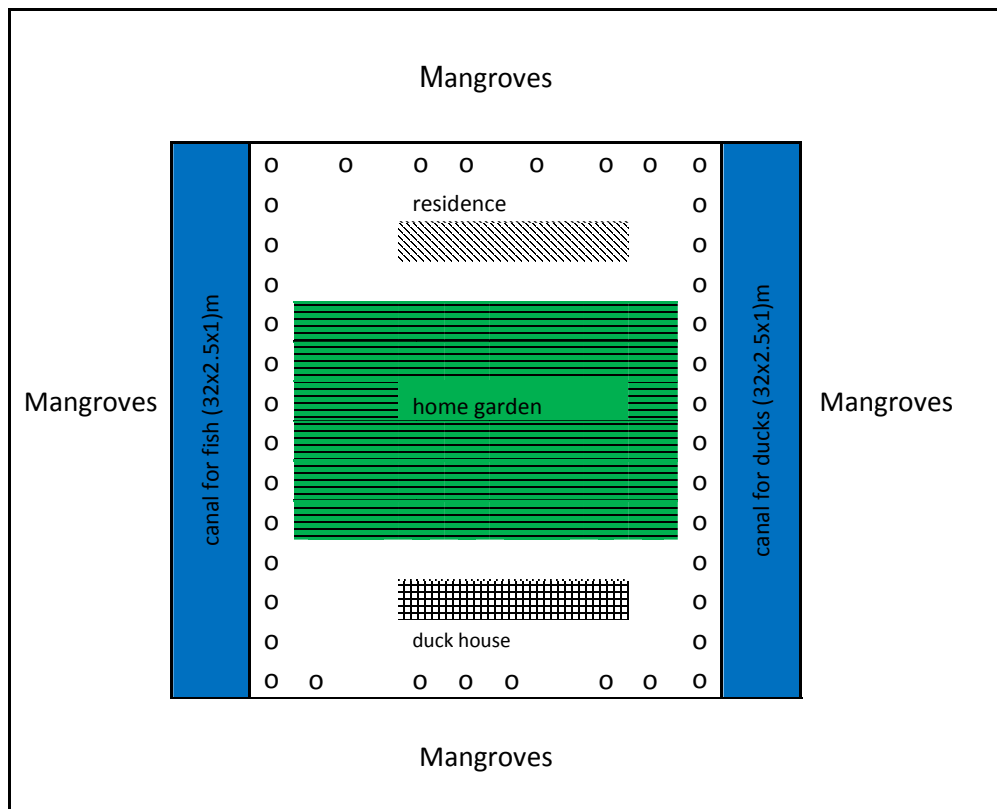


Fig: Lay-out of a one-ha plot: an allotment for a CFUG member

size of plot : (100 m x 100 m or 1 ha)

size of canal : (32 m x 2.5 m x 1 m deep)

raised ground bet. canals : 32 m x 16 m x 1 m high)

o o = trees or fruit trees or bamboos or a mixture

添付 13-3

Traditional snack food making business (12 items of food production)

Activity Name: Traditional snack food making business (12 items of food production)	Activity Suitable for: Village women individual level, household level
Resource Organisation Name: Mangrove Service Network(MSN)	Contact Address: Room-101, Building (B), Highway Complex, Kamayut Township, Yangon, Myanmar Contact Phone Number: : 09-7321 3356 Contact Person Name: Daw Zar Li Maw
<p>Brief about the activities/ techniques applied:</p> <p>Objective: 1. To strengthen capacity of village ladies/women in local based production 2. To support livelihood development of village families. 3. To provide notorious and hygiene foods to rural community</p> <p>Goals : The rural community can create income opportunities and get notorious and hygiene foods by produce local based traditional foods within their area.</p> <p>Advantages/ disadvantages: The technique is easy to learn. Raw materials can collect within the area. The market source are the own village and near areas. The amount of income during the monsoon season may be lower than dry season.</p> <p>Methodologies: Most of traditional snack foods are produced with local products such as rice, vegetable oil. Methodologies for production are easy to learn from practical based training.</p> <p>Producers: A member of family must learn the methodologies from a training program. Other family member can assist in food production.</p>	
<p>Potential benefits/ profits for doing such activity:</p> <ol style="list-style-type: none"> Rice noodle with fish soup (monthinkha) After 12 times of production, you will start getting net profit. Profit per one production is about 3300 kyats. Rice Cake After 24 times of production, you will start getting net profit. Profit per one production is about 550 kyats. Sweet wheat cake with coconut and ground nut (shwe kyi) After 10 times of production, you will start getting net profit. Profit per one production is about 1200 kyats. Sweet sticky rice (shwe kyi) After 8 times of production, you will start getting net profit. Profit per one production is about 1500 kyats. Agar-agar After 8 times of production, you will start getting net profit. Profit per one production is about 1500 kyats. Fried sticky rice with jiggery (mont salin daunt) After 5 times of production, you will start getting net profit. Profit per one production is about 2300 kyats. Steam sticky rice with coconut eat (mont pet htote) After 2 times of production, you will start getting net profit. Profit per one production is about 2400 kyats. Steam rive with coconut (pyaryi htote) After 2 times of production, you will start getting net profit. Profit per one production is about 3000 kyats. Coconut sago (thagu kyo) After 3 times of production, you will start getting net profit. Profit per one production is about 3400 kyats. Fried sticky rice with sugar (mont kyo lein) After 3 times of production, you will start getting net profit. Profit per one production is about 3200 kyats. Sweet juice with bread and agar-agar (shwe yin aye) After 6 times of production, you will start getting net profit. Profit per one production is about 4600 kyats. Fried sticky rice with coconut meat (mont lone gyi kyaw) After 7 times of production, you will start getting net profit. Profit per one production is about 1700 kyats. 	
<p>Period required to gain above benefits/ profits:</p> <p>The nature of production for each item is daily based. Profits per one production for 12 items are as described above.</p>	

Activity Name: Traditional snack food making business (12 items of food production)		Activity Suitable for: Village women individual level, household level		
Resource Organisation Name: Mangrove Service Network(MSN)		Contact Address: Room-101, Building (B), Highway Complex, Kamayut Township, Yangon, Myanmar Contact Phone Number: : 09-7321 3356 Contact Person Name: Daw Zar Li Maw		
Initial Investments and Inputs Required:				
Sr.	Item	Utensils	Ingredients	Total
1	Rice Noodle with fish soup (monthinkha)	37250	4695	41945
2	Rice cake	12350	1655	14005
3	Sweet wheat cake with coconut and ground nut (shwe kyi)	12500	3090	15590
4	Sweet sticky rice	12500	2770	15270
5	Agar-agar	12350	2780	15130
6	Fried sticky rice with jiggery (mont salin daunt)	10700	2350	13050
7	Steam sticky rice with coconut meat (mont pet htote)	4700	2150	6850
8	Steam rice with coconut (pyaryi htote)	4700	1990	6690
9	Coconut sago (thagu kyo)	11200	2550	13750
10	Fried sticky rice with sugar (mont kyo lein)	10700	2800	13500
11	Sweet juice with bread and agar-agar (shwe yin aye)	23550	7400	40950
12	Fried sticky rice with coconut meat (mont lone gyi kyaw)	10700	3300	14000
For more information, please see detail calculation in the attachment.				
No labour cost because only family members can do these activities by themselves and many human resources are not required.				
Regarding other inputs, list of the utensils required for each activity is mentioned in the attachment.				
Maintenance costs/ inputs required: If any utensil is broken, owner has to substitute with new one. Therefore, cost will be the same as per mentioned in the list of the utensils in the attachment.				
Markets and distributions channels for the activity and products made from the activity: Market channels are within own village and other nearby villages.				
Important assumptions/ preconditions for planning, preparing, implementing the activity: The total quantity of traditional snack food selling shops must be balanced with the population of the village. If the shops are many and population of the village is less, these activities won't work. In case of selling to nearby villages, the individual household must have at least a small boat for wander.				
Potential risks and issues to be taken into account for conducting the activity: Market condition is fluctuated according to season and depended upon the weather.				
Possible training which can be offered for the above activity: No training for these activities provided by our organization so far.				
Existing reports/ manuals/ guidelines/ other documents available in relation to the activity:				
Illustrations/ Photos which describe about the activity:				
Stories, case studies of villages who actually adopted the activity: The one who practices says...				

添付 14: CF インパクト 調査結果 (全容 CD 収納)

MOECAF

JICA

**INTEGRATED MANGROVE REHABILITATION AND MANAGEMENT PROJECT
THROUGH COMMUNITY PARTICIPATION IN THE AYEYAWADY DELTA
IN
REPUBLIC OF THE UNION OF MYANMAR**

**Final Report
for
Impact Survey and Capacity Assessment**



November 2012



Myanmar Engineering Consulting Co., Ltd.

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Abbreviations

BGL	: Bogalay
CF	: Community Forestry
CFI	: Community Forestry Instructions
CFUG	: Community Forestry User Group
FAO	: Food and Agriculture Organization
FD	: Forest Department
FUG	: Forest User Group
GAD	: Gaw Du village
HH	: Household
HHs	: Households
IG	: Income Generation
INGOs	: International Non-Governmental Organizations
JET	: JICA Expert Team
JICA	: Japan International Cooperation Agency
KKKL	: Kwa Kwa Ka Lay village
LPT	: Laputta
MEC	: Myanmar Engineering Consulting Co. Ltd.
MC	: Management Committee
MP	: Management Plan
NGOs	: Non-Governmental Organizations
NK	: Nippon Koei Co. Ltd.
NTFP	: Non-Timber Forest Product
NTP	: Nyaung Ta Pin village
PDM	: Project Design Matrix
PYP	: Pyar Pon
SPT	: Shwe Pyi Thar village
TGT	: Htaung Gyi Tan village
TOR	: Term of Reference
TYK	: Thar Yar Kone village

1.0 Introduction¹

The Republic of Union of Myanmar is geographically situated in Southeast Asia and bordered with China, Lao PDR, Thailand, Bangladesh, India, Bay of Bengal and the Andaman Sea. The total area of Myanmar is 677,000 square kilometers with 57.5 million populations (2008), 75% of total population lives in rural area. 48 % of country area was covered with forest (according to 2011 FD data) and people in rural area depend on forest resources in one or another way. Forest resources play a vital role in the livelihoods of the rural community of the country.

Ayeyawady River is the country's largest river and serves as the economic lifeline of Myanmar. At approximately 2,170 km long and originating from the confluence of the Malikha (Mali Hka), and Maykha (N'mai Kha) rivers both of which have their beginnings in the Himalayan slopes, it flows relatively straight North-South before emptying through the Ayeyawady Delta with many branches spread east and west until flowing into the Andaman Sea. The Ayeyawady Delta is about 290 km long from its curved base to Andaman Sea with 240 km wide. The Ayeyawady Delta is fragile and intricate ecosystem of mangrove swamps and tidal estuaries.

The Forest Law (1992) and the Forest Policy (1995), with their emphasis on villager participation in forest management enabled the Community Forestry Instructions (CFI, 1995) which gives legal backing for rural communities to co-manage forests. The CFI is the first legislation to recognize villagers' right to manage nearby forests for their own use and joint management with the district FD. The CFI grants forest user groups (FUGs) a 30-year official lease over a designated forestland under joint-management with the forestry department. The village, in consultation with the forestry department and often with NGOs must formulate a community forest management plan (CF-MP) that they are beholden to follow unless they risk losing their community forest. The overall principles in CFI are for local communities to fulfill basic livelihood needs for firewood, farm implements and small timbers as well as to reforest degraded forest lands.²

During the last two decades, there had been a significant deforestation problem in Myanmar. According to *FAO 2010*, annual deforestation rate during 1990 to 2010 was 372,250 ha in the country. This is mainly because of natural and man-made causes including illicit logging, short fallow cycle of shifting cultivation, excessive cutting of firewood, improper land uses and inappropriate farming system (*FD, 2011*).

The Reserved Forests of Ayeyawady Delta is one of the seriously degraded forest areas, where decades of extensive expansion of agricultural land, unsustainable forest use, and more recently, increase of aquaculture activities have severely damaged the remaining mangrove forests.

JICA is one of the agencies supporting technical assistance to Myanmar through various projects in agriculture and forestry sector.

¹ Baseline Survey Report, Integrated Mangrove Rehabilitation and Management Project Through Community Participation in Ayeyawaddy Delta, April – June, 2012

² BASELINE STUDY for MYANMAR: Overview of Forest Law Enforcement, Governance and Trade, August 2011, Kevin Woods and Kerstin Canby

The Technical Cooperation Project titled “The Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta in the Union of Myanmar” is one of the JICA projects in Myanmar and supporting FD in the implementation of the development of communities and management of the mangrove forests within the Ayeyawady Delta.

The overall goal of this project is that the mangrove forest is sustainably managed and poverty is alleviated among the communities. The purpose of the project is to produce the outputs and fulfill the purpose of targeting communities and the mangrove forests co-exist in a sustainable manner in the selected areas where project activities were implemented and selected communities practiced environmentally and economically sustainable CF.

The Project intends to accomplish its purpose through attaining the four outputs as follows.

- i. The community practice environmentally and economically sustainable CF,
- ii. The management the support system of FD is effective,
- iii. Some silvi-cultural techniques are developed, and
- iv. Coordination mechanism for addressing the deforestation of the mangrove is established.

The project was launched for a five year period starting from 2007. In 2008 the Cyclone Nargis struck Myanmar and some project areas and the activities were severely damaged. After the modification of the Project Design Matrix (PDM) the project duration was extended for one more year until March 2013. Meanwhile for the successful implementation of the project, JICA and Forest Department reviewed the project outputs and activities at the midterm review in February and March 2011 and further modification was made for the PDM in 2012.

1.1 Background

In order to support FD and the target communities who implement the activities of community forestry (CF) in an effective and efficient manner, the JICA Expert Team (JET) represented by Nippon Koei Co. Ltd. (NK) evaluate the Project achievements. In this regards, NK intends to examine the positive and negative changes of CFUG members' livelihood brought about by the capacity development activities as well as levels of understanding among the Management Committee (MC) members. The impact survey and capacity assessment was conducted during October and November 2012.

1.2 Objective of the survey

The main objectives of the impact survey are:

- To grasp and evaluate the impacts of the CF and the income generation activities on the livelihoods of the CFUG members

- To grasp the levels of understanding among the members of the Management Committee (MC) on the basic concept, process to implement and monitor the CF activities and
- To assess the competency of the MC members to lead the members of CFUG in implementing the activities of CF.

1.3 Expected outputs

The expected outputs are understand the 1) positive and negative change in livelihood of CFUG members and 2) technical and core capacity of MC members who are living in the following four reserved forests in the Project Area and target villages for the survey.

- Kyakankwinpauk Reserved Forest (Laputta Township)
- Pyinalan Reserved Forest (Laputta Township)
- Kadonkani Reserved Forest (Bogalay Township)
- Pyindaye Reserved Forest (Bogalay Township/ Pyar Pon Township)

The target villages surveyed are located in three township areas under the Ayeyawady Region as follows. Their names are given below with their abbreviations used in this report.

- Laputta Township (LPT)
 - i. Kwa Kwa Ka Lay (KKKL)
 - ii. Nyaung Ta Pin (NTP)
 - iii. Thar Yar Kone (TYK)
- Bogalay Township (BGL)
 - i. Shwe Pyi Thar (SPT)
- Pyar Pon Township (PYP)
 - i. Gaw Du (GAD)
 - ii. Htaung Gyi Tan (TGT)

2.0 Survey materials and methodology

A detailed methodology was prepared and adopted for conducting the study through applying the survey techniques. The methodology was based upon the following steps:

- Preparation of the questionnaires
- Selection and training of survey teams
- Field work and data collection
- Ensuring quality checks

- Development of the data management system in the field
- Data processing and editing
- Tabulation and analysis of data
- Production of draft and final report

2.1 Sampling design

The sample design was based on two stage stratified simple random sampling. At the first stage the sample villages and size (number) of sampling CF member household (HH) were purposively selected. In order to evaluate exactly the impacts at household (HH) level due to the Project activities, the second stage selection of the 20% sample households (HHs) were prepared based on the eligibility of the CF member who were interviewed in the baseline survey done during April and May of 2012. The lists of the HHs prepared were updated at the sample villages by the survey teams before the actual interview was made.

Some HHs moved out to other places and there were some changes in the list. However the original numbers of targeted sample HHs were tried to keep enumerated in the survey.

In order to collect the data related to effect of CF on livelihood, the survey team made direct contact interview with MC member of CFUG.

Regarding technical and core capacity data, the survey team made group interview with MC member of CFUG. In addition to that, free direct contact interview with CFUG member in each village made for more understanding of livelihood situation in general.

2.2 Household Questionnaire

The questionnaires was modified and developed by the survey contractor, Myanmar Engineering Consulting Co., Ltd. (MEC) according to the guideline provided in TOR. The questionnaire was finalized in consultation with JET before translation to Myanmar language.

Main topics included in the household questionnaire are as follows:

- i. Basic information of HH (the head of HH, number of HH member by age and sex, education level)
- ii. Experiences of HH to participate in the CF activities
- iii. Tangible positive effects of CF activities on the HH's livelihoods
- iv. Intangible positive effects of CF activities on the HH's livelihoods
- v. Negative effects of CF activities on the HH's livelihoods
- vi. Experiences of HH to participate in the income generation activities
- vii. Tangible positive effects of income generation activities on the HH's livelihoods

- viii. Positive intangible effects of income generation activities on the HH's livelihoods
- ix. Negative effects of income generation activities on the HH's livelihoods

2.3 MC member of CFUG interview

MC members of CFUG interviews were conducted in the all surveyed villages using formatted questionnaire which was modified/developed by MEC in accordance with the draft provided in TOR.

Main topics included in the MC member questionnaire are as follows

- i. Type of CF and livelihood activities
- ii. Role of management committee
- iii. Changes of livelihood activities on CFUG

Questions for the MC members of CFUG took the issues into consideration of the effect of CF activities on the livelihoods of the CFUG members.

2.4 Capacity assessment

Group interview and Discussion-Oriented Organizational Self-Assessment (DOSA) with MC member of CFUG was conducted in all survey targeted villages using predetermine questions which was modified/developed by MEC in accordance with the guideline provided in TOR.

Main topic for technical capacity assessment questions was associated with the basic knowledge needed to lead the CF members and core capacity assessment questions are linked with key elements of the competency needed to the MC members in leading the CF members.

The items to assess these two types of capacities are as follows.

Five key areas to assess technical capacity are:-

- i. Understanding of CF concept
- ii. Understanding of CF Instruction
- iii. Understanding of CF Management Plan (MP)
- iv. Understanding of Bylaw
- v. Understanding of the roles and responsibilities of MC

Five key elements to assess core capacity are:-

- i. Capacity to implement the activities in accordance with the plan
- ii. Capacity to carry out the duties of MC
- iii. Capacity to respond issues/problems
- iv. Capacity to introduce new/creative ideas
- v. Capacity of coordination and cooperation

2.5 Data collection and fieldwork

The fieldwork was planned to be conducted by the survey team comprised one team leader, one assistant team leader, two senior surveyors, three surveyors, two note-takers and two assistants.

The training for the surveyors was for three days including mock-up questionnaires test and emphasized hands-on aspects of fieldwork. For the smooth implementation of the fieldwork, the fieldwork program was drawn up by the survey teams themselves according to the transportation and nature of the field condition. The enumeration period started from 2nd October and ended on 12th October 2012. Firstly the survey group started their field works in BGL Township and then that was followed by PYP and LPT Township.

For an implementation of the impact survey, the availability of lists of HHs was crucial for drawing the sample of HHs to be interviewed. Based on the household listing guidelines prepared in accordance with TOR and with the assistance of the MC of CFUG identification (confirmation) of sample HHs were completed just after the survey teams arrived to the target village. Some HHs moved out to other places and there were some changes due to adding new HHs in the interview list because original numbers of targeted sample HHs were tried to keep enumerated in the survey.

2.6 Completion of the field work

In the course of the fieldwork it was found that out of 88 HHs in the sample, 13 HHs with whole family member are temporarily move out from their native village after base line survey conducted and new HHs are replace for those move out from list. There was no sample HH that refused to answer the survey questionnaires. Eventually the completion status of the survey came out as the following table.

Table 2.1 List of sampling CF HHs

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Total	HHs from list	HH – replace	Total	HHs from list	HH – replace	Total	HHs from list	HH – replace	Total	HHs from list	HH – replace	Total	HHs from list	HH – replace	Total	HHs from list	HH – replace	Total	HHs from list	HH – replace
Design Sample Unit - HHs	88	88	-	21	21	-	17	17	-	14	14	-	13	13	-	14	14	-	9	9	-
Actual Sample Unit - HHs	88	75	12	21	18	3	17	17	-	14	12	2	13	11	2	14	10	4	9	7	2
Actual Sample Unit - %	100	84	16	100	86	14	100	100	6	100	86	14	100	85	15	100	72	28	100	78	22

According to table 2.1, field team cannot follow the complete survey design due to seasonal migration of some CFUG member family who already included in purposively selected interview sample list. Except GAD, all targeted villages had included minimum 2 new interviewees from TYK and KKKL while maximum 3 and 4 interviewees respectively from SPT and NPT for replacement. Actually, one interviewee from GAD who involved at baseline survey also migrated but fortunately, one non-CF member during baseline survey was recognized as new CFUG member during this time and we selected him as respondent because he also involved at baseline survey. In consideration of percent sharing of purposively selected

interviewees, GAD stood with 100% (17/17) in maximum while NTP and KKKL follow 72% (10/14) and 78% (7/9) respectively in minimum. Remaining villages are represented with 85% (11/13) and 86% (18/21 & 12/14).

In addition to HH interview, survey team also met with MC member for assessing the technical and core capacity of MC member. In this regard, following MC member are met during the assessment.

Table 2.2 Participants of MC members for technical and core capacity assessment

	SPT	GAD	TGT	TYK	NTP	KKKL
Chairman		1	1	1	1	1
Secretary	1	1	1		1	1
Treasurer	1	1	1	1	1	
Member	1	1	2	1	1	1
Total person met for assessment	3	4	5	3	4	3

Team member who assess the technical and core capacity of MC member also met with three to four CFUG members who not involved in impact survey to confirm the MC capacity as well as understanding for the livelihood situation among the CFUG member.

2.7 Data entry

The collected questionnaires were given a preliminary manual edit in the field as soon as the interview was completed and then the data collected were entered and converted into the computer files using Microsoft Excel Program before leaving the sample village for safe the time limit. But due to electrical power supply limitation, data entry work was continued in Yangon.

2.8 Data editing, processing, analysis and report preparation

This part of the work was carried out in October - November 2012. First the Excel Data files prepared in the field and Yangon were checked for errors and inconsistencies and converted into SPSS for data analysis. Finally the tabulation files were created using the SPSS software.

2.9 Limitation

Late monsoon cyclone warning from weather focus agencies even issued low possibility was dominant for preparation of the survey schedule. With first priority of safety for field team, increase manpower to speed up the survey process as well as arrangement of evening work schedule at village and early morning movement from village to village.

With nature of delta, some of families are seasonal migrated to cities or other villages and/or outside village territory for their livelihood opportunities and some of CFUG member families also included those kind people. In this regard, to keep and follow the sampling design was difficult for field team. Then management team decided to replace the new interviewees from CFUG member to maintain for total survey target after consultation with field team.

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It was noted that, relative of existing family member from other area and/or new family member are temporary and/or permanently move in (re-migrated) to survey area and added to existing population.

Survey team keep identified the HHs sample same as baseline survey but faced different interviewee from same family. As result of new interviewee from same targeted CFUG member HH who involved from baseline survey even surveyor try to make it simple questions, some answer of HHs data especially for education of HH' head and ethnic area differences from baseline data. According to **Table 2.3**, 38.7% (29/75) of new respondent ratio was found in survey and GAD stood with highest new respondent ratio of 52.9% (9/17) while NPT was lowest ratio of 20.0% (2/10).

Table 2.3 List of interview respondents

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Total	Same respondents	New respondent	Total	Same respondents	New respondent	Total	Same respondents	New respondent	Total	Same respondents	New respondent	Total	Same respondents	New respondent	Total	Same respondents	New respondent	Total	Same respondents	New respondent
Number HHs for interview	75	46	29	18	12	6	17	8	9	12	8	4	11	6	5	10	8	2	7	4	3
% of HHs for interview	100.0	61.3	38.7	100.0	66.7	33.3	100.0	47.1	52.9	100.0	66.7	33.3	100.0	54.5	45.5	100.0	80.0	20.0	100.0	57.1	42.9

3.0 Effect of CF activities on the livelihoods of the CFUG members

The survey team had carried out the contact interview with member from MC of CFUG in target villages and the findings as follow:-

3.1 Type of CF and livelihood activities

Except SPT and TYK, respondents expressed that type of CF in their villages is communal woodlot. In SPT, 5 private plantation of CF existed. Different from other, TYK mentioned for individual ownership in group CF allocation.

Table 3.1 Activities of CF

	2009						2010						2011						2012								
	Training	Workshop	Group meeting	Planting trees	Maintenance CF	Nursery	Field visit	Training	Workshop	Group meeting	Planting trees	Maintenance CF	Nursery	Field visit	Training	Workshop	Group meeting	Planting trees	Maintenance CF	Nursery	Field visit	Training	Workshop	Group meeting	Planting trees	Maintenance CF	Nursery
SPT		3						2		1					1	3	3	2				2	2	3	1		
GAD	5	1	10			1								5	1	10	5			1	1	5	5	3	18		
TGT		3	3	12				4	3	12					4		9	12			2	5	5	10	10		1
TYK	1	1	2			1		1	3				2	1		12		12			3		9		9		
NTP							5	12	2	12	1	3	4	23	12	2	9		4	4	9	9	1	9			
KKKL															2	8	5	7			2		3	2	9		

There are no reflections about supportive livelihood activities related to CF during baseline survey and it was noted that fully livelihood supported CF activities not existed in survey area. All respondents expressed that maintenance to CF was conducted in monthly basic but sometime twice a month or continuous daily basic when necessary.

Participation on training and workshop, CFUG member earn for allowance but it only compensate for lost of time from their normal income generation (IG) routing as in return. Only training and workshop organized/support by JICA can earn for such cash support. Remaining activities are member' own contribution and major challenges for them to adjust with individual IG activities because majority of member family in CFUG are poor and vulnerable.

It was noted that, all CFUG members realized that if the JICA/FD mangrove project was successfully completed the benefits would be obtained, but returns for their subsistence or livelihood support to participate in the establishment of CF will be take time, probably 5 to 6 years and it major constraints for most of CFUG who need early return for subsistence or livelihood support.

3.2 Role of management committee

It was not clearly specified by respondents for role of MC in conducting CF and livelihood activities. Almost all respondents expressed for organizing the CFUG member participation in activities and leading the activities movement related to CF such as trainings, workshops, group meetings, plantation and maintenance, etc., both preparation and implementation was the major role of MC.

3.3 Changes of livelihood activities on CFUG

All respondents met during assessment expressed that no specific and significant positive or negative changes were observed after starting CF related activities. But respondents from SPT and TGT mentioned that more and easy access to fuel wood and catching fishery products. Respondents from TGT and NTP expressed that they had some knowledge gain for oyster culture but no specific change in their livelihood activities related to oyster culture yet.

All respondents agreed that there are knowledge gain in CFUG member for tree plantation and maintenance. In addition to that, all mentioned that to prevent river bank erosion, establishment of wind braking trees, shading and increase population of aquatics in mangrove forest are positive changes after starting CF.

Not all villages, but mostly in PYP township (SPT and TGT), there was no clear demarcation for CF area and fish/prawn ponds which called mangrove friendly aquaculture was existed and as result less opportunity for ordinary community for fishing activities due to limited access due to prevention by owners of ponds as mentioned for negative change/effect after starting and/or introduction CF and it activities.

All respondents agree that participation in CF activities was practicing for collaboration among CFUG member and more understanding among each other and it was not expected before hand.

Member HHs complained for difficulties to share their livelihood activities because they not expected much time contribution for CF and in reality pays attention for some additional work and time like protection for illegal cutting trees from CF.

3.4 Reponses from CFUG members for CF development

Majority of CFUG members are concern for 1) weakness in protection their CF from illegal cutting, 2) difficult to share their working time for CF activities and 3) less understanding and contribution in meeting due to their education status.

All of the CFUGs there remain problems with effective protection for their CF. Most groups struggle to exclude outsiders from cutting, seedlings to raise in nursery or direct sowing or transplanting option. They need follow-up support from FD both technically and legally. They need legal support to protect the forests, forest land and their rights because the illicit cutting of trees in the community forest and crab farming by some people from the other village effect their CF development. Lack of necessary equipment like boat, boots and knives also existed as major constraint for them to make effective patrolling in their CF area.

Basically majority of CFUG members are poor and limited resource. Daily livelihood survival is major issue for their daily life and hard to manage the time contribution in CF activities which not support and/or related to livelihood. With this situation, an early return of subsistence or livelihood support to participate in the establishment of CF is essential need but it takes time up to 5 or 6 years of period. Majority of CFUG member seek the income generation support like crab farming, micro credit and boat for livelihood support.

Majority people are lack of interest, knowledge and technical skills and they understand that need to improve the interest, knowledge and technical skill through practical training and encouragement of recruiting new young membership to protect and development of CF.

3.4.1 Activity/support which are expected from CF

The CFUG members expected to get shading of the trees and necessary post for house from CF and hope to get more income and livelihood support from utilizing the forest product. On the other hand it was observed that they were expecting support to get loan, tools, seedling and food. They were also expecting necessary support and advices for sustainable development of CF including protection, effectiveness and easy transportation

The CFUG members had mentioned their needs for the improvement of CF and these should be taken care as much as possible while implementation of advocacy training, practical training and technical assistance are to be carried out on the other hand.

It was clear that some HH heads and members were well known about CF and expecting benefit from it. However training and consultation for the improvement of project activities are still needed. It should be emphasized on proving more training and knowledge sharing. CF are really beneficial for the HHs however low income earners are facing difficulties to participate in the CF activities. The obstacles are lacking sufficient money to spend for the CF such as transportation fees, cost for food and little spare time to participate in the CF activities. For these reason suitable management system should be reviewed and implemented for the CF. In addition appropriate income generating HH activities should be encouraged and supported.

In order to implement the CF plantation successfully and independently readjustment of the area and land demarcation should be made with the cooperation of stakeholders and authorities. In addition granting benefits from the CF is not sufficient it should be considered up to granting land ownership and transfer.

The distance from village to community forest area is rather far and some of the community forest situated in adjacent side of the river, the problem is that the CFUG members who have to cross the river need boat for implementation of CF activities.

3.4.2 Activities and support expected for livelihood development

Except SPT, income source for the HH of the project target CF villages was fishery and aquaculture, the CFUG members expressed the need of fishing equipment, improve access to fishery product processing business and crab farming through financial assistance with and/or without small interest rate.

3.4.3 Role of women and their participation in the family livelihood activities

Women from poor fisheries households, most of who live at subsistence level, do the same kind of work as men, although they do fishing in the river. The women surveyed did not talk about their specific economic contribution in percentage terms other than to say that their labour greatly benefits household earnings. In general,

women work on the same level as their husbands unless they have very young children. Women also involved in fishing , work on a farm, fish depot, repair nets and sell aquatic products or other items in addition to doing all their daily chores. However, with the exception of women-headed households, men usually make important decisions affecting livelihood

In the case of NTP, the participants said that the heads of households discuss matters with their wives when they make important decisions. Sometimes when their husbands are absent, the wives make decisions if they can. But they always discuss with their husbands to make important decisions. “The labour of women contributes greatly to a household’s income. Even then, earnings from the both husband and wife make a household barely self-sufficient.

3.5 Limitation for CF development

Major limitations which delayed the CF development in project target CF villages are as follows:

- Member HHs also complained for difficulties and safety of transportation to reach to CF and lack of effective working tools
- Majority of the CFUG member are low income family
- Weakness in protection and growing in dry season the CF were facing destruction and illegal cutting by the other villagers.
- CFUG member afraid to share their working time for CF and sometime at the meeting they faced difficulties due to illiteracy and less understanding for discussion.
- Degradation of tree plantation by illegal shrimp breeding

4.0 Effect of income generation activities on the livelihoods of the CFUG members

Analysis of this chapter is organized into nine sub-chapters reflecting the different parts of the questionnaire which assess for effect of income generation activities on the livelihoods of the CFUG members. Survey team conducted the interview with 88 sample HHs defined TOR during this assessment but only 75 HHs are exactly same as those interviewed in the base line survey in April 2012.

Both frequency and percent tables which base on 75 HHs are presented in the report but most of analysis and clarification is made based on the tables representing the percent estimates.

4.1 Basic information of HH

For this section, most of the information was obtained from the HH heads and their wives both major roles in family as part of Myanmar tradition.

Definition: Impact HHs = HH who interview during impact survey

Baseline HHs = HH who interview during baseline survey

4.1.1 Interviewees and relationships to HH head

There was a deliberate effort made to interview the HH head in most of the HH sampled and this made more than 52% (39/75) of the respondents answered the question were HH heads. In addition nearly 39% (38.7%) (29/75) of questionnaires were answered by the wives on behalf of their husbands. Altogether 90.7% (68/75) of major responsible person (HH heads and their wives) answer the survey question but it was slightly less than in 96% ratio represented during baseline survey.

On behalf of the HH head sometimes persons of their family and relatives including son, daughter, sisters, brother, nephew and father responded on the questionnaire.

Table 4.1: Characteristics of Interviewees by Sex & Relationship with HH Head

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Sex of interviewee														
Total	75	75	18	18	17	17	12	12	11	11	10	10	7	7
Male	40	50	4	9	9	10	6	10	6	7	9	7	6	7
Female	35	25	14	9	8	7	6	2	5	4	1	3	1	-
Relationship with HH' head														
Total	75	75	18	18	17	17	12	12	11	10	10	10	7	7
HH Head	39	48	3	8	7	10	6	10	8	7	9	7	6	6
Wife	29	24	12	10	7	6	5	2	3	3	1	3	1	-
Son	1	1	-	-	1	-	-	-	-	-	-	-	-	1
Daughter	2	1	1	-	1	1	-	-	-	-	-	-	-	-
Sister	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Brother	1	-	1	-	-	-	-	-	-	-	-	-	-	-

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Nephew	1	1	-	-	-	-	1	-	-	1	-	-	-	-
Father	1	-	-	-	1	-	-	-	-	-	-	-	-	-

Table 4.2 Characteristics of Interviewees by Sex & Relationship with HH Head (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Sex of interviewee														
Male	53.3	66.7	22.2	50.0	52.9	58.8	50.0	83.3	54.5	63.6	90.0	70.0	85.7	100.0
Female	46.7	33.3	77.8	50.0	47.1	41.2	50.0	16.7	45.5	36.4	10.0	30.0	14.3	-
Relationship with HH' head														
HH Head	52.0	64.0	16.7	44.4	41.2	58.8	50.0	83.3	72.7	63.6	90.0	70.0	85.7	85.7
Wife	38.7	32.0	66.7	55.6	41.2	35.3	41.7	16.7	27.3	27.3	10.0	30.0	14.3	-
Son	1.3	1.3	-	-	5.9	-	-	-	-	-	-	-	-	14.3
Daughter	2.7	1.3	5.6	-	5.9	5.9	-	-	-	-	-	-	-	-
Sister	1.3	-	5.6	-	-	-	-	-	-	-	-	-	-	-
Brother	1.3	-	5.6	-	-	-	-	-	-	-	-	-	-	-
Nephew	1.3	1.3	-	-	-	-	8.3	-	-	9.1	-	-	-	-
Father	1.3	-	-	-	5.9	-	-	-	-	-	-	-	-	-

4.1.2 Age, Sex and Education of the HH Heads

Table 4.3 and Table 4.4 represent the age and sex situation of the HH heads. According to the tables, it was found that all the HH heads were at the age of over 18 years. Nearly 38% (37.3%) of the HH heads are under the age of 35 and about 47% (46.7%) of the HH heads are between the age of 35 and 54 years old. Those represent ratio are same as baseline survey result except slightly increase the ratio of 45% (45.3%) for range of 35 and 54. The age cluster between 55 and 64 years old represents 12% of total HHs which also slightly less from 13% (13.3%) of baseline survey in same age cluster. It was revealed that in the Project target CF villages that most of the HH heads are generally still young to work for their livelihood. It was also found that 1% (1.3%) (1/11) women headed HH which exist in TYK due to some change in HH because there is no women headed HH during baseline survey. Out of six villages, TGT and NTP were found majority of youngest HH head age group {HH head under age of 35 is 50.0 % (6/12 & 5/10 respectively) each} while SPT and TYK was found oldest HH head age group {HH head under age of 35 is 27.7% (5/18) and 27.3% (3/11) respectively}.

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Average age of HH head on the whole is estimated about 42.3 years old which slightly different from 41.4 year old average in baseline survey. The oldest average age was found at GAD village with 45.9 years and the youngest was found at KKKL village with 40.9 years.

Regarding literacy, 41.3% of the HH heads of the project target CF villages have middle school level education while about 9.3% (7/75) have high school or above level and 2.7% (2/75) were found illiterate.

It is noticeable that in illiterate HH heads was found only in KKKL and SPT village with 14.3% (1/7) and 5.6% (1/18) respectively. It was different from baseline survey which noted no illiterate in KKKL but same represent ratio for SPT village.

HH heads from GAD village are more educated than other because of 64.7% (11/17) and 17.6% (3/17) ratio represented respectively for “middle school level” and “high school level” education for HH heads.

Table 4.3 Characteristics of HH Heads: Age, Sex & Education

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Sex of HH' head														
Total	75	75	18	18	17	17	12	12	11	11	10	10	7	7
Male	74	75	18	18	17	17	12	12	10	11	10	10	7	7
Female	1	-	-	-	-	-	-	-	1	-	-	-	-	-
Age of HH' head														
20 to 34	28	28	5	5	6	6	6	6	3	3	5	5	3	3
35 to 54	35	34	11	10	7	7	3	4	8	6	4	5	2	2
55 to 64	9	10	2	2	3	3	2	2	-	1	-	-	2	2
65 and above	3	3	-	1	1	1	1	-	-	1	1	-	-	-
Mean	42.3	41.4	42.3	43.8	45.9	43.6	41.8	40.4	42.3	43.5	41.1	37.5	40.9	39.4
Education level of HH' head														
Illiterate	2	1	1	1	-	-	-	-	-	-	-	-	1	-
Monastery	15	17	7	7	2	5	4	4					2	1
Primary School	20	29	4	4	1	1		1	8	10	5	8	2	5
Middle School	31	24	6	6	11	7	5	7	3	1	4	2	2	1
High School	7	4	-	-	3	4	3	-	-	-	1	-	-	-

Table 4.4 Characteristics of HH Heads: Age, Sex & Education (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Sex of HH' head														
Male	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	90.9	100.0	100.0	100.0	100.0	100.0
Female	0.1	-	-	-	-	-	-	-	9.1	-	-	-	-	-
Age of HH' head														
20 to 34	37.3	37.3	27.8	27.8	35.3	35.3	50.0	50.0	27.3	27.3	50.0	50.0	42.9	42.9
35 to 54	46.7	45.3	61.1	55.6	41.2	41.2	25.0	33.3	72.7	54.5	40.0	50.0	28.6	28.6
55 to 64	12.0	13.3	11.1	11.1	17.6	17.6	16.7	16.7	-	9.1	-	-	28.6	28.6
65 and above	4.0	4.0	-	5.6	5.9	5.9	8.3	-	-	9.1	10.0	-	-	-
Education level of HH' head														
Illiterate	2.7	1.3	5.6	5.6	-	-	-	-	-	-	-	-	-	14.3
Monastery	20.0	22.7	38.9	38.9	11.8	29.4	33.3	33.3	-	-	-	-	28.6	14.3
Primary School	26.7	38.7	22.2	22.2	5.9	5.9	-	8.3	72.7	90.9	50.0	80.0	28.6	71.4
Middle School	41.3	32.0	33.3	33.3	64.7	41.2	41.7	58.3	27.3	9.1	40.0	20.0	28.6	14.3
High School	9.3	5.3	-	-	17.6	23.5	25.0	-	-	-	10.0	-	-	-

4.1.3 Ethnicity

Table 4.5 Ethnic Diversity (represent with HH head)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Total	75	75	18	18	17	17	12	12	11	11	10	10	7	7
Bamar	59	56	18	17	17	17	12	12	-	-	9	7	3	3
Kayin	16	19	-	1	-	-	-	-	11	11	1	3	4	4

Table 4.6 Ethnic Diversity (represent with HH head) (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Burmar	78.7	74.7	100.0	94.4	100.0	100.0	100.0	100.0	-	-	90.0	70.0	42.9	42.9
Kayin	21.3	25.3	-	5.6	-	-	-	-	100.0	100.0	10.0	30.0	57.1	57.1

In the project target CF villages there is no complex diversity and it was found that only two major ethnic groups of Burmar and Kayin in survey area. The majority is Burmar. 78.7% and 22.3% each of the HH heads were represented as Burmar and Kayin respectively. Except SPT and NTP, remaining villages' HH head ethnic diversity representation was same as baseline survey³.

4.1.4 HH size and number of family member

It was observed that overall average household size in the project target CF villages was 5.3 and is slightly bigger than the size of 5.2 found during baseline survey. About 69.3% (52/75) of the HHs in the project target CF villages has 3 to 6 family members and it was same represented ration in baseline survey for same range of family member size. The following tables show the distribution of household sizes in the project target CF villages as enumerated and expected percents.

Among project target CF villages, the maximum average household size of 6.1 was found in SPT and TYK, while the smallest is 4.4 in NTP. Change within targeted HHs during baseline and impact survey, big difference of HH size between impact survey and baseline survey was found at KKKL with 5.0 and 3.7 respectively while remaining 5 villages was not much difference and increase from baseline with 0.1 to 0.2 while NTP reduce for 0.6 from baseline. The reason of difference in KKKL is numbers of relative family member migrated to one of the targeted HH at KKKL (13 family member with one HH during impact survey but maximum 6 family member size during baseline survey).

Table 4.7 HH Size

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Total	75	75	18	18	17	17	12	12	11	11	10	10	7	7
2	3	5	-	-	-	-	1	1		1	1	1	1	2
3	12	10	-	-	5	5	2	2	1	1	2	1	2	1
4	10	12	2	3	2	2	1	2	-	-	3	3	2	2
5	22	15	8	6	5	3	3	3	4	1	2	1		1
6	8	15	2	2	3	6	1	1	1	3	-	2	1	1
7	12	11	3	5	1	1	3	1	2	3	2	1	1	-
8	5	5	1	2	-	-	1	1	3	2	-	-	-	-
9	-	1	-	-	-	-	-	-	-	-	-	1	-	-
10	3	-	2	-	1	-	-	1	-	-	-	-	-	-
13	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Average	5.3	5.2	6.1	6.0	4.9	4.8	5.2	5.2	6.1	5.9	4.4	5.0	5.0	3.7

³ Probably, people answer their ethnic in differently from baseline survey due to mix parentage.

Table 4.8 HH Size (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
2	4.0	6.7	-	-	-	-	8.3	8.3	-	9.1	10.0	10.0	14.3	28.6
3	16.0	13.3	-	-	29.4	29.4	16.7	16.7	9.1	9.1	20.0	10.0	28.6	14.3
4	13.3	16.0	11.1	16.7	11.8	11.8	8.3	16.7	-	-	30.0	30.0	28.6	28.6
5	29.3	20.0	44.4	33.3	29.4	17.6	25.0	25.0	36.4	27.3	20.0	10.0	-	14.3
6	10.7	20.0	11.1	11.1	17.6	35.3	8.3	8.3	9.1	27.3	-	20.0	14.3	14.3
7	16.0	14.7	16.7	27.8	5.9	5.9	25.0	8.3	18.2	18.2	20.0	10.0	14.3	-
8	6.7	6.7	5.6	11.1	-	-	8.3	8.3	27.3	9.1	-	-	-	-
9	-	1.3	-	-	-	-	-	-	-	-	-	10.0	-	-
10	4.0	-	11.1	-	5.9	-	-	8.3	-	-	-	-	-	-
13	1.3	-	-	-	-	-	-	-	-	-	-	-	14.3	-

4.1.5 Sex in the family

About 53.2% of HH family members were reported males and slightly less than from 54% male represent in baseline survey. Only SPT was dominated by female family member with 53.2% while TYK stood with 61.2% of highest male family member.

As a whole, 49.3% of HHs is dominated by male while 30.7% of HHs is dominated by female family member. The rest of the 20% of HHs has equal number of their family members in terms of male and female balance. Among the six target villages TGT has the highest male dominant HH ratio of 66.7% (8/12) and SPT has the highest female ratio of about 44.4% (8/18). Highest male-female equal ratio was also found in KKKL with 75.1% (4/7). The following table shows the domination of the male and female of the project target CF villages.

Table 4.9: Number of Family Member by Sex

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>Number of family member</i>														
Total	400	391	109	107	83	81	62	62	67	65	44	50	35	26
Male	213	211	51	49	45	44	34	35	41	41	24	27	18	15
Female	187	180	58	58	38	37	28	27	26	24	20	23	17	11
<i>Men and women dominant (ratio) in family</i>														

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
Total HHs	75	75	18	18	17	17	12	12	11	11	10	10	7	7
Male dominant HHs	37	36	6	7	8	7	8	7	8	8	5	4	2	3
Female dominant HHs	23	22	8	8	5	4	3	1	3	2	3	3	1	4
Male & female equal HHs	15	17	4	3	4	6	1	4	-	1	2	3	4	-

Table 4.10 Number of Family Member by Sex (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>Number of family member</i>														
Male	53.2	54.0	46.8	45.8	54.2	54.3	54.8	56.5	61.2	63.1	54.5	54.0	51.4	57.7
Female	46.8	46.0	53.2	54.2	45.8	45.7	45.2	43.5	38.8	36.9	45.5	46.0	48.6	42.3
<i>Men and women dominant (ratio) in family</i>														
Male dominant HHs	49.3	48.0	33.3	38.9	47.1	41.2	66.7	58.3	72.7	72.7	50.0	40.0	28.6	42.9
Female dominant HHs	30.7	30.7	44.4	44.4	29.4	23.5	25.0	8.3	27.3	18.2	30.0	30.0	14.3	57.1
Male & female equal HHs	20.0	21.3	22.2	16.7	23.5	35.3	8.3	33.3	-	9.1	20.0	30.0	57.1	-

4.1.6 Age group of HH member and disabled person

According to the age group, it was revealed that about 12.5 % of the HH members were in the age group of “under 4” years of age, while about 32.3% of the HH members were in the age group of “5 to 17” years age. The members who were in the age group “18 to 50” years age represent 48% of the total population while the members in the age group of “over 50” represent only 7.3% of the total. Compare to baseline survey result, it was noted that “under 4” and “over 50” age group slightly increase from 11.8% and 6.6% respectively while remaining age groups are reduce in representation from baseline survey result with possible reasons of new born children and aging of existing older family member in targeted HHs. In observing the composition of four age groups for the surveyed villages, NPT stood highest for under 4 years group 21.8% (10/44), TYK was found highest for “5 to 17” years age group with 47.8% (32/67) and, GAD has the highest percent of 57.8% (48/83) and 13.3% (11/83) respectively for “18 to 50” years age group and “over 50” years age group. The following tables show the composition of family member by age group in the project target CF villages.

Table 4.11: Number of Family Member by Age Group

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>Number of family member (as a whole)</i>														
Total	400	391	109	107	83	81	62	62	67	65	44	50	35	26
4 years or less	50	46	12	10	3	3	10	7	6	8	10	13	9	5
5 - 17 years	129	129	41	45	21	23	19	20	32	25	12	12	4	4
18 - 50 years	192	192	48	51	48	45	29	32	28	29	20	21	19	14
Over 50 years	29	26	8	3	11	10	4	3	1	3	2	4	3	3

Table 4.12 Number of Family Member by Age Group (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>Number of family member (as a whole)</i>														
4 years or less	12.5	11.8	11.0	9.3	3.6	3.7	16.1	11.3	8.9	12.3	21.8	26.0	25.7	19.2
5 - 17 years	32.3	33.0	37.6	42.1	25.3	28.4	30.6	32.3	47.8	38.5	26.1	24.0	11.4	15.4
18 - 50 years	48.0	49.1	44.0	47.7	57.8	55.6	46.8	51.6	41.8	44.6	43.5	42.0	54.3	53.8
Over 50 years	7.3	6.6	7.3	2.8	13.3	12.3	6.5	4.8	1.5	4.6	8.7	8.0	8.6	11.5

Table 4.13 and Table 4.14 show the number of “disabled person”⁴ in the project target CF villages. Altogether 14.7% (11/75) of the total surveyed HHs in the project target CF villages answered to have at least one disabled person in their HH. Looking at the village wise data, except TGT and KKKL, remaining four villages found that disabled person existed HHs and increase from 13.3% (10/75) represented in baseline survey. In consideration of population, 2.8% (11/400) of total population is disabled person and it was increase from 2.6% (10/391) representation of baseline survey. It was found that one person from TYK to increase in total number of disabled person compare to baseline survey.

Table 4.13 Number of Disabled Family Member in HH

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>HH with disable</i>														
Total	75	75	18	18	17	17	12	12	11	11	10	10	-	-

⁴ Incapable of functioning especially for livelihood activities as a consequence of injury or illness

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
HH with disable (Yes)	11	10	3	3	4	4	-	-	2	1	2	2	-	-
No of disable person														
Total nos of disable person	11	10	3	3	4	4	-	-	2	1	2	2	-	-
<i>HH by number of disabled person</i>														
1 person	11	10	3	3	4	4	-	-	2	1	2	2	-	-

Table 4.14 Number of Disabled Family Member in HH (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>HH with disable</i>														
HH with disable (Yes)	14.7	13.3	16.7	16.7	23.5	23.5	-	-	18.2	9.1	20.0	20.0	-	-
No of disable person in total population														
Total % of disable population	2.8	2.6	2.8	2.8	4.8	4.8	-	-	3.0	1.5	4.5	4.0	-	-
<i>HH by number of disabled person</i>														
1 person	14.7	13.3	16.7	16.7	23.5	23.5	-	-	18.2	9.1	20.0	20.0	-	-

4.1.7 Earning (both in kind and in cash) HH member

Table 4.15 and Table 4.16 show the both frequency and percent of HH that have the earning member in their families. It was observed that every HH has the earning family members both in kind and in cash for their families with the average of 37.8% which reduce 41.4% from base line survey, and it is noticeable that there were over 2.7% of HHs has all their HH members working to earn for living which significant reduce from 6.7% from baseline survey.

It is estimated that 85.3% of the HHs have maximum earning members of about to 60% of family member in each HH. That figure is slightly increased from 80% ratio represented in baseline survey.

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In village level, TYK presents lowest figure of 29.9% (20/67) of family members to earn for family living while GAD and NTP represents highest contribution of family member ratio of 45.5% (38/83) and 45.3% (20/44) respectively. It is also revealed that TGT and NTP villages had minimum of 1 HH with 100% earning members.

81.3% of HHs heads are main bread winner for their family and it ratio was reduce from 90.7% in baseline survey with the possible reason of aging HH head in family. Minimum of 72.7% (8/11) in TYK and maximum of 91.7% (11/12) in TGT were represented the HH heads as the main bread winner at the village level.

With change in targeted HHs between baseline and impact survey with possible reason of mature youth family member, some change in gender wise data regarding main bread winner was found. Looking at gender wise data in average 97.3% (73/75) is male bread winner and it was increase from 94.7% (71/75) represented in baseline survey. Only NTP and SPT villages represent 10% (1/10) and 5.6% (1/18) respectively for female main bread winner HHs. SPT representation was reduce from 11.1% (2/18) in baseline survey. In baseline survey, SPT, GAD and TYK villages represented with female main bread winner.

Table 4.15 Family member currently income earning and main bread winner in family

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>No of family members: Total and currently earning members</i>														
Total family member	400	391	109	107	83	81	62	62	67	65	44	50	35	26
Income earning member	151	162	39	46	38	33	21	22	20	25	20	24	13	12
<i>Percent of family member currently earning by HHs</i>														
Total households	75	75	18	18	17	17	12	12	11	11	10	10	7	7
10 - 19.9 %	5	4	-	1	-	2	2	-	3	1	-	-	-	-
20 - 39.9 %	30	36	8	6	8	11	4	7	3	5	2	4	5	3
40 - 59.9 %	29	20	10	9	4	2	3	1	5	3	5	3	2	2
60 - 79.9 %	7	9	-	1	3	-	2	3	-	1	2	2	-	2
80 - 99.9 %	2	1	-	-	2	1	-	-	-	-	-	-	-	-
100 %	2	5	-	1	-	1	1	1	-	1	1	1	-	-
<i>Main bread winner in family by HHs</i>														
Total	75	75	18	18	17	17	12	12	11	11	10	10	7	7
HH head	61	68	13	15	15	15	11	12	8	10	8	9	6	7
Family member	14	7	5	3	2	2	1	-	3	1	2	1	1	-
<i>Main bread winner in family by sex by HHs</i>														
Total	75	75	18	18	17	17	12	12	11	11	10	10	7	7
Male	73	71	17	16	17	16	12	12	11	10	9	10	7	7
Female	2	4	1	2	-	1	-	-	-	1	1	-	-	-

Table 4.16 Family member currently income earning and main bread winner in family (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs	Impact HHs	Baseline HHs
<i>No of family members: Total and currently earning members</i>														
% of Total family member	37.8	41.4	35.8	43.0	45.8	40.7	33.9	35.5	29.9	38.5	45.5	48.0	37.1	46.2
<i>Percent of family member currently earning by HHs</i>														
10 - 19.9 %	6.7	5.3	-	5.6	-	11.8	16.7	-	27.3	9.1	-	-	-	-
20 - 39.9 %	40.0	48.0	44.4	33.3	47.1	64.7	33.3	58.3	27.3	45.5	20.0	40.0	71.4	42.9
40 - 59.9 %	38.7	26.7	55.6	50.0	23.5	11.8	25.0	8.3	45.5	27.3	50.0	30.0	28.6	28.6
60 - 79.9 %	9.3	12.0	-	5.6	17.6	-	16.7	25.0	-	9.1	20.0	20.0	-	28.6
80 - 99.9 %	2.7	1.3	-	-	11.8	5.9	-	-	-	-	-	-	-	-
100 %	2.7	6.7	-	5.6	-	5.9	8.3	8.3	-	9.1	10.0	10.0	-	-
<i>Main bread winner in family by HHs</i>														
HH head	81.3	90.7	72.2	83.3	88.2	88.2	91.7	100.0	72.7	90.9	80.0	90.0	85.7	100.0
Family member	18.3	9.3	27.8	16.7	11.8	11.8	8.3	-	27.3	9.1	20.0	10.0	14.3	-
<i>Main bread winner in family by sex by HHs</i>														
Male	97.3	94.7	94.4	88.9	100.0	94.1	100.0	100.0	100.0	90.9	90.0	100.0	100.0	100.0
Female	2.7	5.3	5.6	11.1	-	5.9	-	-	-	9.1	10.0	-	-	-

4.2 Experiences of HH to participate in the CF activities

It was found that HHs participation in “operation of CF plantation” activities is highest ratio of 97.8% and follow by 94.7% ratio participation in “meeting to prepare the MP and bylaw” activities. “Meeting to discuss schedule of the activity” represent of less interest than other activities by showing 18.7% ratio.

In consideration for village, it was found that 100% (11/11 & 7/7) member participation in “meeting to prepare MP & bylaw” at TYK and KKKL villages and maximum 10% (1/10) of non-participation from NTP for same activities. For “operation for CF plantation”, 5.6% (1/18) of CFUG member from SPT expressed for non-participation, while remaining villages shown 100% (17/17, 12/12, 11/11, 10/10 & 7/7) participation. For “meeting to discuss schedule of the activity”, 88.2% (15/17) of CFUG member from GAD participated in activity with maximum represented ratio while maximum 22.2% (4/18) ratio representation of non-participation from SPT village.

Number of participation frequency in each activity, majority of member expressed for 5-time with 43.1%, 21.3% and 26% respectively for “meeting to prepare MP & bylaw”, “meeting to discuss schedule of the activity” and “operation for CF plantation”. It 5-time participation also govern as maximum participation by frequency in village wide too. In this regard, member from TGT village stood highest participation ratio of 58.8% (7/12) and 41.2% (5/12) respectively for “meeting to prepare MP & bylaw” and “operation for CF plantation” while member from KKKL village represented with 57.1% (4/7) highest ratio of participation in “meeting to discuss schedule of the activity”.

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In consideration of number of frequency, it was found that one to twenty time of contribution by member participation. 8.3% (1/12) of member from TGT contributed in 20-time participation at “operation for CF plantation” activities while 9.1% (1/11) of member from TYK participate 20-time in “meeting to prepare MP & bylaw”. Member participation frequency for remaining villages, it was found that maximum 10-time from SPT at “meeting to discuss schedule of the activity” and “operation for CF plantation”, 8-time from GAD at “operation for CF plantation” and 6-time each from NTP and KKKL villages with mainly on activities of “meeting to prepare MP & bylaw”.

Table 4.17: Number of HHs participation in CF activities

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH
Meeting to prepare Management Plan & Bylaw	71	4	17	1	16	1	11	1	11	-	9	1	7	-
Meeting to discuss schedule of the activity	61	14	14	4	15	2	10	2	8	3	8	2	6	1
Operations for CF plantation	74	1	17	1	17	-	12	-	11	-	10	-	7	-

Table 4.18: Number of HHs participation in CF activities (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH	Participate HH	Non participate HH
Meeting to prepare Management Plan & Bylaw	94.7	5.3	94.4	5.6	94.1	5.9	91.7	8.3	100.0	-	90.0	10.0	100.0	-
Meeting to discuss schedule of the activity	81.3	18.7	77.8	22.2	88.2	11.8	83.3	16.7	72.7	27.3	80.0	20.0	85.7	14.3
Operations for CF plantation	98.7	1.3	94.4	5.6	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-

Table 4.19: Number of Participation by HHs

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation
1 - time	4	6	6	1	4		1	1	1	-	-	1	1	1	2	-	-	2	1	-	-

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Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation
2 - time	6	11	10	2	2	2	2	5	2	-	4	1	1		2	-	-	3	1	-	-
3 - time	4	12	9	1	2	3	2	2	1	1	4	1	-	2	-	-	1	2	-	1	2
4 - time	10	7	6	2	1	3	-	2	-	1	-	-	1	1	1	4	3		2		2
5 - time	31	13	19	8	1	3	10	4	7	5	1	-	3	1	3	3	2	3	2	4	3
6 - time	7	10	9	4	3	3	1	1	4	-	1	-	1	2	2	1	2			1	
7	2	0	1	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-	-
8-time	2	0	2	-	-	-	-	-	1	1	-	1	1	-	-	-	-	-	-	-	-
10-time	4	2	6	-	1	2	-	-	-	3	-	3	1	1	1	-	-	-	-	-	-
12-time	1	0	0	-	-	-	-	-	-	-	-		1	-	-	-	-	-	-	-	-
13-time	0	0	1	-	-	-	-	-	-	-	-	1		-	-	-	-	-	-	-	-
15-time	0	0	3	-	-	-	-	-	-	-	-	3		-	-	-	-	-	-	-	-
20-time	1	0	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-

Table 4.20: Number of Participation by HHs (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation
1 - time	5.6	9.8	8.2	11.1	22.2		5.9	5.9	5.9	-	-	8.3	9.1	9.1	18.2	-	-	20.0	14.3	-	-
2 - time	8.3	18.0	13.7	5.6	11.1	11.1	11.8	29.4	11.8	-	33.3	-	9.1		18.2	-	-	30.0	14.3	-	-
3 - time	5.6	19.7	12.3	11.1	11.1	16.7	11.8	11.8	5.9	8.3	33.3	-	-	18.2	-	10.0	20.0		14.3	28.6	
4 - time	13.9	11.5	8.2	44.4	5.6	16.7		11.8		8.3		-	9.1	9.1	9.1	40.0	30.0	-	28.6		28.6
5 - time	43.1	21.3	26.0	22.2	5.6	16.7	58.8	23.5	41.2	41.7	8.3	8.3	27.3	9.1	27.3	30.0	20.0	30.0	28.6	57.1	42.9
6 - time	9.7	16.4	12.3	11.1	16.7	16.7	5.9	5.9	23.5		8.3	8.3	9.1	18.2	18.2	10.0	20.0	-	-	14.3	-

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation	Management Plan	Schedule of activity	Operation of plantation
7-time	2.8	0.0	1.4	-	-	-	-	-	5.9	-	-	-	-	-	-	10.0	-	-	14.3	-	-
8-time	2.8	0.0	2.7	-	-	-	-	-	5.9	8.3		8.3	9.1	-	-	-	-	-	-	-	-
10-time	5.6	3.3	8.2		5.6	11.1	-	-	-	25.0		25.0	9.1	9.1	9.1	-	-	-	-	-	-
12-time	1.4	0.0	0.0	-	-	-	-	-	-	-	-		9.1	-	-	-	-	-	-	-	-
13-time	0.0	0.0	1.4	-	-	-	-	-	-	-	-	8.3		-	-	-	-	-	-	-	-
15-time	0.0	0.0	4.1	-	-	-	-	-	-	-	-	25.0		-	-	-	-	-	-	-	-
20-time	1.4	0.0	1.4	-	-	-	-	-	-	-	-	8.3	9.1	-	-	-	-	-	-	-	-

4.3 Tangible positive effects of CF activities on the HH's livelihoods

Table 4.21 to Table 4.28b represent for the “tangible positive effects of the CF activities on the HH’ livelihoods” by frequency and percentage.

Data clearly show that few engagements and earn from selling products received from CF to support about CFUG member HH’ livelihoods. 6.7% of HHs are engage and earn from selling fruit and others while 1.3% of HHs engage for selling timber wood. Out of six product types, only NTP village found for four types of timber wood, fuel wood, nipa-thatch and fishery product. In SPT and TYK found for three types of products but only NTFP in both villages and remaining two are difference with fruit and fishery product from SPT and fuel wood and nipa thatch from TYK were noticed. TGT engage for two types of fuel wood and fruit while KKKL engage for only one type of fishery product. Member HHs from GAD never engages and earns from selling product from CF. Some member HHs from SPT & KKKL expressed earn from selling crab as income related from CF and survey team noted as “fishery product”.

In village and type of product engagement, it was found that 10% (1/10) and 20% (2/20) of member HHs from NTP engage for selling “timber wood” and “nipa-thatch”; 18.2% (2/11) of member HHs from TYK engages for “fuel wood” selling and 16.7% (2/12 & 3/18) of member HHs each from TGT and SPT engage in selling “fruit” and “NTFP” from CF.

Number of frequency for engagement by each member HHs was vary from 1 to 12 time and 28.6% (2/7) of member HHs from KKKL engage and earn from selling other by 12 time while 9.1% (1/11) of member HHs from TYK stood in second highest engagement of 10 time for selling nipa-thatch.

One time sold amount of each product is 500 Kyat to maximum of 100,000 Kyat. It was notice that maximum one year sold amount for 300,000 Kyat while minimum notice for 3,000 Kyat. In term of percent representation, maximum 5.3% (4/75) of member HHs engage for selling fruit with one time sold amount is less than and/or

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5,000 Kyat and 1.3% (1/75) member HHs ratio engage for selling fruit and fishery product with one time sold amount less than and/or 100,000 Kyat. Maximum 4% (3/75) each of member HHs engage for selling fuel wood amount less than and/or equal 25,000 Kyat and selling NTFP amount less than and/or equal 5,000 Kyat while 1.3% (1/75) represent for less than and/or equal 30,000 Kyat.

Table 4.21: Number of HHs sell the product produced from CF

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement
Timber wood	1	74	-	18	-	17	-	12	-	11	1	9	-	7
Fuel wood	4	71	-	18	-	17	1	11	2	9	1	9	-	7
Fruit	5	70	2	16	-	17	2	10	1	10	-	10	-	7
NTFP	3	72	3	15	-	17	-	12	-	11	-	10	-	7
Nipa-thatch	3	72		18	-	17	-	12	1	10	2	8	-	7
Crab	5	70	1	17	-	17	-	12	-	11	2	8	2	5

Table 4.22: Number of HHs sell the product produced from CF (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement
Timber wood	1.3	98.7	-	100.0	-	100.0	-	100.0	-	100.0	10.0	90.0	-	100.0
Fuel wood	5.3	94.7	-	100.0	-	100.0	8.3	91.7	18.2	81.8	10.0	90.0	-	100.0
Fruit	6.7	93.3	11.1	88.9	-	100.0	16.7	83.3	9.1	90.0	-	100.0	-	100.0
NTFP	4.0	96.0	16.7	83.3	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0
Nipa-thatch	4.0	96.0	-	100.0	-	100.0	-	100.0	9.1	90.0	20.0	80.0	-	100.0
Fishery product	6.7	93.3	5.6	94.4	-	100.0	-	100.0	-	100.0	20.0	80.0	28.6	71.4

Table 4.23a: HHs distribution of frequency of selling - Timber, fuel wood & fruit

ပုံစံ	Total	SPT	GAD	TGT	TYK	NTP	KKKL
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	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit
1 - time	0	2	1	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-
2 - time	0	1	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
3 - time	0	0	2	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-
4 - time	0	0	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
5 - time	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
6 - time	1	0	0	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-

Table 4.23b: HHs distribution of frequency of selling – NTFP, nipa thatch and fishery product

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product
1 - time	-	2	1	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
2 - time	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 - time	2	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 - time	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
5 - time	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
10 - time	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
12 - time	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2

Table 4.24a: HHs distribution of frequency of selling – Timber, fuel wood and fruit (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit
1 - time	-	2.7	1.3	-	-	-	-	-	-	-	-	8.3	-	18.2	-	-	-	-	-	-	-
2 - time	-	1.3	1.3	-	-	5.6	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-	-
3 - time	-	-	2.7	-	-	5.6	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-	-
4 - time	-	-	1.3	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-
5 - time	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-
6 - time	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-	-

Table 4.24b: HHs distribution of frequency of selling – NTFP, nipa thatch & fishery product (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product
1 - time	-	2.7	1.3	-	-	5.6	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	-
2 - time	1.3	-	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 - time	2.7	-	-	11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 - time	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-
5 - time	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-
10 - time	-	1.3	-	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-
12 - time	-	-	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.6

Table 4.25a: HHs distribution of one time sold amount – Timber, fuel wood and fruit

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit
<5,000K	-	2	4	-	-	2	-	-	-	-	1	1	-	-	1	-	1	-	-	-	-
<10,000K	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<30,000K	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<50,000K	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<100,000K	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-

Table 4.25b: HHs distribution of one time sold amount – NTPF, nipa thatch & fishery product

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product	NTPF	Nipa-thatch	Fishery product
<5,000K	3	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
<10,000K	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<20,000K	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<80,000K	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<100,000K	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.26a: HHs distribution of one time sold amount – Timber, fuel wood & fruit (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit
<5,000K	-	2.7	5.3	-	-	11.1	-	-	-	-	8.3	8.3	-	-	9.1	-	10.0	-	-	-	-
<10,000K	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-
<30,000K	-	1.3	-	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-
<50,000K	-	1.3	-	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-
<100,000K	-	-	1.3	-	-	-	-	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-

Table 4.26b: HHs distribution of one time sold amount – NTFP, nipa thatch & fishery product (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product	NTFP	Nipa-thatch	Fishery product
<5,000K	4.0	-	5.3	16.7	-	-	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	28.6
<10,000K	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-
<20,000K	-	1.3	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-	-
<80,000K	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-	-
<100,000K	-	-	1.3	-	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.27a: HHs distribution of one year sold amount – Timber, fuel wood & fruit

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit
<5,000K	-	-	2	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
<25,000K	-	3	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-
<50,000K	-	1	1	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
<100,000K	1	-	2	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-

Table 4.27b: HHs distribution of one year sold amount – NTFP, nipa thatch & fishery product

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product
<10,000K	3	1	-	3	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<25,000K	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<50,000K	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<100,000K	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<200,000K	-	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-
<300,000K	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-

Table 4.28a: HHs distribution of one year sold amount – Timber, fuel wood & fruit (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit	Timber wood	Fuel wood	Fruit
<5,000K	-	-	2.7	-	-	5.6	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-
<25,000K	-	4.0	-	-	-	-	-	-	-	-	8.3	-	-	9.1	-	-	10.0	-	-	-	-
<50,000K	-	1.3	1.3	-	-	-	-	-	-	-	-	8.3	-	9.1	-	-	-	-	-	-	-
<100,000K	1.3	-	2.7	-	-	5.6	-	-	-	-	-	8.3	-	-	-	10.0	-	-	-	-	-

Table 4.28b: HHs distribution of one year sold amount – NTFP, nipa thatch & fishery product (%)

Characteristics	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product	NTP	Nipa-thatch	Fishery product
<5,000K	4.0	1.3	-	16.7	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-
<25,000K	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-	-	-
<50,000K	-	-	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.3
<100,000K	-	-	1.3	-	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.3
<200,000K	-	1.3	1.3	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	10.0	-	-	-
<300,000K	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	-	-

4.4 Intangible positive effects of CF activities on the HH's livelihoods

Table 4.29 and Table 4.30 represented for HH experience of positive change in planting tree. As project target CF villages, maximum 82.7% of member HHs believes that planting trees can fix the boundary of their land holdings. 38.7% and 20% of member HHs respectively mentioned that increase production of fodder for

domestic use and soil conservation and mitigation of erosion are benefit from planting trees.

Maximum 100% (18/18) of member HHs from SPT village and 75% (9/12) of member HHs from TGT village respective mentioned that “fixed the boundary of land holding” and “soil conservation and mitigation of erosion” are positive effect of CF activities while maximum 36.4% (4/11) of member HHs from TYK believe that increase production of fodders is result from planting trees.

It was found that various species such as tau kazon (*Ipomoea maxima*), yu-ka-lit (*eucalyptus camaldulensis*), rain tree (*Entcrolobium saman*), kokko (*albizzia lebbek*), malalukar (*Melaleuca spp.*), sitpin (*Albizzia procera*), Malay Padauk_ (*Pterocarpus indicus*), bamboo, banana, kapok tree (*Ceiba pentandra*), la-mu (*Sonneratia caseolaris*), byu (*Rhizophoraceae spp*), tha-me (*Avicenniaceae*), la-ba (*Sonneratia griffithii*) horseradish tree (*Armoracia lapathifolia*), eurasia and bandar (Indian almond) (*Terminalia catappa*), loofah (*Luffa pentandra*), malaka (guava) (*psidium guayava*) and custard apple tree (*Annona reticulate*), thayet (mango) (*Mangifera indica*), Madama (*Ceriops decandra*), pyinma (*Lagerstroemia speciosa*), lat-pan (*Salmalia malabarica*), mezeli (*Cassia siamea*), kanaso (*Heritiera fomes/littoralis*), coconut, tamarind (*Tamarindus indica*), drum stick (*Moringa*) and kanbala (*Sonneratia apetala*) were planted but respondents not much clearly identified by usages.

Table 4.29: HH distribution of experience (positive change) in planting tree

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change
Increasing production of fodder for domestic uses	15	60	3	15	3	14	3	9	4	7	1	9	1	6
Soil conservation and mitigation of erosion of homestead, farmland and grazing land,	29	46	6	12	6	11	9	3	3	8	3	7	2	5
Fixing of boundary of land holdings	62	13	18	0	10	7	11	1	9	2	9	1	5	2

Table 4.30: HH distribution of experience (positive change) in planting tree (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change
Increasing production of fodder for domestic uses	20.0	80.0	16.7	83.3	17.6	82.4	25.0	75.0	36.4	63.6	10.0	90.0	14.3	85.7
Soil conservation and mitigation of erosion of homestead, farmland and grazing land,	38.7	61.3	33.3	67.7	35.3	64.7	75.0	25.0	27.3	72.7	30.0	70.0	71.4	28.6

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change
Fixing of boundary of land holdings	82.7	17.3	100.0	-	58.8	41.2	91.7	8.3	81.8	18.2	90.0	10.0	28.6	71.4

Table 4.31 and Table 4.32 represented for HH experience of positive change in participation of CF activities. As project target CF villages, 61.3% and 72% each of member HHs mentioned that participation in CF activities provide more opportunity and more information for better livelihood respectively.

Maximum 90.1% (10/11) of member HHs from TYK village believes that positive change in more opportunity and information for better livelihood for participation in CF activities. Minimum 52.9% (9/17) of member HHs from GAD and 57.1% (4/7) of member HHs from KKKL village mentioned that more opportunity for better livelihood and more information for better livelihood are seen as positive change from participation in CF activities.

Survey member HHs expressed that improve the knowledge for crab farming, oyster culture, livestock breeding, agriculture, forestry and disaster preparedness as well as extend the network and receiving market information are result from participation in CF activities. In addition to that, getting fuel wood and timber from CF also support their family income in the ways of selling or domestic usage. Majority of member HHs agreed that participation in CF activities can support their livelihood at least small part. But some respondents pointed out that there are no tangible result has seen yet from CF and it activities.

Table 4.31: HH distribution of experience (positive change) in participation of CF activities

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change
More opportunity for better livelihood	46	29	10	8	9	8	5	7	10	1	8	2	4	3
More information for better livelihood	54	21	11	7	13	4	8	4	10	1	8	2	4	3

Table 4.32: HH distribution of experience (positive change) in participation of CF activities (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change
More opportunity for better livelihood	61.3	38.7	55.6	44.4	52.9	47.1	41.7	58.3	90.9	9.1	80.0	20.0	57.1	42.9
More information for better livelihood	72.0	28.0	61.1	38.9	76.5	23.5	66.7	33.3	90.9	9.1	80.0	20.0	57.1	42.9

4.5 Negative effects of CF activities on the HH's livelihoods

Table 4.33 and Table 4.44 represent for “negative effects of participation in CF activities on the HH’ livelihood” with frequency and percentage. Only 8% of member HHs from project target CF villages mentioned that participation in CF activities cause limited for time and opportunities of their livelihood. Member HHs from SPT, TYK and KKKL mentioned that no serious limitation on their livelihood by participation on the CF activities. In village level, 20% (2/10) of member HHs from NTP expressed for limitation of livelihood opportunity by participation on CF activities.

They mentioned for no time for livelihood activities when they attending training and miss opportunity of spring tide fishing by participating on CF activities.

Data from HHs interview was noticed for no and/or not serious limitation on their livelihood by CF activities but it was different with survey team observation and informal discussion with member and MC of CFUG. Because, survey team noted that, most poor family member HHs from CFUG are hand to mouth families and difficult for time sharing between participation in CF activities and their daily livelihood activities. With survival of family livelihood, survey team learns that less and/or difficult contribution of CF activities by some poor family member HHs in project target CF villages.

Table 4.33: HH distribution of experience (negative change) in participation of CF activities

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect
Times and opportunities for other livelihood activities were seriously limited because of CF activities	6	69	-	18	2	15	2	10	-	11	2	8	-	7

Table 4.34: HH distribution of experience (negative change) in participation of CF activities (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect
Times and opportunities for other livelihood activities were seriously limited because of CF activities	8.0	92.0	-	100.0	11.8	88.2	16.7	83.3	-	100.0	20.0	80.0	-	100.0

4.6 Experiences of HH to participate in the income generation activities

Table 4.35 to 4.38 represented for experiences of HH participation in four IG related project activities of “oyster culture”, “market visit”, “sharing the information of IG activities” and “meeting of the groups to discuss and decide types of IG” in 2012.

With reference from project information, except SPT, “oyster culture” is only tried in remaining five targeted CF village but continued in KKKL, NTP, GAD, and TGT. For TYK, once tried in project’s initial years but had not continued and suspended. Therefore, impact survey data showed that, no member HHs from SPT participation on “oyster culture”. For individual member participation, not all CFUG members in each oyster culture targeted village participated and only those who are willing to participated/ continued and this is quite limited number in total. It was proved by impact survey result of only 26.7% (20/75) of member HHs participation on “oyster culture”.

Like “oyster culture”, only conducted one market visit for each CFUG and that time, only 3 members per CFUG participated. It was proved by impact survey results of only 9.3% (7/75) of member HHs from project target CF villages involved in “market visit” activity. Due to limited number of sample size (20% in general) in impact survey, member HHs from GAD and TYK noted as never perform “market visit” even project activities carried out in all targeted CF villages.

In remaining IG related two activities, 84% (63/75) and 64% (48/75) of member HHs participated in “group meeting for discussion and selection of the type of IG” and “sharing technical information of IG activities” respectively.

In village level, 94.4% (17/18) and 83.3% (15/18) of member HHs from SPT village shows maximum participation in “group discussion for type of IG selection” and “technical information sharing for IG activities” among six villages. For remaining activities, 25.0% (3/12) and 47.1% (8/17) of member HHs respectively from TGT and GAD villages are participated as maximum ratio in “market visit” and “oyster culture” activities.

In project target CF villages, it was found that maximum frequency of 15 time, 14 time, 10 time and 5 time of members HHs participation oyster culture, group discussion for IG type selection, technical information sharing for IG activities and market visit activities respectively. As maximum participation in specific frequency in each activity, 14.7% (11/75) and 4.0% (3/75) for one time each in “oyster culture”

and “market visit” respectively while 18.7% (14/75) for five time participation in “group discussion for selection for IG activities” and 13.3% (10/75) each for two and three time participation at “information sharing of IG activities” were found in impact survey.

As individual member, only 8.3% (1/12) each of member HHs from TGT village participates maximum 15 times and 14 time in “oyster culture” and “group discussion for selection for IG activities” respectively while 22.2% (4/18) and 8.3% (1/12) of member HHs from SPT and TGT participated in 10 time at “information sharing of IG activities” and 5 time at “market visit” respectively. Even project conduct only one time of market visit with maximum number is 3 for all of villages, impact survey result shown that some respondents make market visit more than one time and this maybe because, some other project supported market visit participants conducted their own market visit which lead confusion to respondents during impact survey.

Table 4.35: HH distribution of experience in participation of IG activities

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate
Oyster culture	20	55	-	18	8	9	4	8	1	10	4	6	3	4
Market visit	7	68	1	17	-	17	3	9	-	11	2	8	1	6
Sharing of the technical information of IG activities	48	27	15	3	8	9	7	5	8	3	7	3	3	4
Meeting of the groups to discuss and decide types of IG	63	12	17	1	13	4	10	2	9	2	8	2	6	1

Table 4.36: HH distribution of experience in participation of IG activities (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate	Participate	Not participate
Oyster culture	26.7	73.3	-	100.0	47.1	52.9	33.3	66.7	9.1	90.9	40.0	60.0	42.9	57.1
Market visit	9.3	90.7	5.6	94.4	-	100.0	25.0	75.0	-	100.0	20.0	80.0	14.3	85.7
Sharing of the technical information of IG activities	64.0	36.0	83.3	16.7	47.1	52.9	58.3	41.7	72.7	27.3	70.0	30.0	42.9	57.1
Meeting of the groups to discuss and decide types of IG	84.0	16.0	94.4	5.6	76.5	23.5	83.3	16.7	81.8	18.2	80.0	20.0	85.7	14.3

Table 4.37a: HHs distribution of participation (frequency) in IG activities – Oyster & market visit

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit
1 - time	11	3	-	-	4	-	-	1	1	-	2	1	1	1
2 - time	3	1	-	-	1	-	1	1	-	-	1	-	-	-
3 - time	3	2	-	1	1	-	1	-	-	-	-	1	1	-
4 - time	2	0	-	-	1	-	1	-	-	-	-	-	-	-
5 - time	1	1	-	-	-	-	-	1	-	-	1	-	-	-
6 - time	1	-	-	-	1	-	-	-	-	-	-	-	-	-
15 - time	1	-	-	-	-	-	1	-	-	-	-	-	-	-

Table 4.37b: HHs distribution of participation (frequency) in IG activities – Information sharing & group discussion

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection
1 - time	3	2	1	-	-	-	-	-	1	1	1	1	-	-
2 - time	10	9	3	1	1	2	1	2	1	1	2	2	2	1
3 - time	10	5	3	1	3	1	1	2	2	1	1	-	-	-
4 - time	5	11	-	5	2	2	1	1	-	2	2	-	-	1
5 - time	6	14	2	5	1	3	-	-	2	1	-	5	1	-
6 - time	6	8	1	1	1	2	1	2	2	1	1	-	-	2
8-time	1	4	1	2	-	-	-	-	-	-	-	-	-	2
10 - time	5	8	4	2	-	3	1	2	-	1	-	-	-	-
11 - time	0	1	-	-	-	-	-	-	-	1	-	-	-	-
12 - time	0	1	-	-	-	-	-	-	-	1	-	-	-	-
14 - time	0	1	-	-	-	-	-	1	-	-	-	-	-	-

Table 4.38a: HHs distribution of participation (frequency) in IG activities oyster & market visit (%)

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit
1 - time	14.7	4.0	-	-	23.5	-	-	8.3	9.1	-	20.0	10.0	14.3	14.3
2 - time	4.0	1.3	-	-	5.9	-	8.3	8.3	-	-	10.0	-	-	-

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit	Oyster culture	Market visit
3 - time	4.0	2.7	-	5.6	5.9	-	8.3	-	-	-	-	10.0	28.6	-
4 - time	2.7	0.0	-	-	5.9	-	-	-	-	-	-	-	-	-
5 - time	1.3	1.3	-	-	-	-	-	8.3	-	-	10.0	-	-	-
6 - time	1.3	-	-	-	5.9	-	8.3	-	-	-	-	-	-	-
15	1.3	-	-	-	-	-	8.3	-	-	-	-	-	-	-

Table 4.38b: HHs distribution of participation (frequency) in IG activities – Information sharing & group discussion (%)

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection	Information Sharing of IG	Group discussion for IG selection
1 - time	4.0	2.7	5.6	-	-	11.8	-	-	9.1	9.1	10.0	10.0	-	-
2 - time	13.3	12.0	16.7	5.6	5.9	-	8.3	16.7	9.1	9.1	20.0	20.0	28.6	14.3
3 - time	13.3	6.7	16.7	5.6	17.6	5.9	25.0	16.7	18.2	9.1	10.0	-	-	-
4 - time	6.7	14.7	-	27.8	11.8	11.8	8.3	8.3	-	18.2	20.0	-	-	14.3
5 - time	8.0	18.7	11.1	27.8	5.9	17.6	-	-	18.2	9.1	-	50.0	14.3	-
6 - time	8.0	10.7	5.6	5.6	5.9	11.8	8.3	16.7	18.2	9.1	10.0	-	-	28.6
8 - time	1.3	5.3	5.6	11.1	-	-	-	-	-	-	-	-	-	28.6
10 - time	6.7	10.7	22.2	11.1	-	17.6	-	16.7	-	9.1	-	-	-	-
11 - time	0.0	1.3	-	-	-	-	-	-	-	9.1	-	-	-	-
12 - time	0.0	1.3	-	-	-	-	-	-	-	9.1	-	-	-	-
14 - time	0.0	1.3	-	-	-	-	-	8.3	-	-	-	-	-	-

4.7 Tangible positive effects of income generation activities on the HH's livelihoods

Table 4.39a to Table 4.42 represented the “tangible positive effect of income generation activities of oyster culture on the HH’ livelihood”.

It was already noted that 26.7% (20/75) of member HHs from project target CF villages except SPT participated in oyster culture activities in 2012. Out of them only 12% (9/75) of total member HHs from project target CF villages {45% (9/20) out of member HHs who participate in oyster culture} from project engage the selling oyster and earn income. It was found that 100% (4/4 & 1/1) of member HHs who participate in oyster culture from TGT and TYK villages earn income from selling oyster.

Maximum 3-times of oyster selling was noticed but majority engaged in one time only. 66.7% (6/9) of member HHs who earn money from selling oyster {8% (6/75) of member HHs from project target CF villages) engage one time of selling while 11.1% (1/9) of member HHs who earn money from selling oyster {1.3% (1/75) of member HHs from project target CF villages) engage for 3 time of selling oyster.

It was found that total income from selling oyster for one member HH is range between 5,000 Kyat to 80,000 Kyat for both one-time sold and one year sold amount. Both maximum and minimum amount was found from member HHs from TGT village with 25% (1/4) of participated HHs {8.3% (1/12) of village member HHs} and 50% (2/4) of participated HHs {16.7% (2/12) of village member HHs} respectively. Minimum sold amount was found from GAD and KKKL village.

Table 4.39a: HH distribution on Oyster selling for livelihoods improvement – oyster culture

Characteristic	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage
Selling oyster	20	9	11	-	-	-	8	1	7	4	4	-	1	1	-	4	2	2	3	1	2
Frequency of selling																					
1-time		6			-			1			2			1			2				-
2-time		2			-			-			1			-			-				1
3-time		1			-			-			1			-			-				-

Table 4.39b: HH distribution on Oyster selling for livelihoods improvement – as whole

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement
Selling oyster	9	66	-	18	1	16	4	8	1	10	2	8	1	6
Frequency per year														
1	6	-	-	-	1	-	2	-	1	-	2	-	-	-
2	2	-	-	-	-	-	1	-	-	-	-	-	1	-
3	1	-	-	-	-	-	1	-	-	-	-	-	-	-

Table 4.40a: HH distribution on Oyster selling for livelihoods improvement – oyster culture (%)

Characteristic	Total			SPT			GAD			TGT			TYK			NTP			KKKL		
	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage	Oyster culture	Sell oyster	Not engage
Selling oyster		45.0	55.0	-	-	-	-	12.5	87.5	-	100	-	-	100	-	-	50.0	50.0	-	33.3	66.7
Frequency of selling																					
1-time		66.7			-			100			50.0			100			100			-	
2-time		22.2			-			-			25.0			-			-			100	
3-time		11.1			-			-			25.0			-			-			-	

Table 4.40b: HH distribution on Oyster selling for livelihoods improvement – as whole (%)

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement	Engage & earn	No engagement
Selling oyster	12.0	88.0	-	100.0	5.9	94.1	33.3	66.7	9.1	90.9	20.0	80.0	14.3	85.7
Frequency per year														
1	8.0	-	-	-	5.9	-	16.7	-	9.1	-	20.0	-	-	-
2	2.7	-	-	-	-	-	8.3	-	-	-	-	-	14.3	-
3	1.3	-	-	-	-	-	8.3	-	-	-	-	-	-	-

Table 4.41: HHs distribution of sold amount

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold
<5,000K	2	2	-	-	1	1	-	-	-	-	-	-	1	1
<10,000K	2	2	-	-	-	-	2	2	-	-	-	-	-	-
<25,000K	3	3	-	-	-	-	1	1	-	-	2	2	-	-
<40,000k	1	1	-	-	-	-	-	-	1	1	-	-	-	-
<80,000k	1	1	-	-	-	-	1	1	-	-	-	-	-	-

Table 4.42a: HHs distribution of sold amount – oyster culture (%)

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold
<5,000K	22.2	22.2	-	-	100.0	100.0	-	-	-	-	-	-	100.0	100.0
<10,000K	22.2	22.2	-	-	-	-	50.0	50.0	-	-	-	-	-	-
<25,000K	33.3	33.3	-	-	-	-	25.0	25.0	-	-	100.0	100.0	-	-
<40,000k	11.1	11.1	-	-	-	-	-	-	100.0	100.0	-	-	-	-
<80,000k	11.1	11.1	-	-	-	-	25.0	25.0	-	-	-	-	-	-

Table 4.42b: HHs distribution of sold amount – as whole (%)

Characteristics	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold	One time sold	One year sold
<5,000K	2.7	2.7	-	-	5.9	5.9	-	-	-	-	-	-	14.3	14.3
<10,000K	2.7	2.7	-	-	-	-	16.7	16.7	-	-	-	-	-	-
<25,000K	4.0	4.0	-	-	-	-	8.3	8.3	-	-	20.0	20.0	-	-
<40,000k	1.3	1.3	-	-	-	-	-	-	9.1	9.1	-	-	-	-
<80,000k	1.3	1.3	-	-	-	-	8.3	8.3	-	-	-	-	-	-

4.8 Positive intangible effects of income generation activities on the HH's livelihoods

Table 4.43 represents for “HH distribution of positive effect of income generation activities on the HH’ livelihood” after jointing IG activities support by project. It was found that total 70.7% of member HHs from project target CF villages expressed for experience of positive change in their livelihood after joining the income generation activities supported by project. Among project target CF villages, 81.8% (9/11) of member HHs from TYK village represent as maximum ratio while 52.9% (9/17) of member HHs from GAD represent as minimum ratio for experience of positive change.

Some member HHs mentioned that income increase through benefit of knowledge improvement from training such as crab farming and oyster culture. Some said that increase catching fish, prawn and crab, enough domestic used of fuel wood, timber for house repairing and renovation, shading and wind breaking are benefit from forest conservation and tree plantation. Some member HHs mentioned for in cash and in kind support for participation in CF activities but some expressed that result cannot seen yet because it was only start up period.

Table 4.43: HH distribution of positive change from livelihood after jointing IG activities support by project

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change	Positive change	No change
<i>By HHs</i>														
Experience for change	53	22	14	4	9	8	9	3	9	2	8	2	4	3
<i>By percentage</i>														
Experience for change	70.7	29.3	77.8	22.2	52.9	47.1	75.0	25.0	81.8	18.2	80.0	20.0	57.1	42.9

4.9 Negative effects of income generation activities on the HH's livelihoods

Table 4.44 represents for “HH distribution of negative effect of income generation activities on the HH' livelihood” after jointing IG activities support by project. It was found that total 9.3% of member HHs from project target CF villages expressed for experience of negative effect in their livelihood after joining the income generation activities supported by project. Among project target CF villages, no one from SPT and KKKL had experience for negative effect. In remaining four villages, 23.5% (4/17) of member HHs from GAD village represent as maximum ratio of experience of negative effect while 9.1% (1/11) of member HHs from TYK village represent as minimum ratio for experience of negative change.

Most of member mentioned that time sharing in CF activity lead difficulty for their family daily livelihood activities. Some member especially who participate in oyster culture mentioned for loss in oyster culture through damage by bad and/or low water current and silting due to obstruction make by lessee fisheries and fish/prawn pond. Loss also occurred due to high water velocity. They also mentioned for total lost due to thief.

Table 4.44: HH distribution of negative effects from livelihood after jointing IG activities support by project

Characteristic	Total		SPT		GAD		TGT		TYK		NTP		KKKL	
	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect	Negative effect	No effect
<i>By HHs</i>														
Experience for change	7	68	-	18	4	13	1	11	1	10	1	9	-	7
<i>By frequency</i>														
Experience for change	9.3	90.7	-	100.0	23.5	76.5	8.3	91.7	9.1	90.9	10.0	90.0	-	100.0

5.0 Technical capacity among the MC members of CFUG

The study team assessed the understanding of technical capacity among the members of CFUG related to CF concept, CFI, MP, Bylaw and role and responsibilities of MC in six villages. In order to assess the technical capacity, altogether 25 questions (5 questions for one area) base on TOR to be asked to MC member from respective village CFUG. For consistency of judgement for rating to various level of MC member understanding to questions, survey team apply the term of “answer well and/or well understanding” and “not answer well and/or not well understanding” for each question with following means:-

- Well understanding = score “1”
 - Proper answer
 - Answer in common knowledge with right mean
 - If there are facts related question and answer more than 50% of facts
- Not well understanding = score “0”
 - No answer
 - Wrong answer or improper answer
 - Answer in common knowledge but not right mean
 - If there are facts related question and answer less than 50% of facts

The MC members group answered successfully with well answer more than three questions among five questions in one key area it is judged that the group has enough knowledge to the said area. If the MC members group had enough knowledge in more than three key areas among the five, it is judged they clear the 3rd level as required in the PDM. As the PDM indicates, all MC in six target villages are expected to clear the 3rd level of evaluation rating.

According to finding of assessment, all MCs overall understanding related to technical capacity found active and above average. But the understanding on specific topic seems lack of interest by MC from some of the village. Technical capacity rating of individual MC from respective village shown as follow:

Table 5.1: Technical capacity rating for respective village by specific area

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	Understanding of CF concept	2	3	5	3	5	3
2	Understanding of CFI	4	2	5	2	5	5
3	Understanding of Management Plan	3	5	4	4	4	3
4	Understanding of Bylaw	2	2	2	2	3	2
5	Understanding on Roles and Responsibilities of MC	5	4	5	5	5	5
Total Rating		16	16	21	16	22	18

Survey team found the technical capacity among the members from MC of CFUG in all villages have above the 3rd level rating. It was noted that technical capacity of MC from NTP & TGT stood above the average for all five area.

5.1 Understanding of CF concept

Table 5.2: Scoring for “understanding of CF concept”

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	What is Community Forestry?	1	1	1	0	1	0
2	What kinds of works are included in CF plantation in the mangrove area?	1	1	1	1	1	1
3	What kinds of works are included in natural forest improvement operation in the mangrove area?	0	1	1	0	1	0
4	What kinds of benefit are you expected to get in implementing CF in the mangrove area?	0	0	1	1	1	1
5	What kinds of technical/managerial issues and problems do you have to pay attention in doing CF in the mangrove area?	0	0	1	1	1	1
Total Score		2	3	5	3	5	3

Note: Well understanding (well answer) = “1”; not well understanding (not well answer) = “0”

5.1.1 Definition of CF

MC from 4 villages (SPT, GAD, TGT and NTP) gave correct answer for the definition of community forestry but MC in two villages (TYK and KKKL) answered incorrect.

5.1.2 Kinds of works which included in CF plantation in the mangrove area

Related to the kinds of works, survey team asked the information related to establishing and maintaining the CF plantation in the mangrove area and team noted that MC from all six villages well understand about the kinds of works.

5.1.3 Kinds of works which included in natural forest improvement operation in the mangrove area

MC from three villages (GAD, TGT and NTP) answered well for the kinds of works included in the natural forest improvement but team found that MC from remaining three villages not answered well enough.

5.1.4 Kind of benefit which CFUG expected to get in implementing CF in the mangrove area

With related to the kind of benefit are you expected to get in implementing CF in the mangrove area, MC from all the villages fully understand the benefit of CF especially for the village environment, fishery resources will improve and for future availability of fuel wood as well as wood for the village consumption will increase. MC from TGT and NTP villages answered more specifically as follow:-

- CFUG of TGT village establish plantation and by conserving CF it will be supplied not only the need of forest products of the village but it will also be supported the basic needs of local community by selling the excess forest products to other township. Since local community live on by catching fish, prawn and crab that inhabit in mangrove forest, livelihood of community will be improved due to plenty of fisheries products based on improvement of mangrove forest

- Inspiration of MC from NTP village is not limited. According to them, if the NTP village CF program becomes successful, it will meet the village forest products requirement and also the surplus can share to other area. Addition to that, fish, prawn and crabs can reproduced continuously and as result the basic livelihood activities of community will be improved. By establishing such CF, community can utilize forests land with (30) years grant and planting will be carried out so as to achieve CF because it has to be implemented the desires of individual CFUG member. Not only get basic needs of community such as woods, poles and posts but also it can be used the incomes received by selling the excessive forest products for religious activities, social affairs and village development activities.

5.1.5 Kinds of technical/managerial issues and problems which CFUG have to pay attention in doing CF in the mangrove area

MC from four villages (NTP, TYG, TGT and KKKL) answered that they have the problem with seedlings. All the villages MC facing the problems with the poor CFUG member did not pay much time in CF activity because they have to earn for their living. Except SPT where CF located close to village, MC from remaining five villages (GAD, TGT, TYK, NTP and KKKL) explained about the illegal cutting of trees by other in their CF area because their CF are located other side of river and a bit far from villages and out of immediate reach.

5.2 Understanding of CF Instruction

Table 5.3: Scoring for “understanding of CF Instruction”

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	Do you know the Community Forestry Instruction (CFI) prepared by the Forestry Department (FD)?	1	0	1	0	1	1
2	What is the “Management Plan (MP) and the MP Certificate as provided in CFI”?	1	1	1	1	1	1
3	What are the roles and responsibilities of CFUG as stipulated in CFI?	1	0	1	0	1	1
4	What kinds of activities are prohibited in CFI?	0	0	1	1	1	1
5	What is regulated in harvesting and utilization of planted trees in CF plantation?	1	1	1	1	1	1
Total Score		4	2	5	3	5	5

Note: Well understanding (well answer) = “1”; not well understanding (not well answer) = “0”

5.2.1 Knowledge about CFI prepared by the FD

It was noted that, except TYK and GAD villages which team noticed that low interest compare to other villages, MC from remaining four villages familiar with the CFI prepared by the FD.

5.2.2 MP and the MP Certificate as provided in CFI

When Survey team asked about the MP and the MP certificate as provided in CFI, MC from all villages understand that MP is important to getting CF certificate which permitted them to establish CF. They draw the MP with the assistance of FD

personal and MP included detail activities guideline of CF establishment and maintenance as well as boundary and area of CF.

5.2.3 Roles and responsibilities of CFUG as stipulated in CFI

Survey team found that except MC from TYK and GAD villages, MC from remaining four villages answered well in the roles and responsibilities of CFUG. The majority of MC explained role and responsibilities of CFUG as follows:-

- Establishment of tree plantations in barren areas
- Implementing activities as described in the management plan
- Protection against soil erosion and environmental deterioration
- Using natural methods of conservation rehabilitation in forested areas ,
- Protection against fire hazards,
- Protection against extraction of stones, sands, earth and metals in the designated area
- Prevention of illegal land use activities

5.2.4 Activities prohibited in CFI

Study team asked the kinds of activities are prohibited in CFI, survey team found that MC from four villages (TGT, TYK, NTP and KKKL) answered correctly as mentioned in the CFI, kinds of activities answered by the MC are as follows:

- Activities not prescribed in the management plan Metal extraction and other activities that would cause forest degradation Construction of houses or sheds not meant for the conservation of the community forest Land allotted for community forest development should not be used for gardening or shifting cultivation purposes, with the exception of agro forestry

5.2.5 Harvesting and utilization of planted trees in CF plantation

MC from all six villages answered that regarding in harvesting and utilizing as mentioned in the CFI, user group can exploit the forest products of the community forest in accordance with the prescription of the management plan.

5.3 Understanding of Management Plan

Table 5.4: Scoring for “understanding of Management Plan”

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	What is the main contents of the Management Plan?	0	1	1	1	1	1
2	Please explain the process to prepare, implement and monitoring of the MP.	1	1	0	0	1	1
3	Please explain the CF activities as planned in the MP of your CFUG.	0	1	1	1	0	0
4	Please explain the activities in the CF area in this year as planned in the MP.	1	1	1	1	1	0
5	Please explain the rules and the process to harvest and utilize the trees planted in the CF area.	1	1	1	1	1	1
Total Score		3	5	4	4	4	3

Note: Well understanding (well answer) = “1”; not well understanding (not well answer) = “0”

5.3.1 Main contents of the Management Plan

MC from all six villages answered the contents of MP. All MC mentioned the contents of management consist of objectives, location, boundary and area, establishment of new forest plantation (including site preparation, staking and planting, weeding, fire protection) conservation of existing forest (establishment of planting in the gap area) and village development activities. But MC members of SPT answer for location and boundary of CF and other in general.

5.3.2 Process to prepare, implement and monitoring of the MP

When asked about the process to prepare and to implement and monitor the CF activities according to the MP, MC from five villages answered the formulation of management plan, site preparation, planting, weeding, fire protection, pruning, thinning, establishment of planting in the gap area in the existing forest gap area and monitor the community forest area in line with the MP but MC from TGT could not answer well.

5.3.3 CF activities as planned in the MP of your CFUG

Survey team asked about the CF activities as planned in the MP of each CFUG, only MC from three villages (GAD, TGT and TYK) answered well about the CF activities as planned in the MP of their CFUG as mentioned in their MP but the other three MCs from (SPT, NTP & KKKL) did not answered well.

5.3.4 Activities in the CF area in this year as planned in the MP

MC from three villages (GAD, TGT and TYK) answered well about the activities in the CF area in this year as planned in the MP, they explained the activities which they will carry out as they mentioned in the implementation schedule which attached with their management plan but the other three village MC answered that they will continue their activities but answered not well enough in detail.

5.3.5 Rules and process to harvest and utilize the trees planted in the CF area

MC from five villages (SPT, GAD, TGT, TYK and NTP) explained that the “selection felling” method will be used for the sustainability of the natural mangrove forests, “selection felling” with girth limit of species will be carried out with the supports of FD. MC will carry out marking the trees matched girth limit with distinct symbols in the area to be felled by selection and the MC will closely supervise the felling process. MC member from the KKKL village mentioned that harvest and utilize the process which carry out as guideline with FD as according to the implementation plan which was already allocated in their CF MP.

5.4 Understanding of Bylaw

All management committee answered the main contents of the Bylaw, the roles of MC as provided in the Bylaw and the bans and prohibitions stipulated in the Bylaw. Survey team noticed that, except one young MC member from NTP who recently attended the training from Hmawbi, overall understanding among MC member from all remaining CFUG MCs for Bylaw is weak.

Table 5.5: Scoring for “understanding of Bylaw”

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	What is the main contents of the Bylaw ?	0	0	0	0	1	0
2	Please explain the roles of MC as provided in the Bylaw.	1	1	1	1	1	1
3	Please explain the bans and prohibitions stipulated in the Bylaw.	1	1	1	1	1	1
4	Please give your idea how to utilize the Bylaw in implementing the CF activities.	0	0	0	0	0	0
5	Please explain the process to renew the Bylaw and approve it.	0	0	0	0	0	0
Total Score		2	2	2	2	3	2

Note: Well understanding (well answer) = “1”; not well understanding (not well answer) = “0”

5.4.1 Main contents of the Bylaw

With related to understanding of bylaw, MC from all six villages did not answered correctly, only MC from NTP answered well but other villages MC not answered well. All MC are weak respond related to understanding of bylaw. Rating on understanding of bylaw by the management committee was low. In NTP village, Chairman as well as young member who recently attended the Hmawbi training which was conducted by the forest department and the secretary touches with the bylaw.

5.4.2 Roles of MC as provided in the Bylaw

MC from all six villages answered the roles of MC as stipulated in the bylaw as follow:-

- Taking the responsibilities of management of CF
- Conducting annual meeting and quarterly meeting,

- Monitoring the implementation of CF in accordance with MP,
- Taking action and imposing penalty effectively on the members who break by-law of CFUG
- Accepting new members,
- Communicating with FD in order to get the seedlings and techniques for forest operations and
- Preparing annual report of establishment of CF and reporting to FD.

5.4.3 Bans and prohibitions stipulated in the Bylaw

All CFUG MCs answered the bans and prohibitions in community forestry as mention in the CF certificate whenever study team asked the bans and prohibitions stipulated in the bylaw. MC from five villages (SPT, GAD, TGT, TYK and KKKL) answered the solving problem and imposing penalty for the member of the CFUG. Only MC from NTP village answered “prohibitions” in relation to protection and conservation of CF

5.4.4 Utilize the Bylaw in implementing the CF activities

There is no idea among MC from all six villages to utilize the Bylaw in implementing the CF activities. MC from all six villages not answers well.

5.4.5 Process to renew the Bylaw and approve it

There is no understanding among MC from all six villages about process to renew the Bylaw and getting approval. MC from all six villages not answers well.

5.5 Understanding on Roles and Responsibilities of MC

Table 5.6: Scoring for “understanding of role and responsibilities of MC”

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	Please explain the current members of your MC (numbers, sex ratio, etc).	1	1	1	1	1	1
2	Please explain the process to register new member of CFUG and expel members.	1	1	1	1	1	1
3	What kinds of activities did you conduct as a member of MC?	1	0	1	1	1	1
4	Please explain the role and responsibilities of the Forest Department in supporting CF activity.	1	1	1	1	1	1
5	Please explain the process to address the problems rising during the CF activities.	1	1	1	1	1	1
Total Score		5	4	5	5	5	5

Note: Well understanding (well answer) = “1”; not well understanding (not well answer) = “0”

5.5.1 Current members of CFUGs

MC from all six villages explained thoroughly about current member of CFUGs under the management of MC. It was noted that all members of MC are male in all six villages. But some women headed CFUG member HHs was found but not significant in participant sharing.

Number of MC member, CF area, no of CF user sub groups in respective village with man and women headed HH CFUG member participation as mentioned below in table.

Table 5.7: Information of respective CF

Name of Village	Member of MC	CF Area (acre)	No of CFUGs (sub group)	Number of CFUG members		
				Total HH	Man headed HH	Woman headed HH
Shwe Pyi Thar	6	50	5	106	106	-
Gaw Du	5	50	8	83	80	3
Htaung Gyi Tan	9	157	6	63	60	3
Thar Yar Kone	6	1051	6	59	57	2
Nyaung Ta Pin	6	670	9	69	69	-
Kwa Kwa Ka Lay	5	202	6	39	37	2

5.5.2 Process to register new member of CFUG and expel members

With related to the process to register new member of CFUG and expel members, MC from all six villages answered as follow:-

- **New member**
The person who settles in the village for 3 years and is interesting in establishment of CF, will be assigned as member only after having been negotiated between MC members and CFUG members at the CFUG meeting which conducted twice a month. But he/she who can obey by-law of CFUG and must be put membership fee into the communal fund of CFUG when it becomes as CFUG member.
- **Expel member**
The existing member who breaks by-law of CFUG more than 3 times will be withdrew from CFUG.

In SPT and NTP 2 new member each are registered. MC from remaining villages mentioned that many of the villagers (HHs) would like to apply for the new member but they didn't accept for the new member but not gave specific reason.

Survey team noted that numbers of the CFUG member from all six villages are temporarily moved (migrated) to other places so as to find the better job because they could not earned the required income for them in their village. But they are not expelled from CFUG member list.

5.5.3 Kinds of activities conduct as a member of MC

MC from five villages answered the kinds of activities conducted by them as member of MC are as follow:-

- Taking the responsibilities of management on the establishment of CF
- Conducting annual meeting and quarterly meeting of a year,
- Monitoring the implementation of CF in accordance with MP
- Communicating with FD in order to get the seedlings and techniques for forest operations

Report of the Impact Survey and the Capacity Assessment of the CFUGs

- Preparing annual report of establishment of CF and reporting to FD
- Arranging and managing the communal fund of CFUG,
- Taking action effectively on the members who break by-law of CFUG and
- Reporting the difficulties and problems of CFUG members

MC from GAD answer few of above listed.

Except GAD village, MC from remaining villages answered that they organized the members of the CFUG for following activities.

- Establishment of Nursery
- Weeding, pruning, thinning, fire Prevention,
- Establishment of plantation and conservation of existing forest
- Management committee implemented Site preparation and
- Conservation of existing forest performed Delineation of stock map and management map, gap filling, weeding, felling, patrolling

MC from GAD answer for top two activities listed in above.

5.5.4 Role and responsibilities of the FD in supporting CF activity

Member from all six MCs from survey area mentioned that FD distributed seedlings and provided and demonstrated agro-forestry techniques to the villagers.

5.5.5 Process to address the problems rising during the CF activities

With regard to the problem rising during the CF activities, MC from all six villages mentioned about their problem as follows:

- Due to difficulties in access and also of diversified land use within the reserved forest area, specific and proper land demarcation are not always imposed by FD (PYP Township).
- There was legal action taken by prawn farmers when villagers try to get the fire wood and catching fish in mangrove forest area (PYP Township).
 - Even Department of Fishery stated that no tax or permission required for catching fishery product within CF but Ayeyawady Delta, there is a long history that all of water bodies have strong river tender system and villagers are requested to pay fee for catching fishes, crabs even in their CF areas or farmland due to controversial situation.
 - According to MP and instruction from FD, CFUG member doing for weeding and cutting in their CF area, but shrimp pond owners reported to local authority that CFUG are illegal cutting trees which they complained that CFUG is violating the forest law to protect their shrimp pond area through the meaning of legal action from shrimp owner side.
- Dead or less growth of seedling due to planting at dry season in GAD and TGT villages because difficulties to get water.

- CF member mentioned some difficulties in participating in CF activities.
- MC from all villages facing the problems with the poor member did not pay much time in community forestry activity because they have to earn for their living.
- In all villages, MC mentioned that majority of the member are poor and low income, sometime it was difficult for them to contribute their labor in community activity. In this regard they would like to get some income generation support from JICA like crab farming and micro-credit.
- MC from TYK,NTP and KKKL villages in LPT township complained about the illegal cutting from the other village people and facing the problems of boat for the sub-user group because their community forest are situated in other side of the river and also they have the problem with farm implement like knife, boots for poor member.
- Except SPT village, MC from remaining villages explained and are pay attention about the illicit cutting of trees, technical/managerial issues and problems doing CF activities in the mangrove area.

6.0 Core capacity among the MC members of CFUG

The study team assessed the understanding of core capacity among the members of MC in six villages related to following key area:-

- Implement the activities in accordance with plan
- Carry out the duty of MC
- Response the issues/problems
- Introduction of new/creative idea
- Coordination and cooperation

In order to assess the core capacity, altogether ten questions (two questions each for one specific area) base on TOR to be asked to MC member from respective village CFUGs. For consistency of judgement for rating, survey team decide to link with answer from technical capacity assessment especially for area one and two. The MC members group answered thoroughly in one key area and/or they can answer more than 50% of facts, it is judged that the group has enough capacity to the said area and team define as “yes” and give score “1” for assess area. They cannot answer properly and/or less than 50% of facts even team make facilitation, it was define as “no” and give score “0”. If the MC members group had enough capacity in more than three key areas among the five, it is judged they clear the 3rd level as required in the PDM. As the PDM indicates, all MC in six target villages are expected to clear the 3rd level of evaluation rating.

According to finding of assessment, all MCs overall understanding related to core capacity found active and above average. It was noted that, MC from all six villages don't have new and/or creative idea related to CF upgrade or improvement except MC from some village encourage the training for young CFUG member for their CF sustainable. Core capacity rating of individual MC from respective village shown as follow:

Table 6.1: Core capacity rating for respective village by specific area

Sr	Description	SPT	GAD	TGT	TYK	NTP	KKKL
1	Capacity to implement the activities in accordance with the plan	1	1	1	1	1	1
2	Capacity to carry out the duties of MC	1	1	1	1	1	1
3	Capacity to respond issues/problems	1	1	1	1	1	1
4	Capacity to introduce new/creative ideas	0	0	0	0	0	0
5	Capacity of coordination and cooperation	1	1	1	1	1	1
Total Rating		4	4	4	4	4	4

Survey team found the core capacity among the members from MC of CFUG in all villages have above the 3rd level rating. It was noted that core capacity of MC from TGT & NTP stood above the average for four out of five assess area.

6.1 Capacity to implement the activities in accordance with the plan

Table 6.2: Capacity to implement the activities in accordance with the plan

Q	Description	Answer					
		SPT	GAD	TGT	TYK	NTP	KKKL
1	Did the MC lead the CFUG in implement the CF activities in accordance with the MP?						
1.1	What kind of activities did MC implement during the Project period?	Yes	Yes	Yes	Yes	Yes	Yes
1.2	Were those activities implemented without big changes compared to the MP?						
Score		1	1	1	1	1	1

Note: "Yes" = 1; "No" = 0

MC from all six villages led the CFUG in implementing the CF activities in accordance with the MP. During the project period MC implemented the establishment of nursery, site preparation, stake collection and staking, seedlings transportation and planting, weeding, patching, survival counting and fire protection. MC responded that they implemented the activities as mentioned in the MP without big changes as compared to MP.

6.2 Capacity to carry out the duties of MC

Table 6.3: Capacity to carry out the duties of MC

Q	Description	Answer					
		SPT	GAD	TGT	TYK	NTP	KKKL
1	Did the MC play enough of its role during the implementation of CF?						
1.1	As a leader of CFUG, what is the role and responsibilities of MC?	Yes	Yes	Yes	Yes	Yes	Yes
1.2	Did each member of MC play enough to perform his/her duties?						
Score		1	1	1	1	1	1

Note: "Yes" = 1; "No" = 0

During the community forestry implementation MC played as according to the roles and responsibilities mentioned in the by law, As the leader of the CFUG management committee played the establishment of forest plantation and conservation of existing forest. Each of MC played their roles and responsibilities as mentioned in the bylaw.

6.3 Capacity to respond issues/problems

Table 6.4: Capacity to respond issues/problems

Q	Description	Answer					
		SPT	GAD	TGT	TYK	NTP	KKKL
1	Did the MC play enough of its role in addressing the problems and troubles during the implementation of CF?	Yes	Yes	Yes	Yes	Yes	Yes
1.1	Did any serious problems occur during the implementation of CF?						

Q	Description	Answer					
		SPT	GAD	TGT	TYK	NTP	KKKL
1.2	If some problems happened, did MC address them enough so that CFUG could continue their activities as usual?						
Score		1	1	1	1	1	1

Note: "Yes" = 1; "No" = 0

All the village community forestry management committee answered that the MC play enough of its role in addressing the problems and troubles during the implementation of CF.

Except GAD village, MC from remaining five villages said that they were facing with illicit cutting of trees in their community forest and only they can arrange for more patrolling but cannot manage to stop.

Member HHs also complained for difficulties and safety of transportation to reach to CF where located far and other side of river. In addition to that lack of effective working tools for CF establishment and maintenance.

MC from four villages (SPT, GAD, TYK and KKKL) answered that there are no serious problems except illegal cutting trees and if such problems happened, MC informed to the FD and CFUG could continue their activities as usual especially patrolling.

6.4 Capacity to introduce new/creative ideas

Table 6.5: Capacity to implement the activities in accordance with the plan

Q	Description	Answer					
		SPT	GAD	TGT	TYK	NTP	KKKL
1	Did the MC try to be flexible to introduce and practice some new/additional ideas to address and solve the issues/problems or to upgrade the activities?	No	No	No	No	No	No
1.1	If you have an experience and lesson learnt from introducing new/additional ideas into Cf activities, please explain and discuss with the members on them.						
Score		0	0	0	0	0	0

Note: "Yes" = 1; "No" = 0

MC from four villages (SPT, TGT, TYK and KKKL) said that they encourage and trained the young CFUG member for the sustainability of their community forestry.

Study team asked about the experience and lesson learnt from introducing new/additional ideas into CF activities, all MC answered that they didn't have the experience and lesson learnt from introducing new/additional ideas into CF activities.

The member also said that they didn't have the experience and lesson learnt from introducing new/additional but for the sustainability of the CF activities solving the livelihood problem for the poor CFUG member HH is require to introduce as new and additional intervention which link or support to livelihood option.

6.5 Capacity of coordination and cooperation

Table 6.6: Capacity of coordination and cooperation

Q	Description	Answer					
		SPT	GAD	TGT	TYK	NTP	KKKL
1	Did the MC build a good relationship with the FD and other relevant organization?						
1.1	If you have an experience and lesson learnt from coordination and cooperation with the FD and other agencies, please explain and discuss with the MC members on them.	Yes	Yes	Yes	Yes	Yes	Yes
Score		1	1	1	1	1	1

. Note: "Yes" = 1; "No" = 0

All MC explained that they have good relationship with forest department.

MC from NTP village mentioned that they would like to get the seed than seedlings because they move the plastic bags and took only small plant so as to reduce the weight in the boat and when they arrived back to the village member of the user group not sowing the seedling immediately they kept for a day and only after they have a spare time they sowing the seedlings, then survival rate of seedlings was not good.

When survey team asked about the experience and lesson learnt from coordination and cooperation with the FD, all the village community forestry management committee answered that they needed more assistance from the forest department especially taken action to those illicit cutting of trees and encroachment of shrimp pond in their CF area. Villagers have not had the legal powers to assert control and regulate use either within the village or from neighbours and other outsiders. This has led to over-extraction beyond sustainable off-take levels and land conversion.

Training conducted in Hmawbi is very useful and improve the knowledge about the forest development activities, all MC from respective village would like to get the chance for their CFUG member to attend such training.

7.0 Summary

7.1 Key Findings

Basic information and characteristic of HH

Seasonal migration in delta is high and seriously need to address the problem root causes. It was found that 14% (13.6%) of targeted survey member HHs from CFUG are temporarily move out from their village from May to September and livelihood survival and limited options are major reason for them to migrate.

With different respondents from same HH and nature of “in and out migration”⁵⁵, some small unrealistic differences in HH characteristic such as ethnicity ratio, age and education of HH’ head were found between baseline and impact survey. Bamar was majority ethnic and rest were Kayin among member HHs from CFUGs in project target CF villages and same as baseline survey finding. Average household (HH) size was 5.3 and majority of HH size from member family of CFUG is range between 3 to 6 family members and noted that 53.2% male and 47.8% female composition. More disabled family members were observed than baseline survey and it was noticed that 14.7% of survey HHs with disable person and 2.8% of survey population represented for disable while 13.3% and 2.6% respectively found in baseline survey for HH with disable and disable population. Most of the HH heads are generally still young to work for their livelihood and 1% (1.3%) women headed HH was found. Majority of population in survey area from member HH from CFUGs are age between 18 to 50 years old.

Most families depend on more than half of their family member income and 81% (81.3%) HH’ head are main bread winner for their family. In gender wide, 97% of bread winner are male but it was notice that 10% female member from TYK was main bread winner for their family.

Type of CF and livelihood activities

Communal woodlot is major type of CF in project target CF villages and some CFUSSGs allow individual land ownership acknowledgement which make more interest and responsible for sustainable among its member.

There are no fully livelihood supported CF activities in survey area and subsistence or livelihood support return from CF need 5 to 6 year of establishment period. It was major constraints for majority of member HH from CFUGs who need early return for subsistence or livelihood support.

It was found that those members of the management committee who attended the Hmawbi training course showed their active interest related to community forestry development.

⁵⁵ Some family are move out temporarily and some relative of family are move in.

Changes of livelihood activities on CFUG

Member HHs had some knowledge gain for oyster culture but no specific change in their livelihood activities related to oyster culture yet. Some dispute between CFUGs and prawn farmers in PYP Township and due to unclear demarcation for CF area and prawn ponds cause less opportunity for ordinary community for fishing activities due to limited access due to prevention by owners of ponds.

Experiences of HH to participate in the CF activities

CF certificate and acknowledgement of individual ownership are major driving force and stimulation of member interest to participation in CF activities. Most HHs (98.7% and 94.7% of survey HHs) participated “operation in tree plantation” and “preparation meeting for MP and Bylaw” respectively including in term of maximum frequencies of 20 times by some member HHs. Compare to above two activities, “meeting for discuss schedule of activity” was less participation of HHs (82.3%) with maximum frequency of 10 times involvement by 8.3% of member HHs.

Participation on training and workshop organize/support by JICA, member earn for allowance as compensate for lost of time from their normal IG routing. Member' own contribution for remaining activities are major challenges for them to adjust with individual IG activities because majority of member family in CFUG are poor and vulnerable.

Tangible positive effects of CF activities on the HH's livelihoods

CF activities were not much support member HHs livelihood. If HHs are not repeatedly count for separate activities, only 27% (26.7%) of member HHs are engage and earn from selling products like timber wood, fuel wood, fruit, NTFP, nipa-thatch and others received from CF to support their family livelihoods with amount range between 5000 Kyat to 300000 Kyat per year for individual HHs but only 1.3% of member HHs earn maximum amount. Among products from CF, selling fruit and others are earned for maximum 6.7% of member HHs from project target CF villages. Out of project target CF villages, member HHs from GAD never engages and earn from selling product from CF.

Intangible positive effects of CF activities on the HH's livelihoods

Majority of member HHs (82.7%) believes that planting trees can fix the boundary of their land holdings and only 38.7% and 20% of member HHs respectively mentioned that increase production of fodder for domestic use and soil conservation and mitigation of erosion also benefit from planting trees.

Knowledge gain for crab farming, oyster culture, livestock breeding, agriculture, forestry and disaster preparedness as well as extend the network and receiving market information are positive effects of CF activities and but it not much seen as significant result yet.

In addition to that, acknowledgement of individual land ownership drive member HHs to improve their livelihood through agro-farming practice even limited resource.

Negative effects of CF activities on the HH's livelihoods

There are some limitations for member HHs livelihood when they participate in CF activities like attending training and meeting. With nature of delta some time, member HHs miss opportunity of spring tide fishing by participating on CF activities. It was learn that contribution of CF activities by some poor family member HHs in project target CF villages cause negative effect especially for survival of family livelihoods.

HH participation in IG activities with tangible and intangible positive effects

Project included for “market visit” but significant ratio of member HHs (90.7%) from project target CF villages never participate even some of member HHs expressed for benefit of market information. More member HHs participation was found on group meeting for discussion and selection of the type of IG due to project driven but sharing technical information of IG activities was significant low compare to selection of IG type in term of member HHs and frequency of individual HH participation.

One of the project activities of oyster culture was introduce to member families but only less than half of it participants engage to earning stage. Lack of market access and limited resource lead less interest among member HHs from project target CF villages.

Most people (70.7% of project target CF villages) feel that experience of positive change in their livelihood after joining the income generation activities supported by project. Most intangible positive effects is knowledge improvement.

Negative effects of income generation activities on the HH's livelihoods

Few HHs (9.3%) experience of negative effect in their livelihood after joining the income generation activities supported by project and it was mostly for time sharing between CF activity and daily livelihood activities.

Reponses from CFUG member for CF development

Majority of CFUG members are concern for 1) weakness in protection their CF from illegal cutting, 2) difficult to share their working time for CF and 3) less understanding and contribution in meeting due to their education status. In addition to that they seek for more livelihood and technical support activities for project as well as legal support from FD to protect their CF.

All six villages said that they had already attended the workshop 5 times given by JICA/Forest Department but they would like to attend the trainings related to CF extension and awareness rising, IGA, forest management, user group management and leadership development.

Limitation for CF development

There are several reasons for limitation of CF development. Weakness in protection for CF and time sharing for CF activities from daily livelihood of poor member HHs

are major concern among CFUGs. Project arranges for many IG activities but lack of market link livelihood options and more technical support are not fully support for HH' livelihood improvement.

Technical capacity among the MC members of CFUG

All MCs overall understanding related to technical capacity found active and above average. But the understanding on specific topic seems lack of interest by MC from some of the village. Technical capacity among the members from MC of CFUG in all villages has above the 3rd level rating. It was noted that technical capacity of MC from TGT & NTP stood above the average for all five area.

Core capacity among the MC members of CFUG

All MCs overall understanding related to core capacity found active and above average. It was noted that, MC from all six villages don't have new and/or creative idea related to CF upgrade or improvement except MC from some village encourage the training for young CFUG member for their CF sustainable. Core capacity among the members from MC of CFUG in all villages has above the 3rd level rating. It was noted that core capacity of MC from TGT & NTP stood above the average for four out of five assess area.

Awareness and understanding

A fundamental part of CF formation is imparting an understanding of the basic concepts, roles and responsibilities, across the village, FUG members and committee members. However, as we cannot know exactly the extent of awareness and understanding at the time of formation, we cannot really assess this effectively and have decided not to speculate here. Rather we consider later the current levels of awareness and understanding and their implications for sustainability of FUGs.

Sustainability of CF

The success of CF programme depends largely upon effective people's participation at various stages of their implementation, Effective participation not only requires strong motivation and dedication, but also requires sufficient skills and knowledge. Therefore, trainings and supports should be designed to instilling knowledge, developing appropriate skills as well as inducing behaviour changes.

All MCs agreed that encouraging the young member is importance for sustainability of CF but without subsistence or livelihood support, less member interest for sustainability.

Project initiated IG activities to support member HH's livelihoods are impresses by member of CFUGs but not much significant ratio represented for member HH who benefit on quick return. There are possibilities of market potential agro-forestry and mangrove friendly crab farming in project target CF villages and project activities are mostly on technical support for such potential, but majority of member HH are desperately need for initial start up capital and market access. It clearly noticed that livelihood of member HH and sustainability of CF are correlated and without

sustainable livelihood support for member HHs by many mean, less possibility for sustainability for CF.

Illegal extraction of forest products has been taking place in about two thirds of the inspected CFs and non-CFUGs members are usually responsible for such illegal activities. Full support from FD and local authorities are required for protection for such action.

With nature of delta, water shortage in dry season may cause plant survival rate in CF during dry season and potential technical support for dry season plant treatment may increase sustainability of CF.

7.2 Recommendation

Following recommendations have been made on the basis of the findings mentioned above:-

- For active forest management, different need based training should be designed and delivered to the user groups to meet the required skills and knowledge.
- Trainings related to CF extension and awareness rising, IG activities, forest management, user group management and leadership development, woman in CF management, entrepreneurship development, forest product utilization and marketing, medicinal plant in CF, record keeping and accounting, institutional development, CF motivation and establishment, orientation of forest rules and regulation, forest based cottage, conflict mitigation, alternative skill, etc should be designed and delivered to the CFUGs for active CF management
- For active CFUGs, training should be focused on IG Activities, CFUG management, leadership development should be focused to moderate CFUGs and CF awareness, motivation, establishing process, rules and regulations also to be focused to passive CFUGs.
- Before delivering any particular training, the actual need, interest, and problems of users should be identified. Then, training should be designed and delivered accordingly.
- CF management training should be conducted phase wise to all members of CFUGs.
- The CFs in LPT area are very promising for future due to individual ownership as well as all member from CFUGs involved in fishery sector if project can give the support related to IG activities such as crab farming and micro credit especially for women by means of establishing the self help group.
- To carry out follow up of the training is highly recommended which encourage the training participants to share and apply the learnt skills and knowledge after the training.

- In particular to IG activities, program focus on agro-forestry and mangrove friendly crab-farming (at least crab fattening in initial stage) with acknowledgement of individual ownership and/or small separate group participation.
- In particular to IG activities and livelihood support, program focus to market initiate (market base) approach which can sustain even program stops for support in future.
- Legal and technical assistance from FD to protect CF from illegal cutting and plants protection in dry season.

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“Household Questionnaire for CF Member”

Name of interviewee	
Relation with HH header	
Village (i) (1 to 6)	
Village tract	
Township	
District	

i	
---	--

Name of interviewer			
Date		Time	

I. Basic Information of Household

1 Name of HH head:

2 Age of HH head 1. < 18 2. > 18

3 Sex of HH head 1. Male 2. Female

4 Ethnicity of HH

1 Myanmar	2 Kayin	3 Mon	4 Shan	5 Kayah	6 Other
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5 Level of education (for HH'head)

1 Illiterate	2 Monastery	3 Primary School	5 Middle school	6 High School
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6 Number of family member

6.1	Male	
6.2	Femal	

7 Men or women dominant (ratio) in family 1. Male 2. Female

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"Household Questionnaire for CF Member"

8	Age group of family member in HH				
		7.1	< 4		
		7.2	5-17		
		7.3	18 - 50		
		7.4	> 50		
9	Are disable family exist in your HH?	1. Yes	2. No	9	
9.1	If yes, Number of disable family member			9.1	
10	Number of family member who currently earning cash/in kind in HH			10	
10.1	% of family member who currently earning cash/in kind in HH			10.1	
11	Main bread winner in family	1. HH head	2. Family member	11	
11.1	Main bread winner in family	1. Male	2. Female	11.1	

II Experiences of HH to participate in the CF activities

12a. In 2011 and 2012, what kind of activities of CF have you participated? Please check the appropriate activity as below.					12b. If yes, how many times do you participate?	
12.1	Meeting to prepare Management Plan & Bylaw	1. Yes	2. No	Q12.1a	Q12.1b	
12.2	Meeting to discuss schedule of the activity,	1. Yes	2. No	Q12.2a	Q12.2b	
12.3	Operations for CF plantation such as land preparation, transportation of seedlings, planting, tending, pruning/thinning, harvesting, monitoring	1. Yes	2. No	Q12.3a	Q12.3b	

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“Household Questionnaire for CF Member”

III Tangible positive effects of CF activities on the HH's livelihoods

13 Did you sell the products which were produced in the CF activity such as fuel/timber woods, fruits and NTFPs in 2001 and 2012?

Sr.	a. Did you sell the products which were produced in the CF activity?			If yes in Q13a, please answer in details below:-					
				b. Frequency per year		c. One time sold amount (K)		d. Total amount/Profit in one year (K)	
1	Timber wood	1.Yes 2. No	Q13a-1	Q13b-1		Q13c-1		Q13d-1	
2	Fuel wood	1.Yes 2. No	Q13a-2	Q13b-2		Q13c-2		Q13d-2	
3	Fruit	1.Yes 2. No	Q13a-3	Q13b-3		Q13c-3		Q13d-3	
4	NTFP	1.Yes 2. No	Q13a-4	Q13b-4		Q13c-4		Q13d-4	
5	Nipa -thatch	1.Yes 2. No	Q13a-5	Q13b-5		Q13c-5		Q13d-5	
6	Other	1.Yes 2. No	Q13a-6	Q13b-6		Q13c-6		Q13d-6	

IV Intangible positive effects of CF activities on the HH's livelihoods

Q14 Do you have any experience of positive changes of livelihood in association with planting trees? (Not related to selling the timber/non-timber products)

	a. Do you have any experience of positive changes of livelihood in association with planting trees?			b. If yes, please mentioned the type of trees		
1	Increasing production of fodder for domestic uses	1. Yes 2. No	Q14a-1		Q14b-1	
2	Soil conservation and mitigation of erosion of homestead, farmland and grazing land,	1. Yes 2. No	Q14a-2		Q14b-2	
3	Fixing of boundary of land holdings,	1. Yes 2. No	Q14a-3		Q14b-3	

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“Household Questionnaire for CF Member”

Q15a Apart from planting trees, did you experience any positive changes of your livelihood when you participated in the CF activities?

Q15a-1	More opportunity for better livelihood	1. Yes	2. No	Q15a-1	<input type="checkbox"/>
Q15a-2	More information for better livelihood	1. Yes	2. No	Q15a-2	<input type="checkbox"/>

Q15b If yes, please give details of your experience?

.....

.....

V Negative effects of CF activities on the HH's livelihoods

Q16a Did you experience any negative effects of CF activities on your livelihoods?

Q16a-1	times and opportunities for other livelihood activities were seriously limited because of CF activities	1. Yes	2. No	Q15a-1	<input type="checkbox"/>
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Q16b If yes, please give details of your experience?

.....

.....

VI Experiences of HH to participate in the income generation activities

Q17 What kind of activities of income generation did you take part in during 2011 and 2012? Select those from among the followings:

a. What kind of activities of income generation did you take part in during 2011 and 2012?				b. If yes, please mentioned the frequency of participation?	
1	Oyster culture	1. Yes	2. No	Q17a-1	Q17b-1
2	Market visit	1. Yes	2. No	Q17a-2	Q17b-2
3	Sharing of the technical information of come income generation activities such as crab culture, planting fruit trees, etc.	1. Yes	2. No	Q17a-3	Q17b-3
4	Meeting of the groups to discuss and decide types of income generating activities,	1. Yes	2. No	Q17a-4	Q17b-4

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The Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta

“Household Questionnaire for CF Member”

VII Tangible positive effects of income generation activities on the HH's livelihoods

Q18 Did you sell the Oyster which was produced as the livelihood improvement activity? (This question is asked only to the HH who participated in Oyster culture, Q17a-1)

Sr.	a. Did you sell the Oyster which was produced as the livelihood improvement activity?	If yes in Q13a, please answer in details below:-							
				b. Frequency per year		c. One time sold amount (K)		d. Total amount/Profit in one year (K)	
1	Oyster	1.Yes 2. No	Q18a-1	Q18b-1		Q18c-1		Q18d-1	

VIII Positive intangible effects of income generation activities on the HH's livelihoods

Q19a Did you experience any positive changes in your livelihood after joining the income generating activities supported by the Project?

1. Yes	2. No
--------	-------

Q19a-1

Q19b If yes, please give details of your experience?

.....

.....

IX Negative effects of income generation activities on the HH's livelihoods

Q20a Did you experience any negative effects of income generation activities on your livelihoods?

1. Yes	2. No
--------	-------

Q20a-1

Q20b If yes, please give details of your experience?

.....

.....

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“Management Committee of CFUSG”

		Sr.	
Name of interviewee			
Position in MC			
Village (A) (1 to 6)			A
Village tract			
Township			
District			

Name of interviewer			
Date		Time	

I Type of CF and Livelihood Activities

1 Please state the type of CF in your village?

1. Communal woodlot 2. Private plantation 3. Forest conservation 4. Other (please specify:.....)

2 Please state the livelihood activities conduct in the village during 2009 to 2012 under the support of the Project? (please select from the box)

1. Training 2. Workshop 3. Group meeting 4. Field visit 5. Planting trees 6. Maintenance of trees 7. Nursery 8. Other (please specify) (Note: specify detail type of activity in below table. E.g. Training for maintenance)
--

Year	Sr.	Activities	Number	Code
2009	1			
	2			
	3			
	4			

Report of the Impact Survey and the Capacity Assessment of the CFUGs

Appendix - 2

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“Management Committee of CFUSG”

Year	Sr.	Activities	Number	Code
	5			
	6			
	7			
	8			
2010	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
2011	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
2012	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			

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“Management Committee of CFUSG”

II Role of Management Committee

3 Please state what kind of roles the management committee played in conducting CF and the livelihood activities.

Sr.	Roles	Sr.	Roles
1		5	
2		6	
3		7	
4		8	

III Changes of livelihood activity to the CFUSG

4 Please state any positive/negative changes observed in the CFUSG after starting CF and the livelihood activity.

Positive Change	
1	
2	
3	
4	
5	
6	

Code

Negative Change	
1	
2	
3	
4	
5	
6	

Code

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“Management Committee of CFUSG”

5 Please state any positive/negative changes in the CFUSG as well as in the whole community which you did not expect after starting CF and the livelihood activity.

Positive Change	
1	
2	
3	
4	
5	
6	

Code

Negative Change	
1	
2	
3	
4	
5	
6	

Code

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"Technical Capacity Assessment Questions"

1	Understanding of CF (Community Forestry) concept
	1.1 What is Community Forestry?
	1.2 What kinds of works are included in CF plantation in the mangrove area?
	1.3 What kinds of works are included in natural forest improvement operation in the mangrove area?
	1.4 What kind of benefit are you expected to get in implementing CF in the mangrove area?
	1.5 What kinds of technical/managerial issues and problems do you have to pay attention in doing CF in the mangrove area?
2	Understanding of CIF (Community Forestry Instruction)
	2.1 Do you know the CFI prepared by the Forestry Department?
	2.2 What is the Management Plan (MP) and the MP Certificate as provided in CFI ?
	2.3 What is the roles and responsibilities of CFUSG as stipulated in CFI ?
	2.4 What kinds of activities are prohibited in CFI ?
	2.5 What is regulated in harvesting and utilization of planted trees in CF plantation ?
3	Understanding of Management Plan
	3.1 What is the main contents of the Management Plan ?
	3.2 Please explain the process to prepare, implement and monitoring of the MP.
	3.3 Please explain the CF activities as planned in the MP of your CFUSG.
	3.4 Please explain the activities in the CF area in this year as planned in the MP.
	3.5 Please explain the rules and the process to harvest and utilize the trees planted in the CF area
4	Understanding of Bylaw
	4.1 What is the main contents of the Bylaw ?
	4.2 Please explain the roles of MC as provided in the Bylaw.
	4.3 Please explain the bans and prohibitions stipulated in the Bylaw.
	4.4 Please give your idea how to utilize the Bylaw in implementing the CF activities
	4.5 Please explain the process to renew the Bylaw and approve it
5	Understanding on Roles and Responsibilities of MC
	5.1 Please explain the current members of your MC (numbers, sex ratio, etc).
	5.2 Please explain the process to register new member of CFUSG and expel members
	5.3 What kinds of activities did you conduct as a member of MC?
	5.4 Please explain the role and responsibilities of the Forest Department in supporting CF activity
	5.5 Please explain the process to address the problems rising during the CF activities.

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“Core Capacity Assessment Questions”

<p>1.Capacity to implement the activities in accordance with the plan</p>
<p>Key question: Did the MC lead the CFUSG in implement the CF activities in accordance with the MP ?</p> <p>Sub-questions: 1.1 What kind of activities did MC implement during the Project period ? 1.2 Were those activities implemented without big changes compared to the MP ?</p>
<p>2. Capacity to carry out the duties of MC</p>
<p>Key question: Did the MC play enough of its role during the implementation of CF?</p> <p>Sub-question 2.1 As a leader of CFUSG, what is the role and responsibilities of MC? 2.2 Did each member of MC play enough to perform his/her duties?</p>
<p>3. Capacity to respond issues/problems</p>
<p>Key question: Did the MC play enough of its role in addressing the problems and troubles during the implementation of CF?</p> <p>Sub-question: 3.1 Did any serious problems occur during the implementation of CF? 3.2 If some problems happened, did MC address them enough so that CFUSG could continue their activities as usual?</p>
<p>4. Capacity to introduce new/creative ideas</p>
<p>Key question: Did the MC try to be flexible to introduce and practice some new/additional ideas to address and solve the issues/problems or to upgrade the activities?</p> <p>Sub-question: If you have an experience and lesson learnt from introducing new/additional ideas into CF activities, please explain and discuss with the members on them</p>
<p>5.Capacity of coordination and cooperation</p>
<p>Key question: Did the MC build a good relationship with the Forestry Department (FD) and other relevant organization?</p> <p>Sub-question: If you have an experience and lesson learnt from coordination and cooperation with the FD and other agencies, Please explain and discuss with the MC members on them.</p>

**添付 15: デルタ・マングローブ CF 標準
作業手順書 (CF-SOP)
(全容 CD 収納)**

**The Integrated Mangrove Rehabilitation and
Management Project through Community
Participation in the Ayeyawady Delta**

**CF
STANDARDISED OPERATION PROCEDURES
(CF-SOP)
for
DELTA MANGROVE AREA**

February 2013

Preface

This Community Forestry Standardised Operational Procedure (CF-SOP) was prepared by the Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta (so called “JICA/FD Mangrove Project”). The project personnel from the Forest Department and the JICA Expert Team compiled this CF-SOP based on findings as well as lessons learnt from the implementation of project activities.

The CF-SOP is intended for field level Forest Department officers/staff in the delta mangrove area to guide and supervise communities at various stages of Community Forestry activities.

The Project expects that the CF-SOP to be utilised regularly by the concerned officers/staff within the Forest Department.

February 2013

Dr. Nyi Nyi Kyaw
Director General/ Project Director
Forest Department
Ministry of Environmental Conservation and
Forestry

Tomohiro SHIBAYAMA
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Acknowledgement:

The JICA/FD Mangrove Project would like to express sincere gratitude to representatives from various organisations and agencies that have directly or indirectly provided feedbacks and comments to series of draft CF-SOP.

In the process of preparation, a significant reference was made to “Guideline on Community Forestry Establishment for Rural Communities (Draft)” (2003), Instructions on the establishment of Community Forests for Supervisors” (2004), and “Community Forestry Establishment Guidelines for Extension Staff” (2007) prepared by U Mying Aung, (then principal of Central Forestry Development Training Centre). We have also drawn some materials from publications prepared under JICA funded COMFORT project.

Without the interaction with various organisations/ agencies / projects, this CF-SOP was not possible to be completed.

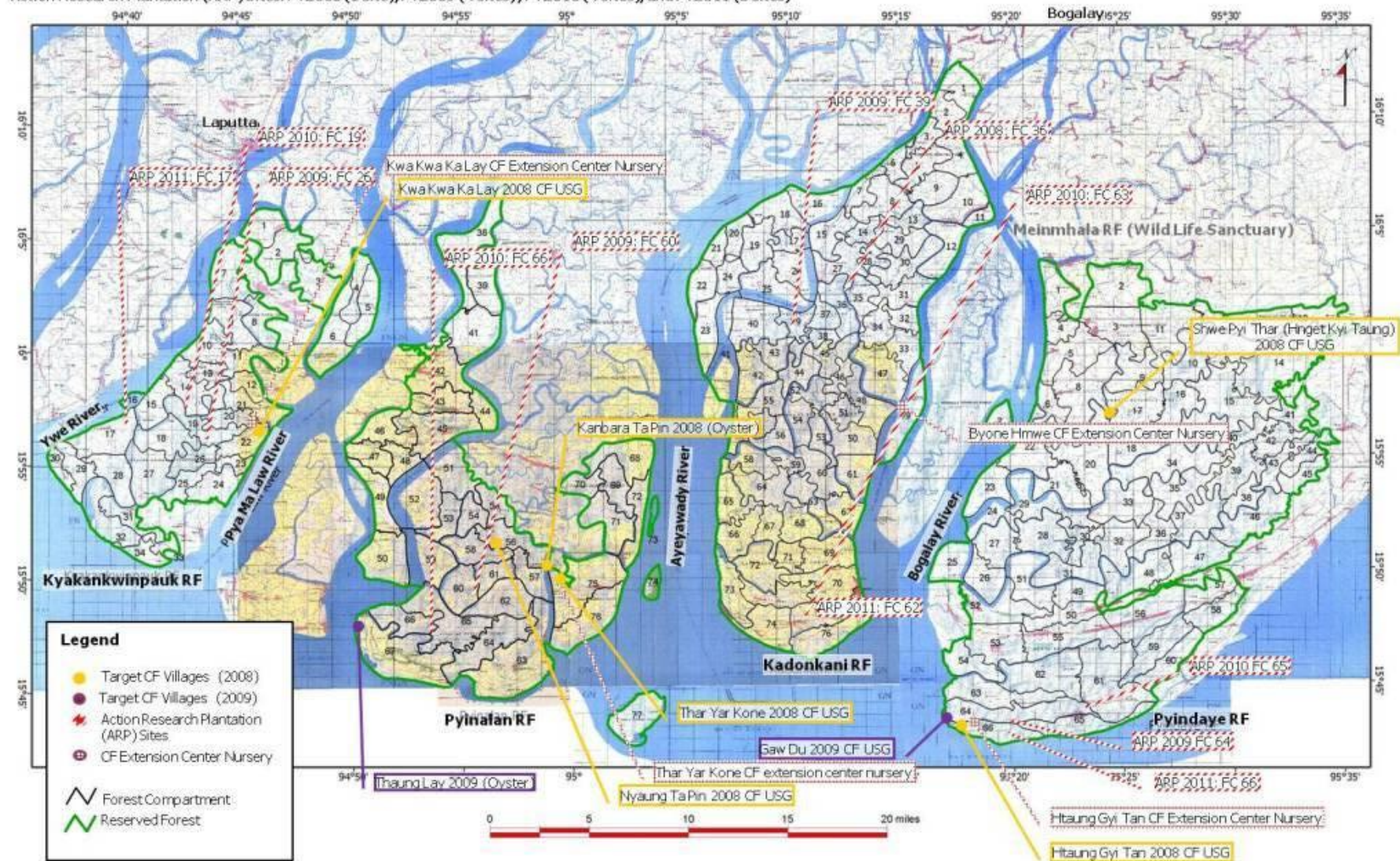
Location Map of the Project Activities (September 2012)

Target Reserved Forest (Four RFs)

Target CF User Groups 2008 (yellow) and 2009 CF villages are in purple color, Target Oyster Trial Village (2 villages)

CF Extension Centre Nurseries (4 sites)

Action Research Plantation (ARP) Sites: FY2008 (1 site), FY2009 (4 sites), FY2010 (4 sites), and FY2011 (3 sites)



**THE INTEGRATED MANGROVE REHABILITATION AND MANAGEMENT
PROJECT THROUGH COMMUNITY PARTICIPATION IN THE AYEYAWADY
DELTA**

CF STANDARDISED OPERATION PROCEDURES

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List of Acronyms

CF	Community Forestry
CFDTC	Central Forestry Development Training centre
CFI	Community Forestry Instruction 1995
CFMP	Community Forestry Management Plan
CFUG	Community Forestry Users' Group
COMFORT	Community Forestry Training and Extension Project in Dry Zone
DFO	District Forest Officer
DMA	Delta Mangrove Area
FD	Forest Department
JET	Japanese Expert Team
JICA	Japan International Cooperation Agency
MC	Management Committee of Community Forestry Users' Group
NTFP	Non Timber Forest Produces
PRA	Participatory Rural Appraisal
RF	Reserve Forest
SOP	Standard Operation Procedure
TFO	Township Forest Officer
UG	Community Forestry Users' Group
UNCED	United Nations Conference for Environment and Development

Project Acronyms

IMMP Study	The Integrated Mangrove Management through Community Participation in the Ayeyawady Delta in the Union of Myanmar
JICA/ FD Mangrove Project	The Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta

Chapter 1

Chapter 1

Introduction

1.1 Mangrove Forest in Delta Area

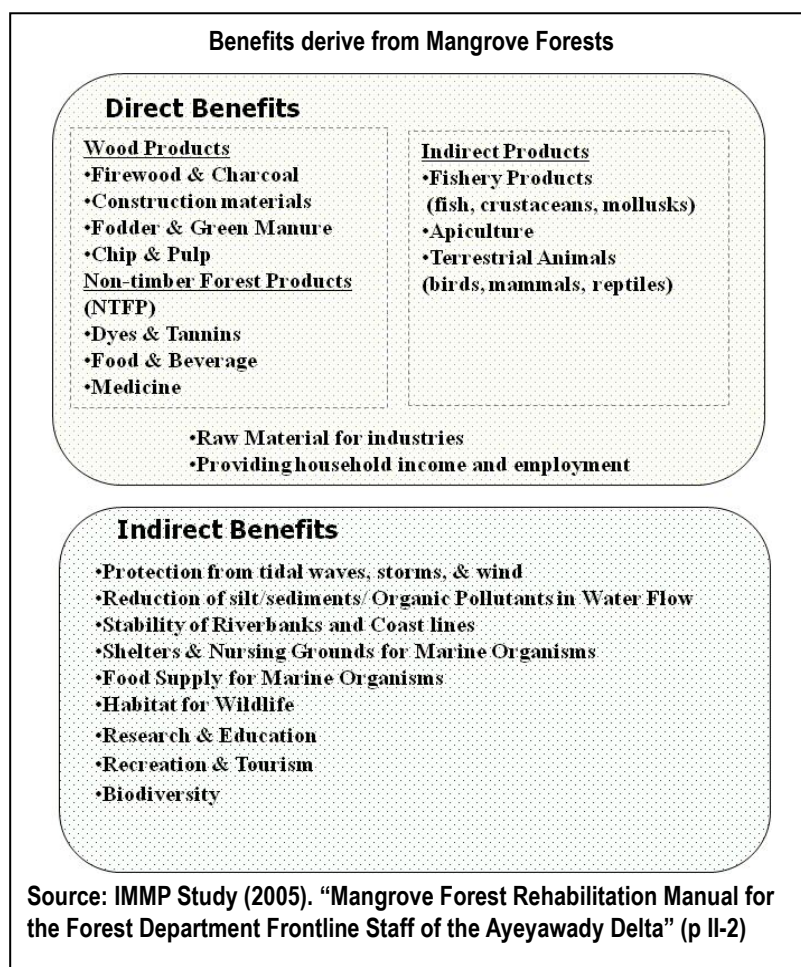
1.1.1 Status and Trends

Myanmar is blessed with a forest coverage of 31.77 million ha or 46.96% of the total area (Forestry in Myanmar, 2011¹) and mangrove forest accounts for 467,330 ha or 1.47% of the total forest coverage of Myanmar (ibid). In the Delta Region, the mangrove coverage was reported to be 90,386 ha in 2003 (IMMP Study, 2005)².

Trajectory of degradation of Mangrove Delta probably could have started in 1869 when the opening of the Suez Canal made the bulk export of rice possible from South East Asia. The colonial government promoted paddy cultivation in Delta. The marshy land was gradually converted to paddy field by draining the water.

Later in history, especially between late 1940s and early 1970s, the resources in the Mangrove area in Delta Region was exploited even

further (Nay Win Oo, 2004³). The settlement, establishment of embankments for aqua



¹ Data source: FRA (2010).

² The Integrated Mangrove Management Through Community Participation in the Ayeyawady Delta in the Union of Myanmar (IMMP Study) Final Report, Main Text Vol II.

³ Oo, Nay Win (2004). Changes in Habitat Conditions and Conservation of Mangrove Ecosystem in Myanmar: A Case Study of Pyindaye forest Reserve, Ayeyarwady Delta. Status

culture and salt production, and overharvesting of fuel woods for charcoal production were the rampant causes of degradation in Delta.

The mangrove forest in Delta still continues to be the rich source of fuel wood and various NTFPs including traditional herbal medicines, housing materials and food. Further, the increasing number of people came to realize the critical importance of mangrove forest for disaster prevention along the coastal area of Myanmar. Unfortunately, the causes of degradation as in the past still persist and the trend of degradation does not seem to change.

1.1.2 Challenges in Mangrove Forest Management in Delta

Among the above mentioned causes of degradation of the mangrove forest in Delta, the most detrimental ones are “encroachment” and exploitation of fuel woods.

1) Settlement and Population Pressure

The settlement in Delta started during the colonial period when the British Colonial Government promoted paddy cultivation for export. A large number of people migrated from the northern area of Myanmar during that time. Their customary land ownership exists.

The inflow of people from other region of the country to Delta continued in search of employment opportunities and, thus, the population had grown. The settlement area itself had to expand as there was a need to establish communal facilities for the increased number of settlers. They require more land for production and needed to open land for cultivation to feed themselves and to earn livelihoods. The demands for fuel wood also increased as the population grew, which led them to cut more trees. Not only the forest resources but also the aquatic resources they had to harvest without consideration of natural regeneration to earn their income. As the yield decreased, villagers started to collect smaller size fish and crab. This has negatively impacted on

Threats to Mangrove Forest in Delta - what is happening in the field?

Changing socio-ecological environment

- Conversion of mangrove forest into paddy land
- Opening the land to establish pond for fish and prawn culture
- Establishment of the settlement areas and social infrastructure in RFs
- Overharvesting/ Illegal cutting of fuel woods

Source: JET-JICA/FD Mangrove Project (2012)

Report for MAB Young Scientist Award 2004.

(http://www.unesco.org/mab/doc/mys/2004/NWO_StatusReport.pdf. Accessed on 23rd November 2012.)

the natural reproduction/ regeneration of fish and crab. As a consequence, the yield further decreased. The unfortunate fact is that the forest users' community itself has caused the damage to the mangrove forest resources and its surrounding eco system, the very eco-system services that they depend on.

2) Establishment of Embankment

Another commonly observed threat to the mangrove area is establishment of embankment. It has been established mainly by the non-residents of the Reserve Forests (RFs) for producing fish and prawn. Although it is prohibited under the Forest Law, the number of such establishment is increasing in the recent years. It has been negatively impacting on eco-system in Delta and may also pose a threat to the implementation of CF, especially when selecting a CF area.

3) Exploitation of Fuel woods

Exploitation of fuel woods has been caused by overharvesting by the forest users in the surrounding area and by illegal felling by the non-residents. In both cases, the harvested fuel woods will largely be used to produce charcoal, which would be supplied to urban areas. The demand for fuel wood is likely to increase as the population of the urban areas grows (Htun, 2009⁴). The threat to the forest resources in Delta is likely to continue unless an alternative energy source is introduced.

Lessons Learned in DMA (1):

Allocating Land for CF

In DMA, the actual land use varies from what is officially recognized. During the implementation of the field activities, encroachment by the pond established for prawn culture or by paddy field was frequently observed in DMA. In some cases, such interference was encountered within the area where CF was proposed. As the sustainability of the CF is partly affected by the location and quality of the land on which CF area is established, keeping the CF areas free from encroachment is critical.

Source: JET-JICA/ FD Mangrove Project (2012)

⁴ Khin Htun (2009). "Myanmar Forestry Outlook Study. Asia – Pacific Forestry Sector Outlook Study II: Working Paper Series" (No. APFSOS II/ WP/ 2009/ 07). FAO; Bangkok.

1.2 Community Forestry (CF) in Delta Mangrove Area (DMA)

1.2.1 CF - An Overview

The Forest Department (FD) of Myanmar has issued Community Forestry Instructions (CFI) in 1995 in order to institutionalise community participation in forest management in Myanmar.

Community Forestry Instruction
Community Forestry is defined as ...
“Forestry operations in which the local community itself is involved”
“Neither a regional development forestry operations nor a large scale forest operations to import an industrial enterprise based on forest products.”
Source: CFI, 1995; p1

As we have also seen in the above, the degradation of forest in Delta Mangrove Area (DMA) has been caused by the people who depend on it for their livelihoods. The reason behind such exploitation is the perception of the forest users towards forest and forest resource. The forest users often perceive forest as a common property and thus everyone can use, while its management is not recognised as their responsibility. This is a common trap of the management of “common property resources”. When the individual ownership is not clear, one is less likely to recognise the responsibility to manage it. Thus, a realisation to involve forest users as a partner in forest management has emerged.

CF is a mechanism that allows sharing of responsibility of forest management between FD and the community. The process will involve 4 stages that constitute a cycle: 1) sensitisation of the community towards issues surrounding current usage of forest resources and forest management, 2) preparation of management plan, 3) implementation of management activities, and 4) harvesting.

1.2.2 Status of CF in DMA

Since the issuance of the CFI in 1995, FD has made an effort to establish CF in DMA. FD reported that 134 CF Users Groups (CFUG) with 7,466.25 acre or 3,023.83 ha⁵ have been established in the Region as of 31st of October 2012. That accounts for 6.5 % of the CF areas in Myanmar.

⁵ 1 acre = 0.405 ha

Status of CF in Myanmar and Delta Region (March 2012)

	Number of CFUSGs	CF
National	715	114,843.09 acres (46,511.42 ha)
Ayeyawady Region	134	7,466.25 acres (3,023.83 ha)

Source: FD (2012)

1.2.3 JICA Supported Projects Implemented in DMA

In contribution to the effort of FD to extend CF in delta region, JICA has supported two projects since 2003: The study on Integrated Mangrove Management Through Community Participation in the Ayeyawady Delta in the Union of Myanmar (IMMP Study; 2002 – 2005) and the Integrated Mangrove Rehabilitation and Management Project Through Community Participation in the Ayeyawady Delta in Myanmar (JICA/ FD Mangrove Project; 2006- to be completed in March 2013).

The IMMP Study covered 5 RFs in the Ayeyawady Region. Based on the findings from the IMMP Study, the succeeding project, JICA/ FD Mangrove Project was formulated as a technical cooperation project. A team of Japanese experts (JET) was constituted to support FD in extending CF in 4 RFs in Delta. The summary of the project area selected for JICA/ FD Mangrove Project is given below.

RFs and Villages covered under the IMMP Study and JICA/ FD Mangrove Project

Region	District	Township	Reserve Forest covered	Remarks
Ayeyawady	Laputta	Laputta	Kyakankwinpauk RF	IMMP Study/ JICA/ FD Mangrove Project
			Pyinalan RF	
	Pyar Pon	Bogalay	Kadonkani RF	
			Pyindaye RF (South)	
			Meinmahla	IMMP Study only. (Designed as Wildlife Sanctuary. No CF certified areas and no existing settlement.)
	Pyar Pon	Pyindaye RF (North)	IMMP Study/ JICA/ FD Mangrove Project	

Source: Compiled from the Final Report Main Text Vol. II. (IMMP Study, 2005)

1.3 CF Standardised Operation Procedure (SOP) for DMA

1.3.1 A Need of CF SOP for DMA

While implementing JICA/ FD Mangrove Project, the project has made reference to relevant policy and legal documents such as Forest Law 1992, Forest Rule 1995, Community Forestry Instruction 1995 and Guideline for Preparation of Management issued in 2000. In addition, training materials and guidelines which were already available at the Central Forestry

Some of the Challenges observed in JICA/ FD Mangrove Project

<Implementation of Management Plan and Monitoring>

- Communication between FD and CFUSG
- Timely supply of Seedlings by FD
- Appropriate plantation technology for mangrove
- Access to the CF and CF villages for monitoring by FD staff
- Preventing Illegal felling/ inappropriate harvesting of resources from CF
- Record keeping by CFUS and FD

Source: JET-JICA/ FD Mangrove Project (2012)

Development Training Centre (CFDTC) for implementing CF and prepared by Community Forestry Training and Extension project in Dry Zone (COMFORT; 2001-2006) funded by JICA were also reviewed and incorporated into this document.

During the field operation, we also have come across various lessons in applying the CF procedures which derive from the socio-ecological and geographical characteristics of the coastal communities in the project areas located in 4 RFs in DMA. Thus, the idea to develop SOP for DMA was conceived to contribute to further advancement of CF in DMA.

1.3.2 Defining DMA

This SOP is designed to be adopted for CF in DMA covered under the JICA/ FD Mangrove Projects. That includes 4 RFs of Kyakankwinpauk, Pyinalan, Kadonkani, and Pynaye RFs. These RFs were notified in early 1900s. Since then, these areas were protected under the Forest Law and controlled by FD. However, the reality did not permit the law enforcement that excludes the settlers who came to the area in search of livelihoods. According to the IMMP Study Final Report (Main Text Vol. II, 2005), 60% of the 359 villages surveyed in the 5 RFs started settling in the RF areas after 1949. Their livelihood depends on the resources from the mangrove forest and its surrounding water body for aquatic resources. To date, the population of these settlement areas continues to grow and thus the settlement areas, which caused further degradation of the mangrove forest. In addition, large scale development for aquaculture by clearing the forest and establishing embankment is also observed in the area.

1.3.3 Structure of SOP: Reflecting on Lessons Learned from JICA Assisted Mangrove Projects in DMA

This document has been designed for the frontline FD staff who will implement CF activities with the community. Detailed description of the procedures to be carried out by FD frontline staff while implementing CF is given in the following chapters. Explanations of the underlying concepts of community forestry and relevant policy and legal framework, that give justification and foundation to CF, are given in Chapter 2. The remaining chapters of the SOP is organised as the steps to be carried out in the field. We have categorised those steps into three stages of Preparation (Chapter 3), Planning (Chapter 4) and Implementation (Chapter 5). In each stage, we have incorporated cases and lessons learned from the IMMP Study and JICA/ FD Mangrove Project implemented in DMA. Further reference materials for CF implementation and field extension activities are attached in Annexure.

Chapter 2

Chapter 2

An Overview of the CF Process and Approach for DMA

2.1 The Context

2.1.1 Policy and Legal Framework for CF in Myanmar

Since the beginning of Forestry in Myanmar in 1880s, its policy was geared towards forest management for timber production. The turning point was the 1992 UN Conference for Environment and Development (UNCED), in which the participating countries agreed to move toward sustainable development (Tint and others, 2011¹).

In 1992 Forest Law, we see the changes in the discourse of forest management in Myanmar. The law allowed the establishment of a village woodlot, where villagers will have a greater control over the resources, derive from it. The 1995 Forest Policy also clearly manifested: 1) sustainable development of forest; 2) meeting forest users' basic needs; and 3) increasing non-farm incomes to reduce dependency towards forest resources and thus to prevent further degradation.

In 1995, Community Forestry Instruction (CFI) was also issued to define and to set the operational framework for Community Forestry in Myanmar. The role and responsibilities of the community were clarified. The forest users' communities are to be organised into groups as Community Forest Users' Groups (CFUGs) and officially

Forest Law 1992

Article 15

Director General allows establishment of a village-owned firewood plantation in a reserved forest or protected public forest or on the owned by government with the following rules.

- a) Firewood plantation transferred by FD as village-owned to sustain and use it after FD planted with limited period
- b) Village-owned firewood plantation planted and used by village community

Forest Rule 1995

No 42/ 43

- 1st year seedlings will be provided by the Forest Department
- Villagers will carry out all the management work in the plantation with technical assistance of the Forest Department
- For the village firewood plantation established by FD, tax will be levied from any produces to be sold
- For the firewood plantation established by the villagers, the villagers can harvest their own use free of charge as per the harvesting plan prepared by the Forest Department

¹ Tint, Kyaw; Springate-Baginski, Oliver; and Gyi, Menm Ko Ko. (2011). "Community Forestry in Myanmar: Progress & Potentials". ECCDI; Yangon.

acknowledged to work in the CF area. CFUGs will share the responsibilities of management with FD and prepare a management plan to carry out in the CF area. They will also receive a CF certificate from FD and be granted of 30 years lease of the demarcated CF area. CF activities will be carried out by the CFUG based on the CF Management Plan (CFMP) under the guidance of FD.

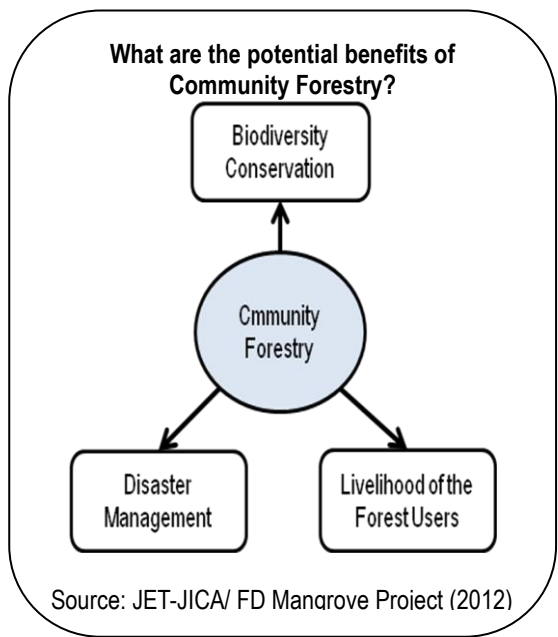
To give more detailed procedure to prepare CFMP, the CFMP Formulation Guideline was issued in 2000.

- CFI 1995**
- Involving community from identification of the site, planning of the management activities, implementation and monitoring.
 - FD will provide 1st year planting materials.
 - FD will provide technical guidance and monitoring.
 - The land will be entrusted to the Users' Group for 30 years.
 - Tax will be levied from the produces harvested from the Community Forest, if sold.
 - Community Forest Users can harvest freely from the Community Forest based on the harvesting plan in the management plan.

In 2001, a target of CF implementation in Myanmar was set in “The Forest Sector Master Plan for 2001-02 to 2030-31” (June, 2001). By 2030-31, 2,267,656 acres or 918,401 ha are to be covered under CF in Myanmar². The Community Forestry Instructions (CFI) was issued in 1995 and CF activities have been implemented since 1996. As of March 2012, the CF areas established in Myanmar accounts for 114,843 acres or 46,511 ha (FD, 2012) with 715 Users Groups (UGs) mobilising 29,597 members. The area coverage reported in 2012 is only 5% of the overall target areas to be treated under CF mode. In 2013-14, 2,152,813 acres or 871,889 ha will be the remaining areas to be covered. To achieve the target by 2030-31, approximately 119,601 acres or 48,438 ha of CF areas need to be established constantly every year in the coming 18 years starting from 2013-14 onwards.

2.1.2 Community Participation in Forest Management – Why?

By the issuance of CFI in 1995, FD has recognised CF as an alternative approach for forest management. As much as the



² 1 acre=0.405 ha

departmental forest management can, CF can also help biodiversity conservation and minimise the damage from the natural disaster, if succeeds. In addition, the livelihood of forest users could also be enhanced by involving them. They will be able to harvest the produces from CF area while maintaining the resources by carrying out management works. By doing so, the deterioration of eco-system can be prevented and thus, the resource base could be enhanced.

In the context of communities in DMA, the following benefits can be expected from successful CF: 1) prevention of further expansion of the settlement areas and inappropriate establishment of aquaculture facilities; 2) prevention of excessive harvesting of the resources in mangrove forest and its surroundings; and 3) enhanced disaster prevention function of mangrove forest. In addition to these positive impacts on mangrove forest, this brings about the positive impacts on livelihoods of the mangrove forest dependent communities by creating a sound resource base.

2.1.3 Elements of Participation – What We Need for Successful Community Participation in CF in DMA

In the IMMP Study Final Report (Main Text Vol. II, 2005), 6,967 ha or 17,202.47 acres were certified as CF area in 4 RFs of Kyakankwinpauk, Pyinalan, Kadonkani, and Pyindaye RFs in 2002. In the certified CF area, CF activities were implemented in 36% of the area and 17% were converted into paddy area.

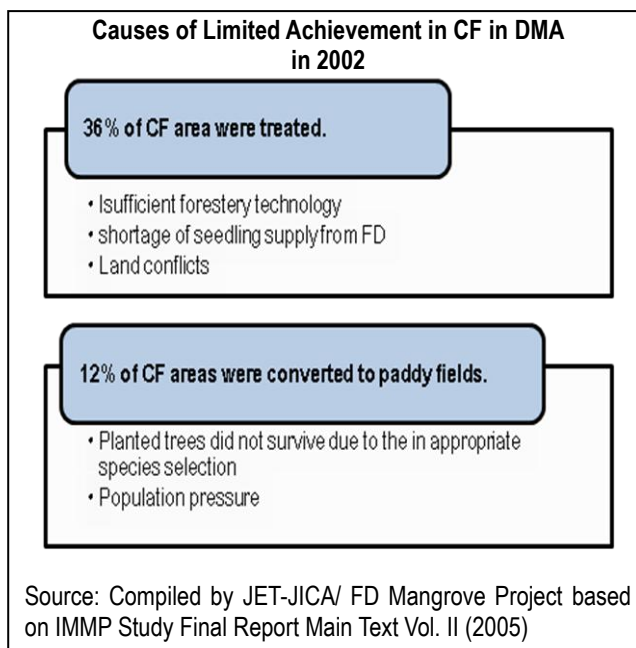
Status of CF certification and implementation (2002)

RF	Certified area		CF implemented area			CF area converted into paddy		
	Ha	(Acre)	Ha	(Acre)	%	Ha	(Acre)	%
Kyakankwinpauk	592	(1,461.73)	186	(459.26)	31%	0	(0)	0%
Pyinalan	4,128	(10,192.59)	1,770	(4,370.37)	43%	242	(597.53)	6%
Kadonkani	689	(1,701.23)	246	(607.41)	36%	146	(360.49)	21%
Pyindaye	1,558	(3,846.98)	526	(1,298.77)	34%	380	(938.27)	24%
Total	6,967	(17,202.47)	2,728	(6,735.80)		768	(1,896.30)	
Total Average					36%			17%

Source: Compiled by JET-JICA/ Mangrove Project from IMMP Study Final Report Main Text Vol. II (2005)³

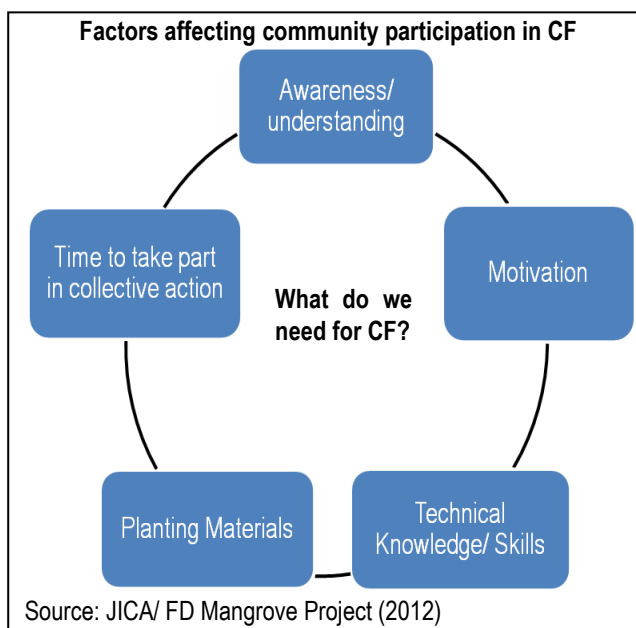
³ 1 Acre = 0.405 ha. Acreage conversion was added by JET (February, 2012).

The progress of CF has been stagnant due to the 1) insufficient forest technology, 2) shortage of planting materials; and 3) land conflict. The IMMP Study Team also observed the conversion of CF areas into paddy fields. This was caused by the low survival rate of the seedlings or population pressure.



Based on the lessons learned from the IMMP Study, five elements to ensure the successful CF implementation can be identified: 1) Awareness/ understanding; 2) motivation; 3) time; 4) materials and 5) technical skills.

In this SOP, procedures are laid out how these elements can be ensured to create a conducive environment for successful CF in DMA.



2.2 CFI 1995 – Our Guiding Principle

2.2.1 Definition of Key Terms in CFI and CFMP Formulation Guideline 2000

To be regarded as CF, procedure defined in CFI 1995 (Annex 1) and CFMP Formulation Guideline 2000 (Annex 6) are to be followed. In this section, essential terms are defined as per these documents.

Definitions of Key Terms in CF

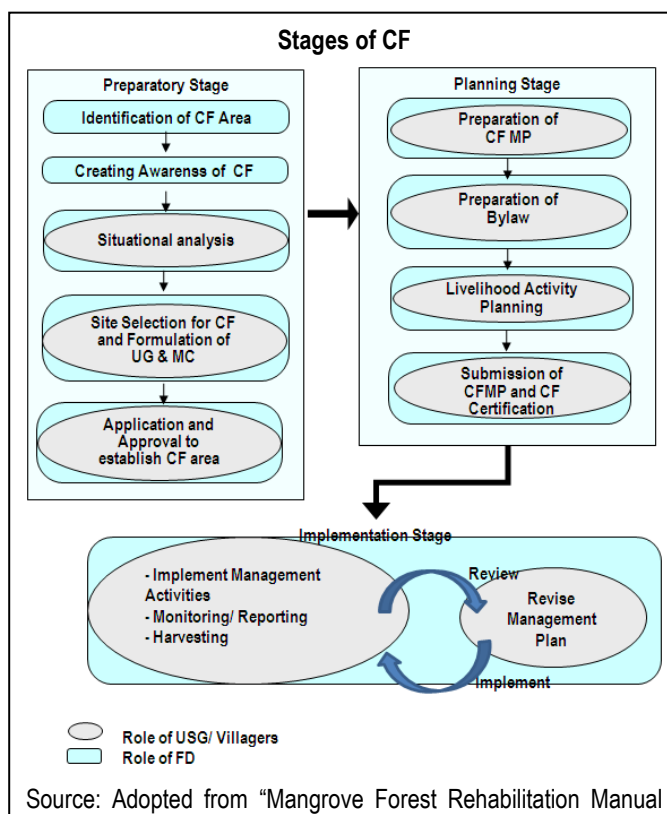
Term	Definition	Relevant CFI section
Community Forestry	Operations in which the local community itself is involves; (a) Establishment of woodlots where there is insufficient fuel wood and other products for community use (b) Planting of trees and exploiting of forest products to obtain food supplies, consumer products and incomes at farmers level” It is “neither a regional development forestry operations nor a large scale forest operations to import an industrial enterprise based on forest products”.	Section 2 – 3
Community Forest	Community Forest can be established in the following areas; (a) With the permission of the government, on reserved forest, unclassified forest, protected forest and land at the disposal of the State (b) Village owned fuel wood plantations established with the permission of the Director General of the Forest Department (c) With the permission of the owner (s) on private owned land or land owned by government organizations or non-government organizations (d) In degraded natural forests where natural regeneration is difficult (e) In areas where there is potential to meet the local demand for forest products (f) Areas suitable for the establishment of community forest and where there is need to conserve soil and water resources (g) Natural forests which for various reasons should be managed by the local community (h) Forest lands traditionally managed by the local community	Section 4-5
CFUG (CF Users' Group)	(a) A group of households who wish to establish a Community Forest.	Section 6
Duration of Land Lease	(a) 30 years of lease is granted to UG. The lease term may be extended after assessment of performance and willingness of UG by District Forest Officer.	Section 12-13
Management Plan	(a) A plan of activities for 5 years to be carried out in managing the community forest prepared by the UG under the guidance of FD staff. (b) This needs to be approved by District Forest Officer	Section 14 CF MP Formulation Guideline 2000
Certificate	(a) A certificate issued when the establishment of CF is approved by District Forest Officer.	Section 15 – 16

Source: JICA/ FD Mangrove Project (2012): Adopted from. “CF SOP for DMA (Preliminary Draft)”prepared by U Myint Aung

2.2.2 Three Stages of CF in DMA

An overview of the CF process is given in the flow chart. It comprises of three main stages of 1) Preparatory, 2) Planning and 3) Implementation.

For each stage, who bears the responsibility is indicated by the oval or rectangular shape in the flow chart. As shown, FD is involved in all aspects of CF. The role of community becomes significant once they are organised into CFUG after awareness creation. Planning and implementation of CF activities will be done by the CFUG with the guidance provided by FD.



2.2.3 Rules and Regulations for Community Forest Management

There are certain rules and regulations that guide the FD staff and UG members when carrying out the activities in CF areas. This section provides the summary of the relevant Rules and Regulations.

1) Rules and Regulations concerning activities in CF areas

CFI gives description of the activities that are not permitted or restricted in CF areas. Below table provides the summary and FD staff is required to explain this to the UG members from time to time.

Summary of Rules and Regulations concerning activities in CF areas

Activities prohibited/ regulated	Description	CFI
Prohibitions	No members of the CFUG shall engage in the following activities (a) Activities not prescribed in the CFMP (b) Apart from inheritance, selling or renting of the CF (c) Metal mining and other activities that would cause forest degradation (d) Construction of undesirable houses or sheds for the conservation of the CF (e) Apart from Agro forestry, use of land allotted for CF for gardening or shifting cultivation	Section 19
Harvesting of produces from CF	CFUG can exploit the forest products of the CF in accordance with the prescription of the M/P. However, to be systematic extraction and distinct from other forest products, CFUG must perform as follow undertaking the supervision of FD: (a) To inform to support the necessary supervision on exploiting the forest products of the CF in accordance with the prescription of the CFMP (b) To confirm the type and amount of forest products by FD (personally or to press army stamp) (c) To keep in hand or sell only after the confirmation of the FD (d) To issue vouchers for selling forest products and if required, informing about the selling to the FD through Management Committee (MC) Chairman.	Section 20
Tax for CF Forest Products	No tax shall be levied on the forest produces harvested from CF either for UG member's personal use or for the sale of such produces.	Section 21 – 22
Selling Produces from CF to outside the village	(a) CFUG can market the surplus forest products to areas outside the village. (b) For marketing of the forest products to areas outside the village, tax shall be levied by the FD at specified rates.	Section 23- 24
Transporting the produces from CF	(a) To pay tax for forest products which will carry area outside the village and township by stamping duty seal on them by FD (b) To sell the forest products extracted from the CF and confirmed by FD (c) To register and issue voucher for the forest products from the CF sold by MC (d) To issue two set of vouchers by MC, give one to buyer with the products sold to transport within the township and receive one as an office reference (e) Forest products from the CF can be transported to areas outside the village with the receipt of CFUG and areas outside the township with the removal pass in accordance with the Forest Law section 23. They must not be transported together with obtained from other sources.	Section 31 – 32

Source: JICA/ FD Mangrove Project (2012): Adopted from. “CF SOP for DMA (Preliminary Draft)” prepared by U Myint Aung

2) Encroachment

As previously discussed, expansion of the habitat and land conversion by the settlers and establishment of aquaculture facilities by the non community members have caused degradation of the mangrove forest in DMA. The activities in the RF are regulated by

the Forest Law and Rules and to be observed by the non residents in the areas as well as the settlers. The excerpts from the Forest Law and Forest Rule concerning encroachment are given in the table below. This should be explained to CFUG members as well as to the non members from time to time.

Prohibited Activities – Encroachment in RF areas

Prohibited Act	Actions to be taken	Relevant Law and Regulation
(a) Trespassing and encroaching in a reserved forest; (b) Pasturing domestic animals or permitting domestic animals to trespass in a reserved forest; (c) Breaking up any land, clearing, digging or causing damage to the original condition of the land without a permit in a reserved forest; (d) Causing damage to a water-course, poisoning the water, using chemicals or explosives in the water in a reserved forest; (e) Catching animals, hunting or fishing in a reserved forest; (f) Kindling, keeping and carrying any fire or leaving any fire burning which may set fire to the forests in a reserved forest; (g) Moving forest produce without submitting to examination at the revenue station; (h) Violating any provision of the rule, procedure, order, directive or notification issued under this Law.	Fine which may extend to kyats 5,000 or with imprisonment for a term which may extend to 6 months or with both.	Forest Law Section 40 Forest Rule 19
(a) Felling, cutting, girdling, marking, lopping, tapping or injuring by fire or otherwise any tree in a reserved forest.	Fine which may extend to kyats 20,000 or with imprisonment for a term which may extend to 2 years or with both.	Forest Law Section 42 Forest Rule 19
	According to the sub-section (g) of Forest law section 40, with fine with may extend to kyats 5,000 or with imprisonment for a term which may extend to 6 months or with both.	Forest Law Section 40 (g) Forest Law Section 105
Nobody is allowed to do these act in an unclassified forest without a permit of the DG or person whom DG gives his authority to. (a) Felling, cutting, girdling, marking, lopping, tapping or injuring by fire or otherwise any tree in a unclassified forest; (b) Trespassing (c) Pasturing the domestic animals (d) Digging or clearing the land to cultivate (e) Poisoning the water, using chemicals or hunting (f) Catching or hunting animals (g) Kindling, keeping and carrying any fire		Forest Rule 19

Source: JICA/ FD Mangrove Project (2012): Adopted from. “CF SOP for DMA (Preliminary Draft)” prepared by U Myint Aung

In preventing encroachment and deter illegal activities in CF, informing and alerting public by various mode of communication is required. CFUG members may also decide to patrol the area on a regular basis.

When a case is reported by the CFUG members, FD should facilitate the process of settling the disputes in cooperation with the village authority and other concerned Government offices.

Ways to prevent encroachment and regulate unlawful activities in CF

- (a) To set up posts, signboards, etc., along the CF boundary
- (b) To set up warning signboards
- (c) To watch and patrol (hire watchman, if required)
- (d) To inform to FD office or staff if any encroaching occurs
- (e) To report to the village/village-tract/township meetings and other occasions to prevent the encroachers explaining about their CF establishment
- (f) To distribute IEC materials related to CF to wider public

Source: JICA/ FD Mangrove Project (2012): Adopted from. "CF SOP for DMA (Preliminary Draft)" prepared by U Myint Aung.

**Lessons Learned from DMA (2):
A Need for Appropriate Land Use Policy and Law Enforcement**

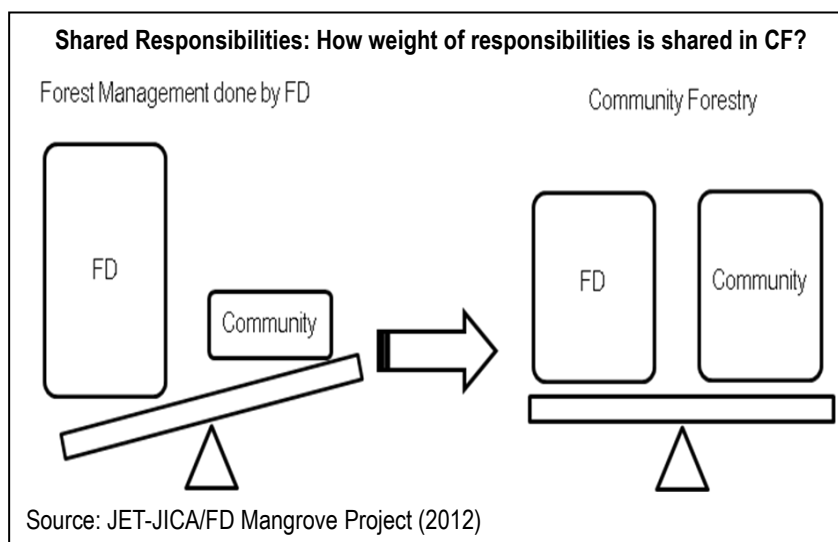
One of the causes of such rampant encroachment is the insufficient land use policy and law enforcement. Law enforcement on encroachment rests upon FD and other concerned government department. However, each would justify the situation from its own perspective. FD will see the situation from the forest conservation point of view, while other departments may protect such situation from food security or economic development point of view. Such conflicting perspectives have made the law enforcement complicated and, as a result, diluted its mechanism.

The change can be brought in by having appropriate land use policy and law based on the ground reality. These should clarify the differences between customary land owners and other encroachers and also define the regulated activities by the customary land owners. Further, by legally acknowledging the rights of the customary land owners in DMA, the owners or the potential CFUG members would secure their entitlement over land resources. This would in other words help them nurture their sense of ownership and responsibilities over the forest resources, which can motivate them to take part in CF activities.

Source: JET-JICA/ FD Mangrove Project (2012)

2.3 Stakeholders in CF in DMA – Roles and Responsibilities

The process of CF demands a shift in the conventional forest management practices that FD has practiced. In the departmental forest management, planning and implementation were done by FD. In that context, community has been regarded as a source of labourers.



One the other hand, CF demands the responsibilities in planning and implementation to be shared between FD and forest users' community.

In the table below, roles and responsibilities of each stakeholder is outlined according to the key activities to the 3 stages of CF as in flow chart in 2.2.2. From this table, one may learn that “facilitation” and “guidance” are the key role of FD in CF process while “making decision” and “taking an action” are the key role of CFUG.

An overview of the responsibilities of FD and CFUG

Stages in CF process	FD (Various Level)	CFUG
Preparatory Stage	<ul style="list-style-type: none"> ▪ Awareness creation in the potential CF community ▪ Formation of UG ▪ Identification of CF area ▪ Submission/ Approval of CF application 	<ul style="list-style-type: none"> ▪ Actively take part in the meetings organised by FD ▪ Formation of UG ▪ Preparation of UG member list ▪ Selection of MC ▪ Identification of CF area ▪ Preparation of CF application ▪ Consult FD if any problem arises
Planning Stage	<ul style="list-style-type: none"> ▪ Train the UG members in management planning ▪ Data collection required for CFMP ▪ Preparation of various maps ▪ Guide UG members in preparation of CFMP ▪ Review/ Approval of CFMP 	<ul style="list-style-type: none"> ▪ Carry out data collection required for CFMP ▪ Preparation of CFMP ▪ Preparation of by-laws ▪ Submission of CFMP ▪ Coordinate with FD in all aspects of planning stage ▪ Consult FD if any problem arises ▪
Implementation Stage	<ul style="list-style-type: none"> ▪ Provision of planting materials/ technical guidance 	<ul style="list-style-type: none"> ▪ Carrying out the management activities

Stages in CF process	FD (Various Level)	CFUG
	<ul style="list-style-type: none"> ▪ Training MC members in record keeping ▪ Help UG members identify appropriate livelihood activities and resource organisations ▪ Monitoring/ Reporting ▪ Revision of CFMP 	<ul style="list-style-type: none"> ▪ Monitoring the work progress ▪ Patrolling CF areas ▪ Keep records ▪ Identify appropriate livelihood activities and implement the selected activities ▪ Coordinate with FD in all aspects of implementation ▪ Consult FD if any problem arises ▪ Revision of CFMP

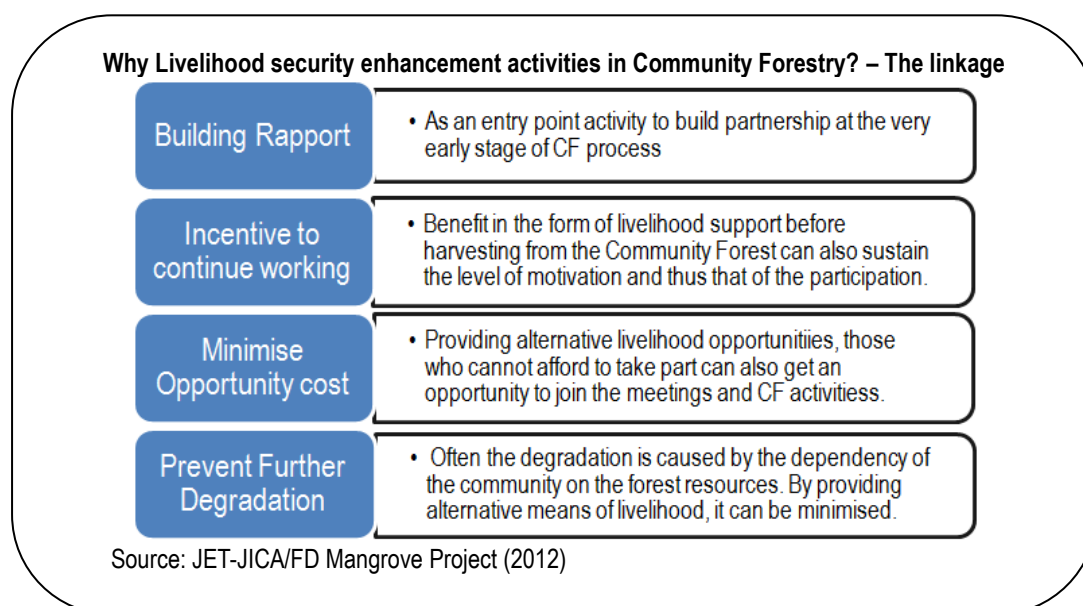
Source: Compiled from “Mangrove Forest Rehabilitation manual For the Forest Department Frontline Staff of the Ayeyawady Delta” (IMMP Study, 2005)

2.4 CF and Livelihood –Creating Conducive Environment for Community Participation and for Sustainability

2.4.1 CF and Livelihood – Close Linkage

The IMMP Study and JICA/ FD Mangrove Project made an attempt to incorporate livelihood activities as part of CF. One may ask, “why? Is there a linkage between forestry and livelihood? Is CF not about forestry?” We would say, “Yes, there is.”

There may be more but here we identified four aspects of community-livelihood nexus: 1) a tool for rapport building; 2) incentive to continue working before harvesting; 3) minimise opportunity cost; and 4) prevention of further degradation of forest resources by providing the alternative means of livelihoods that could reduce the dependency of the community towards the forest resources.



1) Rapport Building

Livelihood activities can be used as a tool to help FD to build rapport with the community. Especially at the initial stage, it creates the opportunity for FD to work with the community and create rapport. It also helps the community members to get used to the process of making choices, planning and implementation through livelihood activities that could be relevant to their lives.

2) Incentive to Continue Working

One of the objectives of CF is to improve the livelihoods of the forest dependents through giving them control over the resources harvested in the CF area. On the other hand, it will take several years or more before trees can be harvested from CF area after planting. In the mean time, the management activities need to be carried out by the UG members without any substantial benefit from CF. Implementation of livelihood activities could help the UG members to earn from other sources and provide support until they can harvest from CF area.

3) Minimise Opportunity Cost

As reviewed in Chapter 1, one of the challenges that the community may face in the process of CF is to find time to take part in the activities. Some of the households may need to work elsewhere rather than taking part in the CF areas. Some women may have to search for drinking water or collect firewood or need time to do other domestic chores, which may prevent them from joining the CF activities. We may, thus, introduce the livelihood activities that could help them find time. Activities to create alternative income sources could be one. Other activities may be implemented to minimise the time spent on the domestic chores (i.e. providing alternative energy source, improved stove to minimise the fuel wood consumption, providing water points within easy access, and etc.)

4) Preventing Further Degradation

The causes of degradation of mangrove forest in DMA have been created by the forest users themselves. If they had an alternative, they did not have to depend so much on the resources from mangrove forest to the extent that they had to degrade it. Livelihood activities may give an opportunity for them to find alternative means of livelihoods. This could prevent further deterioration of the resources. Such activities may include; introduction of energy efficient stove to minimise the fuel wood or other income generation activities which utilises the mangrove forest resources or based on other

skills and resources available in the locality.

2.4.2 Communities in DMA

Now we discussed the linkage between CF and livelihoods. In this section, we will look at the characteristics of the communities in DMA, who we will be working with. This section is based on the socio-economic survey carried out in April – May, 2012 by JICA/ FD Mangrove Project taking a sample size of 220 households out of 1,012 households in 6 CF villages in DMA supported by the Project. The results outlined below inform us that the livelihood options in DMA are limited and their livelihoods are prone to seasonal fluctuation.

1) Means of Livelihood

In the CF villages, 70% of the households in the JICA/ FD Mangrove Project area depend on fishing and aquaculture, followed by daily wages/ seasonal workers, and livestock rearing. 68.5% of the households surveyed did not have land and thus, little population was engaged in cultivation. This suggests that their income is likely to be affected by the season, natural disasters and climatic changes. The villagers, thus, depended on more than one income sources to minimise the livelihood risks.

2) Income

25.6% of the HHs in the survey area earned less than 600,000 Kyat and 36.8 % HHs earns up to 1,000,000 Kyat. 81.2% of HHs in survey area face deficit in the past year. When the villagers fall short of cash for living, they borrowed from others to cope with the situation.

3) Poverty

During the survey, the villagers were asked to define “poverty” in their own terms. They have defined poverty as “Not having enough income for daily life and lack of productive and household assets”. Three causes of poverty identified by the villagers were: 1) lack of means of livelihood other than fishery; 2) lack of arable land; and 3) lack of technology and knowledge. This suggests that they have limited options to earn their livelihoods.

Poverty Status of Households in CF villages

Definition of Poverty	Village	% of Poor HH	Causes of Poverty
Not having enough income for daily life and lack of productive and household assets.	NTP	86%	Lack of means of livelihood other than fishery
	SPT	54%	Lack of arable land
	GAD	71%	
	KKKL	72%	
	TYK	63%	Lack of Technology and knowledge
	TGT	81%	

Source: Baseline Survey Report (JICA/ FD Mangrove Project, June 2012)

Not so significant dependency towards forest resources was observed in the villages in general. 12% of the households derived their income from the forest produces collection and majority of these households constituted CFUGs in the project supported villages.

4) Literacy and Education

4.5% of the head of households in the surveyed areas are non literate. 39.8% of the total household heads have received primary education and 20.7% received education at monastery.

In the surveyed villages, primary schools are within easy reach of the children. The majority of children would find the primary schools within their own village. A small number of children dropped out of primary education. The most common cause was the financial difficulty. The educational institutions beyond the primary level are not often available within the village. Thus, the enrolment of higher level educational institution drops sharply.

5) Water

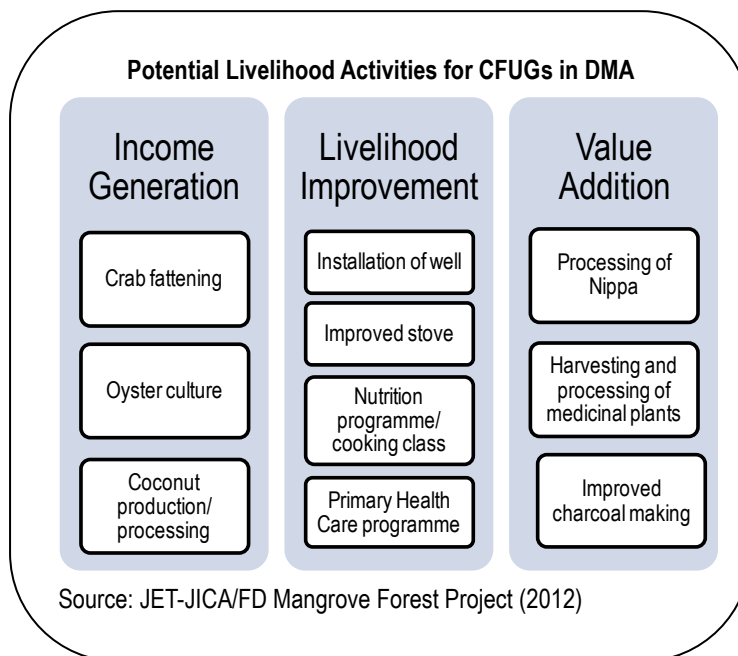
Main source of water for drinking and domestic use in the surveyed area is dug well and water reservoir. In dry season, many households face water shortage. To cope with the situation, a household can spend 5,000 kyat per month on an average to buy water for drinking and for other domestic use.

6) Food Security

Nearly 50% of the HHs in the surveyed area experienced food shortage during the past one year. Out of these households, almost 75% of the HHs experienced insecurity up to 7 days and 10% for more than two month. Many of them coped with the situation by buying food on credit and or with borrowed money.

2.4.3 Approach for Livelihood Security Enhancement for Community Forest Users in DMA

JICA/ FD Mangrove Project suggests to incorporate the livelihood activity planning and implementation in the CF process. The methods of identification of activities and planning and some of the examples of activities are found in Annex 5. The potential livelihood enhancement activities that are envisaged to be undertaken by CFUGs in DMA may include oyster culture, introduction of



improved stove, processing of NTFPs etc depending on the resources available, preference of the UG members. The livelihood activities can be categorised into three; 1) income generation; 2) livelihood improvement; and 3) value addition as in the box above.

Now a question arises, how FD can implement such livelihood activities. These are beyond the mandate of FD. CFI has not defined the livelihood activities to be included in the Management Plan. How could FD help community in implementing livelihood activities?

JICA/ FD Mangrove Project proposes to introduce “Convergence”. This is to implement the livelihood activities with help of other organisations. In this process, FD will become the facilitator and help community to link up with relevant resource organisations. Community will then implement the activities with the help of the resource organisations.

To facilitate this process, District Level Donor/ NGO Coordination Meetings, which was initiated by JICA/ FD Mangrove Project, would become effective. In this meeting, stakeholders from various sectors, who were actively involved in the Community Forestry in the DMA, share their views and seek possibility for synergy and partnership.

FD is suggested to continue with this meeting for promoting convergence.

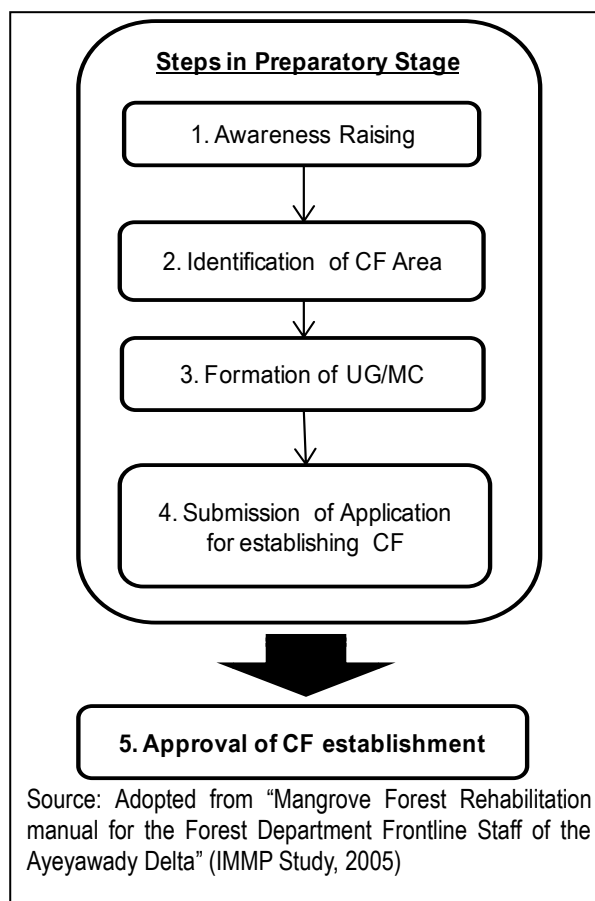
Chapter 3

Chapter 3

Preparatory Stage

3.1 An Overview

Prior to the preparatory stage, FD will appoint FD staff to guide communities to implement CF. Then the CF process can begin. The preparatory stage of CF process begins with 1) awareness raising of the community, which involves a series of discussion with the community members. Followed by 2) identification of CF area and 3) formation of a Users Group (UG) and Management Committee (MC). Once the community members are organised into a UG, 4) an application to establish a CF Area is prepared by MC under the guidance of FD and will be submitted to District Forest Officer (DFO).



3.2 Awareness Raising - Entering the Community

3.2.1 Identifying the Zone Suitable for CF by FD

Before approaching a community to initiate the process of CF, FD staff needs to know which ones to be approached to. FD, especially District Forest Officer (DFO), is suggested to identify a zone suitable for CF.

Lessons Learned from DMA (3): Identification of CF areas by Zoning

During the JICA/ FD Mangrove project, CF area demarcation was delayed due to the conflicts associating with encroachment in some cases. To prevent such delay, CF area identification could be done by zoning based on the field condition. Further, Zoning will effectively incorporate the CF activities into the forest management process of FD and will help FD to plan field level extension activities.

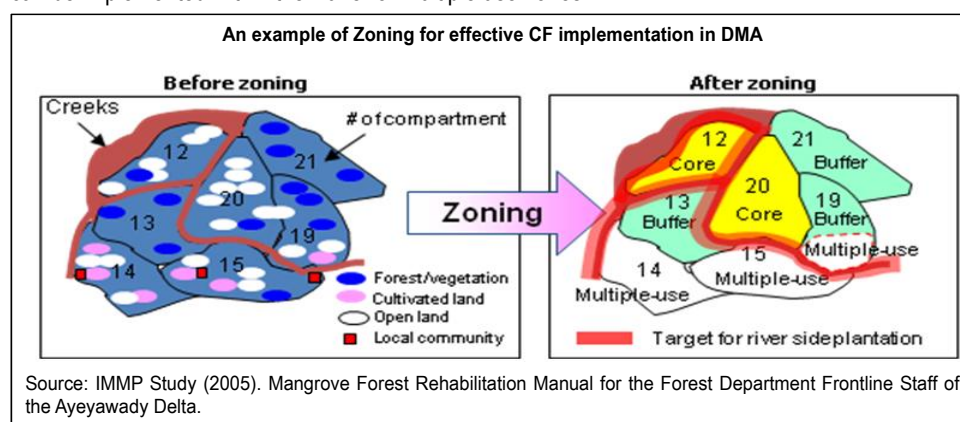
The suggested zones are comprised of three: 1) Core, 2) Buffer and 3) Multiple Use. The zoning can be undertaken at each RF by the concerned FD officers. Vegetation and land use information will be required for the purpose as well as the field verification.

Description of the Suggested zone categories in CF Area Planning

Zone category	Definition	Management Objective	Management work type
CORE	Areas to be preserved in natural condition for strict protection against illegal cutting, poaching and encroachment Production activities is strictly regulated or prohibited Area/ FC declared as Wildlife Sanctuary or any other categories under Protected Area System	Protection/ Conservation	Direct Operation by FD
BUFFER	Area/ FC to function as protection of CORE Area/ FC to serve as social fence against outside of CORE	Rehabilitation by plantation and forest improvement	Direct operation by FD/ Community Forestry
MULTIPLE Use	Area/ FC mostly used for agriculture production and or other production purposes Area/ FC which has mangrove forest cover whatever condition or forest type at no more than 20% of the total area of the compartment	Rehabilitation by plantation, forest improvement and utilisation	Community Forestry

Source: IMMP Study (2005). "Mangrove Forest Rehabilitation manual for the Forest Department Frontline Staff of the Ayeyawady Delta".

By applying the above zone categories, a compartment can be segmented as below. In this zoning system, CF can be implemented within the Buffer or Multiple use zones.



Compiled by JET-JICA/ FD Mangrove Project (2012)

FD staff then will approach communities within the zone and establish CF areas where the motivation level and interest of community members towards CF is high.

Which community should we approach?

Identification of the community where we approach for CF is a very important activity in the pre-preparatory stage.

Since CF is to be a community driven process and thus their level of motivation is an important influential factor, one is tempted to select the communities depending on their level of interest.

However, we do not like to establish the CF where it is not appropriate or where there is no resource for community to benefit from, or inaccessible or encroached land or the inappropriate land tenure. And if the CF locations are scattered, monitoring to be done by FD will also be difficult and if ever possible, it also has a financial implication – added transportation cost for the FD staff.

Thus, the recommendation is ...

1. Refer to the allotted CF working circle and its allotted area
2. Zoning to be done adopting the suggested method in 3.2.1 of SOP.
3. Field verification and verification with satellite image

This process is to be done by FD, especially at the District Level, even if it is NGO or Donor agencies to implement CF activities.

Once the area is confirmed suitable, the communities within the selected area will be visited by FD staff for awareness creation and confirm their interest in taking part in CF.

Source: JET-JICA/FD Mangrove Project (2012)

3.2.2 Entering the Community

When making an entry to a potential CF community that is identified by FD, it is important that FD staff makes a good head start in building rapport with the potential partner in CF. It is always a good idea to make the first contact with the village authority and leaders so that they can introduce other community members to FD staff. In the box bellow, some tips of Dos and Don'ts when you are working with a community are given.

Dos and Don'ts when working with a community	
<u>Dos</u>	<u>Don'ts</u>
<ol style="list-style-type: none"> 1. Introduce yourself first <ul style="list-style-type: none"> - Explain the objectives - Speak modestly 2. Speak with trust when asking questions to the community about the problems of the region <ul style="list-style-type: none"> - Ask one by one - Speak with the villagers in a friendly manner 3. Ask the community to speak. 4. Listen patiently 5. Be a learner. 6. Make note of all the discussions. 7. Wait for your turn to ask questions. 8. All information given is important. 9. Go to the field for collecting information. 10. Speak to everyone in the group. 11. Be patient. 12. Use good tactics when asking questions. 13. Get in depth information. <ul style="list-style-type: none"> - Why, What is the reason, How, Who, Others Check the information thoroughly. 	<ol style="list-style-type: none"> 1. Not introducing yourself <ul style="list-style-type: none"> - Speaking what you want without explaining the objective - Speaking rudely like giving order 2. Rush to get answers to your questions. Forget about the problems. <ul style="list-style-type: none"> - Speaking or asking questions to one person that you know - Dealing with villagers indifferently 3. Speak a lot without listening to others 4. Give advice. 5. Interrupt while someone is speaking. 6. Be short tempered. 7. Consider that any information given is not important. 8. Collecting information on Agriculture/Forestry at home. 9. Focus on only one person when speaking. 10. Be satisfied with only one answer. 11. Ask leading questions.

Source: Community Forestry Establishment Guidelines for Extension Staff (U Myint Aung, 2007; CFDTCC)

Heterogeneity of the forest users - Intra-Community Dynamics

In addition to the above, intra-community dynamics should be carefully observed and considered when interacting with the villagers. For instance, women may be significant mangrove forest users but their voices may not always be heard. It would be a good idea to speak to them separately away from male villagers. Where children are affecting the condition of the forest,

A picture taken during the meeting held during the JICA Mangrove Project



What can you observe? How was this meeting conducted? What are the differences from the meetings that you are used to attend?

Photo credit: JET-JICA/ FD Mangrove project (2012)

FD staff may need to approach their parents. Further, especially in DMA, newly settled people may use the forest differently from the previous settlers. They may also not come to public meeting. As these intra-community dynamics vary from community to community but may have an impact on the condition of mangrove forest, an appropriate

consideration to understand their perspectives as well as to help them understand the importance of sustainable mangrove forest use and management.

3.2.3 What to be Achieved in Awareness Raising

Awareness raising is the first activity conducted by FD staff with the community members. These activities are targeted for the general public. For those interested in listening to the programme, they are welcome. However, FD staff will conduct key informant interviews and identify the forest users so that they can be included among the participants of the meeting.

When organising awareness creation meetings, the time and location for the community members should be selected. There is no point in holding meetings with only few participants.

Topics to be discussed and what the community members are to be aware of are summarized below.

Topics to be discussed during awareness raising and what should be achieved

Topics to be discussed	What should be achieved after the discussion
<ol style="list-style-type: none"> 1. Condition of Mangrove forest – degradation and implications 2. Benefits from the Mangrove and linkage with their livelihoods 3. Benefits from CF establishment 4. Purpose and needs for getting organised as CFUG 5. Opportunities that can be acquired by joining CFUG 6. Responsibilities, prohibitions, benefit sharing of CFUG 7. Role and Responsibilities of FD in CF 	<ol style="list-style-type: none"> 1. The community members can tell <ul style="list-style-type: none"> - objectives of CF - purpose of getting organised as a CFUG - the benefit of Mangrove Forest - the benefit of CF - the role and responsibilities of CFUG - the role and responsibilities of FD in CF 2. The community members have a unanimous consensus to establish CF.

Source: JET-JICA/FD Mangrove Project (2012)

Discussion Topic: Mangrove Forest and Community – What are the benefits? What is the condition of mangrove forest? Have we affected the mangrove forest?

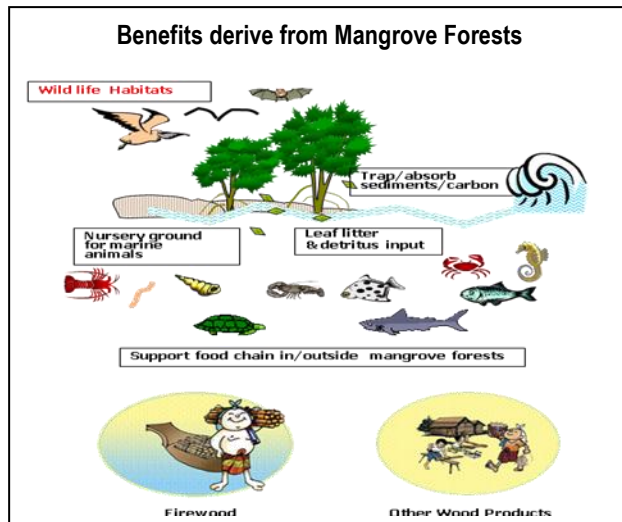
Generally, local people would accept mangrove forests as saviour trees/forests. It provides various resources for livelihoods. The kind of produces that can be harvested from the mangrove forests include timber, firewood, post, pole, bark, charcoal and other herbal plants and other NTFPs like nipa, nipa juice, nipa sugar, honey, leaf, vegetable, root, sea weed, birds, fish, shrimp, crab, oyster, leech, etc., not only for their domestic use but also for sale in the local market.

It is still fresh in our memory that Mangrove Forest can function to mitigate the damages caused by cyclones as we have seen during Cyclone Nargis in 2008. It can also prevent soil and bank erosion and helps the silt and other sediments carried along with water in rivers and creeks to be settled. Decayed leaves are food supply for fishery resources and mangrove forests are the habitat of fishery resources. Water and purification is another environmental service that is provided by mangrove forests. There are many more provided by mangrove forests for local people and beyond.

Despite the abundance of resources derive from mangrove forests, the degradation has become evident and reached to the level that we can no longer ignore it. If we leave it as it is, we will lose the resources and thus our means of livelihoods. The causes of degradation includes: 1) expansion of the communal areas; 2) establishment of aquaculture facilities; 3) overharvesting of the fuel woods; 4) illegal felling and etc.

FD staff will explain the above and discuss with the community members how they perceive and explore if it can be resolved.

Source: JET - JICA/ FD Mangrove Project (2012)



FD staff will discuss with the villagers:

- What are the benefits from the mangrove forests?
- How do they use resources derive from mangrove forests?
- What is the condition of the mangrove forests?
- What are the changes in condition of mangrove forests over time?
- etc.

Source: JET-JICA/FD Mangrove Project (2012)

3.2.4 Tools and Methods of Communication

When trying to communicate with the community, conventional lecture style communication may not be so effective. FD staff is suggested to deploy different means of communication so that the message can be delivered to the target audience effectively. Some examples of those tools are outlined below.

1) Folk Media

Communication materials in village level, for example, music, *anyein*, play, etc., can make people very active. *Anyein* has the quality that can present the difficulties and challenges of life with jokes. Such can be played at a village festival, seminar and workshop. If it is played at a village festival, information is likely to reach as many villagers as possible. If it is done at a seminar or a workshop, it can be used to discuss the issue.

2) Key Community Members

Some people (e.g. fishery traders, owner of small commodities shop, tea shop) are dealing with a part of people continuously. They can give information related to CF, increase the interest of the people, encourage and mobilize the people whom they are dealing with. Their shops can become the places where to put posters, distribute pamphlets and announce the information.

Community health workers, teachers or representatives of various community organisations, village elders could also contribute to the awareness raising. As each one would have access to the different segment of village population that FD staff is less likely to have contact with. Thus, FD staff is encouraged to work in collaboration with other offices and organisations.

3) Other mode of information dissemination

Painting and chalking on the wall, putting posters at visible places, jetties and boats could also be used as mode of information dissemination. Contests can also be organised with students to present essays or posters on mangrove forest. Playing recorded message in a public place or installing signboards could also be an option. Banners or pamphlets are also commonly devised in awareness campaigns.

3.3 Situational Analysis

3.3.1 An Overview

Situational analysis is a series of exercises that can be conducted along with the community members to understand their forest condition as well as their livelihoods. These exercises have been developed adopting Participatory Rural Appraisal (PRA) tools. PRA tools are simple to use and effective in understanding the forest and livelihood condition of the community and the learning takes place both in FD staff and community.

**When conducting Participatory Rural Appraisal (PRA)...
You will be the Facilitator and need to keep the below in
mind...**

Attitude and behaviour in doing PRA

1. Speaking and living friendly
2. Do not treat them rudely
3. Do not deal with the manner of ordering them
4. Telling jokes
5. Try to remember the name of villagers
6. Speak calling the name of villager
7. Make discussions sitting together with them
8. Do not deny if the villagers set meal
9. Have meal together with them
10. Wear the clothes like the villagers do

Basic Principles of PRA

1. Study from community and study together with them
2. Go directly to the proposed place
3. Meet them fact to face
4. Treat them equally
5. Appreciate and sympathize the knowledge of the community
6. Apply standards and factors defined by them
7. Check with three points of view in order to be exactly

Source: COMFORT (no date)

FD staff in this process will play a role of facilitator. This also provides an opportunity for FD staff to learn many aspects of community life and how the community has related itself to mangrove forest.

FD staff, while facilitating, is free to ask questions and probe. Some of the questions that you may like to ask are also included in this SOP.

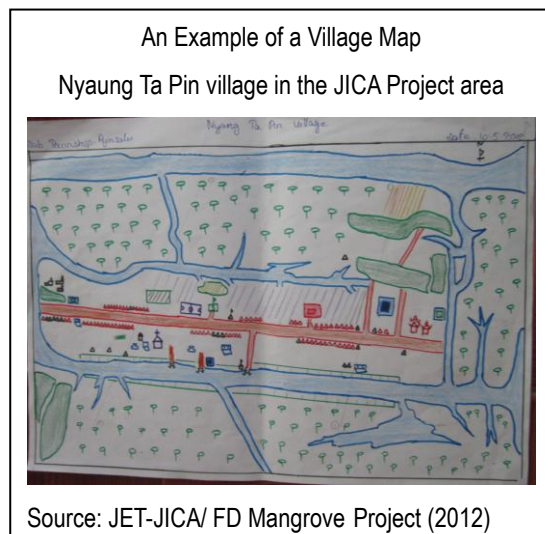
Though effective, facilitating PRA exercises may require some attitudinal adjustment among FD staff. Those points are summarised in the box.

3.3.2 Tools

PRA tools to be used in situational analysis during preparatory stage are adopted from Community Forestry Training and Extension Project in Dry Zone (COMFORT)¹ PRA Booklet (no date). An overview of the tools to be used is provided below. The detailed procedures are found in Annex 3.

1) Village Mapping

Village mapping is a good activity to begin working with community. It gives an opportunity for both FD staff and the villagers to understand an overview of the community. As the community members draw a map of the village, we will learn locations of resources, land marks,

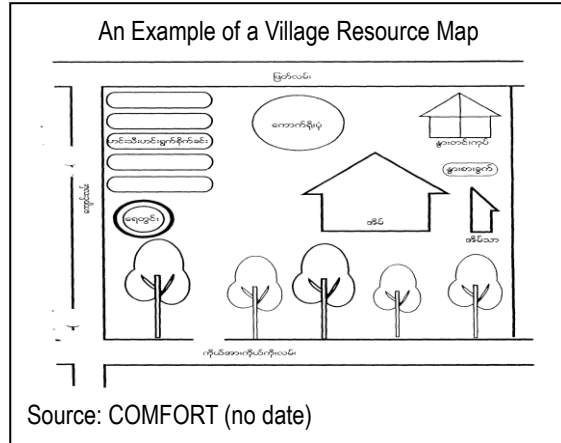


¹ COMFORT was supported by JICA between 2004 and 2006.

settlement area, transportation etc can be drawn on the map. FD staff may also discuss where the potential CF areas could be.

2) Resource Mapping

Village Resource Mapping is an exercise to understand the location, condition, accessibility etc of the resources that the villagers are depending on. Seasonality of the available resources/ access to them may also be discussed during the exercise.



3) Time Line

Time line will help the participants and FD staff understand socio-ecological events in the history that have affected the condition of the resources including mangrove forest. Villagers should be guided to identify factors such as changes in population, landscape, crop failure, changes in the policy/ laws etc. Through this exercise, a discussion may also be led to the causes of degradation of the mangrove and possible mitigation measures. Question to be asked during the exercise may include: 1) Who has caused a certain situation?; 2) How did it happen?; 3) Why did it happen?; and 3) How could it be prevented/mitigated?

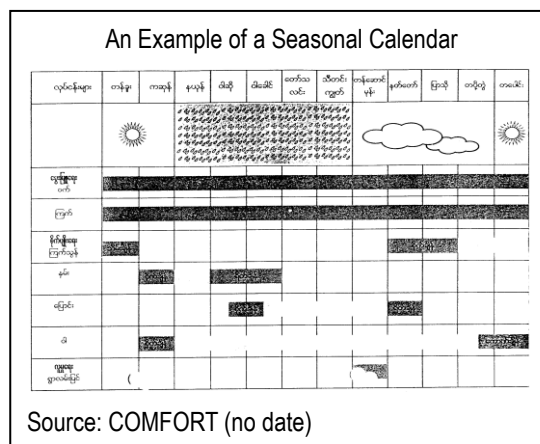
An Example of Time Line

Period	Key Event	Impact on Livelihood	Impact on Forest/ Forest Resources
<u>An example</u>			
2008	Cyclone Nargis	Fishing equipments were lost. Had to relocate to faraway place No income for long time	Mangrove forest where degradation started was washed away

Source: JET – JICA/ FD Mangrove Project (2012)

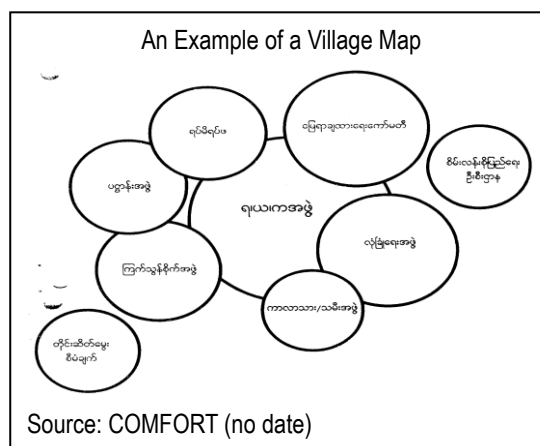
4) Seasonal Calendar

This helps to identify the seasonality of the productive activities, resource availability and access. The discussion may also include the coping strategy when the villagers experience difficulties. By doing this, when the work pressure or household expenditure is high can be understood. This will help the community members to schedule the CF activities and livelihood activities at the appropriate timing.



5) Stakeholder Analysis – Venn (Chapati) Diagramme

Stakeholder analysis is a tool to understand how community relates to other stakeholders when it comes to managing forest. It can also be done to understand the stakeholders in assisting the community with livelihood security activity. This will help the community to shape the idea of how to communicate and what to discuss with a particular stakeholder.



3.4 Formation of Community Forest Users’ Group (CFUG) and Management Committee (MC)

3.4.1 Community Forest Users’ Group (CFUG)

Through various exercises and a series of discussions/ interactions, the community members will develop a good understanding of the linkage between their livelihoods and mangrove forest and can tell the importance of CF activities and their roles and responsibilities. If FD staff assesses that they have developed sufficient understanding, then the discussion of formation of CFUG shall be initiated.

To form CFUG, FD staff will call for a village meeting. It can be organised through the village leader. By now, FD staff should have a rapport with the community members and know who should be contacted when organising a meeting with the villagers. Here FD staff will guide 4 activities with the community; 1) confirming the responsibilities of CFUG member; 2) introducing key points in CFI; 3) building consensus of the villagers to establish CF and CFUG; and 4) form CFUG and prepare a member list. What to be accomplished during each activity is outlined below. Additional points to be considered when forming CFUG are suggested in Annex 4.

1) Confirming the responsibilities of CFUG members

In the meeting, you will recapitulate the responsibilities of the CFUG members. Their responsibilities are summarised in the box.

2) Introducing key points in CFI

As we have seen in the earlier section, CFI gives a basis for establishment of CF. Thus, the nature of the instruction shall be explained to the community in the simple language so that the community members can understand. It is important to give them an overview of the CF establishment process as in 2.2.2 and prohibition as in 2.2.3.

3) Building a consensus to establish CF area and CFUG

Once a good level of understanding of the above two topics are achieved among the community members, the consensus among the CFUG members to establish CF area and CFUG needs to be attained. FD staff may also highlight the strength of collective action.

Responsibilities of CFUG members

- (a) Establishment of forest plantations in barren areas
- (b) Where appropriate, natural regeneration method should be used in the rehabilitation of forested areas
- (c) Fire protection
- (d) To carry out the required cultural operations for the development of both plantations and natural forests
- (e) Protection against indiscriminate felling, girdling, pruning, resin tapping, removal of barks etc.
- (f) Protect against mining of stones, sands, earth and metals in the designated area
- (g) To be abide by the by-laws of the UG
- (h) Prevention of illegal land use activities
- (i) In conformity of the rules and regulations, systematic extraction and utilization of forest products so as to avoid wastage
- (j) Protection against soil erosion and environmental deterioration
- (k) After the first rotation, CFUG shall, under the supervision of the FD, engage in site preparations, seed collection, sowing, planting and tending operations
- (l) Implementing activities as described in the management plan

Source: U Myint Aung (2012). "CF SOP for DMA (Preliminary Draft)"

Strength of Collective Action

What an individual can do is limited... but if a group is formed, the potential to achieve more increases.

- Can work on a larger CF area – more areas for properly managed mangrove forest area
- Can share the problems and find solution
- Can positively impact on the eco- system
- Can create resource base for the community

Source: JET- JICA/ FD Mangrove Project (2012)

4) Making a CFUG member list

Once the consensus is established, a list of CFUG members will be prepared by taking the names and signature of each villager who understands CF and is willing to take part in CF activities. This list will be attached to the application to establish CF area. The suggested format is as below. A complete format is also attached in Annex 17 – GM Form 1.

5 Questions before finalising the UG member list

Tick if Yes	Check list
	Was the UG formed by the unanimous consent without an influence of an authority?
	Are members motivated to work together to revive and maintain the mangrove forest resource?
	Could members understand when they need to form a UG?
	Did the members understand the responsibilities and prohibitions?
	Did the members understand the benefits from CF?

Have you answered “Yes” to all questions? If not, you will have to rectify the situation.

Suggested Form for Member List

Name of the CFUG:
 Name of the village:
 Area coverage of CF: acres
 Reserved Forest: Forest Compartment: Township:
 Date of Group formation:
 Number of members:

No.	Name	Age	M/F	NRC No	Date of becoming a member	Date of leaving the UG	Individually allocated CF Plot		Sub-Group
							Plot no	Acreage	

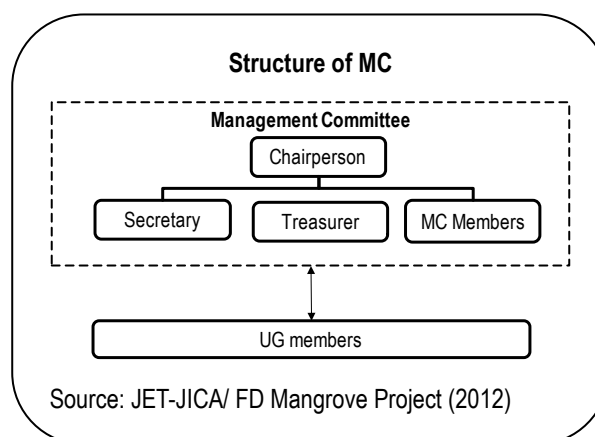
Source: JET-JICA/ FD Mangrove Project (2012)

3.4.2 Formation of Management Committee (MC)

Since CFUG is a village based group, there may be many members. To effectively function as a group, a good leadership is required. The MC as a committee will lead the discussion and activities of the CFUG. FD staff will explain below points to the UG members. Once the UG members understand well, MC will be formed. FD staff will discuss how the CFUG members wish to select the MC members. The MC members can be selected by election or by unanimous decision of the CFUG members. The selection procedure must be recorded in the minutes book of CFUG.

1) Roles and Responsibilities of MC

The responsibilities of MC includes: 1) to facilitate discussion amongst CFUG members; 2) to communicate with CFUG members, FD and other organisations; 3) to keep records; and 4) to maintain group assets. Other responsibilities may be discussed at CFUG meetings and further defined to suit the socio-ecological condition of the CFUG.



2) Structure of MC

MC will consist of Chairperson, Secretary, Treasurer and members. The number of members may be decided by the CFUG member. In principle, it is a 5 member committee. In JICA/ FD Mangrove Project, 4-7 member committees were organised. The number of the committee members can be adjusted depending on the decision of CFUGs. Women’s participation may also be encouraged. The tenure of MC shall be ideally 2 years, however should be confirmed and agreed by respective CFUG.

3) Responsibilities of MC members

Responsibilities of each MC member are outlined as below. FD staff shall explain this to the CFUG members. Once the MC is constituted, FD staff will also explain and discuss the same with the MC members to further improve their understanding of their responsibilities.

Responsibilities of MC members

Position	Responsibilities
Chairperson	<ul style="list-style-type: none"> ▪ Will lead the MC and UG ▪ Will take part in preparation of CFMP ▪ Will monitor the progress of CF activates ▪ Will report to FD with the status of CF and CF related activities ▪ Will facilitate fair decision making process ▪ Will ensure accountability ▪ Will act as a representative of the UG
Secretary	<ul style="list-style-type: none"> ▪ Will support Chairperson ▪ Will keep record books ▪ Will take part in preparation of CFMP ▪ Will monitor the progress of CF activates ▪ Will report to FD with the status of CF and CF related activities

Position	Responsibilities
	<ul style="list-style-type: none"> ▪ Will actively take part in a discussion of MC ▪ Will take part in the fair and responsible decision making ▪ Will keep all the documents in order ▪ Will disclose and explain what has been recorded to MC members and to UG members
Treasurer	<ul style="list-style-type: none"> ▪ Will keep financial record ▪ Will actively take part in a discussion of MC ▪ Will take part in the fair and responsible decision making ▪ Will handle cash properly ▪ Will disclose and explain all financial records to MC members and to UG members ▪ Will take part in preparation of CFMP ▪ Will monitor the progress of CF activates ▪ Will report to FD with the status of CF and CF related activities
Member	<ul style="list-style-type: none"> ▪ Will assist other MC members ▪ Will actively take part in a discussion of MC ▪ Will take part in the fair and responsible decision making ▪ Will take part in preparation of CFMP ▪ Will monitor the progress of CF activates ▪ Will report to FD with the status of CF and CF related activities

Source: JET-JICA/ FD Mangrove Project (2012)

Selection criteria of MC members

Now the CFUG members have understood the roles and responsibilities of MC. Then the appropriate individuals will have to be selected. Any self nominate powerful individual in the community is to be avoided. FD staff may also share the qualities of MC members as in the box with the CFUG members. The CFUG members may also define their criteria. FD staff is required to facilitate such discussion and guide them to select appropriate members but not to influence the selection process taking advantage of his official status.

What are the qualities of MC members? - Some Qualities of lection of MC members

Before electing the members, FD staff will explain the role of MC and their responsibilities. Then discuss the quality of MC members that the UG members would look for. Here are some of the qualities that might be expected...

- Considerate of others
- Respected
- Trustworthy
- Reliable
- Fair
- Not dominating
- Be able to listen to different views etc

Source: JET-JICA/ FD Mangrove Project (2012)

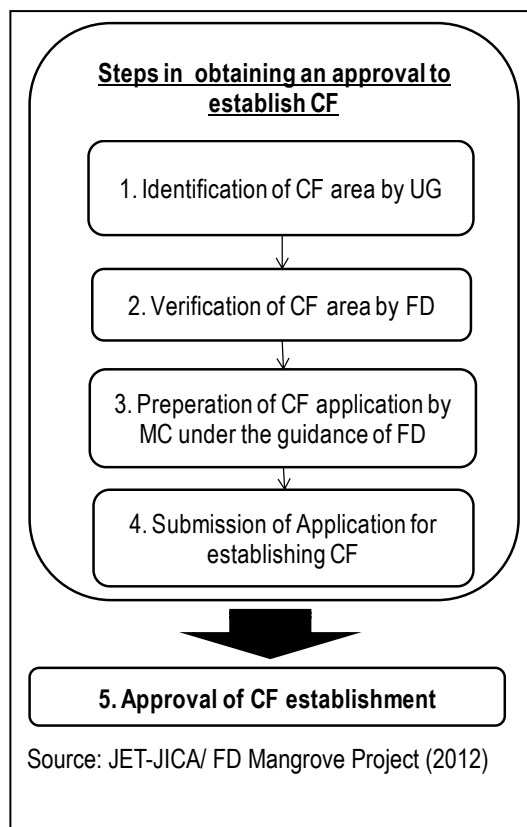
3.5 Application to Establish a CF Area

3.5.1 An Overview

Now CFUG and MC are formed. The foundation to begin CF is established. Now such intention and decision of the community needs to be officially acknowledged. To do so, an application needs to be submitted to and approved by FD.

In this section, thus, a process of obtaining an approval to establish a CF area is explained. This process involves 4 steps: 1) identification of the area; 2) verification of the area; and 3) preparation and 4) submission of CF application. Once the application is approved by FD, an approval to establish a CF area will be granted to CFUG.

FD staff will have a series of discussion with CFUG members and help MC members to prepare an application. FD is required to verify the forest area in the field with the MC/ CFUG members after the members identify the CF area. If area identified by CFUG is not appropriate for CF (i.e. encroachments, land/boundary conflicts), FD shall suggest alternative area for CF.



3.5.2 Identification of CF Area

When identifying the potential CF area, FD staff will hold a meeting and discuss where CF area should be established. FD staff has to explain to UCFG members the appropriate land category where the CF can be established as per the CFI. The excerpts from CFI are given in the box. While explaining, village map and resource map drawn during the situational analysis (3.4.2) may be referred to.

Land Tenure -Where CF can be established:

- (a) In degraded natural forests where natural regeneration is difficult
- (b) In areas where there is potential to meet the local demand for forest products
- (c) Areas suitable for the establishment of CF and where there is need to conserve soil and water resources
- (d) Natural forests which for various reasons should be managed by the local community
- (e) Forest lands traditionally managed by the local community
- (f) With the permission of the government, on reserved forest, unclassified forest, protected forest and land at the disposal of the State
- (g) Village-owned fuel wood plantations established with the permission of the DG of the FD
- (h) With the permission of the owner(s) on private-owned land or land owned by government organizations or non-government organizations

Source: CFI 1995

When establishing a CF area, some other qualities of the land should be considered. Those include; 1) existence of land conflict; 2) potential for NTFP and other forest resources; 3) accessibility and 4) the size of the area.

Lastly, the identified location needs to be approved by the CFUG members. Getting them involved in the decision making process is a way to nurture sense of ownership in the CF area. Thus, FD staff should encourage them to do so.

Other qualities that we need to examine when identifying the CF

- Is there any encroachment?
- Would the area give sufficient benefit for the UG members?
- Is it accessible by all UG members?
- Is the land sufficient for all UG members to work on?
- Would all UG members agree with the location?

Source: JET-JICA/ Mangrove Project (2012)

3.5.3 Verification of CF area by FD

Once the location is identified by the UG members, FD staff and MC/ UG members are required to verify the location by visiting the site. GPS should also be carried to collect the geo reference data. The verified location map will be attached to the CF application. The results will be shared with the CFUG members in a meeting and their approval should be sought.

3.5.4 Preparation of Application to establish CF Area

After completing the field verification of the potential CF area by FD staff and consensus by CFUG members, MC will prepare an application to establish a CF area. FD staff will provide guidance to prepare the document. The format is attached in Annex 1 – CFI Annex 1. The CFUG member list is required to be attached to the application form.

Please Check! – Necessary documents for Application to establish CF area

- Application Form as in CFI Annex 1
- Member List
- Verified Map showing the location of the proposed CF area

Important!! They all need to be completed with required information!

Source: JET-JICA/ FD Mangrove Project (2012)

The chairperson of MC will then submit the completed application form along with the verified map and member list to the Township Forest Officer (TFO), who would then seek approval from the District Forest Officer (DFO).

3.5.5 Review of the Application of CF Area Establishment

As soon as the application is received by DFO, the proposed area will be verified and the specific area will be allotted to the applicant UG to establish CF area. If the land proposed by CFUG is not under the management of FD, DFO will seek permission from the District Forest Conservation Committee as in CFI Section 9.

If the application is not successful, DFO will advise the applicant through TFO to make necessary amendment to the application or to provide further documentation.

During the review process, FD staff will monitor the progress from time to time and inform the MC/ UG. If any amendment is to be made, FD staff will help MC/ UG to prepare the same. The approval will be communicated to MC/ UG from TFO.

3.5.6 Allocation of the Plot to Each CFUG household

After the approval to establish CF area is obtained, CFUG members may decide to allocate a plot for each member. It is not a mandatory procedure but this would clarify the scope of each member's responsibility and may have a positive implication to implementation of management activities.

Reasons for not allocating a plot for an individual UG member household – in the case of DMA

- CF area was not sufficient to be allotted for each member.
- UG wanted to work together as a group.
- UG established CF area for environmental protection rather than earning profit from it.

Source: JET-JICA/ FD Mangrove Project (2012)

In this process, FD staff will consult TFO the size of an individual allotment. TFO will advise the size of the land to be allocated to each individual according to the climatic condition, the type of soil, species to be planted and etc and CFI Section 2.

Once the area for each household is determined, the FD staff will hold a meeting with CFUG members and discuss the allotment. The allotment for each member household shall be clearly marked in a map. When allocating a plot, FD staff will encourage the members to

When allocating a plot to each UG member Household...

- (a) Suitable area compared to the UG member's family size
- (b) Accurate and clear boundary demarcation marks
- (c) Reflect the desire of each member in land allocation
- (d) Sharing duties for every individual member in CF managed by the group
- (e) Preparing the benefit sharing for each member

Source: U Myint Aung (2012). "CF SOP for Delta (Preliminary Draft)"

consider the above points indicated in the box. Before finalising the allotment, it is recommended that CFUG members and FD staff will verify the individual allotment in the field.

Lessons Learned from DMA (4): How prepared are we for CF?

As underlined in the CF concepts, the CFUG is to play an active role in planning, implementing and monitoring of the CF and livelihood activities. This demands the capacity of CFUG, that can only be created by the effective field level guidance extended by FD staff. To enable FD staff to function in the field as required, some interventions are required.

1) Training of FD staff

Many of the FD frontline staff has limited exposure to CF. Some might have heard of the term but never had an opportunity to work on it or to learn about it in depth. They are not very clear what needs to be done in the CF process. As the JICA/ FD Mangrove project has done, training programmes on CF are required to be conducted by FD. In the future trainings, this SOP can be used as the basis of training material. Suggested training modules are attached in Annex 20 that may be adopted by FD. As many of the FD staff gets transferred in every so often, this kind of training is required to be incorporated into the foundation as well as in-service training programme and conducted on a regular basis. This will increase the number of FD staff who will be equipped with basic skills and knowledge to implement CF in the field.

2) Field Level Extension Programme

During the project, a challenge was met by the FD field level staff to operationalise what they have learned in the training programme in the field. Much more intensive hand-holding was required for them to be able to fully capable of implementing CF. Thus, the field level extension programmes that can be conducted by the FD staff with CF villages (Annex 21) were prepared as an attempt to give an overall framework and guide to conduct field level activities. Once the FD staff is trained in the CF training programme as in Annex 20, field activities can be conducted based on the attached field extension programme.

3) Facilities

Further, in order for the FD staff to give frequent technical guidance to MC/ UG, they will need to be mobile. Sufficient resources like boats and fuel, extension materials, etc are required to be made available for the field level staff to reach out the UGs in DMA.

Source: JET-JICA/ FD Mangrove Project (2012)

Chapter 4

Chapter 4

Planning Stage

4.1 An Overview

4.1.1 CF Management Planning Process

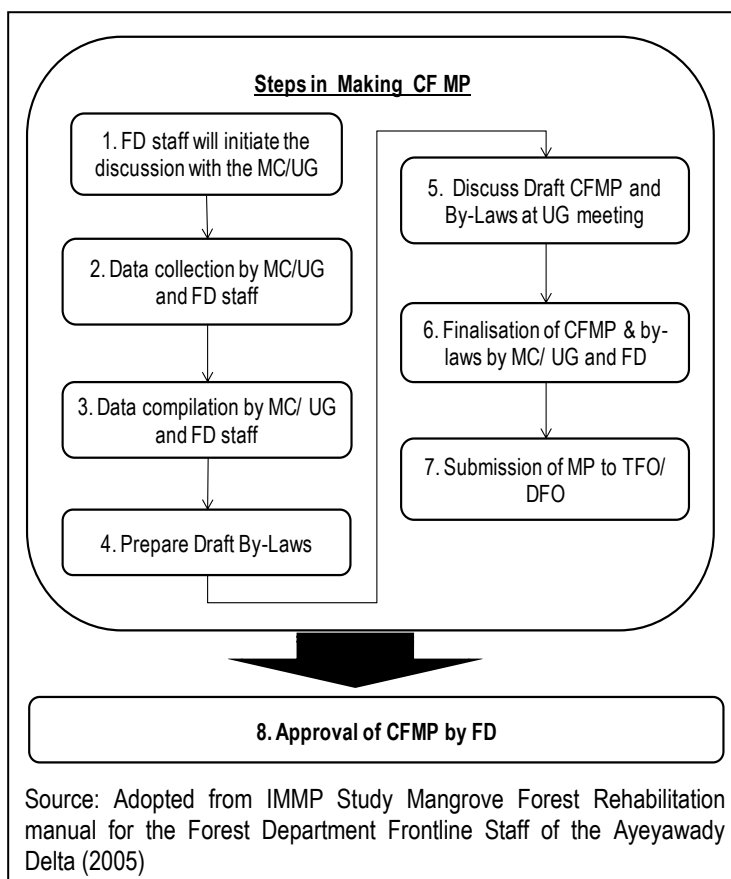
To prepare CF Management Plan (CFMP), 7 steps are to be completed by the FD staff and UG/ MC. FD Staff will initiate the process by explaining these steps and objectives of CFMP to UG/ MC members. The steps will include: 1) data collection and 2) compilation, 3) preparation of by-laws, 4) obtaining approval of UG, and 5) finalisation of CFMP and by-laws.

The finalised copy will be submitted to TFO for review and once it is approved by the township level, CFMP will be forwarded to DFO

for further review and approval. In this process, any revision suggested by FD needs to be done by MC with guidance from FD staff.

4.1.2 Definition and Contents of CFMP

CFMP is a plan of management and harvesting activities that will be carried out by the UG members in the CF area. The plan is made for 5 years with an annual work plan for each year. The plan will be comprised of 3 main sections; 1) description of the CF area, 2) forest management activities, and 3) benefit sharing arrangement. The guideline to prepare the CFMP issued in 2000 by FD (Annex 6) must be made reference to. Below is the outline of CFMP extracted from the guideline. An example of a CFMP prepared by JICA/ FD Mangrove Project is attached in Annex 8.



In consideration of the CFMP Preparation Guideline, JICA/ FD Mangrove Project has prepared the CFMP with 6 communities in DMA. Based on our field experience, further details were required to be added to the guideline for the FD field level staff and community to prepare the plan. Thus, the enhanced guideline of preparation of CFMP is developed as below.

Outline of the CFMP recommended for DMA by JICA/ FD Mangrove Project

Chapters based on the CFMP Guideline	Description of the contents
1. Introduction	To state clearly the name of target village, its history, formation of the community forest users group (CFUSG) with total number of the members, CF area (communal/private plantation), etc. <u>Note:</u> In some draft FMP, the history of village and the profile of CFUSG are described in the last chapter of FMP ("9. Conclusion"). It should be moved to "Chapter 1 Introduction".
2. Objective	To state clearly <u>the period which the FMP is applied with the date of its commencement and end.</u> It is assumed 30 years as initial duration of land lease for CF plantation in accordance with Provision 12 of the Community Forestry Instruction. The period should be stated in the CF Certificate as well.
3. Location and area	Boundary: East....., West....., South....., North..... with longitude and latitude of the key locations.
4. Climate (temperature, rainfall)	Natural conditions and environments of the CF area should be described briefly.
5. Topography	
6. Soil type	
7. Conditions of the present vegetation	
8. Afforestation	
(A) Establishment of new forest plantation	
8.1. Establishment of nursery	This item is to be included in FMP in case that the community is located so far that FD can provide only the tree seeds and not the seedlings. In this case the community will have to establish the small scale nursery in their area. Technical advices should be provided by FD focusing on setting up the nursery and producing the seedlings in poly tubes. <u>Note:</u> At the 4 th workshop in some target villages such as TGT and SPT, the FD staffs suggested the CFUSG members to describe establishment of small scale nursery in the village. Basically it aims to produce the seedlings after the first rotation period when the CFUSG will have to secure by themselves the seedlings for additional planting as directed in CFI. The plan of establishing village nursery should be described to set another chapter. It is added as Chapter 8 in the revised overall structure of FMP.
8.2. Site preparation	Site preparation should include the following operations; 1) site clearing, 2) staking to fix the positions of pits along with the design of planting (putting sticks at the spot of pit), 3) refilling and applying manure (if necessary).
8.3. Establishment of plantation	Establishment of plantation includes planting of seedlings and replanting. Replanting will be done soon after the first weeding. It is necessary to check the initial survival of planted seedlings to do the replanting.
8.4. Weeding	Weeding is usually required two times. First weeding is carried out soon after the planting (<u>around July</u>) and second weeding is done in <u>August or September.</u>
8.5. Fire Protection	Fire protection should be carried out constantly. It is done by assigning the fire watchman or all the CFUSG members will do the patrol in turn.
8.6. Cultural method (thinning, pruning, coppicing, etc.)	Although it differs according to the tree species and conditions of plantation site, maintenance operations such as thinning, pruning and coppicing shall be started in general from 6 th year of plantation.

Chapters based on the CFMP Guideline	Description of the contents
8.7. Rotation	It differs according to the tree species and conditions of plantation sites. In the delta area around 10 to 15 years is appropriate for rotation of forest plantation.
8.8. Felling	Principally felling is done by selective cutting which is known as "girth method" in Myanmar and shall not be done by clear cutting of the plantation. The intensity and the area to apply selective cutting in the site shall be determined according to the stock volumes and plan for replanting of the plantation.
8.9. Distribution	It may not be possible to determine clearly the method to distribute the forest products to the stakeholders because it depends on the type, quantity (amount) of the products harvested at one time and the target of distribution/selling. The method should be discussed and agreed among the CFUSG members according to the advices given by FD. Principally due attention should be paid to the transparency and equality of distributing the products to the CFUSG members.
(B) Conservation of existing forest	
8.10. Preparation of stock map and management map	In order to prepare <u>the stock map</u> , participatory resource assessment should be done to identify the types of forest and vegetation in the village. The boundaries of the CF area should be measured and the coordinates of key locations should be recorded by GPS to draw the area on <u>the management map</u> .
8.11. Tending before rest period	
8.13. Forest establishment in the remuneration area	The operations follow the methods employed in the establishment of new forest plantation.
8.14. Cultural methods	The operations follow the methods employed in the establishment of new forest plantation.
8.15. Felling	Felling is allowed only for the planted trees. Principle is selective cutting (girth method). The target species, timing and intensity will be determined following the technical advices by the FD.
8.16. Distribution	It may not be possible to determine clearly the method to distribute the forest products to the stakeholders around because it depends on the type, quantity (amount) of the products and the target of distribution/selling. The method will be discussed and agreed among the CFUSG members according to the advices given by FD.
9. Conclusion	This chapter briefly concludes the FMP with describing the procedures to be followed after submitting it to the district forest officer.
10. Annexes	To attach the following items. 1) Management map and stock map 2) Members list of the CFUSG 3) By-Laws of CFUSG (Internal regulation of CFUSG)

Source: JICA/ FD Mangrove Project (2012)/ CF Management Plan Formulation Guidelines (2000)

4.1.3 Roles and Responsibilities of FD staff and UG members in the Process of Formulating CFMP

The preparation of CFMP is to be done jointly by FD staff and UG/ MC members. Where the scientific data is required, FD staff will collect the data. UG/ MC members will work with FD staff in the field and compile the data. During the process, FD staff will hold frequent discussion with the MC/ UG members.

An overview of Roles and Responsibilities of FD staff and UG members in preparation of CFMP

Stakeholder	Responsibilities
FD	<ul style="list-style-type: none"> ▪ Will guide the process of CFMP formulation ▪ Will discuss/give trainings to chairman of MC and other persons who will formulate CFMP by assigned staff ▪ will show an example of CFMP to help UG members understand what CFMP is about and how it should be prepared ▪ will prepare maps and information available with FD ▪ will seek guidance from the DFO, if any difficulties arises
MC member	<ul style="list-style-type: none"> ▪ Will coordinate between FD and UG ▪ Will prepare a draft CFMP with FD staff ▪ Will ensure that the UG members views are reflected fairly in the CFMP
UG members	<ul style="list-style-type: none"> ▪ Will actively take part in the planning process ▪ Will cooperate with FD if the field survey is required ▪ Will consult FD staff is any difficulties arises

Source: JET-JICA/ FD Mangrove Project (2012)

When a CFUG has a large number of members, MC is suggested to draft the CFMP with FD staff. If UG members are not so many or chose to prepare the draft as an entire group, the draft will be prepared by the UG members with facilitation of FD staff. In both cases, the drafted document is to be finalised by obtaining an approval at UG meeting, which decision is to be documented in a minutes book.

In the following sections, further description of roles and responsibilities is provided for each step in preparing management plan.

4.2 Management Planning – Step by Step

4.2.1 Planning Activities for CF

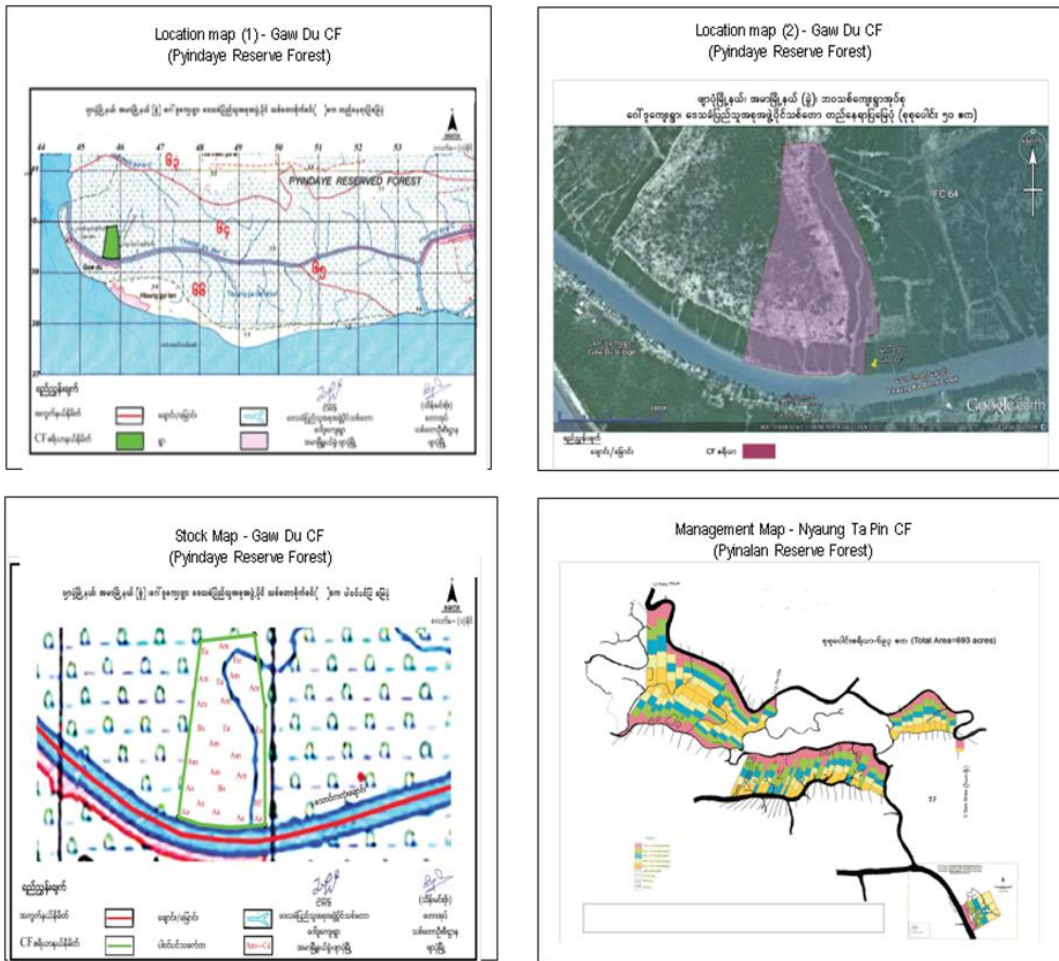
1) Data collection

Once the group is formed, the UG/ MC members and FD staff will work out who would collect which data and how such data is to be collected. The data requirement is presented in 4.1.2.

2) Preparation of Maps

CFMP needs to include 3 types of maps; 1) Location map of CF area; 2) Stock map (scale 8" : 1 mile); and 3) Management Map (scale 8":1 mile). These maps are to be prepared with the available information. Examples of these maps are shown in the box below.

Various Types of Maps prepared for Management Plan in JICA Mangrove Project



Source: JET-JICA/ FD Mangrove Project (2012)

The above presented sample maps have been prepared in 2012 with assistance from JICA/ FD Mangrove Project. While preparing these maps, JICA/ FD project realised that it would be meaningful to prepare maps to the scale that captures reasonable details. Thus, the maps are not always to the scale nor following the scale determined in CF Management Plan Formulation Guidelines (2000). How to prepare the maps is attached in Annex 7.

3) Preparation of Harvesting Plan

Once the stock map and management map are prepared, harvesting plan can be drawn. How to prepare a harvesting plan can be found in Annex 9. This method was proposed in IMMP Study Mangrove Forest Rehabilitation Manual for the Forest Department Frontline Staff of the Ayeyawady Delta (2005).

4) Preparation of Annual Activity Plan

Annual activity plan is the schedule of activities to be carried out by UG members in a CF area during the planned period of 5 years. Two types of planning are to be done: 1) Yearly Schedule of Establishment Plantation/ Conservation of Existing Forest in CF area ; and 2) Schedule of CF activities.

Yearly Schedule for Establishment of Plantation/ Conservation of Existing Forest in CF area

The Yearly Schedule for Establishment of Plantation/ Conservation of Existing Forest in CF area will be prepared to plan the area that the UG members work each year during the planned period. An example is shown below and the format is attached in Annex 10.

Yearly Schedule for Establishment of Plantation in CF Area – Nyaung Ta Pin CFUG							
Year Plot	2009 (Acre)	2010 (Acre)	2011 (Acre)	2012 (Acre)	2013 (Acre)	Total (Acre)	Remark
Individual Plot (68 members)	68	68	68	136	136	476	(About two third of the entire area of CF is needed to be established new plantation, and the remaining one third (about 217 acres) are existing forest area.)
Individual Member allotment	1.0 acre	1.0 acre	1.0 acre	2.0 acres	2.0 acres	7.0 acres	

Source: Nyaung Ta Pin CFUG CF Management Plan, JET-JICA/ FD Mangrove Project (2012)

Schedule of CF activities

Schedule of CF activities will indicate the timing of various management works to be done during the planning period. A part of the CF activity schedule prepared in Kwa Kwa Ka Lay CF in Kyakankwinpauk RF is shown below as an example.

Schedule of CF Activities – Kwa Kwa Ka Lay CFUG																							
Activity	Monthly												Yearly					30 years plan					
	1	2	3	4	5	6	7	8	9	10	11	12	2009	2010	2011	2012	2013	1st 5 yrs	2nd 5 yrs	3rd 5 yrs	4th 5 yrs	5th 5 yrs	6th 5 yrs
Establishment of Plantation																							
Establishment of nursery																							
Site preparation																							
Staking/ Planting																							
Conservation of existing Forest																							
Delineation of stock map and management map																							
Gap planting																							
NFIP/ Weeding																							

Source: Kaw Kaw Ka Lay CFUG CF Management Plan, JET-JICA/ FD Mangrove Project (2012)

Some of the activities to be included in the schedule are as below. FD staff will guide the CFUG/ MC members to implement the activities. It is important that CFUG/ MC members are involved in this discussion so that they would understand why they need to carry out certain activities at certain timing. During the process, FD staff is required to respond any technical enquiries on how to carry out certain activities that CFUG/ MC members might have.

Activities to be done in the CF

Establishment of Plantation	Conservation of Existing Forest
<ul style="list-style-type: none"> ▪ Establishment of Nursery ▪ Site preparation ▪ Staking/ Planting ▪ Weeding ▪ Pruning ▪ Thinning ▪ Fire Protection ▪ Felling ▪ Distribution 	<ul style="list-style-type: none"> ▪ Delineation of stock map and management map ▪ Gap planting ▪ NFIO/ Weeding ▪ Pruning ▪ Thinning ▪ Felling ▪ Distribution ▪ Patrolling

Source: CF Management Plan Formulation Guideline (2000)

4.2.2 Formulation of By-Laws by CFUG

As part of CFMP, by-laws of the CFUG need to be attached. The by-laws could be drafted by all UG members, or by MC members under the guidance of FD staff. In the case of latter, the drafted by-laws need to be shared and discussed with UG members. FD staff will explain 1) the need of preparing by-laws, 2) its contents, and 3) the process of preparation.

1) A Need for By-Laws

By-laws are a set of rules that are to be followed by UG members. As UG is comprised of more than one individual, not everyone would think and act alike. If a collection of individuals would like to achieve a shared objective, certain actions are to

FD staff will

1. Explain the importance of have a good by-law
2. May also hold brain storming with the UG members by asking "what are the by-laws? What are the points to be included in by-laws? Why do we need by-laws?"

Source: JET-JICA/ FD Mangrove Project (2012)

be avoided. Some actions are to be taken in a coordinated manner. By-laws will document such and UG members are to abide by.

2) Contents of By-Laws

The contents of by-laws normally include the objectives of UG, roles and responsibilities of MC members and group members, definition of membership, penalties and etc. An example of the table contents is given below and an example of by-laws prepared by one of the CFUGs supported by JICA/ FD Mangrove Project can be found in Annex 12. FD staff will guide the preparation process based on the suggested contents below and help CFUG to accommodate local specificity in the contents of by-laws.

Basic contents to be included in CFUG By-Laws

Heading	Contents
Objectives of the UG	<ul style="list-style-type: none"> ▪ What UG wants to achieve through CF should be stated.
Description of CFUG	<ul style="list-style-type: none"> ▪ Date of formation, number of members, location of the Community Forest (including village name, village tract, forest compartment no etc.) ▪ Name of the Village in which UG is formed (Village, Village Tract and Township)
Structure of CFUG	<ul style="list-style-type: none"> ▪ Describe the structure of the UG. (MC, Sub group etc)
Meetings	<ul style="list-style-type: none"> ▪ How often MC and UG should hold meeting? ▪ When? ▪ For what purpose?
Decision making	<ul style="list-style-type: none"> ▪ When deciding on something, at MC level or at UG level, the mode of decision making may vary. It can be by the unanimous

Heading	Contents
	decision or could be by taking quorum. Who should make the decision may also vary from matter to matter. For instance, financial decision can be made by the MC chair person after the discussion by MC members but if the sum is large or if UG group discussion is deemed relevant, UG member meeting may be called and decided by quorum. Such should be defined here.
Membership	<ul style="list-style-type: none"> ▪ What is the eligibility to become a UG member? ▪ How should the UG deal with if a new person wants to join and an old member wants to leave?
Selection of MC members	<ul style="list-style-type: none"> ▪ How should UG members select the MC members? ▪ Should it be by consensus of the UG members? Or should it be by election? ▪ If an election is to be held, the detailed procedure should be described here. ▪ This section should always end by a clause that the selection procedure and the approval of the members are to be recorded in the minutes book.
Duties and responsibilities of CFUG members	<ul style="list-style-type: none"> ▪ Describe the duties and responsibilities of the CFUG members. For instance, they are to attend UG meetings, or to pay membership fees etc.
Duties and responsibilities of sub group members	<ul style="list-style-type: none"> ▪ Describe the duties and responsibilities of the sub-group members. For instance, take part in the meeting, ensure the work is carried out as planned etc.
Financial management	<ul style="list-style-type: none"> ▪ How the group fund is to be maintained and spent is to be defined here. ▪ The procedure to decide how to spend the group fund needs to be clearly laid out.
Rules to be followed when conducting group activities	<ul style="list-style-type: none"> ▪ Since many of the CF activities will be conducted as a group, it is important to have some rules like “to gather on time”, “follow the guidance by FD or MC”, or “report when absent”, and etc.
Prohibition	<ul style="list-style-type: none"> ▪ Some of the actions that are prohibited and how they should be dealt with are to be described here. For instance, “cutting of planted trees in CF area against the harvest plan, a fine of xxx kyat may be collected, which will be saved in the common fund”. ▪ This section should also include the actions that are not allowed by non-members/ non villagers in the CF area and how they should be dealt with. For instance, “when the illegal cutting is found in the CF, the member will promptly report to FD staff for further action”.
Harvesting and Sales of CF produces	<ul style="list-style-type: none"> ▪ This section should show the resolution that the harvesting of the CF produces is to be done as per the harvesting plan attached to the management plan. ▪ The procedure to prepare vouchers required for the sales of CF produces will also be stated. ▪ This section should also clarify the tax issues associated with the CF produces.
Benefit sharing	<ul style="list-style-type: none"> ▪ How the benefits derive from the CF can be shared among the UG members is to be described.

Source: JET-JICA/ Mangrove Project (2012)

3) Finalisation of By-laws

To finalise the by-law, a meeting of UG members will be held. FD staff will request MC/ UG to hold a meeting or meetings to review the draft by-laws. It is important to make sure in the meeting that everyone in CFUG can understand the contents clearly and agree to abide by. If revision has to be made, MC/ UG will make necessary amendment during the meeting. When the discussion is exhausted, an approval should

be obtained at the UG meeting. The meeting minutes should be prepared by MC Secretary on the minutes book of the UG.

4.2.3 Compilation of CFMP

Once the data collection is completed and maps and by-laws are prepared, these materials have to be put together as CFMP. MC and FD staff will compile the materials according to the table of contents of the CFMP as suggested in CFMP Formulation Guideline 2000 as in Annex 6.

4.2.4 Approval of CFMP by UG before Submission

Once the compilation is done, final verification shall be done at the CFUG meeting. Any feedback from the UG member shall be incorporated into the CFMP by MC. Once the revision is completed, the approval of the CFMP by the UG members shall be obtained. The minute of meeting is to be recorded by the Secretary of MC each time a meeting is held.

4.3 Submission of CFMP to FD

MC will submit the finalised CFMP to the TFO. TFO will review the CFMP and suggest any revisions to be made. Once such suggestions are made, FD staff will guide the MC to revise the CFMP accordingly.

Once the CFMP is approved by TFO, the same will be forwarded to DFO for further evaluation and approval. MC may again expect some suggestions for revision. In such case, FD staff will again help MC for revision.

Below points are the evaluation criteria of CFMP to be adopted by FD. If the CFMP does not fully satisfy the below criteria, the CFMP shall be returned to the MC/UG for revision and resubmission.

4.4 Issuance of CF Certificate by FD

After DFO approves the CFMP, DFO will issue the Certificate for the establishment of CF as in the form attached as Annex 14 and Annex 15¹. In

What is the tenure of CF area?

Tenure: 30 years lease

Starting Date: ?

Ending Date: ?

Shall we make it clear?

Source: JET-JICA/ FD Mangrove Project (2012)

¹ Although, DFO has been authorised to issue the certificate vide Letter no: Planning/

JICA/ FD Mangrove project, the commencing date and duration of the lease were mentioned in the CF Certificate to clearly define the tenure although it was not required to be included in the existing format. Further the JICA/ Mangrove Project learned that the below points including the land tenure are to be clearly stated in the certificate itself.

Suggested contents of CF Certificate for DMA

Sections of CF Certificate	Description of the suggested contents
Preamble	To state clearly the government law and decrees to regulate the certification of Community Forestry. Those are 1) Forest Law (1992), 2) Myanmar Forest Policy and the Statement (1995), 3) Community Forestry Instruction (1995). Any other government law and regulation associated with CF needs to be mentioned.
Duration of land lease	To state clearly the duration of land lease with the date of its start and end to the CFUSG according to the period specified in the FMP. CFI stipulates the initial duration as 30 years.
Type of CF forest with its area	To describe clearly the type of CF forest whether it is forest plantation (new development) or existing forest (conservation) with their area (acre). To indicate the major tree species in those types of forests
Membership of CFUG	To indicate the members of the management committee of CFUSG and the leaders of the sub-groups.

Source: JICA/ FD Mangrove Project (2012)

FD staff will follow up the progress of certification from time to time and inform CFUG.

When issuing the certificate, FD will organise a ceremony so that the CF establishment is publicly announced. FD officers and staff concerned, village authority and UG members will participate. Other invitees may include NGOs and other government departments in the area, if it is deemed appropriate, and the condition permits.

In the CF certificate handing over ceremony...

Venue: CF Extension centre or Village

Suggested Participants:

- FD
- Village authority
- UG members

Purpose of holding the ceremony:

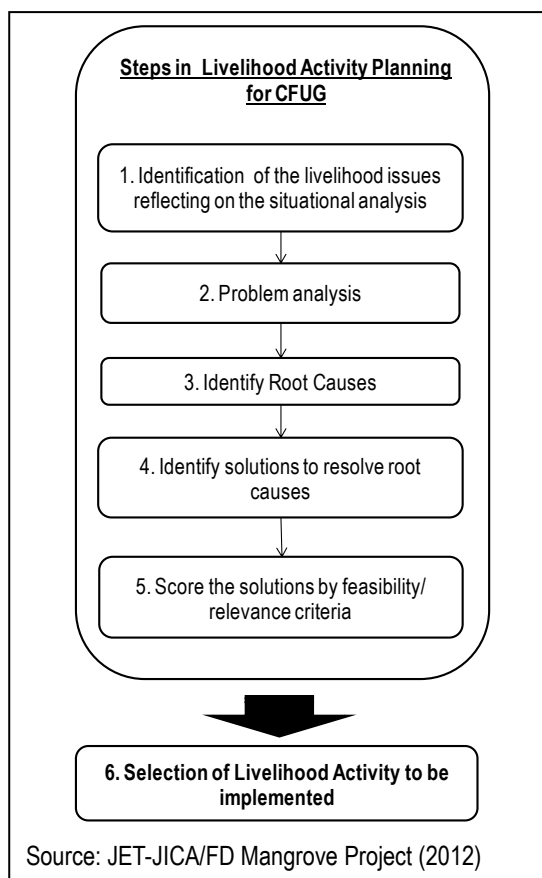
- To show resolution of the UG to implement CF
- To publicly announce the CF area
- To advance awareness towards sustainable use of Mangrove Forest Resources
- To create network with other organisations for livelihood activities

Source: Adopted from U Myint Aung (2012). "CF SOP for DMA (Preliminary Draft)"

Tha (ka)2/ (2653/97) dated 28 November 1997 from Director's General's Office of FD, currently, State/ Regional Director issues the certificate after obtaining an approval from Director General of FD.

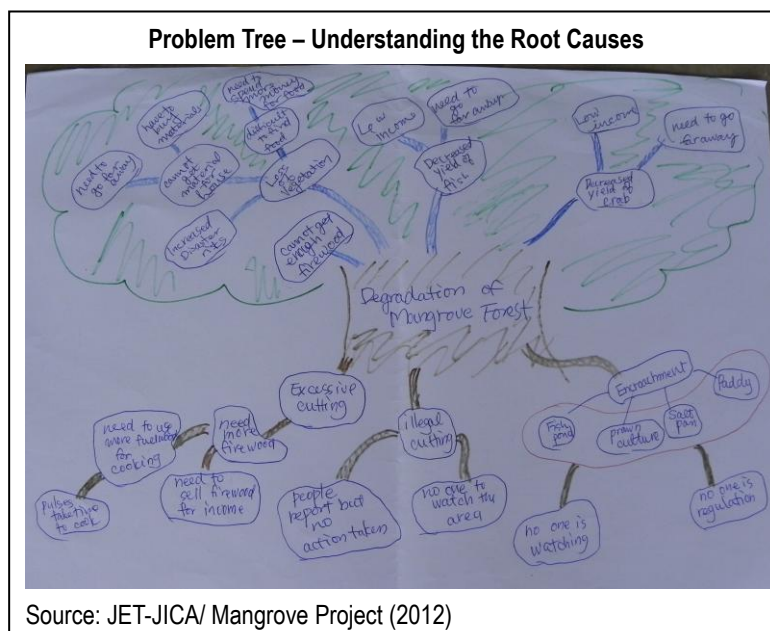
4.5 Livelihood Activity Planning

As discussed in Chapter 2, livelihood security enhancement activities are highly relevant to the progress of CF. Though it is not part of CFMP, it is an important component of CF process. A proper planning will help effective and efficient implementation of the livelihood activities. Thus, in this section, how to identify appropriate livelihood activities is explained. FD staff will introduce the process with CFUG members and conduct exercise. In Annex 5, detailed procedure for livelihood activity planning is given.



4.5.1 Identifying Potential Livelihood Activities

FD staff will begin the activity by reminding the CFUG members with the PRA exercises conducted during the situational analysis and ask them to identify the most serious/urgent issue to be resolved in the village. The identified issue will be analysed to understand its root causes which would lead us to the effective solutions.



In analysing the problem, Problem Tree is suggested to be conducted. The trunk of the tree will be filled with the problem. The branches will be drawn to indicate the consequences while the roots will lead to the fundamental causes.

When the tree is completed, FD staff will ask CFUG members to think of solutions to the root causes which are found at the end of each root.

4.5.2 Selecting the Most Feasible and Appropriate Livelihood Activity

The root causes will be used to identify the solution. FD staff will guide the UG members to discuss and complete the table below. The higher the score, the higher the feasibility.

Scoring for Identifying the most feasible livelihood activity

Root Cause	Solution	How accessible is the fund? How much fund is available?	Is the required skill available in the village or nearby area/ easily accessible ?	How Urgent?	How many people will benefit?	How much time required to implement? (If little time is required, give score 5. If lot of time is required give score 1).	Total Score
Need for more energy for cooking	To adopt energy saving technology	4	2	5	5	5	23

Source: JET-JICA/ Mangrove Project (2012)

UG will attempt to implement the activity that scored the highest mark. FD staff is required to support the networking of the UG/ MC members with the relevant resource organisations.

Chapter 5

Chapter 5

Implementation Stage

5.1 An Overview

The implementation stage involves four main activity components: 1) CF activities, 2) group management, 3) livelihood activities and 4) monitoring/ reporting.

Main role of FD staff in implementation stage is to provide technical guidance to the MC/ UG members 1) to implement CF activities, 2) to manage the group and 3) monitor the progress to resolve the issues. As for the livelihood related activities, FD staff will play the role of facilitator to link MC/ UG with the appropriate resource organizations.

On the other hand, MC/ UG will be involved as a planner, manager and implementer of various activities and work with FD staff as a partner. In implementing livelihood activities, MC/ UG will take the lead by working with resource organisations other than FD.

In the following sections, component wise explanation is provided in details. FD staff will review the contents and work with MC/ UG as required.

5.2 CF Related Activities

5.2.1 Roles and Responsibilities of FD and MC/UG

An overview of the Roles and Responsibilities of FD and MC/ UG are summarised below.

Summary of Roles and Responsibilities in CF Activities

FD	UG	
	MC	UG
<ul style="list-style-type: none"> ▪ Provide initial planting materials ▪ Provide technical guidance so that the CFUG can execute the field activities as planned 	<ul style="list-style-type: none"> ▪ Ensure to implement the management activities as per CFMP ▪ Ensure harvesting is done as per CFMP ▪ Prepare sales voucher of produces harvested from CF ▪ Monitor the fair benefit sharing ▪ Coordinate with FD ▪ Jointly work with FD to transport the initial planting materials ▪ Organise UG members for the planned activities ▪ Inform UG members about the activity schedule ▪ Arrange the tools and equipments required for CF activities ▪ Monitor the progress of the field work ▪ Seek guidance and report any problems to FD staff so that the issues can be resolved at the right time 	<ul style="list-style-type: none"> ▪ Implement the management activities as per CFMP ▪ Harvest the produces as per CFMP ▪ Take part in the group activities as scheduled ▪ Cooperate with MC and FD for timely implementation of the field activities ▪ Report any problems to MC and to FD so that they can be promptly resolved

Source: JET-JICA/ FD Mangrove Project (2012)

5.2.2 Key Responsibilities - FD

1) Arrangement of Seedlings

FD will make necessary arrangement for the first year seedlings to be used in the CF area. How the seedlings to be transported from the nursery and to the CF area needs to be worked out between FD and MC/ UG. However, it is suggested that the delivery of the seedlings shall be arranged by FD.

2) Technical Guidance

FD will provide technical assistance and expertise necessary for the establishment, tending operations management and utilization of CF so as to attain sustainable development to CFUG. In the JICA/FD Mangrove Project, silvicultural technologies suitable in DMA have been compiled as a technical guideline. CF activity calendar to be used during the initial technical guidance given to the CFUG members is attached in Annex 16, which can be used to introduce various field activities to be done in a particular month of the year. FD staff will make good use of this document during the field technical guidance.

3) Monitoring

FD staff is also required to conduct regular visits to MC/ UG and CF area to see the progress of the CF activities. In DMA, access to the villages may be restricted by the water body. Thus, FD staff and MC/ UG should make an alternative arrangement to maintain communication if the visit cannot be conducted.

TFO may conduct field visit semi-annually and DFO annually.

5.2.3 Key Responsibilities - MC

1) Formation of Sub-Groups

MC will organise sub-group or working group that could be organised for various works to be done in the CF area. MC members may also seek advice from FD staff how the UG members should be organised. Once the UG members are organised into sub-groups/ working groups, a sub-group leader will also be selected by the consensus of the members of each sub-group. The sub-group leaders and MC will work out the activity schedule.

Type of Records	Sample Form										
	<p style="text-align: center;">FDTownship Office</p> <p style="text-align: right;">Voucher No:</p> <p>Name of the CFUG: Receipt Voucher No:</p> <p>Date: No:</p> <p style="text-align: center;">Details of the Trader:</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Name of Trader</td> <td style="width: 50%;">Address</td> </tr> <tr> <td> </td> <td> </td> </tr> </table> <p style="text-align: center;">Product Traded</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 40%;">Product Name</td> <td style="width: 20%;">Quantity (Unit:)</td> <td style="width: 40%;">Date of Removal</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> <p>The above forest products are registered and permitted to be transported to <input type="checkbox"/> Township by the Forest Department.</p> <p>FD Township Officer</p> <p>Name:</p> <p>Signature:</p>	Name of Trader	Address			Product Name	Quantity (Unit:)	Date of Removal			
Name of Trader	Address										
Product Name	Quantity (Unit:)	Date of Removal									

Source: JET-JICA/ FD Mangrove Project (2012)

4) Monitoring of Fair Benefit Sharing

The benefits derive from CF area belongs to individual member or to the UG members as a group. MC will monitor the benefit sharing process and ensure the fair transaction.

5) Coordinate with FD/ Seek Technical Guidance

MC will maintain close communication with FD staff. When a problem arises, MC will proactively seek guidance from FD staff at the earliest.

5.2.4 Key Responsibilities - UG member

Each UG member will follow the work schedule and will work diligently so that the allotted work can be accomplished as scheduled. If a UG member cannot take part in an activity, other adult member of the UG member household may take part in the work after informing the sub-group leader/ MC.

5.3 Group Management

5.3.1 Roles and Responsibilities – An Overview

Once more than a handful of individuals get together to work, we are likely to encounter challenges in sharing of information, decision making, financial management etc. CFUG is also comprised of many individuals. Thus, FD staff will guide CFUG, especially MC in various aspects of group management including 1) holding regular meeting; 2) keeping records; and 3) financial management. Under the guidance of FD, MC will maintain records and ensure fair decision making process, while UG members will actively involve themselves in meetings to voice their views. It is also important that all UG members will abide by the by-laws.

Summary of Roles and Responsibilities in Group Management

FD	UG	
	MC	UG
<ul style="list-style-type: none"> ▪ Train to MC members in basic record keeping ▪ Provide guidance to MC members to maintain records ▪ Attend MC/ UG meetings to help them resolve issues in relation to CF 	<ul style="list-style-type: none"> ▪ Represent the views of the UG members ▪ Keep records ▪ Ensure the fair decision making ▪ Ensure accountability ▪ Act for the common interest of the UG ▪ Ensure the proper use and management of group fund ▪ Resolve issues amongst the UG members ▪ Follow by-laws 	<ul style="list-style-type: none"> ▪ Take part in the meetings and discussions as called by MC ▪ Follow by-laws ▪ Report any issues of CF with MC

Source: JET-JICA/ FD Mangrove Project (2012)

5.3.2 Key Responsibilities - FD

1) Training and Guidance

FD staff will give training and guidance to MC/ UG members in group management. The training topics will include 1) how to conduct various meetings; 2) keeping financial records and minutes book; 3) how to manage funds and 4) how to amend by-laws. The training materials are attached in Annex 17.

2) Monitoring of the Group Performance

Once the training is given, MC members are expected to begin keeping the records, holding meetings and manage their funds. To monitor their performance, FD staff will make regular visit to check their records (cash book and minutes book). If any irregularities are found, FD staff will guide MC members to rectify.

5.3.3 Key Responsibilities - MC members

As outlined above, several important tasks are to be carried out by MC members as they will be leading CFUG. FD staff will explain below to MC members using the training materials attached as Annex 17.

1) Communication

In a group, in order to facilitate communication between the members, regular meetings are to be held. In CF, MC meeting and UG meeting are to be held on a regular basis.

MC meeting: MC meeting will be held at a regular interval as decided in the by-laws of the CFUG. The meeting is suggested to be held twice a month to ensure prompt decision making and problem solving. The meeting agenda will include; work schedule, progress, financial matters and any other issues to be resolved in CFUG. If a need arises, ad-hoc meeting should also be held in addition to the regular meetings.

UG meeting: This is similar to General Body meeting of a larger organisation. All CFUG members will participate in the meeting. This can be held once in every quarter or semi-annually as per by-laws of the CFUG or as a need arises. In the early stage of UG formation, the meetings will be held frequently for the discussion and approval of the by-laws, selection of MC members and preparation and approval of CFMP.

In the scheduled UG meeting, MC will report various issues discussed in the MC meetings and all financial transactions took place during the reporting period. The UG members will ask any clarifications regarding the records and information disclosed. If any irregularity is found, the MC will rectify as per the decision taken at the UG meeting. Any decisions regarding CFMP will be presented before UG and their approval is to be obtained.

2) Mobilisation

MC will help organise UG members in a way that the work can be executed efficiently. The most appropriate way of organising the work force for CF can be decided by the MC/ UG. In CF, sub-groups may be formed in a UG. This sub-group can be organised on the basis of work type or by the location of the plots. FD may provide guidance in this regard.

3) Coordination

Coordinating with FD staff and other relevant organisations is a very important aspect

of group management. In CF related activities, MC will actively report issues and seek guidance from FD staff. For livelihood activities, the MC will establish its own network with facilitation of FD staff to seek livelihood opportunities for UG members.

4) Record Keeping

Minutes Book

At least two types of records are to be kept by MC/ UG. One is the minutes book. In this book, all the points discussed and decisions taken at MC/ UG meetings will be recorded. This will help avoid confusion among the MC members and can be shared with UG members upon request and also during the UG meetings. The Secretary of MC will be responsible for writing the minutes of meetings.

Cash Book and Financial Evidences

The other is the cashbook. In JICA/ FD Mangrove Project, a simplified cash book was introduced to begin with. In DMA, the villagers often do not have access to banking facilities and thus, all financial transactions will be made in cash for the time being. The amount of transaction will not be to the extent that requires complicated accounting system.

Though simple, keeping cash book with vouchers could save MC members from confusion, misunderstanding and conflicts that may be foreseen.

Treasurer will keep all financial evidences (receipts/ invoices/ delivery note etc) in an organised manner along with the cashbook. The financial record will be disclosed at any time requested by UG members, at the regular UG meeting and when FD staff visits MC.

Storing the Record Books and other official documents

The record books and other official documents should remain with the Chairperson of MC. If the Chairperson is away from the village for a prolonged period, the books should be handed over to the MC member who is deputed to act on his/ her behalf.

5) Monitoring/ Reporting

The purpose of monitoring is to verify the work progress and achievement and detect the problem at the early stage so that it can be resolved before it gets worse.

MC will monitor the work progress and harvesting against CFMP. Field level

monitoring in the form of patrolling against unlawful act in the CF can be done by every UG member.

The findings from the monitoring should be documented and reported to FD staff. If not done so, the monitoring will lose its meaning. It is important to report to the relevant authority with any issues to be resolved. If the issue is internally caused, the matter will be discussed at MC and UG meetings with presence of FD staff to resolve.

5.4 Livelihood Related Activities

In Chapter 2, CF-livelihood nexus was explored. By now many of us have understood that such activities are very much relevant to CF. However, as mentioned in the chapter, the role of FD in this process is limited to facilitator, while the MC/ UG members will reach out the other organisations and implement with the resource organisations as an implementer. A summary of the roles and responsibilities are given below.

Summary of Roles and Responsibilities in Implementing Livelihood Activities

FD	UG	
	MC	UG
<ul style="list-style-type: none"> ▪ Work with the UG to identify the appropriate livelihood activities ▪ Facilitate the linkage with organizations/ government offices that can provide them assistance ▪ Monitor the progress of the activities and UG and collaborating agencies to advance further 	<ul style="list-style-type: none"> ▪ Work with FD to identify the appropriate livelihood activities ▪ Coordinate with Resource organizations to mobilize resources and implement the livelihood activities ▪ Mobilise UG members for any work required ▪ Monitor the work progress/ Resolve any issues arise during the process 	<ul style="list-style-type: none"> ▪ Actively involve in the livelihood activities ▪ Report any issues concerning the livelihood activities to MC

Source: JET-JICA/ FD Mangrove Project (2012)

FD staff will use the materials in Annex 5 and help MC/ UG members to link with the relevant resource organisations.

5.5 Reporting by FD

Documenting the field condition is an important task of FD staff in the implementation of CF. This would help communicate the field reality to different levels of FD officers and thus could lead to effective problem solving. Two types of the reports are to be prepared by FD staff: Daily Field Report and Progress Report.

1) Daily Field Report

The Daily Field Report is to be prepared when FD staff visits the CF area or attends

MC/ UG meetings. The report is suggested to be completed before the FD staff leaves the site so that the findings and observation of the staff can be shared with the MC/ UG members. JICA/ FD Mangrove Project designed a format that may be adopted by FD.

Suggested Daily Field Report Form

Village Name:				Date Visited:	
Village Tract Name:				Reporting Officer:	
Status of the Records maintained by the MC		Cashbook:			
		Minutes book:			
		Others ()::			
		Others ()::			
Procurement of materials (Qty, Time of delivery, status)					
Management Activities carried out between () and ()					
Type of Activities		Status/ Observation			
Species	Harvested period	Volume	Destination	Removal pass required? (Y/N)	As per harvesting plan? (Yes/ No)
Discussion held with the MC/ UG members					
Report Received:	Date:	Name of the officer		Signature	

Source: JET-JICA/ FD Mangrove Project (2012).

2) Progress Report – Annual Report

The Progress Report is to be compiled for each year during the planned period and submitted within 1 month after the closure of the financial year. FD staff and MC will jointly prepare the report using the format is attached in Annex 19. While preparing the report, the FD staff will hold an annual review meeting with the UG members to review the progress and plan for the forthcoming financial year. The annual review meeting is to be conducted 2 months before the end of FY.

The FD staff will submit the annual report to TFO. After the review, the report will be sent to DFO. DFO will forward the report to the State/ Regional Forest Officer within two months after the end of the financial year. A true copy will be forwarded to DG and the Director of the Planning and Statistics Section of the FD.

5.6 Revision of CFMP

CFMP is prepared for 5 years. During the term, the socio-economic condition or natural environment surrounding CF area and CFUG may change. When the pre-condition on which the CFMP is based upon has changed for some reason, the CFMP is to be reviewed and revised.

As the CF activities are implemented, the CFUG members do observe the field condition. The MC members and FD staff will also monitor the work progress on a regular basis. Based on the findings from the monitoring, the CFMP shall be adjusted so that implementation plan can be made more feasible and achievable.

The annual review meeting could be an opportunity in which the FD staff and CFUG members could review the CFMP.

When revising, the amended points should be clearly highlighted in the revised CFMP. The revised CFMP will require approval of UG and be submitted to TFO who would forward it to DFO for review. Once the approval is granted by the DFO, the revised CFMP will become effective.

5.7 Withdrawal of CF Certificate

If CFUG fails to function as expected or commits anything unlawful, the CF certificate may be withdrawn and the lease for CF area would be discontinued. FD staff, therefore, needs to monitor the performance of CFUG and report to the respective officers as prescribed above. When such case arises, FD staff will consult TFO for guidance.

Annexes

Annex 1: CFI 1995with Annex

Annex 1_1: CFI 1995 (English)

CFI Annex

***1: Application for the Establishment of the
Community Forestry***

2: Management Plan for the Community Forest

***3: Certificate for the Establishment of Community
Forest***

4: Community Forestry Progress Report

UNION OF MYANMAR MINISTRY
OF FORESTRY
FOREST DEPARTMENT

COMMUNITY FORESTRY INSTRUCTIONS

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Community Forestry Instructions

Introduction

1. For the purposes of supporting the economic development of the country and regaining the environmental stability and addressing basic needs of local communities, active participation by the rural population is urgently needed to plant trees in barren lands and to forest degraded areas. To achieve these goals community forestry instructions are issued by the forest department prior to the formal enactment of the community forestry rules.

Definition

2. Community forestry means: Forestry operations in which the local community itself is involved; such as:
 - Establishment of woodlots where there is insufficient fuel-wood and other products for community use
 - Planting of trees and exploiting of forest products and incomes at farmers level.
3. Community forestry is neither a regional development forestry operations nor a large scale forest operations to import an industrial enterprise based on forest products.

Areas where community forest can be established

4. Community forests can be established in the following areas:
 - a. With the permission of the government, on reserved forest, un-classed forest, protected forest and land at the disposal of the state
 - b. Village owned fuel wood plantations established with the permission of the director general of the forest department
 - c. With the permission of the owner (s) on private owned land or land owned by government organization or non-government organizations

Areas permitted for the establishment of community forests

5. Community forest will be permitted to be established in the following areas:
 - a. In the degraded natural forests where natural regeneration is difficult
 - b. In areas where there is potential to meet the local demand for forest products
 - c. Areas suitable for the establishment of community forest and where there is need to conserve soil and water resources
 - d. Natural forest which for various reasons should be managed by local community
 - e. Forest lands traditionally managed by the local community

Application for the establishment of community forest

6. Household that would like to establish the community forestry shall form the user's group.
7. By consensus a management committee must be formed from members of the user's group. This committee consists of a chairman, a secretary, and 3 members.
8. On behalf of the user's group, the chairman should apply to district forest officer through the township forest officer for the establishment of a community forest. (Annex 1)
9. If the application is accepted, the district forest officer will have to identify and specify the site of the establishment of the community forest. Details of action taken together with a map of the site will then be submitted by the district forest officer to the state/division forest officer with copies forwarded to the director general and the director of the planning and statics division of the forest department. If the land applied for the establishment of community forest is not under the management of forest department, the district forest officer will need to undertake institutions from the district forest conservation committee.
10. The director general of the forest department will give authority to the district forest officers to act according to the section 15 Of the forest law.

Allotment of land lease for the establishment of community forest

11. In the allotment of the land to the each household of members of the user's group, the district forest officer has to determined the size of the land to the allocated according to the climate, the type of planting, tending and conservation that could be accorded.

Duration of land lease for the establishment of community forestry

12. The duration of land lease for the community forest is initially set for 30 years.
13. After a period of 30 years, the district forest officer will, with approval of the director general of the forest department, determine whether or not to extend the lease depending on the performance and desire of the user's group.

Preparation of the management plan

14. Upon receiving the permission to establish a community forest, the user's group has to draw up a management plan according to the form (annex 2) prescribed by the forest department and forwarded to the district forest officer for confirmation. Advice of responsible forest officer will be taken in the preparation of the plan.

Certificate for the establishment of community forest

15. After confirmation of the management plan, the district forest officer will issue the certificate for the establishment of community forest (annex 3). Forest law, forest rules, instructions, and restrictions relevant to the community forest will be attached.
16. If the user's group is found to neglect or to violate the existing forest laws and the forest acts, community forestry instructions, rules, regulations and prescriptions of the management plans, the districts forest officer has the right to revoke the issue of the certificate.

Assistance from the forest department

17. The forest department has to provide the following assistance to the user's group free of charge:
 - a. Seeds and seedlings necessary for the community forest for the first rotation
 - b. Technical assistance and expertise necessary for the establishment, cultural operations management and utilization of community forest so as to attain sustainable development

Responsibilities and duties of the user's group

18. Duties and responsibilities of the user's group are as follows:
 - a. Establishment of the forest plantations in barren areas.
 - b. Where appropriate, natural regeneration method should be used in the rehabilitation of forested areas.
 - c. Fire protection
 - d. To carry out the require cultural operations for the development of the both plantations and natural forests
 - e. Protection against indiscriminate felling, girdling, pruning, resin tapping, removal of barks etc.
 - f. Protect against mining of stones, sands, earth and metals in the designated area
 - g. Prevention of illegal land use activities
 - h. In conformity of the rules and regulations, systematic extraction and utilization of forest products so as to avoid wastage
 - i. Protection against soil erosion and environmental deterioration
 - j. After the first rotation, the user's group shall, under the supervision of the forest department, engage in site preparations, seed collection, sowing, planting and tending operations
 - k. Implementing activities as described in the management plan

Prohibitions

19. No members of the user's group shall engage in the following activities
 - a. Activities not prescribed in the management plan of the community forest
 - b. Apart from inheritance, selling or renting of the community forest
 - c. Metal mining and other activities that would cause forest degradation
 - d. Construction of undesirable houses or shields for the conservation of the community forest
 - e. Apart from the agroforestry, use of land allotted for community forest for gardening or shifting cultivation

Exploitation of forest products from community forest

20. User's group can exploit the forest products of the community forest in accordance with the prescription of the management plan.
21. No tax will be levied on the user's group or members of the user's group concerning the forest products exploited for personal use.
22. Surplus forest products can be sold to nonmembers of the village at reasonable prices. Taxation shall be exempted from the sale of these products.
23. The user's group can market the surplus forest products to areas outside the village.

24. For marketing of the forest products to areas outside the village, tax shall be levied by the forest department at specified rates.

25. The user's group will use the incomes mainly for the implementation of the management plan and for the development of the community forest.
26. Only surplus income can be use for social welfare and economic development of member's of the user's group in line with the wish of the members.
27. The user's group can utilize the forest products of the community forest and surplus cash to develop business enterprises that produce vale added products.

Funds

28. The fund of the user's group will be managed as follows:
 - a. The secretary of the management committee will keep a detail account on particulars pertaining to the funds
 - b. The secretary can, with the approval of the management committee, keep a certain amount of money in hand. Fund excess of that amount shall be kept in a secure place
 - c. The bank account must be opened jointly by the chairman and the secretary
 - d. The secretary must submit the particulars of the financial accounts at least once a year to the user's group

Price setting

29. The user's group can freely sell the products of the community forests at current market price.

Receipts

30. For all the forest products sold from the community forest, the user's group shall issue receipts. For the products to be transported to areas outside the township, a set of three receipts would have to be prepared. One will be issued to the buyer, another submitted to the township officer and the third to be kept with management committee. For forest products that are to be transported to within the township, a set of two receipts must be prepared. One will be issued to the buyer and the other is retained by the management committee.

Permission for transportation of forest products from the community forest

31. Forest products from the community forest can be transported within the township with the receipt of the user's group.
32. Forest products of the community forest that are to be transported to areas outside the township and within the country need a removal pass in accordance with forest law section 23. They must not be transported together with forest products obtained from other sources.

Offenses and penalties

33. User's group adhere to the directive and instructions issued for the community forest, forest laws, regulations and instructions periodically issued by the forest department.
34. Violation of the above mentioned laws, directives, regulations and instructions can lead to legal actions which include the termination of the community forestry enterprise.
35. Any violation of forest law and forest act will result in punishment in accordance to the terms mentioned there in.

Records

36. The secretary of the management committee will have to keep a detail record concerning planting, tending and production activities in forms attached to the management plan.
37. The township forest officer, and the district forest officer will inspect the community forest and its records as conditions permit. Instructions and corrections are to be provided when they are deemed to be necessary.

Report

38. At the end of the budget year, the management committee of the user's group must submit a progress report to the district forest officer through the township forest officer within the period of one month.
39. The district forest officer shall submit the progress report of the users' group together with his comments and recommendations to the state/divisional forest officer within two months after the end of the budget year. A true copy will be forwarded to the director general and the director of the planning and statistics section of the forest department.

Annex (1)

Government of the Union of Myanmar
Ministry of Forestry
Forest Department

Application for the establishment of community forest

Through the township forest officer of ----- township

To

The district forest officer

Reference No -----

----- district

Dated.-----

-----state/division

Sir,

1. Users' group mentioned in paragraph 2 from ----- township,-----
---- village comprising of () households, hereby apply for
establishment of the community forest in the following forest land
in accordance with the announcement made by the director general
of the forest department. Map attached.

- a. Township -----
- b. Village -----
- c. Name of forest/location -----
- d. Boundary east -----
West -----
South -----

North -----

- e. Area
- f. Type of forest
Type of vegetation
- g. Land ownership

2. Members of the users' group are as follow:

No.	Name	Father's name	NRC. No.	Signature
1				
2.				
3.				
4.				
Etc.				

It is approved, users's group hereby declare to follow the community forestry rules, regulations and instructions and forest laws and acts issued, and to strive for long term benefit of village populace and the development of the community forest.

Signature of the chairman of the users' group -----

Name of the chairman of the user's group-----

Date-----

Management Plan for the community forest

Table of contents

1. Introduction
2. Objective
3. Location and area
4. Climate (temperature, rainfall)
5. Topography
6. Soil type
7. Condition of the present vegetation
8. Afforestation
 - A. Establishment of new forest plantation.
 - 8.1 establishment of nursery
 - 8.2 site preparation
 - 8.3 establishment of plantation
 - 8.4 weeding
 - 8.5 fire protection
 - 8.6 cultural method (thinning, pruning, coppicing etc)
 - 8.7 rotation
 - 8.8 felling
 - 8.9 distribution
 - B. conservation of existing forest
 - 8.1 preparation of stock map and management map
 - 8.2 Tending before rest period
 - 8.3 Forest establishment in the renumeration area (according to methods employed in the establishment of new forest plantation)
 - 8.4 cultural methods
 - 8.5 felling
 - 8.6 distribution
9. Conclusion
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Forest Policy

Among 6 imperatives of the forest policy of Myanmar, participation is one that recognizes the people's spontaneous participation in the forest management activities. It says that "enlisting people's participation in forestry, wildlife and national park activities so that the community becomes actively involved in appropriate ways in national and local efforts towards forest conservation and development, and in raising trees for meeting their needs and increasing non-firm incomes through adoption of community forestry/agroforestry practices.

Forest law

With recognition of the people participation, there are also basic principles to implement the forest law of Myanmar *enter alia*;

- To promote the sector of public co-operation in implementing the forestry policy and the environmental conservation policy of the government;
- To develop the economy of the state, to contribute towards the food, clothing and shelter needs of the public and for perpetual enjoyment of benefits by conservation and protection of forest;

The act 15 and forest rule 40 of forest law support the community forestry implementation whilst in the protection of wildlife and protected areas rules, rule 14 encourage forest department to allow local people to practice community forestry activities.

Myanmar agenda 21

Ecological impact of forest use; the myth

Human cultures have developed a variety of different ways to use forest vegetation. Each form of land-use carries with it a particular suite of ecological costs. Perhaps the most intensive and costly way to use a forest is to cut it down, burn it and plant something else (e.g. timber trees, agricultural crops, pasture grasses) on the site. The ecological impact of forest conversion are immediate, highly visible, and, in most cases, very severe. Current research in tropical forests suggests that the most important of these impacts include:

- The loss of biomass and species diversity
- The release of CO₂ and other greenhouse gasses
- Disruption of nutrient and hydrological cycles
- Soil loss through erosion
- Increase local temperatures and decrease local rainfall

Annex 1_2: CFI 1995 (Myanmar)

CFI Annex

***1: Application for the Establishment of the
Community Forestry***

2: Management Plan for the Community Forest

***3: Certificate for the Establishment of Community
Forest***

4: Community Forestry Progress Report

ပြည်ထောင်စုမြန်မာနိုင်ငံတော်အစိုးရ

သစ်တောရေးရာန်ကြီးဌာန

သစ်တောဦးစီးဌာန

မာတိကာ

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းဆိုင်ရာ
ညွှန်ကြားချက်များ

နတ်တော်လ၊ ၁၃၅၇ ခုနှစ်

ဒီဇင်ဘာလ၊ ၁၉၉၅ ခုနှစ်

စဉ်

၁။ နိဒါန်း

၂။ အဓိပ္ပာယ်ဖော်ပြချက်

၃။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောတည်ထောင်
နိုင်သည့်နေရာဒေသများ

၄။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တော
တည်ထောင်ရန်ခွင့်ပြုမည့်နေရာဒေသများ

၅။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တော
တည်ထောင်ခွင့်လျှောက်ထားခြင်း

၆။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော
တည်ထောင်ရန်မြေခွဲဝေချထားခြင်း

၇။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော
တည်ထောင်ရန်အတွက် မြေအသုံးချခွင့် ပြုသည့်ကာလ

၈။ အုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက်ရေးဆွဲခြင်း

၉။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော
တည်ထောင်ခွင့်လက်မှတ်

စာမျက်နှာ

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ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းဆိုင်ရာ
ညွှန်ကြားချက်များ

(Community Forestry Instructions)

သစ်တောဦးစီးဌာန၊ ကြေးငြာချက်အမှတ် (၁/ ၉၅)
၁၃၅၇ ခုနှစ်၊ နတ်တော်လဆန်း (၁၀)ရက်
(၁၉၉၅ ခုနှစ်၊ ဒီဇင်ဘာလ ၁ရက်)

၁၀။ သစ်တောဦးစီးဌာန၏ ကူညီပံ့ပိုးမှု	၈
၁၁။ အသုံးပြုသူများအဖွဲ့၏ တာဝန်နှင့် ဝတ္တရားများ	၈
၁၂။ တားမြစ်သောလုပ်ငန်းများ	၁၀
၁၃။ ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင် သစ်တောမှထွက်ရှိသည့် သစ်တောထွက်ပစ္စည်းများကို အသုံးပြုခြင်း	၁၁
၁၄။ ရန်ပုံငွေ	၁၃
၁၅။ ဈေးနှုန်းသတ်မှတ်ခြင်း	၁၃
၁၆။ အရောင်းပြေစာများ	၁၄
၁၇။ ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင်သစ်တောထွက် ပစ္စည်းများသယ်ယူရွှေ့ပြောင်းခွင့်	၁၄
၁၈။ ပြစ်မှုနှင့်ပြစ်ဒဏ်များ	၁၅
၁၉။ မှတ်တမ်းများ	၁၆
၂၀။ အစီရင်ခံစာများ`	၁၆
၂၁။ နောက်ဆက်တွဲများ	၁၆

နိဒါန်း

၁။ နိုင်ငံတော်၏ စီးပွားရေးဖွံ့ဖြိုးတိုးတက်မှုအပေါ် အထောက်အကူဖြစ်စေရန် ၊ သဘာဝဝန်းကျင်တည်ငြိမ်မှုနှင့် ဂေဟစနစ်မျှတမှုကို ပြန်လည်ရရှိစေရန် နှင့် ဒေသခံပြည်သူလူထု၏ အခြေခံ စားဝတ် နေရေးလိုအပ်ချက်များကို ဖြေရှင်းရာ၌ အထောက်အပံ့ဖြစ်စေရန် အတွက် ပြည်သူလူထု၏ တက်ကြွစွာ ပူးပေါင်းပါဝင် ဆောင်ရွက်မှုဖြင့် သစ်တော မရှိသောနေရာများတွင် သစ်တောတည်ထောင်ရန် နှင့် သစ်တောများ ပျက်စီးပြုန်းတီးသွားသော နေရာများတွင် သစ်တောများ ပြန်လည်ပြုစုပျိုးထောင်ရန် အလျင်အမြန်လိုအပ်နေပြီဖြစ် ၍ ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းဆိုင်ရာညွှန်ကြားချက်များ (Community Forestry Instruction) ကို ထုတ်ပြန်ခြင်းဖြစ်သည်။

အဓိပ္ပာယ်ဖော်ပြချက်

၂။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောလုပ်ငန်း (Community Forestry) ဆိုသည်မှာ ဒေသခံပြည်သူများ ကိုယ်တိုင်ကိုယ်ကျ ပါဝင်ပတ်သက်သည့် အောက်ဖော်ပြပါလုပ်ငန်းများ ကဲ့သို့သော သစ်တောလုပ်ငန်း တစ်ရပ်ရပ်ကိုဆိုလိုသည်-

- ဒေသခံပြည်သူလူထု လိုအပ်ချက်ဖြစ်သော ထင်းနှင့် အခြားသစ်တောထွက် ပစ္စည်းများ မ လုံလောက်သည့် ဒေသများ တွင် သစ်တောအုပ်များထူထောင်ခြင်း
- အစားအစား၊ လူသုံးပစ္စည်းများ နှင့် ဝင်ငွေရရှိစေရန်အတွက် လယ်ယာအဆင့်အဆင့်တွင် သစ်ပင်များ စိုက်ပျိုးခြင်းနှင့် သစ်တောထွက်ပစ္စည်းထုတ်ယူအသုံးချခြင်း။

၃။ ဒေသဖွံ့ဖြိုးမှုကို ဖြစ်ပေါ်စေရန် ဆောင်ရွက်သည့် သစ်တော လုပ်ငန်းများနှင့် သစ်အခြေခံစက်မှုလုပ်ငန်းများ အတွက် တည်ထောင်သည့် အကြီးစား သစ်တောလုပ်ငန်းများသည် ဒေသခံပြည်သူ အစုအဖွဲ့ပိုင်သစ်တောလုပ်ငန်းမဟုတ်ပါ။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောတည်ထောင်နိုင်သည့်

နေရာဒေသများ

၄။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောများကို အောက်ဖော်ပြပါ နေရာဒေသများတွင် တည်ထောင်နိုင်သည်-

- (က) နိုင်ငံတော်အစိုးရ၏ ခွင့်ပြုချက်ရရှိလျှင် ကြိုးပိုင်း၊ ကြိုးပြင် ကာကွယ်တောနှင့် အစိုးရက စီမံခန့်ခွဲခွင့် ရှိသောမြေများ၊
- (ခ) သစ်တောဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်၏ ခွင့်ပြုချက် ဖြင့် လက်ရှိတည်ထောင်ထားသော ကျေးရွာပိုင် ထင်းစိုက်ခင်း (Village – owned firewood plantation) များ
- (ဂ) ပိုင်ရှင်၏သဘောတူခွင့်ပြုချက်ရရှိလျှင် ပုဂ္ဂလိက ပိုင်မြေများနှင့် အစိုးရအဖွဲ့အစည်းများ (သို့မဟုတ်) အစိုးရမဟုတ်သောအဖွဲ့အစည်းများ ပိုင်ဆိုင်သည့် မြေများ။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော တည်ထောင်ရန်

ခွင့်ပြုမည့် နေရာဒေသများ

၅။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောများတည်ထောက်ရန် အတွက် အောက်ဖော်ပြပါနေရာဒေသများကို ခွင့်ပြုမည်ဖြစ်သည်။

- (က) သဘာဝတောများ ပျက်စီးပြုန်းတီးပြီး သဘာဝအလျောက် ပြန်လည်ဖြစ်ထွန်းရန် ခက်ခဲသော နေရာဒေသများ၊
- (ခ) ဒေသလိုအပ်ချက်အတွက် သစ်တောထွက်ပစ္စည်းများ ထောက်ပံ့နိုင်သော အလားအလာရှိသည့် နေရာဒေသများ၊
- (ဂ) မြေနှင့် ရေအရင်းအမြစ်များကို ထိန်းသိမ်းရန်လိုအပ်သည့် ဒေသများ၌ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောလုပ်ငန်း လုပ်ကိုင်ရန် သင့်လျော်သောနေရာများ၊
- (ဃ) အကြောင်းကြောင်းကြောင့် ဒေသခံလူထုက စီမံအုပ်ချုပ်လုပ်ကိုင်လာခဲ့သော သစ်တောမြေများ၊

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်ခွင့် လျှောက်ထားခြင်း

- ၆။ ။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်လိုသော အိမ်ထောင်စုများသည် အသုံးပြုသူများအဖွဲ့ (User's Group) ကို ဖွဲ့စည်းရမည်။
- ၇။ အသုံးပြုသူများအဖွဲ့သည် ၎င်း၏အဖွဲ့ဝင်များထံမှ အများဆန္ဒဖြင့် စီမံအုပ်ချုပ်မှုကော်မတီ (Management Committee) ကို ဖွဲ့စည်းရမည်။ ယင်းကော်မတီတွင် ဥက္ကဋ္ဌ၊ အတွင်းရေးမှူးနှင့် အဖွဲ့ဝင်သုံးဦးပါဝင်ရမည်။
- ၈။ စီမံအုပ်ချုပ်မှုကော်မတီ၊ ဥက္ကဋ္ဌသည် အသုံးပြုသူများအဖွဲ့ကိုယ်စား

မြို့နယ်သစ်တောဦးစီးဌာနမှူးမှတစ်ဆင့် ခရိုင်သစ်တောအရာရှိထံ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်ခွင့် လျှောက်ထားရမည်။
(နောက်ဆက်တွဲ-၁)

၉။ ခရိုင်သစ်တောအရာရှိသည် လျှောက်ထားခြင်းကို သဘောတူလက်ခံပါက ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောတည်ထောင်ရန် နေရာကို သတ်မှတ်အတည်ပြုပေးရမည်။ ဤသို့ဆောင်ရွက်ချက်များကို ခရိုင်သစ်တောအရာရှိသည် သက်ဆိုင်ရာ ပြည်နယ်/တိုင်းသစ်တောဦးစီးဌာနမှူးထံ မြေပုံနှင့်တကွ အချက်အလက်စုံလင်စွာ အစီရင်ခံတင်ပြပြီး၊ မိတ္တူကို သစ်တောဦးစီးဌာန၊ စီမံကိန်းနှင့် စာရင်းအင်းဌာနခွဲ၊ ညွှန်ကြားရေးမှူးနှင့် ညွှန်ကြားရေးမှူးချုပ်တို့ထံ ပေးပို့ရမည်။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းတည်ထောင်ရန် လျှောက်ထားလာသောမြေသည် သစ်တောဦးစီးဌာနမှ စီမံအုပ်ချုပ်ပိုင်ခွင့်ရှိသည့်မြေ မဟုတ်ခဲ့လျှင် ခရိုင်သစ်တောအရာရှိသည် ခရိုင်သစ်တောပြုစုထိန်းသိမ်းရေးကော်မတီ၏ လမ်းညွှန်မှု ကို ခံယူရမည်။

၁၀။ သစ်တောဦးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်သည် သစ်တောဥပဒေ ပုဒ်မ ၁၅ အရ လုပ်ပိုင်ခွင့်များကို ခရိုင်သစ်တောအရာရှိများအား လွှဲအပ်ထားရမည်။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော တည်ထောင်ရန် မြေခွဲဝေချထားခြင်း

၁၁။ ။ ခရိုင်သစ်တောအရာရှိသည် အသုံးပြုသူအဖွဲ့အား အဖွဲ့ဝင်အိမ်ထောင်စုတစ်စုလျှင် ခွဲဝေနေရာချထားပေးမည့် မြေဧရိယာ ပမာဏများကို ဒေသ ရာသီဥတုအခြေအနေ၊ မြေအမျိုးအစား၊ စိုက်ပျိုးမည့်သစ်မျိုး၊ စိုက်ပျိုးပြုစု ထိန်းသိမ်းစောင့်ရှောက်နိုင်မှု အစရှိသည် တို့အပေါ်မူတည်၍ သတ်မှတ်ပေးရမည်။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်ရန် အတွက် မြေအသုံးချခွင့်ပြုသည့်ကာလ

၁၂။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်ရန် အတွက် မြေအသုံးချခွင့်ကို ကနဦးကာလ အဖြစ် နှစ် (၃၀) သတ်မှတ်ခွင့်ပြုပါသည်။

၁၃။ နှစ် (၃၀) ကာလကုန်ဆုံးပြီးနောက် အသုံးပြုသူများအဖွဲ့၏ လုပ်ငန်းအကောင်အထည်ဖော် ဆောင်ရွက်မှုနှင့် ဆန္ဒတို့အပေါ်

အခြေခံ၍ ကာလတိုးမြှင့်ပေးသင့်/ မသင့် သစ်တောဦးဌာန ညွှန်ကြားရေးမှူး၏ သဘောထားကို ခံယူ၍ ခရိုင်သစ်တောအရာရှိက ဆုံးဖြတ်မည်ဖြစ်သည်။

အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက်ရေးဆွဲခြင်း

၁၄။ ။ အသုံးပြုသူများအဖွဲ့သည် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တော တည်ထောင် ရန်ခွင့်ပြုမိန့် ရရှိသည့်အခါ သစ်တောဦးစီးဌာနမှ သတ်မှတ်ထားသည့် ပုံစံ (နောက်ဆက်တွဲ-၂)ဖြင့် အုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက် (Management Plan) ကို သက်ဆိုင်ရာ သစ်တောဦးစီးဌာနမှ တာဝန်ရှိပုဂ္ဂိုလ်များ၏ အကြံဉာဏ်များ ရယူရေးဆွဲ ၍ ခရိုင်သစ်တော အရာရှိထံ တင်ပြပြီးအတည်ပြုချက်ရယူရမည်။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်ခွင့်လက်မှတ်
၁၅။ ။ ခရိုင်သစ်တောအရာရှိသည် အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက် ကို အတည်ပြုပြီးနောက် အသုံးပြုသူများ အဖွဲ့သို့ ဒေသခံပြည်သူအစု အဖွဲ့ပိုင်သစ်တော တည်ထောင်ခွင့်လက်မှတ် (Community Forest Certificate) ထုတ်ပေးရမည်(နောက်ဆက်တွဲ-၃)။ အဆိုပါ လက်မှတ်နှင့် အတူ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းနှင့် ဆက်နွယ် သော သစ်တောဥပဒေနှင့် နည်းဥပဒေများ၊ ညွှန်ကြားချက်များ၊ စည်းမျဉ်း စည်းကမ်းများကို ပူးတွဲပေးရမည်။

၁၆။ ။ အသုံးပြုသူများအဖွဲ့သည် တည်ဆဲ သစ်တောဥပဒေနှင့် နည်းဥပဒေများ၊ ဒေသခံပြည်သူအစုအဖွဲ့ ပိုင် သစ်တောလုပ်ငန်းဆိုင်ရာ ညွှန်ကြားချက်များ၊ စည်းမျဉ်းစည်းကမ်းများ၊ အုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက်ပါ ပြဋ္ဌာန်းချက်များကို လိုက်နာဆောင်ရွက်ရမည်ဖြစ်ပြီး ပျက်ကွက်ခြင်း၊ ချိုးဖောက်ခြင်းတွေ့ရှိပါက ခရိုင်သစ်တောအရာရှိသည် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောတည်ထောင်ခွင့်လက်မှတ်ကို ပြန်လည်ရုပ်သိမ်းနိုင်သည်။

သစ်တောဦးစီးဌာန၏ ကူညီပံ့ပိုးမှု

၁၇။ ။ သစ်တောဦးစီးဌာနသည် အသုံးပြုသူများအဖွဲ့အား အောက်ဖော်ပြပါ အကူအညီများကို အခမဲ့ပေးရမည်-

- (က) သစ်တောစိုက်ခင်း ပထမခုတ်ပတ် ကာလအတွက် လိုအပ်သောသစ်စေ့နှင့် ပျိုးပင်များ၊
- (ခ) သစ်တောတည်ထောင်ခြင်း၊ ပြုစုထိန်းသိမ်းခြင်း၊ စီမံအုပ်ချုပ်ခြင်းနှင့် အသုံးချခြင်းဆိုင်ရာကိစ္စအပတ်တွင် ထာဝစဉ်ဖွံ့ဖြိုးမှု ရရှိစေရန်အတွက် လိုအပ်သော နည်းပညာနှင့် ကျွမ်းကျင်မှုအကူအညီများ။

အသုံးပြုသူများအဖွဲ့၏ တာဝန်နှင့်ဝတ္တရားများ

၁၈။ ။ အသုံးပြုသူများအဖွဲ့၏ တာဝန်နှင့် ဝတ္တရားများမှာ အောက်ဖော်ပြပါအတိုင်းဖြစ်သည်-

- (က) သစ်တောမရှိသည့်နေရာများတွင် သစ်တောစိုက်ခင်းများ တည်ထောင်ခြင်း၊
- (ခ) သစ်တောများရှိ၍ သဘာဝနည်းဖြင့် ပြုစုပျိုးထောင်သင့်သည့်နေရာများတွင် သဘာဝနည်းဖြင့် ပြန်လည်ပြုစုပျိုးထောင်ခြင်း၊
- (ဂ) မီးကာကွယ်ခြင်း၊
- (ဃ) သစ်တောစိုက်ခင်းများ/သဘာဝတောများ ရှင်သန်ဖွံ့ဖြိုးရေးအတွက် လိုအပ်သော ပြုစုပျိုးထောင်မှုများ ပြုလုပ်ခြင်း၊
- (င) သစ်ပင်များကို ထိခိုက်ပျက်စီးစေသည့် စည်းကမ်းမဲ့ ကိုင်းဖြတ်ခြင်း၊ လှဲခြင်း၊ အဆီထုတ်ခြင်း၊ သင်းသတ်ခြင်း၊ အခွံခွာခြင်း စသည်တို့မှ ကာကွယ်ခြင်း၊
- (စ) သတ္တုတူးဖော်ခြင်း၊ ကျောက်၊ မြေနှင့် သဲတို့တူးယူခြင်းတို့မှ ကာကွယ်ခြင်း၊
- (ဆ) အခြားမြေအသုံးချမှုများ ကျူးကျော်ဝင်ရောက်ခြင်းမှ ကာကွယ်ခြင်း၊
- (ဇ) သစ်တောထွက်ပစ္စည်းများကို အလေအလွင့်မရှိစေရန် ထုတ်ယူ၍ စည်းကမ်းချက်များနှင့်အညီ သုံးစွဲခြင်း၊
- (ဈ) ရေမြေတိုက်စားမှုနှင့် သဘာဝဝန်းကျင် ပျက်စီးယိုယွင်းစေမှုတို့မှ ကာကွယ်ခြင်း၊

- (ည) သစ်တောစိုက်ခင်းပထမခုတ်ပတ်ကာလ နောက်ပိုင်းမှစ၍ သစ်တော ဦးစီးဌာန၏ ကြီးကြပ်မှုဖြင့် မိမိတို့၏ အစီအစဉ်ဖြင့် မြေပြုပြင်ခြင်း၊ သစ်စေ့စုစောင်းခြင်း၊ ပျိုးထောင်ခြင်း၊ စိုက်ပျိုးပြုစု ထိန်းသိမ်းခြင်း၊
- (ဋ) အုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက်တွင် ဖော်ပြပါရှိသည့် ပြဋ္ဌာန်းချက်များ ကို တိကျစွာ အကောင်အထည်ဖော်ခြင်း။

တားမြစ်သောလုပ်ငန်းများ

- ၁၉။ ။ အသုံးပြုသူများအဖွဲ့၏ မည်သည့်အဖွဲ့ ဝင်မှု အောက်ဖော်ပြပါ လုပ်ငန်းတို့ကို လုပ်ကိုင်ခြင်း မပြုရ-
- (က) ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောအတွက်ခွင့်ပြု မြေကိုအုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက်တွင် ဖော်ပြထားသည့် ကိစ္စရပ်များမှလွဲ၍ အခြားကိစ္စရပ်များ / လုပ်ငန်းများ အတွက် သုံးစွဲခြင်း၊
 - (ခ) ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောကို အမွေဆက်ခံ ခြင်းမှ တစ်ပါး ရောင်းချခြင်း၊ ငှားရမ်းခြင်းနှင့် လွှဲပြောင်း ပေးခြင်း၊

- (ဂ) ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောအတွင်း သတ္တုတူး ဖော်ခြင်းကဲ့သို့သော သစ်တောပျက်စီးပြုန်းတီးစေသည့် လုပ်ငန်းများလုပ်ကိုင်ခြင်း၊
- (ဃ) ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောကာကွယ်ထိန်းသိမ်း ရေးအတွက် မဟုတ်သောအိမ်များ၊ အဆောက်အဦများ သို့မဟုတ် တဲများဆောက်ခြင်း၊
- (င) ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောအတွက်ခွင့်ပြုမြေကို သိန့်သစ်တော ရောနှောခြင်းမှအပ ဥယျာဉ်ပြုလုပ်ခြင်း သို့မဟုတ် ရွှေ့ပြောင်းတောင်ယာ စိုက်ပျိုးခြင်း။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောမှထွက်ရှိသည့် သစ်တောထွက် ပစ္စည်း များကို အသုံးပြုခြင်း

- ၂၀။ ။ အသုံးပြုသူများအဖွဲ့သည် မိမိသစ်တောမှထွက်ရှိသည့် သစ် တောထွက်ပစ္စည်းများကို အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက်ပါ ပြဋ္ဌာန်းချက်များ နှင့်အညီ အသုံးပြုနိုင်သည်။
- ၂၁။ ။ အသုံးပြုသူများအဖွဲ့၊ အဖွဲ့ဝင်များ မိမိအတွက်ထုတ်ယူသော သစ်တောထွက်ပစ္စည်းများအပေါ် မည်သည့် အခွန်အခကိုမျှ ကောက်ခံ ခြင်းမပြုရ။
- ၂၂။ ။ အသုံးပြုသူများအဖွဲ့သည် မိမိသုံးမှပိုလျှံသော သစ်တောထွက် ပစ္စည်းများကို အဖွဲ့ဝင် မဟုတ်သော မိမိကျေးရွာသားများသို့ သင့်တင့်

သော ဈေးနှုန်းဖြင့် ရောင်းချ နိုင်သည်။ အဆိုပါ ရောင်းချသည့် သစ်တောထွက်ပစ္စည်းများအပေါ် မည်သည့်အခွန်အခကိုမျှ ကောက်ခံခြင်း မပြုရ။

၂၃။ ။ အသုံးပြုသူများအဖွဲ့သည် မိမိအဖွဲ့အစည်းနှင့် မိမိကျေးရွာသုံးမှ ပိုလှုံ့သောသစ်တောထွက် ပစ္စည်းများကို ကျေးရွာပြင်ပသို့ တင်ပို့ရောင်းချ နိုင်သည်။

၂၄။ ။ ကူးသန်းရောင်းဝယ်ရေးအလို့ငှာ ကျေးရွာပြင်ပသို့ တင်ပို့ရောင်းချ သည့် သစ်တောထွက်ပစ္စည်းများနှင့်ပတ်သက်၍ သစ်တောဦးစီးဌာနမှ အခါအားလျော်စွာ သတ်မှတ်ထားသော အခွန်အခနှုန်းထားများအတိုင်း ပေးဆောင်ရမည်။

၂၅။ ။ အသုံးပြုသူများအဖွဲ့သည် ဝင်ငွေများကို အုပ်ချုပ်လုပ်ကိုင်မှု စီမံ ချက် အကောင်အထည်ဖော်ရန်နှင့် မိမိတို့၏ သစ်တောဖွံ့ဖြိုးတိုးတက်စေ ရန် အတွက် အဓိကထားသုံးစွဲရမည်။

၂၆။ ။ ပိုလှုံ့သောငွေများကိုသာ အဖွဲ့ဝင်များ၏ လူမှုရေး၊ စီးပွားရေး တိုး တက်ကောင်းမွန်စေရန်အတွက် အဖွဲ့ ဝင်များ၏ ဆန္ဒနှင့် အညီ လိုအပ် သလို အသုံးပြုနိုင်သည်။

၂၇။ ။ အသုံးပြုသူများ အဖွဲ့သည် မိမိတို့၏ သစ်တောမှထွက်ရှိသည့် သစ်တောထွက်ပစ္စည်းများနှင့် ပိုလှုံ့ငွေများဖြင့် တန်ဖိုးမြှင့် ပစ္စည်းထုတ်လုပ် သည့် စီးပွားရေးလုပ်ငန်းများကိုလည်း လုပ်ကိုင်နိုင်သည်။

ရန်ပုံငွေ

၂၈။ ။ အသုံးပြုသူများအဖွဲ့ ပိုင်ဆိုင်သော ရန်ပုံငွေကို အောက်ဖော်ပြပါ အတိုင်း စီမံခန့်ခွဲရမည်-

- (က) စီမံအုပ်ချုပ်မှုကော်မတီ၊ အတွင်းရေးမှူးသည် ရန်ပုံငွေ ရရှိခြင်း၊ သုံးစွဲခြင်းတို့နှင့်ပတ်သက်၍ တိကျစွာစာရင်း ပြုစုထားရှိရမည်။
- (ခ) အတွင်းရေးမှူးသည် အဖွဲ့ပိုင် ရန်ပုံငွေအနက် စီမံအုပ်ချုပ် မှုကော်မတီ၏ အဆုံးအဖြတ်ဖြင့် သင့်လျော်သော ငွေကြေး ပမာဏကို လက် ဝယ်ထားရှိ၍ ယင်းထက်ပိုသော ရန်ပုံငွေ ကို ဘဏ်တွင် အပ်နှံထားရှိရမည် သို့မဟုတ် လုံခြုံစွာ ထိန်း သိမ်းထားရှိရမည်။
- (ဂ) ဘဏ်ငွေစာရင်းကို ဥက္ကဋ္ဌနှင့် အတွင်းရေးမှူးနှစ်ဦးတွဲ၍ ဖွင့်လှစ်ထားရှိရမည်။
- (ဃ) အတွင်းရေးမှူးသည် ငွေစာရင်းရှင်းတမ်းကို အသုံးပြုသူ များ အဖွဲ့သို့ တစ်နှစ်လျှင် အနည်းဆုံးတစ်ကြိမ် တင်ပြအစီ ရင်ခံရမည်။

ဈေးနှုန်းသတ်မှတ်ခြင်း

၂၉။ ။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောမှ ထွက်ရှိသည့် သစ်တော ထွက်ပစ္စည်းများကို ကာလပေါက်ဈေးဖြင့် လွတ်လပ်စွာ ရောင်းချနိုင်သည်။

အရောင်းပြေစာများ

၃၀။ ။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောမှ ရောင်းချသည့် သစ်တောထွက်ပစ္စည်းအားလုံးအတွက် အသုံးပြုသူများအဖွဲ့က အရောင်းပြေစာများ ထုတ်ပေးရမည်။ မြို့နယ်ပြင်ပသို့ သယ်ယူမည့် သစ်တောထွက်ပစ္စည်းများအတွက် အရောင်းပြေစာများကို သုံးစုံပြုစု၍ ဝယ်ယူသူနှင့် မြို့နယ်သစ်တောဦးစီးဌာနမှူးတို့အား တစ်စုံစီပေးပြီး ကျန်တစ်စုံကို စီမံအုပ်ချုပ်မှုကော်မတီ၏ လက်ခံအဖြစ် ထားရှိရမည်။ မြို့နယ်အတွင်းတွင် သယ်ယူမည့်သစ်တောထွက် ပစ္စည်းများအတွက် အရောင်းပြေစာများကို နှစ်စုံပြုစု၍ ဝယ်ယူသူအား တစ်စုံစီပေးပြီး ကျန်တစ်စုံကို စီမံအုပ်ချုပ်မှုကော်မတီ၏ လက်ခံအဖြစ် ထားရှိရမည်။

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောထွက်ပစ္စည်းများ သယ်ယူ ရွှေ့ပြောင်းခွင့်

၃၁။ ။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောထွက်ပစ္စည်းများကို သက်ဆိုင်ရာအသုံးပြုသူများအဖွဲ့၏ အရောင်းပြေစာဖြင့် မြို့နယ်အတွင်း သယ်ယူရွှေ့ပြောင်းနိုင်သည်။

၃၂။ ။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောထွက်ပစ္စည်းများကို ပြည်တွင်း၌ မြို့နယ်ကျော်၍ သယ်ယူပြောင်းရွှေ့လိုလျှင် သစ်တောဥပဒေပုဒ်မ ၂၃အရ မျှောစာဖြင့် သယ်ယူရွှေ့ပြောင်းရမည်။ သို့ရာ တွင် အခြားနည်းဖြင့်ထုတ်ယူသော သစ်တောထွက်ပစ္စည်းများနှင့်အတူတွဲ၍ သယ်ယူခြင်းမပြုရ။

ပြစ်မှုနှင့် ပြစ်ဒဏ်များ

၃၃။ ။ အသုံးပြု ပါသူများအဖွဲ့သည် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းဆိုင်ရာ ညွှန်ကြားချက်များ၊ စည်းမျဉ်းစည်းကမ်းများ၊ သစ်တောဥပဒေ၊ နည်းဥပဒေများနှင့် သစ်တောဦးစီးဌာနမှ အခါအားလျော်စွာ ထုတ်ပြန်သော ညွှန်ကြားချက်များကို လိုက်နာရန် တာဝန်ရှိသည်။

၃၄။ ။ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းဆိုင်ရာ ညွှန်ကြားချက်များ၊ စည်းမျဉ်းစည်းကမ်းများ၊ အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက်ပါ ပြဋ္ဌာန်းချက်များနှင့် သစ်တောဦးစီးဌာနမှ အခါအားလျော်စွာ ထုတ်ပြန်သောညွှန်ကြားချက်များကို ချိုးဖောက်ပါက ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းကို သိမ်းယူသည်အထိ အရေးယူခံရမည်။

၃၅။ ။ သစ်တောဥပဒေ၊ နည်းဥပဒေများပါ ပြဋ္ဌာန်းချက်တစ်စုံတစ်ရာကို ဖောက်ဖျက်ကျူးလွန်ပါက ယင်းဥပဒေ၊ နည်းဥပဒေများတွင် သတ်မှတ်ထားသောပြစ်ဒဏ်များကို ကျခံရမည်။

မှတ်တမ်းများ

၃၆။ ။ စီမံအုပ်ချုပ်မှုကော်မတီ၊ အတွင်းရေးမှူးသည် အုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက်တွင်ပါရှိသည့် သက်ဆိုင်ရာ နောက်ဆက်တွဲပုံစံများတွင် စိုက်ပျိုးခြင်း၊ ပြုစုခြင်းနှင့် ထုတ်လုပ်ခြင်း စသည့်လုပ်ငန်းများနှင့် ပတ်သက်၍ မှတ်တမ်းအပြည့်အစုံကို ဖြည့်သွင်းရမည်။

၃၇။ ။ မြို့နယ်ဦးစီးဌာနမှူးနှင့် ခရိုင်သစ်တောအရာရှိတို့သည် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောနှင့် မှတ်တမ်းများကို အခါအားလျော်စွာ စစ်ဆေးခြင်း၊ အကြံပေးခြင်းနှင့် လိုအပ်သလို ပြုပြင်ခြင်းများ ပြုလုပ်ရမည်။

အစီရင်ခံစာများ

၃၈။ ။ အသုံးပြုသူများအဖွဲ့၊ စီမံအုပ်ချုပ်မှုကော်မတီသည် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းများနှင့် ပတ်သက်သော အစီရင်ခံစာကို နောက်ဆက်တွဲ (၄)ပါ ပုံစံအတိုင်းပြုစု၍ မြို့နယ်ဦးစီးဌာနမှူးမှ တစ်ဆင့် ခရိုင်သစ်တောအရာရှိထံ ဘဏ္ဍာနှစ် ကုန်ဆုံးပြီးတစ်လအတွင်း တင်သွင်းရမည်။

၃၉။ ။ ခရိုင်သစ်တောအရာရှိသည် အသုံးပြုသူများအဖွဲ့၏ အစီရင်ခံစာကို ဘဏ္ဍာနှစ်ကုန်ဆုံးပြီး (၂)လအတွင်း ၎င်း၏ သုံးသပ်ချက်၊ အကြံပြုချက်များနှင့်အတူ ပြည်နယ်/တိုင်း သစ်တောဦးစီးဌာနမှူးထံသို့ ပေးပို့၍ မိတ္တူကို သစ်တောဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်နှင့် စီမံကိန်းနှင့်စာရင်းအင်းဌာနခွဲ၊ ညွှန်ကြားရေးမှူးတို့ထံ ပေးပို့ရမည်။

(ပုံ) ဒေါက်တာကျော်တင့်
ညွှန်ကြားရေးမှူးချုပ်
သစ်တောဦးစီးဌာန

ပြည်ထောင်စုမြန်မာနိုင်ငံတော်အစိုးရ
သစ်တောရေးရာဝန်ကြီးဌာန
သစ်တောဦးစီးဌာန

ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင်သစ်တော
တည်ထောင်ခွင့်ပြုရန်လျှောက်လွှာ

-----မြို့နယ်သစ်တောဦးစီးဌာနမှူးမှတစ်ဆင့်
သို့
ခရိုင်သစ်တောအရာရှိ စာအမှတ်၊
-----ခရိုင် ရက်စွဲ၊
-----ပြည်နယ်/တိုင်း

ခင်ဗျား

၁။ အပုဒ်(၂)တွင် ဖော်ပြထားသော-----မြို့နယ်
-----ကျေးရွာမှ အိမ်ထောင်စု () စုပါဝင်သည့်
အသုံးပြုသူများအဖွဲ့သည် အောက်ဖော်ပြပါ သစ်တောမြေ /နေရာတွင်
သစ်တောဦးစီးဌာန၊ ညွှန်ကြားရေးမှူးချုပ်၏ ကြေညာချက်နှင့်အညီ
ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင် သစ်တောတစ်ခု တည်ထောင်လိုပါသော
ကြောင့် ခွင့်ပြုပါရန် မြေပုံနှင့်တကွ ပူးတွဲတင်ပြလျှောက်ထားအပ်ပါသည်။

- (က) မြို့နယ် -----
- (ခ) ကျေးရွာ -----
- (ဂ) သစ်တော/မြေနေရာအမည် -----
- (ဃ) နယ်နမိတ် အရှေ့ -----
- အနောက် -----
- တောင် -----
- မြောက် -----
- (င) ဧရိယာ -----
- (စ) သစ်တောအမျိုးအစား/
ပေါက်ရောက်သည့်အပင်များ -----
-
-
- (ဆ) မြေပိုင်ဆိုင်မှု -----
-

နောက်ဆက်တွဲ(၁)

နောက်ဆက်တွဲ(၁)

၂။ အသုံးပြုသူများအဖွဲ့တွင် ပါဝင်သူများမှာ အောက်ဖော်ပြပါ အတိုင်း ဖြစ်ပါသည်။

<u>စဉ်</u>	<u>အမည်</u>	<u>အဘအမည်</u>	<u>အမျိုးသား</u> <u>မှတ်ပုံတင်အမှတ်</u>	<u>လက်မှတ်</u>
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၃။ လျှောက်ထားသည့်အတိုင်း ခွင့်ပြုပါက အသုံးပြုသူများ အဖွဲ့သည် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင် သစ်တောဆိုင်ရာ နည်းဥပဒေများ၊ စည်းမျဉ်း

စည်းကမ်းများ၊ ညွှန်ကြားချက်များနှင့် သစ်တောဥပဒေ၊ နည်းဥပဒေများကို တိကျစွာလိုက်နာ၍ ကျေးရွာလူထု ရေရှည်အကျိုးငှာ၊ ဒေသခံပြည်သူ အစုအဖွဲ့ပိုင် သစ်တောလုပ်ငန်းဖွံ့ဖြိုးတိုးတက်ရေးအတွက် အစွမ်းကုန် စုပေါင်းဆောင်ရွက်ရန် ကတိပြုကြောင်း ဖော်ပြအပ်ပါသည်။

အသုံးပြုသူများအဖွဲ့ဥက္ကဋ္ဌ၏ ထိုးမြဲလက်မှတ် -----

အသုံးပြုသူများအဖွဲ့ဥက္ကဋ္ဌ၏ အမည် -----

ရက်စွဲ၊

ခုနှစ်၊

လ၊

ရက်။

ဒေသခံပြည်သူ့အစုအဖွဲ့ပိုင်သစ်တော
အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက်

နောက်ဆက်တွဲ(၂)

ပါဝင်ရသည့်အကြောင်းအရာများ

- ၁။ နိဒါန်း
- ၂။ ရည်ရွယ်ချက်
- ၃။ တည်နေရာနှင့် အကျယ်အဝန်း
- ၄။ ရာသီဥတု(အပူချိန်၊ မိုးရေချိန်)
- ၅။ မြေမျက်နှာပြင်အနေအထား
- ၆။ မြေအမျိုးအစား
- ၇။ လက်ရှိသစ်ပင်ပေါက်ရောက်မှုအခြေအနေ
- ၈။ သစ်တောတည်ထောင်ခြင်း
(သစ်တောအသစ်တည်ထောင်ရန်ဖြစ်လျှင်)
 - ၈-၁။ ပျိုးဥယျာဉ်တည်ထောင်ခြင်း
 - ၈-၂။ စိုက်ခင်းမြေနေရာပြုပြင်ခြင်း
 - ၈-၃။ စိုက်ခင်းတည်ထောင်ခြင်း
 - ၈-၄။ ပေါင်းသင်ရှင်းလင်းခြင်း
 - ၈-၅။ မီးကာကွယ်ခြင်း
 - ၈-၆။ ပြုစုပျိုးထောင်နည်းစနစ်
(ပင်ကျပ်နှုတ်ခြင်း၊ ကိုင်းဖြတ်ခြင်း၊ ကော်ပစ်စသည်)
 - ၈-၇။ ခုတ်ပတ်သတ်မှတ်ခြင်း
 - ၈-၈။ ခုတ်လှဲခြင်း

- ၈-၉။ ဖြန့်ဖြူးခြင်း
(ရိုပြီးသစ်တောကိုထိန်းသိမ်းပြုစုရန်ဖြစ်လျှင်)
- ၈-၁၀။ ပါဝင်ပင်မြေပုံနှင့် အုပ်ချုပ်လုပ်ကိုင်မှု
မြေပုံရေးဆွဲခြင်း
- ၈-၂။ အနားပေးရန်တောကို ပြုစုခြင်း
- ၈-၃။ အစားထိုးစိုက်ပျိုးရန်နေရာတွင်
သစ်တောအသစ်တည်ထောင်ခြင်း
(စိုက်ခင်းအသစ်တည်ထောင်သည့် အတိုင်း
ဆောင်ရွက်ရန်)
- ၈-၄။ ပြုစုပျိုးထောင်နည်းစနစ်
- ၈-၅။ ခုတ်လှဲခြင်း
- ၈-၆။ ဖြန့်ဖြူးခြင်း
- ၉။ နိဂုံး
- ၁၀။ နောက်ဆက်တွဲများ

ပြည်ထောင်စုမြန်မာနိုင်ငံတော်အစိုးရ
သစ်တောရေးရာနှင့်ကြီးငွာန
သစ်တောဦးစီးဌာန

ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောတည်ထောင်ခွင့်လက်မှတ်

ဦး/ဒေါ် -----

ဥက္ကဋ္ဌ

----- အသုံးပြုသူများအဖွဲ့

----- ကျေးရွာ

----- မြို့နယ်

----- ခရိုင်၊ ----- ပြည်နယ်/တိုင်း။

၁။ သစ်တောဥပဒေပုဒ်မ -----၊ နည်းဥပဒေ -----နှင့် ဒေသခံပြည်သူ အစုအဖွဲ့ပိုင် သစ်တော နည်းဥပဒေများ / စည်းမျဉ်း စည်းကမ်းများနှင့် အညီ ကျွန်ုပ်တို့သည် လူကြီးမင်းအား -----ကို အောက် ဖော်ပြပါ နေရာဒေသတွင် ဒေသခံပြည်သူ အစုအဖွဲ့ပိုင် သစ်တောတည် ထောင်ခွင့်ပြု၍ အဖွဲ့ဝင်များအဖြစ် အပိုဒ်(၂)တွင် ဖော်ပြပါရှိသည့် အသုံးပြု သူများအဖွဲ့၏ စီမံအုပ်ချုပ်မှုအောက်တွင် ထားရှိလိုက်ပါသည်။ ဤ လက်မှတ်အား -----ခုနှစ်၊ -----လ၊ -----ရက်နေ့တွင် အတည်ပြုခဲ့သော အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက်ကို အကောင်အထည်ဖော် ဆောင်ရွက်နိုင်ရန် ထုတ်ပေးခြင်းဖြစ်ပါသည်။

(က) ကျေးလက်ဒေသပိုင်သစ်တော၏ အမည်နှင့်တည်နေရာ
-----။

(ခ) နယ်နိမိတ် -----
-----။

(ဂ) ဧရိယာ -----။

၂။ အသုံးပြုသူအဖွဲ့၏ အဖွဲ့ ဝင်များမှာ အောက်ဖော်ပြပါအတိုင်း ဖြစ်ပါသည်။

<u>စဉ်</u>	<u>အမည်</u>	<u>အဘအမည်</u>	<u>အမျိုးသား</u>	<u>လက်မှတ်</u>
			<u>မှတ်ပုံတင်အမှတ်</u>	

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လက်မှတ်ထုတ်ပေးသည့်သစ်တောအရာရှိ

လက်မှတ်	-
အမည်	-
ရာထူး	-
ရက်စွဲ	-

Annex 2: Sample - Letter of Land Confirmation

Sample Letter of Land Confirmation

Government of the Union of Myanmar
Ministry of Forestry
Forest Department, Northern Yangon District
Insein Township

Reference:

.....

Date:

.....

To,

The Staff Officer
Forest Department
Hmawbi

Subject: Establishment of community plantation

Reference: (1) Reference No.3065-3066/Ma(Ga)6, dated 13.2.03 of Staff Officer's Office, Hmawbi Township
(2) Reference No. Si Man, La Nga-001/212-16/2003, dated 3.2.03 of the Principal's Office, CFDTC, Hmawbi Township

In reference to your reference No. (1), and the letter of no objection by the principal of CFDTC in reference No. (2), I would like to inform you that (90) acres of Eucalyptus plantation and (60) acres of degraded natural forests totaling (150) acres has been allotted and approved for the establishment of community plantation by the Ye-dwin-gone and Kyauk-kar-kwin villages under CFI section No. (19) and Forest Law section No. (15).

The CFUG of Ye-dwin-gone and Kyauk-kar-kwin villages that applied for the establishment of community plantation must abide by the prevailing concerned laws & rules, CFI, and Management Plan. Failure to observe these will result in withdrawal of the permission for the establishment of CF.

You[The Staff Officer of the concerned Township] are, therefore, requested to go for field inspection and explore the area, prepare a Management Plan and submit (4) copies of the plan to this office.

(Maung Win)
Assistant Director
Forest Department
Northern Yangon District
Insein

Cc.

1. Director, Forest Department, Yangon Division
2. The Principal, Central Forestry Development Training Center, Hmawbi
3. Chairman, Executive Committee of the CFUG, Ye-dwin-gone and Kyauk-kar-kwin Villages, Hmawbi Township
4. Office Copy/Float

Notes for FD:

The procedure of obtaining land confirmation involves seeking verification of Settlement map and land history by the Township Land Record Department and Township Administration Office whether if the proposed land is suitable for CF.

To get confirmation of the land at the disposal of the Government, generally it must be done as follow:

- (1) The Township Forest Officer must ask CFUG to send application to the Township Land Record Department with Form-103 for permission to copy the map of appropriated CF land.
- (2) The Township Land Record Department will issue the settlement map (Form-105) and land history (Form-106) if there is no conflict and problem for the land applied.
- (3) The Township Forest Officer must submit the application attached with Form-105 and Form-106 to Township Administration Officer for land confirmation.
- (4) Township Administration Officer will reply to the Township Forest Officer that no objection for the land applied, if there is no conflict and problem.
- (5) The Township Forest Officer must forward it to the District Forest Officer separately or attached with application for CF establishment.
- (6) The District Forest Office will forward it to District Administration Officer to get confirmation.
- (7) District Administration Officer will inform to the District Forest Officer that permission of CF establishment on the appropriated land is granted.
- (8) The District Forest Officer will inform about the land confirmation to the Township Forest Officer.
- (9) The Township Forest Officer will inform about the land confirmation together with the letter of the District Forest Officer to CFUG.

***Annex 3: How to carry out PRA Exercises for CF in
DMA***

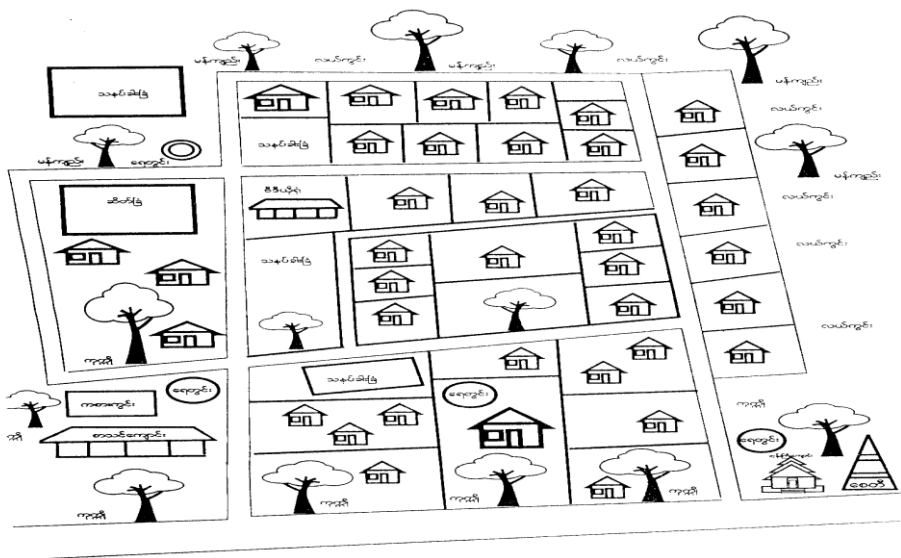
How to carry out PRA Exercises for CF in Delta Mangrove Area

This is a guide to conduct selected PRA exercises recommended for initiating CF in Coastal Mangrove Area in Delta. These procedures can be modified as to accommodate the field condition. Some questions may be added. FD staff will play a role of a facilitator and conduct exercises with potential UG members. FD staff may decide to carry out all the exercises or select some. However, as these exercises are highly informative and will require time of the participants who would otherwise do some other work. Thus, the notes must be taken and records must be kept properly for future reflection and discussion. The collected information will help create awareness towards management of community forest through reflection, identify the potential CF areas, stakeholders in CF, and create foundations for making management plan.

1. Village Mapping

Objective	To understand the location of the various land marks in and around the village To gain an overview of the village condition (infrastructure, commercial activities, transportation, natural resources etc.)
Preparations	<ul style="list-style-type: none"> ▪ Marker ▪ Chart paper (Alternatively, the exercise can be done on the ground using stones, branches etc available at the location.) ▪ Digital Camera – to capture the map drawn by the villagers ▪ 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. ▪ Gender balance of the participants may also be considered. ▪ A separate group of men and women may be formed to carry out the exercise, if appropriate.
Time required	3 -5 hours depending on the depth of information you wish to collect
Process	<ol style="list-style-type: none"> 1. Explain the villagers about the exercise. 2. Ask the participants to draw the landmarks and other important locations in the village. 3. Ask questions to facilitate the discussion among the villagers. <ul style="list-style-type: none"> - The condition - Issues - Availability - Accessibility (who uses, when, what purposes) etc 4. Facilitator will take notes with the help of the villagers in the attached form and share the report with the villagers if the recorded information is correct. 5. When participants are many, they may be organised into groups. Each group may be constituted by 7-10 persons. In this case, the maps should be shared by all the group members in plenary. After the presentation given by each group, all participants will discuss differences and similarities.

An example of a village map



Drawing Source: PRA Booklet (COMFORT, no date)

Reporting Sheet

Name of the village	Village Tract	Date conducted:	No of participants: M: F
Population	M persons	F persons	
Primary School Enrollment	%	Adult Literacy (+15)	%
Characteristics of the settlement area			
Means of Livelihood			
Distance to the nearest forest patches		Access (How?)	
Who uses forest?		How?	

The FD staff will take notes on the above issues and may also collect other information of the village to understand their socio-cultural characteristics. The FD staff may also refer to the probing questions as a guide. The note may also be shared with the villagers to verify what has been recorded. A blank sheet of paper may be used to take additional notes.

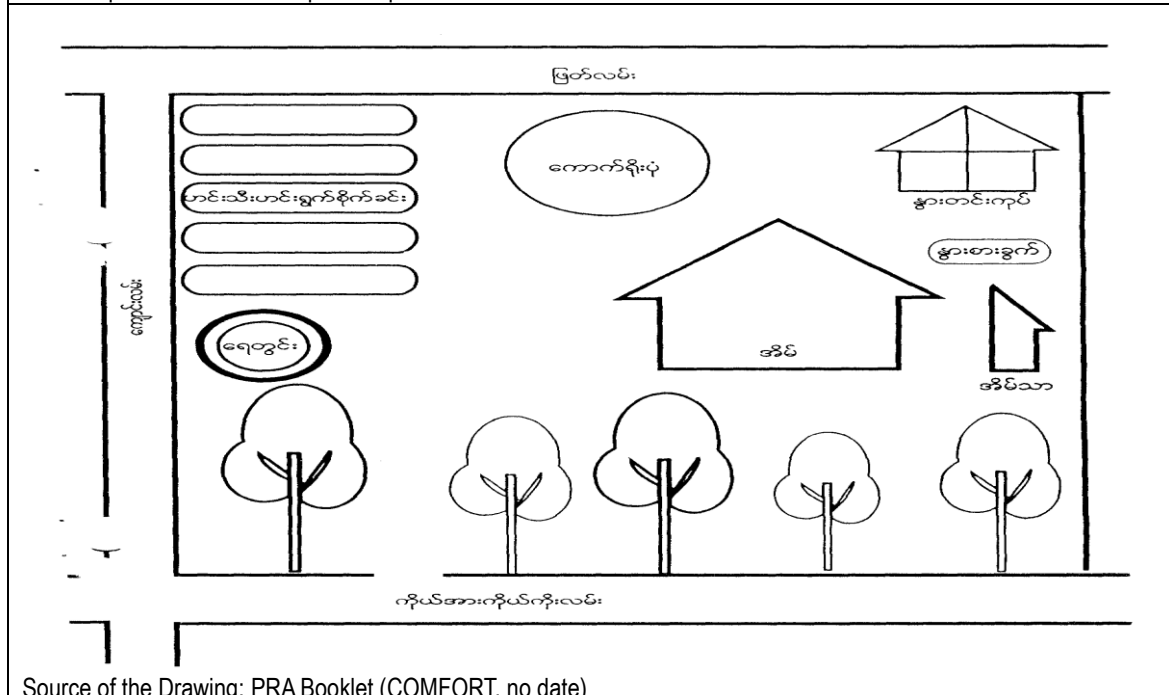
Probing Questions

- How was the village formed? (From where did people come? When did they come? For what reasons did they come to settle in this area?)
- What is the ethnic composition of the village?
- Any land conflicts?
- Any conflicts over resources?
- How do they resolve the conflicts when they encounter any? Etc.

2. Resource Mapping

Objective	To identify the resources in the community and their uses: To understand the following points; <ul style="list-style-type: none"> Who uses? When it is available? What is the volume available? Changes in resource availability and usages over time
Preparation	<ul style="list-style-type: none"> Marker Chart paper (Alternatively, the exercise can be done on the ground using stones, branches etc available at the location.) Digital Camera – to capture the map drawn by the villagers 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. Gender balance of the participants may also be considered. A separate group of men and women may be formed to carry out the exercise, if appropriate.
Time required	1-2 hours
Process	<ol style="list-style-type: none"> 1. Introduce yourself and explain how the activity is going to be carried out 2. Divide the participants into 2-3 groups (7-10 persons in each group) 3. Distribute a sheet of paper with a few markers to each group 4. Participants will draw a map of a village and surrounding including mangrove forest area 5. Participants will mark the various resources on the map. 6. Ask each group to tell other participants about the map and resources. 7. If the exercise is done in a few groups, the maps drawn by each group should be shared in plenary session. Each group will report about the map and all participants will discuss differences and similarities. 8. FD staff will take note of the resources and its condition. Probing questions are to be asked as per the reporting table (Reporting Table). 9. If you have a digital camera, you may also take the picture of the maps prepared by the villagers so that the original map will remain with them.

An example of a resource map and report



Reporting form

Resource category	Current Status			Level of Production		Possible Activiteis	
	Product/ Material	Location	Current use	Quantity/ Area	Yield Trend	Possible Uses	Constraints

The above table may be completed by the FD staff after the resource mapping conducted by the community members.

Probing Questions:

- What is the current availability?
- How many kg/ day can you yield?
- How many times a week do you harvest?
- What are the changes in availability over time? And Why?
- Is the availability change from season to season?
- How do you use the collected material?
- Who can go and collect?









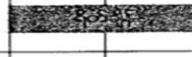




3. Time Line of the Forest Resources

Objective	To understand the changes in the forest condition over time. To understand the causes of such changes (If the causes are known, it is much easier to identify the solution or coping strategy.)		
Preperation	<ul style="list-style-type: none"> ▪ Marker ▪ Chart paper (Alternatively, the exercise can be done on the ground using stones, branches etc available at the location.) ▪ Digital Camera – to capture the map drawn by the villagers ▪ 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. ▪ Gender balance of the participants may also be considered. ▪ A separate group of men and women may be formed to carry out the exercise, if appropriate. 		
Time required	3-4 hours		
Process	<ol style="list-style-type: none"> 1. FD staff will explain the villagers about the exercise especially what information that we are trying to gather for what purposes. 2. Ask the villagers to mark the beginning of the village 3. Ask the villagers to tell major incidences in the village and how the condition of forest changed over time and how they correlates to the incidences occurred in the village. If they identify other incidence affecting forest condition, then it should be indicated in the histogram. 4. If the exercise is done in a few groups, the maps drawn by each group should be shared in plenary session. Each group will report about the map and all participants will discuss differences and similarities. 5. The FD staff will take notes of what has been discussed and share the notes with the participants at the end of the exercise for verification. 		
An example of a time line			
Period	Key Event	Impact on Livelihood	Impact on Forest/ Forest Resources
<u>An example</u> 2008	Cyclone Nargis	Fisnihg equipments were lost. Had to relocate to far away place No income for long time	Mangrove forest where degradation started was washed away
Fill with the description. Source: JET- JICA/ FD Mangrove Project (2012)			
After the exercise: This exercise will help us understand the implication of social events or natural disaster affected the livelihoods and mangrove ecosystem. The participants may be guided to discuss how negative impacts can be prevented and how positive impacts can be sustained.			

4. Seasonal Calendar (with farm/ household budget)

Objective	To understand the main livelihood activities throughout the year. To understand the seasonal fluctuation of resource availability (financial/ man power/ etc) To understand the coping strategies of the villagers when experiencing difficulties To gain gender perspectives in seasonal vulnerability
Preparation	<ul style="list-style-type: none"> ▪ Marker ▪ Chart paper (Alternatively, the exercise can be done on the ground using stones, branches etc available at the location.) ▪ Digital Camera – to capture the map drawn by the villagers ▪ 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. ▪ Gender balance of the participants may also be considered. A separate group of men and women may be formed to carry out the exercise, if appropriate.
Time required	3-4 hours
Process	<ol style="list-style-type: none"> 1. The FD staff will explain the kind of information to be given during the exercise and the objective of the exercise. 2. The participants will draw a calendar. 3. Ask the villagers to list the various livelihood activities observed in the village 4. Ask the villagers to indicate the seasonal condition of each activity 5. You may also ask the villagers to indicate various resources in the village including forest resources and to indicate seasonal variations in availability/ access/ marketing etc. 6. If the exercise is done in a few groups, the maps drawn by each group should be shared in plenary session. Each group will report about the map and all participants will discuss differences and similarities. 6. FD staff will take note during the exercise and share the note at the end of the exercise for verification

An example of a seasonal calendar

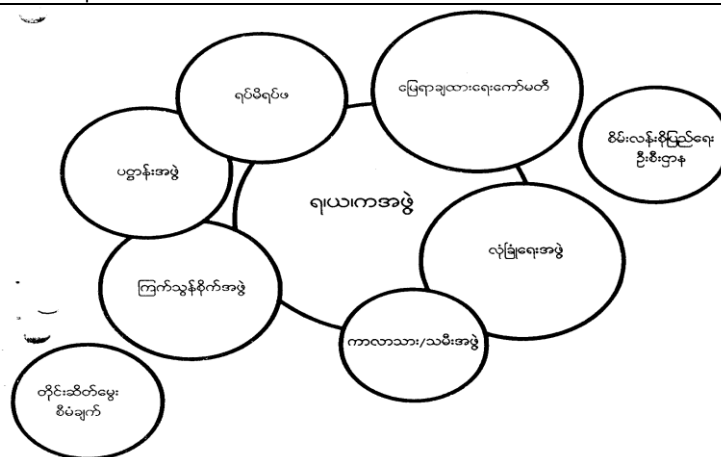
လုပ်ငန်းများ	တန်ခူး	ကဆုန်	နယုန်	ဝါဆို	ဝါခေါင်	တော်သလင်း	သီတင်းကျွတ်	တန်ဆောင်မုန်း	နတ်တော်	ပြာသို
										
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ရေထွက်ခြင်း										

Source of the Drawing: PRA Booklet (COMFORT, no date)

5. Stakeholder analysis- Chapati Diagramme

Objective	To identify stakeholders in management of community forestry To understand how each stakeholder relates to each other and with the community To understand the level of influence/ significance of each stakeholder to the community
Preperation	<ul style="list-style-type: none"> ▪ Marker ▪ Chart paper (Alternatively, the exercise can be done on the ground using stones, branches etc available at the location.) ▪ Digital Camera – to capture the map drawn by the villagers ▪ 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. ▪ Gender balance of the participants may also be considered. A separate group of men and women may be formed to carry out the exercise, if appropriate.
Time required	3-4 hours
Process	<ol style="list-style-type: none"> 1. FD staff will explain the purpose of the exercise. 2. Ask villagers to draw a circle in the middle indicating community/ forest users. 3. Ask the villagers to identify the stakeholders (individuals/ government offices/ NGOs/ private companies/ shops etc) which are influential in relation to forest area. 4. Ask the villagers to cut a sheet of paper in different sizes of circles to represent the level of influence/ significance to the community/ forest users. 5. Ask the villagers to place the different sizes of circles to show the closeness/ accessibility/ usefulness of each stakeholder by the community/ forest users. 6. FD staff may also ask how each stakeholder relates to each other. If they are close, their circles may be placed next to each other or overlapping position depending on their relationship. 7. Discuss if there are any conflicting interests. 8. During the discussion, FD staff will take note. 7. If the exercise is done in a few groups, the maps drawn by each group should be shared in plenary session. Each group will report about the map and all participants will discuss differences and similarities.

An example of a resource map



Source of Drawing: PRA Booklet (COMFORT, no date)

After the exercise:

The villagers and FD staff may be able to identify who should be included in the Users Group and who should be consulted at various stages of CF. If there is a conflict of interest, an appropriate intervention shall be discussed to prevent the potential conflict.

***Annex 4: Points which should be analysed in
Organising CFUG***

Points which should be analyzed in Organizing CFUG

Below is the extraction from the "Community Forestry Establishment Guidelines for Extension Staff"(Myint Aung/ CFDTC, 2007; p-20-24) .

1. Land

There must be sufficient land for the establishment of CF. Moreover, it is necessary to know the status of ownership and type of land. It is easy to process in case of forestland, but if it should be other type of land, it is necessary to negotiate with the department concerned and consideration should be given whether it could be finished in time. In the establishment of plantations, suitable species and techniques can be advised only if the type of land is known.

2. Water

Seasonal water availability, flooding, water scarcity, water source, type of water (whether suitable for trees and crops), expense for water, etc., should be studied. It is important, especially in considering the necessary to establish nursery, condition for transportation of seedlings and sowing conditions where water is the major item that needs to be studied.

3. Forest

Studies should be made on, the existence of natural forests, condition of established plantations, forest types and species composition, conditions of production and transportation of forest produce, price and market for forest produce, supply and demand for forest produce, expectation for the future, etc.

4. Conditions of the locality

Studies should be also made on the socio-economic conditions of the village. it may be difficult to mobilize the community in localities with good economic condition and where forest produce is easily available. Although it might be easy to mobilize the community with poor economic condition and where natural resources are scarce, it will not be successful if there is no sizable support. Remote areas, where accessibility is poor and support is difficult, should also be seriously considered. Establishment of CF will be successful only if the Extension Staffs are in close contact with the villagers.

5. Population

Sufficient people (working people) are needed for the establishment of CF. it may not be successful if the activity has to be implemented with hired laborers.

6. Tradition

The rural community that is going to establish CF should not have the tradition opposed to working in groups. It should be seriously considered if the community should have a very strong tradition of working in a single manner rather than in a group.

7. Leadership

Establishment of a CF is a long-term activity. It is therefore very important to consider seriously that the nominated village has good leaders. Village that has leaders that are respected by all, farsighted, fair, good in social dealing and selfless will be successful. Whereas village that has poor leaderships is usually unsuccessful in any kind of activities.

8. Cooperation

It is very important to review the condition of the village that wanted to establish CF. If the villagers have no cooperation among them and are not interested to work hard, it will be difficult to be successful. They should be mobilized for the establishment of CF only if there is cooperation among them and that all are interested to work energetically for this activity.

9. Reasonable in solving problems

Some villages may have extremists who are over enthusiastic. They may quarrel often and may be difficult to negotiate. This may lead to meetings being disrupted. There may be difficult to establish CFs in villages with such tradition.

10. Experience in forest activities

Villages that had worked with the FD in forest activities are experienced and are in touch with the departmental staffs. They may therefore, be easy to work with. It may take time to mobilize them if they have no experience in forestry field activities. Thus, villages that have experience in forestry activities should be given priority in the mobilization for the establishment of CFs. More effort may be needed in mobilizing the villages that do not have much experience in forest activities.

11. Local Residents

Although the instructions are easily called CFI, what is written in Myanmar can be precisely translated as “local CFI”. Accordingly, if CF should be established, it is necessary that the users must be the local residents. In other words, “CFUG” should be formed with the direct users who utilize any forest products produced from the CF that is to be established. It should not be a CFUG formed with and lead by people from other localities that have different objectives, and using different means and ways to become local residents. There might be problem due to the differences in background in the long run. Non-resident should be avoided as much as possible and they should not be included as a member in forming a CFUG. If non-resident should have to be included in the CFUG, the case should be put up to the responsible authority prior to the formation.

***Annex 5: Community Forestry and Livelihood Security
Enhancement – Approach for DMA***

***Annex 5-1: Community Forestry and livelihood Security
Enhancement – Approach for DMA (Suggested
Methods for Planning an Activity)***

Community Forestry and Livelihood Security Enhancement
Approach for Delta Mangrove Area

- **Suggested Methods for planning an activity** -

Introduction

A discussion was presented in the main text of SOP as to how closely livelihood is linked with CF. Through the discussion, it became evident that the livelihood security is a precondition for the participation as well as to bridge the gap in income between the planting and the harvesting time that will take more than a few years.

The suggested strategy to be adopted in Coastal Mangrove Area in Delta is implementation of livelihood security activities through “Convergence”. That is to implement the livelihood activities through mobilizing financial and technical resources from other organizations and government departments. In this process, FD will become the facilitating agency to help 1) community identify the livelihood needs and 2) link them with the relevant resource organizations while CFUG will proactively take part in the planning, implementation and networking with other institutions.

How to identify the most feasible and relevant livelihood activities are discussed below. Once the needs are identified, FD staff may refer to the Livelihood activity resource book and share the contact information with the CFUG.

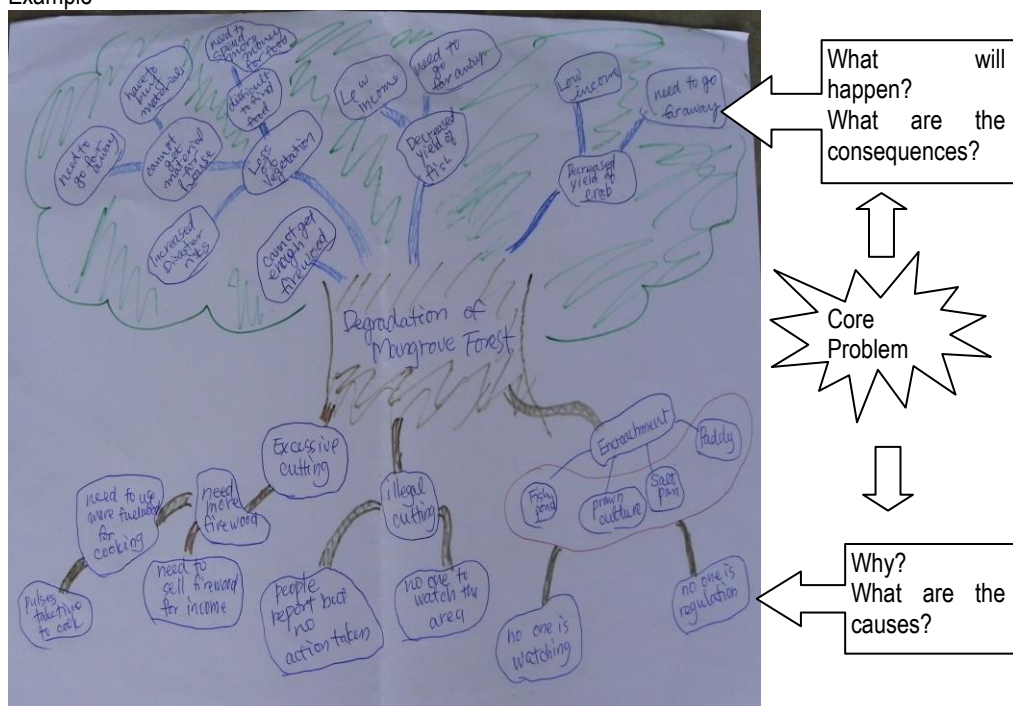
1. Process of identifying potential Livelihood Security Activities

1.1 Problem Analysis Tree – Understanding the causes of a problem

Objective	To understand the causes of the problems in the village
Preparations	<ul style="list-style-type: none"> ▪ Marker ▪ A large sheet of paper ▪ Alternatively, the exercise can be done on the ground using stones, branches etc available at the location. ▪ Digital Camera – to capture the map drawn by the villagers ▪ 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. ▪ Gender balance may also be considered. A separate group of men and women may be formed to carry out the exercise, if appropriate.
Time required	3 -5 hours depending on the depth of information you wish to collect
Process	<ol style="list-style-type: none"> 1. Explain the villagers about the exercise. 2. Ask the villager to reflect on the exercises that they have conducted during the management planning

3. Ask the villager to brain storm what they want to change/ improve in the village
4. Ask the villager to decide the most urgent point to be changed/ improved in the village
5. The problem analysis will begin.
6. The facilitator will ask what the causes of the issue are and draw the tree downwards.
7. The facilitator will ask how things will be different once it is resolved and draw branches upwards.
8. In these upward branches and downward roots should be connected with nodes that make logical connection. If it is drawn downwards, the facilitator will ask "Why?" If it is drawn upwards, the facilitator will ask "what will be the consequence?"

Example



Source: JET-JICA/ FD Mangrove Project (2012)

1.2 Identifying Feasible Livelihood Activity - Scoring

Objective	To understand the causes of the problems in the village
Preparations	<ul style="list-style-type: none"> ▪ Marker ▪ A large sheet of paper ▪ Alternatively, the exercise can be done on the ground using stones, branches etc available at the location. ▪ Digital Camera – to capture the map drawn by the villagers ▪ 10 – 20 villagers may be called. They should be the ones in the village who can represent the views of the villages and have good knowledge of the village and its surroundings. ▪ Gender balance may also be considered. A separate group of men and women may be formed to carry out the exercise, if appropriate.
Time required	3 -5 hours depending on the depth of information you wish to collect
Process	<ol style="list-style-type: none"> 1. Explain the villagers about the exercise. 2. Ask the villager to list the different solutions after looking at the root causes from the problem tree. Ask the villager to give scores for each criterion.

	<ol style="list-style-type: none"> 3. Identify the most realistic solution. 4. For each solution, 1) how accessible is the fund? How much fund is available?, 2) whether the technical resources/ skills are available in the village or elsewhere? 3) how many people will benefit? 3) how much time is required to implement? Will be discussed and score will be discussed. The score of 1-5 will be given. Higher the score, the higher the likelihood. For instance, if the fund is easily accessible, score of 5 will be given. If it is difficult or nothing is available, give 1 or could also be 0, if no one knows about it. 5. The group will calculate the total score. The intervention acquired the highest score will be considered as a first priority for implementation. 6. FD staff will refer to the Livelihood resource book and identify the potential resource organization and help UG to contact. 7. If the activity of 1st priority could not be implemented, FD staff will discuss with UG and identify the next activity from the lower priority. 8. The above cycle is a continuous process and should be repeated whenever new activity is to be selected. 																																								
	<p>Example</p> <table border="1"> <thead> <tr> <th>Root Cause</th> <th>Solution</th> <th>How accessible is the fund? How much fund is available ?</th> <th>Is the required skill available in the village or nearby area/ easily accessible ?</th> <th>How Urgent ?</th> <th>How many people will benefit ?</th> <th>How much time required to implement ? (If little time is required, give score 5. If lot of time is required give score 1).</th> <th>Total Score</th> </tr> </thead> <tbody> <tr> <td>Need for more energy for cooking</td> <td>To adopt energy saving technology</td> <td>4</td> <td>2</td> <td>5</td> <td>5</td> <td>5</td> <td>23</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Source: JET-JICA/ FD Mangrove Project</p>	Root Cause	Solution	How accessible is the fund? How much fund is available ?	Is the required skill available in the village or nearby area/ easily accessible ?	How Urgent ?	How many people will benefit ?	How much time required to implement ? (If little time is required, give score 5. If lot of time is required give score 1).	Total Score	Need for more energy for cooking	To adopt energy saving technology	4	2	5	5	5	23																								
Root Cause	Solution	How accessible is the fund? How much fund is available ?	Is the required skill available in the village or nearby area/ easily accessible ?	How Urgent ?	How many people will benefit ?	How much time required to implement ? (If little time is required, give score 5. If lot of time is required give score 1).	Total Score																																		
Need for more energy for cooking	To adopt energy saving technology	4	2	5	5	5	23																																		

2. Contacting the Resource Organizations and Implementing the Livelihood Security Enhancement Activities

Once the potential activity is identified, the FD staff may assist the UG to contact the resource organizations directly. If FD still continues to hold NGO/ Donor Coordination Meetings, FD staff may also share it at a meeting.

If no resource organization is available, the FD staff will discuss with UG and suggest implementing other activities though having lower score. In the mean

time, FD staff will continue to collect information and expand network with other organizations/ higher level of authority so that the relevant activities can be implemented in the community.

Once the community and the stakeholder establish linkage, the field activities will be conducted by the respective stakeholder.

3. Monitoring

Although the livelihood activities can be conducted by UG and resource organization, FD is suggested to monitor the progress and how the stakeholder interacts with the community. The stakeholder's involvement is encouraged to the extent that would indirectly support the Community Forestry Activities. Thus, the intervention should be effective and should contribute to enhance the partnership between FD and the community. For that reason, FD staff is required to visit the site on a regular basis for monitoring. If the work progress is not as per plan that is to be agreed between Community, FD and the implementing agency, the FD should intervene.

***Annex 5-2: Livelihood Activity Profile contributed by
NGOs***

Livelihood Activity Profile (1): Traditional Snack Food Making

Activity Name: Traditional snack food making business (12 items of food production)	Activity Suitable for: Village women individual level, household level			
Resource Organisation Name: Mangrove Service Network(MSN)	Contact Address: Room-101, Building (B), Highway Complex, Kamayut Township, Yangon, Myanmar Contact Phone Number: : 09-7321 3356 Contact Person Name: Daw Zar Li Maw			
Briefly about the activities/ techniques applied:				
Objective:				
<ul style="list-style-type: none"> ▪ To strengthen capacity of village ladies/women in local based production ▪ To support livelihood development of village families. ▪ To provide notorious and hygiene foods to rural community 				
Goals:				
<ul style="list-style-type: none"> ▪ The rural community can create income opportunities and locally produce hygienic foods by the community members using traditional ingredients available in the area. 				
Advantages/ disadvantages:				
<ul style="list-style-type: none"> ▪ The technique is easy to learn. Raw materials can be collected within the area. The market can be found within the village and near areas. The amount of income during the monsoon season may be lower than dry season. 				
Methodologies:				
<ul style="list-style-type: none"> ▪ Most of traditional snack foods are produced with local products such as rice, vegetable oil. Methodologies for production are easy to learn from practical training. 				
Producers:				
<ul style="list-style-type: none"> ▪ A member of family must learn the methodologies from a training program. Other family members can assist in food production. 				
Potential benefits/ profits for doing such activity:				
1. Rice noodle with fish soup (monthinkha) After 12 times of production, you will start getting net profit. Profit per one production is about 3300 kyats.				
2. Rice Cake After 24 times of production, you will start getting net profit. Profit per one production is about 550 kyats.				
3. Sweet wheat cake with coconut and ground nut (shwe kyi) After 10 times of production, you will start getting net profit. Profit per one production is about 1200 kyats.				
4. Sweet sticky rice (shwe kyi) After 8 times of production, you will start getting net profit. Profit per one production is about 1500 kyats.				
5. Agar-agar After 8 times of production, you will start getting net profit. Profit per one production is about 1500 kyats.				
6. Fried sticky rice with jiggery (mont salin daunt) After 5 times of production, you will start getting net profit. Profit per one production is about 2300 kyats.				
7. Steam sticky rice with coconut eat (mont pet htote) After 2 times of production, you will start getting net profit. Profit per one production is about 2400 kyats.				
8. Steam rive with coconut (pyaryi htote) After 2 times of production, you will start getting net profit. Profit per one production is about 3000 kyats.				
9. Coconut sago (thagu kyo) After 3 times of production, you will start getting net profit. Profit per one production is about 3400 kyats.				
10. Fried sticky rice with sugar (mont kyo lein) After 3 times of production, you will start getting net profit. Profit per one production is about 3200 kyats.				
11. Sweet juice with bread and agar-agar (shwe yin aye) After 6 times of production, you will start getting net profit. Profit per one production is about 4600 kyats.				
12. Fried sticky rice with coconut meat (mont lone gyi kyaw) After 7 times of production, you will start getting net profit. Profit per one production is about 1700 kyats.				
Period required to gain above benefits/ profits:				
The nature of production for each item is daily based. Profits per one production for 12 items are as described above.				
Sr.	Item	Utensils	Ingredients	Total
1	Rice Noodle with fish soup (monthinkha)	37250	4695	41945
2	Rice cake	12350	1655	14005
3	Sweet wheat cake with coconut and ground nut (shwe kyi)	12500	3090	15590
4	Sweet sticky rice	12500	2770	15270

5	Agar-agar	12350	2780	15130
6	Fried sticky rice with jiggery (mont salin daunt)	10700	2350	13050
7	Steam sticky rice with coconut meat (mont pet htote)	4700	2150	6850
8	Steam rice with coconut (pyaryi htote)	4700	1990	6690
9	Coconut sago (thagu kyo)	11200	2550	13750
10	Fried sticky rice with sugar (mont kyo lein)	10700	2800	13500
11	Sweet juice with bread and agar-agar (shwe yin aye)	23550	7400	40950
12	Fried sticky rice with coconut meat (mont lone gyi kyaw)	10700	3300	14000
Maintenance costs/ inputs required:				
<ul style="list-style-type: none"> If any utensil is broken, owner has to substitute with new one. Therefore, cost will be the same as per mentioned in the list of the utensils in the attachment. 				
Markets and distributions channels for the activity and products made from the activity:				
<ul style="list-style-type: none"> Market should be sought within the village and other nearby villages. 				
Important assumptions/ preconditions for planning, preparing, implementing the activity:				
<ul style="list-style-type: none"> The total quantity of traditional snack food selling shops must be balanced with the population of the village. If the shops are many and population of the village is less, these activities won't work. In case of selling to nearby villages, the individual household must have at least a small boat for transportation. 				
Potential risks and issues to be taken into account for conducting the activity:				
<ul style="list-style-type: none"> Market condition is fluctuated according to season and depended upon the weather. 				
Possible training which can be offered for the above activity:				
<ul style="list-style-type: none"> No training for these activities provided by our organization so far. 				

Source: Information contributed by MSN (December 2012) and Edited by JET (February 2013)

Livelihood Activity Profile (2): Grocery Shop

Activity Name: Grocery Shop	Activity Suitable for: individual level, household level
Resource Organisation Name: Mangrove Service Network(MSN)	Contact Address: Room-101, Building (B), Highway Complex, Kamayut Township, Yangon, Myanmar Contact Phone Number: : 09-73152702 Contact Person Name: U Win Sein Naing
Brief about the activities/ techniques applied: Objectives: <ul style="list-style-type: none"> ▪ To improve social access such as available household commodities and equipment and tool for business within the village. ▪ To get advantages in saving extra expenditures and time for the villagers for purchasing materials. ▪ To create livelihood opportunity for the villagers 	
Potential benefits/ profits for doing such activity: <ul style="list-style-type: none"> ▪ Supplementary Income for individual household. ▪ Approximated cost and return rate is 1: 1.3 for the beneficiary for every cycle. ▪ The villagers can access easily household commodities, foods, medicines and other item within the village. ▪ The villager can save extra expenditures and time for travelling to market. 	
Period required to gain above benefits/ profits: <ul style="list-style-type: none"> ▪ As per the nature of business, continuous investment and sales of the commodities would be essential. The family will be required to keep daily income and profit record. 	
Initial Investments and Inputs Required: <ul style="list-style-type: none"> ▪ The amount of initial investment and inputs required (200000 kyats- 450000 kyats) based on size of consumers. 	
Maintenance costs/ inputs required: <ul style="list-style-type: none"> ▪ The place of shop and maintenance cost of shop should be contributed by the beneficiary. 	
Markets and distributions channels for the activity and products made from the activity: <ul style="list-style-type: none"> ▪ Sell to all families in the own village and travellers. 	
Important assumptions/ preconditions for planning, preparing, implementing the activity: <ul style="list-style-type: none"> ▪ The grocery shop should open at the village with enough consumers (the village with medium to large size of village). Need to conduct a market survey. According to results from market survey, size of supply inputs, type of item the most required for the village. The family who has experience in trading should be suitable. 	
Potential risks and issues to be taken into account for conducting the activity: <ul style="list-style-type: none"> ▪ Monitoring and evaluation should be conducted regularly by the person who is appointed as an auditor if it is done as a group enterprise or if the seed fund is given as a loan by an organisation. 	

Source: Information contributed by MSN (December 2012) and Edited by JET (February 2013)

Livelihood Activity Profile (3): Integrated Community Forestry

Activity Name: Rehabilitating mangroves and improving food security of the coastal dwellers through enhanced technical capacities and integrated community forestry	Activity Suitable for: (individual level , household level, group level, village level, others (specify:): Village level
Resource Organisation Name: Ecosystem Conservation and Community Development Initiative (ECCDI)	Contact Address: Room 202, Building 74/75, Mingalar Thukha street, Ward 5, Kamayut Tsp, Yangon, Myanmar. Contact Phone Number: 01 510 902; 01 504 225 Contact Person Name: Dr. Kyaw Tint, President
<p>Brief about the activities/ techniques applied: (objectives, expected goals/ contributions to livelihood, advantages/ disadvantages, methodologies and procedures)</p> <ul style="list-style-type: none"> ▪ To improve livelihoods and reduce disaster risks. <p>Specific objectives:</p> <ul style="list-style-type: none"> ▪ To restore degraded mangrove forest and satisfy basic needs of the community for forest products; ▪ To improve livelihoods and ensure food security of the beneficiary population through increased incomes from agriculture, livestock, fisheries and forestry; and ▪ To contribute to disaster risk reduction and climate change mitigation through intensified tree shelter. <p>Expected outputs:</p> <ul style="list-style-type: none"> ▪ community mangrove forest to be rehabilitated or established; ▪ Improved wood and non-wood forest products and additional income; ▪ Improved fishery habitats, increased fish catch and income; ▪ Improved forest cover, aesthetic appreciation and decreasing soil erosion; ▪ Expanded forest carbon storage and sink, and reduced disaster risk. <p>Method and procedure:</p> <ol style="list-style-type: none"> 1. Prepare site according to the design developed (see figure below) 2. Discuss with and assess the needs of the community (potential members of CFUG) 3. Establish CF 4. Plant fruit trees and cash crops, as chose by the community members, on the raised ground 5. Breed live stock (ducks) in one canal <ul style="list-style-type: none"> ▪ If the support organisation giving the technical guidance on this enterprise can provide ducks to each FUG (Forest Users' Group) member. Otherwise, community members will have to procure ducsk with their own funds. The ducks will be about one and a half years old which are already laying eggs. The households could start collecting eggs in about two weeks and get income. In ECCDI's Labutta CF 30 ducks were distributed to each HH. ▪ A building of about 4 m by 8 m will be constructed with bamboos and thatch to house the ducks. ▪ Each FUG member enjoying the right of breeding ducks must pay back the cost of the ducks to the Management Committee in terms of eggs. MC (Management Committee) will collect, daily, 50% of the eggs laid by the ducks and value them at market price which will be deducted from the total cost of the ducks which the member received from the project. The money paid back by the members belongs to the UG and will be used for further development of the community. 6. Breed fish in the other canal <ul style="list-style-type: none"> ▪ The user will culture fish in one of the canals. The support organisation may provide each member with small fishes otherwise, villagers may need to explore other ways of procuring fishes. The livestock/fishery consultant will suggest and assist him to breed ducks and fishes. (In ECCDI's Labutta CF, each hh was provided with small fishes worth about 16 FEC.) 	
<p>Potential benefits/ profits for doing such activity: Benefits include-</p> <ul style="list-style-type: none"> ▪ DRR, soil protection, improvement of fishery habitats, increased production of agriculture and fisheries, direct benefits from livestock breeding, fish rearing, forest products, etc., and increased environmental awareness and technical capacity through trainings. 	

Period required to gain above benefits/ profits:

- If there are mangrove trees remaining where CF is established, seeds can be collected starting from the first year and sold. If CF is a new plantation the tangible benefits in terms of forest products will be possible after about 3-5 years. Intangible benefits could start as soon as the CF has been established.
- The benefits from agriculture, livestock and fisheries could be achieved within about six months.

Initial Investments and Inputs Required:

- Materials required include seeds and seedlings for CF&home gardens, exposable materials for nursery and labour quarter construction, ducks and fishes for distribution to the CFUG members, training facilities and materials.
- Labutta 50-ha CF cost as follows excluding cost for human resource-
(all costs are indicative and in FEC)

Training	3,750
Establishing 50-ha CF	16,954
Planting fruit trees and cash crop	105
Cost of ducks	3,947
Cost of fish	789
<u>Digging canals</u>	<u>8,000</u>
Total	33,546

Labours (cost, type of labour and amount of such labours)

- Since it was a CF, users contributed some labour free of charge.

Maintenance costs/ inputs required:

- CFUG will contribute all materials and labour necessary for the sustainability of the action.

Markets and distributions channels for the activity and products made from the activity:

- All project outputs are primarily meant for food security of the community and environmental improvement and stability of the locality. Excess CF products can be sold to non-CF members and in the local markets.
- If efficiently applied, this integrated CF design is considered to have the potential to benefit significantly the CFUG and the local community both financially and environmentally in a sustainable manner

Important assumptions/ preconditions for planning, preparing, implementing the activity:

(Please describe any assumptions/ preconditions for preparing, planning, and implementing the activity)

- Community Forestry Certificate (CFC) obtained in time
- Good understanding and participation of the beneficiaries
- No outbreaks of pests, diseases and natural disasters
- Favourable climate and assistance from the Forest Department
- Funding sufficient and timely

Potential risks and issues to be taken into account for conducting the activity:

(Please describe any risks and issues/considerations for preparing, planning, and implementing the activity)

- Suitable land for CF unavailable
- FD not cooperative
- Potential beneficiaries not interested and not mobilised
- Outbreaks of pests and diseases and natural disasters
- Climate unfavourable
- Funding insufficient and untimely

Possible training which can be offered for the above activity:

ECCDI can offer all trainings relevant to the said activity.

Existing reports/ manuals/ guidelines/ other documents available in relation to the activity:

ECCDI had implemented the above integrated CF design in Labutta Township, Ayeyarwady Delta under the project: "Rehabilitating mangroves and improving food security of the Nargis victims through enhanced technical capacities and community forestry" in 2011. So, concerned documents and information are available at ECCDI.



Photograph showing duck breeding in a CF established by ECCDI in 2011 in Labutta Township.

Illustrations/ Photos which describe about the activity:

The following figure shows the lay-out of a one-ha plot: an allotment for a CFUG member.

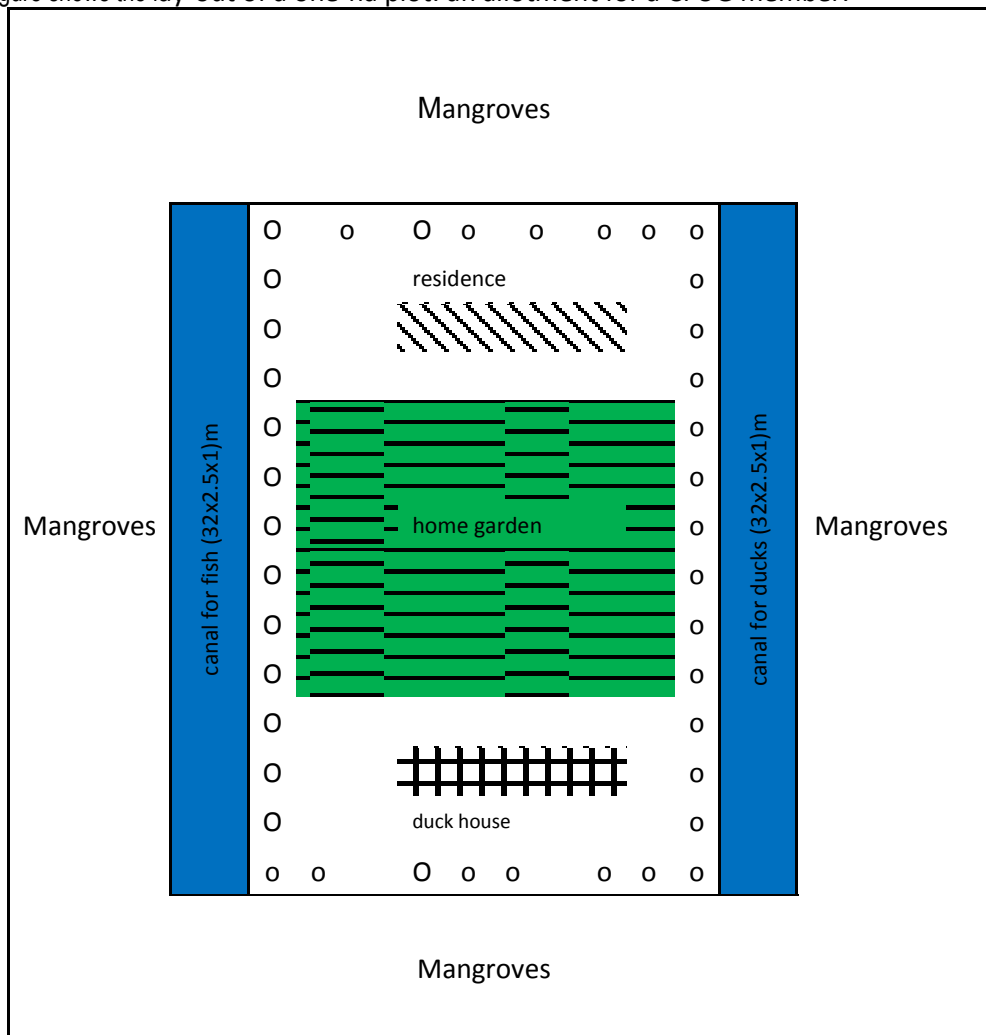


Fig: Lay-out of a one-ha plot: an allotment for a CFUG member

size of plot : (100 m x 100 m or 1 ha)

size of canal : (32 m x 2.5 m x 1 m deep)

raised ground bet. canals : 32 m x 16 m x 1 m high)

o o = trees or fruit trees or bamboos or a mixture

Source: Information contributed by ECCDI (December 2012) and Edited by JET (February 2013)

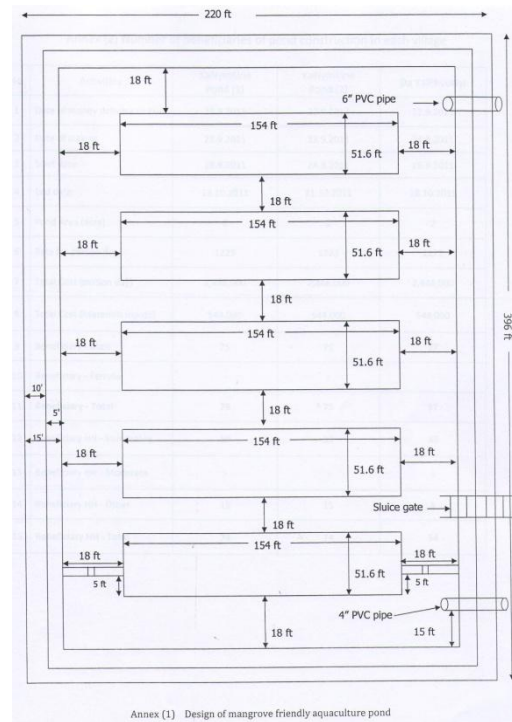
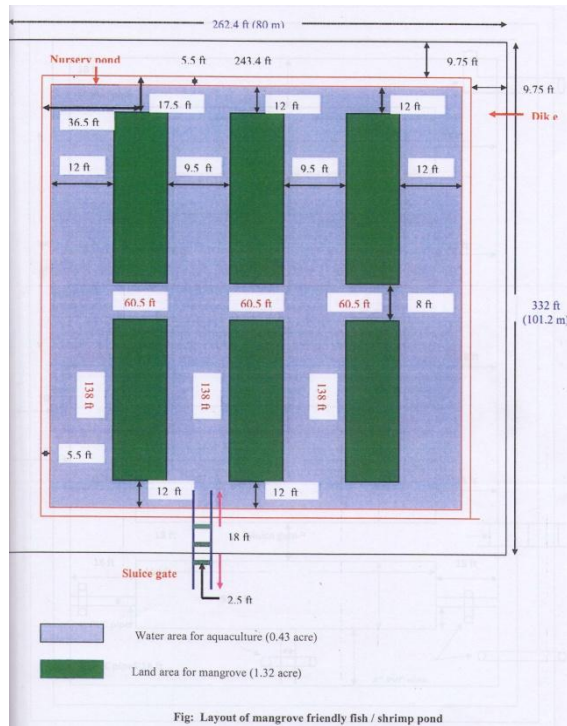
Livelihood Activity Profile (4): Mangrove Friendly Aquaculture

Activity Name: Mangrove friendly aquaculture	Activity Suitable for: group level, village level
Resource Organisation Name: EcoDev	Contact Address: No. 41-B, Moe Sandar Street, Kamayut Township Yangon Contact Phone Number: 01 536 437 Contact Person Name: U Win Myo Thu
<p>Brief about the activities/ techniques applied:</p> <p>Objectives:</p> <ul style="list-style-type: none"> ▪ To verify that mangrove and aquaculture can definitely co-exist ▪ To increase the income generation of the rural people ▪ To gain the successful economy and sustainable development of delta communities <p>Procedures:</p> <ul style="list-style-type: none"> ▪ Site selection ▪ Pond construction ▪ Crab and shrimp culture ▪ Mangrove plantation in mangrove friendly aquaculture pond ▪ Pond management 	
<p>Potential benefits/ profits for doing such activity:</p> <ul style="list-style-type: none"> ▪ According to the result of the crab culture (fattening) in 6 project villages, crab culture makes profit ranged from 50660 to 58220 kyats in some batches. However, they lost in some batches ranged from 4100 to 110900 kyats when the price is rapidly fall down and low survival rate when harvest. Survival rate was ranged from 24.1% to 91.3% depend on crab quality, water quality and pond management. ▪ Moreover, many landless household workers can get short term incomes by participating in the cash for work activities such as pond construction. This activity can create employment opportunities for women in the villages such as knotting crab body with rope before stocking in pond and before selling to market. ▪ If aquaculture pond is beside the paddy field, paddy yield in increased by maintaining more fresh water volume and preventing saline water intrusion by pond dikes. It is indirect impact of mangrove friendly aquaculture pond that it can make to increase paddy yield at the farm beside the pond. ▪ Capacity building for CFUG members is improved through mangrove friendly aquaculture trainings and their experiences by implementing activities practically after the trainings. 	
<p>Period required to gain above benefits/ profits:</p> <ul style="list-style-type: none"> ▪ Required period for crab culture is from 3 to 12 days and shrimp culture is about 4 to 4.5 months. 	
<p>Initial Investments and Inputs Required:</p> <ul style="list-style-type: none"> ▪ Initial investments for pond including required materials such as inlet/outlet pipes, materials for crab culture is 2,990,000 kyats. ▪ Cost for crab culture for one production circle is from 100,000 to 250.000 kyats and operation cost is from 19,000 to 78,000 kyats depends on the stock volume. ▪ If labours are hired for guarding pond, feeding crab/shrimp etc., labour charges per day is about 3000 kyats. 	
<p>Maintenance costs/ inputs required:</p> <ul style="list-style-type: none"> ▪ Feed for crab/shrimp = 1000 ~ 22000 kyats/circle ▪ Pond repair 	
<p>Markets and distributions channels for the activity and products made from the activity:</p> <ul style="list-style-type: none"> ▪ Products are sold to the market in nearby town. 	
<p>Important assumptions/ preconditions for planning, preparing, implementing the activity:</p> <ul style="list-style-type: none"> ▪ Update market information must be monitored to decide whether it should grow or harvest or shut down for a while to avoid loss or make profit. ▪ Crab/shrimp should be sold from Monday to Wednesday when price is stable than other days and price is high during neap tide period while crab catch rate is declined in wild and low supply in market. 	
<p>Potential risks and issues to be taken into account for conducting the activity:</p> <ul style="list-style-type: none"> ▪ Crab price is fragile and fluctuated many times that it depends on supply and demand in crab market in town and quality of crab. Sometimes, the price is rapidly decreased especially during December to January which Christmas, New Year and Chinese festivals are held in this period. 	
<p>Possible training which can be offered for the above activity:</p> <ul style="list-style-type: none"> ▪ EcoDev can provide mangrove friendly aquaculture training. 	

Existing reports/ manuals/ guidelines/ other documents available in relation to the activity:

- Technical Report of Mangrove Friendly Aquaculture Activities (July, 2012) submitted by U Htin Aung Kyaw, Aquaculture Specialist (EcoDev), under Sustainable Community Alternative Livelihood Enhancement to Undermine Poverty (SCALE UP) Project, Laputta Township.

Illustrations/ Photos which describe about the activity:



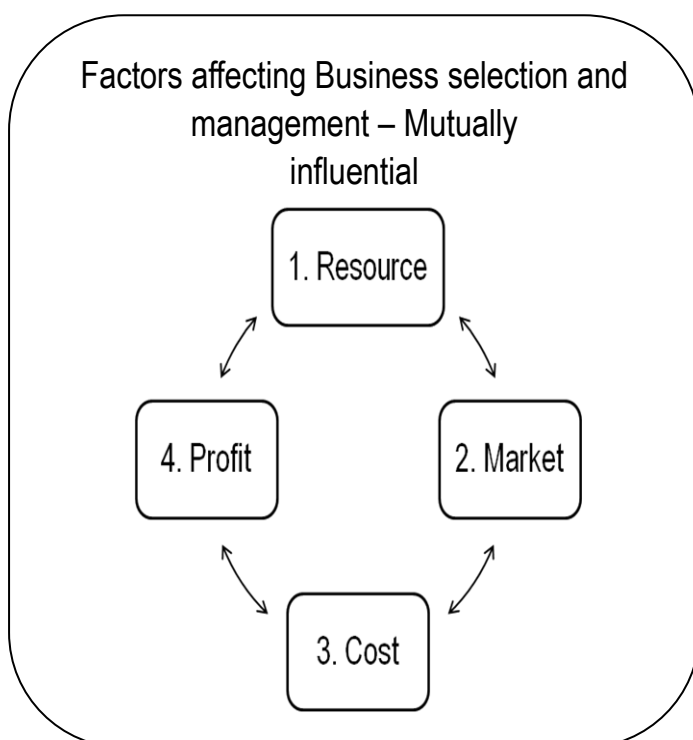
Source: Information contributed by Eco Dev (December 2012) and Edited by JET (February 2013)

Annex 5-3: How to begin your community enterprise

How to begin your community enterprise

1. Introduction

After discussing the livelihood activities through convergence, the community members may decide to begin their own business which is not listed in our livelihood activities profile like small business owned by the community. There are a few things to be assessed before you begin. This paper introduces you how to formulate community business ideas before you make the decision to make investment.



2. No risk, no gain but better to minimise the risk

Here we are talking of the money that you've saved for long. We also need to remind ourselves that there is a certain level of risk that you may lose your money that you invested. On the other hand, if your business is successful, you may also earn more than the money you have invested.

To minimise the risks and maximize the chances of success, first we need to understand the factors that affect business

selection and management: 1) Resource; 2) Market; 3) Cost; and 4) Profit. These are mutually influential. While identifying the business activity, we need to assess each factors. What we need to assess and how we can do so are discussed in this paper.

3. Community Enterprise – What is it?

Community Enterprise is a business activity that has been chose by the consensus of the community members. This enterprise should be chosen to contribute to the livelihoods of the community members, while they will take part in the business activities and be responsible for profit and loss.

Thus, the decision to begin an enterprise should be made by consensus after a series of

discussion amongst the community members. This process will also help the community members involved in the process to nurture the sense of ownership and sense of responsibility towards the action that they will take part in, thus, enhance the sustainability of the activity.

4. Planning a Community Enterprise

In this section, we will take a look at the each factor surrounding the business activity as in the figure in page 1 and discuss what we should assess before selecting a community enterprise.

☞ Factor 1: Begin from what you have – Resource Assessment

Taking advantage of what you already have is a way to begin. This is to understand your strengths and advantages. If you could analyse the resources that you could utilize, this will save you a lot of initial cost to establish the business. When assessing the resources around you, you will need to have a discussion with the community members so that everyone contributes in the process.

- Is the resource easily available in the locality or do you need to buy in a market?
- Is the resource available through out the year? Or only during the certain period of the year?
- Who has the access to the resources? Does everyone have access or certain community members?

It is always good to work with the locally available resources or the materials that can be procured at the low cost. But only if there is a market

☞ Factor 2: Know your customers – Market Assessment

The success of business depends on the people who buy the goods and services that you sell. If no one is willing to pay, there will be no business. So we need to understand if there are people who are willing to pay for the goods and services that you provide. If they are willing, how much are they willing to pay? You will also need to understand, what people require/ need. To do this, you can discuss with your community members what the goods and services that other people need. If you have specific goods and services in mind, you may also share that with people who may be willing to pay for them to see how much they will pay or how they can be further improved. You can do this going out to the market place and approach the public and conduct interview.

☞ **Factor 3: What is the cost?**

When you begin a business, you will need to spend some money. For instance, if you want to begin soap making and sell the products, do you need equipments? Do you need people to help? Do they work for you free of charge? Do you have to buy materials? Do you need to pack it? How do you transport? Do you have to pay for the transportation? You will need to estimate the overall cost of production including transportation.

☞ **Factor 4: What is the profit? Is it enough to be shared among the community members who participated in the activity?**

Profit is the balance amount of your gross earning after deducting the costs. The gross earning will be the sum of the amount that you collected by selling your produce/ services.

$$\text{Profit} = \text{Gross Earning} - \text{Costs}$$

Do you have positive balance after subtraction? If you make profit, is it large enough to share amongst the community members?

Pricing

- Price of the product/ service should be the amount that the customers are willing to pay.
- But still enough to give you profit.
- If you need to set your price much higher than the customer's preference, you will need to ensure the value that would attract the customers.
- Otherwise, your product may not have market potential.

5. Selection of an enterprise – Consider all factors and select the most feasible enterprise

After considering the above points, you can give scores to each factor. The maximum score for each factor can be 5. The description of each criteria is given in the table in Attachment 1.

6. After selecting an enterprise...

The community members should decide who will do what. It is also a good idea to agree on a manager who will take the leadership and an accountant who would be responsible for keeping the financial records.

7. Finding a fund

There are two ways of finding the fund required to begin the enterprise. One is to collect the fund from the community members who would work in the enterprise. The other is to approach bank or other organizations and apply for a loan. In both ways, the part of the profit earned through the enterprise will be used to repay the amount borrowed from the community members or from the lending institution.

In both cases, repayment schedule should be prepared along with the anticipated earning schedule in order to avoid the default. You should also bare in mind that the interest. If you default as a group, you will lose credibility and will make it difficult for your enterprise to procure funds in the future.

8. Things to remember after beginning the business...

You need to remember that the business can exist only when the customers exist. You will need to keep on monitoring the sales trend and reinventing your products according to the need of the customer. You will also need to consider the financial aspects of the business. If the profit becomes very small due to the high cost of production or transporation or any other reasons, you may take a collective decision to close down the business or come up with measures to reduce the costs of production or transportation.

Attachment 1: Matrix for Selecting a Feasible Community Enterprise

Criteria	Description (Give score between 1 and 5 according to the level of positive/ favourable condition.)	Possible Community Enterprise				
Resource	<ul style="list-style-type: none"> ■ Readily available in the locality? ■ Constantly available throughout the year? ■ Everyone can easily access? ■ The amount of resource is sufficient? 					
Market	<ul style="list-style-type: none"> ■ Market is within easy reach? ■ Many people will buy? ■ Do people always want to buy? Or only limited time during the year? ■ Do they buy repeatedly? 					
Initial Investment	<ul style="list-style-type: none"> ■ Large scale investment is required for preparation? ■ Little amount is required for initial investment? ■ Can you access to the fund? 					
Profit	<ul style="list-style-type: none"> ■ Profit is large enough to be shared with the participating ? ■ Pricing is appropriate for the customer? ■ Continuous profit can be ensured? 					
Total Score						

***Annex 5-4: Technical Guideline for Aquaculture
(Oyster, Crab, Aqua-agro forestry)***

Integrated Mangrove Rehabilitation and management Project
through Community Participation in the Ayeyawady Delta

Guideline for Potential Oyster Culture Activities in the Ayeyawady Delta

-Based on findings from JICA/FD Mangrove Project-



Htaung Gyi Tan CF Oyster group

Preface

1. Objective

This guideline aims to support villagers in southern Ayeyawady delta area who are interested in oyster culture trial

2. Target group

Villagers living around estuarine and high water salinity area which are favorable local oyster habitat

3. Assumptions

This guideline is prepared based on results of oyster culture trials in the JICA/FD Mangrove Project. Also certain speculations were made based on the results from the Project.

Forest Department (FD) and Department of Fisheries (DOF) officers can support you in meetings and other occasions to guide you based on their favorable experience and knowledge.

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5. Prospective Profitability of Oyster Culture Production	27
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1. Overview of Oyster Culture



Oyster raft culture seen in Japan



Harvested Oyster

1.1 What is characteristics of oyster culture?

Oyster is one of the most popular species for culture and culture technology in the world.

The oyster culture technology have a long history, thus its technology is already established.

The technology is not so difficult compared to other fish culture

The culture technology has been developed based on the life cycle and ecology of oyster, so less investment and less effort. are required

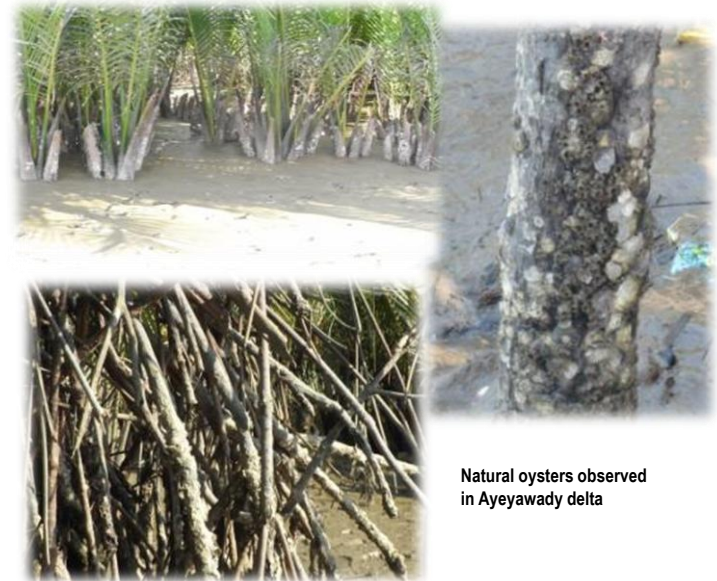
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1.2 Why is oyster culture recommendable for villagers?

-Simple and easy technology

-Environmentally friendly and less negative impacts to existing natural resources because the natural oyster originally occurs in mangrove areas

-Having demand in Yangon and local markets



Natural oysters observed in Ayeyawady delta

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1.3 Process of Oyster culture 1) Planning

Setting specific goals/objectives:
To be specified and decided by respective groups/ individuals
(example: for income generation and improvement of livelihood)

Identifying available resources/materials/budget:
-Identify available human / natural resources and budget for determining feasible culture methods and production scales.

Selecting culture methods, period and production capacity:
- Determine effective culture methods, period and production scale based on culture area condition, existing oyster growth data, and prevalent marketable size.

Preparing detail schedule for oyster culture activities:
-Determine concrete activity schedule reflecting culture condition such as culture period and production scale.

1.3 Process of Oyster Culture Activities 2) Implementation

Selection of actual culture site:
-Determine actual culture site(s) based on pre-selected culture method /production scale and site environmental conditions.

Preparation of culture material:
-Preparation and installation of culture material in accordance with determined site and method

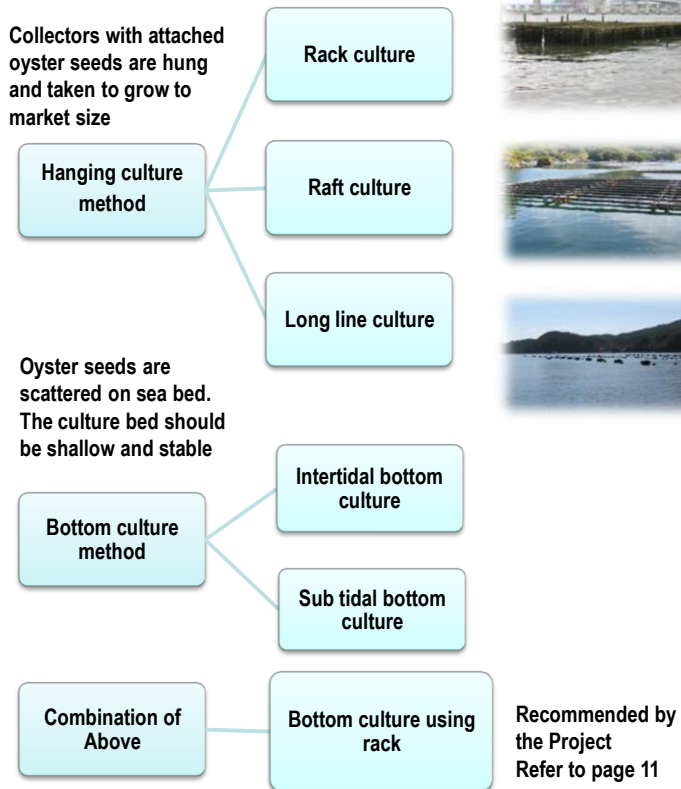
Seed collection:
-Implementation of seed collection based on spawning season and other biological characteristics of oyster

Culture management:
-Implementation of appropriate management in accordance with determined culture method and production scale.

Harvest and sales:
-Implementing harvesting and sales based on marketable size
-and market demand.

1.4 Oyster culture methods

There are many methods of oyster culture, representative culture methods are described here.



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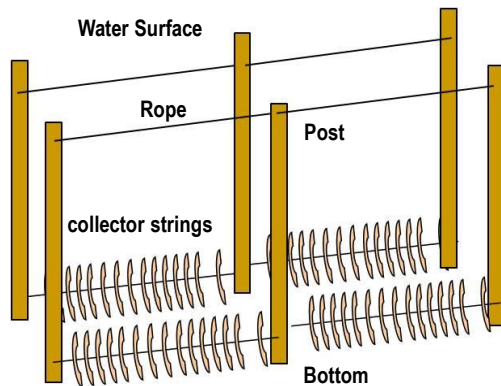
2. Findings from Oyster Culture Activities in the JICA/FD Mangrove Project

In order to improve the income level of villagers in Ayeyawady delta area, the JICA/FD mangrove project implemented oyster culture trial as one of potential livelihood improvement activities. Following table indicates findings from the oyster culture trial.

Item	Results
Favorable culture technology	Bottom culture using rack
Basic culture surface area	about 4,450 square feet
Culture strings number	160 strings (1 string is 10 feet length ropes with 20 collectors, 160X 20= 3,200 collectors)
Favorable seed collection time	between January and April
Favorable culture period	Less than 1.5 year
Favorable harvest size	More than 4 inch
Production Recorded (Possible Max Production: refer attachment 3)	360 oysters/basic surface area (about 5,000 oysters/ basic surface area)
Management	Watching and monitoring oyster not to be fallen and stolen up to end of harvest
Storage method for transportation	Carrying in fish box with small pieces of ice put in plastic bags
Market price (in 2011)	600-700 kyat/shell on oyster in Yangon, 300-400 Kyat/shell on oyster in adjacent villages and townships
Market	Local markets and Yangon market

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Image of bottom culture using rack



Bottom culture using rack in Nyaung Ta Pin Village, Laputta Township



3. Potential Oyster Culture Activities - Production to Sales -

Based on findings from the oyster culture trial in the project, bottom culture using rack is the favorable culture method, and following procedures/activities are required for effective production and sales.

1. Conducting Needs /Resources/ Market surveys
2. Forming oyster culture group
3. Planning oyster culture activity
4. Selecting Culture method
5. Preparing materials for oyster culture activities
6. Selecting culture site
7. Making collectors
8. Constructing culture rack
9. Hanging collectors
10. Observing oyster culture condition
11. Managing oyster culture
12. Harvesting cultured oyster
13. Selling of cultured oyster

3.1 Conducting Resources /Market Survey

In order to decide actual oyster culture activities you should consider two surveys : resource survey and market survey.

Resource Survey:

- To grasp what kind of local resources exist for the oyster culture activities (such as available materials and their uses)
- Survey shall be conducted in forms of discussions, community workshops and meetings.

Market Survey

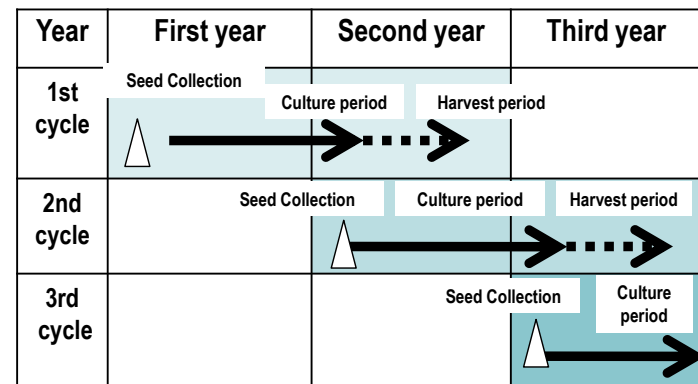
- To consider marketable /valuable size ,numbers, and timing in local and urban markets.
- Survey shall be conducted in forms of interviews to buyers and consumers such as restaurants etc.

3.2 Formation of Oyster Culture Group and Group Strengthening

- Oyster culture activities can be implemented by yourself. However, to share work, experience, skills and necessary capital, and also for larger production scale, working in a group is more favorable. So it is better to form a group.
- You and other villagers who are interested in the oyster culture shall hold a series of meetings and select group members and management committee members
- Once the group is formed, the group shall prepare group bylaw by discussion and mutual consents.
- The bylaw have to define objective, roles & responsibility and operational management, etc. for the group to function and to collaborate necessary work, and to have mutual understanding toward the oyster culture.

3.3 Planning Oyster Culture Activity

- Your self as individual or your group needed to formulate implementation plan for oyster culture activities (culture method, culture period , production scale, management operation, work distribution, production estimate and schedule)
- Consult FD and DOF officers for assistance in planning.
- The indicative work schedule is described below



Collection period: 4 months (from January to April)

Culture period: about 1.5 years for marketable size (more than 4 inch)

Harvest period: about 5 months (June to October) It is recommended to sell in order of faster growth of the cultured oyster up to market size.

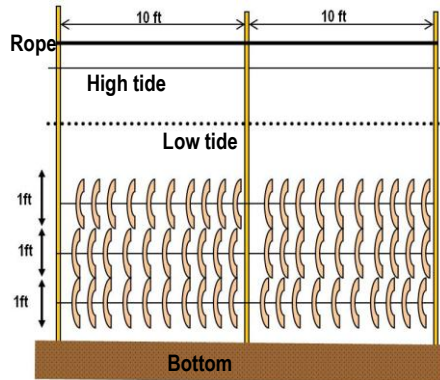


Planning the oyster culture activities among villagers assisting by FD and DOF staff

3.4 Selecting Culture Method

- Based on finding from the JICA/FD Mangrove Project, bottom culture using rack method is recommendable in the Ayeyawady delta area
- Reasons for recommendations are:
 - Adapted method to oyster habitats (bottom of water)
 - Useful and easy methods for stable and effective production
 - Rack and collector strings are easy to make
- Other possible methods are rack culture (attachment 1) and raft culture (attachment 2).

Basic concept of bottom culture using rack



If there is more sufficient depth (1 foot above from the bottom surface and 3 feet below from low tide water level), collector strings can be hung more than three lines.

Basic Unit for Bottom Culture Using Rack

Following parameters are used for further discussion.

Item	Contents
Culture Unit Area	5,000 square feet
Culture scale (collector number)	5,000 collectors
Culture scale (collector string no.)	250 strings (1 string: 10 feet with 20 collectors)
Expected Production	5,000 oysters/ Unit

Though actual production observed is 360 oysters / unit in the JICA/ FD Mangrove Project, expected production amount is set as 5,000 oysters/ unit (details in Attachment 3).

3.5 Preparing Materials for Oyster Culture Activity

- For better production, select and purchase/ procure new materials such as ropes from outside and available natural materials such as coconut or oyster shells in your village.
- Following table indicates favorable specifications and necessary numbers of collector material as well as rack material

Collector Material

Item	Specification	Quantity
Nylon Rope	Favorable size: diameter 1/3 in Durability: more than 5 years in seawater, Cost: 7,360 kyat/one roll (about 200 ft)	10
a) Coconut Shell	New harvest, well-dried Cut in half, favorable size: about 5 inch	5,000
b) Cement Board	Roof or wall material, cut in next size: 4 inch x 4 inch -8 inch x8 inch	5,000
c) Oyster Shell	Dead shell, favorable size: about 5 inch	5,000

a) To c) can be of single material or combination of these based on availability

Rack Material

Item	Specification	Quantity
a) Betel Palm Post	Favorable Size: diameter 4 inch, length 20 ft , Durability : 2 years ~ to resist against seawater Cost: 6,000 kyat/post	150
b) Bamboo post	Favorable size: diameter 6 inch, length 30 ft, Durability: more than 1 year to resist against seawater, Cost: 1,500 kyat/one	150
Nylon rope	Favorable size: diameter 2/3 inch Durability : more than 5 years in seawater Cost: 40,000 Kyat/one roll (about 200 ft)	5

a) To b) can be of single material or combination of these based on availability of material and budget

3.6 Selecting Culture Site

• Applicable oyster culture site should be selected based on the following aspects.

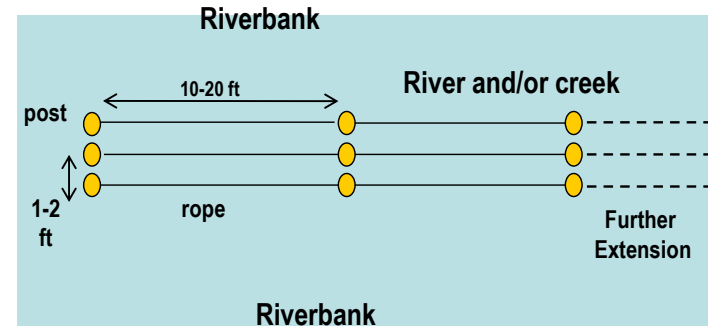
Environmental aspect:

1. Around oyster habitats
2. Good water circulation without standing water
3. Avoid sub-tidal calm current (not to be damaged the rack by strong current)
4. Avoid contamination form discharged water by settlements

Management aspect:

1. Area to be accessed and monitored easily to protect oyster against theft

Raft Location Image



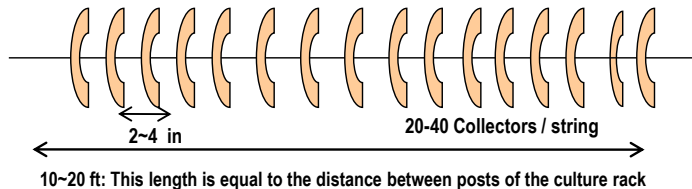
- Each post is supported by 2/3 inch rope
- Rack can be expanded along river

3.7 Making Collectors

Oyster seed collection using collector is required due to following life cycle/ ecological characteristic of oyster

- Oyster propagation depends entirely upon natural seeds spawned in water by natural oyster.
- Oyster seeds tend to set and grown on natural hard substrates such as rocks, sticks and other oysters, etc.
- Dried hard inner shell of coconut, oyster shells and/or cement board can be used for the oyster seed collector .
- Collectors tied by a rope is called “collector string”. A hole is made in center of each collector to pass 1/3 inch nylon rope. Each collector is strung about 2-4 inch apart by making knot.
- Each collector string shall have 20 -40 collectors depends on size of culture rack.

Image of Oyster Seed Collector String



Collector String Installation

Making and Adjusting Collectors

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3.8 Constructing Culture Rack

- The height of rack shall be adjusted in accordance with water depth of the site during high/low tides.
- The rack is consisted of posts and ropes. The posts should be piled into bottom surface of river /creek and not to be drifted.
- The posts shall be selected from cheap, easily available, and high durability against seawater local materials. You should select favorable post material based on your budget
- Each posts shall be connected by 2/3 inch nylon rope to resist against water current and wind.



Piling posts and connecting each post by rope.



Hanging the collector strings between posts

3.9 Hanging Collector

(Refer 3.4 for image of hanging collectors)

- Hanging of the collector must be done in suitable season when natural oysters start to spawn. Collectors shall be set at the culture rack between January and April.
- Otherwise the collectors would be contaminated with barnacles and other substances which would hinder oyster seed attachment
- Collector strings and collectors must not touch the bottom of river because collectors may be covered with mud, and oyster seeds would not be attached to the collector.
- Do not set collector strings within 3 feet depth from surface water level to avoid fouling acorn barnacles over the collectors.

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3.10 Monitoring Oyster Culture Conditions

You and your group should operate and manage the oyster culture activity regularly to confirm the oyster production and to take measures immediately if in case a problem occurs. It is very important to monitor the oyster culture situation regularly:

- To achieve stable and effective oyster production
- To prevent problems (loss of oysters by damaged culture rack and collectors, stolen oysters)
- To confirm the oyster growth.

1. Monitoring Oyster Culture Rack

- You and/or your group member should always observe the culture rack whether it has been broken/ stolen or not. In particular, posts should be examined carefully after hard rainfall.
- If you or your group find that the rack posts/ ropes are broken or stolen, repair the posts/ ropes or replace with another posts.
- If conditions allow, try to monitor frequently. Ideally, check every other days.

2. Monitoring Collector Strings

- You and your group should observe the collectors at least once or twice per a week. Check whether collectors are broken/ stolen or not.
- If you and your group find that ropes for strings are damaged, repair or replace the rope.

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3.10 Monitoring Oyster Culture Conditions

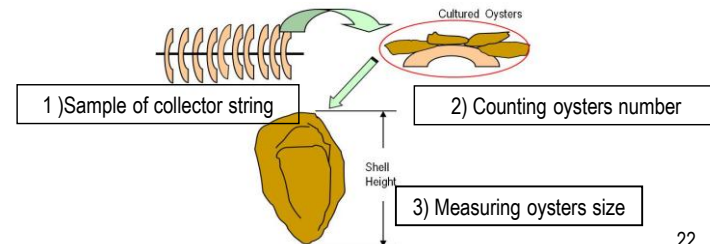
3. Monitoring Oyster Growth

- You should also regularly check the collector with the oyster to monitor oyster growth by sampling one collector string. Ideally, monitor oyster growth once or twice every month. Observation of oysters shall be also done when you monitor collector string
- About two months after hanging the collector, oyster seeds can be checked visually.
- Monitor number and size of all oysters on the collectors from sampled collector string for estimating production amount and harvesting time:

- The collector with more than 3-4 in size of oyster in one year should be taken care especially. This size oysters are easy to fell off from the collector . If possible wrap with fishing net.
- If you find the broken collector with the oyster, the oyster should be wrapped by used fishing net. This is to prevent felling off of the oyster

• Monitoring Procedures of Cultured Oyster

- 1) Select one sample collector string for monthly monitoring of the growth and survival of cultured oyster.
- 2) Count number of all cultured oysters on the sample string.
- 3) Measure and record shell height of the cultured oyster.



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3.11 Harvesting Cultured Oysters

- Oysters shall be harvested when shell height becomes bigger than 4 inches (about 1 to 1.5 years old after the seed collection).
- This is marketable size in local and Yangon markets (natural oysters are sold from this size as well).
- If in case size is less than 4 inches, oyster can be sold but at lower price than above marketable size.
- Also currently there is no price difference for oysters which are significantly bigger than 4 inches. Therefore, harvesting shall be considered if oysters reaches the marketable size.
- Upon harvesting when you remove the oyster individuals from collectors, you should take away fouling on the oyster shell, and washed them by water

Removing oyster from collectors



Washing Oyster



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3.12 Selling of Cultured Oysters

- When trying to sell oysters in local markets (adjacent villages,) you and/or your member should sell the oyster for weight sales. This is because local markets normally accepts shelled oyster (oysters without shell) by weight.
- For weight sales, wash oysters with clean water, and keep the shelled oyster in containers (such as bucket) until selling.
- When trying to sell oysters in restaurants in Yangon and township centers, you should sell as shell-on oysters (with shell). This is because these places normally accept shell-on oysters
- For transportation, use cool (fish) box and keep clean/ cool condition to maintain oysters alive and fresh for about two days.
- In cool box, put shell-on oysters together with crashed ice wrapped inside vinyl bag for better preservation.
- As of now, selling of cultured oysters shall primarily target rainy seasons since natural oysters are seldom caught and distributed due to rough sea conditions.
- You and /or your member should consider combination of future markets on sales of the cultured oyster based on market price, material and transportation cost, etc. because the oyster market demands are different due to difference among seasons and market areas.



Shelled Oysters for Local Market



Stir-fried oyster in Yangon restaurant

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4. Remarks for Oyster Culture Activities

Based on oyster related activities in the JICA/ FD Mangrove Project, followings are lessons and issues to be reminded by those willing to start oyster culture.

(1) Oyster Culture Group Consolidation

- As an individual , it may be a bit difficult to monitor and manage all of the culture activities. You may not timely recognize some problems such as stolen oysters
- Therefore, it is better that the oyster culture group to be organized
- Your group should continuously share information, experience, knowledge, skills, and problems on the oyster culture activities implementation among the members.

(2) Fund Requirement for Oyster Culture Activities

- It is very important to consider total capital requirement for the oyster culture activities before beginning of the activities.
- You and/or your group member should identify amount of cost and source of the budget for the activities. (Refer to prospective profitability in the next chapter)
- You and/or your member should determine the cost by discussing among your group member
- If the capital in your hand is not enough, you should consider use of other fund resources (governmental loan and loan repayment) by discussing with Forest Department and Department of Fisheries officers.

(3) Oyster Seed Collection Season

- There is a series of oyster culture processes from the seed collection to the harvest. So it is very important as the first step to carry out the seed collection in suitable season.
- The project identified that the favorable oyster seed collection season is between January to April in the Ayeyawady delta area.
- If seed collection and collector string hanging miss this season, you have to wait until next year for seed collection.

(4) Suitable Monitoring for Better Management

- You and/or your members should implement continuous monitoring and patrol on the oyster culture situation (such as the culture rack and the collectors with the oysters, etc.) to prevent loss and stolen of collector strings and oysters.
- During the oyster culture trial in the project, considerable amount of the cultured oyster were stolen or lost before harvesting.
- You and/or your members must continuously monitor and manage oyster culture production from the beginning of implementation to the harvesting.

5. Prospective Profitability of Oyster Culture Production

Based on findings of the JICA/ FD Mangrove Project, simplified profitability (cost - benefit) analyses for the oyster culture production were conducted and presented hereafter:

• Following cases are considered:

case 1: Selling in Adjacent Villages of Production Area

case 2: Selling in Laputta or Bogalay Township

case 3: Selling in Yangon

• Basic precondition and information for analyses are described in following pages (before results of each case)

• In any cases, it is assumed that all of oysters produced would be sold in respective market.

Results of analyses say that “case 3” bring more benefit, however as indicated in each case, there are many uncertainties, therefore you should consider these results as indicative information.

Based on these results and actual conditions (production, market, etc.), you and your group should consider the management of oyster culture activities.

Basic Assumptions for Profit Estimation

Item	Contents
Number of rack culture post	150 posts/ unit
Collector number	5,000 collectors/ unit
Culture Period	~ 1.5 year
Estimated Production	5,000 oysters/ unit
Transportation	Carrying to township and Yangon area by ferry and car
Market	Local market and/or restaurants in Laputta / Bogalay townships and Yangon
Market price average (in July 2011) Oyster with Shell	700 kyat/oyster at restaurant in Yangon 350 Kyat/oyster at restaurant in township 300 Kyat /oyster at local markets in adjacent villages

Cost Elements for Profit Estimation

Material Procurement Cost (Using Locally Available Goods)

Item	No*1	Unit price	Amount (Kyat)
Bamboo	150	1,500	225,000
Collector *2	5,000	0	0
Rope (1/3 inch)	10	7,360	73,600
Rope (2/3 inch)	5	40,000	200,000
Fish box	2	50,000	100,000
Total amount			598,600

*1 Number of materials for basic unit and each unit price is as of July 2011.

*2 Case of existing material in villages (use oyster shell and/or local coconut shell)

Cost Elements for Profit Estimation

Transportation Related Cost

Item	Restaurants in Yangon *1	Restaurants in Laputta/ Bogalay Townships *2
Transportation Charge by Ferry	19,000	5,000
Loading Charge *3	2,000	1,000
Transportation Charge by Car	20,000	2,000
Ice	5,000	3,000
Accommodation/ Meal Charge	14,000	-
Total	60,000	11,000

*1 : One member to transport oysters from each village to Yangon, and stay at Yangon for one night

*2 : One member to transport oysters from each village to township center

*3 : Fish box with the oysters would be loaded by labor in each port.

Basic Assumptions for Transportation

Item	Restaurants in Yangon	Restaurants in Laputta and Bogalay Townships	Local Market
Oysters numbers per shipping *1	200	200	200
Sipping number annually *2	25	25	25
Transportation Cost (Kyat)	60,000	11,000	0
Annual Cost (Kyat)	1,500,000 (25X60,000)	275,000 (25X11,000)	0

*1 : One fish box can carry 200 oysters with size 29

*2 : Assumed 25 times annually.

Cost - Benefit Analysis

Case 1: Selling in Adjacent Villages of Production Area

	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1. Cost					
Bamboo Post *1	225,000 (150X1,500)	450,000 (300X1,500)	450,000 (300X1,500)	450,000 (300X1,500)	450,000 (300X1,500)
Nylon Rope 1/3in	73,600 (10X7,360)	73,600 (10X7,360)			
Nylon Rope 2/3 in	200,000 (5X40,000)	200,000 (5X40,000)			
Fish box 100 L	100,000 (2X50,000)				
2. Benefit					
Income		1,500,000	1,500,000	1,500,000	1,500,000
For sales bamboo posts for one year production consists of 150 posts, so two units should be prepared from second year. After harvest of the cultured oyster, one unit should be replaced for next oyster culture production					
revenue	-598,600	177,800	1,050,000	1,050,000	1,050,000

This case is most practical in terms of transportation/ distribution , if there are constant demands in local markets!

Cost - Benefit Analysis

Case 2: Selling in Laputta or Bogalay Township

	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1. Cost					
Bamboo Post *1	225,000 (150X1,500)	450,000 (300X1,500)	450,000 (300X1,500)	450,000 (300X1,500)	450,000 (300X1,500)
Nylon Rope 1/3in	73,600 (10X7,360)	73,600 (10X7,360)			
Nylon Rope 2/3 in	200,000 (5X40,000)	200,000 (5X40,000)			
Fish box 100 L	100,000 (2X50,000)				
Transportation Cost		275,000 (25X11,000)	275,000 (25X11,000)	275,000 (25X11,000)	275,000 (25X11,000)
2. Benefit					
Income from sales		1,750,000 (350X5,000)	1,750,000 (350X5,000)	1,750,000 (350X5,000)	1,750,000 (350X5,000)
revenue	598,600	152,800	1,025,000	1,025,000	1,025,000

* One unit of bamboo posts for one pack per one year production is consists of 150 posts, so two units should be prepared form second year. After harvest of the cultured oyster, one unit should be replaced for next oyster culture production .

This case is more better off , if there are constant demands in township markets and possibility of higher selling price!

Cost - Benefit Analysis

Case 3: Selling in Yangon

	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1. Cost					
Bamboo Post *1	225,000 (150X1,500)	450,000 (300X1,500)	450,000 (300X1,500)	450,000 (300X1,500)	450,000 (300X1,500)
Nylon Rope 1/3in	73,600 (10X7,360)	73,600 (10X7,360)			
Nylon Rope 2/3 in	200,000 (5X40,000)	200,000 (5X40,000)			
Fish box 100 L	100,000 (2X50,000)				
Transportation Cost		1,500,000 (25X60,000)	1,500,000 (25X60,000)	1,500,000 (25X60,000)	1,500,000 (25X60,000)
2. Benefit					
Income from sales		3,500,000 (700X5,000)	3,500,000 (700X5,000)	3,500,000 (700X5,000)	3,500,000 (700X5,000)
revenue	598,600	677,800	1,550,000	1,550,000	1,550,000

* One unit of bamboo posts for one pack per one year production is consists of 150 posts, so two units should be prepared form second year. After harvest of the cultured oyster, one unit should be replaced for next oyster culture production .

This case may be more better off , if more numbers of production can be constantly achieved and transportation cost can be reduced!

6. Way Forwarded for Better Oyster Culture Production

Followings are issues needed to be taken into account for better production and profitability by oyster culture :

1. Productivity Improvement :

- Increasing collector and collector string numbers (through seed collection trial)
- Increasing efficiency of the seed collection (by detail identification of favorable seed collection months)

2.Reduction of Initial Cost

- Increasing use of cheap or free local materials for racks, ropes and collectors.
- Reuse of ropes for the collector

3.Further Market Development

- Finding potential markets and buyers
- Oyster sales promotion in restaurants
- Combination of sales destinations among local markets, township centers, and Yangon

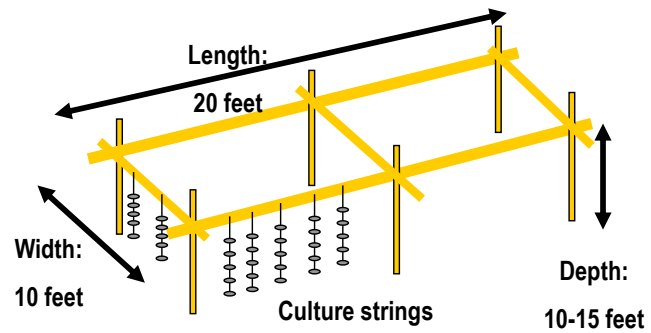
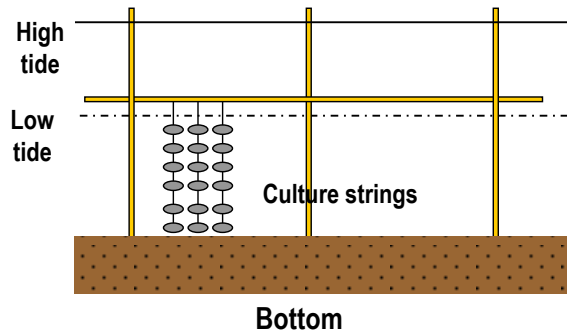
This guideline only provides basics of possible oyster culture in Ayeyawady Delta area. Not fully comprehensive and compete guideline. You and your group should further develop oyster culture activities reflecting your situations and local conditions.

Attachment

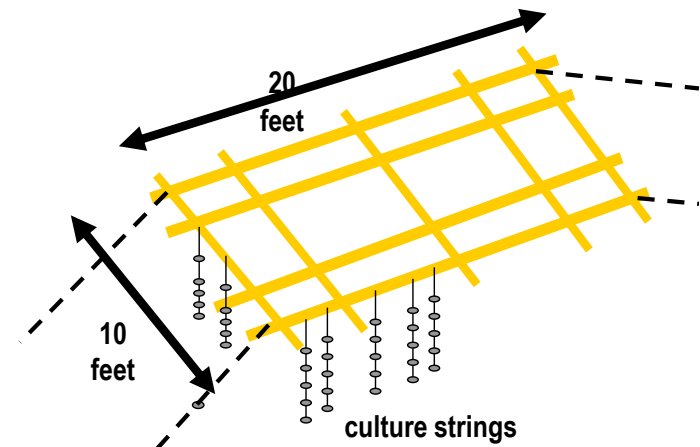
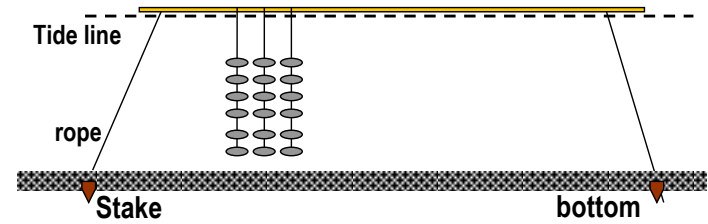
Oyster culture activities by the JICA/FD Project



Attachment 1: Rack Culture Method



Attachment 2: Raft Culture Method



Attachment 3: Oyster Production Estimate

- As described in 3.4 of this guideline, the recorded production amount was 360 oysters/unit by total counting.
- However, this low number of counting may have resulted due to stolen and washed away oysters/ collectors during the production.
- At the same time it was confirmed that each collector cultures at least one oyster .
- Based on further monitoring of oyster culture trial, the density counts on coconut shell collector individual before harvesting were as follows:

Monitoring Result of Sample Count*1 (in 2012)

Item	Nyaung Ta Pin	Thaung Lay	
Oyster number	81	25	24
Coconut shell number	43	20	20
Average of density (oyster No./ Coconut shell No.)	1.9	1.3	1.2
*1: One collector is counted *2: 4,000 collector X density.	600	5,200	4,800

- Based on the above density count ,it is reasonable to estimate the potential oyster culture production amount around 5,000 oysters.
- However to achieve the amount it is necessary to watch the culture situation regularly and to prevent the loss of oysters, accurately and continuously.

**Integrated Mangrove Rehabilitation and management Project
through Community Participation in the Ayeyawady Delta**

**Introductory Guideline for
Mud Crab Fattening
in Ayeyawady Delta**



Crab Fattening/Culture Pond in Ayeyawady Delta (Kanbala Ta Pin Village)



Mud Crab for Sales in Ayeyawady Delta

Preface

1. Objective

This guideline aims to support villagers in southern Ayeyawady delta area who are interested in crab fattening

2. Target Individuals/ Groups

Villagers who have interests in mud crab fattening and living around estuarine / mangrove area which Are mud crab habitats

3. Assumptions

This guideline is prepared based on findings by the JICA/FD Mangrove Project and literature reviews. Information are indicative and when applying the technology, villagers shall reflect the actual situation in their villages.

Department of Fisheries (DOF) officer s can support you to guide you based on their favorable experience and knowledge.

Table of contents

Preface

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2. Remarks for Crab Fattening Activities	15
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1. Overview of Crab Fattening Process

1) Planning Crab Fattening Activities



2) Construction of Pond

- a. Preparation of Materials
- b. Site Selection
- c. Construction



3) Fattening Operation and Management

- a. Preparation of Materials and Equipment
- b. Pond Preparation for Crab Fattening
- c. Source of crab
- d. Feeding
- e. Fattening Period
- f. Monitoring and Maintenance
 - Pond Condition
 - Growth



4) Harvesting



5) Selling

1.1 Planning Crab Fattening Activities

If you have interest in mud crab fattening, you should consider following aspects when you prepare your implementation plan (refer following pages for details):

- a. Fattening Method: Pond *
- b. Fattening period: Up to marketable size of weight
- c. Production Scale: Pond water surface area shall be within a size which do not require permit and controllable production scale.
- d. Site Selection for Pond: Applicable and easy to manage sites
- e. Materials to be Used: Bamboo, cage, net, and etc.
- f. Construction of Pond: Collaborative work among villagers
- g. Fattening Operation and Management: Feeding, monitoring of crab growth / pond condition, etc.
- h. Harvest: Selection of crabs with market able size weight
- i. Selling: Timing, market prices, selection of middleman

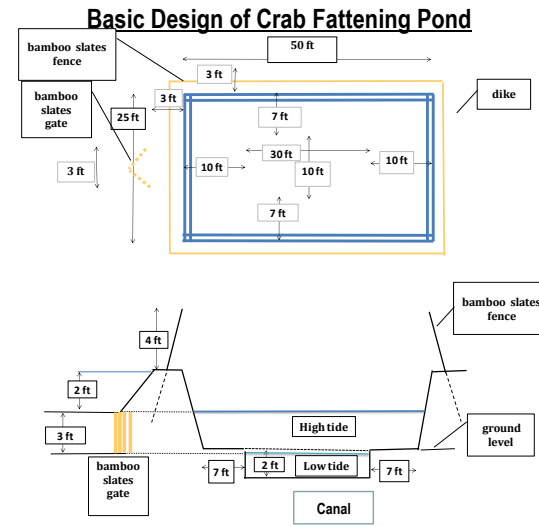
* Crab fattening are normally operated in pond or in bamboo cage. However, this guideline suggests to implement the crab fattening in ponds because i) cage is quite expensive (e.g. 30,000 kyat/one cage), and requires high investment for mass production, and ii) crab fattening requires low density stock (one crab per square meter) but cannibalization among crabs tend to happen more when using cages.

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1.1 Planning Crab Fattening Activities

Preferable Basic Design of Pond: Size of pond shall be adjusted based on how many people involved in the activity

- Pond area : less than 1,250 square feet (length 50 feet x width 25 feet. This size is permitted to implement aquaculture without license under the Fishery Law.
- Dike Area: height 2 feet x width 3 feet around the pond area
- Channel Area: From river and/or creek to the pond, depth 2 feet , bamboo slates gate to inlet of the pond.
- Bamboo stakes for fence : Burying not less than 2 feet into the soil of the dike.
- Canal Area: Size 30 feet x 10 feet Shall hold water during low tides for crabs. The canal shall be situated in the centre of the pond area, away from the dike, to prevent crabs from escaping .



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1.2 Construction of Pond

a. Preparation of Materials

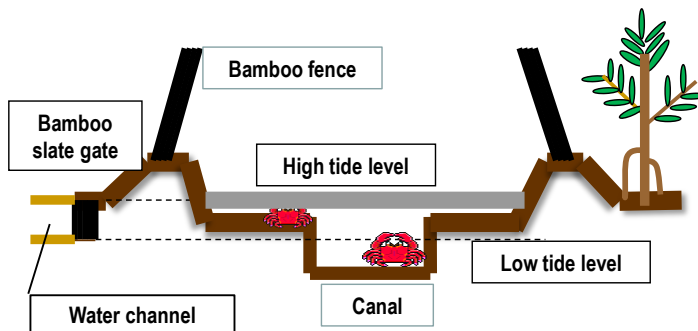
• You should place bamboo fences around dikes to prevent crabs escape. Bamboo slates shall be also used as a gate between water channel and natural creek.

• Cross section design of fattening pond and the list of bamboo materials for pond are indicated below.

List of Bamboo Material for Pond Construction

Item	Specification
Bamboo stake	For fence of pond dikes, fleshy bamboo and hard type, Size: 2 inches x 6 feet (total no. of bamboo with 0 inch spacing: at least 500)
Bamboo slates	For water channel gate, fleshy bamboo and hard type, Size: 2 inches x 4 feet (total no. of bamboo with 0.5 inch spacing: at least 30)

Cross-section Design of Crab Fattening Pond



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1.2 Construction of Pond

b. Site Selection

You should consider following aspects upon selection of the crab fattening pond location:

- Sites with sufficient water supply even at neap tide.
- Sites having soil texture of muddy or muddy clammy soil texture which enable to store water.
- If available, select abandoned shrimp culture pond areas, tidal mangrove areas near river and creek. These areas are proper habitats for crabs
- Sites easily accessible and also less risk from theft



Potential Sites: Abandoned Shrimp Culture Pond Area (Htaung Gyi Tan village)

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1.2 Construction of Pond

c. Construction

You should consider following aspects upon construction of pond:

- **Work contribution by interested villagers:**
 - **Contribution of land for the pond**
 - **Collaborative work for pond construction among interested villagers as follows**
 - **Contribution of construction tools**
- **Earth work**
 - **Measurement of the pond area**
 - **Digging work of land area up to suitable depth determined by the tide level**
 - **Embank the dug soil to make dikes.**
 - **Earth-filling of pond's embankment**



Dike of the pond: Coconut palm leaves are used as fence on the dikes



Bamboo Slates Gate: Bamboo slates are set up to inlet of the pond

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1.3 Fattening Operation and Management

a. Material and Equipment Preparation

- **Monitoring net and/or plastic mesh tray: to monitor growth and feed consumption state of crabs**
- **Platform scale: Weighing body weight of crabs/ feeds**

Item	Specification
Monitoring net	Mosquito net used for the net Size: 3 feet X 3 feet
Monitoring plastic mesh tray	Plastic mesh tray can be used in stead of monitoring net Size: 3 feet X 3 feet X 0.5 feet
Platform scale	Maximum measurement: 20 kg Minimum scale: 100 g

b. Pond Preparation for Crab Fattening

- **Soil of established pond contains hazardous material for crabs. Therefore, to wash out such material, you should fill the pond with water and then drain. Repeat this work for two to three times.**
- **After the final drain, you should maintain the pond dry for 1 to 2 weeks until cracks appear at the bottom of pond. This is to flush acidic material and to sterilize the pond.**
- **After sterilization of the pond, spread agricultural lime to bottom of the pond. 1,250 square feet pond usually requires 17 kg of lime.**
- **About one week after lime application, put water in the pond and you can start crab rearing.**

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1.3 Fattening Operation and Management

c. Source of crab

➤ **Stock Size** : carapace width 8.15 cm (3.3 inch) and above (for both male and female. This is minimum catch size determined in in the Fishery Law)

- Lean and female mud crabs shall be selected for fattening for higher selling price to buyer.

➤ **Stocking density**

- **Stocking density:** 1 crab/ m² in pond and 10 -20 crabs/cage

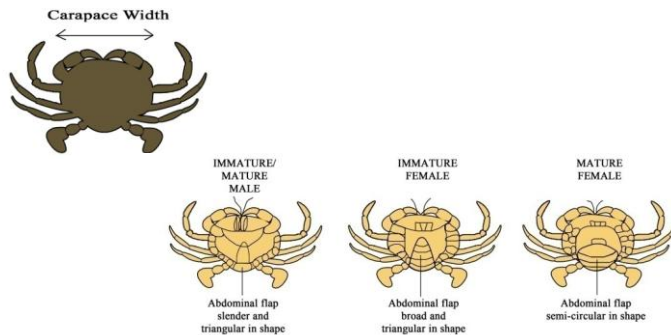
d. Feeding

- **Feed:** Low-value and/or trash fish without head, because the mud crab cannot eat hard head and leftover fish head would have bad influence on rearing conditions of mad crab.

- **Feeding rate:** 10 % of total body weight of stocked crabs daily

e. Fattening period

- **Fattening period::** 15-30 days ,but depended on marketable size and weight (See fattening schedule in the next page)



Abdomens of crab

Figures prepared based on original figures from "A pictorial guide for mud crab farming , central institute of brackish water aquaculture India, SPL PUBL No. 11"

Crab Fattening Activity Schedule

	First month	Second month	Third month
First Cycle	Preparation*	Fattening Activities	Harvest
Second Cycle		Fattening Activities	Harvest

The table is a Gantt-style chart showing the timeline of crab fattening. The first cycle starts with 'Preparation*' in the first month, followed by 'Fattening Activities' in the second month, and 'Harvest' in the third month. The second cycle starts with 'Fattening Activities' in the second month and 'Harvest' in the third month. Arrows indicate the flow of activities between months, and triangles mark the end of each cycle.

* Preparation: purchasing material for pond construction and fattening management, pond construction, preparation of pond use

1.3 Fattening Operation and Management

f. Monitoring and Maintenance

➤ Pond condition

•Monitoring : Check holes and/or crack on the dike every day. Check whether bamboo fences are damaged or not Conduct patrol to protect crabs against theft.

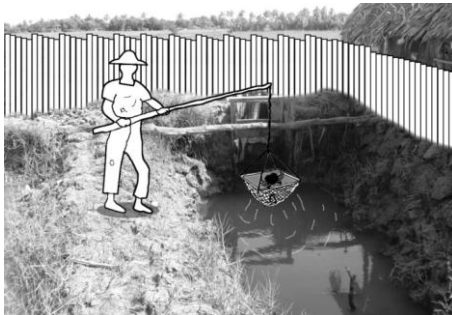
•Maintenance : If any holes or cracks are found, repair such damages. Damaged fence should be replaced to prevent crabs from escaping

➤ Crab Growth

•Monitoring : Put feed on the monitoring net or plastic mesh tray for a while, pick it up and check the feed consumption amount

• The crab growth would be carried out by measuring crab weight on 10% number of initial total number of crabs in the pond using the tray once per a week.

Image of Crab Growth Monitoring



Monitoring net is used to check crabs growth and feed consumption

Source : Figure prepared based on the original figure indicated in "A pictorial guide for mud crab farming", Central Institute of Brackish Water Aquaculture India, SPL PUBL No. 11

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1.4 Harvesting

•After monitoring growth, and confirmed that crabs are fattened up to marketable size, harvesting will be done by completely draining the pond.

•Crabs shall be picked and washed in clean water, and their claws shall be tied close to abdomen by nipa or coconut leaves and packed in containers (plastic box, bag and bucket, etc.)

•After harvesting, uneaten feed should be removed from the pond and its channel. Because the pond would not be able to be used continuously due to contamination from the decayed uneaten feed.

•Pond preparation for next fattening period should be implemented by flushing the pond twice or three times repeatedly.

1.5 Selling

•After packing crabs in containers, crab shall be transport and soled to middleman in each village.



Crab Claws Tied by Nipa Leaves



Each Crab Weighed on Platform Scale

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2. Remarks for Crab Fattening Activities

- You should implement feeding daily with enough volume of low-value trash fish
- You should do daily monitoring of pond condition to avoid crabs from escaping, and to protect the crabs against theft
- Also do daily monitoring of crab growth as well.

This guideline only provides basics of possible crab fattening in Ayeyawady Delta area. Not fully comprehensive and complete guideline. You and your group should further develop activities reflecting your situations and local conditions.

Attachment

Another Fattening operation and management

Cage use

- You would be able to locate cage for fattening crab within an existing abandoned shrimp culture pond area, a tidal mangrove area near river and creek where are proper habitats for crabs.
- Sufficient water should be run into cage located area even at neap tide. (water depth: more than 0.5 feet)
- Cage is shown in the following photo.



Crab Fattening Cage
Size: 5feet X 3 feet X 1 feet
Material: bamboo slates and timber

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Cage use with raft

- You would be able to locate cage for fattening crab with bamboo raft
- Good water circulation should be flow into cage located area
- Cage is shown in the following photo.



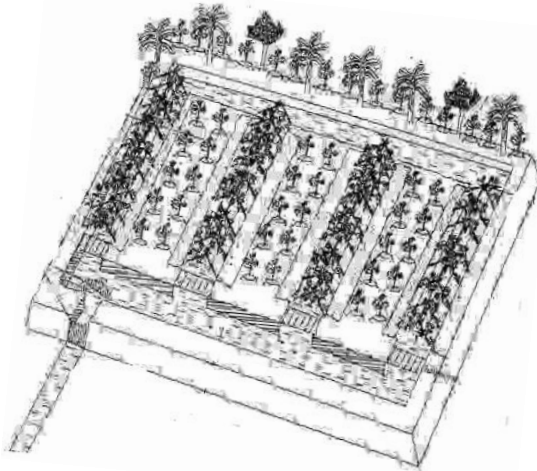
Crab Fattening Cage with Bamboo Raft

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**Integrated Mangrove Rehabilitation and management Project
through Community Participation
in the Ayeyawady Delta**

**Guideline for Potential Activity on
Aqua-agroforestry
in the Ayeyawady Delta
-Based on findings from JICA/FD Mangrove
Project-**

Image of Aqua-agroforestry



Source: Mangrove forest rehabilitation manual (2005)-The study on integrated mangrove management through community participation in the Ayeyawady delta

Preface

1. Objective

This guideline aims to support interested villagers to improve their livelihood through aqua-agroforestry activities in Ayeyawady delta area. Self consumption by target groups is the primary concern.

2. Target group

Villagers living in mangrove area, Particularly, brackish water and estuarine basin area.

3. Assumptions

This guideline is prepared based on results of aqua-agroforestry trials in the JICA/FD Mangrove Project. Also certain speculations were made based on the results from the Project.

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Preface

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1. Overview of aqua-agroforestry

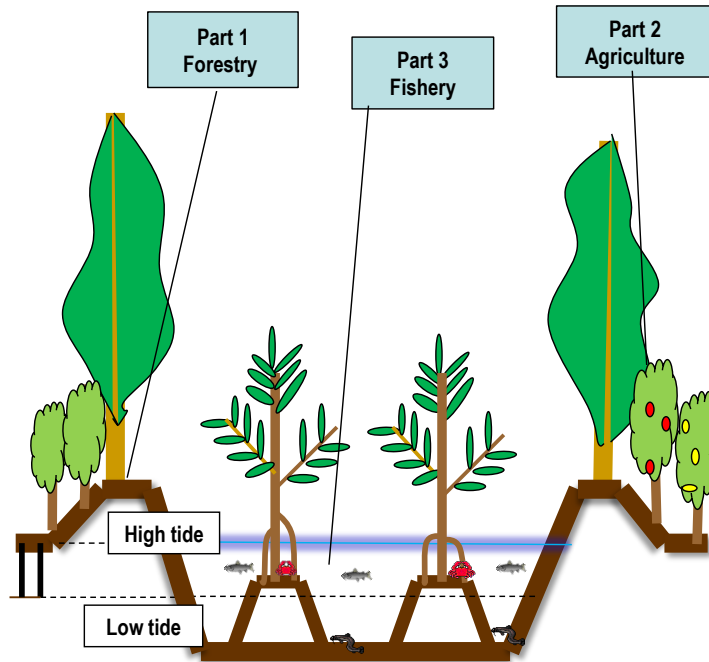
What is Aqua-agroforestry ?

➤ Aqua-agroforestry is an intensive land use and method of resource production in mangrove area by combination of ; 1)forestry, 2)agriculture and 3) fishery (aquaculture).

➤ Aqua-agroforestry considered here aims following productions for food security
1) tree, 2) fruits, 3) vegetable, and
4) aquatic resources.

➤ Aqua-agroforestry shall consists of following three aspects but not limited to below:
Part 1: land for tree production (forestry)
Part 2: land for fruit and vegetable production (agriculture)
Part 3: water body for aquatic resource production (fish, shrimp and crab etc.) (fishery)

Image of Aqua-agroforestry



Source: JICA /FD Mangrove Project

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Process of Aqua-agroforestry Activities 1. Planning of Aqua-agroforestry Activities

Setting specific goals/objectives:

To be specified and decided by respective groups/ individuals (example: for income generation and improvement of livelihood)

Identifying available resources/materials/budget:

-Identify available human / natural resources and budget for determining feasible aqua-agroforestry methods and production scales

Selecting aqua-agroforestry target species, cultivation periods and production capacity:

-Determine applicable and effective aqua-agroforestry methods, period, target species and production scale based on site availability, environmental conditions and prevalent marketable production scale.,

Preparing detail schedule for aqua-agroforestry activities:

-Determine concrete activity schedule reflecting conditions such as production period and scale.,

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Process of Aqua-agroforestry Activities
2. Implementation of Aqua-agroforestry Activities

Selection of actual aqua-agroforestry site:
 -Determine actual culture site(s) based on pre-selected method /production scale and site conditions.

Preparation of land and procurement of materials:
 -Preparation of lands for cultivation and procurement of necessary materials in accordance with determined sites and methods.

Plantation and cultivation:
 -Implementation of planting and culture activities based on each target species and environmental conditions.

Management of Cultivation:
 -Implementation of appropriate management in accordance with determined methods, each target species and environmental conditions.

Harvest and sales:
 -Implementing harvesting and sales based on edible / marketable size and market demands.

2. Findings based on Aqua-agroforestry Activities of the JICA/FD Project

In order to improve food production of villagers in Ayeyawady delta area, the JICA/FD project implemented aqua-agroforestry trial to examine suitable and environmental friendly method for the mangrove area. Results from the project for aqua-agroforestry technology, management and harvest, etc. are described in the following table.

Item	Results
Type	Fish culture and <i>Hygrophila</i> sp. plantation
Scale	about 1,250 square feet
Culture Period	1 month -3 months (main season: rainy season)
Fishery Harvest (per each culture trial)	Snake head: 2-3 kg Giant sea parch 1kg Carp , etc.
Management	Keep monitoring fish culture situations

3. Potential Aqua-agroforestry Activities - Production to Sales -

Based on findings from the aqua-agroforestry activities in the project, following procedures/ activities are required for effective production and sales.

1. Conducting Needs /Resources/ Market surveys
2. Forming aqua-agroforestry group
3. Planning aqua-agroforestry activities
4. Preparing materials for aqua-agroforestry activities
5. Selecting aqua-agroforestry site
6. Constructing aqua-agroforestry pond
7. Planting trees, vegetables and fruits, etc
8. Culturing fishes
9. Monitoring and Maintenance
10. Harvesting and Sales

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3.1. Conducting Resources/ Market surveys

In order to decide activities you should consider two surveys : resource survey and market survey.

Resource Survey:

- To grasp what kind of local resources exist for aqua-agroforestry activities (such as available materials and their uses)
- Survey shall be conducted in forms of discussions, community workshops and meetings.

Market Survey (conduct if selling of products are physically possible)

- To consider marketable /valuable size ,numbers, and timing in local and urban markets.
- Survey shall be conducted in forms of interviews to buyers and consumers.

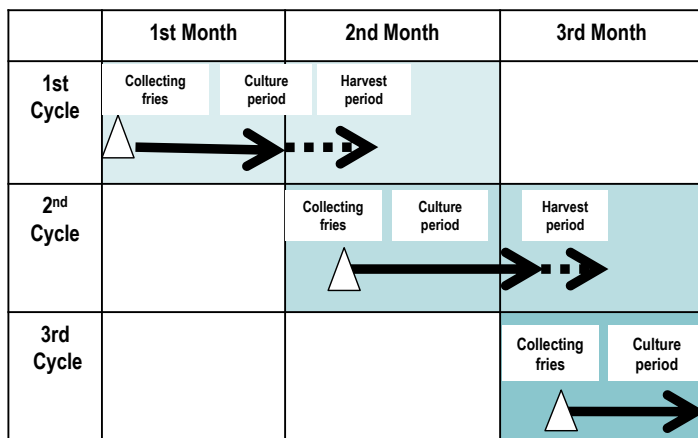
3.2 Forming aqua-agroforestry group

- Aqua-agroforestry, activities can be implemented by yourself. However, to share work, experience, skills and necessary capital, and also for larger production scale, working in a group is more favorable. So it is better to form a group.
- You and other villagers who are interested in the aqua-agroforestry shall hold a series of meetings and select group members and management committee members
- Once the group is formed, the group shall prepare group bylaw by discussion and mutual consents.
- The bylaw have to define objective, roles & responsibility and operational management, etc. for the group to function and to collaborate necessary work, and to have mutual understanding toward the oyster culture.
- Forest Department (FD) and Department of Fisheries (DOF) officer s can support the meeting to ensure fairness such as establishment of bylaw because of their favorable experience and knowledge.

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3.3 Planning Oyster Culture Activity

- Your self as individual or your group needed to formulate implementation plan for aqua-agroforestry activities (methods, culture period , production scale, management operation, work distribution, production estimate and schedule)
- Consult FD and DOF officers for assistance in planning.
- The indicative work schedule is described below



Collection period: 1 week
 Culture period: about 1 month (Depended on your demand)
 Harvest period: about 2 weeks (Depended on your demand)

3.4 Preparing Materials and Equipment for Aqua-agroforestry Activities

- For better production, select and purchase/ procure new materials for forestry, agricultural and fish culture products,.
- Also try to use existing farm equipment/tools in accordance with aqua-agroforestry methods you selected.
- Following table indicates favorable material and equipments

Item	New Materials Preferred	Equipments
Forestry Products	Mangrove and no-mangrove seedling	Spade
Agricultural Products	Vegetable and fruits seeds	Spade
Fish Culture Products	Fishing net, flat scale , plastic goods	Spade, Bamboo tray and basket

Procurement price from local market *1

Item	Specification	No.	Unit price (Kyat)	Amount (Kyat)
Fishing net	Net size 4 mm	1 roll	12,000	12,000
Flat scale	Max weight 20 kg Minimum scale 100 g	1	20,000	20,000
Basket	Diameter 40 cm	2	4,000	8,000

*1 Number of materials is based on the project trial. Price is based on market price of July 2011.

3.5 Selecting aqua-agroforestry site

Applicable aqua-agroforestry site should be selected based on the following aspects:

Environmental aspects:

1. With good water circulation,
2. Sub-tidal, calm current and clean area .
3. Avoid contamination from discharged water by settlement areas
4. Pond locations are required to have muddy silt and clammy land in order to prevent water leakage.

Management aspects:

1. Area to be accessed and to be monitored easily.
2. Area to be easily protected against theft.

You and your group member should discuss and decide appropriate sites for pond construction and suitable target species for cultivation.

Contact FD, DOF and DOA (MAS) staffs if you need technical guidance.

Indicative layout plan of land use for aqua-agroforestry is shown in the following page

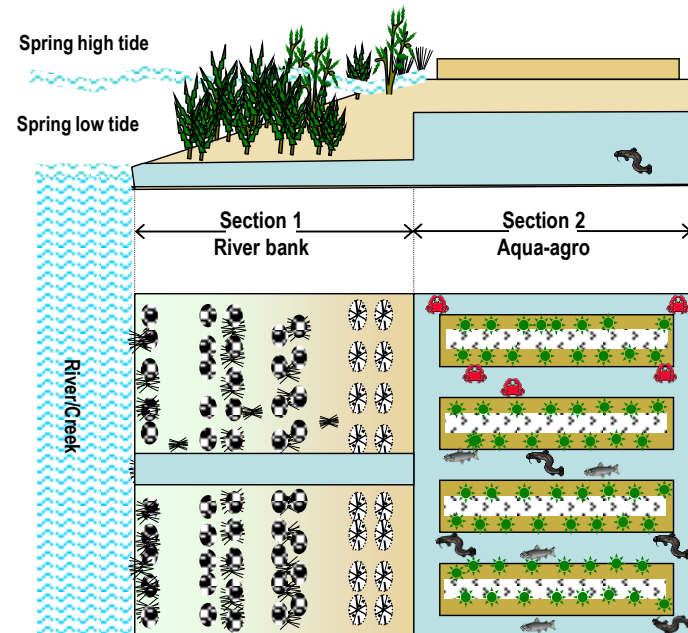


Proposed area for Aqua-agroforestry Pond



Proposed area for the pond enclosed with river and creek

Indicative Layout Plan of Aqua-agroforestry



Section 1: mainly for tree production

Section 2 :above ground area for fruits /vegetable production

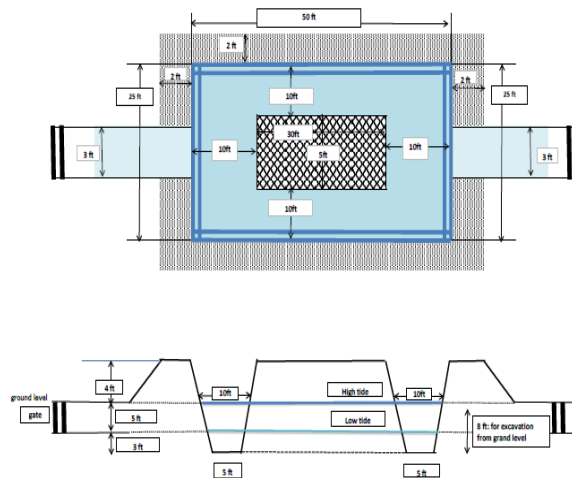
Section 2: water body for aquaculture production

Source: Mangrove Forest Rehabilitation Manual (2005)-The Study on Integrated Mangrove Management through Community Participation in the Ayeyawady Delta

3.6 Constructing Aqua-agroforestry Pond

1. Dimension of an Aqua-agroforestry pond shall be water surface with less than 1,250 square feet, depth about 4-5 feet, and width less than about 10 feet, in compliance with fishery law.
2. Locate Aqua-agroforestry pond around river and/or creek.
3. Measure pond area by lined rope and dig the area by your group members.
4. Establish drainage to connect a channel between pond and river/ creek.

Indicative layout of aqua-agroforestry pond is shown below.



Indicative Layout of Aqua-agroforestry Pond



Measuring and Lining Planned Pond Area

Aqua-agroforestry Pond Preparation for Usage

- Soil of established pond contains hazardous material for fish and crabs. Therefore, to wash out such material, you should fill the pond with water and then drain. Repeat this work for two to three times.
- After the final drain, you should maintain the pond dry for 1 to 2 weeks until cracks appear at the bottom of pond. This is to flush acidic material and to sterilize the pond.
- After sterilization of the pond, spread agricultural lime to bottom of the pond. 1,250 square feet pond usually requires 17 kg of lime.
- About one week after lime application, put water in the pond and you can start aquaculture production.

3.7 Planting Trees, Vegetables and Fruits

- In the river bank area, try to plant low ground mangrove tree species such as *Avicennia* and *Nipa* for not only for production purpose but also for bank protection.
- At the inward lands try to plant combination of low ground trees and agricultural crops such as coconuts palm and banana, etc. for food security.
- Some vegetables such as okura and chili are possible to plant on embankment of the pond.
- You and your members should discuss and select applicable trees and vegetables plantation among group members, FD and DOA (MAS) staffs.

3.8 Culturing Fishes

- Fishes to be cultured shall be collected fries and/or fish juveniles freely entered to aqua-agroforestry ponds.
- Fish culture should be basically done without feeding in order to produce at low cost and to maintain extensive management.
- If you require to culture giant sea parch, mud crab and giant river prawn, etc. in the pond, you should feed trash fish daily about 10% -15 %of total weight of cultured fishes because these fished eat other fishes.
- You should implement fish culture for duration from one month to three months based on the result of the project for your demand on fish size. (refer to the table in Chapter 4)



Local carp : no feeding species



Giant sea parch: feeding species

- Example ;

Fish culture priod

Snake head :one month ~three months

Giant sea parch: one month ~three months

Carp: one month ~three months

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3.9 Monitoring and Maintenance

Cultivation Condition

- For stable and effective production, it is very important continuously to observe situations such as aqua-agroforestry pond, growth of cultivated fishes, trees and vegetables, etc.
- For trees and vegetable cultivation, it is required to check them every day to prevent disease and insects damages. In case of diseases and insects, please avoid using pesticide, because the cultured fishes would be damaged or killed by the pesticide.
- For cultured fishes, it is also required to monitor the pond every day, because you needed to collect floating dead fishes and debris to prevent bad culture condition of the pond.

Pond Condition

- Check holed and/or cracks on the dike every day.
- If any holes or cracks are found, repair such damages immediately in order to prevent water leakage from the pond.
- Check the sluice gate area every day and remove fragment algae in order to have better water circulation continuously.
- After harvesting fishes, remove water and sediments from the pond to avoid unnecessary contamination and for stable production.



Maintaining the pond area



Maintaining the sluice gate

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3.10 Harvesting and Sales

- For monitoring the growth of fish, you can collect cultured fishes by fishing net at drain gate of the pond.
- For harvesting, you should remove water from the pond, and collect fishes by fishing net in remained water at the pond bottom area.
- Among members, you can decide how to distribute/ use harvested fishes. If there are surplus amount of catch, you can consider for selling.
- For forestry and agriculture products from aqua-agroforestry area, depend on the production as well as harvested amount, you can consider for self consumption within your group or selling in the village/ adjacent villages.



Fishing net for collecting cultured fishes

Plastic basket for collecting cultured fishes and/or vegetables

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4. Remarks for Aqua-agroforestry

In the JICA/FD Mangrove Project, some villagers in target villages have implemented the aqua-agroforestry activities. Major lessons learnt from the activities are as follows:

- (1) Aqua-agroforestry Group Consolidation
 - As an individual, it may be a bit difficult to monitor and manage all of the activities. You may not timely recognize some problems such as damages and thefts.
 - Therefore, it is better that the aqua-agroforestry group to be organized
 - Your group should continuously share information, experience, knowledge, skills, and problems on the activities implementation among the members.
- (2) Suitable Monitoring for Better Aqua-agroforestry Activities
 - You and your members should implement continuous monitoring and patrol on the aqua-agroforestry production situation (such as culturing fishes, pond area, cultivating vegetable and planting trees) to prevent damages and thefts, and for the stable production.
 - For fishery component, in order to increase production, you and your members should carry out several trials such as feeding by using trash fish, trashy rice and rice bran.
 - For agricultural/ forestry components, in order to increase the production, you and your members also should implement several trials for vegetable cultivation and tree planting.

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5. Way Forward for Better Production on Aqua-agroforestry Activities

Followings are issues needed to be taken into account for better production and profitability by the aqua-agroforestry:

(1) Productivity Improvement for Fish Culture

- Improving fish fries collection by using bunches of branches tied with rope. This is because fish fries tend to use branchy areas in the water as shade and shelter. So, please stake poles into the pond and hang bunches of branches from poles and let these branches submerge to the water.
- Specifying the fish fries collection month for each fishes species and increasing collection efficiency.

(2) Further Trial for Agricultural / Forestry Production

- Implementing trial to confirm the combination of several species of vegetables and trees.
- Finding potential markets in local areas for the products from cultivated vegetables and trees

***Annex 6: CF Management Plan Formulation
Guidelines (2000)***

CF Management Plan Formulation Guidelines

Introduction

1. Community Forestry Instructions-CFI was issued on 1st November, 1995 with Notification No. 1/95, to establish the forests as quickly as possible where the forests were degraded and no forests were existed, with the active participation of the community, in order to support the economic development of the State, regain the stability and ecosystem of the environment and support in resolving the basic needs of the community.
2. At paragraph 14 of CFI, it was mentioned that "Upon receiving the permission to establish a Community Forest, the users' group has to draw up a management plan prescribed by the Forest Department, and forwarded to the District Forest Officer for confirmation. Advice of responsible forest officer will be taken in the preparation of the plan." Therefore, this 'CF Management Plan Formulation Guidelines' is prepared in accordance with CFI, to be helpful to user's groups and District Forest Officers.

Points to be included in the plan

3. Management Plan including the following points must be prepared and forwarded, as per Annex-2 of CFI.
 1. Introduction: : to be mentioned the background history, current condition of proposed CF area and methods how to manage that area
 2. Objective: : to be mentioned the following objectives and other objectives (if any)
 - a. To get forest products in sustainable manner
 - b. To conserve environment
 - c. To get developed the social-economy of the local community
 3. Location and Area: : to be mentioned the name of State/Division, District, Township and Village Tract and its visible natural boundaries, if inside RF or PPF area, to be mentioned the name of RF/PPF and compartment number, if established plantation is existed, to be mentioned planted year, species and area, and to be mentioned the whole CF area
 4. Climate: : to be mentioned the annual rainfall, highest temperature and lowest temperature of past 10 years and average rainfall and temperature
 5. Topography: : to be mentioned the geographical condition, height above sea level, slide condition and water flowing condition
 6. Soil Type: : to be mentioned the soil type and soil composition of proposed CF area
 7. Current Vegetation: : to be mentioned forest type and species, if plantation, to be mentioned planted year, species and stock condition
 8. Forest Establishment: : to be mentioned one activity or both separately, while there are two kinds: plantation establishment and existing natural forest conservation, with detail topics as following
 - a. If plantation establishment-
 - Nursery Establishment: : to be mentioned area of nursery, water availability, quantity of seedlings according to species, nursing method
 - Land Preparation: : to be mentioned the desired system like cutting and firing system, digging hole system, ploughing system, et., spacing and hole size
 - Plantation Establishment: : to be mentioned plantation area, species to be planted, quantity of seedlings according to species and name of crops (if agroforestry is to be practiced)
 - Weeding: : to be mentioned the desired system like clear weeding, line weeding , circle weeding around the tree, etc., and total frequencies per year

- Fire Protection: : to be mentioned how many years to be done fire protection, duration every year and protection methods
 - Silviculture Technique: : to be mentioned the desire techniques like loosening soil around the tree or ploughing between lines, fertilizing, thinning, pruning, etc
 - Fixing Felling Circle: : to be fixed the felling circle according to the objectives, if fast growing species, to fix 3-5 years for firewood, 5-10 years for pole/post, 20-30 years for timber, etc
 - Felling: : to be mentioned felling system depend on species and objectives, according to feeling circle like clear felling, felling with coppicing, etc
 - Distribution: : to be mentioned distribution system with estimated production amount like distribution among the CFUG and selling the surplus to neighboring areas, selling lucratively, etc
- b. If conserving existing natural forest-
- Delineation of Stock Map and Management Map
Stock Map and Management Map must be prepared with the scale of 1":8 miles, after surveying the proposed CF area. In Stock Map, forest type, species, natural regeneration areas and areas where should be established plantations must be described with defined color and signs. Management Map must be prepared with the scale 1":8 miles as well. Based upon the Stock Map, annual activities like conserving existing natural forest, extracting forest products, natural regeneration, gap filling plantation, etc., must be mentioned according to the condition of the existing forest, with defined signatures prescribed at annex-1.
 - Conserving natural forest without extraction
If there are some areas which cannot extract forest products and timber according to the current condition of existing natural forest, those areas must be conserved without making any extraction. Duration and method of conservation must be mentioned.
 - Establishing new forest where area is required to be substituted
If only conserving existing natural forest is not sufficient and substitution is required, it must be done as per new plantation establishment.
 - Silviculture Techniques
It must be mentioned what kinds of silviculture techniques will be used to develop the current forest in proposed CF area. Silviculture techniques like thinning, coppicing, pruning, artificial regeneration, etc., must be mentioned.
 - Felling
After period of conserving without any extraction and forest condition is ready to be extracted or forest condition doesn't required to be conserved without any extraction, firewood, pole/post, timber can be extracted fixing suitable felling plots annually. Desired felling methods to be practiced must be mentioned like selection felling fixing chest-girth size, felling with coppicing, etc., which are suitable for the sustainable development of the CF area.
 - Distribution
It must be mentioned the distribution procedures for forest products produced from CF area as a result of systematical management.

Conclusion

4. Expectations, believes and requirements must be mentioned.

Attachments

5. Following attachments must be included.
 1. Location Map of CF area
 2. Stock Map of CF area
 3. Management Map of CF area
 4. Annual rainfall of the past 10 years of respective township
 5. Annual plan for activities

Annex 7: Technical Guideline for Preparing Maps

1. Introduction

JICA/FD Mangrove Project has supported respective Township level FD office and Community Forestry User Groups (CFUG) to prepare maps for CF management plan. Especially, CFUG has no experience to prepare maps which is required for CF management plan. Also FD township office has limitation to support CFUGs in respect to mapping.

This guideline targets front line FD staff who has a responsibility to support CFUG and providing guidance for preparation of maps required for CF.

2. Necessary information

For preparing CF maps, following geographic information should be collected by FD and CFUG. The topographic map provides necessary land information (ie. general land use, landmark, river network and coordinate), However, old topographic maps may not reflect the current actual land use. Therefore if in case latest satellite images are available, such shall be use as base map and base land information. In case of JICA/FD Mangrove Project, latest satellite images were used as a base map, instead of topographic maps.

Table 1 List of necessary information for CF map

Name of Map	Minimum requirement of information
Location Map	<ol style="list-style-type: none">1. Topographic map or Satellite image2. Boundary of CF area (Sketch and GPS data)
Stock Map	<ol style="list-style-type: none">1. Topographic map or Satellite image,2. Boundary of CF area (Sketch and GPS data)3. Stock and yield information of CF area
Management Map	<ol style="list-style-type: none">1. Topographic map or Satellite image2. Boundary of CF area (Sketch and GPS data)3. Boundary of individual lots in CF area

3. Data collection

3.1 Topographic map and Satellite image for base map

Basically township FD offices in delta area have softcopies as well as hard copies of topographical maps of their territory. Additionally, JICA/FD Mangrove Project has a plan to provide printed satellite images (by each forest compartment) to. respective township FD offices in the project area FD can choose suitable base map for CF mapping. Important thing is that both FD and CFUG can understand and distinguish location of CF area easily by maps.

3.2 Boundary of CF area (Sketch and GPS data)

CF area boundary should be confirmed jointly by FD and CFUG through field survey. During the

process of land confirmation for CF area, after CF area has been allocated to candidate CFUG, at first, CFUG shall prepare a hand sketch of CF area to recognize location and site situation of target area. Then, FD is required to support CFUG conducting field survey using portable GPS (if in case portable GPS is not available conventional tools such as chain/tape and compass shall be used. The JICA/FD mangrove project provided portable GPS to project target townships). By portable GPS, location of each corner and major landmarks on the CF boundary shall be recorded. FD staff has a responsibility to record GPS. GPS manual with GPS record format was prepared by JICA expert of JICA/FD mangrove project and can be utilized in the field survey (please refer Attachment-1 for details). The GPS manual intended for usage of Garmin GPS MAP 60CSX. However the content can be also applied in other type of GPS as well.

3.3 Stock and Yield of CF area

After fixing CF boundary, it is necessary to confirm current distribution of natural resources and land use in CF area through field survey for preparation of stock map.

3.4 Boundary of individual lots in CF area

If individual allocation of CF area is planned, CFUG needs to discuss about each allotment area based on the CF location map and stock map. FD shall support CFUG to confirm proposed boundary of individual lots.

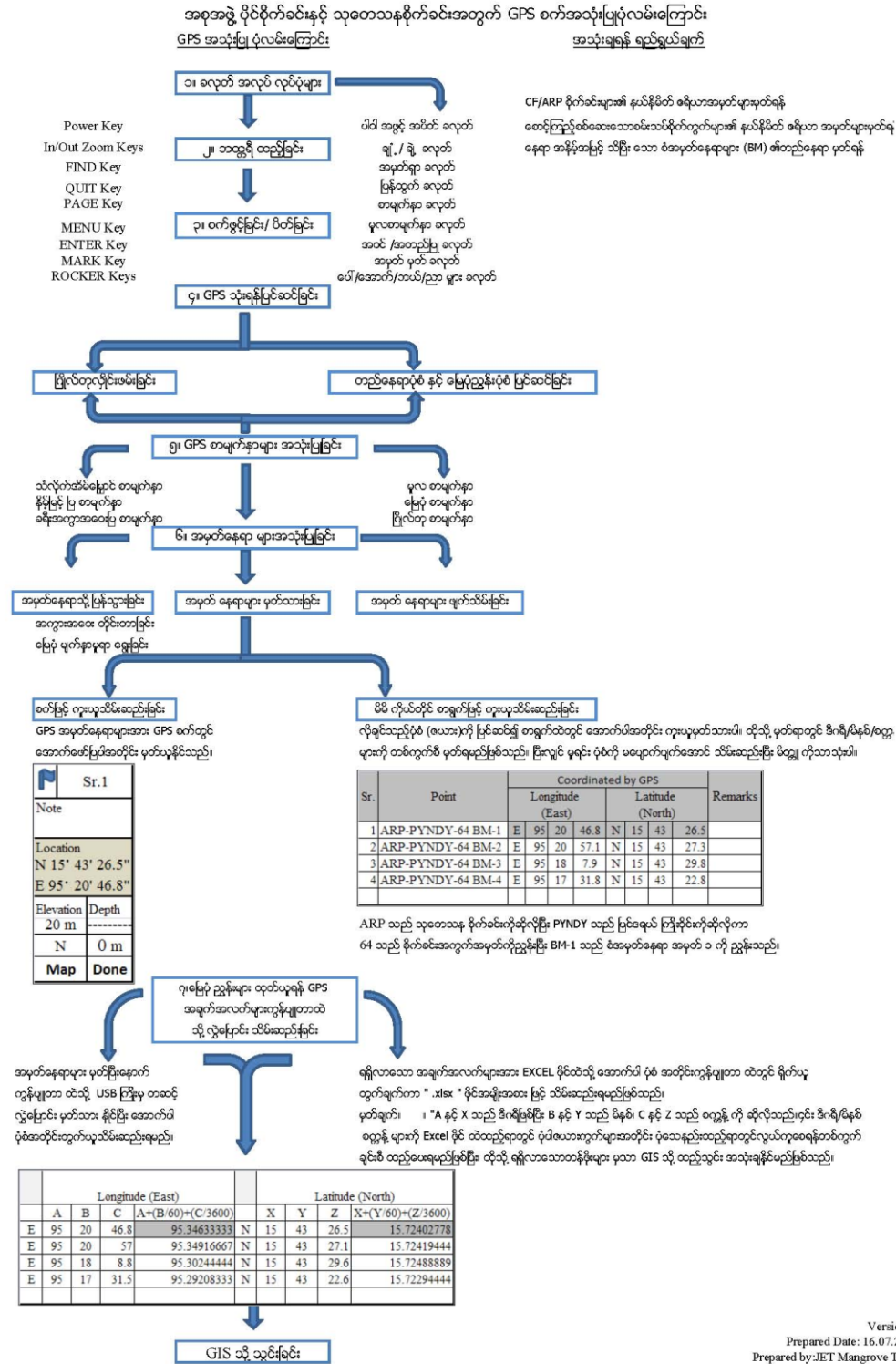
4. Mapping procedure

After collection of data (GPS records and site conditions), FD shall compile these data into map template (Attachment-2) and calculate CF area. For the project target townships (Laputta, Bogalay, and Pyar Pon), the Project provided a set of computer to respective FD offices. Therefore it is strongly recommended to compile digital data of GPS and base map. FD can use free license GIS (Geographic Information System) software which attached GPS.

5. Update of Map

CFUG has a responsibility to manage CF area properly for thirty (30) years based on their management plan. During the term, some land condition and vegetation may be changed through CF activities and other interventions. If necessary, at regular basis and also based on necessity, CFUG shall conduct data collection and request FD to update CF maps.

Attachment-1 GPS manual



Version: 1
Prepared Date: 16.07.2012
Prepared by: JET Mangrove Team

GPS MAP 60CSX အသုံးပြုပုံ

၁။ ခလုတ်- အလုပ်လုပ်ပုံများ

- (၁) Power Key - GPS 60CS အပေါ်ဘက်တွင်ရှိသည်။ စက္ကန့်အနည်းငယ်ကြာမီနှိပ်ပေးခြင်းဖြင့် စက်အားဖွင့်/ပိတ် ပြုလုပ်ပေးနိုင်ပါသည်။ ၎င်း Key အား တစ်ချက် နှိပ်ပါက နောက်ခံမီး အလင်း/အမှောင်ကိုလည်း ချိန်ပေးနိုင်ပြီး တက်ထရီအား နှင့် GPS လိုင်းဖမ်းအား ကိုပါ ကြည့်နိုင်ပါသည်။
- (၂) In/Out Zoom Keys - မြေပုံစာမျက်နှာတွင် မြေပုံအား ချဲ့/ချဲ့ရန်အတွက် အသုံးပြုသည်။ ချဲ့လိုလျှင် Out ကိုနှိပ်ပါ။ ချဲ့လိုလျှင် In ကိုနှိပ်ပါ။
- (၃) FIND Key - FIND KEY ကို WAY POINTS များ ပြန်ခေါ်ကြည့်ရန်အတွက် အသုံးပြုသည်။
- (၄) QUIT Key - ရောက်ရှိရာစာမျက်နှာမှ ပြန်ထွက်ရန်။
- (၅) PAGE Key - စာမျက်နှာများအား ရှေ့သို့လှန်ကြည့်ရန်။
- (၆) MENU Key - တစ်ချက်နှိပ်လျှင် ရောက်ရှိရာစာမျက်နှာနှင့် သက်ဆိုင်ရာ Sub Menu များပေါ်လာမည်။ နှစ်ချက်နှိပ်လျှင် Main Menu သို့ရောက်ရှိမည်။
- (၇) ENTER Key - လုပ်ဆောင်ချက်များအား ရွေးချယ်ပေးရန်၊ Data များ အတည်ပြုရန် ရိုက်ထည့်ရန်အတွက် အသုံးပြုသည်။
- (၈) MARK Key - Way Points များ မှတ်သားရန်အတွက်အသုံးပြုသည်။
- (၉) ROCKER Keys - မြေပုံရှိ အညွှန်းများ အား ထက် / အောက် / ဘေး / ဘယ် / ညာ သို့ရွေ့ရန် နှင့် Way Points အမည်ပေးရန်အတွက် အကွေ့ရာနှင့် ဂဏန်းများရွေးရန် အသုံးပြုသည်။

*သတိပြုရန်မှာ ခလုတ်(Key) များအားနှိပ်ပါကညင်သာစွာ နှိပ်ပါရန်။

၂။ ဓာတ်ခဲတပ်ဆင်ခြင်း (Battery Installtion)

Garmin GPS အားလုံးအတွက် အသင့်တော်ဆုံးနှင့်အကောင်းဆုံးဓာတ်ခဲမှာ AA" Size Alkaline အမျိုးအစား ဓာတ်ခဲဖြစ်ပါသည်။ Rechargeable NiMH ဓာတ်ခဲသုံးလျှင်လည်းရပါသည်။ သို့သော် အားအပြည့်ပြန် ဖြည့်ရန်လိုသည်။ အခြားအမျိုးအစား ဓာတ်ခဲများအား သုံးရန်မသင့်တော်ပါ။ GPS အား အသုံးပြုနေစဉ် စက်အတွင်း Alkaline ဓာတ်ခဲအားထည့်ထား ရန်လိုအပ်ပါသည်။ သို့မဟုတ်ပါက Memory Battery အားကုန်၍ စက်အပျက်မြန်တက်သည်။ GPS အား လုံးဝအသုံးမပြုတော့မှသာ ဓာတ်ခဲအား ထုတ်ထား ရန်ဖြစ်သည်။

၃။ စက် ဖွင့်ခြင်း/ပိတ်ခြင်း (Device On or Off)

ပါဝါ အား စက္ကန့်ပိုင်းမျှ ဖိထားပေးပါက စက်ပွင့်လာမည်။ ပါဝါ ခလုတ် အား စက္ကန့်ပိုင်းမျှ ပြန်ဖိထားပေးပါက ပါဝါ ပြန်ပိတ်သွားမည်။ ၎င်း ခလုတ် သည် ပါဝါ ဖွင့်ရန်နှင့်ပိတ်ရန် အတွက်သုံးနိုင်ပြီး- ညအခါနောက်ခံမီး (Back light) အတိုးအလျှော့လုပ် ရန်အတွက်လည်း သုံးနိုင်သည်။ အသုံးပြုရန်မှာ ပါဝါ ခလုတ် အား ထိသည်ဆိုရုံမျှ ဆက်ကနဲ ဖိလိုက်ပါက မီးဖွင့်ရန်ခလုတ်ပေါ်လာမည်။ ၎င်းနောက် များခလုတ် မှ အပေါ်ပိုင်းနှင့်အောက်ပိုင်း (Up-Arrow..Key/Down-Arrow..Key)အားနှိပ်ခြင်းဖြင့်တိုးအလျှော့လုပ်နိုင်မည် ဖြစ်သည်။

၄။ GPS အသုံးပြုရန် ပြင်ဆင်ခြင်း

(၁) ဂြိုဟ်တုလှိုင်း များဖမ်းခြင်း (Acquiring Satellites)

စက်ဖွင့်ပါ။စက်ပွင့်လာလျှင် စက်ပိုင်းအကြီးများပေါ်တွင် စက်ပိုင်းအသေးများနှင့်ပုံကိုမြင်ရ မည်ဖြစ်ပြီး ၎င်းစက်ပိုင်းလေးတစ်ခုချင်း သည် ဂြိုဟ်တုတစ်လုံး စီကို ကိုယ်စားပြု မည်ဖြစ်သည်(သို့ မဟုတ်) များထိပ်ဦး တစ်ခုနှင့် မြေပုံလမ်းကြောင်း များ ပေါ်လာပါက Page Key ကိုတစ်ချက်ချင်းနှိပ်၍ Satellites Pages (စက်ပိုင်းများနှင့်စာမျက်နှာ) သို့ ရောက်သည်အထိနှိပ်ပါ။ ပြီးလျှင် ကောင်းကင်အား မြင်နိုင်သောနေရာတွင် ရပ်၍ ခေတ္တခဏစောင့်ဆိုင်းပေးလျှင် စက်မှ Satellites(ဂြိုဟ်တု)သင်္ကေတ(အမဲရောင်သင်္ကေတ)များတက်လာမည်။ Satellite အားလှိုင်းများဖမ်းယူနေသည်ကို တွေ့ ရမည်။ အချိန်အနည်းငယ်စောင့်ပေးပါ။ အမဲရောင်သင်္ကေတများမှ အစိမ်းရောင်သင်္ကေတ သုံးလေးခုဖြစ်လာလျှင် အရပ်မျက်နှာ တည်နေရာများအား စတင်မှတ်သား နိုင်ပါပြီ။ ဂြိုဟ်တုအနည်းဆုံး ၃- လုံးခန့်မိပါက တည်နေရာ စတင် ပြနေပေမည်။ Accuracy(တိကျမှု) သိပ်မကောင်းသေးပါ။ ၄-လုံးအထက် မိပါက အရပ်မျက်နှာ တည်နေရာများ အပြင် (အမြင့်ပေ - Elevation) ကိုပါ စတင်ဖော်ပြ ပေးနေမည်။ Accuracy (တိကျမှု) လည်း ကောင်းလာပြီဖြစ်၍ စတင်မှတ်သားနိုင်ပြီ ဖြစ်ပါသည်။၎င်းသည်ပထမဆုံး စတင်လုပ်ဆောင်ရမည့် အချက်ဖြစ် သည်။

(၂)တည်နေရာဖော်ပြရာပုံစံညွှန်း ပြင်ဆင်ခြင်း(Setup for Position Format and Map Datum)

- (၁) Main Menu သို့ Menu Key နှစ်ချက်နှိပ်၍ဝင်ပါ။
- (၂) Set Up Menu ကိုရွေးပါ။
- (၃) ၎င်းမှ Position Format များခလုတ်ကို သုံး၍သို့ဝင်ပါ။ ပြင်ဆင်ရန် ခေါင်းစဉ်ငယ် နှစ်ချက်ရိုက်သည်။ ၎င်းတို့မှာ -
 Position Format နှင့် Map Datum တို့ဖြစ်သည်။ Grid Coordinate (ဖြတ်မျဉ်းအပြောင်း များဖြင့် အကွက်ဖော်ရေးဆွဲထားသော မြေပုံညွှန်း)ပုံစံသို့ပြောင်း၍မှတ်သားလိုလျှင် - Position Format အောက်တွင် ဒီဂရီ၊ မိနစ်၊ စက္ကန့် (h ddd' mm' ss.s'') နေရာသို့ High Light (အရောင်ပြယ်အကွက်)ကိုမျှားခလုတ်များဖြင့်ရွှေ့၍ Enter Key နှိပ်ကာ ရွေးချယ်ပါ။ ၎င်းနောက် Map Datum အောက်တွင် **WGS 84** နေရာသို့ High Light ကိုရွှေ့၍ Enter Key နှိပ်ကာ ရွေးချယ်ပါ။ထိုနောက် Quit key ဖြင့်ပြန် ထွက်၍ Way Points စတင်မှတ်သားနိုင်ပြီဖြစ်သည်။

၅။စက်အတွင်းရှိ စာမျက်နှာများ အသုံးပြုခြင်း (Using Map Pages)

Page Key ကို တစ်ခါနှိပ်လျှင် မတူခြားနားသော စာမျက်နှာတစ်ခုပေါ်လာမည်ဖြစ်ပြီး သွားချင်သည့်စာမျက်နှာ သို့ တစ်ချက်ချင်းနှိပ်ကာ ရွေး၍ကြည့်နိုင်မည်ဖြစ်သည်။

(၁) မူရင်း စာမျက်နှာ (Main Page)

Main Page ကို Menu key နှစ်ခါနှိပ်ခြင်းဖြင့် ခေါ်ယူကြည့်ရှုနိုင် မည်ဖြစ်ပြီး ၎င်းစာမျက်နှာ တွင် GPS စက်တစ်ခုလုံး၏ ယူနစ်များ၊ တိုင်းတာသည့် စနစ်များကို မှန် မမှန် ပြန်လည်စစ်ဆေးခြင်း၊ မြေပုံညွှန်းပြင်ဆင်ခြင်းများ စသည်ဖြင့် ပြုလုပ်နိုင်မည်ဖြစ်သည်။

(၂)မြေပုံ စာမျက်နှာ(Map Page)

Map Page တွင် နောက်ခံမြေပုံမှာ Built-in ပါဝင်သော World Map မြေပုံချပ်ဖြစ်ပြီး နိုင်ငံ၊ တိုင်းနှင့်ပြည်နယ်၊မြို့များ၊ Highway လမ်းမကြီးများ၊ မြစ်ချောင်းရေကန်နှင့် ဆက်သွယ်ချက် Data များပါဝင်ပါသည်။ ယင်း Map age တွင် မိမိရောက်ရှိရာနေရာနှင့် သွားနေသောနေရာလမ်းကြောင်းများအား မြင်နေရမည်။

(၃)ဂြိုဟ်တု စာမျက်နှာ (Satellites Page)

ဂြိုဟ်တုစာမျက်နှာ တွင် ဂြိုဟ်တု ကိုယ်စားပြု သင်္ကေတများ(စက်ဝိုင်းအသေး) နှင့် ရောက်ရှိရာ နေရာပြ လတ္တီကျု၊ လောင်ဂျီကျု များ စသည်ဖြင့် တွေ့ မြင် နိုင်သည်။အောက်ဆုံး ရှိ လေးထောင့်အစိမ်းကွက်လေးတစ်ခုစီသည် ဖမ်းယူရရှိသောဂြိုဟ်တုများ၏ အင်အားကိုဖော်ပြနေမည်ဖြစ်သည်။

(၄)သံလိုက်အိမ်မြှောင် စာမျက်နှာ(Compass Page)

ယင်း Page သည် အသုံးဝင်သော လမ်းကြောင်းညွှန်ပြချက် တစ်ခုဖြစ်ပါသည်။ ၎င်း Page တွင် User Field (သုံးစွဲသူမှအသုံးပြုလိုသောအချက်အလက်များ) ထည့်သွင်း၍သုံးနိုင်သော Compass Ring (အရပ်မျက်နှာပြ သံလိုက်အိမ်မြှောင်)ကို သုံးနိုင်မည်ဖြစ်သည်။

(၅) နိမ့်မြင့် ပြ စာမျက်နှာ (Elevation Plot Page)

ယင်း Page သည် မိမိရောက်ရှိနေသောနေရာ(သို့)သိလိုသောနေရာ၏အနိမ့်အမြင့်ရှာရာတွင် အလွန်အသုံးဝင်သော (Barometric Altimeter & Elevation Profiles) အမြင့်ပေးများကို ဖော်ပြပေးပါသည်။ Accuracy (ခန့်မှန်းတိကျမှု) မှာ + / - 1 feet ဖြစ်ပါသည်။ G.P.S အား Altimeter Calibrate ပြုလုပ်ရန်မှာ Elevation Plot စာမျက်နှာသို့ သွား၍ Menu key အားနှိပ်ပါ။ ပေါ်လာသောစာမျက်နှာမှ Calibrate Altimeter ကိုရွေး၍ Enter Key နှိပ်ပါ။ Known Point B.M (အနိမ့်အမြင့်သိပြီး နေရာ) တစ်ခုပေါ်တွင်တင်၍ ယင်း B.M ၏ Elevation တန်ဖိုးအား အနီးစပ်ဆုံးရိုက်ထည့်ပါ။ ထို့နောက် Done တွင် Enter Key အားနှိပ်၍ Calibrate ပြုလုပ်ပါ။ စက်မှ အလိုအလျောက် ၎င်းဒေသ၏ Elevation များအားဆက်၍ ဖော်ပြနေပေမည်။
ဥပမာ- တိုက်တစ်လုံး/အပင်တစ်ပင်/နေရာတစ်ခု၏ အမြင့်ကိုသိလိုလျှင် ယင်း၏အောက်ခြေအဆုံးတွင် GPS ကိုချထား၍ အထက်ဖော်ပြပါအတိုင်း Calibrate ပြုလုပ်ပါ။ ထို့နောက် သိလိုသောအမြင့်နေရာသို့ သွား၍ GPS ကိုထားပါက ၎င်းနေရာ ၏အနိမ့်အမြင့်ကို ဖော်ပြနေသည်ကိုတွေ့ ရမည်ဖြစ်သည်။

(၆) ခရီးတိုပြ ကွန်ပျူတာ စာမျက်နှာ (Trip Computer Page)

၎င်း စာမျက်နှာ တွင် သွားခဲ့ သော ခရီးအကွာအဝေးများ၊ သွားသည့်အရှိန်နှုန်း၊ ရောက်ရှိမည့်အချိန်၊ နေဝင်ချိန်၊ နေထွက်ချိန် စသည်ဖြင့် အသုံးပြုသူ စိတ်ကြိုက်ရွေးချယ်သုံးနိုင်ပါသည်။

၆။ အမှတ်နေရာများ အသုံးပြုခြင်း (Using Way Points)

(၁)အမှတ်နေရာများ မှတ်သားခြင်း (Way Point Recording - Auto)

Way Point(အမှတ်နေရာ) ဆိုသည်မှာ စက်အတွင်း မှတ်ယူသိမ်းဆည်းထားသော တည်နေရာများကို ဆိုလိုသည်။Satellite များဖမ်း ပြီးနောက် 3D Location ဖော်ပြနေချိန်တွင် Mark Key အား နှိပ်ပါ။ Mark Way Point Screen ပေါ်လာပါမည်။ ၎င်း Screen တွင် Point- နံပါတ်။ ရက်စွဲ အချိန်- (Date & Time) ရောက်ရှိတည်နေရာ- (Position) နှင့် အမြင့်ပေး-Elevation စသည်တို့ကို ဖော်ပြပေးနေမည်။ Point နံပါတ်အတိုင်း မှတ်ထားနိုင်ပြီး နာမည်ပေးလိုပါကလည်း Rocker key ထက် /အောက်/ ဘယ်/ ညာ များ ခလုတ် များဖြင့်နာမည်အတိုကောက် ပေး၍ မှတ်သားထားနိုင်သည်။ ထိုအမှတ်အား စိတ်တိုင်းကျ ပြင်ဆင်ပြီးပါက အောက်ဆုံးရှိ “Done” ခလုတ်ရိုရာတွင် Enter Key နှိပ်၍ မှတ်သားရမည်ဖြစ်သည်။

Way Point တစ်ခုအားနာမည်ပေးရန် ပြင်ဆင်ပုံ မှာ Point နံပါတ်အကွက်သို့ Arrow Key ဖြင့် High Light အား ရွှေ့သွားပါ။ Point နံပါတ်အကွက်တွင် High Light ရွှေ့ပြီးပါက Enter Key တစ်ချက်နှိပ်ပါ။ အမည်လောင်းအရှည်မှ အမဲလောင်းအတိုလေး ပြောင်းသွားကာ လက်ကွက်များနံပါတ်များ ရောက်လာမည်ဖြစ်သည်။ ၎င်းအခြေအနေတွင် ထက်/ အောက် များခလုတ်ဖြင့် (Up Arrow Key / Down Arrow Key) ကို သုံး၍ စာလုံးနှင့် နံပါတ်များ ပြင်နိုင်ပါသည်။ မိမိရေးလိုသောစာသားအား ပြင်ဆင်ပြီးပါက “Done” ခလုတ် ပေါ်တွင် Enter Key တစ်ချက်ထပ်နှိပ်ပါ။ ထိုကဲ့သို့ Down Arrow ဖြင့် အောက်ဆုံးသို့ဆင်း၍ “Done” ခလုတ် ပေါ်တွင် Enter မနှိပ်ခဲ့လျှင် Point အား စက်က မှတ်သားထားမည် မဟုတ်ပါ။ ၎င်း အမှတ်များကို နောင်တစ်ချိန်တွင် ပြန်လည်စစ်ဆေးရန်လိုအပ်နိုင်သဖြင့် အထက်ပါ အဆင့်များကို အသုံးပြု၍မှတ်သားရပါမည်။

အမှတ်နေရာ များမှတ်သားခြင်း (Way Points Recording - Manual)

GPS ဖြင့် ဖမ်းယူရရှိသော အမှတ်များ ကို way point များ အနေဖြင့် စက်ထဲတွင် မှတ်သားနိုင်ပြီး လိုအပ်ပါက မိမိ အလိုရှိသော ပုံစံ ဖြစ်သော အောက်ပါပုံ အတိုင်း စာရွက်ပေါ်တွင် ကူးယူမှတ်သားနိုင်သည်။ စက်အမှားအယွင်း (သို့) လူအမှားအယွင်း များရှိခဲ့လျှင် ပြန်လည်စစ်ဆေးရန်လိုအပ်နိုင်သဖြင့် မူရင်းစာရွက် များကို သေချာစွာ သိမ်းဆည်းထားပြီး မိတ္တူ ကိုသာသုံးသင့်ပါသည်။

Sr	Point	Coordinates by GPS								Remarks
		Longitude				Latitude				
1	ARP-PYNDY-64 BM-1	E	95	20	46.8	N	15	43	26.5	
2	ARP-PYNDY-64 BM-2	E	95	20	57.1	N	15	43	27.3	
3	ARP-PYNDY-64 BM-3	E	95	18	7.9	N	15	43	29.8	
4	ARP-PYNDY-64 BM-4	E	95	17	31.8	N	15	43	22.8	

** မှတ်ချက်။ ။ အမှတ်များကို မည်သည့်စာမျက်နှာနေရာမှမဆို Mark Key ကိုနှိပ်၍ မှတ်နိုင်ပါသည်။

(၂) အမှတ်နေရာများ မလိုအပ်၍ ပယ်ဖျက်ခြင်း (Deleting Waypoints)

Menu အားနှစ်ချက်နှိပ်ပါ။ Main Menu Screen ပေါ်လာမည်။ ထို့နောက် Way Point သို့ High Light (အရောက်ရယ်အကွက်)ကို များခလုတ်ဖြင့်ရွှေ့၍တင်ပြီး Enter Key ထပ်နှိပ်ပါ။ မိမိမှတ်သားထားသော Point များကို တွေ့ရမည်။

အထက်တွင် ဖော်ပြခဲ့ပြီးသည့်အတိုင်း Way Point Lists အားပြန်ခေါ်ကာ မိမိပယ်ဖျက်လိုသည့် Point အားရွေး၍ Highlight တင်ကာ Enter Key အားနှိပ်ပါ။ မိမိရွေးလိုက်သော Point ၏ အချက်အလက် Data များကျလာမည်။ ယင်းနေရာတွင် Menu ခလုတ် အား နှိပ်ပါ က Menu အကွက်ထပ်ပေါ်လာပြီး “Delete” နေရာ တွင် Highlight တင်၍ Enter Key နှိပ်လိုက်ပါ။ ၎င်း Point အား တကယ် ဖျက်/ မဖျက် Message တစ်ခုပေါ်လာမည်။ Yes_ ဆိုလျှင် ပယ်ဖျက်မည်ဖြစ်၍ No ဆိုလျှင် ပယ်ဖျက်မည် မဟုတ်ပါ။

(၃)အမှတ်နေရာများ သို့ ပြန်သွားခြင်း (Navigating WayPoints)

Find Key အားနှိပ်ပါ။ Find Menu Screen ပေါ်လာမည်။ ၎င်းမှ Waypoint အားရွေး၍ Enter Key နှိပ်ပါ။ Waypoint lists များပေါ်လာမည်။ မိမိသွားလိုရာ Point ကို ရွေးချယ်ပြီးလျှင် Enter Key နှိပ်ပါ။ ရွေးချယ်ထားသော Point \ Data လမ်းကြောင်းများကျလာမည်။ ၎င်းမှ Go ခလုတ် အားရွေးချယ်၍ Enter Key နှိပ်ပါ။ ထို့နောက် Map Page သို့ ရောက်၍ Navigation Line(ပန်းရောင်မျဉ်းကြောင်း) ဖြင့် မိမိသွားလိုရာ Point ကို ဆက်သွယ်ဖော်ပြပေးနေမည်ဖြစ်သည်။

နောက်ထပ် အမှတ် သို့ သွားလိုပါက Find key ကိုထပ်မံ နှိပ်ကာ Find another ပေါ်လာကာ Enter key နှိပ်ပါ။ Find Menu Screen ထပ်မံ ပေါ်လာမည်ဖြစ်ပြီး ၎င်းမှ Waypoint အားရွေးကာ Enter Key နှိပ်ပါ။ ရွေးချယ်ထားသော Point \ Data လမ်းကြောင်းများကျလာမည်။ ၎င်းမှ Go ခလုတ် အားရွေးချယ်၍ Enter Key နှိပ်ပါ။ ထို့နောက် Map Page သို့ ရောက်၍ Navigation Line(ပန်းရောင်မျဉ်းကြောင်း) ဖြင့် မိမိသွားလိုရာ Point ကို ဖော်ပြပေးနေမည်ဖြစ်သည်။ Navigation ကို ပယ်ဖျက်လိုပါက Find key ကိုထပ်မံ နှိပ်ပြီး stop Navigation ကိုရွေးကာ Enter Key နှိပ်ပြီး ရပ်နိုင်ပါသည်။

(၄)မြေပုံ မျက်နှာမူရာရွေးခြင်း (Map Orientation)

များ ပုံသဏ္ဍာန် အမှတ်အသားသည် ရောက်ရှိနေသောအရပ်ကို ဖော်ပြသည်။ မြေပုံ မျက်နှာမူရာ အရပ်ကို ရွေးလိုပါက မြေပုံ စာမျက်နှာ တွင် Menu ကို နှိပ်လျှင် Menu အညွှန်း ကျလာပြီး ၎င်းမှ Setup Map ကိုရွေးပြီး Enter Key ကိုနှိပ်ပါ။ ထပ်မံ ကျလာသော အညွှန်းများမှ Orientation အကွက်ပေါ်တွင် Enter key ကို နှိပ်၍ North Up, Track Up နှင့် Automotive mode စသည်ဖြင့် ရွေး နိုင်သည်။
North Up ကိုရွေးပါကမြောက်အရပ်ကိုမြေပုံစာမျက်နှာ၏အပေါ်ဘက်ထိပ်တွင်ပုံသေထားကာပြသသည်ကိုတွေ့ရမည်ဖြစ် သည်။
Track Up ကိုရွေးပါကသွားနေသောခရီး၏လက်ရှိဦးတည်ရာကိုမြေပုံစာမျက်နှာ၏အပေါ်ဘက်ထိပ်တွင်ပုံသေထားကာပြသ သည်ကို တွေ့ ရမည်ဖြစ်သည်။
Automotive Modeကိုရွေးပါကပြင်ညီပေါ်တွင်အရာဝတ္ထုတစ်ခုနှင့်တစ်ခုတို့၏အနီးအဝေးအနေအထားအလုံးအထည်တို့ကို အမြင်အတိုင်း ပကတိ ရုပ်လုံးပေါ်အောင် ရေးဆွဲနည်း ဖြင့်ပြသထားသည်ကို တွေ့ ရမည်ဖြစ်သည်။

(၅)အကွာအဝေး တိုင်းတာခြင်း(Distance Measurement)

အကွာအဝေး တိုင်းတာလိုပါက မြေပုံ စာမျက်နှာတွင်မိမိ တိုင်းတာလိုသော နေရာအား များခလုတ်(Rocker key) ကို ခွေကာ များဖြင့် ချိန်ပြီး Menu Key ကိုနှိပ်ပါ။ Menu အညွှန်း ကျလာပြီး ၎င်းမှ Measure Distance ကိုရွေးပြီး Enter Key နှိပ် လျှင် များထောက်ထားရာ နေရာတွင် အမှတ်လေးတစ်ခု ပေါ်လာမည်။ ယင်းအမှတ်မှ မိမိ ရှိရာနေရာသို့ များခလုတ်(Rocker key) ဖြင့် ဆက်ဆွဲလျှင် စာမျက်နှာ၏ အောက်ညာဘက်တွင် အမှတ်နှစ်ခုကြားအကွာအဝေးပေါ်လာမည်ဖြစ်သည်။

၇။ မြေပုံညွှန်းများထုတ်ရန် အချက်အလက်များ ကွန်ပျူတာထဲသို့ လွှဲပြောင်းခြင်း
(Data Transfer and prepare for GIS- Auto)

၁။ တိုက်စားပျက်စီး ခြင်းမှ ကာကွယ်ရန်အတွက် GPS နှင့် Computer ကို ချိတ်ဆက်သည့် နေရာအစိတ်အပိုင်း များ၊ ဆက်သွယ်သည့် ကြိုးများ ကို မတပ်ဆင် စီ သန့်ရှင်းခြောက်သွေ့စေရန် ပွတ်တိုက်ပါ။ ပြီးမှ USB ကြိုး နှင့် Computer ကို ဆက်သွယ်ပါ။

၂။ GPS နောက်ဘက်ရှိ ဓာတ်ခဲ တပ်ဆင်သည့် နေရာ အထက်ဘက် ရှိ အဖုံး ကို ဆွဲဖွင့် ပြီး ချိတ်ဆက် လိုက်လျှင် ကွန်ပျူတာ ထဲရှိ My computer တွင် Removable Device(ဖြုတ်ယူ တပ်ဆင် ပြုလုပ် နိုင်သော စက်အဖြစ်)ရောက် လာမည်ဖြစ်သည်။

၃။ ပြီးလျှင် GPS software (Map Source) ကို ဖွင့်၍ ၎င်း မှ File သို့ သွားကာ Open ကိုနှိပ်၍ My Computer ကိုဖွင့်ပါ။ My Computer ထဲတွင် Garmin GPSMap 62s SEA ဟူ၍ တွေ့ သောဖိုင် ကို ဖွင့်ပါ။ ထို့ နောက်ပေါ်လာသော Garmin ဖိုင်ကိုထပ် ဖွင့် ပါက GPXဖိုင် ကိုတွေ့ ရမည်ဖြစ်၍ ၎င်းဖိုင်မှ လိုအပ်သည့် အမှတ်များ GPS ဖိုင်များကို Map Source software ပုံစံ အနေဖြင့်ပေါ်လာမည်ဖြစ်၍ ၎င်း မှ တဆင့်လိုချင်သောမိမိ မှတ်ထားသော ဖိုင်ကို ရွေး၍ Open ခလုတ် ကိုနှိပ်ပါက Garmin Map Source Software ပွင့်လာမည်၊ ၎င်းကို Save လုပ်၍ သိမ်းလျှင်လည်းကောင်း၊ ထို Map Source စာတမ်းအားအချိန်အတိုင်း အမှတ်အမည်များဖော်ပြရာ တွင် အမှတ်အားလုံးကို select မှတ်ပြီး Right click နှိပ်ကာ copy လုပ်၍သော်လည်းကောင်း Save မှတ်ကာ ထိုမှတဆင့် Excel ဖိုင်သို့ ကူးယူ သိမ်းဆည်းနိုင်ပြီဖြစ်သည်။

(နောက်တစ်နည်း) ထို ပြင် Map source ထဲတွင် Save(သိမ်းဆည်း) စဉ်ကတည်းက ၎င်း၏ Save(သိမ်းဆည်းရန်) ဖိုင် အမျိုးအစား ကို Map Source ရှိ File menu အောက်တွင် Save as (သိမ်းရန်အမျိုးအစားရွေးရာ) တွင် Text (Tab delimited) (*.txt) အနေဖြင့် သိမ်းဆည်းပါက Note Pad (မှတ်စုစာရွက်) ပုံစံ ဖြင့် သိမ်းဆည်းထားမည်ဖြစ် သည်။ Excel file သို့ ကူးယူလို ပါက Excel sheet ဖွင့်ပြီး၎င်းဖိုင်ကို Mouse ရှိ များခလုတ်ဖြင့် Excel sheet ပေါ်သို့ အလွယ်တကူ ဆွဲထည့်ခြင်းဖြင့် ကူးယူကာ Save (သိမ်းဆည်း)နိုင်ပါသည်။

၄။ ထိုသို့ သိမ်းဆည်းပြီးပါ က ကွန်ပျူတာ စာညာဘက် အောက်ထောင့်ရှိ Notification Area Icons(လိုအပ်မှုများကို သတိပေးသောနေရာ) နေရာရှိ Ejection icon (အစိတ်အပိုင်းများကိုဆက်သွယ်ဖြုတ်ယူနိုင်သောနေရာ)ကို ကလစ် နှိပ်၍ USB ကြိုးကိုဖြုတ်ယူရမည်ဖြစ်သည်။

Longitude (East)				Latitude (North)					
	A	B	C	A+(B/60)+(C/3600)		X	Y	Z	X+(Y/60)+(Z/3600)
E	95	20	46.8	95.34633333	N	15	43	26.5	15.72402778
E	95	20	57	95.34916667	N	15	43	27.1	15.72419444
E	95	18	8.8	95.30244444	N	15	43	29.6	15.72488889
E	95	17	31.5	95.29208333	N	15	43	22.6	15.72294444

၅။ ထို နောက် အချက်အလက်များ ကွန်ပျူတာထဲသို့ လွှဲပြောင်းခြင်း ပြီးလျှင် GIS မြေပုံညွှန်းများထုတ်ရန် အထက်ပါ ဇယားကွက် အတိုင်း Excel ဖိုင်တွင် ပြင်ဆင်ရမည်ဖြစ်သည်။ (*)အထူးသတိပြုရန်မှာ " A+B/60+C/3600" နှင့် "X+Y/60+Z/3600"အောက်ရှိ 95.34633333" နှင့် "15.72402778" စသည့်တန်ဖိုးများသည် ပုံသေနည်းထည့်သွင်းခြင်းမှ ရရှိ ရမည်ဖြစ်ပြီး သီးသန့် ရိုက်မထည့်ရပါ။ ထို့ ကြောင့် ပုံသေနည်းထည့်သွင်း နိုင်ရန် လောင်ဂျီကျု / လတ္တီကျု များ၏ ဒီဂရီ/မိနစ်/ စက္ကန့် များ သည် တစ်ကွက်စီ ဖြည့်သွင်းရမည် ဖြစ်သည်။ ထို နောက် မှသာ ၎င်း အချက်အလက်များ ဖြင့် GIS မြေပုံများ ထုတ်နိုင်မည်။

မြေပုံညွှန်းများထုတ်ရန် အချက်အလက်များ ကွန်ပျူတာထဲသို့ လွှဲပြောင်းခြင်း (Manual)

GPS ဖြင့် ဖမ်းယူရရှိသော အမှတ်များ ကို way point များ အနေဖြင့် စက်ထဲတွင် မှတ်သားနိုင်ပြီး လိုအပ်ပါက မိမိ အလိုရှိသော ပုံစံ ဖြစ်သော အောက်ပါ ပုံစံ အတိုင်း စာရွက်ပေါ်တွင် ကူးယူမှတ်သားနိုင်သည်။ ထို့နောက် အချက်အလက်များ ကွန်ပျူတာထဲသို့ လွှဲပြောင်းခြင်းပြီးလျှင် GIS မြေပုံညွှန်းများထုတ်ရန် အောက်ပါဇယားကွက်ပုံစံ အတိုင်း Excle ဖိုင်တွင် ပြင်ဆင်ရမည်ဖြစ်သည်။ (*အထူးသတိပြုရန်မှာ " A+B/60+C/3600" နှင့် "X+Y/60+Z/3600" အောက်ရှိ "95.34633333" နှင့် "15.72402778" စသည့်တန်ဖိုးများသည် ပုံသေနည်းထည့်သွင်းခြင်းမှ ရရှိ ရမည်ဖြစ်ပြီး သီးသန့် ရိုက်မထည့်ရပါ။ ထို့ကြောင့် ပုံသေနည်းထည့်သွင်း နိုင်ရန် လောင်ဂျီကျု / လတ္တီကျု များ၏ ဒီဂရီ/မိနစ်/ စက္ကန့် များ သည် တစ်ကွက်စီ ဖြည့်သွင်းရမည် ဖြစ်သည်။ ထို့နောက်မှသာ ၎င်း အချက်အလက်များ ဖြင့် GIS မြေပုံများ ထုတ်နိုင်မည်။

Longitude (East)				Latitude (North)					
A	B	C	A+(B/60)+(C/3600)	X	Y	Z	X+(Y/60)+(Z/3600)		
E	95	20	46.8	95.34633333	N	15	43	26.5	15.72402778
E	95	20	57	95.34916667	N	15	43	27.1	15.72419444
E	95	18	8.8	95.30244444	N	15	43	29.6	15.72488889
E	95	17	31.5	95.29208333	N	15	43	22.6	15.72294444

၈။တည်နေရာဖော်ပြရာပုံစံညွှန်း များ အသုံးပြု ရန်အညွှန်း (Setup For Position Format and Map Datum)

တည်နေရာဖော်ပြရာပုံစံညွှန်း များ အမျိုးမျိုး ရှိသော်လည်း GIS တွင် မြေပုံထုတ်ရန် အတွက် အောက်ပါ ပုံစံကိုသာအသုံးပြုသင့်ပါ သည်။

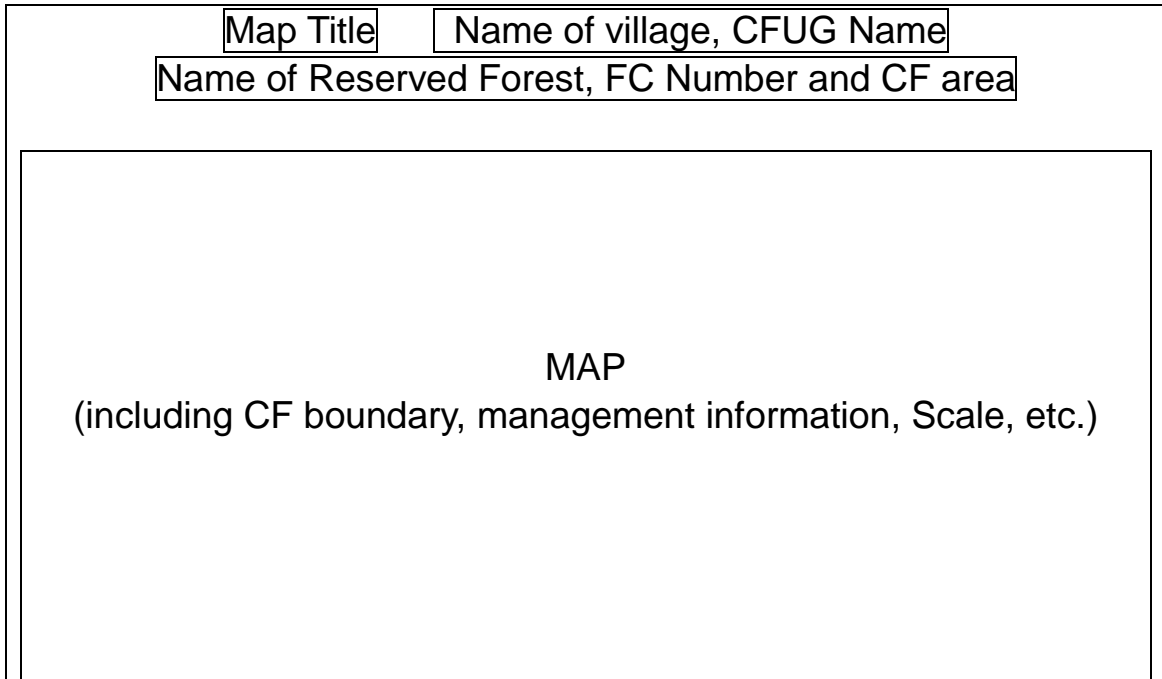
No.	Position Format (Location Format)	Map Datum	Result	Remark
1.	Lat, Long (d° m´ s")	WGS-84	Lat, Long	1 inch= 1 mile or UTM Map

GPS အသုံးပြုနည်း ဖာတီကာ (Table of Contents for GPS)

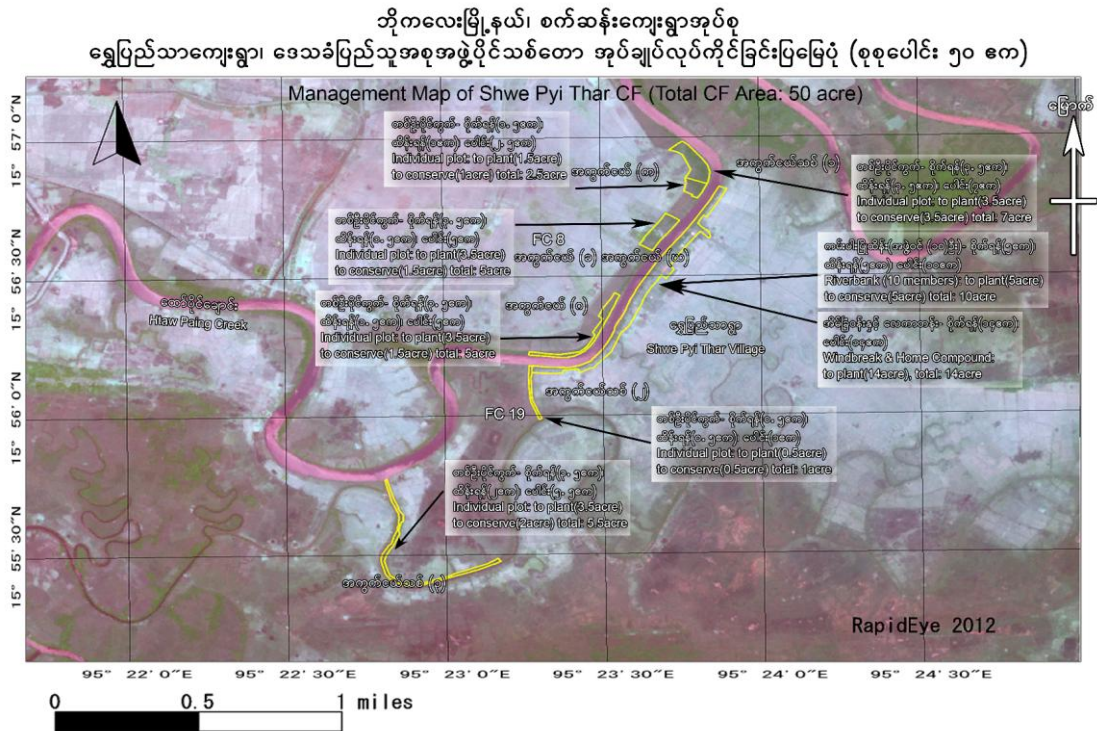
၁။ ခလုတ်- အလုပ်လုပ်ပုံများ (Key Functions)	- ၁
၂။ ဓာတ်ခဲတပ်ဆင်ခြင်း (Battery Installation)	- ၂
၃။ စက် ဖွင့်ခြင်း/ပိတ်ခြင်း (Turning Device On or Off)	- ၂
၄။ စက် အသုံးပြုရန်ပြင်ဆင်ခြင်း (Set Up GPS)	- ၂
(၁) ဂြိုဟ်တုလှိုင်း ဖမ်းခြင်း (Acquiring Satellites)	- ၂
(၂) တည်နေရာဖော်ပြရာပုံစံညွှန်း ပြင်ဆင်ခြင်း (Setup for Position Format and Map Datum)	- ၃
၅။ စက်အတွင်းရှိ စာမျက်နှာများအသုံးပြုခြင်း	- ၃
(၁) မူရင်းစာမျက်နှာ (Main Page)	- ၃
(၂) မြေပုံ စာမျက်နှာ (Map Page)	- ၃
(၃) ဂြိုဟ်တု စာမျက်နှာ (Satellites Page)	- ၃
(၄) သံလိုက်အိမ်မြှောင် စာမျက်နှာ (Compass Page)	- ၄
(၅) နိမ့်မြင့် ပြ စာမျက်နှာ (Elevation Plot)	- ၄
(၆) ခရီးအကွာအဝေးပြ ကွန်ပျူတာစာမျက်နှာ (Trip Computer Page)	- ၄
၆။ အမှတ်နေရာများ အသုံးပြုခြင်း (Using Way Points)	- ၄
(၁) အမှတ်နေရာများ မှတ်သားခြင်း (Way Point Recording)	- ၅
(၂) အမှတ်နေရာများ မလိုအပ်၍ ပယ်ဖျက်ခြင်း (Deleting Waypoints)	- ၅
(၃) အမှတ်နေရာများ သို့ ပြန်သွားခြင်း (Navigating WayPoints)	- ၆

(၄) မြေပုံ မျက်နှာမူရာရွေးခြင်း (Map Orientation)	- ၆
(၅)အကွာအဝေး တိုင်းတာခြင်း(Distance Measurement)	- ၆
၇။သတင်းအချက်အလက်များ လွှဲပြောင်းသိမ်းဆည်းခြင်း (Data Transfer and prepare for GIS)	- ၇
(၁)စက်ဖြင့်သတင်းအချက်အလက်များလွှဲပြောင်းသိမ်းဆည်းခြင်း (Data Transfer and prepare for GIS-Auto)	- ၇
(၂)လက်ဖြင့်သတင်းအချက်အလက်များလွှဲပြောင်းသိမ်းဆည်းခြင်း (Data Transfer and prepare for GIS-Manual)	- ၈
၈။တည်နေရာဖော်ပြရာ ပုံစံညွှန်းပြင်ဆင်ရန် အညွှန်းဇယား (Appendix of Setup for Position Format and Map Datum)	- ၈

Attachment-2 Format of Map (A4 size)



Ideal Layout and Attributes for CF Related Maps.



Sample: Management Map of Shwe Pyi Thar CF area in Pyindaye Reserved Forest

***Annex 8: Sample - Community Forestry management
Plan – Nyaung Ta Pin Village, Pyinalan
Reserve Forest (May 2012)***

Nyaung Ta Pin Village
Ye Dwin Seik Village Tract
Laputta Township

Community Forestry Management Plan

Forest Compartment (57,58)
Pyinalan Reserved Forest

31st May 2012

Table of Contents

No.	Subject
1	Introduction
2	Objective
3	Location, Boundary and Area
4	Climate
5	Topography
6	Soil Type
7	Condition of the Present Vegetation
8	Afforestation
	(A) Establishment of New Forest Plantation
	(1) Establishment of Nursery
	(2) Site Preparation
	(3) Staking and Planting
	(4) Weeding
	(5) Fire Protection
	(6) Tending Operations or Cultural Methods (thinning, pruning, etc.)
	(7) Rotation
	(8) Felling
	(9) Distribution
	(B) Conservation of Existing Forest
	(1) Preparation/ Delineation of Stock Map and Management Map
	(2) Establishment of Plantation in Gap Area (Gap planting)
	(3) Tending Operations or Cultural Methods
	(4) Felling
	(5) Distribution
9	Village Development Activities
10	Conclusion
	Appendices

Nyaung Ta Pin Village Management Plan of Community Forestry

1. Introduction

Nyaung Ta Pin village is located inside forest compartment No. (57,58) of Pyinalan reserved forest, and it is settled as a village encroached in reserved forest over 40 years ago. In village, majority of Kayin and minority of Burmese nationality have been living since in the past. The situation of village is on the bank of Nyaung Ta Pin creek. The key livelihood activity of villagers is fisheries activity and villagers get incomes by catching and selling fish, prawn and crabs through creeks and rivers of mangrove forests.

It has been so long of gradual degradation of natural mangrove forests as local community extends and forms farm area, forms land area for making salts and cut trees excessively for wood and firewood required. The mangrove forest mentioned is essential for livelihood of villagers so that it is more and more important for sustainability of mangrove forest. As fish, prawn and crab can also be spawned and be grown up only if mangrove forests are existed, it comes into critical situation nowadays. Particularly, due to severe affected of Nargis cyclone on 2 May 2008 the remaining mangrove forests were damaged, and as in correspondence with more understanding and aware of the most importance of sector of mangrove forests while natural disaster happening, it has to be planted and be conserved the considerable depletion of mangrove forests by villagers themselves.

The Community Forestry Instruction (CFI), which is proclaimed by Forest Department of Ministry of Forestry in 1995, is that it is the extraordinary opportunity for participation of villagers themselves so as to sustain of mangrove forests since villagers themselves will receive the right to own small scale of area of mangrove forests and to harvest systematically.

Therefore, it is formulated the management plan of community forestry of Nyaung Ta Pin village. The proposed area, as entire user group, is (693) acres, and as for individual the least area to be owned is (5) acres as well as the utmost area is (20) acres. It will be carried out silvicultural practices completely within 5 years by demarcating boundary of individual plot area distinctly.

2. Objective

- (a) To obtain daily required forest products sustainably
- (b) To sustain the area for reproducing of fish, prawn and crab
- (c) To develop multi-sector in village and be comfortable in livelihood
- (d) To conserve environment
- (e) To reduce or protect natural disaster that can be occurred at any time
- (f) To get sound trees

3. Area and Location

The proposed area of community forestry of Nyaung Ta Pin village is located inside Forest Compartment (FC) (57, 58) of Pyinalan Reserved Forest as well as in Ye Dwin Seik village tract of Laputta township of Laputta district in Ayeyarwaddy Region.

The potential boundary of Community Forestry area is that –

- At East – Forest Department plantation
- At West – Lwa Sin creek
- At South – Sar Kyin creek
- At North – Kantbalar Ta Pin creek

The community forestry area is totally (693) acres. (Since the area is measured with portable GPS as well as checked with topographic map and satellite image, the actual area may have 5% or 10% edge according to its shape and size).

4. Climate

Yearly rainfall (inches) within (10) years ago

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
165.8	142.8	119.4	127.3	115.3	131.0	106.7	140.5	105.58	143.4

The maximum temperature during 2001-2010 -----

The minimum temperature during 2001-2010 -----

The average temperature during 2001-2010 -----

The average rainfall during 2001-2010 -----

5. Topography

Topography of community forestry area comprises plane area and low land area, and it is the area of occurrence of up and down of tide.

6. Soil Type

It is existed clay and silt soil type and sandy loam soil.

7. Condition of Present Vegetation

The existing forest is mangrove forests, and *Avicennia species*, *Sonneratia apetala*, *Rhizophora species*, *Bruguiera gymnorrhiza*, *Heritiera species*, *Ceriops decandra*, *Phoenix paludosa* and *Excoecaria agallocha* involving *Acanthus species*, *Dalbergia species*, *Acrostichum species* and various species of climber are naturally existed. Bamboo species is not existed.

8. Afforestation

(A) Establishment of Forest Plantation

(1) Nursery Establishment

Among mangrove species, except *Sonneratia apetala*, *Sonneratia griffithii* and *Lumnitzera racemosa*, other species can be directly sowed at the period of collecting seeds. The seedlings required of *Sonneratia spp.* and *Lumnitzera racemosa* can be raised in the village area due to availability of site to be established nursery. To be good in survival it will be nursed seedlings with potted method. No difficulty of water for nursing mangrove species whereas there will be much difficulties for nursing non-mangrove species owing to scarceness of fresh water. Technologies required will be taken from Forest Department.

(2) Site Preparation

It will be carried out the operation of burning debris after clear cutting *Acanthus species*, *Dalbergia species*, *Acrostichum species*, *Brownlowia tersa species* and various species of climbers, and of preparation of ground for good drainage completely before the period of planting.

(3) Planting

As the seeds are ripening in the rainy season, it will be planted seeds directly in the area of plantation by direct seed sowing method. By sowing seeds directly in the area, it is not only cheaper in transportation cost for seedling but also can plant completely within short duration. It will be planted seeds directly in the duration of neap-tide (waxing of the moon / waning of the moon days (day 6,7,8,9)) so as not to be drifted direct sowing seeds in up and down of tide. Seeds of *Avicennia species* are able to be rooted firmly within 5 or 6 days. If the area that exists densely saline grasses as *Panicum sarmentosum* species, it can be protected decomposing or damaging of seeds by clear cutting the direct seed sowing area. When planting seedlings of *Rhizophora species*, *Bruguiera gymnorrhiza*, *Sonneratia apetala* and

Lumnitzera racemosa, it will be carried out operations by means of binding seedlings or propagules with stake in order to support seedlings to be erected. It will be planted in priority only on the days of neap-tide duration when planting seeds, propagules or seedlings. Seedlings will be planted with (6 ft x 6 ft) spacing, and it will be planted seedlings densely with (3 ft x 3 ft) spacing if seeds and seedlings are easily available. It is intended for getting more yields with plenty of trees.

(4) Weeding

It will be carried out weeding 2 times per year for seedlings yearly planted. Weeding will be done by the method of clearing 3 feet size in diameter around the base of seedlings.

(5) Fire Protection

Being mangrove forests area, it is necessary to protect fire only in high land area, and it will be done protection of the area in turns by forming sub-group so as not to be destroyed the area by surroundings.

(6) Tending Operations or Cultural Methods

Tending operations will be done based on the spacing of species planted. It will yearly be carried out pruning for well growth trees, thinning or removing small/ unhealthy trees in plantation of *Avicennia species* that are planted with (3 ft x 3 ft) and (6 ft x 6 ft) spacing from the age of 3 or 5 years up to 10 years old of species planted. In the gaps appeared by such pruning and thinning operations, it will naturally be regenerated with seeds fallen from healthy and well growth trees. At the last thinning or 10 years age of species planted, seeds or seedlings will be replanted in some gaps as gap plantation.

Rhizophora species, *Bruguiera gymnorrhiza* and *Ceriops decandra* plantations will be tended by pruning, thinning or removing small/ unhealthy trees and cutting climbers once at every 5 years from 10 years up to 20 years age. The gaps appeared by doing operations once in every 5 years are able to be naturally regenerated by seeds fallen down the ground from healthy and well growth trees, and it will be planted with sound propagules or seeds directly in the gaps appeared due to latest harvesting at the age of 20 years of species planted.

(7) Fixing Rotation

It will be fixed rotation for *Avicennia spp.* and *Sonneratia apetala* at (10-15) year age, and for *Rhizophora spp.*, *Bruguiera gymnorrhiza* and *Ceriops decandra*, rotation will be fixed at 20 years age.

(8) Felling or Harvesting

It will be felled or harvested the forest products within fixed rotation based on species as well as year of planted in individual plot area. During harvesting, management committee will supervise systematically so as not to be complicated between the products of CF area and other mangrove forest area.

(9) Distribution

Firewood and Wood obtainable by thinning and harvesting will be distributed as first priority to CFUSG members and villagers. It will be distributed or sold the excessive firewood and wood to other villages or townships in accordance with the instruction of Forest Department. If the benefits will be received more by making furniture, timber and charcoal than by selling as firewood and wood, it will be carried out systematically under the instruction and supervision of relevant Departments.

(B) Conservation of existing forest

In CF area of Nyaung Ta Pin village, it is also existed the areas need to be carried out conservation of existing forest.

(1) Delineation of Stock Map and Management Map

Stock map and management map are delineated by surveying boundary of individual plot in CF area.

Stock map is not only describing the scattering of species but also it can be classified low, middle and high ground by studying the existing species mentioned, and it can be selected easily the appropriate species and/ or the species to be benefited fastest in replanting gap area. The existing species are mentioned with their respective symbols in Appendix A.

Natural Regeneration area, area where plantation should be established, individual area, annual area decided in Management Plan are mentioned in Appendix B together with their color indication to make the areas clearly on the map.

(2) Establishment of Plantation in gap area inside existing forest (Gap Planting)

(A.a) Mangrove species can be planted in the area except some part of high land area which can be planted bamboos because it is mangrove area. It is impossible to plant other species other than mangrove species.

(B.b) Therefore, tending original or natural existing trees is the best method. Only the suitable and profitable mangrove species will be planted in spaces formed by carrying out tending operation. It will not be carried out establishment of plantation by clearly felling the existing forest.

(3) Tending operations (Prunning, Thinning)

The mangrove forests in CF area are over harvested forests which have been felled repeatedly. Therefore, it is needed to carry out necessary silvicultural techniques quickly. In accordance with desire of local community, it will be tended their individual plot within 2 or 5 years. Thinning small/ unhealthy trees, weeding, pruning and gap planting with appropriate species in gaps appeared will be carried out yearly by getting forestry techniques.

Likewise, since there are some existing forest of *Phoenix paludosa* in individual area, it can be harvested commercially within next 2 years by tending systematically that forest mentioned.

Profitable species such as Tha Mhae (of Avicenniaceae family), Tha Yaw (*Excoecaria agallocha*), Kya Na (*Xylocarpus moluccensis*), Kanasoe (*Heritiera fomes*), etc will be selected and planted in gaps formed by clearing dry branches of *Phoenix paludosa* during dry season, felling unsound trees and clearing undesirable trees and bushes.

The gap plantation will be systematically carried out accordingly to the species used in plantation establishment procedure.

(4) Felling or Harvesting

Selection felling method will be used for the sustainability of our natural mangrove forests. Selection felling with girth limit of species will be carried out based on the objective of CFUSG members.

MC will closely supervise the felling process so as not to be occurred confusions and corruptions between CF area and other mangrove area and to be corrected as girth limit through following the instructions of FD.

Moreover, by getting supports of FD, MC will carry out marking the trees matched girth limit with distinct symbols in the area to be felled by selection, recording list of trees marked systematically and calculating yields before the felling season in timely manner.

(5) Distribution

1. After distributing in priority for Sufficiency in the local area in distributing timber and firewood obtained from selection felling, the CF products will be distributed in and outside of the township. Required vouchers will be prepared systematically.
2. Making charcoal, timber and furniture will be done based on the obtainable profits by following the supervision and guidance of relevant Departments.
3. The distribution will be carried out either by individually or by MC as a whole if necessary.
4. A certain percentage of profits from distribution of CF products will be saved as fund for occasional activities done by MC for the sake of CFUSG and for the development of the village.

9. Village Development Activities

CFUSG of Nyaung Ta Pin Village and villagers will systematically carry out not only the silvicultural practice of mangrove forests and selection felling by following the supervision and instructions of FD but also for all-round development of the village by learning the technologies applied in Mangrove Project implemented collaboratively by FD and JICA. These activities comprise riverbank planting, agroforestry, fruits and vegetables growing, small scale livestock breeding and oyster culture trial. If these activities can be improved from small scale to large scale, they will support the development of the village.

10. Conclusion

If the Nyaung Ta Pin Village CF becomes successful, not only forest products for demand of village will be fulfilled but also the demands of other regions will also be fulfilled if forest products are exceeded.

Additionally, as fish, prawn and crabs will be reproduced continuously corresponding to sustainability of mangrove forest, it is believed that the basic livelihood activities of villagers will be improved.

Therefore, our community will implement the CF as per the instructions for the sake of the villagers and the sustainability of mangrove forests, and this MP is submitted in order to be provided required silvicultural practices of mangrove forests by FD.

Chairman
CFUSG of Nyaung Ta Pin
Ye Dwin Seik Village Tract

Symbols to be used for Mangrove Species

Sr.	Species	Symbol
1	<i>Avicennia officinalis</i>	Ao
2	<i>Avicennia marina</i>	Am
3	<i>Ceriops decandra</i>	Cd
4	<i>Rhizophora apiculata</i>	Ra
5	<i>Rhizophora mucronata</i>	Rm
6	<i>Bruguiera gymnorrhiza</i>	Bg
7	<i>Heritiera littoralis</i>	Hi
8	<i>Heritiera fomes</i>	Ht
9	<i>Phoenix paludosa</i>	Pp
10	<i>Brownlowia tersa</i>	Bt
11	<i>Dalbergia spinosa</i>	Ds
12	<i>Acrostichum aureum</i>	A
13	<i>Aegiceras corniculatum</i>	Ac
14	<i>Aegialites rotundifolia</i>	Ar
15	<i>Avicennia alba</i>	Aa
16	<i>Xylocarpus moluccensis</i>	Xm
17	<i>Xylocarpus granatum</i>	Xg
18	<i>Kokku</i>	Ko
19	<i>Pongamia pinnata</i>	Pl
20	<i>Amoora cucullata</i>	Acu
21	<i>Intsia bijuga</i>	Ib
22	<i>Bruguiera parviflora</i>	Bp
23	<i>Bruguiera cylindrical</i>	Be
24	<i>Excoecaria agallocha</i>	Ea
25	<i>Sonneratia apetala</i>	Sa
26	<i>Sonneratia griffithii</i>	Sg
27	<i>Sonneratia caseolaris</i>	Sc
28	<i>Nypa fruticans</i>	Nt
29	<i>Cynometra ramiflora</i>	Cr
30	<i>Merope angulata</i>	

Symbols related to Regeneration

- Natural Regeneration Area	To sketch Light Green colour
- Area suitable for establishing plantation	To sketch Yellow colour
- Boundary of area of each individual	Red line colour
- Boundary of area of yearly implementation	Blue line colour
- River/ creak	Black line colour

Table of Condition of Selection of Suitable Species based on Type of Land

Sr	Particular	Species	Suitable Land	Age of Felling	Remark
	Fast growth type	- <i>Albizia lebbeck</i> - <i>Avicennia spp.</i> - <i>Sonneratia apetala</i> - <i>Eucalyptus spp.</i>	- High land - High/ Middle - Low - High (sandy)	5 to 10 year 5 to 10 year 5 to 10 year 5 to 10 year	No tide in summer No tide in summer Every tide reaches No tide in summer
	Moderate growth type	- <i>Melaleuca spp.</i> - <i>Lumnitzera racemosa</i> - <i>Bruguiera spp.</i>	- High land - High (sandy) - Low	Above 10 year 10 to 15 year 16 to 25 year	No tide in summer No tide in summer Every tide reaches
	Slow growth	- <i>Heritiera spp.</i> - <i>Excoecaria agallocha</i> - <i>Xylocarpus moluccensis</i>	- High/ Middle - High/ Middle - High/ Middle	Above 25 year Above 25 year Above 25 year	No tide in summer No tide in summer Every tide reaches

(2009-2013) Yearly Schedule for Establishment of Plantation in CF area

NTP Village

Year Plot	2009 (Acre)	2010 (Acre)	2011 (Acre)	2012 (Acre)	2013 (Acre)	Total (Acre)	Remark
Individual Plot (68 members)	68	68	68	136	136	476	(About two third of the entire area of CF is needed to be established new plantation, and the remaining one third (about 217 acres) are existing forest area.)
	(1.0 acre per member)	(1.0 acre per member)	(1.0 acre per member)	(2.0 acres per member)	(2.0 acres per member)	(7.0 acres per member)	

(2009-2013) Yearly Schedule for Conservation of Existing Forest in CF area

NTP Village

Year Plot	2009 (Acre)	2010 (Acre)	2011 (Acre)	2012 (Acre)	2013 (Acre)	Total (Acre)	Remark
Improvement weeding and pruning	34	34	34	68	57	217	
Thinning							Thinning operation will be started in 2013.
	(0.5 acre per member)	(0.5 acre per member)	(0.5 acre per member)	(1.0 acre per member)	(1.0 acre per member)	(3.5 acres per member)	

List of MC members of CFUSG of NTP

No.	Name of MC members	Father's Name	National Identity Card No.	Remark
1.	U Myint Soe	U Sa Kay	14/PaSaLa (N) 053506	Chairman
2.	U Hla Myint	U Chit Hlaing	14/PaSaLa (N) 059707	Secretary
3.	U Hla Kyaing	U Mya	14/PaSaLa (N) 027198	Treasurer/ Accountant
4.	U Pi Oo	U Gyan	-	Member
5.	U Kyin Thein	U Kyi	14/Pa Sa La (N) 053515	Member
6.	U Thein Su	U Htay Win	14/Pa Sa La (N) 053514	Member

List of members of CFUSG and structure of (9) sub-groups

No.	Name of members (updated)	Father's Name	National Identity Card No.	Remark
1	U Pi Oo	U Gyan	-	Leader of SG (1) & MC member
2	U Chit Htay	U Thaug Tin	-	Member
3	U Ni	U Maung Ko	14/ Pa Sa La (N) 155881	Member
4	U Ohn Kyaing	U Mya Thein	14/ Pa Sa La (N) 059710	Member
5	U Khine Win	U Sein Win	14/ Pa Sa La (N) 053509	Member
6	U ManWin	U Gyan	14/ Pa Sa La (N) 106668	Member
7	U Gaw Du	U Saw Bi	-	Member
8	U Yaw Han	U San Pel	-	Member
9	U Saw Kaw	U Hla Bi	-	Member
10	U Hla Myint	U Chit Hlaing	14/ Pa Sa La (N) 059707	Secretary of MC
11	U Mhen Sar	U Maung Saw	14/ Pa Sa La (N) 053504	Member
12	U Ah Shwe	U Mhen Nel	-	Member
13	U Hla Myo	U Moe Kote	14/ Pa Sa La (N) 053499	Member
14	U Kyin Thein	U Kyi	14/ Pa Sa La (N) 053515	Leader of SG (2) & MC member
15	U Min Aung	U Htay Win	14/ Pa Sa La (N) 059711	Member
16	U Thar Thar	U Moe Zaw	14/ Pa Sa La (N) 053519	Member
17	U Ohn Kyaw	U Taing	-	Member
18	U Kyi Than	U Than Shwe	14/ Pa Sa La (N) 027199	Member
19	U Chit Min Ko	U Kyin Thein	14/ Pa Sa La (N) 053495	Member
20	U Tun Nyein	U Thar Kyaw	-	Member
21	U Bar Lo	U Tun Nyein	14/ Pa Sa La (N) 019846	Member
22	U Phoe Htwe	U Mhen Kwar	14/ Pa Sa La (N) 059710	Member
23	U Khin Maung Oo	U Than Aung	14/ Pa Sa La (N) 053538	Member
24	U Hla Htay	U Than Aung	14/ Pa Sa La (N) 019837	Member
25	U Phoe Si	U Saw Par Nuu	14/ Pa Sa La (N) 753501	Leader of SG (3)
26	U Htwe Aung	U Gyan	-	Member
27	U Myint Win Gyi	U Ka Lar	14/ Pa Sa La (N) 027107	Member
28	U Soe Soe Oo	U Aung Kyaw	14/ Pa Sa La (N) 053510	Member
29	U Zaw Zaw	U Sein Hlaing	-	Leader of SG (4)
30	U Tun Tun	U Nyunt Tin	14/ Pa Sa La (N) 053534	Member
31	U Than Htike	U Than Win	14/ Pa Sa La (N) 219930	Member
32	U Soe Naing Gyi	U Than Aung	14/ Pa Sa La (N) 014786	Member

33	U San Aung	U Han Myint	14/ Pa Sa La (N) 053537	Member
34	U Kwar Gyi	U San Mya	-	Member
35	U Htet Htet	U Sein Myint	-	Member
36	U Hla Kyaing	U Mya	14/ Pa Sa La (N) 027198	Treasurer/ Accountant
37	U Htin Kyaw	U Ahrr Phaw	-	Member
38	U Bay Dar	U Bi Luu Naw	14/ Pa Sa La (N) 059653	Leader of SG (5)
39	U Tin Hla	U Phoe Thay	-	Member
40	U Nyi Aye	U Tin Hla	14/ Pa Sa La (N) 053603	Member
41	U Nga Pu(Win Kyaw Kyw)	U Bi Luu Naw	14/ Pa Sa La (N) 053523	Member
42	U Myo Naing	U Kan Shwe	-	Member
43	U Thein	U Mya Maung	14/ Pa Sa La (N) 053503	Member
44	U Hla Nyein	U Kyi	14/ Pa Sa La (N) 012895	Leader of SG (6)
45	U Thein Su	U Htay Win	14/ Pa Sa La (N) 053514	MC member
46	U Phyu	U Chit Hlaing	14/ Pa Sa La (N) 059662	Member
47	U Nay Tun	U Chit Hlaing	14/ Pa Sa La (N) 004211	Member
48	U Thein Thein Oo	U Tin Hla	14/ Pa Sa La (N) 159709	Member
49	U Soe Naing Lay	U Kan Shwe	14/ Pa Sa La (N) 017835	Member
50	U Hla Tun	U Mya	14/ Pa Sa La (N) 027113	Member
51	U Thein Soe		-	Member
52	U Hla Saung	U Thein Han	14/ Pa Sa La (N) 055882	Leader of SG (7)
53	U Myint Htwe	U Tite Oo	-	Member
54	U Soe Myint	U Than Maung	14/ Pa Sa La (N) 229580	Member
55	U Tun Naing	U Aye	14/ Pa Sa La (N) 059721	Leader of SG (8)
56	U Myint Soe	U Sa Kay	14/ Pa Sa La (N) 053506	Chairman of MC
57	U Myint Kyi	U Tin Aye	14/ Pa Sa La (N) 053527	Member
58	U Myint Win Lay	U Kyaw	14/ Pa Sa La (N) 053517	Member
59	U Phoe Kywet	U Dan Tu	14/ Pa Sa La (N) 002133	Member
60	U Nge Nge	U Moe Kyaw	14/ Pa Sa La (N) 059583	Member
61	U Myint Oo	U Kyaw	14/ Pa Sa La (N) 053518	Leader of SG (9)
62	U Ah Khet	U Mhen Nel	14/ Pa Sa La (N) 053539	Member
63	U Htein Lin	U Kyaw	14/ Pa Sa La (N) 053491	Member
64	U Saw War Mu	U Saw Shee	14/ Pa Sa La (N) 059654	Member
65	U Hla Min Tin	U Myint Soe	14/ Pa Sa La (N) 053531	Member
66	U Phoe Saut	U Ba Aung	14/ Pa Sa La (N) 053529	Member
67	U Saw Shee	U Mhen Ka Lar	14/ Pa Sa La (N) 027192	Member
68	U Saw Kin Bat	U Ta Yoke	-	Member

Annex 9: How to prepare Harvesting Plan

How to prepare Harvesting Plan

As in CFI, UG members can harvest the produces from CF Area as per the harvesting plan included in the MP. It is important for UG members to follow the plan for the sustainable use of the resources and for the lasting benefit. In principle, no clear felling is to be allowed in the CF area. Only selection felling is allowed for sustainable use of the CF resources. Suggested procedure proposed in “The Mangrove Forest Rehabilitation Manual for the Forest Department Frontline Staff of the Ayeyawady Delta (IMMP Study, 2005)” is given below.

Procedure

Step1: Preparatory work

- Assess stock (number of trees, volume, etc.) in CF area
- Identify efficient felling methods and rotations
- Assess Market demand
- Complete the harvesting plan using the format jointly with UG members.
- Estimate target selection-felling volume

The harvesting format to be completed by UG during preparatory work is shown below.

The Harvesting Plan Format to be completed by UG

Harvesting plan in 20XX

Name of Village _____

Name of user group : _____

No./Name of sub-group : _____

Harvesting Area (acre): _____

Prepared by : _____

Date of preparation : _____

1. Number of target felling trees and estimation of felling volume by species

Name of species A : usage : _____ trees : _____ cu.ft.

Name of species B : usage : _____ trees : _____ cu.ft.

Name of species B : usage : _____ trees : _____ cu.ft.

.....

2. Schedule of harvesting

month	1	2	3	4	5	6	7	8	9	10	11	12
harvesting										x	x	x

Prepared by: Signature Approved by: Signature

Name of user group, village Name of forest department office
(name of a responsible person) (name of a responsible officer)

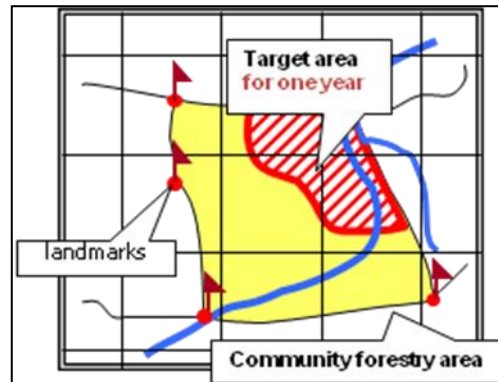
Attachment : field survey record (one copy)

Source: Mangrove Forest Rehabilitation Manual for the Forest Department Frontline Staff of the Ayeyawady Delta. (IMMP Study, 2005)

Step2: Preparation of a harvesting map based on management/ stock maps

- Refer to the CF management maps and topographic maps
- Delineate a target area on the map by hand while discussing with the UG members
- Field survey is to be conducted. UG members will record approximate location of target trees on the map directly.
- If GPS is available, data should be collected so that the target trees can be found easily and precisely.

An Example of Harvesting Map



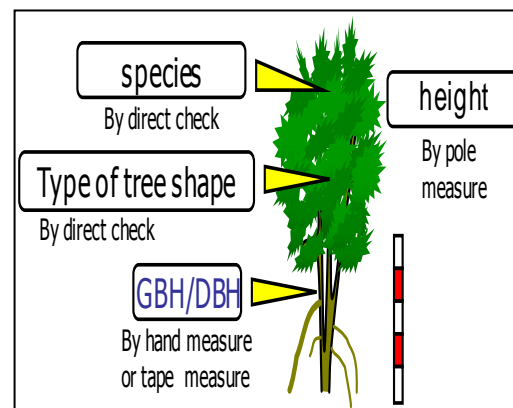
Source: Mangrove Forest Rehabilitation Manual for the Forest Department Frontline Staff of the Ayeyawady Delta. (IMMP Study, 2005)

Step3: Field Survey for making candidate felling trees with recording

- Minimum requirement of contents of survey record for harvesting plan are as follows.
 1. Species name
 2. Height (ft)
 3. Girth (or Diameter) at Breast Height (GBH/DBH) (inch), and
 4. Type of tree shape (column or conical)

What do we measure?

Where do we measure?

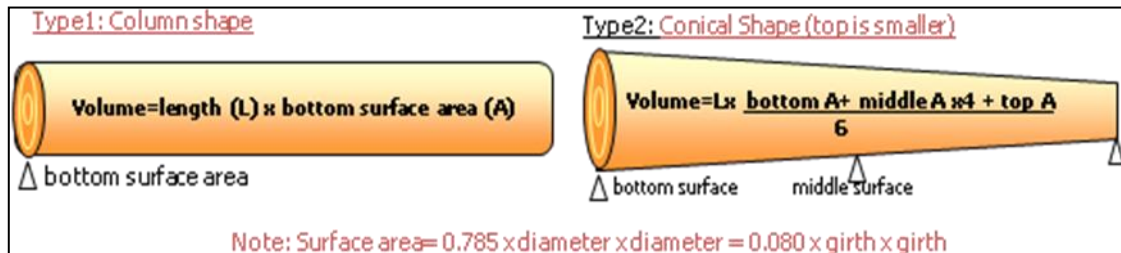


Source: Mangrove Forest Rehabilitation Manual for the Forest Department Frontline Staff of the Ayeyawady Delta. (IMMP Study, 2005)

Step4: Estimation of harvesting volume by hand calculation

- Two types of calculation are shown.
 - Type 1: Column shape
 - Type 2: Conical Shape (top is smaller)

How to calculate the volume for different shapes of trees



Source: Mangrove Forest Rehabilitation Manual for the Forest Department Frontline Staff of the Ayeyawady Delta. (IMMP Study, 2005)

Step5: Finalisation of the harvesting Plan

- Estimate volumes of all candidate felling trees
 - Decide final harvest trees based on; economic aspect (quality of tree, price of tree at the market etc.)
 - environment aspect (sustainability of harvesting, biodiversity, density of forest etc)
- Attach survey records to finalized harvesting plan

***Annex 10: Form - Yearly Activity Schedule for
Establishment of Plantation/ Conservation of Existing
Forest in CF Area***

Year Schedule for Establishment of Plantation/ Conservation of Existing Forest in CF Area

CF: _____ Date of preparation: _____

Year (Acre)							Total	Remarks
Plot								
Total								

Example 1: Yearly Schedule for Establishment of Plantation

Village: Kaw Kaw Ka Lay

Year (Acre)	2009	2010	2011	2012	2013	Total	Remarks
Plot							
Individual plot (FC 22)/ 12 members	18 1.5 / member	18 1.5 / member	18 1.5/ member	18 1.5/ member	13 1.5/ member	85 7.0/ member	30 acres owned by 39 members
Communal plot (FC 26)/ 19 members		19 1.0/ member	19 1.0/member	19 1.0/member	10 1.0/ member	67 3.5/member	
Riverbank planting plot (FC 22)/ 8 members			8 1.0/ member	8 1.0/ member	4 0.5/member	20 2.5/member	
Total						172	

Example 2: Year Schedule for Conservation of Existing Forest in CF Area

Village: Kaw Kaw Ka Lay

Year (Acre)	2009	2010	2011	2012	2013	Total	Remarks
Plot							
Improvement Weeding and Pruning	6	6	6	6	6	30	
Thinning	Thinning operation will begin in 2013						
	0.15/member	0.15/member	0.15/member	0.15/member	0.15/member	0.15/member	
Total							

Annex 11: Form - Yearly Activity Schedule

*Annex 12: Sample- By-Laws of CFUG: Shwe Pyi Thar
Village, Pyindaye RF*

By-law of CFUSG
Shwe Pyi Thar Village, Set San Village Tract; Bogalay Township

1. Objective of CFUSG

- * To protect and conserve community forest

2. Foundation of CFUSG

- * The user group of community forest of SPT was formed on the date of 19 October 2011 with 106 members who are interesting in CF establishment according to CFI.

3. Structure of CFUSG

- * It was organized a management committee (MC) with 6 members as chairman, secretary, treasurer and 3 members who also takes the responsibility of auditing in CFUSG.
- * Other 100 members are regarded as CFUSG members.

4. MC meeting

- * MC meeting will be conducted bimonthly.
- * It will be conducted the casual meeting based on necessity.

5. CFUSG meeting

- * CFUSG meeting will be conducted in every 4 months.
- * It will be conducted annual CFSUG meeting on 1 March yearly.
- * All CFUSG members must attend the meeting conducted based on necessity.
- * At the CFUSG meeting conducted in every 4 month it will be explained the statement of accounts.
- * At annual CFUSG meeting it will be discussed the allotment of communal fund for expenses of CFUSG and for loaning to improvement of livelihood of CFUSG members so as to raise communal fund.

6. MC membership criteria

- * One who has a primary level education
- * One who is intellectual and moral
- * One who is patient and can participate in CF activities
- * One who can communicate gracefully with other CFUSG members and can travel for CFUSG

7. CFUSG membership criteria

- * One who lives permanently in the village at least 3 year exactly
- * One who is patient and is able to cooperate with other members

8. Election for new MC

- * For electing new MC members, it is needed to decide a month in advance by the existing MC members, beat officer of FD, village authority and elders of the community.
- * The duration of the existing MC is fixed for 2 years.
- * The existing MC must hand over all records as well as duties and responsibilities to new MC.
- * Election must be based on the structure of MC and desires of all CFUSG members.

9. Duties and responsibilities of CFUSG members

- * CFUSG members have to put membership fee in communal fund of CFUSG in accordance with concurrence of CFUSG members.
- * It must be informed to MC if CFUSG members themselves have to travel for so long.
- * CFUSG members must follow by-law of CFUSG.

- * CFUSG members must cooperate well with MC members, attend the meeting regularly and contribute in CF activities.

10. Duties and responsibilities of MC members

- * Taking responsibilities of management of community forest
- * Managing the supports and materials/equipments related to CFUSG members
- * Initiating to conduct annual meeting and the meeting conducted in every 4 months for CFUSG members
- * Keeping records of the activities carried out
- * Monitoring the implementation of community forest
- * Preparing the annual report of CF establishment and reporting to Forest Department
- * Managing the communal fund of CFUSG
- * Communicating with Forest Department and other governmental departments, agencies/NGOs
- * Taking effective actions on the members who break by-law of CFUSG, imposing penalty and accepting new members
- * Reporting the difficulties and problems of CFUSG members to Forest Department

Chairman

- Coordinating between MC members and CFUSG members
- Confirming the decisions together with CFUSG members
- Approving the expenses required for CFUSG members
- Coordinating together with members in solving the difficulties and problems of all members
- Communicating with Forest Department

Secretary

- Compiling all records of all activities of CFUSG and managing
- Keeping the records of list of updated CFUSG members and compiling the achievements of CF activities
- Initiating to conduct regular meeting
- Taking responsibilities of chairman while he was away from the village
- Preparing annual report to submit to Forest Department

Treasurer/ Accountant

- Keeping the records of financial accounts for clarification of accounts
- Explaining the statements of accounts to all CFUSG members at regular meeting
- Preparing annual financial records and explaining

Members as well as auditors

- Taking records of all decisions of meetings, discussions and workshops as well as taking the responsibility of auditing
- Sharing information to all CFUSG members
- Assisting for conducting meetings and workshops
- Auditing the records of financial accounts in every (4) months and explaining to CFUSG members at meeting
- Explaining briefly about the weaknesses, the different portions and unacceptable circumstances in financial records

11. Sharing benefits gained from CF

- * It will be used the benefits gained through the communal or riverbank plot of CF area in the activities of village development and religion
- * The benefits obtained from individual plot by individual member can be utilized as they wish to.

12. Communal fund of CFUSG

Setting up or collecting fund

- It will be set the communal fund up with membership fees received from members and fines, Kyats 1000 per person per time, gained through absence of participation at meetings/ workshops.

- The supports of project such as partial of participation honorariums at CFUSG workshops will be put into communal fund of CFUSG.
- The benefits gained from the charges of utilizing CF hall or rice storage by farmers and the increments of fund received by loaning fund with interest rates to CFUSG members for improvement of livelihood activities will be set up as the communal fund.

Spending or using fund

- Out of the fund gained by collecting, it will be kept Kyats 100000 at MC in order to spend in purchasing stationeries for documentation and keeping records, travelling charges of MC members for CFUSG activities, purchasing materials/equipments such as knives, boots, chopping hoes and grubbing hoes for CF activities and transporting charges for carrying seedlings from CFECN.

Raising fund

- The remaining fund will be loaned to CFUSG members so as to raise the fund particularly for livelihood activities such as large and small scale of those fisheries, general trading, livestock rearing and agriculture by means of allotment of 25% for each sector among the four sectors mentioned.
- It will be loaned by drawing lots if the fund is not enough for all members, and the interest rates will be fixed with 2%.
- Someone who cannot repay the loan, the remaining 9 members of each sub-group that is formed with 10 members will have to repay for that member.
- It will have to be repaid both of capital and interest by members after 10 months of loaning on the date 28 February yearly.

Managing fund

- Treasurer of MC will maintain the entire fund gained by loaning.
- The accounts will be closed on the date 1 March yearly, and it will be explained the statements of accounts to all members at the meeting as well as be discussed about loan for next year.

13. Forest conservation activities

- * CFUSG members must look after or conserve the forests of riverbank or communal owned plot that exists in front of their individual house.
- * If the community forest which exists in the area belonged to individual member is ruined, the relevant member will have to replant trees.

14. Solving problems and imposing penalty

- * CFUSG members must attend the meeting regularly apart from health problem and having been travelling.
- * Members will be removed from CFUSG if they are absent in carrying out CF activities.
- * If members are absent to attend the meeting, they will be fined Kyats 1000 per person per time to put into communal fund.
- * It has to be checked and solved the conflict or problem of boundary by cooperation of MC members and sub-group leaders.
- * Penalty has to be imposed if it is broken the rules issued by MC.

Annex 13: Evaluation of CF Application

**Evaluation of CF Application
(Proposed Check list form)**

Tick if Yes	Points for assessment	Remarks
	The form attached to CFI- Appendix 1 is used.	
	All the necessary information required for CF Application Form (CFI Appendix 1) is provided.	
	Village Tract and township names are indicated.	
	Boundary of the CF is evident.	
	Forest Type is stated clearly.	
	Type of land tenure and land use is stated clearly.	
	Within the region that can allow CF establishment as per mentioned in paragraph-5 of CFI	
	Member list includes the name of the member, NRC numbers and signatures of CFUG members.	
	Minutes of Meetings depicting 1) a resolution to form UG, 2) selecting chairman, secretary and members for MC and 3) agreement to establish CF are attached.	
	A location map of the proposed CF area is attached. Various maps available with FD should be used as a base.	
	CF area has been inspected jointly by FD Township Staff Officer and UG.	
	If CF area is inside forest area, it does not interfere with FD management area.	
	Is the proposed CF area within the area managed by FD? (If not, see below notes for FD - 2.)	
	If it is land at the disposal of the Government, no land conflict is observed and suitable for sustainable use of and management of the forest resources.	
	Attitude of neighboring departments/organizations and villages around CF area is conducive to implement CF.	
	The distance between CF area and CFUG's village is within easy reach. The suggested radius is 5 miles from the village.	
	The size of the proposed CF area is appropriate in consideration of the management capacity of the UG.	
	Forest produces and other benefits derive from the CF area and the surrounding environmental condition are conducive for CF.	

Notes for FD-1:

The above check list can be used at the field level FD staff, FD Township and DFO to see if the application qualifies.

Once the above is verified, the DFO will send the map and application to State/ Divisional Forest Officers with copies forwarded to Director General of FD and Director of the Planning and Statistics Division of FD. The DFO is required to verify the proposed area on site. The approval can be given by the DFO as per the Letter No. Si Man Gain/Tha (Ka) 2/2653/97) dated 28 Nov 1997, of DG's Office of FD.

Notes for FD – 2: An application submitted for non Forest land

If the application is submitted for the land other than the Forest Land, DFO will need to undertake instructions from the District Forest Conservation Committee (CFI, para 9).

Annex 14: Sample – Letter To Issue CF Certificate

The Republic of the Union of Myanmar
Ministry of Environmental Conservation and Forestry
Forest Department
Assistant Director's Office, Myaung Mya District, Myaung Mya

Ref. No. : 1195-99/Ah-1

Date : 3rd August 2012

To

Staff Officer
Forest Department
PYP, LPT, BGL Township

Subject: : To issue CF Certificate implemented by JICA/FD Mangrove Project

Reference: : Reference no. 4786/Ah-10 of Director's Office, Ayeyarwady Region, dated 27.7.12

1. According to the above subject, CF Certificates are issued to the following six project target villages, implemented by "The Integrated Mangrove Rehabilitation and Management Project through Community Participation in Ayeyarwady Delta, Myanmar" in collaboration with Forest Department and JICA, to implement the management plan which were confirmed by 31st July 2012, in accordance with Forest Law Section 15, Regulation 42/43 and paragraph-10 of CFI 1995, and these Certificates are attached.

Sr.	Township	Village Name	Area (Acre)	Reserved Forest	FC No.	Members
a.	Laputta	Kwa Kwa Ka Lay	202	Kyar Kan Kwin Pauk	22, 26	29
b.	Laputta	Thar Yar Kone	1051	Pyinalan	75, 57	59
c.	Laputta	Nyaung Ta Pin	693	Pyinalan	57, 58	68
d.	Pyar Pon	Gaw Du	50	Pyindaye	64	83
e.	Pyar Pon	Htaung Gyi Tan	157	Pyindaye	66	63
f.	Bogalay	Shwe Pyi Thar	50	Pyindaye	8, 19	106
Total			2203			

2. Therefore, JICA/FD Mangrove Project will hand these Certificates over to the respective MC Chairman of CFUG with ceremony. You are informed to make necessary preparations for the ceremony and will inform the date of the ceremony later.

3. You are informed to receive the signatures of all CFUG members in advance, as per mentioned at table of attachment, and send them back to my office.

Assistant Director (for)
(Hla Myo Aung, Staff Officer)
Forest Department
Myaung Mya District, Myaung Mya

C.C-

1. Director, PSD, FD, NPT
2. Director, FD, Ayeyarwady Region, Pathein
3. Office Receipt, Interdepartmental Circular Letter

***Annex 15: Form-CF Certificate adopted in DMA
Sample CF Certificate: Htaung Gyi Tan Village,
Pyindaye RF***

The Republic of the Union of Myanmar
Ministry of Environmental Conservation and Forestry
Forest Department

Community Forestry Certificate

U Ba Myaing

Chairman

Htaung Gyi Tan Village Users' Group, Ba Wa Thit Village Tract, Pyar Pon Township, Myaung Mya District,
Ayeyarwady Region

1. You are certified to establish CF on (157)acres, in accordance with Forest Law Section 15, Regulation 42/43 and paragraph 10 of CFI 1995, and members mentioned at paragraph 2 are put under the management of Users' Group. This certificate is issued to implement management plan which was confirmed on (31) July 2012.

(a) Name of Community Forestry and Location

Htaung Gyi Tan Village Community Forestry, Pyindaye Reserved Forest, Forest Compartment No. (66)

(b) Boundary

East Kyun Pulu Creek

West Forest Department, 1/2009 Mangrove Plantation

South Bay of Bengal

North Kyun Pulu Creek, 1/2009 Mangrove Plantation

(c) Area (157) acres

2. Management Committee members of Users' Group are as follow:

Sr. Name	Father's Name	NRC No.	Duty
1. U Ba Myaing	U Pyuu Naung	14/BaKaLa(N) 072015	Chairman
2. U Thein Aung	U San Tun Maung	14/BaKaLa(N) 030239	Secretary
3. U Tun Kyi	U Ba San	14/BaKaLa(N) 086967	Treasurer
4. U Myo Myint	U Ba Kyaw	14/BaKaLa(N) 072020	Member
5. U Khin Maung Lwin	U Maung	14/AMaTa(N) 038238	Member
6. U Thura	U Tun Thein	14/AMaTa(N) 026959	Audit

FD Officer who issues Certificate

Signature

Name

U Khin Maung Lwin

Position

Assistant Director, FD

Date

31st July 2012

Responsibilities and Duties of Users' Group (Paragraph 18)

The duties and responsibilities of the users' group are as follows:

- (a) Establishment of forest plantations in barren areas
- (b) Where appropriate, natural regeneration method should be used in the rehabilitation of forest areas
- (c) Fire protection
- (d) To care out the required cultural operations for the development of both plantations and natural forests
- (e) Protection against indiscriminate felling, girdling, pruning, resin tapping, removal of barks etc.
- (f) Protect against mining of stones, sands, earth and metals in the designated area
- (g) Prevention of illegal land use activities
- (h) In conformity of the rules and regulations, systematic extraction and utilization of forest products so as to avoid wastage
- (i) Protection against soil erosion and environmental deterioration
- (j) After the first rotation, the users' group shall, under the supervision of the Forest Department, engage in site preparations, seed collection, sowing, planting and tending operation
- (k) Implementing activities as described in the management plan

Prohibitions (Paragraph 19)

No members of the users' group shall engage in the following activities

- (a) Activities not prescribed in the management plan of the Community Forest
- (b) Apart from inheritance, selling or renting of the Community Forest
- (c) Metal mining and other activities that would cause forest degradation
- (d) Construction of undesirable houses or sheds for the conservation of the Community Forest
- (e) Apart from Agroforestry, use of land allotted for community forest for gardening or shifting cultivation

Remark: Period of land tenure is (30) years from 31st July 2012. However, if users' group critically violates the responsibilities and duties and prohibitions, the withdrawal of the Community Forestry Certificate shall be made even in the middle of this 30 year period of land tenure.

After reading the duties and responsibilities of users' group and prohibitions mentioned at CF Certificate, we agree and sign the agreement.

Sr	Name	Father's Name	Age	National Identity Card No.	Signature
1	U Ba Myaing	U Pyoo Naung		14/ Ba Ka La (N) 072015	
2	U Thein Aung	U San Tun Maung		14/ Ba Ka La (N) 030239	
3	U Tun Kyi	U Ba San		14/ Ba Ka La (N) 086967	
4	U Myo Myint	U Ba Kyaw		14/ Ba Ka La (N) 172020	
5	U Khin Maung Lwin	U Maung		14/ Ah Ma Ta (N) 038238	
6	U Thura	U Tun Thein		14/ Ah Ma Ta (N) 026959	
7	U Soe Min Thu	U Myint Soe		14/ Ba Ka La (N) 171686	
8	U Kyaw Min Thu	U Tun Kyi		14/ Ba Ka La (N) 171678	
9	U Myint Shwe	U Than Maung		BGE - 033983	
10	U Thein Zaw	U Myint Win		14/ Ah Ma Ta (N) 007032	
11	U Han Thaug	U Yin Hla		14/ Ah Ma Ta (N) 003026	
12	Daw Ohnmar	U Thaug		14/ Ah Ma Ta (N) 001303	
13	U Tin Tun Aung	U Thaug Tun		14/ Ba Ka La (N) 007515	
14	U Win Myint	U Kyar Gyi		14/ Ba Ka La (N) 051741	
15	U Win Htut	U Kan Ya		14/ Ba Ka La (N) 007322	
16	U Win Myint	U Maung Shwe-1		14/ Ba Ka La (N) 089093	
17	U Khaing Min	U Yin Htay		14/ Ba Ka La (N) 053290	
18	Daw Hla Myint	U Saw Maung		14/ Ba Ka La (N) 151068	
19	U Hlaing Tun	U Thaug		14/ Ba Ka La (N) 151294	
20	U Zaw Oo	U Khin		14/ Ah Ma Ta (N) 007360	
21	U Naing Oo	U Than Aye		14/ Ah Ma Ta (N) 011661	
22	U Myint Naing	U Tin Win		14/ Ah Ma Ta (N) 030246	
23	U Myint Wai	U Aye Thein		-	
24	U Ohn Htwe - 2	U Aye		14/ Ba Ka La (N) 151075	
25	U Zaw Htay	U Tin Aung		-	
26	U Myo Thu	U Than Myint		-	
27	U Kyi Win	U Kyin Sein		14/ Ba Ka La (N) 021858	
28	U Than Soe	U Maung Nyunt		14/ Ah Ma Ta (N) 020708	
29	U Yan Paing	U Aye Win		14/ Ah Ma Ta (N) 030242	
30	U Tun Thein	U Kyaw Swar		14/ Ba Ka La (N) 086773	
31	U Aung Kyaw Myint	U Maung		-	
32	U Phyo Wai Tun	U San Win		14/ Ah Ma Ta (N) 002859	
33	U Win Naing	U San Aye		14/ Ba Ka La (N) 006479	
34	U Aye Win	U Ngwe		-	
35	U San Myint	U Maung Aye		14/ Ba Ka La (N) 151341	
36	U Ohn Myint	U Ngwe Maung		14/ Ba Ka La (N) 086026	
37	U Win	U Tin Shwe		14/ Ba Ka La (N) 011180	
38	U Tin Thaug	U Than		14/ Ba Ka La (N) 090068	
39	U Than Tun Win	U Nyo		14/ Ba Ka La (N) 086504	
40	U San Thar Kyaw	U Than Tun		14/ Ba Ka La (N) 086439	
41	U Tun Shwe	U Win Maung		14/ Ah Ma Ta (N) 030229	
42	U Tin Shwe	U Tun Shwe		-	
43	U Thaug Lay	U Ka Lar		14/ Ah Ma Ta (N) 086643	
44	U Than Lwin	U Than		14/ Ah Ma Ta (N) 030247	
45	U Myint Soe	-		14/ Ba Ka La (N) 185659	
46	U Thet Hlaing Oo	U Myint Win		14/ Ah Ma Ta (N) 051647	
47	U Aung Mya Soe	U Tun Kyi		14/ Ah Ma Ta (N) 030221	
48	U Moe Htay	U Tun Kyi		14/ Ba Ka La (N) 151415	
49	U Kyaw Swar Win	U Aung Win		14/ Ah Ma Ta (N) 017303	
50	U Min Aung	U Tin Aung		14/ Ba Ka La (N) 086400	

Sr .	Name	Father's Name	Age	National Identity Card No.	Signature
51	U Tar	U Yaw Han		14/ Ba Ka La (N) 172021	
52	U Thant Zaw	U Myint Win		-	
53	U Myo Zaw	U Moe Zel		14/ Ah Ma Ta (N) 019572	
54	U San Aung	U Ba Myint		-	
55	U Nyunt Htay	U Soe Thein		14/ Ba Ka La (N) 086793	
56	U Zaw Win Tun	U Than Soe		14/ Ah Ma Ta (N) 020705	
57	U Shwe Wah Tun	U Tin Kywe		14/ Ah Ma Ta (N) 002065	
58	U Aung Naing Soe	U Kyaw Naing		14/ Ba Ka La (N) 151251	
59	U Kyaw Moe Win	U Aung Win		-	
60	U Toot Ne	U Tin Kywe		14/ Ba Ka La (N) 086286	
61	U Soe Lwin	U Kyaw Naing		14/ Ba Ka La (N) 172025	
62	U Kyaw Khaing	U Tin Myint		14/ Ah Ma Ta (N) 003024	
63	U Soe Than Tun	U Kyaw Naing		14/ Ah Ma Ta (N) 008743	

Remark: Withdrawal of CF certificate and permission of (30) years of land tenure shall be made if users' group of Htaung Gyi Tan violates the duties and responsibilities and prohibitions.

FD Officer who issues Certificate

Signature

Name

Position

Name

Annex 16: CF Activity Calendar for DMA

CF Activity Calendar for Delta Mangrove Area in Ayeyawady Delta



January



မြေနေရာ ခွဲချယ်တိုင်းတာခြင်း



ဒီရေတာမျိုးစေ့များ



အဝင်ကြီးထွားနှုန်းတိုင်းတာခြင်း



အစုအဖွဲ့ခွဲဝင်သစ်တော အသုံးပြုသူများ အဖွဲ့အစည်းအဝေးပြုလုပ်ခြင်း

- မြေနေရာပြင်ဆင်ခြင်း (ပုံဖော်ရေးဆွဲခြင်း)
- သစ်မျိုးစေ့နှင့် သစ်မျိုးသီးတောင့်စုဆောင်းခြင်း
- ပျိုးပင်ထုတ်လုပ်ခြင်း
- ထွက်ကုန်များစိုက်သိမ်းထုတ်လုပ်ခြင်း၊ ပြုပြင်ခြင်းနှင့် ဒေသခံပြည်သူအစုအဖွဲ့ခွဲဝင် သစ်တောထွက်ကုန်များရောင်းချခြင်း
- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ခွဲဝင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

February



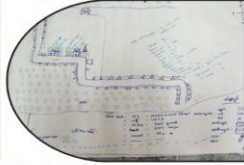
အစုအဖွဲ့ပိုင်သစ်တောဧရိယာမြေပုံအားပုံဖော်ရေးဆွဲခြင်း



သစ်တောမျိုးစေ့လျှော့တွင် အလုပ်လုပ်နေသည့် အမျိုးသမီးများ



ဓမ္မာတိုင်များ(စိသတ်နစ်)



အုပ်ချုပ်မှုစီမံချက်နှင့်မြေပုံများ ပြင်ဆင်ခြင်း

- မြေနေရာပြင်ဆင်ခြင်း (ပုံဖော်ရေးဆွဲခြင်း)
- သစ်မျိုးစေ့နှင့် သစ်မျိုးသီးတောင့်စုဆောင်းခြင်း
- ပျိုးပင်ထုတ်လုပ်ခြင်း
- ထွက်ကုန်များရိတ်သိမ်းထုတ်လုပ်ခြင်း၊ ပြုပြင်ခြင်းနှင့် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောထွက်ကုန်များရောင်းချခြင်း
- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

March



သစ်မျိုးသီးတောင့် စုဆောင်းခြင်း



သစ်တောမျိုးစေ့လျှော့တွင် အလုပ်လုပ်နေသည့် အမျိုးသမီးများ



ဒီရေတောမီးသွေးခို(တိုင်)



ဓမ္မာပြုထားသော ကနုကမာပုံ

- မြေနေရာပြင်ဆင်ခြင်း (ပုံဖော်ရေးဆွဲခြင်း)
- သစ်မျိုးစေ့နှင့် သစ်မျိုးသီးတောင့်စုဆောင်းခြင်း
- ပျိုးပင်ထုတ်လုပ်ခြင်း
- ထွက်ကုန်များရိတ်သိမ်းထုတ်လုပ်ခြင်း၊ ပြုပြင်ခြင်းနှင့် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောထွက်ကုန်များရောင်းချခြင်း
- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

April



ပန္နက်ရိုက်ခြင်း



သစ်တောမျိုးစေ့များထုတ်လုပ်ရာတွင် အလုပ်လုပ်နေသည့် အမျိုးသမီးများ



စီရေတောထင်း (လှိုင်)



ဒေသခံပြည်သူ အစုအဖွဲ့ခိုင်သစ်တောထည့်ထောင်ခွင့်လက်မှတ်

- မြေနေရာပြင်ဆင်ခြင်း (ပေါင်းသင်ရှင်းလင်းခြင်း၊ မြေဖိုခြင်း၊ ပန္နက်ရိုက်မှတ်ခြင်း)
- သစ်မျိုးစေ့နှင့် သစ်မျိုးသီးတောင့် စုဆောင်းခြင်း
- ပျိုးပင်ထုတ်လုပ်ခြင်း
- ထွက်ကုန်များရိတ်သိမ်းထုတ်လုပ်ခြင်း၊ မြူခြင်းနှင့် ဒေသခံပြည်သူအစုအဖွဲ့ခိုင်သစ်တောထွက်ကုန်များရောင်းချခြင်း
- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ခိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

May



ပန္နက်ရိုက်ခြင်း၊ မြေဖိုခြင်း



မြေဖိုခြင်း (စီထက်နပ်)



သဘာဝတောကျွန်းအား ပေါင်းရှင်းခြင်း၊ ကိုင်းချိုင်းခြင်း၊ လုပ်ငန်းများဆောင်ရွက်ခြင်း



ပေါင်းရှင်းခြင်း

- မြေနေရာပြင်ဆင်ခြင်း (ပေါင်းသင်ရှင်းလင်းခြင်း၊ မြေဖိုခြင်း၊ ပန္နက်ရိုက်မှတ်ခြင်း)
- ပျိုးပင်ထုတ်လုပ်ခြင်း
- ထွက်ကုန်များရိတ်သိမ်းထုတ်လုပ်ခြင်း၊ မြူခြင်းနှင့် ဒေသခံပြည်သူအစုအဖွဲ့ခိုင်သစ်တောထွက်ကုန်များရောင်းချခြင်း
- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
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- ဒေသခံပြည်သူအစုအဖွဲ့ခိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

June



ပန္နက်ရိုက်ခြင်း၊ အဝင်ရိုက်ခြင်း



ပျိုးပင်သယ်ယူပို့ဆောင်ခြင်း



အဝင်ရိုက်ပျိုးခြင်း



ကမ်းပါးဖြိုထိန်းအဝင်ရိုက်ခြင်း

- မြေနေရာပြင်ဆင်ခြင်း (ပေါင်းသင်ရှင်းလင်းခြင်း၊ မြေဖို့ခြင်း၊ ပန္နက်ရိုက်မှတ်ခြင်း)
- ပျိုးပင်များသယ်ယူပို့ဆောင်ခြင်း
- ရိုက်ပျိုးခြင်း၊ ဖာထေးခြင်း၊ သဘာဝတောကျွန်းများအား ပေါင်းသင်ရှင်းလင်းခြင်း၊ ကိုင်းချိုင်းခြင်းလုပ်ငန်းများဆောင်ရွက်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

July



အဝင်ရိုက်ခြင်း



အဝင်ရိုက်ခြင်း



အဝင်ရိုက်ခြင်း



အဝင်ရိုက်ခြင်း

- ပျိုးပင်များသယ်ယူပို့ဆောင်ခြင်း
- ရိုက်ပျိုးခြင်း၊ ဖာထေးခြင်း၊ သဘာဝတောကျွန်းများအား ပေါင်းသင်ရှင်းလင်းခြင်း၊ ကိုင်းချိုင်းခြင်းလုပ်ငန်းများ ဆောင်ရွက်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

August



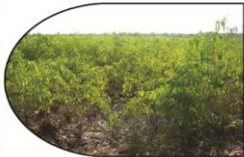
အပင်စိုက်ခြင်း



အပင်စိုက်ခြင်း



မာလာလွှဲထား (ဒီထက်နုမိ)



မာလာလွှဲထား (ဒီထက်နုမိ)

- ပျိုးပင်များသယ်ယူပို့ဆောင်ခြင်း
- စိုက်ပျိုးခြင်း၊ အထေးခြင်း၊ သဘာဝတောကျွန်းများအား ပေါင်းသင်ရှင်းလင်းခြင်း၊ ကိုင်းချိုင့်ခြင်းလုပ်ငန်းများ ဆောင်ရွက်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း
- ဒေသခံပြည်သူအစုအဖွဲ့ခိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

September



စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း



စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း



အပင်စိုက်ခြင်း (တွက်လစ်ခြင်း)



အပင်စိုက်ခြင်း

- ပျိုးပင်များသယ်ယူပို့ဆောင်ခြင်း
- စိုက်ပျိုးခြင်း၊ အထေးခြင်း၊ သဘာဝတောကျွန်းများအား ပေါင်းသင်ရှင်းလင်းခြင်း၊ ကိုင်းချိုင့်ခြင်းလုပ်ငန်းများ ဆောင်ရွက်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း (အပင်ရှင်သန်မှုရေတွက်ခြင်းနှင့် ကြီးထွားမှုတိုင်းတာခြင်း)
- ဒေသခံပြည်သူအစုအဖွဲ့ခိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

October



ကမ်းပါးမြို့ထိန်း အပင်စိုက်ခြင်း



သစ်မျိုးစေ့များ (ပင်လယ်ဆန်)



သစ်မျိုးစေ့များ (တန့်စို)



စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း

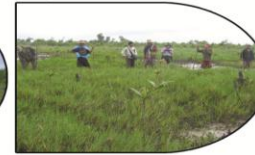
- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- သစ်မျိုးစေ့နှင့် သစ်မျိုးသီးတောင့်စုဆောင်းခြင်း
- ဖျိုးပင်ထုတ်လုပ်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း (အပင်ရှင်သန်မှုရေတွက်ခြင်းနှင့် ကြီးထွားမှုတိုင်းတာခြင်း)
- ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

November



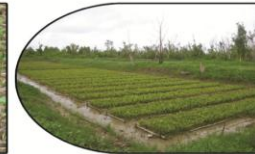
စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း



စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း



ဖျိုးပင်မြူရီယာထောင်ခြင်း (ဆင်လင်ဖြူ)



ဖျိုးပင်မြူရီယာထောင်ခြင်း (မဝေ)

- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- သစ်မျိုးစေ့နှင့် သစ်မျိုးသီးတောင့်စုဆောင်းခြင်း
- ဖျိုးပင်ထုတ်လုပ်ခြင်း
- လစဉ်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း (အပင်ရှင်သန်မှုရေတွက်ခြင်းနှင့် ကြီးထွားမှုတိုင်းတာခြင်း)
- ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တောအစည်းအဝေး ပြုလုပ်ခြင်း

Note:

December



စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း



ပျိုးပင်မြူရုပျိုးထောင်ခြင်း



ပျိုးပင်မြူရုပျိုးထောင်ခြင်း



တိုင်းတာခြင်း

- ကင်းလှည့်စောင့်ရှောက်ခြင်း၊ ထိန်းသိမ်းကာကွယ်ခြင်း
- သစ်ပျိုးစေ့နှင့် သစ်ပျိုးသီးတောင့်စုဆောင်းခြင်း
- ပျိုးပင်ထုတ်လုပ်ခြင်း
- ထွက်ကုန်များရိတ်သိမ်းထုတ်လုပ်ခြင်း၊ ပြုပြင်ခြင်းနှင့် ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော ထွက်ကုန်များရောင်းချခြင်း
- နှစ်စဉ်စောင့်ကြည့်စစ်ဆေးခြင်း၊ အကဲဖြတ်သုံးသပ်ခြင်း ၊ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်သစ်တော အစည်းအဝေး ပြုလုပ်ခြင်း
- အစုအဖွဲ့ပိုင်သစ်တော အုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက်ပြင်ဆင်ရေးခွဲခြင်း

Note:

Annex 17: Essential Skills for Group Management

GM Form 1: Member List

GM Form 2: Meeting Minutes

GM Form 3: Attendance Record

GM Form 4: Cash Book

GM Form 5: Record of Membership Fee Payment

GM Form 6: Cash Receipt



**Forest Department
Ministry of Environmental
Conservation and Forestry
Republic of the Union of
Myanmar**

**Japan International
Cooperation Agency**



**THE INTEGRATED MANGROVE REHABILITATION AND
MANAGEMENT PROJECT THROUGH COMMUNITY
PARTICIPATION IN THE AYEYAWADY DELTA
IN MYANMAR**

**Essential Skills
for
Group Management
(Version 2)**

November 2012

Essential Skills for Group Management

Introduction

If you are sitting with this document, you must be a member of Management Committee or FD staff that have been working in partnership in recovering the Mangrove Forest and enhancing livelihood security with assistance from JICA Mangrove Project.

This short programme intends to remind you of basics of managing the UG. Some of you might have known but others may not. There are a few points that you must know and do to lead and facilitate your group members and thus, to achieve the goal what you have set out for: that is to enhance your livelihood security through managing your forest. This programme will not only tell you what to do but we will sit together and practice so that you can do the same when you go back to your village.

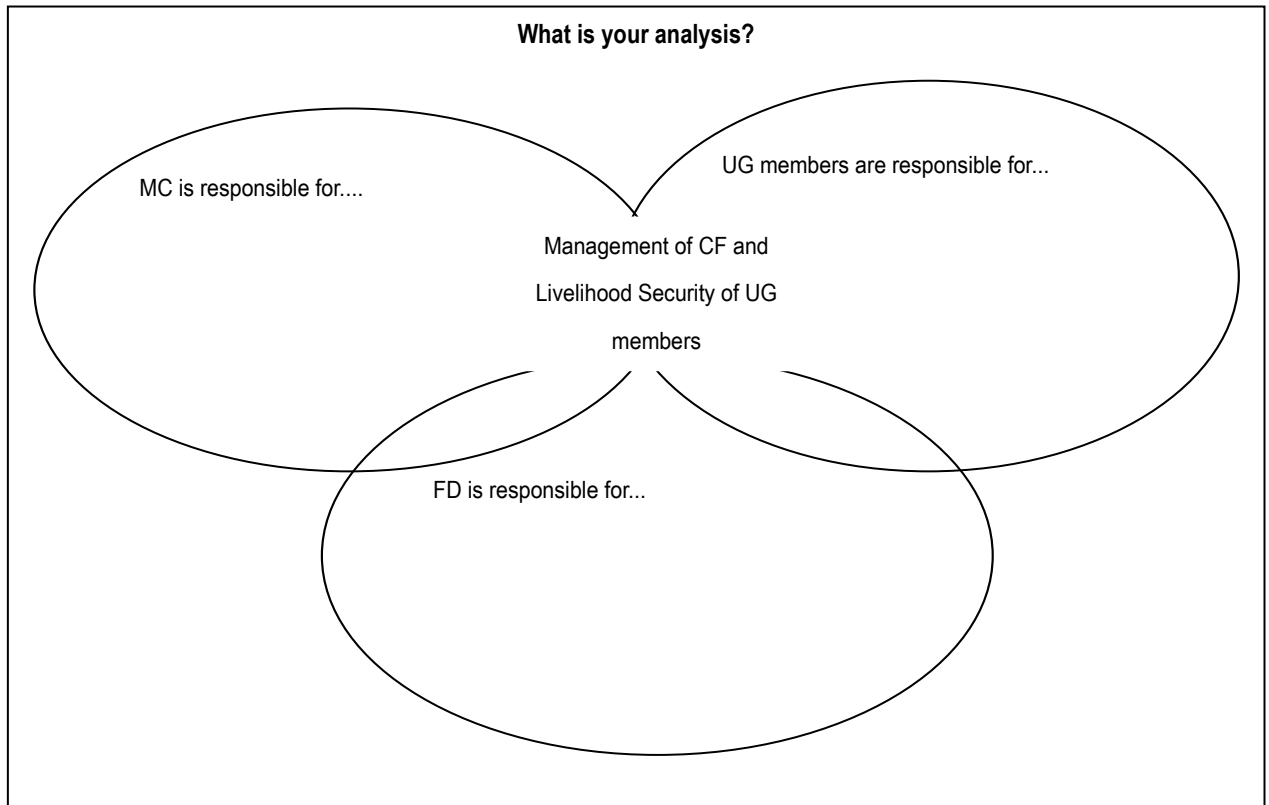
So let us begin...

1. What is a group?

A group is made up by more than a few individuals sharing common objectives and agreed to work together. Since what an individual can achieve is limited, working as a group will greatly increase the chances of success. What would paddy farmers do during the transplanting and harvesting in your area? I am sure you see a group of men and women sharing work and complete the work. It is similar to that.

Let's Discuss!

Now let us have a look at the activities of our MC and UG. Do you see differences in the roles that each one would play? What has been the role of FD? Any overlapping roles? What are the differences?



By now, you might have realised that managing a group involves Coordination of group members and others with different roles and responsibilities. And because it is more than a few people, sharing information and building consensus is very important. When making a decision as a group, it is also very important that majority of the UG members understand the issue and agree to it. You do not see a paddy farmer planting in zig-zag while the rest of the group is planting in straight lines, do you?

And by-law that you have created will help UG members to act under certain disciplines. For instance, what if a fisherman catches all the fishes in the river, then nothing will be left for others. What do you think? If many of you keep on catching small size young crabs, you are actually exhausting the seeds. In the very near future, you will see no crabs around you. No one wants to exhaust our resources from the Community Forest that our very livelihoods depend on as we all are very much aware that the loss of the resources would threaten our livelihoods. By-law will help UG members maintain the discipline to prevent similar tragedy and also bind them as a group.

And Management Committee members of the Users' Group has the responsibility of leading the discussion, sharing information and helping Users' Group members understand what has been communicated and thus, to make a decision as a group by consensus. For this, MC members will;

- **Hold Regular Meetings**
- **Keep Record Books for monitoring by FD staffs**
- **Disclose any information requested by Users' Group Members or FD**

FD staffs are requested to support MC to conduct regular meetings, resolve issues such and keep records in addition to giving them advises and supports in implementing and monitoring field activities. Thus, it would be ideal if the FD staff takes part in the MC and UG meetings and that is also an opportunity for you to inspect the record books and assess the level of performance of the UG¹.

2. Record Keeping

Why do we need to keep records? Like we have discussed earlier, group is comprised of more than a few members. So there may be some members who did not come to the meeting but they might want to know what has been discussed later. What is kept in your memory might fade. And there is also a possibility that each one in the meeting might understand the issues differently. Such vague information may lead to the confusion and dispute. To avoid such, a group is expected to keep record books as below.

Form 1: Member List: This is the base for attendance record and membership payment record. When a member joins or leaves the UG, changes have to be made by MC.

Form 2: Meeting Minutes: This is to record what has been discussed and decided in the meeting held by MC, UG or with FD.

Form 3: Attendance Record: The level of attendance is an important indicator for the level of interest and of the understanding of the group activities by the members. Thus, when a meeting is held, an attendance record is to be kept.

Form 4: Cash Book: This book is to record the cash earned and spent. The Secretary of MC will fill all the flow of group fund.

Form 5: Record of Membership Fee Payment: For UG, this is a stable source of financial resources. Thus, the timely payment of the membership fee is highly recommended and such should be recorded in place of receipts that should be issued by the UG.

Form 6: Cash Voucher: Cash Voucher is a form that needs to be completed by the Treasurer when receiving any cash as CFUG. One copy is to be retained by the Treasurer and the detail should be transferred to the cash book. The other copy will be given to the payer for record.

3. By-law

¹ FD staff will check if the record books are maintained properly, holding regular meetings, the number of MC/ UG members attending the meeting (higher the number, the group is active/ higher the interest of the members and thus positive.) and any irregularities in financial transactions.

What is by-law for? By-law will define the roles and responsibilities of UG and MC and give direction and discipline to UG members in managing CF. Also, as we discussed at the beginning, it will give discipline to the UG members clearly showing what to do and what not to do.

In case, UG or MC members feel that some clauses should be added or removed or amended, MC may call for a meeting with UG members. Before taking a decision, MC should hold a series of discussion with the UG members so that majority would understand what the changes to be made and why such is needed.

When deciding on the changes, MC will call for a UG meeting for approval by taking a quorum. The quorum will be valid when 50 of the total number of UG members are present when taking the quorum. If the 2/3 of those present has agreed, the amendment shall be made by the MC.

4. Financial Management

The JICA project has just handed over the group fund that the project has been saving on behalf of the UG. Now this money belongs to all the members. Every UG member has an equal say in how to spend. So when a need arises, MC will call for a UG meeting and discuss why such expenditure needs to be made and how it will benefit the UG members. Possible expenditures may include; purchasing of the tools required for works to be carried out in CF area, stationery for the UG, transportation fees if MC members need to go to other places for CF related matters and etc. The MC will establish a consensus or decide by a quorum among the UG members. This is also an important matter to be recorded in the meeting minutes.

Other than group fund handed over by JICA project, 1) membership fees, 2) fines collected from UG members, or 3) part of the members' earning made by the produces harvested in the CF may also be added to the group fund. Except membership fees, each group may create other possible sources to establish the group fund.

Now, where should you keep the group fund? Since your villages are far away from any bank branches, each UG need to discuss what would be the best way to keep the group fund. Needless to say, it should be kept in safe custody.

When a sum of money is received like membership fee, or an expenditure is made like buying tools to be used in CF activities, a record should be kept in a cash book. If you maintain the cash book, when anyone raises a question about a transaction, you will be able to explain fully. Thus, it helps you to avoid disputes or misunderstanding by other members. A sample format is attached as xxxx. We will later on practice how to fill.

5. Meetings

As we have discussed at the beginning of this programme, it is important to hold regular meetings to share information and build consensus. MC/ UG should set the dates of regular meetings. Fixing the date will help everyone to plan to attend the meeting ahead of time. For instance, MC will meet every 1st and 3rd Wednesday of the month or UG will meet every 1st Saturday of April and October. You may discuss with MC/ UG members and decide to meet at the convenient time and location. This will also help FD staff to plan their visit.

Below are the suggested timings and agendas for MC meetings and UG meetings. FD staff is requested to participate in such meetings.

Management Committee Meetings

- Suggested Agenda
 - Planning of Management Plan
 - Progress of implementation of the CF MP
 - Condition of the CF
 - Use of Group Fund
 - Amendment of by-law
 - Issues raised by UG members
 - Assistance to be sought from FD

- Frequency of meetings
 - Every two weeks during plantation season, otherwise once a month (also as per the requirement)

Regular Meetings with Users' Group Members

- Agenda
 - Discussions took place during MC meetings
 - Use of Group Fund
 - Amendment of by-law
 - Issues raised by UG members
 - Assistance to be sought from FD

- Timing
 - Once in every 6 months, otherwise as per the requirement

Forms

- Form 1: Member List**
Form 2: Meeting Minutes
Form 3: Attendance Record
Form 4: Cash Book
Form 5: Record of Membership Fee Payment
Form 6: Cash Voucher

Note for the facilitator:

This section comprises of Sample Form and Practice Form. Sample Form should be kept intact during this training and used at actual occasions. Practice Form should be used by the participants to learn how to fill. Practice Form may be printed on a light coloured paper to differentiate.

Facilitator will guide the participants as below.

Form 1: Tell the participants to fill the form taking 5 names/ details of UG member.

Form 2: Give the participants a case of meeting. As the Facilitator gives the details, participants will fill the form. It is important to tell the participants to review the minutes at the beginning of the next meeting to see if the necessary actions were taken.

Form 3: Tell the participants to refer to Form 1 and complete. The facilitator will give any 3 dates for meetings.

Form 4: The facilitator will give details of received and spent amount.

Date	Particulars	Voucher/ Receipt No.	Received	Expenditure	Balance
15 May 2012	Group Fund from JICA		100,000		100,000
1 Jun 2012	1 note book to be used for meeting minutes	32		500	99,500
5 Jun 2012	Membership fee received from xxxx	Membership Payment Record	500		100,000
30 Jun 2012	5 sets of Jungle boots	3520		50,000	50,000
5 July 2012	3 sets of knives for clearing	030		30,000	20,000

Form 5: Tell the participants to refer to the Member List and complete the cells as required.

Form 6: Examples to be used are given below.

Payer	Date	Amount	Particular
Select any name from the participants	Date of the training	3000 Kyats	Sales of Crabs harvested from UG common pond
		5000 Kyats	Sales of fuel woods harvested from the CF Area
		500 Kyats	Rental fee of Jungle boots

Form 1: Member List (Sample Form)

Name of the CFUG:

Name of the village:

Area coverage of CF: acres

Reserved Forest: Forest Compartment: Township:

Date of Group formation:

Number of members:

No.	Name	Age	M/F	NRC No.	Date of becoming a member	Date of leaving the UG	Individually allocated CF Plot		Sub-Group
							Plot no	Acreage	

Form 1: Member List (Practice Form)

Name of the CFUG:

Name of the village:

Area coverage of CF: acres

Reserved Forest: Forest Compartment: Township:

Date of Group formation:

Number of members:

No.	Name	Age	M/F	NRC No.	Date of becoming a member	Date of leaving the UG	Individually allocated CF Plot		Sub-Group
							Plot no	Acreage	

Form 2: Meeting Minutes (Sample Form)

Date: _____ Time: _____ Venue: _____
 Number of MC members attended: ()
 Number of other members attended: ()
 Names of FD staff attended: _____

Points Discussed	Decision/ Action to be taken	Status (See Note 1)

1. At the beginning of the every meeting, the decisions/ actions taken should be reviewed. If the progress is not made or issue is not resolved, MC/ UG members should take a required action. If difficult, you may consult FD staff for assistance.

Form 2: Meeting Minutes (Practice Form)

Date: _____ Time: _____ Venue: _____
 Number of MC members attended: ()
 Number of other members attended: ()
 Names of FD staff attended: _____

Points Discussed	Decision/ Action to be taken	Status (See Note 1)

- At the beginning of the every meeting, the decisions/ actions taken should be reviewed. If the progress is not made or issue is not resolved, MC/ UG members should take a required action. If difficult, you may consult FD staff for assistance.

Form 3: Attendance Record (Sample Form)

Name of CFUG:

No.	Name	M/F	Date of Meeting								

Form 3: Attendance Record (Practice Form) Name of CFUG:

No.	Name	M/F	Date of Meeting								

Form 6: Cash Receipt

- The receipt will always need to be prepared by the Treasurer and signed for all incoming cash.
- One set of two sheets will be prepared.
- A carbon paper will be used in between the two sheets.
- 3 receipts can be printed on one A4 size paper.
- UG copy will be remain attached to the receipt book.
- A brief description of what the payment was made for will be recorded after “for”.
- Payee copy will be given to the payer.

<div style="border: 1px solid black; border-radius: 10px; padding: 5px; display: inline-block;">Name of the UG Group</div>	UG Copy
Receipt	
Receipt No:	Date: DD/ MM/ YY
.....Kyats was duly received	
from	
for	
Thank you.	
Signature (Treasurer):	

<div style="border: 1px solid black; border-radius: 10px; padding: 5px; display: inline-block;">Name of the UG Group</div>	UG Copy
Receipt	
Receipt No:	Date: DD/ MM/ YY
.....Kyats was duly received	
from	
for	
Thank you.	
Signature (Treasurer):	

Form 6: Cash Receipt (Practice Form)

UG Copy	
Receipt	
Receipt No:	Date: DD/ MM/ YY
.....Kyats was duly received	
from	
for	Thank you.
Signature (Treasurer):	

UG Copy	
Receipt	
Receipt No:	Date: DD/ MM/ YY
.....Kyats was duly received	
from	
for	Thank you.
Signature (Treasurer):	

***Annex 18: Form - Sales Voucher, Sales Register and
Removal Pass***

Sales Voucher, Sales Register and Removal Pass

When the CF products are sold, Sales Voucher, Sales Register and Removal pass are to be prepared depending on where the products are transported. The purposes of preparing these documents are given below.

- 1) Sales Voucher: This is to keep track on how much volume has been sold and how much revenue was earned by the sales of CF products as CFUG. A copy is also required for the buyer to obtain Removal Pass from FD, if the buyer wants to transport the purchased products outside of the Township.
- 2) Sales Register: This will help CFUG to keep track of the sales and revenue at a glance. This also serves as an index to the Sales Vouchers which would have more details of the transaction.
- 3) Removal Pass: The trader who would transport the purchased goods would require the pass. This is issued by FD Township Officer to certify the products are from CF area and thus, no tax will be levied.

Now we have understood why need to prepare these documents, how to prepare them is explained below.

How to Prepare Sales Voucher, Sales Register and Removal Pass

1) Sales Voucher

- Sales Voucher will be prepared by UGMC Treasurer for every sales of CF product. The sales of CF product can be made as a users' group or by individual member household. In all cases, Sales Voucher is to be prepared by the CFMC treasurer.
- Sales Voucher is a set of three sheets. 1st Copy will be retained by MC treasurer. 2nd Copy is for the FD and the 3rd for Trader. If the produce is to be carried out of township, the treasurer will give 2nd and 3rd copy to the trader. If it is within the township, the Treasurer will only need to give Trader Copy and FD copy will remain attached to the Sales Voucher book.
- The trader will go to FD Township office and along with these copies of the voucher. The FD copy will be given to the FD Township Officer who will prepare the Removal Pass. The Trader's copy of the sales voucher will have to be attached to the Removal Pass.
- Two slides are attached for to be used in the FD CF Training.

2) Sales Register

- Sales register is attached in front of the sales voucher book. In this section of the voucher book, information on the sales voucher will be recorded.
- One page is to be used for one CF product. For instance, if there are 3 products, 3 pages will be used to begin with. If one page is filled, new page is used. This will allow the treasurer to calculate the total of the annual sales and volume sold from CF.

3) Removal Pass

- When the produce is transported outside of the township, Removal Pass is to be obtained from the FD Township Office.
- The removal pass has a set of two sheets. One cope is to be retained by FD and the other for the trader.
- It will be prepared for each load of the produce. If two trucks are used for carrying the produce, two passes will be issued.

- The copy of the sales voucher for FD copy will be attached to the FD Copy and the Trader Pass will be attached to the Trader Copy of the Removal Pass.
- The Trader must carry the pass while transporting the produces outside of Township so that the trader can present the pass whenever requested.

**Community Forest Users Group
Sales Voucher**

Date:

Voucher No:

This is to acknowledge the receipt ofkyats

from for the sales of CF product below.

Product Name	Quantity (Unit:)	Destination

The above product has been produced in a community forest of Ga Daw Village.

Thank you.

Signature of the Trader:

Signature of Chairperson:.....

**Community Forest Users Group
Sales Voucher**

Date:

Voucher No:

This is to acknowledge the receipt ofkyats

from for the sales of CF product below.

Product Name	Quantity (Unit:)	Destination

The above product has been produced in a community forest of Ga Daw Village.

Thank you.

Signature of the Trader:

Signature of Chairperson:.....

**Community Forest Users Group
Sales Voucher**

Date:

Voucher No:

This is to acknowledge the receipt ofkyats
from for the sales of CF product below.

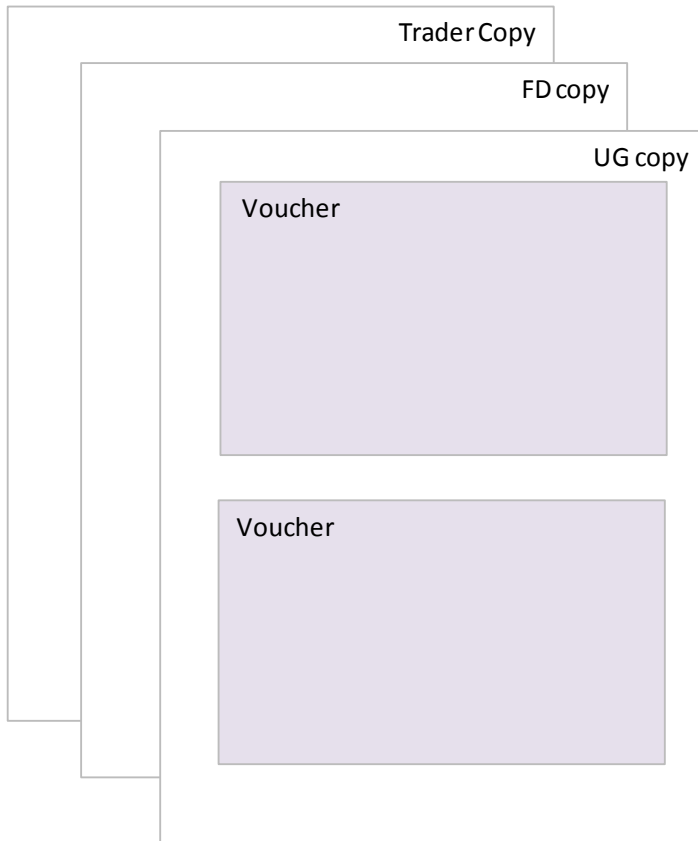
Product Name	Quantity (Unit:)	Destination

The above product has been produced in a community forest of Ga Daw Village.

Thank you.

Signature of the Trader:

Signature of Chairperson:.....



To prepare Sales Vouchers

- 2 vouchers to be printed on one page
- Two carbon sheets are to be placed in between copies
- To prepared for all sales of CF products by UG and UG members
- The Treasurer will prepare.

UG Copy: Remain attached to the voucher book

Trader Copy: Given to the Trader for record

FD Copy: Given to the Trader to be taken to FD Township Office to obtain Removal Pass

Removal Pass for CF Forest Products

FDTownship Office

Voucher No:

Name of the CFUG:

Receipt Voucher No:

Date:

Details of the Trader:

Name of Trader	Address

Product Traded

Product Name	Quantity (Unit:)	Date of Removal

The above forest products are registered and permitted to be transported to Bogalay Township by the Forest Department.

FD Township Officer

Name: Signature:

Removal Pass for CF Forest Products

FDTownship Office

Voucher No:

Name of the CFUG:

Receipt Voucher No:

Date:

Details of the Trader:

Name of Trader	Address

Product Traded

Product Name	Quantity (Unit:)	Date of Removal

The above forest products are registered and permitted to be transported to Bogalay Township by the Forest Department.

FD Township Officer

Name: Signature:

Annex 19: Form – Progress Report (Annual Report)

Revised Format of Community Forestry Progress Report

1. Introduction (Overview of CFUG)

- 1) CFUG Name: _____
- 2) Report Fiscal Year: _____ (From April _____ to March _____)
- 3) Number of CFUG members: _____
- 4) Year of Certification: _____

2. Objective

- Objectives of CFUG for CF activities (Example: Firewood production, disaster prevention, etc. depend on CFUG)
- : _____
- Objectives of this report: To describe progresses and issues related to CFUG and CF area for the year _ 20**/20**.

3. Name, location and area

Reserved Forest Name: _____ Reserved Forest

Forest Compartment No.: _____

- 1) Total certified CF area: _____ acre
 - Plantation Area : _____ acre
 - Natural Forest Area: _____ acre
- 2) Total implemented CF area for this year: _____ acre
 - Plantation Area: _____ acre
 - Natural Forest Area: _____ acre

4. Progress of CF Activities

(1) Natural Forest Improvement Operation (NFIO)

- 1) Targeted Area: _____ acre
- 2) Progress/ Achieved Area: _____ acre
- 3) Operations Conducted: Communal/private¹ target area (ha)

Operation	Treated area (acre)	Duration (Month)	Descriptions (Target tree species, etc)
Weeding			
branch cutting			
climber cutting			
Thinning			
Gap planting			
Others (specify)			
Others (specify)			

4) Assessment of the present forest condition under NFIO

¹ If the target areas are divided into the private forest then the data of sampled forest are presented.

Valuable & Natural Tree Species: Sample plot monitoring

Target Natural Tree Species	Average Height (ft)	Average girth (inch)	Number of trees	Estimated volume (cft)	Remarks

Planted Species: Sample plot monitoring

Target Planted Tree Species	Survival Rate %	Average Height (ft)	Average girth (inch)	Number of trees	Estimated volume (cft)	Remarks

Other remarkable features of the target site:

(2) Forest Plantation

- 1) Targeted Area: _____ acre
- 2) Progress/ Achieved Area: _____ acre
- 3) Operations Conducted:

Operation	Treated area (acre)	Duration (Month)	Descriptions/ Remarks
Site confirmation			
Site preparation (clearing)			
Staking			
Planting			
Tending operation (Weeding)			
Tending operation (Thinning)			
Felling			
Others (specify)			

4) Assessment of CF plantation site: sample plot monitoring

Target Planted Tree Species	Survival Rate %	Average Height (ft)	Average girth (inch)	Number of trees	Estimated volume (cft)	Remarks

5. Harvest of timber/non-timber forest products from the CF area

Product		Target/Plan	Actual	Descriptions/Remarks
Firewood	Quantity			
	Unit			
Pole: (measuring below 1 foot and under in girth).	Quantity			
	Unit			
Post: (measuring below 3 feet and under and 1 foot and up in girth)	Quantity			
	Unit			
Timber(Log): (measuring above 3 feet and up in girth)	Quantity			
	Unit			
Others (specify)	Quantity			
	Unit			
Others (specify)	Quantity			
	Unit			

6. Distribution of timber and forest products

Harvesting or distribution of forest products/ CF products occurred this fiscal year? (yes / no)
(If yes, fill in the following tables.)

(1) Forest Products

Product		Within the group	the	Within the village (non CF member)	Outside the village	Total
Firewood	Quantity					
	Unit					
	Income(ks)					
Pole: (measuring below 1 foot and under in girth).	Quantity					
	Unit					
	Income(ks)					
Post: (measuring below 3 feet and under and 1 foot and up in girth)	Quantity					
	Unit					
	Income(ks)					

Product		Within the group	the	Within the village (non CF member)	Outside the village	Total
Timber(Log): (measuring above 3 feet and up in girth)	Quantity					
	Unit					
	Income(ks)					
Others (specify)	Quantity					
	Unit					
	Income(ks)					
Others (specify)	Quantity					
	Unit					
	Income(ks)					

(2) Other Products harvested by CFUG

Product	Plan/Result	Within the group	Within the village (non CF member)	Outside the village	Total
(specify)	Quantity				
	Unit				
	Income(ks)				
(specify)	Quantity				
	Unit				
	Income(ks)				
(specify)	Quantity				
	Unit				
	Income(ks)				

(3) Summary of sales and expenditure

< Balance of the Fiscal Year _____ >

Total Income by sales of CF products	Total Expenditure for sales of CF products	Balance

7. Conditions of the users' group and its members

(1) Member Change

- (a) Original member: Number of original members at the start of reporting period
- (b) Number of new members: Number of new members joining in the reporting period
- (c) Number of drop out members: Number of drop out members in the reporting period
- (d) Total members: Number of total members at the end of reporting period

Note: Details are recorded in the form of "Member List".

Original member	New members	Drop out members	Total members
(a)	(b)	(c)	(d) = (a) + (b) – (c)

--	--	--	--

(2) Meetings Record

- Number/frequency of meeting conducted by MC during reporting period: times/ year
- Number/frequency of meeting conducted by CFUG during reporting period: times/ year

Note: Details are recorded in the form of “Attendance Record” and “Meeting Minutes”.

(3) Workshop and Training Participated

Title of WS/Training	Date & Venue	No. of participants	Contents	Results/Achievements
			1) 2)	1) 2)

(4) CF Protection (fire protection, environment protection, prevention of illegal cutting, etc.)

Event	Details of the event
Fire/environment protection	1) Issues/problems: 2) Measurements/settlements:
Prevention of illegal cutting	1) Issues/problems: 2) Measurements/settlements:

(5) Communal Fund Operation

Period	Total of received	Total of expenditure	Balance

Note: Details are recorded in the form of “Cash Book”.

(6) Livelihood Improvement Activity

Title of Activity	Details of Activity
	Number of participants: Activities:

Title of Activity	Details of Activity
	Results/achievements:
	Number of participants: Activities: Results/achievements:

8. Miscellaneous

<p>1) Encroachment and Conflict Issues:</p>
<p>2) Other Difficulties and Problems:</p>
<p>3) Updates/ revisions required in CF management plan or CF certificate:</p>
<p>4) Other Issues to be Reported in relation to CFUG:</p>

9. Conclusion

<p>Overall review by the Management Committee (esp. chairman)</p>
<p>Request to FD</p>

Submitted by:

Date:

Name and Signature
Chairman of CFUG

Received by FD officer in charge of the area:

Date:

Name and Signature

Position: Forester / Deputy Ranger /

Forest Department _____ Township

Confirmed by District FD office:

Date:

Name and Signature

Position: Assistant Director /

Forest Department _____ Township

Remarks:

- Two copies of progress report shall be prepared.
- One copy to be kept by CFUG
- Another copy to be submitted to District FD office through township office.
- After District Officer signed the report, signed photocopies shall be returned to respective township office and CFUG.

Annex 20: Suggested Training Modules on CF for FD Staff

Suggested Training Modules for promoting CF in Delta Areas

1. Introduction

These training modules have been designed based on the experiences from various training programmes and workshops conducted during The Integrated Mangrove Rehabilitation and management Project through Community participation in the Ayeyawady Delta implemented by FD/ JICA. The materials used during these training programmes were adopted from the materials available at CFDTC for Community Forestry and with NGOs. Some of them were applicable and relevant to the socio-ecological characteristics of Delta, others required some modification. Thus, some adjustments were made to cater to suit the CF implementation in Delta Mangrove Area.

2. Intended Participants: FD Staff

3. Resource Persons/ Organisations: CFDTC/ CFDTC Sub-centre/ FD staff and MC members involved in the project activities

The proposed modules can be implemented by FD and CFDTC with some inputs by NGOs and CFUGs. The last training module "Operationalising CF" would require a trainer who has sufficient experiences in TOT in participatory extension methods.

CFUG/ MC members are also encouraged to take part in the programme and share their experiences with the participants. Site visits may be conducted as appropriate.

4. Overall Learning Objectives:

The participants will

- Understand the importance of community participation in mangrove forest management
- Understand the linkage between livelihoods and mangrove forest in delta
- Understand the process of CF
- Acquire knowledge and skills to work with community
- Acquire knowledge to carry out training programmes for the UG/ MC members
- Understand Roles and Responsibilities

5. Module summary

5 modules are designed following the process of CF. In addition optional module for "Participatory Approaches and Tools" is designed as Module 6 and shall be adopted based on necessity. Module 1 will set the context of CF and provides an overview of the CF process. By the end of this module, the participants are expected to develop a good level of understanding of the objectives of CF and the relationship between livelihoods and CF. Module 2 will give details of the tools to be adopted in the awareness creation and formation of UG. How to prepare an application to establish CF will also be dealt with. Module 3 is designed to introduce the process of management planning and how to plan a livelihood activity. Module 4 gives procedures of the management activities and monitoring/ reporting. In this module, an emphasis will be given on the group management and monitoring process. The recommended approach to implement livelihood activities is also introduced in this module. The last module, In Module 5, the participants will learn methodologies in community forestry extension, skills of effective community interaction and training cycle. Site visits and field work are also incorporated to enhance the learning efficiency of the participants in all Modules except Module 2. The summary of the Modules is given below.

Summary of the Suggested Training Modules

Module Title	Topics	Duration
1. Introduction to Community Forestry (1)	<ul style="list-style-type: none"> - Overview of CF in Myanmar - Overview of CF in Delta - Underlying concept of CF - CF/ Livelihood Nexus - Policy & Legal Framework - Overview of CF process - Roles and Responsibilities 	3 days + 1 day site visit
2. Preparation	<ul style="list-style-type: none"> - Roles and responsibilities of FD in awareness creation - Awareness creation – Methods - Formation of UG/ MC - Identifying a location for CF - Preparation of application to establish a CF - Preparation of by-law of UG 	3 days
3. Planning	<ul style="list-style-type: none"> - Preparation of Management Plan – an overview - Making a plan for CF related activities - Making a plan for harvesting - Planning Livelihood activities 	4 days + 1 day field work
4. Implementation	<ul style="list-style-type: none"> - Roles and Responsibilities - CF related activities - Group Management - Monitoring/ Reporting - Implementing Livelihood activities 	4 days + 2 days site visits
5. Operationalising CF (Workshop)	<ul style="list-style-type: none"> - Adult learning – experiential learning cycle - Mode of delivering the contents - Communication skills 	5 days
Total number of training days (Net)		23
Optional		
6. Participatory Approaches and Tools”,	<ul style="list-style-type: none"> - Basic facilitation skills - Basic PLA tools - Livelihood system - Different perspectives and interests - Community forestry development process 	7 days

Source: JET – JICA/ FD Mangrove Project, November 2012

6. Training material:

For Module 1 to 4, Standardised Operational Procedure for Delta Mangrove Area (SOP for DMA) will be used as the main text. Presentations and handouts may be prepared out of this document as required by the facilitators. It is important to include the Delta specific information in the material. The training materials prepared by CFDTTC used in during CF Short Training can be altered based on the SOP for Delta.

Module 5, “Operationalising CF” (Workshop), will adopt the training materials used at CF Extension Planning workshop (20-26 Feb 2012) by RECOFTC.

Module 6, “Participatory Approaches and Tools”, will adopt the training materials used at “Short Training on Basic Skills for Community Forestry Development Process” (23-29 Oct 2012) by RECOFTC.

7. Suggested Implementation Schedule

In implementing the suggested training modules, 23 training days are required in net. For site visit, depending on the site to be visited, extra time for travelling shall be budgeted. It can be implemented as one complete package. However, in order to enhance the learning efficiency of the participants, it is ideal that the participants can take part in the training programme according to the CF stage that they are working on. Thus, these Modules are to be split into 4 segments. Module 1 and 2 can be conducted as one package. Module 3, 4, and 5 shall be conducted of its own. During the year, depending on the number of FD staffs to be trained, these modules can be repeated at various timings of the year. The training venue can be selected close to the site where the site visit is planned.

Modules	Suggested Participants	Suggested Implementation Schedule	Suggested Venue
Module 1: Introduction	<ul style="list-style-type: none"> ▪ With no previous exposure to CF or limited understanding ▪ FD staff who is planning to implement CF ▪ Refreshers 	<ul style="list-style-type: none"> ▪ Module 1 and 2 are suggested to be implemented as a package. ▪ Refreshers course can be organised separately with FD staff having prior experiences. 	Option 1: CFDTC + Site in Delta Option 2: CFDTC+ Site in Dry zone Option 3: CF Extension Centre in Delta + Site in Delta
Module 2: Preparation			
Module 3: Planning	<ul style="list-style-type: none"> ▪ FD staff who has assisted UG in submitting an application to establish CF ▪ FD staff with some experiences in CF management planning 	<ul style="list-style-type: none"> ▪ Stand alone ▪ After an application to establish CF is submitted by UG. 	
Module 4: Implementation	<ul style="list-style-type: none"> ▪ FD staff who has assisted UG to prepare CF Management Plan and obtained approval from FD ▪ FD staff whose UG submitted the management plan and await the approval by DFO. 	<ul style="list-style-type: none"> ▪ Stand alone ▪ After management plan has been submitted by UG 	
Module 5: Operationalising CF	<ul style="list-style-type: none"> ▪ FD staff at all stages of CF 	<ul style="list-style-type: none"> ▪ Stand alone ▪ This module will benefit all FD field level staff. This can be conducted at the regular interval irrespective of CF progress. 	CFDTC
Module 6: Participatory Approaches and Tools	<ul style="list-style-type: none"> ▪ FD staff at all stages of CF 	<ul style="list-style-type: none"> ▪ Stand alone ▪ This module will benefit all FD field level staff. This can be conducted at the regular interval irrespective of CF progress. 	CF Extension Centre in Delta + Site in Delta

Source: JET – JICA/ FD Mangrove project, November2012

Suggested CF Training Modules for FD Frontline Staff

Module Title	Learning Objectives	Topics	Duration	Venue	Reference materials/ Remarks	Potential Resource Organisation
1. Introduction to Community Forestry	<ul style="list-style-type: none"> ● To understand background concept of CF ● To understand an overall procedure of CF establishment and implementation in Delta Region ● To understand the potential issues in establishing and implementing CF in Delta Region 	<ul style="list-style-type: none"> - Overview of CF in Myanmar - Overview of CF in Delta - Underlying concept of CF - CF/ Livelihood Nexus - Policy & Legal Framework - Overview of CF process - Roles and Responsibilities 	3 days	Option 1: CFDTC Option 2: CF Extension Centre in Delta	<ul style="list-style-type: none"> ▪ SOP for Delta Ch. 1 ▪ SOP for Delta Ch. 2 ▪ Annex: CFI 1995 ▪ Annex: Guideline for preparing Management Plan (2000) ▪ Interactions with UG members and FD frontline staff: ▪ Management Plans of the UG ▪ Record books kept by FD and UG are to be presented to the participants. Participants will review and discuss 1) how the MP was prepared, 2) how the community was involved in the preparation of MP, 3) difficulties in making MP, 4) how the records are maintained, 5) how the monitoring is conducted by FD and UG, and 6) challenges in record keeping and monitoring by UG and FD and how they have been resolving the challenges. 	D Tsp – Bogalay/ Pyapon/ Laputta CFDTC

Module Title	Learning Objectives	Topics	Duration	Venue	Reference materials/ Remarks	Potential Resource Organisation
			1 day	<ul style="list-style-type: none"> Site visit in Delta 	<ul style="list-style-type: none"> Site visit will be organised along with the MC members and FD frontline staff Points to be discussed/ observed during the site visit: what factors did they consider when selecting the CF site/ Difficulties faced while demarcating the CF area and allotting a plot to UG members/ Land tenure/ Land use issues/ discuss the process of measuring the CF area (site demarcation) 	FD Bogalay/ Pyapon/ Laputta Tsp
2. Preparation	<ul style="list-style-type: none"> To understand the roles and responsibilities of FD in the preparation stage understand the method of creating awareness of Community towards CF To gain skills to establish consensus among the community members To understand the process of CF site identification To understand the process of preparing by-law of UG To be able to prepare the application to establish a CF 	<ul style="list-style-type: none"> Roles and responsibilities of FD in awareness creation Awareness creation – Methods Formation of UG/ MC Identifying a location for CF Preparation of application to establish a CF Preparation of by-law of UG 	3 days	Option 1: CFDTC Option 2: CF Extension Centre in Delta	<ul style="list-style-type: none"> SOP for Delta Ch. 3 Annex: Format for UG/ MC Member list Annex: PRA Tools for CF Annex: CF Application Form Annex: Sample By-Laws Annex: Evaluation Criteria for CF Application NGOs will be invited to share how they carry out the awareness creation and community mobilisation in their CF. The participants will compare the process and draw lessons. NGOs may be asked to share some of the awareness creation methods/ materials with the participants. 	FD Tsp Bogalay/ Pyapon/ Laputta CFDTC NGOs (i.e. FREDA, MSN,)

Module Title	Learning Objectives	Topics	Duration	Venue	Reference materials/ Remarks	Potential Resource Organisation
			1 day field work	Option 1: A village and site near CFDTC Option 2: A CF village and site in Delta	<ul style="list-style-type: none"> ▪ 1 day field work to practice PRA tools is to be included. ▪ NGOs may also be requested to assist the field work. 	
3. Planning	<ul style="list-style-type: none"> ● To understand the roles and responsibilities of FD/UG/ MC in planning stage ● To understand the process and procedures of making Management Plan ● To be able to carry out data collection and compilation using the data available from FD ● To gain the skills to facilitate the Management Plan making process with participation of community ● To be able to compile the management plan ● To gain the skills to facilitate the planning process of Livelihood Activities 	<ul style="list-style-type: none"> - Preparation of Management Plan – an overview - Making a plan for CF related activities - Making a plan for harvesting - Making a plan for Livelihood activities 	4 days	Option 1: CFDTC Option 2: CF Extension Centre in Delta	<ul style="list-style-type: none"> ▪ SOP for Delta Ch. 4 ▪ SOP for Delta Ch. 4 ▪ Annex: Technical Guideline for Preparing maps ▪ Annex: Examples of Maps ▪ Annex: Format for yearly schedule ▪ Annex: Format for Yearly Activity Schedule ▪ Annex: TCF Certificate Format ▪ SOP for Delta Ch.4 ▪ Annex: Preparation of Harvesting Plan 	FD Tsp – Bogalay/Pyapon/Laputta CFDTC NGOs NGOs (i.e. FREDA , MSN,)
			1 day field work	Option 1: A village near CFDTC Option 2: A village in Delta that is willing to receive the participants	<ul style="list-style-type: none"> ▪ 1 day field work to practice PRA tools for livelihood activity planning is to be included. NGOs may also be requested to assist the field work. 	

Module Title	Learning Objectives	Topics	Duration	Venue	Reference materials/ Remarks	Potential Resource Organisation
4. Implementation	<ul style="list-style-type: none"> ● To understand the role of FD/ UG/ MC in CF implementation process ● To gain technical understanding of CF related activities and livelihood activities ● To understand the implementation strategies of livelihood activities and role of FD ● To gain knowledge and skills to support functioning of UG/ MC ● To understand the system of Monitoring/ Reporting in CF 	<ul style="list-style-type: none"> - Roles and Responsibilities - CF related activities - Group Management - Monitoring/ Reporting 	3 days	Option 1: CFDTC Option 2: CF Extension Centre in Delta	<ul style="list-style-type: none"> ▪ SOP for Delta Ch.5 ▪ Annex: Group Management Training Material ▪ SOP for Delta Ch. 5 ▪ Annex: Reporting Formats for FD staff ▪ Technical Guideline prepared in JICA/FD Mangrove Project ▪ NGOs implementing CF in DMA will also be invited to share their field experiences (planting and other management technologies) with the participants. ▪ Site visit can be conducted in CF areas managed by CFUGs established by NGOs to compare the condition of CF area, benefit, group management. ▪ Monitoring and reporting system that the UGs and NGOs adopt should also be discussed to compare with the FD system. Based on the knowledge exchange with NGOs, the participants may develop field monitoring plan. 	FD Tsp – Bogalay/ Pyapon/ Laputta CFDTC NGOs (i.e. FREDA, MSN,)
		<ul style="list-style-type: none"> - Livelihood activities 	1 day	Option 1: CFDTC Option 2: CF Extension Centre in Delta	<ul style="list-style-type: none"> ▪ SOP for Delta Ch. 5 ▪ Annex: How to Implement Livelihood Activities 	NGOs (i.e. MSN, FREDA)

Module Title	Learning Objectives	Topics	Duration	Venue	Reference materials/ Remarks	Potential Resource Organisation
			1 day site visit	CF villages in Delta where livelihood activities are implemented	<ul style="list-style-type: none"> ▪ Site visit may also be included as part of the programme to see 2-3 types of livelihood activities that can be implemented in DMA. 	
5. Operationalising CF (Workshop)	<ul style="list-style-type: none"> - To learn mode of training - To learn how to plan/structure a training/workshop 	<ul style="list-style-type: none"> - Adult learning – experiential learning cycle - Mode of delivering the contents - Communication skills 	5 days	CFDTC	<ul style="list-style-type: none"> ▪ Materials used during the “Workshop – Community Forestry Extension Planning” (20-26 February 2012) can be adopted. ▪ 	CFDTC RECOFTC
6. Participatory Approaches and Tools”,	<ul style="list-style-type: none"> - Explain the relationship between community and forests - Use basic facilitation skills to explore gaps improving mangrove for local livelihood development - Design their own field plans to explore potential options in improving quality and quantity of mangrove conditions for sustainable use and better local living 	<ul style="list-style-type: none"> - Basic facilitation skills - Basic PLA tools - Livelihood system - Different perspectives and interests - Community forestry development process 	7 days	CF Extension Centre in Delta + Site in Delta	<ul style="list-style-type: none"> ▪ Materials used during the “Short Training on Basic Skills for Community Forestry Development Process” (23-29 October 2012) can be adopted. ▪ 	CFDTC RECOFTC

Annex 21: Suggested Field Extension Programmes

Suggested CF Field Extension Programmes

To be adopted by FD field staff in their field visit to the CF villages

1. Awareness Creation Programme

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
Get to know the village	3-4 visits	<ol style="list-style-type: none"> 1) Introduce yourself and the objective of your visit. 2) The objective of your visit is to see if there is a need to conserve mangrove forest in the village and villagers are willing to do so. 3) You will also explain that in the coming few visits, you will be trying to understand together with the villagers; <ul style="list-style-type: none"> ▪ how mangrove contributes to the village livelihoods; ▪ how the condition of mangrove forest has changed ▪ What the villagers want to do about it. <p>Suggested PRA Tool: Village Mapping</p>	<ul style="list-style-type: none"> ✓ Understand the purpose of your visit ✓ Agree to proceed to further awareness programme for CF 	SOP Ch 1, 2, 3 SOP Annex 3 SOP Annex 4
Creating Awareness – Mangrove and Livelihood	1-2 visits	<ol style="list-style-type: none"> 1) Discuss the questions below. <ul style="list-style-type: none"> ▪ How do they use mangrove forest? ▪ How do they benefit? ▪ What are the resources in and around the mangrove forest? ▪ Who uses mangrove forest resources? <p>Suggested PRA Tools: Participatory Resource Mapping</p>	<ul style="list-style-type: none"> ✓ Have consensus that they benefit a lot from mangrove forest and its surrounding natural resources. 	
Creating Awareness – Cases of Degradation of Mangrove	1-2 visits	<ol style="list-style-type: none"> 1) Discuss the questions below; <ul style="list-style-type: none"> ▪ How do the villagers observe the changes in the condition of the mangrove forest and its surroundings? ▪ What were the causes of the degradation? Any major incidence? Natural disaster? <p>Suggested PRA Tools: Time Line/ You may also</p>	<ul style="list-style-type: none"> ✓ Have consensus that the appropriate management of mangrove forest resources is essential for the community to sustain the benefit. 	

		conduct site visit and discuss the changes in situation over time on site.		
Creating Awareness – Who is responsible?	2-3 visits	1) Discuss the below question; <ul style="list-style-type: none"> ▪ Who does what in the forest? ▪ Who are the interested individuals/ groups? ▪ How do they relate to each other to the mangrove forest? ▪ Who is in the position to carry out the management activities? Suggested PRA Tools: Chapati Diagramme	<ul style="list-style-type: none"> ✓ Agree that the Community is in the position to manage the mangrove forest as they benefit most. ✓ Agree that they also need to seek guidance from FD and other relevant authorities/ organisations. 	

2. An Overview of CF Process

Participants: (Potential) UG members

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
What is CF? And Why?	2-3 visits	1) Explain what CF is based on CFI	Understand <ul style="list-style-type: none"> ▪ What CF is ▪ Why CF is necessary ▪ their roles and responsibilities in CF 	SOP Ch 1,2, 3 SOP Annex 1 SOP Annex 4
How do we implement CF?	5-7 visits	1) Explain the overall process of CF	<ul style="list-style-type: none"> ✓ Understand <ul style="list-style-type: none"> ▪ The activities involved in CF process ▪ Harvesting system and benefit sharing ▪ Management planning and activities ▪ Process of Group formation and MC ✓ Form UG and create a member list ✓ Form MC 	
Where do we implement CF?	5-7 visits	1) Explain to the villagers the process and criteria of selecting the CF location 2) Use the resource map/ village map drawn by the villagers in the earlier sessions and	<ul style="list-style-type: none"> ▪ UG members agree on the location identified for CF ▪ Prepare a map with guidance from FD staff to be attached to 	

		3) discuss the potential location for CF Conduct field visits and verify the field condition along with UG members <ul style="list-style-type: none"> ▪ Any conflict? ▪ Accessibility? ▪ Resource availability? ▪ Land size is sufficient for the number of UG members? ▪ Clear boundary, etc 	the application to establish CF ✓ Prepare the application to establish CF and submit to FD through FD field staff	
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3. Programme for Management Plan

Participants: MC members/ Management Plan Working Group

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
What is management plan?	2-3 visits	1) Explain <ul style="list-style-type: none"> ▪ the purpose of making management plan ▪ clarifying responsibilities of MC/ Management Plan working group and FD staff ▪ Approval of MP by FD 	✓ Understand the purpose of making a management plan ✓ Understand what involves in making a management plan	SOP Ch 4 SOP Annex 6, 7, 8, 9, 10, 11, 13, 14, 15
What are the contents?	2-3 visits	1) Explain the information to be included in the management plan	✓ Understand the information requirement to prepare a management plan	
How do we collect information?	2-3 visits	1) Explain who will do what in the process of data collection and compilation	✓ Understand their task in making a management plan ✓ Begin to make a management plan ✓ After compilation ✓ they will be able to seek the approval of MP from UG ✓ they will be able to prepare a CF application and submit to FD	

4. Programme for By-Laws

Participants: MC members/ Management Plan Working Group

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
What are by-laws? And Why do we need it?	2-3 visits	1) Explain the purpose of having by-laws 2) What to be included in the by-laws	✓ Be able to explain why we need by-laws ✓ Be able to understand the contents of by-laws	SOP Ch 4 SOP Annex 12
How can we formulate by-laws?	2-3 visits	1) Explain the process of formulation of by-laws.	✓ Initiate the process of formulating by-laws ✓ Be able to complete the process by obtaining the approval from UG	

5. Programme for Livelihood Security Enhancement

Participants: UG members

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
Livelihood security enhancement activities in CF	1 -2 visits	1) Explain <ul style="list-style-type: none"> ▪ the FD's role in implementing the livelihood security enhancement activities ▪ How the livelihood security enhancement activities can be implemented in relation to CF 	✓ Understand the limited role of FD in the process ✓ Consensus to proceed to the further steps	SOP Annex 5
Understanding the causes of the existing situation in a village that needs changing	2-3 visits	1) Decomposing the causes and consequences of a particular situation Suggested PRA Tool: Problem analysis tree	✓ Identify the potential solutions/ interventions to improve their livelihoods	
Selecting the livelihood security enhancement	3-5 visits	1) Compare various solutions from various aspects to select most feasible and effective solution Suggested PRA Tool: Matrix Scoring	✓ Select the most feasible and effective solution that FD staff will help them link with relevant resource organisation	

6. Programme for Group Management

Participants: MC members

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
What is group management and why?	1-2 visits	Explain <ul style="list-style-type: none"> ▪ why group management is important ▪ what are the kind of activities required for management 	<ul style="list-style-type: none"> ✓ Understand the different management activities ✓ Understand the importance of conducting management activities 	SOP Annex 17 SOP Annex 18
What needs to be done?	1-2 visits	1) Explain how each management activity can be conducted	<ul style="list-style-type: none"> ✓ Understand each management activities and what the MC members need to do 	
Record keeping	2-3 visits	1) Explain the purpose of keeping different record 2) Practice how to keep each record	<ul style="list-style-type: none"> ✓ Understand why record keeping is important ✓ Be able to write the records to be kept by UG 	

7. Programme for Technical Guidance

Participants: MC members/ Sub-Group Leaders/ UG members

If the number of UG members is many, MC members and Sub-Group Leaders can be trained to train UG members.

Topics	Indicative Time required for each activity	What to be discussed	At the end of the session, participants will;	Reference material
Various techniques required for management activities		FD staff may decide as per the need of the UG and condition of the CF area	<ul style="list-style-type: none"> ✓ Be able to carry out what is taught in the session 	SOP Annex 17