

## Summary of Terminal Evaluation

<b>1. Outline of the Project</b>	
<b>Country</b> : Republic of the Union of Myanmar	<b>Project Title</b> : The integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta
<b>Issue/Sector</b> : Forestry and Forest Conservation	<b>Cooperation scheme</b> : Technical Cooperation
<b>Division in Charge</b> : Forestry and Nature Conservation Division 1, Global Environment Department	<b>Total Cost (at the time of evaluation)</b> : 700 million yen
<b>Period of Cooperation</b> (R/D) : Oct. 2006 - Sep. 2011 (Period) : Apr. 2007- Mar. 2012 * December 2006 – March 2007: the period for domestic preparations in Japan (Extension) : Apr. 2012 - Mar. 2013	<b>Partner Country's Implementing Organization</b> : Forest Department, Ministry of Environmental Conservation and Forestry Department of Fisheries, Ministry of Fisheries and Livestock Department of Agriculture, Ministry of Agriculture and Irrigation
	<b>Supporting Organization</b> : NIPPON KOEI CO., LTD.
	<b>Related Cooperation</b> : (Grant Aid)The Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta
<b>1 – 1 Background of the Project</b> <p>One of the areas where forest devastation is especially serious in the Union of Myanmar (hereinafter referred to as “Myanmar”) is the mangrove forest area in the Ayeyawady-Delta region. A forest conservation area was established in this region at the beginning of the 20th century, but only a little less than 40% of the forest area that existed during the 1920s remains as a result of charcoal production, development of paddy fields, aqua farming of shrimps and fishes, collection of firewood, development of salt farms, etc. nowadays.</p> <p>JICA carried out the development study on “Integrated Mangrove Rehabilitation and Management through Community Participation in the Ayeyawady Delta” for 3 years from February 2002, developing a master plan. In response to this movement, the Government of Myanmar requested this technical cooperation project from the Government of Japan in May 2005 for the purpose of improving forest management capacities of the Forest Department of the former Ministry of Forestry (currently the Ministry of Environmental Conservation and Forestry) and community organizations that are required to implement the plan, and regenerating mangrove forests on the basis of it. The Record of Discussion (R/D)</p>	

was signed in September 2006, and the project was started in April 2007 with the schedule of five years through the period of domestic preparations in Japan from December 2006.

Cyclone Nargis hit the target site of the project in May 2008, however, bringing about extensive damages to local residents, mangrove forests, and government agencies. Activities of the project were forced to be discontinued for eight months from May to December 2008, whereas surveys of local damages and reconstruction situations were conducted to prepare for the immediate resumption of project activities. The activity plan was reviewed in January 2009, containing the policy of continuing and expanding the activities by adding the perspective of restoring local inhabitants' livelihoods and strengthening disaster prevention functions through supplementary planting in mangrove forests or their establishment. The plan of activities was revised at this time, and the versions of the Project Design Matrix (PDM) and the Plan of Operations (PO) were changed from 0 to 1, respectively. In addition, the project period that had initially been until March 2012 was changed to March 2013 through extension for one year.

In the mid-term review survey that was conducted in February to March 2011, a draft PDM (Version 2) was prepared by adding required revisions including the reorganization of cyclone recovery activities as Output X, achieving an agreement by the recipient government. The project is being operated in accordance with the latest version of PDM (Version 3) to which some more revisions of indicators and so on were added at the time of terminal evaluation.

## **1-2 The Project Overview**

### **1-2-1 Overall Goal**

The mangrove forests are sustainably managed and poverty is alleviated among the communities in the Ayeyawady delta.

### **1-2-2 The Project Purpose**

The communities and the mangrove forests co-exist in a sustainable manner in the selected areas where project activities were implemented within the Ayeyady delta.

### **1-2-3 The Outputs**

- (1) The selected communities practice environmentally and economically sustainable community forestry (CF).
- (2) The management and the support system of the Forest Department for CF is effective.
- (3) Some silvicultural techniques for the rehabilitation and the management of the mangrove and its associated forests for the Ayeyawady delta are established.
- (4) A coordination mechanism is established among key sectors to address the underlying causes of mangrove deforestation in the Ayeyawady delta.

(X) (Additional Output after the Cyclone Nargis in May 2008)

Recovery from damage of Cyclone Nargis is promoted.

#### 1-2-4 Input (at the end of October 2012: at the time of evaluation)

<Myanmar side>

Allocation of the project personnel	Management personnel : 22 persons Technical personnel : 24 personnel <sup>1</sup> and 63 persons <sup>2</sup>	Running Expenses (as of Oct. 2012)	MMK 131, 309,608
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<Japanese side> Total Cost 700 million yen

Dispatch of Experts (as of Oct. 2012)	17 persons in total (133.4M/M)	Provision of equipment (as of Oct. 2012)	21,790,000 yen
Participants in Training in Japan	13 persons in total	Local Activity Cost (as of Oct. 2012)	171,520,000 yen

### 2. Evaluation Team

Members	Field of Evaluation	Name	Position and Organization
	Team Leader	Hiroyuki HATORI	Senior Advisor (Forest Environment) JICA
	Community Forestry	Masayuki TADOKORO	Senior Policy Analyst for Forestry, Wood Industry Division, Forest Policy Planning Department, Forest Agency, Ministry of Agriculture, Forestry and Fisheries
	Cooperation Planning/Aid Strategy	Kotaro TANIGUCHI	Deputy Director, Forestry and Nature Conservation Division 1, Global Environment Department, JICA
	Evaluation Analysis	Mitsue UMIGUCHI	Senior Consultant Department of Agriculture and Environment C.D.C International Corporation
<b>Period of Evaluation</b>	Nov. 18th 2012- Dec. 8th 2012		<b>Type of Evaluation</b>
			Terminal Evaluation

### 3. Result of Evaluation

#### 3-1 Results of Achievements

##### 3-1-1 Achievement of the Project Output

(1) Output 1: Expected to be largely achieved.

Indicator 1a. By September 2011, all the CF Management Plans of the CFUGs<sup>3</sup>, reselected in March 2011, are developed/ updated.

Indicator 1b. By the end of the project, organizational capacity of the Management Committee of

<sup>1</sup> Range Officer and above

<sup>2</sup> Deputy Range Officer and below

<sup>3</sup> Community Forest Users Group

all target CFUGs reaches the 3rd level (meaning that they achieve more than half of the full fulfillment) of the evaluation rating composing of five achievement levels set by the Project.

Indicator 1c. The certified CF Management Plans (i.e. CF plantation and NFIO) of all the target CGUSGs reselected in 2011 are implemented according their annual plans.

Indicator 1d. By the Project end, more than 1,460 acres (591ha) of mangrove forests are rehabilitated and managed by the CFUGs reselected in 2011 based on the certified CF Management Plans, including CF plantation and NFIO when applicable.

Indicator 1e. By the Project end, all the CFUGs reselected in 2011 start to gain profit from CF activities determined in the certified CF Management Plans and/or income generation activities supported by the Project.

For Indicator 1a, six target villages were re-selected in July 2011, CF management plans of all the villages were approved, and CF certificates were issued before 31 July 2012.

As for Indicator 1b, organizational capabilities of management committees have not yet been verified at all of the target villages, but participants had high awareness, presenting their opinion that they wanted to continue CF activities for themselves in the future.

An impact survey and a capacity assessment (CA) survey for CFUGs is currently in progress, and the result was obtained that technical levels of CFUGs also relevant to their organizational capabilities were above average at all of the villages in seeing its summary result (provisional version) at the time of this survey. For Indicators 1c and 1d, activities are carried out in accordance with the CF management plan that was certified at each of the target villages, and it was verified that mangrove forests of 1,670 acres had been managed and regenerated by CFUGs between 2009 and 2012. However, there is still no prospect that all of CFUGs will benefit from income-generating activities for Indicator 1e. Introduction of some income-generating activities was tried, out of which oyster farming was selected by communities, but they have not yet gained profits from it. Accordingly, it is expected that outputs would largely be achieved towards the end of the project with the exception of some indicators (1e).

(2) Output 2: Expected to be largely achieved.

Indicator 2a. By the end of the Project, capacity of 80% of technical members of CF Task Force engaged in the Project more than two years reaches the 4th level (meaning that they achieve more than 75% of full fulfillment) of the evaluation rating composing of five achievement level set by the Project.

Indicator 2b. On average, more than 80% of all registered members of the CFUGs reselected in 2011 give the highest or medium rate on three-level rating about "degree of understanding", "degree of applicability", and "degree of

satisfaction" of the CF extension they received.

Indicator 2c. By the project end, a training program for CF for mangrove forest, including materials, is developed based on the existing ones for confirmation by the DG for further action ( in English & Myanmar).

Indicator 2d. By the Project end, Standardized Operational Procedures (SOP) for CF for mangrove forest is developed based on the existing SOP of the FD (i.e. Departmental Instructions and CFI<sup>4</sup>) for confirmation by the DG for future action (in English & Myanmar).

For Indicator 2a, it is planned that the evaluation of CF management and its dissemination and support will be conducted after this, and the opinion has so far been obtained from past training participants that the training is beneficial for them. As for Indicator 2b, the impact survey and the CA survey for CF task forces (CFTFs) plan to be conducted in January 2013, from which results are expected to be obtained on “levels of understanding”, “levels of application” and “levels of satisfaction” relative to the indicators.

With regard to Indicator 2c, a training program on CF management is being developed as planned, expected to be finalized before the end of the project.

As for Indicator 2d, the Standardized Operational Procedures for CF-SOP is expected to be finalized in January 2013. Therefore, it is expected that Output 2 will be largely achieved.

(3) Output 3: Expected to be largely achieved.

Indicator 3a. By the Project end, a technical report on Action Research (AR) for mangrove are prepared (in English and Myanmar).

Indicator 3b. By the Project end, technical guidelines for field-level FD staff on rehabilitation and management of mangrove forests, which are developed based on AR finding, are published (in English and Myanmar).

For Indicator 3a, a monitoring report relating to silviculture techniques in AR has been prepared on a regular basis. A technical report is also expected to be prepared before the end of the project. Concerning Indicator 3b, a technical guideline is expected to be finalized by December 2012, and thus it can be said that Output 3 will be achieved.

(4) Output 4: Achieved.

Indicator 4a. By December 2011, an inter-agency coordination meeting is organized by the FD.

Indicator 4b. Land use information of the Target Area is updated based on the satellite images of 2007, 2009 and 2012.

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<sup>4</sup> Community Forest Instructions

Indicator 4c. The updated land use information is shared at the inter-agency coordination meetings for discussion.

Indicator 4d. Seminars to promote synergy among the relevant sectors are organized annually.

Indicator 5e. A donor/ NGO coordination meeting for the Target Area organized by the FD once a year.

For Indicator 4a, related inter-ministerial coordination meetings were carried out by the Forest Department twice. For Indicators 4b and 4c, information on land use in target areas have been updated based on satellite images, and this information has been shared among related ministries and agencies through posters and newsletters, although it has not yet been discussed at related inter-ministerial coordination meetings. As for indicators 4d and 4e, relevant seminars were carried out every year (7 times so far), and coordination meetings with other donors and NGOs were also carried out twice in Fiscal 2011 and 2012. Therefore, it was judged that Output 4 was achieved.

(5) Output X: Expected to be achieved.

Indicator xa. By March 2009, a hazard map of the Target Area is developed based on the latest satellite images (2009) for distribution to the local communities.

Indicator xb. By March 2010, a report on damage & recovery survey on the communities in the Target Area is prepared.

Indicator xc. By March 2010, Centre for CF Extension & Nursery in each RF is rehabilitated.

Indicator xd. In 2009 & 2010, materials necessary for disaster recovery or prevention work are provided to the FD and the Cooperating Agencies based on the needs.

Indicator xe. By December 2011, a report on recovery condition of mangrove vegetation (2008-2010) is prepared.

A hazard map of the target area was developed on the basis of satellite imagery in March 2009 for Indicator xa, and survey results of disaster damage and reconstruction in communities of the target area were also compiled as planned for Indicator xb. With respect to Indicator xc, repair of four CF nursery centers and provision of equipment for reconstruction have been carried out as planned, and regarding Indicator d, materials required for disaster recovery and disaster prevention programs of the Forest Department and its partner organizations were provided according to their needs. A report of damages to the mangrove vegetation and states of its recovery is also under preparation for Indicator xe, and the *Report on recovery condition of mangrove vegetation* (2008 - 2010) plans to be attached to technical reports listed in Output 3. Therefore, it can be said that Output X will be achieved.

**3-1-2 Achievement of the Project purpose : Expected to be achieved.**

Indicator a. By the Project end, mangrove forest coverage is increased by 3,550 Acres (1,438 ha) in the selected areas where project were implemented (i.e. CF plantation, CF-Natural Forest Improvement Operation (NFIO), and ARP<sup>5</sup> sites) from the base year 2009.

Indicator b. At the end of the Project, among the registered members of all the target CF user groups (CFUGs) reselected in 2011 more than 80% consider CF useful.

Indicator a: The increase in vegetation cover areas was largely achieved.

Indicator b: The recognition of CFUGs is expected to be achieved.

With regard to Indicator a, the area of 1,670 acres in CF and 1,587 acres in ARP (3,257 acres in total) were restored to mangrove forest during the period of the project (achieved: 91.7%). As for Indicator b: The recognition of CFUG, the impact survey and the CA survey are being carried out now. In interview surveys with CFUGs at two villages (Town Gee Tan, Goodu) that were conducted during this survey out of the six target villages, respondents provided their opinions that they were satisfied with their participation in CF activities and also that they would like to continue their activities from now on. In addition, provisional results above average are obtained on technical levels of CF activities for five evaluation items that were set in the impact survey and CA survey. From the above results, the project purpose is expected to be achieved.

**3-1-3 Achievement of the Overall Goal : Expected to be partly achieved.**

Indicator a. Mangrove forest coverage increases by 10,000 acres (4,050 ha) in the Target Area of the current Project, (i.e. 4 RFs) within three years after the completion of the Project.

Indicator b. Income levels of communities in the Target Area is improved than that of 2004.

Indicator a: The increase in cover areas is expected to be achieved.

It is not clear whether or not Indicator b: The improvements in income levels will be achieved at this moment.

With respect to Indicator a, the area of 1,154 ha has become a target area for afforestation in the grant aid project “The Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta” that is scheduled for 2013 onward in the region. In addition, afforestation of 10,000 acres is scheduled for three years from 2013 to 2015 according to the county management plan 2011 to 2020 of the Forest Department.

As for income levels of Indicator b, useful existing data have not been obtained at present. Because the continuation of CF activities can be expected in the future based on the above-mentioned interviews with two villages, the implementation of socio-economic surveys, etc. is desired regarding the change in income levels corresponding to this movement.

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<sup>5</sup> Action Research Plantation

## **3-2 Summary of Evaluation Results**

### **3-2-1 Review by the Five Criteria**

#### **(1) Relevance: High**

There have been no major changes in the forest policy of the Myanmar side since the mid-term evaluation, and it was verified that there were high needs of local communities of the target areas living together with mangrove forests and also of the Forest Department as the public agency for implementing sustainable forest management and conservation. In the National Forest Master Plan of Myanmar (2001 - 2031), four fields are listed in which local communities should participate, including: 1) management of reserved forests and public protected forests; 2) afforestation; 3) agroforestry activities; and 4) management of state owned forests. In addition, Support for Myanmar is included in the new growth strategy of Japan where coastal disaster prevention is positioned as one of the priority issues. This project is consistent with the development plan of Myanmar and the Japan's ODA<sup>6</sup> policy for Myanmar. In terms of the superiority of Japanese technologies, it was verified that they were useful through the interviews with the staff of the Forest Department who were involved in CF activities and training in Japan.

#### **(2) Effectiveness: Relatively high**

It can be said that the effectiveness of the project is high as there is a prospect of achieving the project purpose, although there is a difference in the degree of achieving each output for the project purpose.

In terms of the cause-and-effect relationship, the implementation of CF activities in the future was secured by the fact that the CF certification was performed with respect to Output 1. For Output 2, the preservation of mangrove forests and the coexistence of communities can be expected through the utilization of knowledge and techniques that were acquired at training programs and other opportunities by officers of the Forest Department. Afforestation of 1,587 acres has so far been carried out by ARP in Output 3. Implementation of coordination meetings for collaboration among related organizations in Output 4 enabled sharing of information and building of cooperative relationships. It can be said that the recovery from the cyclone in Output X also constitutes an integral part of achieving the project purpose.

#### **(3) Efficiency: Moderate**

The project cost has increased than expected at the pre-evaluation phase, but its increment is related to the expenses of recovery from cyclone damages and reconstruction, and thus it is difficult to say that the efficiency of the project itself is low.

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<sup>6</sup> Official Development Assistance

(4) Impact: Some positive impacts were verified. Negative impacts have not been verified.

Local people have recognized that mangroves can mitigate damages of storm surges and high winds through their experience in the cyclone. Some other NGOs are also supporting CF activities at the villages. Thus the overall goal is expected to be partly achieved.

(5) Sustainability: Relatively high

Organizational and institutional aspects: Legal and policy support related to the integrated mangrove management including the CF plans to be continued. The Ministry of Environmental Conservation and Forestry is considering the revision of CFI and the establishment of a division dedicated for CF.

All of the personnel engaged in the project are full-time government officers, employed for related services after the completion of the project, and thus their use of technologies and experiences that they acquired in the project can be expected. Inter-agency coordination meetings and meetings with NGOs have also been implemented, and future information sharing and strengthening of cooperative relationships can also be expected. Oyster farming has not yet come to be well established as the income-generating activity, but the sustainability of CF activities can be prospected as CFUG is hoping to continue them.

Financial aspect: In order to continue and expand related activities including monitoring activities after the end of the project, it is necessary for the Government of Myanmar to provide a budget to cover transportation costs to visit the site.

Technical aspect: Improvements in technical levels of the Forest Department staff related to silviculture techniques and ARP are observed prominently, and such techniques are utilized in other services besides the project. It is also expected that technical reports and technical guidelines will be utilized after the end of this project. With regard to the CF management and its support system, techniques that were transferred in this project, including its training programs and the CF-SOP for mangrove forests, are expected to be incorporated into existing training programs of the Central Forestry Development Training Center (CFDTC) and each provision of the Forest Department (departmental instructions, CF Instruction).

### **3-3 Factors Affected Positively to the project**

(1) Factors concerning the content of planning

As a result of reorganizing outputs by picking out and consolidating cyclone recovery and rehabilitation activities as Output X as an example on the basis of the recommendations during the mid-term review, the positioning of the recovery and reconstruction activities in the project became clarified.

(2) Factors concerning the implementation process

1) As a result of narrowing down the number of pilot villages from 22 to 6 during the mid-term

review, resources came to be inputted intensively, leading to the emergence of outcomes.

2) Outcomes that were obtained in the preceding development study (master plan, etc.) could be utilized. Moreover, the good relationship between Japanese experts and related persons in Myanmar that had been built through the development study contributed to the smooth operation of the project.

### **3-4 Factors Affected negatively to the Project**

#### **(1) Factors concerning the planning**

Income generation is adopted as an indicator for the overall goal in accordance with the logic: “Engagement in CF activities leads to higher incomes.” However, CF user groups have lived and previously been engaged in the activities of fishing, logging, etc., and the utilization of CF areas and fisheries activities were merely legalized by the CF Instruction and CF certificates. For this reason, forest resources as potential sources of incomes for CF user groups are expected to be increased through the introduction of CF, but of course the CF itself does not lead to income improvements. Therefore, the inclusion of “improved incomes” in the PDM weakened its logic.

#### **(2) Factors concerning the implementation process**

1) Cyclone Nargis occurred in May 2008, causing great damages to project activities. As ongoing activities were forced to be discontinued and results of the activities that had been implemented in the previous year were also lost, it was accordingly decided that the project period be extended for one year. As the dispersion and influx of villagers occurred, comparison with the baseline social data at the start of the project was no longer significant.

2) Several options for income generating activities were reviewed, some of which were tried. After all, only the aqua-agroforestry applying oyster farming under mangrove forests was supported continuously, but it was not successful due to the difficulty in practicing implantation technologies, marketing and distribution problems, thefts by outsiders and others.

3) In dispatching Japanese experts, at least two to three months or even four to five months in some cases were required for the procedure of confirming their acceptance by the Government of Myanmar. When sending new experts to address new challenges, their flexible dispatch was difficult.

4) When a Japanese expert went outside the Yangon area, she/he had to apply for a travel permit at least two weeks before her/his trip each time, which made it difficult to perform activities in a flexible manner.

5) Project offices are dispersed, such as Japanese experts and staff hired by the project in Yangon, the management level of C/P (Project Director, Project Manager, Project Coordinator, etc.) in Naypyidaw, and C/P field staff at several locations in the Ayeyawady-Delta region, which has become a limiting factor in performing mutual communications smoothly within the project.

### **3-5 Conclusions**

- (1) The project purpose “The communities and the mangrove forests co-exist in a sustainable manner in the selected areas where project activities were implemented within the Ayeyawady Delta” can be expected to be largely achieved. Therefore, this project can be completed in March 2013 as planned.
- (2) Because it could not be verified that CF activities would lead directly to income improvements, it would be difficult to attain the overall goal “The mangrove forests are sustainably managed and poverty is alleviated among the communities in the Ayeyawady Delta” within three years after the end of the project.

### **3-6 Recommendations (Specific measures, suggestions, and advice relating to the project)**

#### **3-6-1 Recommendations for the project**

Hold a technical workshop on findings and knowledge gained through the surveys of ARP as well as restoration and reconstruction for the purpose of verifying technical aspects and using them for activities of related agencies.

#### **3-6-2 Recommendations to the Forest Department**

- (1) Strengthen organizations, institutional systems and financial measures (including the SOP) after clarifying the future plan of CF development, and expand them into other regions based on experiences in CF at the six locations that were supported by the project.
- (2) Make CF user groups submit a progress report (annual report) to the Forest Department in line with the CF Instruction to resolve the problems that were pointed out.
- (3) Maintain good coordination with the Department of Fisheries on the issues of fishing rights and surface-water use rights so that CF use groups can continue fisheries, crabbing, and oyster farming.
- (4) Strengthen the law enforcement relative to CF activities to cope with illegal activities.
- (5) Secure a necessary budget, boats and fuel in order that field staff can conduct the monitoring of CF.
- (6) With a view to achieving a synergistic effect with JICA’s grant aid project “The Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta,” make use of technical guidelines on management and conservation of mangrove forests in the grant aid project to enhance the collaboration among both projects.
- (7) Promote thorough control of both paper-based and digital data by making use of the format already proposed by the project so that data are not dissipated at the time of frequent personnel changes. For ARP in particular, share results with the Forest Research Institute (FRI).
- (8) Continue and institutionalize related inter-ministerial meetings for CF management, holding them on a regular basis.

- (9) Approve and utilize technical guidelines on conservation and management of mangrove forests that are prepared in the project.
- (10) Advocate making coordination on the management and the use of mangrove forests, above all guaranteeing a 30-year land-use right that was granted to CF user groups in the CF areas that have been developed under the project to the local government and relevant ministries/agencies in formulating policies related to nationwide land use planning.
- (11) Provide related ministries/agencies and local government bodies with data on changes of vegetation and land uses that are being analyzed under the project for future land-use planning.
- (12) Encourage related ministries/agencies and local government bodies to apply results of monitoring of reconstruction to policies and measures pertaining to disaster prevention and disaster management while recognizing the function of mangroves for mitigating disasters.
- (13) Make necessary coordination with related ministries and agencies to issue a multiple travel permit that is valid during the project period for Japanese experts visiting outside Yangon for carrying out project activities with the aim of implementing the project smoothly.

### **3-6-3 Recommendations to JICA**

Provide necessary coordination and measures so that other JICA projects (including those listed below), other donors, and NGOs (e.g. RECOFTC<sup>7</sup>) can refer to and make use of outputs, findings and lessons of this project.

- (1) Myanmar: the Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta (Nov. 2013 - Mar. 2017)
- (2) Indonesia: The Project on Mangrove Ecosystem Conservation and Sustainable Use in the ASEAN Region (June 2011 – June 2014)
- (3) Oman:Qurm (Mangrove) Environment Information Center (QEIC) Development (Dec. - Dec. 2013)

### **3-7 Lessons learned (matters that will be helpful for exploring, formulating, implementing and administering other similar projects, derived from the project)**

- (1) Generally speaking, introduction of CF does not lead necessarily to the improvement of income levels, because farmers that participate in CF activities have been engaged in livelihood and economic activities before the introduction of CF in most cases. Therefore, it is necessary to carefully consider whether or not it is appropriate to set income improvements as an indicator at the stage of project planning.
- (2) Because it takes a certain time until afforestation projects can provide benefits, it is important to combine livelihood improvement activities with them for its own sake in order to ensure

<sup>7</sup> An interregional international organization based in Thailand

short-term benefits. However, it is necessary to take local conditions into account in proposing such livelihood improvement activities, including the availability of products and technologies, local inhabitants' needs, and furthermore the commercial feasibility such as marketing and distribution.

- (3) It is desirable to set up project offices in both Naypyidaw and at project site(s) when implementing projects in Myanmar in order to facilitate mutual communications among Japanese experts, decision makers of C/P side, and field staff.
- (4) When planning pilot sites (the scope of the project if further generalized), it is important to determine the realistic number and scale of sites in consideration of the amount of inputs, the accessibility, and other factors.
- (5) It is advisable to establish participation fees and fines with reasonable rates in accordance with each community member's financial ability for payments when planning and implementing participatory activities in order to ensure their sustainability.
- (6) It is advisable to clearly present what kinds and amounts of benefits can be gained by when in introducing new livelihood improvement activities to communities in order to grow their motivations for implementation.
- (7) In case the fatal collapse of important assumptions (external conditions) occurs, as seen in the occurrence of extensive natural disasters, JICA should dispatch a management guidance investigation team to understand negative impacts brought to the project, make consultations with counterparts on the revision of the project design, and propose the revision of PDM to the Joint Coordinating Committee (JCC).