

ミャンマー国
エーヤーワディ・デルタ住民参加型
マングローブ総合管理計画
プロジェクト
終了時評価調査報告書

平成26年6月
(2014年)

独立行政法人国際協力機構
地球環境部

| |
|--------|
| 環境 |
| JR |
| 14-157 |

ミャンマー国
エーヤーワディ・デルタ住民参加型
マングローブ総合管理計画
プロジェクト
終了時評価調査報告書

平成26年6月
(2014年)

独立行政法人国際協力機構
地球環境部

目 次

目 次
地 図
写 真
略語表
要約表

| | |
|--|----|
| 第1章 評価調査の概要..... | 1 |
| 1-1 プロジェクトの概要..... | 1 |
| 1-1-1 プロジェクトの背景..... | 1 |
| 1-1-2 協力期間..... | 1 |
| 1-1-3 事業実施体制〔実施機関・カウンターパート (C/P)〕..... | 1 |
| 1-1-4 プロジェクトサイト・対象地域..... | 1 |
| 1-1-5 プロジェクト構成要素..... | 1 |
| 1-2 調査の目的..... | 3 |
| 1-3 PDM の変遷..... | 3 |
| 1-4 調査団の概要..... | 4 |
| 1-4-1 現地調査期間..... | 4 |
| 1-4-2 調査団構成..... | 4 |
| 1-5 調査日程..... | 6 |
| 第2章 評価の方法..... | 8 |
| 2-1 調査の流れ..... | 8 |
| 2-2 調査項目..... | 8 |
| 2-2-1 プロジェクトの実績の確認..... | 8 |
| 2-2-2 実施プロセスの検証..... | 8 |
| 2-2-3 評価項目ごとの分析..... | 8 |
| 2-3 情報収集・入手手段..... | 8 |
| 第3章 調査結果..... | 9 |
| 3-1 概要..... | 9 |
| 3-2 評価結果..... | 9 |
| 3-2-1 実績の確認..... | 9 |
| 3-2-2 5項目ごとの評価..... | 11 |
| 3-2-3 効果発現に貢献した要因..... | 13 |
| 3-2-4 問題点及び問題を惹起した要因..... | 13 |
| 3-3 森林・自然環境保全分野に係る今後の協力の可能性..... | 14 |
| 3-4 団長所感..... | 14 |
| 3-5 田所団員所感（社会林業）..... | 16 |
| 3-5-1 総論..... | 16 |
| 3-5-2 プロジェクト実施体制..... | 16 |
| 3-5-3 社会林業..... | 16 |
| 3-5-4 技術の移転、継承..... | 17 |
| 3-5-5 情報の共有..... | 17 |
| 3-5-6 今後のミャンマーにおける森林・林業協力について..... | 17 |
| 第4章 結論・提言・教訓..... | 18 |
| 4-1 結論..... | 18 |
| 4-2 プロジェクトへの提言..... | 18 |

| | |
|--------------------|----|
| 4-3 森林局への提言..... | 18 |
| 4-4 JICA への提言..... | 19 |
| 4-5 教訓..... | 19 |

附属資料

1. 合同評価報告書（中間レビューM/M）
2. プロジェクト・デザイン・マトリックス

地 図

プロジェクトサイト位置図



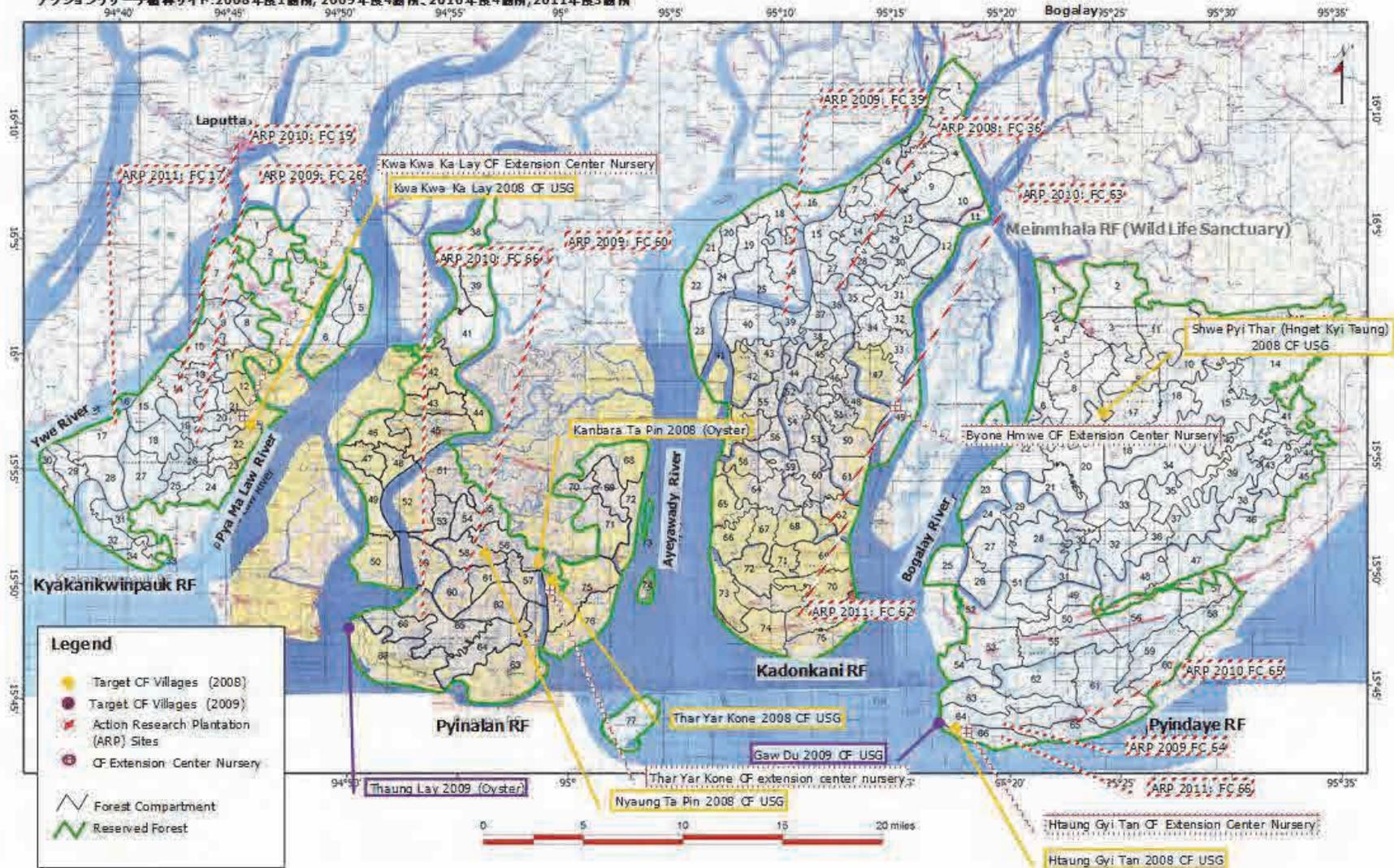
プロジェクト活動の位置図(2012年3月)

対象保全林区(4所)

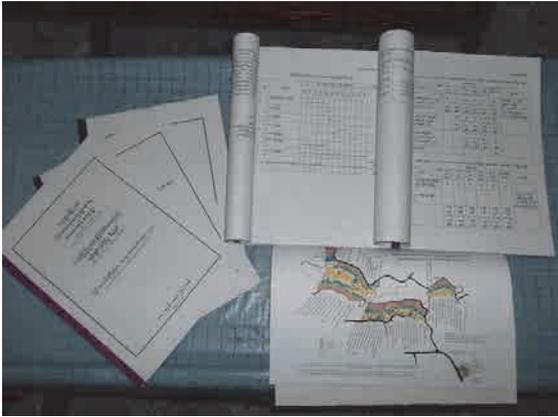
2008年度選定の対象CFユーザーグループ : イエロー、2009年度選定のCFユーザーグループ: 紫色、カキ養殖支援村落(2村落)

CF普及センター苗圃: 4サイト

アクションリサーチ造林サイト: 2008年度1箇所、2009年度4箇所、2010年度4箇所、2011年度3箇所



写



管理計画

真



コミュニティ・フォレストリー活動



アクション・リサーチ (AR) サイト



カキの養殖



CF 証書授与式



ARP モニタリング 再確認作業

略 語 表

| 略語 | 正式名称 | 和名 |
|------------------------------|---|---|
| ARP | Action Research Plantation | アクション・リサーチ植林 |
| CF | Community Forestry | コミュニティ・フォレストリー |
| CFI | Community Forest Instructions | 共有林令 |
| CFUG (CFUSG) ¹ | Community Forest Users Group | コミュニティ・フォレストユー ザーグループ (CF ユーザーグループ) |
| C/P | counterpart | カウンターパート |
| ha | hectare | ヘクタール |
| JICA | Japan International Cooperation Agency | 独立行政法人国際協力機構 |
| M/M | Minutes of Meeting | 協議議事録 |
| NGO | Non-governmental Organization | 非政府組織 |
| ODA | Official Development Assistance | 政府開発援助 |
| PDM | Project Design Matrix | プロジェクト・デザイン・マト リックス |
| SOP | Community Forestry Standardized Operational Procedures | 標準作業手順書 |

¹ 2002年より開発調査並びに本プロジェクトにおいて「CFUSG」という略語を用いてきたが、本報告書では「CFUG」の略語に変更・統一した。

評価調査結果要約表

作成日：2012年12月13日

| | | |
|--|--|--|
| 1. 案件の概要 | | |
| 国名： ミャンマー連邦 | 案件名： エーヤーワディ・デルタ住民参加型マングローブ総合管理計画プロジェクト | |
| 分野： 林業・森林保全 | 援助形態： 技術協力プロジェクト | |
| 所轄部署： 地球環境部 森林・自然環境保全第一課 | 協力金額（評価時点）： 7.0 億円 | |
| 協 力 期 間 | (R/D)：2006年10月～2011年9月 | 先方関係機関： 環境保全・林業省森林局、 畜水産省水産局、農業灌漑省農業局 |
| | (実際)：2007年4月～2012年3月 | |
| | (2006年12月～2007年3月は国内準備 期間) | 日本側協力機関： 日本工営株式会社 |
| | (延長)：2012年4月～2013年3月 | 他の関連協力： 無償資金協力事業「沿岸部防災機能強化のためのマングローブ植林計画」 |
| 1-1 協力の背景と概要 | | |
| <p>ミャンマー連邦（以下、「ミャンマー」と記す）のなかで、森林荒廃が特に深刻な地域の1つがエーヤーワディ・デルタ地域のマングローブ林である。この地域では20世紀初頭に保全林区が設定されたが、炭の生産、水田開発、エビ・魚の養殖、薪炭材の採取、塩田開発等の結果、1920年代の森林面積に比べ、現在はその4割弱しか残存していない。</p> <p>JICAは、2002年2月から3年間、開発調査「エーヤーワディ・デルタ住民参加型マングローブ総合管理計画調査」を実施し、マスタープランを策定した。これを受け、ミャンマー政府は、2005年5月、同計画の実施に必要な旧林業省（現環境保全・林業省）森林局及び住民組織の森林管理能力向上と、それに基づくマングローブ林の再生を図ることを目的とした本技術協力プロジェクトをわが国政府に要請した。2006年9月に討議議事録（R/D）が署名され、同年12月からの国内準備期間を経て、2007年4月から5年間の予定でプロジェクトが開始した。</p> <p>しかし、2008年5月、サイクロン・ナルギスがプロジェクト対象サイトを直撃し、地元住民、マングローブ林、行政機関に甚大な被害をもたらした。プロジェクトは、2008年5月から12月の8カ月間、活動の中断を余儀なくされたが、その間、現地被害調査や復興状況調査を実施し、速やかな再開への準備を行った。2009年1月には活動計画が見直され、地域住民の生計の復旧及びマングローブ林の補植・造成を通じた防災機能の強化の視点を加え、活動の継続・拡大をしていく方針とした。この時、活動計画が修正され、プロジェクト・デザイン・マトリックス（PDM）及び活動計画（PO）のバージョンが0から1に変更された。また、プロジェクト期間も当初は2012年3月までであったが、1年間延長し2013年3月までと変更された。</p> <p>2011年2月から3月に実施した中間レビュー調査においては、サイクロン復旧活動を成果Xとして再整理する等、必要な修正を加えたPDM案（バージョン2）を作成し、先方政府の合意を得た。終了時評価時点では、更に若干の指標の修正等を加えた最新版PDM（バージョン3）</p> | | |

に基づいて事業運営を行っている。

1-2 協力内容

1-2-1 上位目標

エーヤーワディ・デルタ内のマングローブ林が持続的に管理され、コミュニティの貧困が緩和される。

1-2-2 プロジェクト目標

エーヤーワディ・デルタ内のプロジェクト活動が実施される地域において、コミュニティとマングローブ林が持続的に共生する。

1-2-3 成果

- (1) 選定されたコミュニティが環境的にも、経済的にも持続的なコミュニティ林業(CF)を実践する。
- (2) 森林局のCF管理・支援体制が効果的である。
- (3) エーヤーワディ・デルタのマングローブ林及び関連林の復旧と管理に関するいくつかの造林技術が確立される。
- (4) エーヤーワディ・デルタのマングローブ林減少の根本原因に対処するために、主要セクター間の調整メカニズムが構築される。
- (X) (2008年5月のサイクロン・ナルギスの被害に対応する追加的成果)
サイクロン・ナルギスの被害からの復興が促進される。

1-2-4 投入 (2012年10月末：評価時点)

<ミャンマー側>

| | | | |
|----------|--|-------------------------|-------------------|
| プロジェクト要員 | 管理スタッフ：22名 技術スタッフ：24名 ¹ 技術スタッフ：63名 ² | ローカルコスト (2012年10月現在) | 1億3,130万9,608チャット |
|----------|--|-------------------------|-------------------|

<日本側>総投入額 7.0 億円

| | | | |
|-----------------------|----------------|-----------------------|-----------|
| 専門家派遣 (2012年10月現在) | 計17名(133.4M/M) | 機材供与 (2012年10月現在) | 2,179万円 |
| 研修員受入 | 計13名 | 現地業務費 (2012年10月現在) | 1億7,152万円 |

¹ Range Officer 以上

² Deputy Range Officer 以下

| 2. 評価調査団の概要 | | | |
|---|-------------------|--------|--|
| 調査者 | 担当 | 氏名 | 所属 |
| | 総括 | 羽鳥 祐之 | JICA 国際協力専門員 |
| | 社会林業 | 田所 雅之 | 林野庁 林政部 木材産業課 林業・木材産業情報分析官 |
| | 協力企画/援助戦略 | 谷口 光太郎 | JICA 地球環境部 森林・自然環境保全第一課 |
| | 評価分析 | 海口 光恵 | (株) シー・ディー・シー・インターナ ショナル 環境・農業事業部 シニアコンサルタント |
| 調査期間 | 2012年11月18日～12月8日 | 評価種類 | 終了時評価 |
| 3. 評価結果の概要 | | | |
| 3-1 実績の確認 | | | |
| 3-1-1 成果の達成状況 | | | |
| (1) <u>成果1：おおむね達成される見込みである。</u> | | | |
| 指標 1a.2011年9月までに、2011年3月に再選定された CF ユーザーグループ (CFUG) ³ のすべての CF 管理計画が作成/更新される。 | | | |
| 指標 1b.プロジェクト終了までに、2011年に再選定されたすべての対象 CFUG の運営委員会 (MC) の組織能力が、プロジェクトの設定する5段階評価の3以上の水準に達する。 | | | |
| 指標 1c.2011年に再選定されたすべての CFUG の承認された CF 管理計画が、年間計画に基づき、実行される。 | | | |
| 指標 1d.プロジェクト終了までに、1,460 エーカー (591ha) 以上のマングローブ林が、2011年に再選定された CFUG によって、承認された CF 管理計画に基づき、復旧・管理される。 | | | |
| 指標 1e.プロジェクト終了までに、2011年に再選定されたすべての活発な CFUG が、承認された CF 管理計画に記された CF 活動及びプロジェクトの支援する所得創出活動によって、利益を得る。 | | | |
| 指標 1a について、2011年7月に対象6村落が再選定され、全村落の CF 管理計画が承認され、2012年7月31日までに CF 証書が発行された。 | | | |
| 指標 1b について、すべての対象村落での管理委員会の組織的能力は確認されていないものの、参加者の意識は高く、彼ら自身で今後も CF 活動を続けたい旨の意見が得られた。 | | | |
| CFUG に対するインパクト調査と能力評価 (CA) 調査は現在実施中であり、本調査時点 | | | |

³ 2002年より開発調査並びに本プロジェクトにおいて「CFUSG」という略語を用いてきたが、本報告書では「CFUG」の略語に変更・統一した。

の結果概要（暫定版）を見ると組織能力にも関係する CFUG の技術レベルが全ての村において平均以上であるとの結果が得られた。指標 1c 及び 1d について、各対象村落では認証された CF 管理計画に基づき活動が実行されており、1,670 エーカーのマングローブ林が 2009 年から 2012 年に CFUG によって管理・更新されたことを確認した。ただし、指標 1e については、すべての CFUG が所得創出活動から利益を得る見通しはまだない。いくつかの所得創出活動導入を試み、コミュニティによってカキ養殖が選定されたが、まだ利益は得られていない。したがって、成果についてはプロジェクト終了に向けて、一部の指標（1e）を除き、おおむね達成される見込みである。

(2) 成果 2：おおむね達成することが見込まれる。

指標 2a. プロジェクト終了までに、プロジェクトに 2 年以上従事している CF タスクフォース技術メンバーの 80% が、CF 管理及び普及・支援について、平均して、プロジェクトが職位別に設定した 5 段階評価の 4 以上の水準に達する。

指標 2b. 2001 年に再選定された CFUG の登録メンバーの 8 割以上が、自身の受けた CF 普及サービスの「理解度」「適用度」「満足度」について、平均で 3 段階の中以上の評価を与える。

指標 2c. プロジェクト終了までに、森林局局長による確認とさらなる措置のために、マングローブ林の CF のための研修プログラム（研修資料を含む）が、既存のものをもとに開発される。

指標 2d. プロジェクト終了までに、森林局局長による確認とさらなる措置のために、マングローブ林の CF のための標準作業手順書（SOP）が、森林局の既存の SOP（局令や CF 令）をもとに作成される。

指標 2a について、CF 管理及び普及・支援についての評価はこれから行う予定であるが、これまでの研修参加者からは研修が有益との意見を得ている。指標 2b について、CF タスクフォース（CFTF）に対してのインパクト調査・CA 調査は 2013 年 1 月に実施予定で、指標に係る「理解度」「適用度」「満足度」についての結果が得られる見込みである。

指標 2c について、CF 管理に係る研修プログラムは計画通り開発されており、プロジェクト終了までに最終化される予定である。

指標 2d について、CF 標準作業手順書（CF-SOP）については 2013 年 1 月に最終化される予定である。したがって、成果 2 についてはおおむね達成する見込みである。

(3) 成果 3：達成することが見込まれる。

指標 3a. プロジェクト終了までに、アクション・リサーチ（AR）に関する技術報告書が作成される。

指標 3b. プロジェクト終了までに、AR の結果に基づいて作成された、エーヤーワディ・デルタのマングローブ林・関連林の復旧・管理に関する、現場職員向けの造林技

術ガイドラインが発行される。

指標 3a について、AR の造林技術に係るモニタリングレポートは定期的に作成されている。また技術報告書はプロジェクト終了までに作成される予定である。指標 3b について、技術ガイドラインは 2012 年 12 月までに最終化される見込みであることから、成果 3 については達成する見込みであるといえる。

(4) 成果 4：達成された。

指標 4a. 2011 年 12 月までに、森林局によって、関連省庁間調整会合が開かれる。

指標 4b. 対象地域の土地利用情報が 2007 年、2009 年、2012 年の衛星画像を基に更新される。

指標 4c. 関連省庁間調整会合において、上記土地利用情報が協議のために共有される。

指標 4d. 関連セクターのシナジーを促進するためのセミナーが毎年開催される。

指標 5e. 対象地域のドナー/NGO 調整会合が森林局によって、年 1 回開かれる。

指標 4a について、森林局による関連省庁間調整会合は 2 回実施された。指標 4b 及び 4c について、対象地域の土地利用に係る情報は衛星写真を元に更新されており、同情報は関連省庁間調整会合の場で議論されてはいないが、ポスターやニュースレター等を通じて関連省庁間に共有されている。指標 4d 及び 4e について、該当するセミナーは毎年（これまでに 7 回）、他ドナーと NGO との調整会議も 2011 年度と 2012 年度の 2 回実施された。したがって、成果 4 については達成されたと判断した。

(5) 成果 X：達成することが見込まれる。

指標 xa. 2009 年 3 月までに、対象地域のハザード・マップが、衛星画像（2009 年）に基づいて作成される。

指標 xb. 2010 年 3 月までに、対象地域のコミュニティの被災・復興調査結果がまとめられる。

指標 xc. 2010 年 3 月までに、各 RF において、耐サイクロンの強化構造を備えた CF 普及・苗畑センターが、再建される。

指標 xd. 2009 年～2010 年に、森林局及び協力機関の災害復旧・防災事業に必要な資材が、ニーズに応じて提供される。

指標 xe. 2011 年 12 月までに、マングローブの植生復旧状況に関するデータがまとめられる。

指標 xa について、2009 年 3 月に対象地域のハザードマップが衛星画像に基づいて作成され、指標 xb についても計画どおり対象地域のコミュニティの被災・復興調査結果がまとめられた。指標 xc に関し、4 カ所の CF 苗畑センターの修復、復興用機材の供与は計画通り実施され、指標 d に関し、森林局及び協力機関の災害復旧・防災事業に必要な資材が、ニーズに応じて提供された。指標 xe のマングローブ植生被害・回復状況の報告書も準備中であ

り、『マングローブ植生回復状況報告書』（2008年～2010年）は成果3に挙げた技術報告書に添付される予定である。したがって、成果Xについては、達成する見込みといえる。

3-1-2 プロジェクト目標の達成状況：達成する見込みである。

指標 a. プロジェクト終了までに、プロジェクト活動が実施された地域において、マングローブ林の被覆面積が、基準年（2009年）に比べて、3,550 エーカー（1,438ha）増加する。

指標 b. プロジェクト終了時に、2011年に再選定された全ての対象 CF ユーザー・グループ（CFUG）の登録メンバーの8割以上が、CFを有用だとみなす。

指標 a の被覆面積の増加についてはおおむね達成された。

指標 b の CFUG の認識については達成する見込みである。

指標 a に関し、プロジェクト期間中に CF では 1,670 エーカー、ARP では 1,587 エーカー（計 3,257 エーカー）のマングローブの被覆面積が整備された（達成率 91.7%）。指標 b の CFUG の認識については、現在、インパクト調査と CA 調査を実施中である。対象 6 村落のうち本調査中に実施した 2 村（タウンジータン、ゴードゥ）の CFUG へのインタビュー調査では、CF 活動に参加していることに満足していると同時に、今後も継続したいという意見が得られている。また CF 活動に関する技術レベルもインパクト調査と CA 調査で設定した 5 つの評価項目に対し平均以上の暫定結果を得ている。以上より、プロジェクト目標は達成する見込みである。

3-1-3 上位目標の達成見込み：部分的に達成される見込みである。

指標 a. プロジェクト終了から 3 年以内に、本プロジェクト対象地域において、マングローブ林の被覆面積が 10,000 エーカー（4,050ha）増加する。

指標 b. 対象地域のコミュニティの所得水準が 2004 年に比べて上がる。

指標 a の被覆面積の増加については達成する見込みである。

指標 b の所得水準の向上は現時点では達成するかどうか明確でない。

指標 a に関し、2013 年から予定されている同地域での無償資金協力案件「沿岸部防災機能強化のためのマングローブ植林計画」では 1,154ha が植林対象となっている。また森林局の 2011 年から 2020 年の郡管理計画によると、2013 年から 2015 年の 3 年間で 1 万エーカーの植林が予定されている。

指標 b の所得水準については、現在のところ有用な既存データを得られていない。前述の 2 村に対するインタビューにより、CF 活動の継続は今後も期待できるため、これに対応した所得水準の変化については社会経済調査等の実施が望まれる。

3-2 評価結果の要約

3-2-1 5 項目評価

(1) 妥当性：高い

中間評価以降、ミャンマー側の森林政策に変更はなく、マングローブ林と共存する対象地域・住民のニーズ、また持続的森林管理・保全を実施する公的機関である森林局のニーズも高いことが確認された。ミャンマーの国家森林マスタープラン（2001年～2031年）では、ローカルコミュニティが参画すべき4つの分野として、1) 保護林と公共保護林の管理、2) 植林、3) アグロフォレストリー活動、4) 郡所有林管理が挙げられている。また、日本の新成長戦略にミャンマー支援が含まれており、沿岸部防災が優先課題の1つと位置づけられている。ミャンマーの開発計画及び日本のミャンマー国に対するODA政策とも合致している。日本の技術の優位性についても、CF活動や本邦研修に携わった森林局スタッフへの聞き取り調査から、有用であることが確認された。

(2) 有効性：比較的高い

各成果のプロジェクト目標に対する達成度には程度の差があるものの、プロジェクト目標の達成見込みがあることから、有効性も高いといえる。

因果関係については、成果1はCF認証がなされたことで今後のCF活動の実施が確保された。成果2については、各研修等で得られた知識・技術を森林局職員が活用することで、マングローブ林の保存とコミュニティの共生が見込まれる。成果3のアクション・リサーチ植林（ARP）によって1,587エーカーの植林がこれまでに実施された。成果4の関連機関の連携のための調整会合を実施することで情報共有や協力関係が構築できた。成果Xでのサイクロンからの復旧についてもプロジェクト目標達成には不可欠なものといえる。

(3) 効率性：中程度である

事前評価段階の想定より事業費が増えたものの、サイクロン被害からの復旧・復興に係る経費であり、事業そのものの効率性が低いとは言い難い。

(4) インパクト：いくつかの正のインパクトが確認された。負のインパクトは確認されていない。

住民はサイクロンの経験を通じて、マングローブが高潮・強風の被害を緩和することを認識した。他のいくつかのNGOも村落でのCF活動を支援している。上位目標は部分的に達成される見込みである。

(5) 持続性：比較的高い

組織・制度面：CFを含む総合マングローブ管理に係る法的・政策支援は継続予定である。

環境保全・林業省はCF令（CFI）の改訂やCF専従部署の新設を検討している。プロジェクトに従事した人員は全員政府の正規職員であり、プロジェクト終了後も関連業務に登用され、プロジェクトで得られた技術や経験の活用が見込まれる。省庁間調整会合やNGOとの会議も実施されており、今後の情報共有と協力関係の強化

についても期待される。カキ養殖は所得創出活動として確立するには至っていないが、CFUGはCF活動の継続を望んでおり、CF活動の持続性が見込まれる。

財政面：モニタリングを含む関連活動をプロジェクト終了後も継続・拡大するためには、ミャンマー政府が、現場へ赴くための燃料費を予算措置する必要がある。

技術面：森林局職員の造林技術・ARPに係る技術レベルの向上は顕著にみられ、本プロジェクト以外の他業務においても活用されている。技術レポート・技術ガイドラインについても、本プロジェクト終了後に活用されることが期待される。CF管理・支援体制に関し、研修プログラムやマングローブ林でのCF-SOPを含めて本プロジェクトで移転した技術が、中央林業開発訓練センター（CFDTC）の既存研修プログラムや森林局の各規定（局令、CF令）に組み込まれることが見込まれる。

3-3 効果発現に貢献した要因

(1) 計画内容に関すること

中間レビューでの提言に基づき、サイクロンの復旧・復興活動を抽出して成果Xとして集約する等して成果を再整理した結果、プロジェクトにおける復旧・復興活動の位置づけが明確になった。

(2) 実施プロセスに関すること

- 1) 中間レビューでパイロット村落数を22から6に絞り込んだ結果、資源が集中的に投入され、効果発現につながった。
- 2) 先行の開発調査で得られた成果（マスタープラン等）を利用できた。また開発調査を通じて築かれた日本人専門家とミャンマー側関係者間の良好な関係が、本プロジェクトの円滑な運営に寄与した。

3-4 問題点及び問題を惹起した要因

(1) 計画内容に関すること

上位目標では、「CF活動に従事することが所得向上につながる」とのロジックに則り、所得向上が指標として採用されている。しかし、CFユーザー・グループは以前から居住のうえ漁労・伐採等の活動に従事しており、CF令やCF証書により、CF地域の利用と水産活動が合法化されたにすぎない。このため、CFの導入により、CFユーザー・グループの潜在的な所得源としての森林資源は増加が見込まれるが、CF自体は当然所得向上にはつながらない。それゆえ、「所得向上」をPDMに入れたことで、PDMの論理性が弱まった。

(2) 実施プロセスに関すること

- 1) 2008年5月にサイクロン・ナルギスが発生し、プロジェクト活動に大きな被害が発生した。プロジェクト活動は中断を余儀なくされ、前年に実施した活動の成果も失われ、プロジェクト期間も1年間延長することとなった。村人の離散と流入が発生し、社会

データに係るプロジェクト開始時のベースラインとの比較が有意でなくなった。

- 2) 所得創出活動として複数の選択肢を検討し、その中からいくつかを試行した。結局マングローブ林の下でカキ養殖を行うアクア・アグロフォレストリーだけが継続的に支援されたが、着床技術の実践の難しさ、マーケティングや流通、部外者による盗難等があり、成功しなかった。
- 3) 日本人専門家を派遣する場合、ミャンマー政府による受入確認手続きに少なくとも 2 カ月から 3 カ月、場合によっては 4 カ月から 5 カ月を要した。新たな課題に対応するべく新たな専門家を派遣する際、機動的な派遣が困難であった。
- 4) 日本人専門家がヤンゴン域外へ行く際、移動のたびに、遅くとも 2 週間以上前には移動許可証を申請しなければならず、機動的な活動を難しくした。
- 5) 日本人専門家及びプロジェクト雇用スタッフはヤンゴン、カウンターパート (C/P) の幹部層 (プロジェクト・ディレクター、プロジェクト・マネージャー、プロジェクト・コーディネーター等) はネピドー、C/P の現場のスタッフはエーヤーワディ・デルタ地域の複数の箇所と、執務室が分散しており、プロジェクト内部の意思疎通を円滑に行う上で制約要因となった。

3-5 結論

- (1) 本プロジェクト目標の「エーヤーワディ・デルタ内のプロジェクト活動が実施される地域において、コミュニティとマングローブ林が持続的に共生する」はおおむね達成することが見込まれる。よって本プロジェクトは、計画どおり、2013 年 3 月に終了可能である。
- (2) CF 活動は直接的に所得向上につながる事が確認できなかったため、上位目標「エーヤーワディ・デルタ内のマングローブ林が持続的に管理され、コミュニティの貧困が緩和される」については、本プロジェクト終了後の 3 年以内に達成することは難しい。

3-6 提言 (当該プロジェクトに関する具体的な措置、提案、助言)

3-6-1 プロジェクトへの提言

技術面での検証や、関係機関の活動に活用させることを目的に、ARP 及び復旧・復興調査を通じて得た知見・知識に係る技術ワークショップを開催すること。

3-6-2 森林局への提言

- (1) CF 開発の将来計画を明らかにした上で、組織・制度・財政措置 (SOP を含む) を強化し、プロジェクトで支援した 6 カ所の CF の経験を踏まえ、他の地域への展開を図っていくこと。
- (2) CF 令に則って CF ユーザー・グループにプログレス・レポート (年次報告書) を提出させ、指摘された問題点の解決を図ること。

- (3) CF ユーザー・グループが漁業、カニ捕り、カキ養殖を続けられるよう、漁業権や水面利用権を巡る問題について、水産局との良好な調整を保つこと。
- (4) 不法活動に対応するため、CF 活動に係る法執行を強化すること。
- (5) 現場のスタッフが CF のモニタリングを実施できるよう、必要な予算、ボート、燃料を確保すること。
- (6) JICA の無償資金協力事業「沿岸部防災機能強化のためのマングローブ植林計画」との相乗効果を図るため、マングローブ林管理・保全に係る技術ガイドラインを無償案件においても活用し連携を図ること。
- (7) 頻繁な人事異動の際にデータが散逸しないよう、プロジェクトがすでに提案した様式を活用するなどして、紙ベース及び電子データとも管理を徹底すること。特に ARP については、森林研究所 (FRI) に結果を共有すること。
- (8) CF 管理のために、関連省庁間会議を継続・制度化し、定期的に開催すること。
- (9) プロジェクトで作成されるマングローブ林保全・管理に関する技術ガイドラインを承認し活用すること。
- (10) 全国規模の土地利用計画に係る政策策定において、関係省庁及び地方自治体に対して、マングローブ林の管理と利用に係る調整を行うよう、特にプロジェクトで開発した CF 地域において同地域の CF ユーザー・グループに対して認められた 30 年間の土地利用権を保障するよう、主張すること。
- (11) 将来の土地利用計画のために、プロジェクトが解析中の植生・土地利用変化に係るデータを、関係省庁及び地方自治体に対して提供すること。
- (12) マングローブの減災機能を認識の上、関係省庁及び地方自治体が復興モニタリング結果を防災及び災害管理に係る政策・施策へ活用するよう促すこと。
- (13) プロジェクトの円滑な実施のため、日本人専門家がプロジェクト活動でヤンゴン外へ行くための、プロジェクト期間中有効な数次の旅行許可証を発給するよう、関連省庁と必要な調整を行うこと。

3-6-3 JICA への提言

他の JICA プロジェクト (以下に挙げるものを含む) や他ドナー、NGO (例えば RECOFTC⁴) が本プロジェクトの成果、知見、教訓を参照・活用できるよう、必要な調整と措置を講じること。

- (1) ミャンマー国「沿岸部防災機能強化のためのマングローブ植林計画」(2013 年 11 月～2017 年 3 月)
- (2) インドネシア国「マングローブ生態系保全と持続的な利用の東南アジア諸国連合 (ASEAN) 地域における展開プロジェクト」(2011 年 6 月～2014 年 6 月)
- (3) オマーン国「マングローブ環境情報センター (QEIC) 開発プロジェクト」(2011 年

⁴タイにある地域間国際機関

12月～2013年12月)

3-7 教訓 (当該プロジェクトから導き出された他の類似プロジェクトの発掘・形成、実施、運営管理に参考となる事柄)

- (1) 一般論として、CF活動に参加する農家の人々はCFが導入される以前から居住及び経済活動を営んでいることがほとんどであるため、CFの導入が必然的に所得水準の向上につながるわけではない。このため、所得向上を指標として設定することが適切なのかどうか、プロジェクトの計画段階で慎重に考慮する必要がある。
- (2) 植林事業は便益が得られるまで時間がかかるため、短期的な便益が得られるよう、生計向上活動を組み合わせること自体は重要である。しかし、生計向上活動を提案する場合は、産物や技術の利用可能性、住民のニーズはもとより、マーケティングや流通も含めた商業面での実現可能性も含めて現地の条件を考慮に入れることが必要である。
- (3) ミャンマーでプロジェクトを実施する場合は、日本人専門家、C/Pの政策決定者及び現場スタッフ間の意思疎通を円滑に行うため、プロジェクト事務所はネピドーと現場の両方に構えることが望ましい。
- (4) パイロットサイト (さらに一般化するならばプロジェクトのスコープ) を計画する際は、投入規模やアクセスの容易さ等を勘案の上、現実的なサイト数と規模にすることが重要である。
- (5) 参加型活動の持続性を確保するため、活動を計画・実施する際は、コミュニティ構成員それぞれの金銭負担能力に応じた適正価格の参加費や罰金を設定すべきである。
- (6) 新しい生計向上活動をコミュニティに導入する場合、実施するモチベーションが湧くように、どのような便益をいくらぐらい、いつまでに得られるのかを明確に提示すべきである。
- (7) 甚大な自然災害の発生のように、致命的な外部条件の崩壊が生じた場合、JICAは運営指導調査団を派遣し、プロジェクトにもたらされる負の影響を把握し、プロジェクトデザインの修正をC/Pと協議し、PDMの改訂を合同調整委員会 (JCC) へ提案すべきである。

Summary of Terminal Evaluation

| | |
|--|---|
| 1. Outline of the Project | |
| Country : Republic of the Union of Myanmar | Project Title : The integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta |
| Issue/Sector : Forestry and Forest Conservation | Cooperation scheme : Technical Cooperation |
| Division in Charge : Forestry and Nature Conservation Division 1, Global Environment Department | Total Cost (at the time of evaluation) : 700 million yen |
| Period of Cooperation (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 | Partner Country's Implementing Organization : Forest Department, Ministry of Environmental Conservation and Forestry Department of Fisheries, Ministry of Fisheries and Livestock Department of Agriculture, Ministry of Agriculture and Irrigation |
| | Supporting Organization : NIPPON KOEI CO., LTD. |
| | Related Cooperation : (Grant Aid)The Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta |
| 1 – 1 Background of the Project <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 ¹ and 63 persons ² | Running Expenses (as of Oct. 2012) | MMK 131, 309,608 |
|-------------------------------------|--|------------------------------------|------------------|

<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 |
| Period of Evaluation | Nov. 18th 2012- Dec. 8th 2012 | | Type of Evaluation |
| | | | 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 CFUGs³, reselected in March 2011, are developed/ updated.

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

¹ Range Officer and above

² Deputy Range Officer and below

³ 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 CFI⁴) 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.

⁴ 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 ARP⁵ 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.

⁵ 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 ODA⁶ 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.

⁶ 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. RECOFTC⁷) 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

⁷ 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).

第1章 評価調査の概要

1-1 プロジェクトの概要

1-1-1 プロジェクトの背景

ミャンマー連邦（以下、「ミャンマー」と記す）の中で、森林荒廃が特に深刻な地域の1つがエーヤーワディ・デルタ地域のマングローブ林である。この地域では20世紀初頭に保全林区が設定されたが、炭の生産、薪炭材の採取、水田開発、エビ・魚の養殖、塩田開発等の結果、1920年代の森林面積に比べ、現在はその4割弱しか残存していない。独立行政法人国際協力機構（Japan International Cooperation Agency：JICA）は、2002年2月から3年間、開発調査「エーヤーワディ・デルタ住民参加型マングローブ総合管理計画調査」を実施し、マスタープランを策定した。これを受けミャンマー政府は、2005年5月、同計画の実施に必要な林業省（当時）森林局及び住民組織の森林管理能力向上と、それに基づくマングローブ林の再生を図ることを目的とした技術協力プロジェクトをわが国政府に要請し、2006年9月に討議議事録（Record of Discussion：R/D）が署名され、同年12月からの国内準備作業を経て、2007年4月から5年間の予定でプロジェクトを開始した。

しかし、2008年5月、サイクロン・ナルギスがプロジェクト対象サイトを直撃し、地元住民、マングローブ林、行政機関に甚大な被害をもたらした。プロジェクトは、2008年5月から12月の約8カ月間、活動の中断を余儀なくされたが、その間、現地被害調査や復興状況調査を実施し、速やかな再開への準備を行った。2009年1月には活動計画が見直され、地域住民の生計の復旧及びマングローブ林の補植・造成を通じた防災機能の強化の視点を加え、活動の継続・拡大をしていく方針とした。また、プロジェクト期間も当初は2012年3月までであったが、1年間延長して2013年3月までと変更された。

2011年2月から3月に実施した中間レビュー調査においては、サイクロン復旧活動を成果Xとして再整理する等、必要な修正を加えたプロジェクト・デザイン・マトリックス（Project Design Matrix：PDM）案を作成し、先方政府の合意を得た。現在は、更に若干の指標の修正等を加えた最新版PDM（バージョン3）に基づいて事業運営を行っている（1-3参照）。

1-1-2 協力期間

2007年4月～2012年3月（2006年9月29日（署名済R/Dによる）

延長期間：2012年4月～2013年3月

1-1-3 事業実施体制〔実施機関・カウンターパート（C/P）〕

環境保全・林業省森林局（Forestry Department, Ministry of Environmental Conservation and Forestry）

1-1-4 プロジェクトサイト・対象地域

エーヤーワディ管区、ラプタ、ボガレー及びピャーポンタウンシップ

1-1-5 プロジェクト構成要素

上位目標：エーヤーワディ・デルタ内のマングローブ林が持続的に管理され、コミュニティの貧困が緩和される。

プロジェクト目標：エーヤーワディ・デルタ内のプロジェクト活動が実施される地域において、コミュニティとマングローブ林が持続的に共生する。

成果：

1. 選定されたコミュニティが環境的にも、経済的にも持続的なコミュニティ林業（CF）を実践する。

2. 森林局の CF 管理・支援体制が効果的である。
3. エーヤーワディ・デルタのマングローブ林及び関連林の復旧と管理に関するいくつかの造林技術が確立される。
4. エーヤーワディ・デルタのマングローブ林減少の根本原因に対処するために、主要セクター間の調整メカニズムが構築される。
- X. (2008 年 5 月のサイクロン・ナルギス後の追加的アウトプット)
サイクロン・ナルギスの被害からの復興が促進される。

活動：

- 1-1 CF に関心を示す村落の中から CF を導入する村落を選定する。
- 1-2 選定した村落の基本的社会経済状況のベースライン調査を行う。
- 1-3 選定した村落において、CF ユーザーグループ (CFUG) を組織化/再組織化する。
- 1-4 CFUG に対し、CF 管理計画及び CF 証書のプロポーザル作成/更新を、参加型計画プロセスを通して支援する。
- 1-5 森林局 CF 令に則り、上記プロポーザルに基づき、CFUG に対して、CF 証書を発行する。
- 1-6 CFUG に対し、承認された CF 管理計画実施を支援する。
- 1-7 CFUG の所得水準向上のための様々な能力強化プログラムを、水産局 (DOF)、ミャンマー農業サービス (MAS) といった協力機関等と連携して、実施する。
- 1-8 承認された CF 管理計画の CFUG による実施をモニタリング&評価する。
- 1-9 CFUG メンバーの生計における CF の効果についてインパクト調査を行う。

- 2-1 総合マングローブ管理プログラム (IMMP) の CF 関連箇所のレビューに基づき、CF 管理¹及び CF 普及・支援²に必要な活動を RF ごとに特定する。
- 2-2 特定された活動に対する CF タスクフォース (CFTF) 技術メンバー³ の役割と責任を確認する。
- 2-3 特定された活動を実施するため CFTF 技術メンバーのニーズ (例：資金、ロジスティックス、人材開発ニーズ) を評価する。
- 2-4 上記の人材開発ニーズ評価に基づき、研修計画・教材を作成する。
- 2-5 上記研修計画に基づき、CFTF 技術メンバーに研修を行う。
- 2-6 各 RF において、CF 普及・苗畑センターを建設/改修する。
- 2-7 各 RF において、CFUG への普及サービス・支援を提供する。
- 2-8 CF 及びマングローブ林保全に関する広報活動を行う。
- 2-9 森林局の既存 SOP (局令等) 及びプロジェクト活動からのフィードバックをもとに、マングローブ林の CF に関する詳細な SOP を作成する。

- 3-1 エーヤーワディ・デルタの生態・地理的ゾーン・管理ゾーンごとに、CF 及び非 CF のための造林技術を特定する調査を実施する。
- 3-2 特定された造林技術 (例：苗木生産、植え付け設計・方法、伐、枝打ち、森林管理) ごとにアクション・リサーチ (AR) 試験を設計する。
- 3-3 各 RF において AR 試験を実施する。
- 3-4 AR の植林地において、定期的な技術モニタリング及び初期評価を実施する。
- 3-5 マングローブ林の AR に関する技術レポートを作成する。

¹ 森林局による CF 管理は、CF 関連活動の計画、監督、モニタリング・評価、データ整理・分析を含むと定義される。CF 支援は CF 普及サービスと CF 普及支援からなる。

² 「CF 普及サービス」には、CFUG の組織化、CFUG の組織・運営能力強化、CF 管理計画の作成・実施や CFUG の所得創出活動に対する技術的サポート等が含まれる。一方、「CF 普及支援」は、CF 管理計画に基づく植林への苗木提供、CF 活動への CF 普及・苗畑センターの施設提供などの物質的支援と定義される。

³ 成果 2 における「CFTF 技術メンバー」は、フィールド・プロジェクト・マネージャー及び対象地域に関連する現場職員 (スタッフ・オフィサー、レンジ・オフィサー、デピュティ・レンジ・オフィサー、フォレストラー) を指す。

- 3-6 AR のファインディングに基づき、マングローブ林の復旧・管理に関する技術ガイドラインを作成する。
- 4-1 州（リージョン）レベルで、エーヤーワディ・デルタのマングローブ林減少の根本原因を検討するために、関連省庁（例：農業、水産、定住・土地記録）の調整会合を開く。
- 4-2 調整会合メンバーの協議に資するために、デルタ地域の総合的森林資源評価及びマングローブ林の転用情報を含む土地利用情報を、最新の衛星画像を基に、定期的に更新する。
- 4-3 エーヤーワディ・デルタのマングローブ生態系の持続的管理のため、関連セクターのシナジーを促進するセミナーを開く。
- 4-4 県（ディストリクト）レベルで、対象地域で活動するドナー/BGO の調整会合を開く。
- X-1 サイクロン・ナルギスの被害分析に基づき、ハザードマップを作成する。
- X-2 対象地域の簡易被災調査・復興調査を行う。
- X-3 対象地域の村落プロファイル調査を行う。
- X-4 各 RF において、耐サイクロン構造を備えた CF 普及・苗畑センターを再建する。
- X-5 対象地域における実施機関・協力機関の災害復旧・防災事業に対し、資材供給を通して支援する。
- X-6 対象地域における実施機関・協力機関の災害復旧・防災事業に対し、資材供給を通して支援する。
- X-7 対象地域において、防災にかかる意識向上活動を行う。
- X-8 総合マングローブ管理に関し、ドナー間の必要な調整を行う。

1-2 調査の目的

2013年3月末末のプロジェクト終了を前に、『新 JICA 事業評価ガイドライン（第1版）』に基づき、本案件の投入実績・活動実績及び成果を確認するとともに、評価5項目（妥当性、有効性、効率性、インパクト、持続性）及び横断的視点（政策、技術、環境、社会・文化、組織制度・管理運営、経済・財政）から、プロジェクト目標及び上位目標の達成見込み、成果達成の促進・阻害要因等を分析する。また、残りの協力期間における対応方針、今後の活動へ向けた提言、今後の類似プロジェクトの実施にあたっての教訓を抽出する。以上をまとめた合同評価報告書を作成し、先方政府へ提出・説明した。

1-3 PDM の変遷

2013年2月末現在、プロジェクトは PDM version3 と PO version2 の枠組みによって実施されている。これまでの PDM の変遷の概要は以下のとおりである。

(1) PDM version 0

PDM version 0 は 2006年9月29日に JICA が森林局、水産局、ミャンマー農業サービスと R/D に署名した際に採用された。この PDM と PO がプロジェクトの基盤となった。

(2) PDM version 1

PDM version 0 は、2009年1月28日に開催された第3回 JCC 会議にて、当初の計画に2008年5月にプロジェクト対象地域を襲ったサイクロン・ナルギスの被害からの復興支援を追加して PDM version 1 として改訂された。PDM version 1 では、復興支援活動の追加とともに以下のとおり変更が行われた。

- 1) プロジェクト期間の1年延長（2007年4月～2013年3月）
- 2) PDM 指標の設定（マングローブの被覆面積を含めた具体的な指標を設定している）。

ただし、プロジェクトの外部条件の大きな変化もあったことから、これらの指標はマングローブ総合管理計画の内容に基づいて策定され、2007年の活動実績は反映されていない。）

(3) PDM version 2

PDM version 2は、2011年2月から3月にかけて現地作業が実施された中間レビューによって提言された draft を踏まえて、本プロジェクト関係者が2011年6月末までに最終化した。最終化された PDM version2 は2011年7月14日に開催された第5回 JCC 会議において承認された。PDM version 2では、既存の成果が以下の5つに再構築され、各活動や指標が再整理・修正された。

成果1：選定されたコミュニティが環境的にも経済的にも持続的なコミュニティ林業（CF）を実践する。

成果2：森林局のCF管理・支援体制が効果的である。

成果3：エーヤーワディ・デルタのマングローブ林及び関連林の復旧と管理に関するいくつかの造林技術が確立される。

成果4：エーヤーワディ・デルタのマングローブ林減少の根本原因に対処するために、主要セクター間の調整メカニズムが構築される。

成果X：サイクロン・ナルギスの被害からの復興が促進される（2008年5月のサイクロン・ナルギス後の追加活動を集約した新成果）。

(4) PDM version 3

2012年5月3日に開催された第6回 JCC 会議において、PDM version 3 が承認された。PDM version 3は、version2 から以下の改訂・修正を行った。なお、プロジェクトの枠組みは、PDM version 2 から変更はない。

- 1) 土地（面積）由来の指標ならびにキャパシティ・ディベロプメント関係指標の最終化
- 2) 誤記・誤植の訂正

1-4 調査団の概要

1-4-1 現地調査期間

平成24年11月18日（日）から12月8日（土）まで（21日間）
（うち、官団員は11月25日（日）から12月8日（土）まで（14日間）

1-4-2 調査団構成

(1) 日本側：

| 氏名 | 担当業務 | 所属・職位 | 期間 |
|--------|-----------|---|------------|
| 羽鳥 祐之 | 総括 | JICA 国際協力専門員 | 11/25～12/8 |
| 田所 雅之 | 社会林業 | 林野庁 林政部 木材産業課 林業・木材産業情報分析官 | 11/25～12/8 |
| 谷口 光太郎 | 協力企画/援助戦略 | JICA 地球環境部 森林・自然環境保全第一課 | 11/25～12/8 |
| 海口 光恵 | 評価分析 | 株式会社シー・ディー・シー・インターナショナル 環境・農業事業部 シニアコンサルタント | 11/18～12/8 |

(2) ミャンマー側評価メンバー：

| 氏名 | 担当業務 | 所属・職位 |
|-------------------|----------------------|--|
| U Win Myint | 総括/アクション・リサーチ植林（ARP） | 環境保全・林業省 森林局 森林研究所 Assistant Director |
| U Maung Maung Aye | 社会林業 | 環境保全・林業省 エーヤーワディ管区森林 |

| | | |
|------------------|----|--|
| | | 局事務所 Assistant Director |
| U Htun Aung Kyat | 農業 | 農業灌漑省 ピャーボン県農業局事務所 Assistant Director |
| U Thet Aye | 水産 | 水畜産省 ピャーボン郡水産局事務所 Staff Officer |

1-5 調査日程

| 日順 | 月日 | 活動 | 宿泊地 |
|----|-------------------|--|---------|
| 1 | 11/18 (日) | 【海口】 11:00 関空発 (TG623) →15:45 バンコク着 17:55 バンコク発 (TG305) →18:40 ヤンゴン着 | ヤンゴン |
| 2 | 11/19 (月) | 10:00 JICA 事務所及び専門家協議 14:00~16:00 カウンターパート (C/P) 面談 (前・アシスタント・フィールド・プロジェクト・マネジャー) | ヤンゴン |
| 3 | 11/20 (火) | 09:30~16:30 C/P 面談 (ピャーポン・レンジ・オフィサー、ラプタ・レンジ・オフィサー、ミャウミャ県アシスタント・ディレクター、ボガレー・スタッフ・オフィサー、ピャーポン・スタッフオフィサー) | ヤンゴン |
| 4 | 11/21 (水) | 10:20~11:10 C/P 面談 (ボガレー・スタッフ・オフィサー、ピャーポン・スタッフオフィサー) 13:00~15:00 柴山チーフ面談 | ヤンゴン |
| 5 | 11/22 (木) | 午前 ヤンゴン発→ネピドー着 (陸路) 16:00~18:00 柴山チーフ面談 | ネピドー |
| 6 | 11/23 (金) | 10:00~12:00 C/P 面談 (前ボガレー・レンジ・オフィサー) | ネピドー |
| 7 | 11/24 (土) | ネピドー発→ヤンゴン着 (陸路) 資料作成 | ヤンゴン |
| 8 | 11/25 (日) | 【田所】 10:45 成田発 (TG641) →15:45 バンコク着 【羽鳥、谷口】 11:45 成田発 (TG643) →16:45 バンコク着 【羽鳥、田所、谷口】 17:55 バンコク着 (TG305) →18:40 ヤンゴン着 【全員】 20:30~22:00 団内打合せ | ヤンゴン |
| 9 | 11/26 (月) | 09:20~09:50 JICA 事務所協議 10:00~12:00 専門家協議 (柴山チーフ、安専門家、馬場専門家) 14:00~15:30 ミャンマー側評価メンバー協議 | ヤンゴン |
| 10 | 11/27 (火) | 10:00~12:30 環境保全・林業省森林局協議 14:00~15:30 専門家協議 (柴山チーフ、馬場専門家) | ヤンゴン |
| 11 | 11/28 (水) 【祝日】 | 08:30 ヤンゴン発→12:30 ボガレー着 14:00 ボガレー発→19:00 タウンジータン着 | タウンジータン |
| 12 | 11/29 (木) | 08:30~12:30 プロジェクト活動サイト視察 [林班 65 番の ARP、タウンジータン植林地 (共有林)、林班 66 番の ARP] 13:30~15:00 ゴードゥ及びタウンジータンの両 CFUG 面談 15:00~21:40 移動 (ゴードゥ発→ボガレー着) | ボガレー |
| 13 | 11/30 (金) | 08:30 ボガレー発→15:00 ヤンゴン着 | ヤンゴン |
| 14 | 12/1 (土) | 09:00~16:30 団内打合せ、資料作成 | ヤンゴン |
| 15 | 12/2 (日) | 13:00~17:30 団内打合せ、資料作成 | ヤンゴン |
| 16 | 12/3 (月) | 07:00 ヤンゴン発 (UB783J) →08:15 ネピドー着 | ネピドー |

| | | | |
|----|---------|---|------|
| | | 09:45～10:30：森林局計画統計部長（プロジェクトマネージャー）との協議 | |
| 17 | 12/4（火） | 10:00～16:30 ミャンマー側評価メンバーとの協議、報告書作成 13:00～13:20 森林局流域管理部長（前プロジェクトコーディネーター）との協議 | ネピドー |
| 18 | 12/5（水） | 09:00～17:30 ミャンマー側評価メンバーとの協議、報告書作成 12:40～13:00 森林局長表敬 | ネピドー |
| 19 | 12/6（木） | 08:30～09:00 森林局への報告書提出、協議議事録（M/M）署名 11:15～16:00 ネピドー発→ヤンゴン着（陸路） | ヤンゴン |
| 20 | 12/7（金） | 10:00～11:00 JICA 事務所報告 【羽鳥、田所、谷口】 14:30～15:15 日本大使館報告 【全員】 19:40 ヤンゴン発（TG306）→21:35 バンコク着 【羽鳥、田所、谷口】 22:35 バンコク発（TG640） 【海口】 23:15 バンコク発（TG622） | 機内 |
| 21 | 12/8（土） | 【羽鳥、田所、谷口】 06:15 成田着 【海口】 06:25 関空着 | |

第2章 評価の方法

2-1 調査の流れ

今回の評価は『新 JICA 事業評価ガイドライン（第1版）』に準拠して行った。評価の基になる PDM は、最新 PDM を使用した。評価に先立ち、プロジェクト関係文書に基づき、評価のデザインとして評価グリッドを作成した。日本側、ミャンマー側双方による合同評価調査団は、過去のプロジェクト記録等の資料調査、プロジェクト関係者への事前質問票調査及びインタビュー調査、また現地視察を行い、情報を収集した。これらの結果を基に、合同評価報告書案を作成し、関係者との協議を経て、報告書を完成させた。

2-2 調査項目

2-2-1 プロジェクトの実績の確認

PDM の計画に沿ってプロジェクトの投入、成果、プロジェクト目標が達成された度合いを検証する。

2-2-2 実施プロセスの検証

プロジェクトの実施過程全般を見る視点であり、活動が計画どおり行われているか、またプロジェクトのモニタリングやプロジェクト内のコミュニケーションが円滑に行われているかを検証する。

2-2-3 評価項目ごとの分析

- (1) 妥当性：プロジェクトの目指している効果（プロジェクト目標や上位目標）が、評価を実施する時点において妥当か〔国家開発計画及び日本の政府開発援助（Official Development Assistance : ODA）政策との整合性はあるか、受益者のニーズに合致しているか等〕、プロジェクトの戦略・方法は妥当か等を評価する。
- (2) 有効性（予測）：プロジェクト目標達成の見込みはあるか、プロジェクト目標に対し成果は適切か、目標達成の貢献・阻害要因はあるか等を評価する。
- (3) 効率性：投入に見合った成果が産出されているか、活動スケジュールと投入のタイミング・質・量は成果産出には適切だったか等を評価する。
- (4) インパクト：上位目標達成の見込みはあるか、その他、プラスのインパクトはあるか（予測されるか）、予期していなかったマイナスのインパクトはあるか（予測されるか）、マイナスのインパクトがある場合、それに対する対策は講じられているかを評価する。
- (5) 持続性（見込み）：協力が終了しても、プロジェクトで発現した効果が持続する見込みについて、制度面、組織・財政面、技術面から評価する。

2-3 情報収集・入手手段

現地調査に先立ち、プロジェクトに指標及び投入の実績に関する情報提供を依頼した。さらに、主としてプロジェクトの実施プロセス・評価5項目に関する質問票を英語で作成し、事前に配布した。現地においては、インタビューにより、指標及び実施プロセスの確認と評価5項目に関する補足情報を収集した。

第3章 調査結果

3-1 概要

本調査団は11月18日以降順次ヤンゴン入りし、ミャンマー側評価メンバーとともに、日本人専門家及び環境保全・林業省森林局を始めとするプロジェクト関係者への面談、エーヤーワディ・デルタ地域でのCF及びARPの視察、CFUGへの面談等を通じて、プロジェクト活動の進捗状況と成果の達成状況を把握した。

12月3日以降はネピドーにて、ミャンマー側評価メンバーとともに評価報告書を取りまとめた。また、森林局長（プロジェクト・ディレクター）、計画統計部長（プロジェクト・マネージャー）、流域管理部長（前プロジェクト・コーディネーター）等と意見交換を行った。

12月6日、日本・ミャンマー両評価団長は、合同調整委員会議長でもある森林局長へ評価報告書を提出し、羽鳥 JICA 国際協力専門員（団長）と森林局長との間で M/M を署名・交換した。

3-2 評価結果

3-2-1 実績の確認

(1) 成果の達成状況

成果1：おおむね達成される見込みである。

指標 1a.2011年9月までに、2011年3月に再選定されたCFUGのすべてのCF管理計画が作成/更新される。

指標 1b.プロジェクト終了までに、2011年に再選定されたすべての対象CFUGの運営委員会（MC）の組織能力が、プロジェクトの設定する5段階評価の3以上の水準に達する。

指標 1c.2011年に再選定されたすべてのCFUGの承認されたCF管理計画が、年間計画に基づき、実行される。

指標 1d.プロジェクト終了までに、1,460 エーカー（591ha）以上のマングローブ林が、2011年に再選定されたCFUGによって、承認されたCF管理計画に基づき、復旧・管理される。

指標 1e.プロジェクト終了までに、2011年に再選定されたすべての活発なCFUGが、承認されたCF管理計画に記載されたCF活動及びプロジェクトの支援する所得創出活動によって、利益を得る。

指標 1a について、2011年7月に対象6村落が再選定され、全村落のCF管理計画が承認され、2012年7月31日までにCF証書が発行された。

指標 1b について、すべての対象村落での管理委員会の組織的能力は確認されていないものの、参加者の意識は高く、彼ら自身で今後もCF活動を続けたい旨の意見が得られた。

CFUGに対するインパクト調査と能力評価調査は現在実施中であり、本調査時点の結果概要（暫定版）を見ると組織能力にも関係するCFUGの技術レベルが全ての村において平均以上であるとの結果が得られた。指標 1c 及び 1d について、各対象村落では認証されたCF管理計画に基づき活動が実行されており、1,670 エーカーのマングローブ林が2009年から2012年にCFUGによって管理・更新されたことを確認した。指標 1e については効果の発現には時間を要するものの、すべてのCFUGが管理計画に記載されたCF活動に取り組むとともに、いくつかの所得創出活動導入を試みている。したがって、成果についてはプロジェクト終了に向けて、おおむね達成される見込みである。

成果2：おおむね達成することが見込まれる。

指標 2a.プロジェクト終了までに、プロジェクトに2年以上従事しているCFタスクフォース技術メンバーの80%が、CF管理及び普及・支援について、平均して、プロジェクトが職位別に設定した5段階評価の4以上の水準に達する。

指標 2b. 2001 年に再選定された CFUG の登録メンバーの 8 割以上が、自身の受けた CF 普及サービスの「理解度」「適用度」「満足度」について、平均で 3 段階の中以上の評価を与える。

指標 2c. プロジェクト終了までに、森林局局長による確認とさらなる措置のために、マングローブ林の CF のための研修プログラム（研修資料を含む）が、既存のものをもとに開発される。

指標 2d. プロジェクト終了までに、森林局局長による確認とさらなる措置のために、マングローブ林の CF のための標準作業手順書 (SOP) が、森林局の既存の SOP(局令や CF 令) をもとに作成される。

指標 2a について、CF 管理及び普及・支援についての評価はこれから行う予定であるが、これまでの研修参加者からは研修が有益との意見を得ている。指標 2b については、CF タスクフォースメンバーの能力を technical capacity と core capacity の 2 つに分け、これら 2 つの側面の能力について調査を実施した。その結果、双方の能力について、現在プロジェクトに従事している調査対象者 (10 名) の 8 割以上 (technical 80%、core 100%) が 4 段階以上の基準を達成した。

指標 2c について、CF 管理に係る研修プログラムは計画通り開発されており、プロジェクト終了までに最終化される予定である。

指標 2d について、CF 標準作業手順書 (CF-SOP) については 2013 年 1 月に最終化される予定である。したがって、成果 2 についてはおおむね達成する見込みである。

成果 3：達成することが見込まれる。

指標 3a. プロジェクト終了までに、アクション・リサーチ (AR) に関する技術報告書が作成される。

指標 3b. プロジェクト終了までに、AR の結果に基づいて作成された、エーヤーワディ・デルタのマングローブ林・関連林の復旧・管理に関する、現場職員向けの造林技術ガイドラインが発行される。

指標 3a について、AR の造林技術に係るモニタリングレポートは定期的に作成されている。また技術報告書はプロジェクト終了までに作成される予定である。指標 3b について、技術ガイドラインは 2012 年 12 月までに最終化される見込みであることから、成果 3 については達成する見込みである。

成果 4：達成された。

指標 4a. 2011 年 12 月までに、森林局によって、関連省庁間調整会合が開かれる。

指標 4b. 対象地域の土地利用情報が 2007 年、2009 年、2012 年の衛星画像を基に更新される。

指標 4c. 関連省庁間調整会合において、上記土地利用情報が協議のために共有される。

指標 4d. 関連セクターのシナジーを促進するためのセミナーが毎年開催される。

指標 5e. 対象地域のドナー/NGO 調整会合が森林局によって、年 1 回開かれる。

指標 4a について、森林局による関連省庁間調整会合は 2 回実施された。指標 4b 及び 4c について、対象地域の土地利用に係る情報は衛星写真をもとに更新されており、同情報は関連省庁間調整会合の場で議論されていないが、ポスターやニュースレター等を通じて関連省庁間に共有されている。指標 4d 及び 4e について、該当するセミナーは毎年 (これまで 7 回)、他ドナーと NGO との調整会議も 2011 年度と 2012 年度の 2 回実施された。したがって、成果 4 について達成されたと判断した。

成果 X：達成することが見込まれる。

指標 xa. 2009 年 3 月までに、対象地域のハザードマップが、衛星画像 (2009 年) に基づいて作成される。

指標 xb. 2010 年 3 月までに、対象地域のコミュニティの被災・復興調査結果がまとめられる。

指標 xc. 2010年3月までに、各 RF において、耐サイクロンの強化構造を備えた CF 普及・苗畑センターが、再建される。

指標 xd. 2009年～2010年に、森林局及び協力機関の災害復旧・防災事業に必要な資材が、ニーズに応じて提供される。

指標 xe. 2011年12月までに、マングローブの植生復旧状況に関するデータがまとめられる。

指標 xa について、2009年3月に対象地域のハザードマップが衛星画像に基づいて作成され、指標 xb についても計画どおり対象地域のコミュニティの被災・復興調査結果がまとめられた。指標 xc に関し、4カ所の CF 苗畑センターの修復、復興用機材の供与は計画通り実施され、指標 d に関し、森林局及び協力機関の災害復旧・防災事業に必要な資材が、ニーズに応じて提供された。指標 xe のマングローブ植生被害・回復状況の報告書も準備中であり、『マングローブ植生回復状況報告書』（2008年～2010年）は成果3に挙げた技術報告書に添付される予定である。したがって、成果 X については、達成する見込みといえる。

(2) プロジェクト目標の達成状況：達成する見込みである。

指標 a. プロジェクト終了までに、プロジェクト活動が実施された地域において、マングローブ林の被覆面積が、基準年（2009年）に比べて、3,550 エーカー（1,438ha）増加する。

指標 b. プロジェクト終了時に、2011年に再選定された全ての対象 CFUG の登録メンバーの8割以上が、CF を有用だとみなす。

指標 a の被覆面積の増加についてはおおむね達成された。

指標 b の CFUG の認識については達成する見込みである。

指標 a に関し、プロジェクト期間中に CF では 1,670 エーカー、ARP では 1,587 エーカー（計 3,257 エーカー）が整備された（達成率 91.7%）。指標 b の CFUG の認識については、現在、インパクト調査と CA 調査を実施中である。対象 6 村落のうち本調査中に実施した 2 村（タウンジータン、ゴードゥ）の CFUG へのインタビュー調査では、CF 活動に参加していることに満足していると同時に、今後も継続したいという意見が得られている。また CF 活動に関する技術レベルもインパクト調査と CA 調査で設定した 5 つの評価項目に対し平均以上の暫定結果を得ている。以上より、プロジェクト目標は達成する見込みである。

(3) 上位目標の達成見込み：部分的に達成される見込みである。

指標 a. プロジェクト終了から3年以内に、本プロジェクト対象地域において、マングローブ林の被覆面積が 10,000 エーカー（4,050ha）増加する。

指標 b. 対象地域のコミュニティの所得水準が 2004 年に比べて上がる。

指標 a の被覆面積の増加については達成する見込みである。

指標 b の所得水準の向上は現時点では達成するかどうか明確でない。

指標 a に関し、2013 年から予定されている同地域での無償資金協力案件「沿岸部防災機能強化のためのマングローブ植林計画」では 1,154ha が植林対象となっている。また森林局の 2011 年から 2020 年の郡管理計画によると、2013 年から 2015 年の 3 年間で 1 万エーカーの植林が予定されている。

指標 b の所得水準については、現在のところ有用な既存データを得られていない。前述の 2 村に対するインタビューにより、CF 活動の継続は今後も期待できるため、これに対応した所得水準の変化については社会経済調査等の実施が望まれる。

3-2-2 5 項目ごとの評価

(1) 項目評価

妥当性：高い

中間評価以降、ミャンマー側の森林政策に変更はなく、マングローブ林と共存

する対象地域・住民のニーズ、また持続的森林管理・保全を実施する公的機関である森林局のニーズも高いことが確認された。ミャンマーの国家森林マスタープラン（2001年～2031年）では、ローカルコミュニティが参画すべき4つの分野として、1) 保護林と公共保護林の管理、2) 植林、3) アグロフォレストリー活動、4) 郡所有林管理が挙げられている。また、日本の新成長戦略にミャンマー支援が含まれており、ミャンマーの開発計画および日本のミャンマー国に対する ODA 政策とも合致している。日本の技術の優位性についても、CF 活動や本邦研修に携わった森林局スタッフへの聞き取り調査から、有用であることが確認された。

有効性：比較的高い

各成果のプロジェクト目標に対する達成度には程度の差があるものの、プロジェクト目標の達成見込みがあることから、有効性も高いといえる。

因果関係については、成果1はCF認証がなされたことで今後のCF活動の実施が確保された。成果2については、各研修等で得られた知識・技術を森林局職員が活用することで、マングローブ林の保存とコミュニティの共生が見込まれる。成果3のARPによって1,587エーカーの植林がこれまでに実施された。成果4の関連機関の連携のための調整会合を実施することで情報共有や協力関係が構築できた。成果Xでのサイクロンからの復旧についてもプロジェクト目標達成には不可欠なものといえる。

効率性：中程度である

事前評価段階の想定より事業費が増えたものの、サイクロン被害からの復旧・復興に係る経費であり、事業そのものの効率性が低いとは言い難い。

インパクト：いくつかの正のインパクトが確認された。負のインパクトは確認されていない。

住民はサイクロンの経験を通じて、マングローブが高潮・強風の被害を緩和することを認識した。他のいくつかのNGOも村落でのCF活動を支援している。本プロジェクトの上位目標は「エーヤーワディ・デルタ内のマングローブ林が持続的に管理され、コミュニティの貧困が緩和される。」ことであるが、マングローブ林の持続的管理については、プロジェクト目標の達成見込みのとおり、CF活動の継続が見込まれている。一方、対象コミュニティの所得水準の向上については有用なデータを得られていないものの、プロジェクトによる負の影響については今回の終了時調査時には確認されていない。したがって、上位目標は部分的に達成される見込みである。

持続性：比較的高い

組織・制度面：CFを含む総合マングローブ管理に係る法的・政策支援が継続予定である。環境保全・林業省は共有林令（Community Forest Instructions : CFI）の改訂やCF専従部署の新設を検討している。プロジェクトに従事した人員は全員政府の正規職員であり、プロジェクト終了後も関連業務に登用され、プロジェクトで得られた技術や経験の活用が見込まれる。省庁間調整会合やNGOとの会議も実施されており、今後の情報共有と協力関係の強化についても期待される。カキ養殖は所得創出活動として確立するには至っていないが、CFUGはCF活動の継続を望んでおり、CF活動の持続性が見込まれる。

財政面：モニタリングを含む関連活動をプロジェクト終了後も継続・拡大するためには、ミャンマー政府が、現場へ赴くための燃料費を予算措置する必要がある。

技術面：森林局職員の造林技術・ARPに係る技術レベルの向上は顕著にみられ、本プロジェクト以外の他業務においても活用されている。技術レポート・技術ガイドラインについても、本プロジェクト終了後に活用されることが期待される。CF管理・支援体制に関し、研修プログラムやマングローブ林でのCF-SOPを含めて本プロジェクトで移転した技術が、中央林業開発訓練センター（Central Forestry Development and Training Center：CFDTC）の既存研修プログラムや森林局の各規定（局令、CFI）に組み込まれることが見込まれる。

3-2-3 効果発現に貢献した要因

(1) 計画内容に関すること

中間レビューでの提言に基づき、サイクロンの復旧・復興活動を抽出して成果Xとして集約する等して成果を再整理した結果、プロジェクトにおける復旧・復興活動の位置づけが明確になった。

(2) 実施プロセスに関すること

- ・ 中間レビューでパイロット村落数を22から6に絞り込んだ結果、資源が集中的に投入され、成果発現につながった。
- ・ 先行の開発調査で得られた成果（マスタープラン等）を利用できた。また開発調査を通じて築かれた日本人専門家とミャンマー側関係者間の良好な関係が、本プロジェクトの円滑な運営に寄与した。

3-2-4 問題点及び問題を惹起した要因

(1) 計画内容に関すること

上位目標では、「CF活動に従事することが所得向上につながる」とのロジックに則り、所得向上が指標として採用されている。しかし、CFUGは以前から居住・漁労・伐採等の活動に従事しており、CFIやCF証書により、CF地域の利用と水産活動が合法化されたにすぎない。このため、CFの導入により、CFUGの潜在的な所得源としての森林資源は増加が見込まれるが、CF自体は当然には所得向上にはつながらない。それゆえ、「所得向上」をPDMに入れたことで、PDMの論理性が弱まった。

(2) 実施プロセスに関すること

- ・ 2008年5月にサイクロン・ナルギスが発生し、プロジェクト活動に大きな被害が発生した。プロジェクト活動は中断を余儀なくされ、前年に実施した活動の成果も失われ、プロジェクト期間も1年間延長することとなった。村人の離散と流入が発生し、社会データに係るプロジェクト開始時のベースラインとの比較が有意でなくなった。
- ・ 所得創出活動として複数の選択肢を検討し、その中からいくつかを試行した。結局マングローブ林の下でカキ養殖を行うアクア・アグロフォレストリーだけが継続的に支援されたが、着床技術の実践の難しさ、マーケティングや流通、部外者による盗難等があり、成功しなかった。
- ・ 日本人専門家を派遣する場合、ミャンマー政府による受入確認手続きに少なくとも2カ月から3カ月、場合によっては4カ月から5カ月を要した。新たな課題に対応するべく新たな専門家を派遣する際、機動的な派遣が困難であった。
- ・ 日本人専門家がヤンゴン域外へ行く際、移動のたびに、遅くとも2週間以上前には移動許可証を申請しなければならず、機動的な活動を難しくした。
- ・ 日本人専門家及びプロジェクト雇用スタッフはヤンゴン、C/Pの幹部層（プロジェクト・ディレクター、プロジェクト・マネージャー、プロジェクト・コーデ

イナーター等)はネピドー、C/Pの現場のスタッフはエーヤーワディ・デルタ地域の複数の箇所と、執務室が分散しており、プロジェクト内部の意思疎通を円滑に行う上で制約要因となった。

3-3 森林・自然環境保全分野に係る今後の協力の可能性

12月5日に森林局長を表敬した際、今後の協力のニーズについて聴取した。

先方からは、本プロジェクト終了後、無償資金協力事業「沿岸部防災機能強化のためのマングローブ植林計画」(2013年11月～2017年3月)が開始するまで空白期間が生じることから、①本案件の延長、②短期専門家派遣によるアフターケア/フォローアップの可能性について要望があったが、調査団からはプロジェクト目標の達成がほぼ見込まれるため、延長は困難である旨伝えた。時間的な制約もあり、フォローアップの具体的な内容については協議できなかったが、森林局が自前でCFやARPの活動を継続していく際、技術的な問題が発生した場合の助言を受けられるよう、要所要所で、日本人専門家の派遣を求めたいとのことであった。

開発途上国における森林減少・劣化等による温室効果ガス排出量の削減等(Reducing Emissions from Deforestation and Forest Degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries: REDD+)に関しては、現在国連森林減少・劣化に起因する温暖化ガスの排出とその抑制方策計画(The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries: UN-REDD)の支援を受けて、Country Programを作成中(2013年完成予定)であるが、能力開発や技術的助言は必要であり、特に、参照排出レベル(Reference Emission Level: REL)の設定や炭素評価(carbon assessment)等、REDD+特有の 이슈について関心が高いとの説明があった。また、森林局の優先地域としては、国立公園、野生生物保護区(wildlife sanctuary)、生産林等が挙げられた。

調査団からは、本プロジェクト終了後も、JICA事務所や日本大使館との情報共有を継続してほしい旨、申し入れた。

3-4 団長所感

本案件は結論に述べられているように、成果及びプロジェクト目標を達成し、後述するPDMにおける上位目標の指標b.(及び成果の指標1e)に関し検討すべきことがあるが、上位目標についても達成される見込みが高いことから、プロジェクトの残りの期間において追加的に行う必要のある活動はなく、フォローアップとして行う必要のある活動も特段にはないことから、予定どおり、2013年3月に終了することが適当であると思料する。

本案件は、PDMの外部条件として記載されていたプロジェクト活動推進にとって致命的な阻害要因であるサイクロンが、しかも予想を遥かに上回る規模で、プロジェクトサイトにおいて「実際に起こった」という意味で、比較的稀な案件であるといえる(筆者の知る限りでは、かつてモンゴルの開発調査において大規模な山火事が発生し、それまでの活動が無に帰したという例がある)。その時点で論理的にはプロジェクトの枠組みは崩壊したわけであり、プロジェクトを中止するという選択もあり得た。しかしながら、被災地の復興支援の必要性を考慮し、これに関する要素を付け加え、プロジェクトは再スタートすることが決定された。日本側の投入が、当初予定の四割近くの増加となったことも、防災施設の建設を含む新たな活動要素が加わったこと、初年度の活動がやり直しになったことを考慮すれば、これを以ってプロジェクトの効率性が低かったという評価をするには当たらないと考える。

本案件の評価は、PDM(バージョン3)に則って行ったため、上に触れた上位目標の指標b.「対象地域のコミュニティの所得水準が2004年に比べて上がる」に関し、これが達成されると判断する根拠はない、との評価とせざるを得なかった。しかしながら、この指標の

妥当性については、今後検討する必要があるものとする。本案件に留まらず、少なくない森林関係のプロジェクトにおいて CF と所得の増加を結び付けて考えている。CF の形態にもよるが、特に国有地におけるそれにおいては、コミュニティに対し土地及び森林資源の限定的利用の法的根拠を付与し、その見返りとしてコミュニティは森林資源の保全（ときには造成）の義務を負うという形が基本となる。したがって、コミュニティ側からみれば、それまでは違法に利用・使用していた土地・森林資源の利用・使用が、合法的になるというだけの話であって、これを以て生活形態の安定が図られるということはあるが、所得の向上に繋がるものではない。自らの活動の合法性に対してコミュニティの関心が低ければ、コミュニティは CF の意義を評価することはない。グループを構成し、名簿を整え、内規を作成し、作業計画を作り、コミュニティ活動に参加する、といったそれ以前にはする必要のなかった「仕事」をコミュニティが自発的に行うためには、何らかのインセンティブが必要である。まして、場合によっては会費や罰金が必要であるとすれば、それを上回る金銭的なメリットをコミュニティが確信しなければ CF は成り立たない。このため、多くの CF を導入するプロジェクトにおいては、その制度の導入と「抱き合わせ」のように所得向上を謳うことになる。

しかしながら、繰り返しになるが、CF そのものは、導入以前に比べて導入以後の所得の向上を保障するものではなく、新たな所得創出手段を打ち立てなければならない。しかも、その新たな所得創出手段は、「CF を行うことによって初めて可能な」手段でなければならない（そうでなければ、コミュニティは CF については関心を示さず、所得創出手段のみを採用することになる）。この観点から、本プロジェクトにおいても、成果 1 は「選定されたコミュニティが環境的にも、経済的にも持続的な CF を実践するようになる」と言っているのであり、この「経済的な」の部分を実現するために活動の 1-7「CFUG の所得レベルを上げるためさまざまな能力強化プログラムを実施する」が置かれている。この PDM の記載に則り、プロジェクトは実際にさまざまな可能性を検討し、最終的にはカキの養殖に関して試行レベルではあるものの導入を図った。しかし、「所得の向上」をもたらすためには、自家消費ではなく商業的生産でなければならない。また、商業的生産であれば生産ロットの安定、市場の確保、流通の確立といったさまざまな問題がある。生産技術の確立から販売流通までのシステム確立を、PDM 上の活動の 1 つとして行うことは、かなり無理があるといわざるを得ない。これは、検討の結果カキを選択したことに問題があるわけではなく、そもそも「どんな場所にも必ず新たな所得創出手段がある」とは言えないという意味である。PDM の指標として「所得向上」を謳うのであれば、プロジェクト開始時において、少なくとも見込みのある産物の当てがっている必要がある。

CF と所得向上に関しては一般論としてこのようなことがいえるが、本案件において興味深い事実、本調査団が訪れインタビューを行った 2 つのグループにおいては、実際に新たな所得創出手段に関して見込みが立たなかったにもかかわらず、CF の存続に関しては、極めて強い前向きな意向が示されたということである。インタビューから知り得た限りでは、CF の導入により、UG と外部から侵入してくる者との差別化がなされ、数年待たなければならないにしても、薪炭材の安定的な供給が保障された（と UG が考えた）ことがインセンティブになっているように思われた。また、主に農業に従事しているものと、主に漁業に従事しているものとで季節的な差はあるにしても、それぞれの農作業、漁業に CF の作業が加わることで、年間を通じた作業の平準化が図られるという声もあった。

このようなコミュニティの感覚を一般論とすることはできないが、少なくとも本案件においては、CF の導入・持続にとって、所得の向上が必ずしも必要ではなかったことが明らかとなった。

もちろん、将来的にもコミュニティが失望することなく、継続してこの意向を持ち続けるためには、森林局が外部からの侵入者の妨害行為取締の徹底を図る必要があるし、また、グループがコミュニティ活動として何らかの所得創出活動を行おうとするときに税金面などにおいて優遇措置が図られるよう関係機関との調整が必要である。

本案件は、サイクロン・ナルギスによる喪失とその後の厳しい状況のなかで、また、物理的・制度的な理由でプロジェクト内外の調整が困難な状況の下で、最善の活動がなされ、上記のとおり成果を達成したと評価したい。

3-5 田所団員所感（社会林業）

3-5-1 総論

プロジェクトはエリアが広範囲にわたり、協力する分野も幅広いなか日本人専門家は精力的に業務をこなし地元住民やミャンマー政府に高く評価されており初期の目的を達し一定の成果をみた。しかしながらミャンマー側がプロジェクトに対して本腰を入れた体制で臨んでいれば、日本人専門家の努力に見合ったより一層の高い成果が十分に発現出来た可能性がある。

この地域でのマングローブ復旧を実効あるものとするためには、関係機関との調整や地元住民の意向の反映、技術的問題の解明など多岐にわたっている問題に対して従来方策を一步も二歩も踏み出して総合的に対応する必要がある。今回のプロジェクトでの知見、経験は十分に生かせることができるのでミャンマー政府に大いに参考にして政策に組み込んでもらうことを期待するものである。

また JICA としては無償資金協力で引き続きマングローブ林復旧に協力することとしており、このプロジェクトの成果を是非とも反映させるようにして頂きたい。

3-5-2 プロジェクト実施体制

JICA の技術協力は現地では C/P と一緒に汗をかき、知恵を絞って成果を出す仕組みが基本であるが、このプロジェクトでは日本人専門家は C/P とは遠く離れたところで業務をすることとなったため、膝を交えて議論、相談する環境になかった。そのためか C/P との交流は限定的となり一体感に欠ける体制になっていた。

またプロジェクト実施中におけるミャンマー側との調整も迅速かつ円滑とは言い難かった。したがって、このプロジェクトでのさまざまな取り組み過程での問題点や成果が系統だてて組織的にミャンマー側に蓄積されていない状況にある。

技術協力は相手国側の主体的な取組みなしでは円滑な実施が困難である。意識として受動的ではプロジェクトの成果が根付かない。

実施体制は緊密な連携が大変重要であると改めて感じた。プロジェクト期間中に問題が生じたときの解決方策をあらかじめミャンマー政府と取り決めておくことにより円滑にプロジェクトが実施出来たものと推察する。

3-5-3 社会林業

森林を永続的に保持していくためには地域の生活基盤を安定化させることは重要であり、安定した収入が確保されることが大きな前提になる。

森林の不法伐採や土地の不法利用はいずれも収入確保として他に適当な方法が無いことから起きているものであり、地域に見合った産業を創出することは森林の保全や地域の活性化にもつながり大変重要な課題である。

当該プロジェクトではいくつかの候補の中からカキの養殖を新たな収入源となるように取り組んだが、サイクロンによる影響などから結果としては地域の産業の柱になるには至らなかった。

日本でもそうであるが、地域おこしは試行錯誤の繰り返しでようやく実を結ぶものであり、あきらめないうで問題点を一つ一つつぶしていく地道な作業が必要である。カキの養殖についてみれば技術的な面、商流、設備の整備等工夫を行えば実を結ぶ可能性は十分にあると考える。

地域での産業化は継続的な行政の後押しが必須であるので、ここで終わりにしないで、地域の住民と行政が緊密に協力をして産業化に目処をつけるよう願うものである。

この技術協力プロジェクトでは、これ以外にマングローブ林再生の技術開発やサイクロン後の施設整備など他にも相当幅広に関与しており、プロジェクトでの時間や予算、人員が限られたなかでは社会林業関係について結果として深く関与できなかったのではないかと思料する。

3-5-4 技術の移転、継承

マングローブ林の再生にかかる技術はミャンマー側現地技術者が習得し実践するものであるが、彼らの転勤頻度が多いこと、業務内容を文書として残す習慣が備わっていないことなどから組織として技術の蓄積につながらず、その移転、継承が課題になっている。

今回プロジェクトで作ったガイドラインを基に、関係技術者の研修や現地実習を制度化して技術水準を高めさらに現地での森林情報をデータ化して技術の発展につながるような仕組みを確立されることを期待する。

3-5-5 情報の共有

JICAの技術協力は世界各地で実施しておりその経験、知見は大変貴重なものである。このプロジェクトでは社会林業、マングローブ再生、カキ養殖など幅広い分野にわたり協力しており、新たにこの経験、知見を他の類似プロジェクトに役立てることが可能である。このような情報を整理してデータベースとして専門家が容易に引き出せる仕組みをJICAとして是非整理して頂きたい。他の事例を知ることにより、一層効率的、効果的な作業が可能となる。

3-5-6 今後のミャンマーにおける森林・林業協力について

森林・林業分野においてJICAでは1970年代からミャンマーに対して技術協力を実施しており木材搬出、苗畑造成、乾燥地での森林造成などその内容も多岐にわたっておりその歴史は古く、人的交流も定期的に続いている。

民主化に伴って急速に発展する可能性が高いミャンマーにおいて森林分野においても環境の保全、温暖化ガスの吸収源としての役割など開発との調整から先進地の経験を必要とするものと思われ、日本への協力・支援へのニーズはより一層高まってくるものと思われる。

日本のきめ細かな技術協力方式はミャンマーの国民性からは受け入れやすいので過去のミャンマーでの技術協力の経験を基に、必要とされる案件について積極的に対応することは森林の保全、林業の発展に大いに寄与する可能性は高く、日本の国益に大いに役立つものと思われる。

第4章 結論・提言・教訓

4-1 結論

本プロジェクト目標の「エーヤーワディ・デルタ内のプロジェクト活動が実施される地域において、コミュニティとマングローブ林が持続的に共生する」はおおむね達成することが見込まれる。よって本プロジェクトは、計画どおり、2013年3月に終了可能である。

4-2 プロジェクトへの提言

- (1) 本プロジェクトの成果・知見・教訓について、プロジェクト終了時までには広報セミナーをネピドーで開催し、ミャンマー政府やドナー・NGO に対して情報発信を行うこと。
- (2) 技術面での検証や、関係機関の活動に活用させることを目的に、ARP 及び復旧・復興調査を通じて得た知見・知識に係る技術ワークショップを開催すること。

4-3 森林局への提言

- (1) CF 開発の将来計画を明らかにした上で、組織・制度・財政措置（SOP を含む）を強化し、プロジェクトで支援した6カ所のCFの経験を踏まえ、他の地域への展開を図っていくこと。
- (2) CFI に則って CFUG にプロGRESS・レポート（年次報告書）を提出させ、指摘された問題点の解決を図ること。
- (3) CFUG が漁業、カニ捕り、カキ養殖を続けられるよう、漁業権や水面利用権を巡る問題について、水産局との良好な調整を保つこと。
- (4) 不法活動に対応するため、CF 活動に係る法執行を強化すること。
- (5) 現場のスタッフが CF のモニタリングを実施できるよう、必要な予算、ボート、燃料を確保すること。
- (6) JICA の無償資金協力事業「沿岸部防災機能強化のためのマングローブ植林計画」との相乗効果を図るため、マングローブ林管理・保全に係る技術ガイドラインを無償案件においても活用し連携を図ること。
- (7) 頻繁な人事異動の際にデータが散逸しないよう、プロジェクトがすでに提案した様式を活用するなどして、紙ベース及び電子データとも管理を徹底すること。特に ARP については、森林研究所（Forest Research Institute : FRI）に結果を共有すること。
- (8) CF 管理のために、関連省庁間会議を継続・制度化し、定期的を開催すること。
- (9) プロジェクトで作成されるマングローブ林保全・管理に関する技術ガイドラインを承認し活用すること。
- (10) 全国規模の土地利用計画に係る政策策定において、関係省庁及び地方自治体に対して、マングローブ林の管理と利用に係る調整を行うよう、特にプロジェクトで開発したCF地域において同地域のCFUGに対して認められた30年間の土地利用権を保障するよう、主張すること。
- (11) 将来の土地利用計画のために、プロジェクトが解析中の植生・土地利用変化に係るデータを、関係省庁及び地方自治体に対して提供すること。
- (12) マングローブの減災機能を認識の上、関係省庁及び地方自治体が復興モニタリング結果を防災及び災害管理に係る政策・施策へ活用するよう促すこと。
- (13) プロジェクトの円滑な実施のため、日本人専門家がプロジェクト活動でヤンゴン外へ行くための、プロジェクト期間中有効な数次の旅行許可証を発給するよう、関連省庁と必要な調整を行うこと。

4-4 JICA への提言

他の JICA プロジェクト(以下に挙げるものを含む)や他ドナー、NGO(例えば RECOFTC⁴)が本プロジェクトの成果、知見、教訓を参照・活用できるよう、必要な調整と措置を講じること。

- (1) ミャンマー国「沿岸部防災機能強化のためのマングローブ植林計画」(2013年11月～2017年3月)
- (2) インドネシア国「マングローブ生態系保全と持続的な利用の東南アジア諸国連合 (Association for South East Asian Nations : ASEAN) 地域における展開プロジェクト」(2011年6月～2014年6月)
- (3) オマーン国「マングローブ環境情報センター (Qurm Environmental Information Center : QEIC) 開発プロジェクト」(2011年12月～2013年12月)

4-5 教訓

- (1) 植林事業は便益が得られるまで時間がかかるため、短期的な便益が得られるよう、生計向上活動を組み合わせること自体は重要である。しかし、生計向上活動を提案する場合は、産物や技術の利用可能性、住民のニーズはもとより、マーケティングや流通も含めた商業面での実現可能性も含めて現地の条件を考慮に入れることが必要である。
- (2) ミャンマーでプロジェクトを実施する場合は、日本人専門家、C/P の政策決定者及び現場スタッフ間の意思疎通を円滑に行うため、プロジェクト事務所はネピドーと現場の両方に構えることが望ましい。
- (3) パイロットサイト(さらに一般化するならばプロジェクトのスコープ)を計画する際は、投入規模やアクセスの容易さ等を勘案の上、現実的なサイト数と規模にすることが重要である。
- (4) 参加型活動の持続性を確保するため、活動を計画・実施する際は、コミュニティ構成員それぞれの金銭負担能力に応じた適正価格の参加費や罰金を設定すべきである。
- (5) 新しい生計向上活動をコミュニティに導入する場合、実施するモチベーションが湧くように、どのような便益をどれくらい、いつまでに得られるのかを明確に提示すべきである。
- (6) 甚大な自然災害の発生のように、致命的な外部条件の崩壊が生じた場合、JICA は運営指導調査団を派遣し、プロジェクトにもたらされる負の影響を把握し、プロジェクトデザインの修正を C/P と協議し、PDM の改訂を合同調整委員会 (Joint Coordinating Committee : JCC) へ提案すべきである。

以上

⁴ タイにある地域間国際機関

付 属 資 料

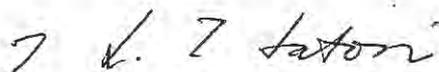
1. 合同評価報告書（中間レビューM/M）
2. プロジェクト・デザイン・マトリックス

MINUTES OF MEETING
 BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY
 AND THE GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR
 ON THE TERMINAL EVALUATION OF JAPANESE TECHNICAL COOPERATION FOR
 THE INTEGRATED MANGROVE REHABILITATION AND MANAGEMENT PROJECT
 THROUGH COMMUNITY PARTICIPATION IN THE AYEYAWADY DELTA
 IN THE REPUBLIC OF THE UNION OF MYANMAR

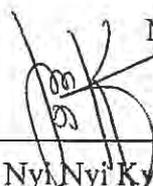
The Japanese Terminal Evaluation Team (hereinafter referred to as “the Japanese Team”), organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”) lead by Mr. Hiroyuki HATORI, visited the Republic of the Union of Myanmar from 18th November to 7th December 2012, for the purpose of conducting a terminal evaluation of the technical cooperation project “the Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta” (hereinafter referred to as “the Project”) in the Republic of the Union of Myanmar.

The Myanmar Terminal Evaluation Team (hereinafter referred to as “the Myanmar Team”), organized by the Government of the Republic of the Union of Myanmar lead by U Win Myint, joined the Japanese Team from 26th November to 6th December 2012.

This evaluation was conducted by the Joint Terminal Evaluation Team (hereinafter referred to as “the Team”), which consists of the Japanese Team and the Myanmar Team. As a result of a series of surveys and discussions, the Team agreed on the contents of the joint terminal evaluation report (hereinafter referred to as “the Report”) attached hereto, which was submitted to chairperson of Joint Coordinating Committee (hereinafter referred to as “JCC”) and the counterpart personnel of the Project, and the Team agreed to forward to the respective authorities concerned the matters referred to in the Report.



Mr. Hiroyuki Hatori
 Senior Expert,
 Japan International Cooperation Agency
 JAPAN

 Nay Pyi Taw, 6th December 2012

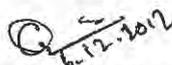
Dr. Nyi Nyi Kyaw
 Project Director and Chairperson of Joint
 Coordinating Committee of the Project,
 Director General,
 Forest Department,
 Ministry of Environmental Conservation
 and Forestry,
 REPUBLIC OF THE UNION OF MYANMAR

REPORT OF THE JOINT TERMINAL EVALUATION
ON
THE INTEGRATED MANGROVE REHABILITATION AND MANAGEMENT PROJECT
THROUGH COMMUNITY PARTICIPATION IN THE AYEYAWADY DELTA
IN THE REPUBLIC OF THE UNION OF MYANMAR

Nay Pyi Taw, 6th December 2012



Mr. Hiroyuki Hatori
Leader of Japanese Terminal Evaluation Team
Japan International Cooperation Agency
JAPAN



U Win Myint
Leader of Myanmar Terminal Evaluation Team
Assistant Director, Forest Research Institute,
Forest Department,
Ministry of Environmental Conservation and
Forestry
REPUBLIC OF THE UNION OF MYANMAR

CONTENTS

Abbreviation

Chapter 1: Introduction

- 1-1 Objectives of the Terminal Evaluation
- 1-2 Members of the Joint Terminal Evaluation Team
- 1-3 Schedule of the Terminal Evaluation

Chapter 2: Outline of the Project

- 2-1 Background of the Project
- 2-2 Summary of the Project

Chapter 3: Methodology of the Terminal Evaluation

- 3-1 Data Collection Method
- 3-2 Item of Analyses

Chapter 4: Findings from the Results of the Terminal Evaluation

Chapter 5: Summary of Achievement and Implementation Process of the Project

- 5-1 Achievement of the Project
- 5-2 Implementation Process of the Project

Chapter 6: Summary of Evaluation Results based on the Five Evaluation Criteria

- 6-1 Relevance
- 6-2 Effectiveness
- 6-3 Efficiency
- 6-4 Impact
- 6-5 Sustainability

Chapter 7: Other Factors

- 7-1 Factors Affected Positively to the Project
- 7-2 Factors Affected Negatively to the Project

Chapter 8: Conclusions

Chapter 9: Recommendations

- 9-1 Recommendations to the Project
- 9-2 Recommendations to the Forest Department (FD)
- 9-3 Recommendation to JICA

Chapter 10: Lessons Learnt

List of Annexes

- Annex 1: Schedule of the Terminal Evaluation
- Annex 2: Project Design Matrix (PDM) version 3
- Annex 3: Plan of Operation (PO) version 2
- Annex 4: Input from Myanmar Side
- Annex 5: Input from Japanese Side
- Annex 6: Achievement of the Project
- Annex 7: Breakdown of Mangrove Forest Coverage

Abbreviations

| | |
|---------|---|
| AR | Action Research |
| ARP | Action Research Plantation |
| CF | Community Forestry |
| CFDTC | Central Forestry Development Training Centre |
| CFECN | Community Forestry Extension Centre Nursery |
| CFI | Community Forestry Instructions |
| CFSOP | Community Forestry Standardized Operational Procedures |
| CFTF | Community Forestry Taskforce |
| CFUSG | Community Forestry Users Group |
| COMFORT | Community Forestry Training and Extension Project in Dry Zone |
| DOA | Department of Agriculture (former MAS) |
| DOF | Department of Fisheries |
| FD | Forest Department |
| FRI | Forest Research Institute |
| GOJ | Government of Japan |
| GOM | Government of the Republic of the Union of Myanmar |
| IMMP | Integrated Mangrove Management Plan |
| JCC | Joint Coordinating Committee |
| JICA | Japan International Cooperation Agency |
| MAS | Myanma Agriculture Services |
| MC | Management Committee |
| MCFTF | Members of Community Forestry Taskforce |
| MOECAF | Ministry of Environmental Conservation and Forestry |
| NFIO | Natural Forest Improvement Operation |
| ODA | Official Development Assistance |
| PDM | Project Design Matrix |
| PO | Plan of Operation |
| R/D | Record of Discussions |
| RECOFTC | The Center for People and Forests |
| RF | Reserved Forest |
| RO | Range Officer |
| SLRD | Settlement and Land Records Department |
| SO | Staff Officer |
| SOP | Standardized Operational Procedures |

1 d. 

Chapter 1: Introduction

1-1 Objectives of the Terminal Evaluation

The evaluation activities were performed with the following objectives:

- (1) To verify the accomplishments of the Project compared to those planned;
- (2) To monitor the progress and results of the activities on site;
- (3) To analyze the Project in terms of the five evaluation criteria, namely Relevance, Effectiveness, Efficiency, Impact and Sustainability (emphasis on Impact and Sustainability);
- (4) To identify obstacles and/or facilitating factors that have affected the implementation process;
- (5) To make recommendations for the necessary actions and measures in order to attain the Project Purpose by the end of the Project cooperation period, and Lessons Learnt applicable for other projects; and
- (6) To make an evaluation report by Japanese and Myanmar joint evaluation team, and get endorsement from the Joint Coordinating Committee.

1-2 Members of the Joint Terminal Evaluation Team

(1) The Japanese Team

| Field of Evaluation | Name | Position and Organization |
|-------------------------------------|-----------------------|---|
| Team Leader | Mr. Hiroyuki HATORI | Senior Advisor (Forest Environment) Japan International Cooperation Agency |
| Community Forestry | Mr. Masayuki TADOKORO | Senior Policy Analyst for Forestry, Wood Industry Division, Forest Policy Planning Department, Forestry Agency, Ministry of Agriculture, Forestry and Fisheries |
| Cooperation Planning / Aid Strategy | Mr. Kotaro TANIGUCHI | Deputy Director, Forestry and Nature Conservation Division 1, Global Environment Department, Japan International Cooperation Agency |
| Evaluation Analysis | Ms. Mitsue UMIGUCHI | Senior Consultant Department of Agriculture and Environment C.D.C. International Corporation |

(2) The Myanmar Team

| Field of Evaluation | Name | Position and Organization |
|---------------------|-------------------|--|
| Team Leader / ARP | U Win Myint | Assistant Director Forest Research Institute, Forest Department Ministry of Environmental Conservation and Forestry |
| Community Forestry | U Maung Maung Aye | Assistant Director Forest Department, Ayeyawady Region, Patheingyi Ministry of Environmental Conservation and Forestry |
| Agriculture | U Htun Aung Kyaw | Assistant Director Department of Agriculture, Pyaw Bwe District Ministry of Agriculture and Irrigation |

| | | |
|-----------|------------|--|
| Fisheries | U Thet Aye | Staff Officer Department of Fisheries, Pyar Pon Township Ministry of Fisheries and Livestock |
|-----------|------------|--|

1-3 Schedule of the Terminal Evaluation

The terminal evaluation of the Project was conducted from 18th November to 8th December 2012. The Joint Terminal Evaluation Team (hereinafter referred to as “the Team”) collected the information through questionnaires and a series of interviews with stakeholders both of Myanmar and Japanese sides. The Team also conducted a field observation in the Ayeyawady Delta for three days. Based on the results of the evaluation, the Team prepared a draft report and finalized it through a series of discussions from 26th November to 6th December 2012.

Details are described in Annex 1.

Chapter 2: Outline of the Project

2-1 Background of the Project

In Myanmar, the Reserved Forests in the Ayeyawady Delta is one of the most seriously deforested areas due to unchecked expansion of agricultural land and unsustainable forest use for decades, and more recently, harmful methods for aquaculture. The loss of the forest has most affected livelihood of local residents using mangroves. Paddy fields have been suffering from intrusion of high salinity and bank erosion due to lack of protection by mangroves in the riverbanks. Varieties and amounts of fauna, especially fisheries that is basic livelihood of local people, have also been getting poorer and smaller due to the loss of their breeding habitat caused by decrease of vegetation cover.

In view of the significance of managing the forest resources in the Ayeyawady Delta, during the period of 2002 to 2005, Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched a team of experts to conduct the Study on Integrated Mangrove Management through Community Participation in the Ayeyawady Delta. The results of the Study have contributed to formulating a master plan, “the Integrated Mangrove Management Plan (2005-2044) (hereinafter referred to as “IMMP”) which aims to support sustainable coexistence of mangrove forests and communities in the Kyakankwinpauk, Pyinalan, Kadonkani and Pyindaye Reserved Forests. It has been approved by the Government of the Republic of the Union of Myanmar (hereinafter referred to as “GOM”).

In order to initiate the implementation of the IMMP Phase I, a technical cooperation project was requested by GOM to the Government of Japan (hereinafter referred to as “GOJ”) in May 2005. A Detailed Planning Survey was conducted by JICA in December 2005 and GOM and JICA signed the Record of Discussions (R/D) for the project in September 2006, and it was scheduled to implement from December 2006 to March 2012.

In May 2008, however, Cyclone Nargis hit the Ayeyawady Delta and caused crucial damage in the project area, including mangrove forests, local residents and infrastructure. Due to this natural

1 d. 

disaster, the Project was interrupted for eight (8) months (until December 2008). In January 2009, Japanese experts and Myanmar counterparts reviewed a project schedule at the meeting of Joint Coordinating Committee (hereinafter referred to as “JCC”) and decided to add the perspective of disaster prevention in the Project and revise the Project Design Matrix (PDM). As a result, the project period has been extended until March 2013.

Considering the above mentioned situation, the Mid-term Review Team recommended to rearrange PDM as version 2 in February 2011. Based on the recommendations, the Project adopted PDM version 3 with minor change of indicators through approval by JCC in May 2012.

2-2 Summary of the Project

(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.

(2) The Overall Goal

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

(3) The Outputs

- 1) Output 1: The selected communities practice environmentally and economically sustainable community forestry (CF).
- 2) Output 2: The management and the support system of the Forest Department for CF is effective.
- 3) Output 3: Some silvicultural techniques for the rehabilitation and the management of the mangrove and its associated forests for the Ayeyawady Delta are established.
- 4) Output 4: A coordination mechanism is established among key sectors to address the underlying causes of mangrove deforestation in the Ayeyawady Delta.
- 5) Output X: (Additional Output after the Cyclone Nargis in May 2008) Recovery from damage of Cyclone Nargis is promoted.

Chapter 3: Methodology of the Terminal Evaluation

3-1 Data Collection Method

The Team made interviews with stakeholders both of Myanmar and Japanese sides engaged in the Project. The Team also collected information through questionnaires from the concerned personnel. The Team also conducted field survey in Htaung Gyi Tan and Gaw Du from 28th to 30th November 2012.

3-2 Items of Analyses

(1) Achievement of the Project

The accomplishment of the Project was measured in terms of the Input, the Outputs and the Project Purpose in comparison with the Objectively Verifiable Indicators of PDM as well as the plan delineated in the R/D.

(2) Implementation Process

The implementation process of the Project was examined to see if the activities have been implemented according to the schedule delineated in the latest PO, and to see if the Project has been managed properly as well as to identify facilitating and/or obstacles factors that have affected the implementation process.

(3) Evaluation based on the Five Evaluation Criteria

(a) Relevance: Relevance of the Project was reviewed to see the validity of the Project Purpose and the Overall Goal in connection with the needs of the beneficiaries and policies of Myanmar and Japan.

(b) Effectiveness: Effectiveness was analyzed by evaluating the extent to which the Project has achieved and contributed to the beneficiaries.

(c) Efficiency: Efficiency of the Project implementation was analyzed focusing on the relationship between the Outputs and Inputs in terms of timing, quality, and quantity.

(d) Impacts: Impacts of the Project were forecasted by referring to positive and negative impacts caused by the Project.

(e) Sustainability: Sustainability of the Project was analyzed in institutional, financial and technical aspects by examining the extent to which the achievement of the Project would be sustained and/or expanded after the Project is completed.

Chapter 4: Findings from the Results of the Terminal Evaluation

Based on the results of analysis of Five Evaluation Criteria together with cross-sectional view, Conclusions are shown in Chapter 8. Recommendations for the remaining period of and after the completion of the Project are shown in Chapter 9, which are addressed to the Project, Forest Department and JICA. Lessons Learnt which can be applicable and utilized to other projects are shown in Chapter 10.

Chapter 5: Summary of Achievement and Implementation Process of the Project

5-1 Achievement of the Project

(1) Input (Details are described in Annex 4 and Annex 5)

Summary of Input is shown in the tables below.

Table 1: Summary of Input from Myanmar Side

| | | | |
|----------------------------------|---|--|------------------------------------|
| Allocation of project personnel: | Management personnel: 22 persons Technical personnel: 24 persons (RO and above) and 63 persons (DRO and below) | Running Expenses: (as of October 2012) | MMK 131,309,608 (excluding salary) |
|----------------------------------|---|--|------------------------------------|

Table 2: Summary of Input from Japanese Side

| | | | |
|---------------------------------------|---------------------------------|--|--|
| Dispatch of Experts: (as of Oct 2012) | 17 persons in total (133.4 M/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 (equivalent to US\$ 1,300,000) |
| - | - | Total Cost (estimated) | 700,000,000 Yen |

(2) Outputs (Details are described in Annex 6)

1) **Output 1: Largely achieved**

6 target villages had been re-selected by July 2011. Then the CF Management Plans of all 6 villages were approved and certificates had been issued by 31 July 2012. Based on the certified CF Management Plans, around 1,670 acres of mangrove forest are rehabilitated and managed by CFUSGs since 2009 up to 2012.

Meanwhile, the organizational capacity of the Management Committee of all target villages is not confirmed yet. The opinions of CFUSGs in Gaw Du and Htaung Gyi Tan were collected during field visit of this evaluation mission. The Team observed that they are satisfied to participate in, and are willing to continue CF activities by themselves. Questionnaire and interview to grasp their capacity will be conducted in January 2013. According to the results of Impact Survey and Capacity Assessment Survey (Draft), it was noted that technical capacity of MC from Htaung Gyi Tan and Nyaung Ta Pin stood above the average for all five areas.

Nonetheless, the possibility for all the active CFUSGs to gain profits from income generation activities is not observed. The Project tried to introduce several income generating activities, and oyster culture was selected by communities, however, so far profits from the activity have not been brought forth yet.

2) **Output 2: Likely to be achieved to a certain extent**

Training program for CF for mangrove forest was developed as planned. The draft of the training plan and training materials are being developed now. Those will be finalized by the end of the Project. Regarding CF-SOP, it is to be finalized by the beginning of January 2013. The survey of the capacity of technical members of CFTF, which include the Field Project Manager and field FD staff (Staff Officers (SOs), Range Officers (ROs), Deputy ROs (DROs) and foresters) relevant to the target area, has not been conducted yet. In addition, rating about 'degree of understanding', 'degree of applicability' and 'degree of satisfaction' of all registered members of CFUSGs will be identified through the Questionnaire survey for CFTF members, which will be conducted in

1 d. 

January 2013. Many of the interviewees who are CFTF members affirmed training.

3) **Output 3: Likely to be fully achieved**

As planned, monitoring reports on AR on the silviculture techniques have been produced on periodic basis. A technical report, compiling the monitoring results, is expected to be produced by the end of the Project. Development of draft technical guidelines is ongoing, which are expected to be finalized by December 2012.

4) **Output 4: Achieved**

Inter-agency coordination meetings organized by FD were conducted twice, in November 2011 in Bogalay and in October 2012 in Pathein. As planned, land use information of the Target Area has been updated based on the satellite images. The updated information has not been discussed by the committee as originally envisaged, but it has been shared with the relevant agencies through posters, newsletters, etc. As planned, seminars have been organized annually. Up to now, seminars have been conducted seven (7) times and a final one is scheduled to be held in February 2013. Donor/NGO coordination meetings for the Target Area were organized twice, in November/December 2011 and in July 2012.

5) **Output X: Likely to be achieved**

Damage and recovery surveys on the local communities have been conducted as planned, and the findings have already been compiled. A hazard map was developed in March 2009 based on the satellite images and its copies have been distributed to the local communities and the relevant government agencies. Four Centres for CF Extension and Nursery (CFCEN) in four target Reserved Forests, which had been destroyed by the Cyclone Nargis, have already been reconstructed respectively with reinforced structure for cyclone proof. Materials and equipment necessary for disaster recovery or prevention works have been provided to the FD and DOA based on the needs. Damage and recovery surveys on mangrove forests have been conducted, and the results are expected to be compiled within December 2012. A report on recovery condition of mangrove vegetation (2008-2010) is under preparation and will be attached in the technical report mentioned in Output 3.

(3) Project Purpose (Details are described in Annex 6)

Indicator a: Almost achieved

Indicator b: Likely to be achieved

The total of 1,670 acres of CF and 1,587 acres of AR plantation have been established¹. Regarding the acknowledgement of the target CFUSGs, questionnaire survey will be conducted in January

¹ As for AR plantation, 212 acres was established in 2008, and 1,375 acres have been established in and after 2009 set as a base year of one of Objectively Verifiable Indicators for Project Purpose in the PDM.

12. 

2013.

The organizational capacity of the Management Committee of all target villages is not confirmed yet. The opinions of CFUSGs in Gaw Du and Htaung Gyi Tan were collected during field visit of this evaluation mission. The Team observed that they are satisfied to participate in, and are willing to continue CF activities by themselves. Questionnaire and interview to grasp their capacity will be conducted in January 2013. According to the results of Impact Survey and Capacity Assessment Survey (Draft), it was noted that technical capacity of MC from Htaung Gyi Tan and Nyaung Ta Pin stood above the average for all five areas.

(4) Overall Goal (Forecast) (Detail are described in Annex 6)

Indicator a: Expected to be achieved

Indicator b: Not yet clear at the moment

Mangrove forest coverage is expected to increase in coming three (3) years. The target area of Japanese Grant Aid Project, which is scheduled to start from November 2013, will cover 1,154 ha. Total plantation area estimated by FD will be expected to achieve up to around 10,000 acres. Breakdown is shown in Annex 7.

On the other hand, the expected achievement level of income generation could not be assessed due to unavailability of the relevant data. According to the results of interview to MC members and observation by the Team, sustainable management of mangrove forest is expected to continue. In order to grasp increase of income level, it is necessary to conduct a socio-economic survey in the respective area, since there is no existing census.

5-2 Implementation Process of the Project

Continuous effort and understanding to the importance of mangrove forest of both Japanese and Myanmar sides have been producing successful results.

Details are shown in following table;

Table 3 Implementation Process

| Item | Results |
|------------------------|--|
| Personnel Distribution | During the Project, personnel reassignment had been carried out many times both Japanese and Myanmar sides. Sometimes it was difficult to communicate and share information timely between both sides. |

Handwritten marks: a circle with an arrow and the number 14.

| | | |
|---------------|---|--|
| Communication | | <p><u>Field level</u>: It was observed that some of field level staff had limited understanding of their own role in the Project. Inaccessibility to information due to the distance between their location and township encouraged it.</p> <p><u>Township level</u>: Although SO's and RO's understanding level are relatively high compared with those of field level staff, smooth and timely information sharing were insufficient. Inaccessibility to information due to the distance between their location and Yangon encouraged it.</p> <p><u>District level</u>: Project office in Myaung Mya did not function as originally planned because of its location and inflexibility due to travel permission. However, the Project secured enough communications by telephone and through progress meetings held in Yangon.</p> <p><u>Nay Pyi Taw</u>: The Project held significant communications with decision-makers in FD and their staff in Nay Pyi Taw in the effective manner, not only by holding JCC meetings but also by visiting Nay Pyi Taw to communicate based on necessity.</p> <p><u>Related Organization/Ministry/Agency</u>: Coordination among related ministries and agencies were implemented at the occasion of JCC and various meetings on Project management as well as joint activities at field level.</p> <p><u>Japanese Experts</u>: Frequent communication among Japanese experts enabled to share on-time information about the progress of the Project in spite of their frequent reassignment.</p> |
| Assumptions | No drastic increase in the population within the four reserved forests. | No data available |
| | External pressure to convert the mangrove forest to other land uses does not increase. | Construction of main roads must cause gradual/radical changes in industrial structure and population dynamics in Ayeyawady delta area, which may affect on the land use policy in this area. |
| | No significant natural hazards occur that will impact the rehabilitation of mangrove forests | In May 2008, huge scale of Cyclone (named Nargis) hit Ayeyawady Delta area. Lives and property, mangrove forest and function of government agencies had been lost and damaged by the cyclone. The Project also has been interrupted for 8months. After mid-term review, no significant natural hazards occurred. |
| | Relevant authorities and stakeholders are supportive to promote sustainable management of mangrove forest | According to the results of interview to FD staff (CFTF members), they deeply understand the importance to protect mangrove forests at Ayeyawady Delta area, and are willing to continue those activities (CF management and AR plantation) after the end of the Project. |

Chapter 6: Summary of Evaluation Results based on the Five Evaluation Criteria

6-1 Relevance

Relevance is **“High”**.

The Overall Goal is still relevant with the needs of Myanmar. The Project Purpose is consistent with the organizational needs of the FD. It is relevant with the needs of local communities in the Project Area because their livelihood depends either directly or indirectly on the mangrove forests. The Overall Goal and the Project Purpose are relevant with the National Development Plan of Myanmar as well as Official Development Assistance (ODA) policies of Japan. Technical advantage of Japan is confirmed. Details are shown in following table;

Table 4 Relevance

| | Item | Results |
|-------------------|---|---|
| Necessity | Relevance with the needs of Myanmar | <ul style="list-style-type: none"> ➤ The overall goal is relevant with the needs of Myanmar and Ayeyawady Delta region, in particular. The mangrove forests in the Ayeyawady Delta provide both direct and indirect benefits to the population inside and outside of the reserved forests. As for those outside the project target area, they also receive benefit from the supply wood products such as fuel wood and charcoal, non-wood product such as fish and shellfish, and from the non-use value from biodiversity conservation, coastal erosion and flood protection, and carbon sequestration. In sum, rehabilitation and sustainable management of mangroves will imply that such benefits will continue to reach people outside the project target area, and thus manage to meet the needs of the GOM. |
| | Relevance with the needs of the 6 target villages | <ul style="list-style-type: none"> ➤ The Project Purpose is relevant with the needs of the Target Group the CFUSGs supported by the Project. The members of the CFUSGs are dependent either wholly or partly on mangrove resources for their livelihoods for the direct consumption or sales of materials such as fuel wood, nipa thatching, poles, and other wood and non-wood forestry products. Once the mangrove resources are lost to the point of that the trend in irreversible, the local communities, already highly dependent on the mangrove resources for their livelihoods, would be the first to suffer the consequences. Thus alleviation of the current situation and encouraging the communities to take control over the management of such valuable resources is very much in line with meeting their needs. |
| | Relevance with the needs of the implementing organization | <ul style="list-style-type: none"> ➤ The Project Purpose is relevant with the organizational needs of FD of MOECAAF, which has the mandate for the protection and conservation of biodiversity and sustainable forest management. |
| Priority | Relevance with national plan and policies of Myanmar | <ul style="list-style-type: none"> ➤ The Overall Goal and Project Purpose are consistent with national plan and policies of Myanmar. ➤ The National Forestry Sector Master Plan (2001-2031), reflecting the Forest Policy of 1995, identifies four major areas in the forestry sector where local communities shall be mobilized for: 1) the management of local supply of reserved forests and protected public forests; 2) participation in afforestation efforts; 3) participation in agro-forestry activities and 4) in the management of state-owned forest management. |
| | Relevance with the ODA policies of Japan | <ul style="list-style-type: none"> ➤ The Overall Goal and Project Purpose are consistent with ODA policies of Japan. ➤ According to the ODA Charter, published by the Government of Japan, "consideration to global warming and environmental problems" is one of the four priority issues. In addition, the Japan's Medium-Term Policy of ODA, 2005, also states that the environmental sector is one of the most important sectors of international cooperation. ➤ According to the Japan's "Medium-Term Policy of ODA", issued in 2005, the Government of Japan has been setting the environmental sector as one of the most important sector in international cooperation. ➤ Support to Myanmar is included in New Growth Strategy mentioned on Priority Policies of International Cooperation (2012). 'Disaster prevention and mitigation at coastal area' is one of the priority areas. |
| Adequacy as means | Selection of the target area and groups | <ul style="list-style-type: none"> ➤ 6 villages were reselected by July 2011. The criteria of selection were as follows; Condition of CFUSGs and sustainability of activities, location of villages and potential of income generation activities, etc. |
| | Coordination with other donors and projects | <ul style="list-style-type: none"> ➤ A lot of emergency aid organization have been started their activities at Ayeyawady Delta area after Nargis hit until December 2009. The Project has shared information and coordination with international agencies and national NGOs as necessary. ➤ Donor/NGO coordination meeting have been held in November/December 2011 |

1 d. 

| | | |
|--|---|--|
| | | and July 2012 at Pyar Pon District and Laputta District. |
| Technological advantage of Japan | ➤ | Since 1990s, JICA has promoted CF and sustainable forest management in partnership with the FD through a series of projects supporting the Central Forestry Development Training Centre (CFDTC), latest one being the Aftercare Program of 1999-2001 and "Community Forestry Training and Extension Project in Dry Zone Project" (COMFORT, 2001-2006). In addition, "The Study on Integrated Mangrove Management through Community Participation in the Ayeyawady Delta" was carried out in 2002-2005. The experiences and know-how accumulated in the past cooperation could be applied in the current Project. |
| Environmental change after mid-term review | ➤ | Road construction is ongoing from north to south at target area. All RFs are not affected by this construction so far. |

6-2 Effectiveness

Effectiveness is "Relatively high".

All of the Outputs, although their levels of achievement vary, have contributed to the achievement of the Project Purpose. In addition, two (2) Objectively Verifiable Indicators related to the Project Purpose is expected to be achieved by the end of the Project (see the table below).

The mangrove forest coverage is increasing through CF activities. CF management plan was approved, and the expansion and rehabilitation of mangrove forest has been brought into a reality (Output 1). Establishment of effective management and support system of FD have been improved the existed situation (Output 2). 1,587 acres of mangrove forest has been established through implementation of AR (Output 3). Coordination meetings are also needed to share information and make some connection between each agency and FD (Output 4). Rehabilitation of damaged facilities, recovery of vegetation and strengthening capacity of disaster prevention and management was indispensable for communities in the Target Areas (Output X).

Table 5 Effectiveness

| Items | Results |
|--------------------------------|---|
| Achievement of Project Purpose | <ul style="list-style-type: none"> ➤ <u>Increasing of Mangrove Forest Coverage:</u> Related to the CF activities, no plantation existed in the beginning of 2009. After approval of the CF Management Plan, coverage area has achieved 1,670 acres (as plan and progress up to 2012). Related to AR Plantation, target area became 1,587 acres. Total coverage area has achieved approximately 3,000 acres. It is expected to be achieved but rather to the number of Indicators not to reach. ➤ <u>Acknowledgement of CFUSGs:</u> According to the results of Impact survey and Capacity Assessment Survey (Draft), it was noted that technical capacity of MC from Htaung Gyi Tan and Nyaung Ta Pin stood above the average for all five areas. |

6-3 Efficiency

Efficiency is "Fair".

In general, the Input from both Myanmar and Japanese sides has been appropriate in producing the Outputs in terms of timing, quality and quantity. It should be noted that both Myanmar and

1 d. Q

Japanese sides had to be dedicating themselves under the severe condition on and after Cyclone Nargis.

Total cost borne by Japanese side reached 700 million yen against 450 million yen estimated in ex-ante evaluation through Detailed Planning Survey conducted before the commencement of the Project. The gap between the actual cost and estimated cost is due to the following reasons:

- 1) the results of activities in 2007 came to nothing by the Cyclone Nargis; and
- 2) the additional cost of rehabilitation activities.

Therefore, it does not mean the efficiency was not low.

Details are shown in the following table.

Table 6 Efficiency

| Items | Results |
|-----------------------------|---|
| Production level of Outputs | <p><u>Output 1: Largely achieved</u> Preparation and supporting of CF management plan has been completed as planned despite of spending time on finalization-until obtaining the CF certification. Related to the capacity of MC, according to the results of Impact Survey and Capacity Assessment Survey (Draft), some villages have reached the achievement level that set as indicators. Related to the Income Generation Activities, there are various challenges at target area. Income generation activity (Oyster Production) may not be extended and expanded.</p> <p><u>Output 2: Likely to be achieved to a certain extent</u> Related to the capacity of CF management and extension by CFTF, Impact survey and capacity assessment survey will be conducted in January 2013. Development of Training program and preparation of CF-SOP will be finished by the end of the Project.</p> <p><u>Output 3: Likely to be fully achieved</u> Technical Report and Technical Guideline is working toward to finalize at present.</p> <p><u>Output 4: Achieved</u></p> <p><u>Output X: Likely to be achieved</u></p> |
| Input from Myanmar side | Project Personnel: Details are described in Annex 4 |
| | Building and Facilities: Details are described in Annex 4 |
| | Local Operation Cost: Details are described in Annex 4 |
| Input from Japanese side | Japanese Experts: Details are described in Annex 5 |
| | Training in Japan: Details are described in Annex 5 |
| | Equipment: Details are described in Annex 5 |
| | Local Operation Cost: Details are described in Annex 5 |

6-4 Impacts

“Some positive impacts have been observed. Negative impacts have not been observed”.

The rising of people’s awareness on disaster prevention is worth noted. People recognized the function of mangrove to mitigate the damage by tide and wind through the experience of Cyclone Nargis. Furthermore, some NGOs supported CF activities at villages.

It is expected that the Overall Goal would be achieved partly. As mention in the previous chapter, mangrove forest coverage is expected to increase in coming three (3) years.

Therefore, Indicator a. is almost achieved, and the achievement of Indicator b. is yet to be confirmed.

12

6-5 Sustainability

Sustainability is “Relatively high”.

Institutional and organizational aspects: The legal and policy support for integrated mangrove management, including CF, is likely to continue. And now MOECAAF is considering the revision of the CFI and institutionalization of a new division that would comprehensively handle CF issues. All of the project staff members are permanent staff of the Government of Myanmar, whose employment is ensured. They are expected to be assigned to the relevant posts in the post project period so that they could utilize the techniques/experiences obtained through the Project continuously.

With a regular inter-agency project coordination meeting at regional level and a regular donor/NGO coordinating meeting at district level in place, the Coordination Meeting with the relevant organizations had been held on 2 times after mid-term review. Further cooperation and sharing the information is expected to enhance.

Regarding the CF activities, oyster production has not been established as an income generation activity due to some difficulties for implementation. Nevertheless CFUSGs wants to continue CF activities. Therefore sustainability of CF activities is expected.

Financial aspects: So far, the Government of Myanmar has allocated necessary budget to implement the Project activities except for transportation costs for field visits, which have been often borne by the Japanese side. To secure the transportation costs for the field visits in order to continue and expand related activities including monitoring in the post-project period, it is necessary to secure the budget allocation by GOM.

Technical aspects: In the field of silviculture techniques/Action Research, the technical capacity of the FD staff has been enhanced steadily. The transferred techniques have been already utilized in other departmental works. The techniques and the deliverables (i.e. technical report and technical guidelines) are expected to be utilized and disseminated in the post-project period. In the field of CF management and support system, the continuous utilization/dissemination of transferred techniques and the deliverables, including a training program and a SOP for CF in mangrove area, are expected to be incorporated in the existing training program of CFDTC and regulations of the FD (e.g. Departmental Instructions and CFI).

1d. Q2

Table 7 Sustainability

| | Items | Results |
|--|----------------------------------|--|
| Institutional and organizational aspects | Policy and legal support | <ul style="list-style-type: none"> ➤ FD is considering the revision of the CFI and set a section related to CF. ➤ There is a room for improvement of implementation mechanism of FD for CF activities and mangrove forest management. ➤ GOM with the initiative of MOECAAF is working on land use policy and plan. |
| | Personnel | <ul style="list-style-type: none"> ➤ Most of FD staff involved in the Project is permanent staff, so their knowledge and experiences obtained in the Project would be utilized after the Project period. ➤ Work-handover among the field staff are required to be further systematized. |
| | Management capacity | <ul style="list-style-type: none"> ➤ FD has managed the relevant activities at their filed so far. It is expected that they will be able to manage the relevant activities for themselves after the end of the Project. ➤ FD has experienced in promoting CF and communities have experienced in implementing CF activities. |
| | Coordination with other agencies | <ul style="list-style-type: none"> ➤ Coordination meetings have been held twice. |
| Financial aspects | Budget allocation | <ul style="list-style-type: none"> ➤ Transportation costs for field visits have been often borne by Japanese side during the Project period. In order to continue and expand related activities including monitoring in the post-project period, it is necessary to secure the budget by GOM. |
| Technical aspects | CF activities | <ul style="list-style-type: none"> ➤ Plantation and natural forest improvement operation (NFIO) are carried out. |
| | CF management | <ul style="list-style-type: none"> ➤ FD would be capable of utilizing the results of the Project to promote CF activities for mangrove forest effectively. |
| | Silviculture | <p>Almost all technical trainings (including training in Japan) on silviculture were quite effective and had value for rehabilitation and management of mangrove.</p> |
| | Utilization of equipment | <ul style="list-style-type: none"> ➤ Equipment is properly operated and maintained. |

Chapter 7: Other Factors

7-1 Factors Affected Positively to the Project

- (1) Rearrangement of outputs in which recovery and rehabilitation activities were abstracted and aggregated as Output X as recommended in the Midterm Review, contributed to clarify those activities in the context of the Project.
- (2) Focusing on six (6) CF target villages as recommended in the Midterm Review, enabled concentrated resource input, which facilitated achievement of outputs.
- (3) The Project utilized the results (i.e. master plan) of a development study “Study on Integrated Mangrove Management through Community Participation in the Ayeyawady Delta”. The good relationship between Japanese experts and Myanmar stakeholders established through the development study contributed to the smooth implementation of the Project.

7-2 Factors Affected Negatively to the Project

- (1) Cyclone Nargis hit the Ayeyawady Delta area in May 2008, and caused crucial damage in the Project area. Due to this natural disaster, the Project was interrupted for eight (8) months during May and December 2008, the results of activities conducted in the previous year came to nothing,

and the Project was forced to extend the Project period for one (1) year. Disaggregation of villagers and inflow of outsiders occurred, and comparison of social data with baseline in the beginning of the Project became insignificant.

- (2) The Project planned several options for income generating activities, and conducted some as trial basis. Among others, only oyster culture / aqua agroforestry were continuously supported, however it did not succeed due to difficulties in application (implantation), distribution (distance from the market and constant production in large scale), and social issue (theft by outsiders).
- (3) "Income levels" is adopted as one of Objectively Verifiable Indicators for Overall Goal based on the logic that "CF activities will lead to improvement of income levels". However villagers have been settling and conducting fisheries and logging even before CF activities started, and CFI and CF certificates only grant legitimacy to the activities (utilization of CF area and forestry activities). So, even though forest resource as potential income source for CFUSGs is expected to increase through introduction of CF, CF itself does not automatically lead to improvement of income levels. Therefore, it is thought that inclusion of "income levels" weakened logic of PDM.
- (4) It took at least two to three (2 – 3) months and sometimes four to five (4 – 5) months to get confirmation of acceptance from Myanmar Government in occasions of dispatching Japanese experts. It was difficult to dispatch new experts timely.
- (5) It was necessary for Japanese experts to apply travel permits to go outside Yangon at least two (2) weeks before each travel. It made difficult to conduct activities promptly.
- (6) The Project faced difficulties in smooth internal communications due to the distance of office locations, i.e. Japanese experts and Project staff stationed in Yangon, decision makers of FD officials (including Project Director, Project Manager and Project Coordinator) in Nay Pyi Taw, and field staff in several areas in Ayeyawady Delta area.

Chapter 8: Conclusions

- (1) It can be concluded that **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" **is expected to achieve mostly**. Therefore, the Project can be completed in March 2013 as scheduled.
- (2) CF activities will not automatically lead to improvement of income levels of communities, therefore **Overall Goal** "The mangrove forests are sustainably managed and poverty is alleviated among the communities in the Ayeyawady Delta" **is hardly expected to achieve within three (3) years** after the completion of the Project.

Chapter 9: Recommendations

9-1 Recommendations to the Project

- (1) The Project should hold a seminar in Nay Pyi Taw to share the outcome, knowledge and lessons learnt of the Project with Myanmar Government authorities, donors and NGOs.

- (2) The Project should hold technical workshop(s) on findings from Action Research Plantations as well as from damage and recovery survey in order to discuss and examine, and to be utilized in the related activities implemented by parties concerned.

9-2 Recommendations to Forest Department (FD)

- (3) FD should manifest future plan on CF development, strengthen organizational, institutional and financial measures (including SOP) and extend to other areas utilizing the knowledge of six (6) CF areas supported by the Project.
- (4) FD should guide CFUSGs to submit progress reports (annual reports) as monitoring tools in accordance with the procedures of CFI, and try to solve the problems pointed out in the reports.
- (5) In order that CFUSGs could continue fishing, catching crabs and oyster culture, FD should keep good coordination with Department of Fisheries on the issue of fishery right and river tender.
- (6) FD should strengthen law enforcement for CF management in the cases of encroachment and other illegal activities.
- (7) FD should secure necessary budget, boat and fuel for field staff to conduct CF monitoring.
- (8) In order for synergy effect between the Project and a JICA's grant aid project "Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta" (scheduled to start from November 2013), FD should utilize technical guidelines for rehabilitation and management of mangrove forests developed in the Project in the grant aid project.
- (9) In order not to lose data in the occasion of frequent personnel transfer, FD should secure data management both in hard and soft copy by utilizing the format proposed by the Project. Especially regarding of ARP, the results should be shared with Forest Research Institute.
- (10) In order for CF management, FD should continue and institutionalize inter-agency coordination meetings, and organize them regularly.
- (11) FD should acknowledge and utilize technical guidelines for rehabilitation and management of mangrove forests to be developed in the Project.
- (12) In the course of land use planning policy nationwide, FD should claim line ministries and local authorities to coordinate management and utilization of mangrove forest, especially to ensure CFUSGs' thirty (30) years land tenure on CF areas developed by the Project.
- (13) FD should offer data on vegetation and land use change, which is currently analyzed by the Project, to line ministries and local authorities, for future land use planning.
- (14) FD should facilitate line ministries and local authorities to utilize, recognizing the function of mangrove to mitigate damage of disaster, the results of monitoring of rehabilitation into policies and administrations on disaster prevention and management.
- (15) FD should take necessary coordination with line ministries to issue multiple travel permits for Japanese experts to go outside Yangon for Project activities valid throughout the Project period for smooth implementation of the Project.

9-3 Recommendation to JICA

- (16) JICA should take necessary coordination and actions to enable other JICA projects (including those listed below) and donors / NGOs (i.e. RECOFTC – The Center for People and Forests) to refer and utilize the outcome, knowledge and lessons learnt of the Project.
- “Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyawady Delta” in Myanmar (November 2013 – March 2017)
 - “Project on Mangrove Ecosystem Conservation and Sustainable Use in the ASEAN Region” in Indonesia (June 2011 – June 2014)
 - “Qurm (Mangrove) Environment Information Center (QEIC) Development” in Oman (December 2011 – December 2013)

10. Lessons Learnt

- (1) In general, introducing CF scheme does not necessarily lead to improvement of income levels, since in most cases farmers participating in the CF scheme have been settling and conducting economic activities even before the scheme is introduced. Therefore, it is necessary to consider carefully appropriateness of putting “improvement of income levels” as an indicator at a stage of project design.
- (2) Since it takes a long time to get benefits from plantation activities, it is important to combine livelihood improvement activities to secure the short-term benefits. However, in case of proposing livelihood improvement activities, it is essential to take into consideration local conditions including not only availability of materials and techniques, local needs but also commercial feasibility i.e. marketing and product distribution.
- (3) When conducting projects in Myanmar, it is desirable to locate project offices both in Nay Pyi Taw and in the field, in order for smooth communications among Japanese experts, decision makers and field staff of stakeholders.
- (4) In planning pilot sites, more generally, scope of a project, it is important to set realistic numbers and sizes considering the amount of input and accessibility.
- (5) In order to secure sustainability of the participatory activities, it should be advised to set appropriate membership fee and/or penalties in accordance with financial capability of each community member when designing and conducting participatory activities.
- (6) In case of introducing some new livelihood improvement activities to communities, benefits they would obtain (amounts, kinds and timing) should be clearly shown to them, so that they can have motivation to conduct them.
- (7) In case of break of critical Important Assumptions such as occurrence of a significant natural hazard, JICA should dispatch a consultation mission, investigate the negative impacts of the hazard to the project, discuss modification of the project design with counterparts and recommend revision of Project Design Matrix to Joint Coordinating Committee of the project.

End of Document

Handwritten mark: a checkmark and some scribbles.

Annex 1: Schedule of Terminal Evaluation

| Day | Date | Activities | Accommodation |
|-----|--------------|--|----------------|
| 1 | 18 Nov(Sun) | [Ms. Umiguchi] 11:00-15:45 Fly from Osaka to Bangkok (TG623) 17:55-18:40 Fly from Bangkok to Yangon (TG305) | Yangon |
| 2 | 19 Nov(Mon) | [Ms. Umiguchi] 10:00 Meeting with JICA Myanmar Office and JICA Experts 14:00-16:00 Interview with: U Hla Myo Aung (SO: Former Assistant Field Project Manager) | Yangon |
| 3 | 20 Nov(Tue) | 09:30-16:30 Interview with: U Zaw Min Htun (SO), U Zaw Min (RO) U Khin Maung Lwin (AD, Field Project Manager) U Khan Htun (SO), U Kyi Lin (SO) | Yangon |
| 4 | 21 Nov(Wed) | 10:20-11:10 Interview with U Khan Htun (SO), U Kyi Lin (SO) 13:00-15:00 Interview with: Mr. Tomohiro Shibayama (Chief Advisor/Community Forestry) | Yangon |
| 5 | 22 Nov(Thu) | AM: Drive from Yangon to Nay Pyi Taw 16:00-18:00 Interview with: Mr. Tomohiro Shibayama (Chief Advisor/Community Forestry) | Nay Pyi Taw |
| 6 | 23 Nov(Fri) | 10:00-12:00 Interview with: U Myo Min Htun, U Kyaw Kyaw Myo (Former RO) | Nay Pyi Taw |
| 7 | 24 Nov(Sat) | AM: Drive from Nay Pyi Taw to Yangon | Yangon |
| 8 | 25 Nov(Sun) | [Mr. Tadokoro] 10:45-15:45 Fly from Tokyo to Bangkok (TG641) [Mr. Hatori & Mr. Taniguchi] 11:45-16:45 Fly from Tokyo to Bangkok (TG643) [Mr. Hatori, Mr. Tadokoro & Mr. Taniguchi] 17:55-18:40 Fly from Bangkok to Yangon (TG305) [All] 20:30-22:00 Internal Meeting | Yangon |
| 9 | 26 Nov(Mon) | 09:20-09:50 Meeting with JICA Myanmar Office Mr. Masahiko Tanaka (Chief Representative) Mr. Katsuyoshi Saito (Senior Representative) Mr. Yasuyuki Sato (Representative) 10:00-12:00 Meeting with JICA Experts Mr. Tomohiro Shibayama (Chief Advisor) Mr. Hiromi Yasu (Community Forestry/Participatory Community Development/Forest Technology) Ms. Aki Baba (Forest Technology/GIS/Land Use Planning) 14:00-15:30 Meeting with Myanmar Evaluation Team U Win Myint (AD, FRI) U Maung Maung Aye (AD, FD) U Htun Aung Kyaw (AD DOF) | Yangon |
| 10 | 27 Nov (Tue) | 10:00-12:30 Kick-off Meeting with Forest Department, MOECAF U Thaug Oo (AD, Project Coordinator) U Min Zaw Oo (SO), U Htay Aung (RO) 14:00-15:30 Meeting with JICA Experts Mr. Tomohiro Shibayama (Chief Advisor) Ms. Aki Baba (Forest Technology/GIS/Land Use Planning) | Yangon |
| 11 | 28 Nov(Wed) | Holiday: Full Moon Day of Tasaungmone 07:00-12:30 Drive from Yangon to Bogalay 14:00-19:00 Cruise from Bogalay to Htaung Gyi Tan | Htaung Gyi Tan |

Handwritten marks and signatures at the bottom right of the page.

| | | | |
|----|--------------|---|-------------|
| 12 | 29 Nov (Thu) | 08:30-12:30 Site Observation (ARP in Forest Compartment No. 65, Htaung Gyi Tan CF Area, ARP in FC No. 66) 13:30-15:00 Joint Interview with CFUSGs of Htaung Gyi Tan and Gaw Du in Gaw Du Village 15:30-21:40 Cruise from Gaw Du to Bogalay | Bogalay |
| 13 | 30 Nov (Fri) | 08:30-14:00 Drive from Bogalay to Yangon | Yangon |
| 14 | 1 Dec (Sat) | 09:00-17:00 Internal Meeting & Documentation | Yangon |
| 15 | 2 Dec (Sun) | 13:00-17:30 Internal Meeting & Documentation | Yangon |
| 16 | 3 Dec (Mon) | 07:00-08:15 Fly from Yangon to Nay Pyi Taw (UB 783J) 09:45-10:30 Meeting with Forest Department, MOECAF U Khin Maung Oo (Director, Planning and Statistics Division, FD /Project Manager) U Thaung Oo (AD, Project Coordinator) U Min Zaw Oo (SO) U Tin Myo Aung (RO) | Nay Pyi Taw |
| 17 | 4 Dec (Tue) | 10:00-16:30 Meeting with Myanmar Evaluation Team U Win Myint (AD, FRI) U Maung Maung Aye (AD, FD) U Htun Aung Kyaw (AD DOF) U Tin Myo Aung (RO) 12:40-13:00 Meeting with Forest Department, MOECAF U Bo Ni (Director, Watershed Management Division / Former Project Coordinator) | Nay Pyi Taw |
| 18 | 5 Dec (Wed) | 09:00-17:30 Meeting with Myanmar Evaluation Team U Win Myint (AD, FRI) U Maung Maung Aye (AD, FD) U Htun Aung Kyaw (AD, DOF) U Tin Myo Aung (RO) 13:30-14:00 Courtesy Call on Director General of FD Dr. Nyi Nyi Kyaw (Project Director and Chairperson of JCC) | Nay Pyi Taw |
| 19 | 6 Dec (Thu) | 08:30 Debriefing to Director General of FD and Signing Ceremony of M/M AM-PM: Drive from Nay Pyi Taw to Yangon | Yangon |
| 20 | 7 Dec (Fri) | 10:00 Debriefing to JICA Myanmar Office 14:00 Debriefing to Embassy of Japan 19:40-21:35 Fly from Yangon to Bangkok (TG306) [Mr. Hatori, Mr. Tadokoro & Mr. Taniguchi] 22:35-06:15+ Fly from Bangkok to Tokyo (TG640) [Ms. Umiguchi] 23:15-06:25+ Fly from Bangkok to Osaka (TG622) | In-flight |
| 21 | 8 Dec (Sat) | [Mr. Hatori, Mr. Tadokoro & Mr. Taniguchi] 06:15 Arrival at Tokyo [Ms. Umiguchi] 06:25 Arrival at Osaka | |

ANNEX 2: Project Design Matrix (PDM) version 3

1. Project Title: Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta
2. Project Duration: April 2007-March 2013
3. Target Area: Four reserved forests (Kyakankwinpauk, Pyinalan, Kadonkani, Pyindaye) in the Ayeyawady Delta
4. Beneficiaries: Communities practicing community forestry in the four reserved forests (Kyakankwinpauk, Pyinalan, Kadonkani, Pyindaye) in the Ayeyawady Delta & Member of Community Forestry Task Force (MCFTC) and other relevant staff from the Forest Department

PDM version: 3
Date of approval: 3 May, 2012

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|---|---|--|
| Overall Goal: The mangrove forests are sustainably managed and poverty is alleviated among the communities in the Ayeyawady Delta | a. Mangrove forest coverage increases by 10,000 acres (4,050ha) (*1) in the Target Area of the current Project. (i.e 4 RFs) within three years after the completion of the Project b. Income levels of communities in the Target Area is improved than that of 2004 | a. Forests resource assessment by FD (remote sensing) b. Agricultural Census report | |
| 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. | a. By the Project end, mangrove forest coverage is increased by 3,550 acres (1,438 ha) (*2) in the selected areas where project were implemented (i.e. CF plantation, CF-Natural Forest Improvement Operation (NFIO), and ARP sites) from the base year 2009. b. At the end of the Project, among the registered members of all the target CF user groups (CFUSGs) reselected in 2011 more than 80% consider CF useful | a. Project reports b. Results from the CF Impact survey | 1 Favourable markets exist for CF products. 2 FD's policy on the management of the four reserved forests does not change significantly. 3 Sufficient financial and other resources are allocated for the sustainable management of mangrove forests. |
| Outputs: 1. The selected communities practice environmentally and economically sustainable community forestry (CF). 2. The management and the support system of the Forest Department (FD) 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. | 1a By September 2011, all the CF Management Plans of the CFUSGs, reselected in March 2011, are developed/updated 1b By the end of the Project, organizational capacity of the Management Committee of all target CFUSGs 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. 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 1d By the Project end, more than 1,460 acres (591ha) (*3) of mangrove forests are rehabilitated and managed by the CFUSGs reselected in 2011 based on the certified CF Management Plans, including CF plantation and NFIO when applicable 1e By the Project end, all the CFUSGs 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. 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 levels set by the Project. 2b On average, more than 80% of all registered members of the CFUSGs 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. 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) 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) for confirmation by the DG for further action (in English & Myanmar) 3a By the Project end, a technical report on Action Research (AR) for mangrove are prepared (in English and Myanmar) 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 findings, are published (in English and Myanmar) 4a By December 2011, an inter-agency coordination meeting is organized by the FD 4b Land use information of the Target Area is updated based on the satellite images of 2007, 2009 and 2012. 4c The updated land use information is shared at the inter-agency coordination meetings for discussion. 4d Seminars to promote synergy among the relevant sectors are organized annually 4e A donor/NGO coordination meeting for the Target Area organized by the FD once a year 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 Xb By March 2010, a report on damage & recovery survey on the communities in the Target Area is prepared Xc By March 2010, Centre for CF Extension & Nursery in each RF is rehabilitated. 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 Xe By December 2011, a report on recovery condition of mangrove vegetation (2008-2010) is prepared | 1a: CF Management Plans, 1b-1e: Monitoring report, project report 2a-2d: Project reports 3a-3b: Project reports 4a: Meeting records 4b: Land use maps 4c: Meeting records 4d: Project reports 4e: Meeting records Xa: Hazard map, Xb-e: project reports | 1 No drastic increase in the population within the four reserved forests. 2 External pressure to convert the mangrove forests to other land uses does not increase. |

| Activities: | | |
|---|---|--|
| 1-1 Select villages to introduce CF from the ones that express interest. 1-2 Conduct baseline survey on the basic socio-economic conditions of the selected villages. 1-3 Organize/reorganize CFUSGs in the selected villages 1-4 Assist the CFUSGs in preparing/updating their CF Management Plans and proposals for CF certificates through participatory planning process 1-5 Issue CF certificates to the CFUSGs based on the proposals as per the CF Instruction (CFI) 1-6 Assist the CFUSGs in implementing the certified CF Management Plans 1-7 Implement various capacity strengthening programs to enhance the income levels of the CFUSGs in partnership with Cooperating Agencies such as Department of Fisheries (DOF), Myanmar Agriculture Service (MAS), and other institutions. 1-8 Monitor and evaluate the implementation of the certified CF Management Plans 1-9 Conduct impact survey regarding the effects of CF on the livelihoods of the members of the CFUSGs. | <p style="text-align: center;">Inputs</p> <p><Myanmar Side> Personnel (Members of CF Task Force: MCCTF) 1. Project Director 2. Project Manager 3. Project Coordinator 4. Field Project Manager 5. Other MCCTF 6. Other personnel mutually agreed upon as necessary</p> | 1 No significant natural hazards occur that will impact the rehabilitation of mangrove forests (e.g. cyclones, tsunamis, floods, pests, diseases). 2 Relevant authorities and stakeholders are supportive to promote sustainable management of mangrove forests |
| 2-1 Identify necessary activities for CF management (*4) and CF extension & support(*5) by each Reserve Forest (RF) based on review of the CF contents of the Integrated Mangrove Management Plan (IMMP). 2-2 Confirm the roles and responsibilities of the technical members of CF Task Force (technical MCCTF)(*6) for the identified activities 2-3 Assess the needs of the technical MCCTF (e.g. financial, logistics and human resource development needs) to implement the identified activities 2-4 Develop training plan & materials based on the assessment of the human resource development needs conducted in 2.3. 2-5 Train the technical MCCTF according to the plan 2-6 Construct/renovate the CF Extension Center & Nursery in each RF 2-7 Provide extension services and support to the CFUSGs in each RF 2-8 Carry out public awareness campaigns regarding CF and the conservation of mangrove forests 2-9 Draft detailed SOP for CF for the mangrove forests based on the existing SOP of the FD (i.e. Departmental Instructions) and feedback from the Project activities | <p>Land, Building and Facilities 1. Office building and facilities necessary for the implementation of the Project 2. Office space and necessary facilities for the Japanese experts and related staff members 3. Land for the action research 4. Jetty and space necessary for storage of boats and vehicles 5. Other facilities mutually agreed upon as necessary</p> <p>Local Operational Costs Minimum of US\$100,000 equivalent in 5 years</p> | <p style="text-align: center;">Pre-Conditions</p> 1 Local communities accept CF instructions 2 No significant changes occur in the Government's policy on CF |
| 3-1 Conduct surveys for identification of silvicultural techniques for both community and non-community forestry with respect to the eco-geographical / management zones in the Ayeyawady Delta 3-2 Prepare the specific Action Research (AR) test designs for each of the identified silvicultural technique (e.g. seedling production, planning designs and methods, thinning, pruning, forest management). 3-3 Execute the AR in each RF 3-4 Conduct periodic technical monitoring / preliminary assessment on the AR plantation (ARP) 3-5 Prepare a technical report on action research (AR) for mangrove in English and Myanmar 3-6 Develop technical guidelines for rehabilitation and management of mangrove forests based on the findings of the AR 4-1 Organize an inter-agency coordination meeting, consisting of relevant authorities (e.g. Agriculture, Fisheries, Settlement and Land Records) at the Regional level to examine the underlying causes for mangrove deforestation in the Ayeyawady Delta. 4-2 Update the land use information on periodic basis based on the up-to-date satellite images for discussion by the coordination meeting members, including overall forest resource assessment of the region and mangrove forest conversion. 4-3 Organize seminars to promote synergies among the relevant sectors for the sustainable management of the mangrove ecosystem in the Ayeyawady Delta. 4-4 Organize a coordination meeting with donors/NGOs active in the Target Area at District Level | <p><Japanese Side> Personnel 1. Chief Advisor 2. Participatory community development 3. Mangrove forestry 4. Coordinator 5. Other experts in specific fields (e.g. Extension, GIS, Agro-forestry, Fish culture, Forestry Value-added Production, Marketing and Distribution) upon mutual agreement</p> <p>Machinery and Equipment 1. Boat(s) 2. Vehicle(s) 3. Other equipment would be provided if necessary upon mutual agreement.</p> | |
| X-1 Prepare a hazard map based on analysis of damage of the cyclone Nargis X-2 Conduct quick damage & recovery survey in the Target Area X-3 Conduct village profile survey in the Target Area X-4 Conduct survey for recovery condition of mangrove vegetation from damage of Cyclone Nargis in the Target Area. X-5 Rehabilitate the CF Extension Center and Nursery in each RF including facility with cyclone-proof structure X-6 Support recovery or disaster prevention work of Implementation and Cooperative Organizations in the Target Area through material supply X-7 Conduct public awareness activities on disaster prevention in the Target Area X-8 Arrange necessary coordination among donors in the integrated mangrove management | <p>Training in Japan</p> <p>Local Costs</p> | |

(*1)Based on Laputta and Pyar Pon District Management Plans (2011/12-2020/21). (*2) :The area reflecting the CF area delineated in the CF Management Plans of the CFUSGs reselected in 2011 and outer boundary areas of Action Research Plantation Plots as well as the area rehabilitated during 2009-2010 by the CFUSGs which were not reselected. (*3): The CF areas 1,460 acres (as of April 2012) including plantation areas and natural forest area in the six CF Management Plans of the CFUSGs reselected in 2011. (*4): "CF management" by FD is defined as planning, supervision, monitoring and evaluation, and data organization and analysis of the activities related to CF. "CF support" consists of extension service and extension support to CF. (*5): "CF extension services" may include organization of the CFUSGs, strengthening of the organizational/management capacity of CFUSGs, provision of technical support for preparation and implementation of the CF Management Plans and income generation activities of CFUSGs, etc. "CF extension support" is defined as material support to CFUSGs, which include provision of seedlings for CF plantation delineated in the CF Management Plans, making the facilities of the CF Extension and Nursery available to the CFUSG. (*6): "MCCTF" in Output 2, include the Field Project Manager and field staff (Staff Officers (SOs), Range Officers (ROs), Deputy ROs (DROs) and foresters relevant to the Target Area.

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------------|--|--|--|--|--|
| 3.4 | Conduct periodic technical monitoring / preliminary assessment on the AR plantation (ARP) | Monitoring results to be reflected to succeeding years' ARP and technical report/ guidelines (monitoring reports, technical report) | | | | | | | | | | | | | | | | | FPM | SOs (LPT, BGL, PYP), ROs (LPT, BGL, PYP) | JE, MF LC: labour cost for monitoring | | Major monitoring activities are limited only when presence of JE | |
| 3.4.1 | Prepare a monitoring and assessment plan | Monitoring plan | | | | | | | | | | | | | | | | | ditto | ditto | | | | |
| 3.4.2 | Implement monitoring and assessment based on the plan | Monitoring Records/ reports | | | | | | | | | | | | | | | | | ditto | SO, RO, DRO, F | | | | |
| | a Prepare/ update plot allocation tables, plot records, nursery activity records | Prepared tables and records | | | | | | | | | | | | | | | | | | ditto | ditto | | | |
| | b Prepare/ update monitoring records | Monitoring records | | | | | | | | | | | | | | | | | | ditto | ditto | | | |
| 3.4.3 | Prepare monitoring and assessment reports | Monitoring Records/ reports | | | | | | | | | | | | | | | | | | ditto | SO, RO | | | |
| 3.4.4 | Prepare a technical report, compiling the above results (activity 3.5) | Monitoring reports, technical report | | | | | | | | | | | | | | | | | | ditto | ditto | | | |
| 3.5 | Prepare a technical report on action research (AR) for mangrove in English and Myanmar | Final technical reports (English and Myanmar) to be approved and referred by FD | | | | | | | | | | | | | | | | | | FPM | SOs (LPT, BGL, PYP), ROs (LPT, BGL, PYP) | JE, MF LC: preparation cost for technical reports | | |
| 3.5.1 | Develop an initial draft | Draft technical report (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | a Organize workshop(s) to confirm/ share progress, achievement, issues in relation to ARP (activity 3.6) | Records/reports of workshops | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | b Based on results of workshop, prepare initial draft of technical report | Draft technical report (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| 3.5.2 | Finalize the draft | Approved technical report (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | a Share and review prepared draft among MCTF and other relevant FD offices | Review comments/ feedbacks | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | b Based on comments and feedbacks, finalize technical report | Final technical report (English) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | c Translate finalized technical report in Myanmar | Final technical report (Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | d Get approval of finalized technical report by FD-DG | Approval letter, approved technical report (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| 3.6 | Develop technical guidelines for rehabilitation and management of mangrove forests based on the findings of the AR | Technical guideline (English and Myanmar) to be approved and utilized by FD | | | | | | | | | | | | | | | | | | FPM | SOs (LPT, BGL, PYP), ROs (LPT, BGL, PYP) | JE, MF LC: preparation cost for technical guideline | | |
| 3.6.1 | Develop a preliminary draft | English draft technical guideline | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| 3.6.2 | Develop an initial draft | Draft technical guideline (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | a Based on preliminary draft, organize workshop(s) to confirm/ share progress, achievement, issues in relation to ARP (activity 3.5) | Records/reports of workshops | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | b Based on results of workshop, prepare initial draft of technical guideline | Initial draft technical guideline (English) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| 3.6.3 | Finalize the draft | Approved technical guideline (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | a Share and review prepared draft among MCTF and other relevant FD offices | Review comments/ feedbacks | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | b Based on comments and feedbacks, finalize technical guideline | Final technical guideline (English) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | c Translate finalized technical guideline in Myanmar | Final technical guideline (Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| | d Get approval of finalized technical guideline by FD-DG | Approval letter, approved technical guideline (English and Myanmar) | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| Output 4: A coordination mechanism is established among key sectors to address the underlying causes of mangrove deforestation in the Ayeyawady Delta. | | | | | | | | | | | | | | | | | | | Overall PM | | | | | |
| 4.1 | Organize an inter-agency coordination meeting, consisting of relevant authorities (e.g. agriculture, fisheries, settlement and land records) at the Regional level to examine the underlying causes for mangrove deforestation in the Ayeyawady Delta. | Issues related to Project and Mangrove Management to be shared/ discussed among relevant authorities (Prepared meeting records/ minutes) | | | | | | | | | | | | | | | | | | AYW Director | PC, FPM | JE, CA, C LC: meeting organizing cost | | Aimed to be held concurrently with mangrove seminar as much as possible. |
| 4.1.1 | Pre-inform about coordination meeting to relevant authorities | Prepared letters | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |
| 4.1.2 | Hold coordination meeting at regional level | Prepared meeting records/ minutes | | | | | | | | | | | | | | | | | | ditto | ditto | ditto | | |

53

14. Q

ANNEX 4: Input from Myanmar Side

A-1. List of Myanmar Personnel (Current personnel: 27 in total)

A-1-1 Management Personnel

(1) Current (7 in total)

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|----|---------------------------------|-------------------|---------------------|---|--|
| 1. | Project Director | Dr. Nyi Nyi Kyaw | Ph D (Forestry) | Director General, Forest Department (FD) | September 2012 to date |
| 2. | Deputy Project Director | U Zaw Win (4) | B. Sc (Forestry) | Deputy Director General, FD | September 2012 to date |
| 3. | Project Manager | U Khin Maung Oo | B. Sc (Forestry) | Director, FD Planning and Statistic Division | October 2010 to date |
| 4. | Director of Ayeyawady Division | U Zaw Win (5) | B. Sc (Forestry) | Director, FD Ayeyawady Region (Patheingyi) | February 2011 to date |
| 5. | Project Coordinator | U Thaug Oo | B. Sc (Forestry) | Assistant Director, FD Planning and Statistic Division | November 2012 to date |
| 6. | Field Project Manager | U Khin Maung Lwin | B. Sc (Forestry), | Assistant Director, FD Myaung Mya District (MYM) | October 2007 to date (Former Staff Officer, Bogalay: (January 2006) May 2007~ September 2007) |
| 7. | Assistant Project Coordinator 2 | U Htay Aung | B. Sc (Forestry) | Range Officer, FD Planning and Statistic Division (NPT) | February 2010 to date |

(2) Former (15 in total)

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|-----|--------------------------------|-------------------|---------------------|--|--|
| 1. | Project Director | U Soe Win Hlaing | B.Sc (Forestry) | Director General, Forest Department (FD) | December 2004 to January 2010 |
| 2. | Project Director | U Aye Myint Maung | | Director General, Forest Department (FD) | February 2010 to August 2012 |
| 3. | Deputy Project Director | Dr. Nyi Nyi Kyaw | Ph D (Forestry) | Deputy Director General, FD | February 2010 to August 2012 |
| 4. | Project Manager | U Sein Htun | B. Sc (Forestry) | Director, FD Planning and Statistic Division | 2007 to April 2010 |
| 5. | Project Manager | U Zaw Win (4) | B. Sc (Forestry) | Director, FD Planning and Statistic Division | April 2010 to September 2012 |
| 6. | Director of Ayeyawady Division | U Win Myint | B.Sc (Forestry) | Director, FD Ayeyawady Division (Patheingyi) | (May 2004) May 2007 ~ June 2008 |
| 7. | Director of Ayeyawady Division | U Win Naing | B. Sc (Forestry) | Director, FD Ayeyawady Division (Patheingyi) | June 2008 to February 2011 |
| 8. | Project Coordinator | U Bo Ni | B.Sc (Forestry) | Deputy Director, FD Planning and Statistic Division (NPT) | May 2007 to June 2012 |
| 9. | Assistant Project Coordinator | U Min Maw | B.Sc (Forestry), | Assistant Director, , FD Planning and Statistic Division (NPT) | Dec 2010 to Dec. 2011 (Former Assistant Field Project Manager) |
| 10. | Field Project Manager | U Win Maung | B.Sc (Forestry), | Assistant Director, FD Myaung Mya District (MYM) | (November 2004) May 2007 to October 2007 |

56

18.

| | | | | | |
|-----|---------------------------------|-----------------|--|---|-------------------------------|
| 11. | Assistant Field Project Manager | U Min Maw | B.Sc (Forestry), | Staff Officer, Myaung Mya District (MYM) | Sep 2009 to Dec 2010 |
| 12. | Assistant Field Project Manager | U Hla Myo Aung | B.Sc (Forestry) M.Sc(Natural Resource Management) | Staff Officer, Myaung Mya District (MYM) | December 2010 to October 2012 |
| 13. | Assistant Project Coordinator | U Tual Cin Khai | B.Sc (Forestry) | Staff Officer, FD Planning and Statistic Division (NPT) | December 2007 to July 2011 |
| 14. | Assistant Project Coordinator | U Moe Zaw | B.Sc (Forestry) | Staff Officer, FD Planning and Statistic Division (NPT) | October 2011 to October 2012 |
| 15. | Assistant Project Coordinator | U Aung Myat San | B.Sc (Forestry) | Range Officer, Planning and Statistic Division (NPT) | 2007~ June 2010 |

A-1-2 Technical Personnel (Technical Members of Community Forestry Task Force: Staff Officers and Range Officers) (6 in total)

(1) Current

a. Laputta

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|---|--|-------------|---------------------|---------------------------------|---|
| 1 | Field Project Leader, Laputta | U Hla Myint | B.Sc (Forestry) | Staff Officer, Laputta Township | June 2012 to date |
| 2 | Field Project Chief, Kyakankwinpauk Reserved Forest (RF) | U Zaw Min | B.A. (Distance) | Range Officer, Laputta Township | September 2011 to date (Former Field Project Chief, Pyinalan RF: Jan 2010 to Aug 2011) |
| 3 | Field Project Chief, Pyinalan RF | U Zaw Thway | | Range Officer, Laputta Township | May 2012 to date |

b. Bogalay Township

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|---|--|------------|---------------------|---------------------------------|----------------------|
| 1 | Field Project Leader, Bogalay | U Kan Htun | B.Sc (Forestry), | Staff Officer, Bogalay Township | October 2007 to date |
| 2 | Field Project Chief, Kadonkani RF | | | | |
| 3 | Field Project Chief, Pyindaye RF North | | | | |

c. Pyar Pon Township

Pyar Pon Township FD Office started to cover Pyindaye South since 20 June, 2009

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|---|--|------------------|---------------------|----------------------------------|----------------------|
| 1 | Field Project Leader, Pyar Pon | U Kyi Lin | B.Sc (Forestry), | Staff Officer, Pyar Pon Township | January 2010 to date |
| 2 | Field Project Chief, Pyindaye RF South | U Pyae Phyo Aung | B.Sc (Forestry) | Range Officer, Pyar Pon Township | January 2012 to date |

(2) Former Project Staff

a. Laputta Township

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|----|--|-------------------|------------------------|--|--|
| 1 | Field Project Leader, Laputta | U Win Naing | B.Sc (Forestry), | Staff Officer, Laputta Township | (2006) May 2007 ~December 2010 |
| 2 | Field Project Leader, Laputta | U Aung Gyi | B.Sc (Forestry) | Staff Officer, Laputta Township | December 2010 to June 2012 |
| 3. | Field Project Chief, Kyakankwinpauk RF | U Naing Win | B.Sc (Forestry), | Range Officer, Laputta Township (Birth Year: 1980) | (2007~2008) Deceased during Cyclone Nargis in May 2008. |
| 4. | Field Project Chief, Kyakankwinpauk RF | U Hla Shwe | Grade 10 (High School) | Range Officer, Laputta Township | September 2009 to August 2011 (DRO: Jan 2006 to Aug 2009) |
| 5 | Field Project Chief, Kyakankwinpauk RF | U Than Min Aye | B.Sc (Forestry) | Range Officer, Laputta Township | (April 2010) January 2011 to March 2012 |
| 6. | Field Project Chief, Pyinalan RF | U Win Maung Aye | B.Sc (Forestry) | Range Officer, Laputta Township | (Feb 2007) April to November 2007 (Field Project Chief, Pyindaye RF South) |
| 7. | Field Project Chief, Pyinalan RF | U Min Maung Maung | B.Sc (Forestry) | Range Officer, Laputta Township | January 2008~ January 2010 |
| 8. | Field Project Chief, Pyinalan RF | U Zaw Min | B.A. (Distance) | Range Officer, Laputta Township | April 2010 to January 2011 Currently Field Project Chief, Kyakankwinpauk RF |

b. Bogalay Township

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|----|--|-------------------|---------------------|----------------------------------|---|
| 1. | Field Project Leader, Bogalay | U Khin Maung Lwin | B.Sc (Forestry), | Staff Officer, Bogalay Township | (Jan. 2006) May 2007~ September 2007 |
| 2. | Field Project Chief, Kadonkani RF | U Zaw Min Htun | B.Sc (Forestry) | Range Officer, Pyar Pon Township | (Jan. 2006) May 2007 - December 2009 |
| 3. | Field Project Chief, Kadonkani RF | U Myo Min Htun | B.Sc (Forestry), | Range Officer, Bogalay Township | November 2009 to December 2011 (Former Field Project Chief, Pyindaye RF: November 2007 to October 2009) |
| 4. | Field Project Chief, Pyindaye RF North | U Kyaw Kyaw Myo | B.Sc (Forestry), | Range Officer, Bogalay Township | October 2009 to December 2011 |

c. Pyar Pon Township

Pyar Pon Township FD Office started to cover Pyindaye South since 20 June, 2009

| | Position in the Project | Name | Academic background | Position in the Organization | Assignment Period |
|----|--|-----------------|---------------------|----------------------------------|--|
| 1. | Field Project Leader, Pyar Pon | U Nay Myo Htun | B.Sc (Forestry) | Staff Officer, Pyar Pon Township | July 2007 to Dec 2009 |
| 2. | Field Project Chief, Pyindaye RF South | U Zaw Min Htun | B.Sc (Forestry) | Range Officer, Pyarpon Township | January 2010 to June 2011 (Former Field Project Chief, Kadonkani RF: (January 2006) May 2007 - December 2009) |
| 3. | Field Project Chief, Pyindaye RF South | U Win Maung Aye | B.Sc (Forestry), | Range Officer, Pyarpon Township | November 2008 to January 2011 (July 2011) (in PYP since December 2007) (Former Field Project Chief, Pyinalan RF: (Feb 2007) April 2007 -November 2007) |
| 4. | Field Project Chief, Pyindaye RF South | U Kyaw Zaw | | Range Officer, Pyarpon Township | June 2011 to January 2012 |

A-1-3 Technical Personnel (Technical Members of Community Forestry Task Force: Deputy Range Officers and below)

Since this level staffs are frequently transferred within and outside township, listed deputy range officers and foresters who were assigned in the project area since the commencement of the project.

a. Laputta (Current 6: as of July 2012)

| | Name | Position (during the person's station period) | Station place (RF name, beat) | Duration (start month/ year and end month / year) | Current station place (as of July 2012) |
|----|--------------------|---|-------------------------------|---|---|
| 1 | U Kyaw Kyaw Oo | DRO | KKKP RF | 18.6.2007 to 16.7.2009 | Kachin State |
| 2 | U Hla Shwe | DRO/RO | KKKP RF | 18.4.2006 to 31.8.2009 (RO: Sep 2009 to Aug 2011) | Alon Township FD |
| 3 | U Myo Myint Htay | DRO | KKKP (26, 19) | 2.9.2009 to 15.12.2011 | AD Office, Myaung Mya |
| 4 | U Soe Kyaw Thu | DRO | KKKP (17) | 15.11.2011 to 31.3.2012 | Laputta Township FD |
| 5 | U Htein Win | DRO | KKKP RF | 4.6.2012 to Up to date | Laputta Township FD |
| 6 | U Tun Tun Jinn | DRO | Pyinalan RF | 1.7.2007 to 2.4.2010 | Chin State |
| 7 | U Zaw Aung | DRO | Pyinalan (60) | 15.2.2009 to 30.3.2010 | Director Office, FD, YGN Region |
| 8 | U Lwin Paing Soe | DRO | Pyinalan (60) | 11.9.2009 to 31.3.2012 | Taunggyi FD, S-Shan State |
| 9 | U Cey Thu Naing | DRO | Pyinalan (66) | 2.8.2010 to 1.3.2011 | Director Office, FD, Mon Region |
| 10 | U Aung Moe Hlaing | DRO | Pyinalan RF | 4.6.2012 to Up to date | Laputta Township FD |
| 11 | U Kyaw Oo | Forester | KKKP RF | 19.11.2007 to 2010 | Maupin FD |
| 12 | U Tin Lay Maung | Forester | KKKP RF | 7.8.2007 to 6.4.2010 | Kachin State |
| 13 | U Thet Aung Khaing | Forester | KKKP (26) | 1.5.2009 to 1.9.2009 | Ngaputaw Township FD |
| 14 | U Myo Oo | Forester | KKKP (26) | 14.8.2009 to 31.3.2010 | Laputta Township FD |
| 15 | U Zaw Win Aung | Forester/DRO | KKKP (19) | 1.4.2010 to 15.12.2011 | Laputta Township FD |
| 16 | U Tin Oo | Forester | KKKP (17) | 15.11.2011 to 31.3.2012 | Laputta Township FD |

| | Name | Position (during the person's station period) | Station place (RF name, beat) | Duration (start month/ year and end month / year) | Current station place (as of July 2012) |
|----|-----------------|---|----------------------------------|---|--|
| 17 | U Than Htay | Forest Guard | KKKP (17) | 15.11.2011 to 31.3.2012 | Laputta Township FD |
| 18 | U Saw Naing Oo | Forester | KKKP RF | 10.7.2012 to Up to date | Laputta Township FD |
| 19 | U Myo Min Oo | Forester | KKKP (17) | 15.11.2011 to Up to date | Laputta Township FD |
| 20 | U Nyan Soe | Forester | Pyinalan RF | 19.11.2007 to 2009 | Myan Aung FD |
| 21 | U Zaw Myo Htet | Forester | Pyinalan RF | 2.5.2007 to 19.11.2007 | Myaung Mya FD |
| 22 | U Tun Tun Naing | Forester | Pyinalan (60) | 1.4.2009 to 15.12.2011 | Myang Mya Township FD |
| 23 | U Nyi Nyi Htwe | Forester | Pyinalan RF | 15.1.2011 to 31.3.2011 | Taninthayi Region FD |
| 24 | U Kyaw Myo Thu | Forester | Pyinalan RF | 8.12.2011 to Up to date | Laputta Township FD |
| 25 | U Win Naing | Forester | Pyinalan RF | 15.11.2011 to Up to date | Laputta Township FD |

b. Bogalay Township (Current 6: as of July 2012)

| | Name | Position (during the person's station period) | Station place (RF name, beat) | Duration (start month/ year and end month / year) | Current station place (as of July 2012) |
|----|------------------|---|-----------------------------------|---|---|
| 1 | U Aung Myint Soe | DRO | Kadonkani (36) | 29.6.2007 to 31.1.2010 | Pakokku, Magway Division |
| 2 | U Myo Myint Aung | DRO | Kadonkani (36) | 29.6.2007 to 18.2.2010 | Hsaw, Magway Division |
| 3 | U Myo Lwin | DRO | Kadonkani (36, 39) | 29.6.2007 to 10.5.2010 | Salin, Magway Division |
| 4 | U Sai Thein Soe | DRO | Kadonkani (63, 36) | 11.11.2010 to 6.2.2012 | Magu, Kyein Chaung Beat, Bogalay |
| 5 | U San Lwin | DRO | Kadonkani (36, 62) | 11.11.2010 to Up to date | Byone Hmway CFEEN, Bogalay |
| 6 | U Wathon Tun | DRO | Kadonkani (49), Byone Hmway | 22.5.2012 to Up to date | Byone Hmway CFEEN, Bogalay |
| 7 | U Thant Zin Aung | DRO | Kadonkani (49), Byone Hmway | 22.5.2012 to Up to date | Byone Hmway CFEEN, Bogalay |
| 8 | U Aung Myint Soe | DRO | Pyindaye RF | 1.2.2010 to 30.9.2010 | Magway Region |
| 9 | U Kyaw Kyaw Min | DRO | Pyindaye RF | 5.11.2010 to 8.7.2012 | Myin Ka Kone Beat |
| 10 | U Kyi Lwin | DRO | Pyindaye RF | 6.2.2012 to 8.7.2012 | Kadonkani Beat |
| 11 | U Thet Naing Oo | DRO | Pyindaye RF | 6.2.2012 to 8.7.2012 | Setsan Beat |
| 12 | U Kyaw Lwin | Forester | Kadonkani | 2003-04 to 30.1.2009 | Yay Kyi |
| 13 | U Thet Swe | Forester | Kadonkani | 2003-04 to 30.10.2009 | Pyin Oo Lwin Forest School |
| 14 | U Aung Aung | Forester | Kadonkani (49) | 2.12.2010 to Up to date | Kadonkani (49), Byone Hmway |
| 15 | U Win Hlaing | Forester | Kadonkani | 15.10.1995 to Up to date | Bogalay Township Beat (Myo Ma Beat) |
| 16 | U Lin Lin Htike | Forester | Pyindaye RF, Setsan Beat | 1.12.2010 to 17.12.2011 | Attending in Forest School, Pyin Oo Lwin |
| 17 | U Kyaw Myo Min | Forester | Pyindaye RF, Setsan Beat | 31.12.2011 to 22.5.2012 | Attached in Township Forest Office |
| 18 | U Than Min Htike | Forester | Pyindaye RF, Setsan Beat | 23.5.2012 to Up to date | Pyindaye RF, Setsan Beat |

c. Pyar Pon Township (Current 2: as of July 2012)

Pyar Pon Township FD Office started to cover Pyindaye South since 20 June, 2009

| | Name | Position (during the person's station period) | Station place (RF name, beat) | Duration (start month/ year and end month / year) | Current station place (as of July 2012) |
|----|---------------------|---|----------------------------------|---|--|
| 1 | U Kyaw Zin Wei | DRO | Pyindaye RF | July, 2009 to April, 2010 | Bago Region FD |
| 2 | U Min Pyae Phyo Lin | DRO | Pyindaye RF | July, 2009 to April, 2010 | Yay Township FD, Mon State |
| 3 | U Dee Lar | DRO | Pyindaye RF | January, 2010 to January, 2011 | Amar Beat, Pyarpon FD |
| 4 | U Moe Lwin | DRO | Pyindaye RF | January, 2010 to January, 2011 | Daydaye Beat, Pyarpon FD |
| 5 | U Khin Maung Win | DRO | Pyindaye RF | January, 2010 to January, 2011 | Shwe Bo Township FD, Sagaing Region |
| 6 | U Zaw Nay Lin | DRO | Pyindaye RF | January, 2010 to January, 2011 | Pyarpon City Beat, Pyarpon FD |
| 7 | U Thein Min Soe | DRO | Pyindaye RF | September, 2011 to Up to date | Mangrove Project Plantation |
| 8 | U Han Myo Lin | Forester | Pyindaye RF | September, 2011 to December, 2011 | Myaung Mya District FD |
| 9 | U Tin Ko Ko | Forester | Pyindaye RF | June, 2011 to June, 2012 | Pyarpon City Beat, Pyarpon FD |
| 10 | U Kyaw Naing | Forester | Pyindaye RF | June, 2012 to Up to date | Mangrove Project Plantation |

A-2. Allocation of Local Budget for the Project (as of January 2011)

Unit=Myanmar Kyat (MMK)

Allocation of Local Budget for the Project (as of November 2012)

MMK

| No | Major Budget Item | FY2007-08 | FY2008-09 | FY2009-10 | FY2010-11 | FY2011-12 | FY2012-13 | Total |
|----|--|------------|-----------|------------|------------|------------|------------|-------------|
| 1 | Office Space and Facilities | 14,936,058 | 1,640,300 | 1,813,200 | | 2,784,900 | 1,185,000 | 22,359,458 |
| 2 | Land for Action Research Plantation | | 212 acre | 900 acre | 400 acre | 75 acre | | 0 |
| 3 | Action Research Plantation | | 1,749,000 | 9,123,800 | 9,278,000 | 4,482,500 | | 24,633,300 |
| 4 | Seedling for CF Plantation | 3,932,500 | 3,388,000 | 4,077,700 | 4,513,300 | 9,680,000 | | 25,591,500 |
| 5 | Transportation | | | | | | | 0 |
| 6 | Mangrove Seminar, JCC | 32,000 | 57,000 | 65,000 | 55,000 | 50,000 | 50,000 | 309,000 |
| 7 | Tax Labour and Maintenance | 19,009,550 | | 2,169,300 | 8,079,000 | 11,627,500 | 17,531,000 | 58,416,350 |
| | Total in Local Currency (MMK) excluding salary for local staff | 37,910,108 | 6,834,300 | 17,249,000 | 21,925,300 | 28,624,900 | 18,766,000 | 131,309,608 |

| No | Major Budget Item | FY2007-08 | FY2008-09 | FY2009-10 | FY2010-11 | FY2011-12 | FY2012-13 | Total |
|----|--------------------|------------|------------|------------|------------|------------|------------|-------------|
| 1 | Local Staff Salary | 23,532,000 | 23,532,000 | 23,532,000 | 32,412,000 | 32,412,000 | 32,412,000 | 167,832,000 |

| | | | | | | | | |
|--|--|------------|------------|------------|------------|------------|------------|-------------|
| | Total in Local Currency (MMK) including salary for local staff | 61,442,108 | 30,366,300 | 40,781,000 | 54,337,300 | 61,036,900 | 51,178,000 | 299,141,608 |
|--|--|------------|------------|------------|------------|------------|------------|-------------|

ANNEX 5: Input from Japanese Side

B-1-1. Assignment of Japanese Experts I (Total as of 31 October 2012: 133.40 M/M)

| | Field | Name | Assignment Period | M/M (excluding M/M covered by NK) | Responsible Outputs and/or Activities of PDM (Planned) | Responsible Outputs and/or Activities of PDM (Actual) |
|-----|---|-----------------------|---|--|---|---|
| 1. | Chief Advisor/ Agroforestry | Shiro ARAI | 2007/5/17 ~ 2007/10/19 | 26.73 | Manage Overall Activities | Managed Overall Activities |
| 2. | | | 2007/12/13 ~ 2008/3/14 | | | |
| 3. | | | 2008/5/14 ~ 2008/7/7 | | | |
| 4. | | | 2008/10/2 ~ 2008/10/28 | | | |
| 5. | | | 2009/1/13 ~ 2009/4/10 | | | |
| 6. | | | 2009/6/23 ~ 2009/8/20 | | | |
| 7. | | | 2009/9/7 ~ 2009/12/16 | | | |
| 8. | | | 2010/1/19 ~ 2010/5/20 (4/12-17 (6) Covered by NK) | | | |
| 9. | | | 2010/5/31~2010/6/30 (31 days Covered by NK) | | | |
| 10. | | | 2010/7/1 ~ 2010/9/15 (8/26~8/30 Assigned as Participatory Community Development Expert) | | | |
| 11. | | | 2010/12/15 ~ 2010/12/29 | | | |
| 12. | | | 2011/02/18 ~ 2011/03/05 (2/18(1) Covered by NK) | | | |
| 13. | Chief Advisor/ Community Forestry 1 | Tomohiro SHIBAYAMA | 2011/6/16 ~ 2011/7/29 | 12.20 | Manage Overall Activities | Managed Overall Activities |
| 14. | | | 2011/8/21 ~ 2011/10/4 (9/27-10/4 (8)covered by NK) | | | |
| 15. | | | 2011/10/18 ~ 2011/12/18 (12/2-12/18 (17)covered by NK) | | | |
| 16. | | | 2012/1/10 ~ 2012/2/21 | | | |
| 17. | | | 2012/2/26 ~ 2012/3/31 | | | |
| 18. | | | 2012/4/7 ~ 2012/4/10 (4/11-4/24 (14) covered by NK) | | | |
| 19. | | | 2012/4/25 ~ 2012/7/17 | | | |
| 20. | | | 2012/7/23 ~ 2012/9/20 (9/21-10/11 (21)covered by NK) | | | |
| 21. | | | 2012/10/18 ~ 2012/10/31 | | | |
| 22. | Deputy Chief Advisor/ Community Forestry 1 | Tomohiro SHIBAYAMA | 2010/12/12 ~ 2011/03/11 | 3.00 | Manage Overall Activities | Manage Overall Activities |
| 23. | Participatory Community Development | Tetsuya SAITO | 2007/5/17 ~ 2007/8/4 | 19.57 | 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 4-1, 4-3, 4-4, X-2, X-3, X-5, X-6, X-7, X-8 | 1-1, 1-2, 1-3, 1-4, 1-6, 1-7, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-8, 4-1, 4-3, 4-4, X-2, X-3, X-5, X-6, X-7, X-8 |
| 24. | | | 2008/1/3 ~ 2008/3/14 (3/15-3/17 (3)covered by NK) | | | |
| 25. | | | 2008/5/19 ~ 2008/7/8 | | | |
| 26. | | | 2008/7/27 ~ 2008/8/30 (8/2 ~ 8/3 Out of Country) | | | |
| 27. | | | 2008/10/2 ~ 2008/10/28 | | | |
| 28. | | | 2009/1/20 ~ 2009/3/31 | | | |
| 29. | | | 2009/4/9 ~ 2009/7/31 | | | |
| 30. | | | 2009/11/12 ~ 2010/1/6 | | | |
| 31. | | | 2010/3/8 ~ 2010/3/28 (3/29-4/8 (11) covered by NK) | | | |
| 32. | | | 2010/4/30 ~ 2010/5/25 | | | |
| 33. | | | 2010/6/1 ~ 2010/6/30 (30 days covered by NK) | | | |
| 34. | | | 2010/7/1 ~ 2010/8/5 | | | |

12.

| | Field | Name | Assignment Period | M/M (excluding M/M covered by NK) | Responsible Outputs and/or Activities of PDM (Planned) | Responsible Outputs and/or Activities of PDM (Actual) |
|-----|--|-----------------------|---|---|---|--|
| 35. | Community Forestry 2 /Participatory Community Development 2 | Hiromi YASU | 2010/12/26 ~ 2011/1/24 | 3.50 | 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 2-7, 2-9, 3-5, 3-6, 4-3 | 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 2-7, 2-9, 3-5, 3-6, 4-3 |
| 36. | | | 2011/10/30~2011/12/3 | | | |
| 37. | Community Forestry 2 /Participatory Community Development 2/ Forest Technology | | 2012/6/8~2012/7/17 | | | |
| 38. | Community Forestry 3 /Participatory Community Development 3 | Yoko KITAUCHI | 2011/10/16~2011/11/24 | 3.73 | 1-3, 1-4, 1-6, 1-7, 1-8, 1-9, | 1-3, 1-4, 1-7, 1-8 |
| 39. | | | 2012/2/4~2012/3/6 | | | |
| 40. | | | 2012/4/25~2012/6/3 | | | |
| 41. | Mangrove Forestry I | Naohiro MATSUI | 2007/5/27 ~ 2007/8/9 | 11.66 | 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 4-3, X-4 | 3-1, 3-2, 3-3, 3-4, 4-3, X-4 |
| 42. | | | 2008/1/10 ~ 2008/2/23 | | | |
| 43. | | | 2009/9/20 ~ 2009/10/14 | | | |
| 44. | | | 2009/11/4 ~ 2009/11/28 | | | |
| 45. | | | 2010/2/4 ~ 2010/3/2 | | | |
| 46. | | | 2010/4/25 ~ 2010/5/20 | | | |
| 47. | | | 2010/7/11 ~ 2010/8/6 | | | |
| 48. | | | 2010/12/19 ~ 2011/2/1 | | | |
| 49. | | | 2011/7/11 ~ 2011/8/9 | | | |
| 50. | | | 2011/11/2~2011/11/26 | | | |
| 51. | Mangrove Forestry II / Agroforestry | Dexter CABAHUG | 2007/6/28 ~ 2007/9/10 (Agroforestry: 2.50M/M) | 5.87 (AF: 3.23M/M) (MF: 2.64 M/M) | 1-7, 3-3, 3-4, X-4 | 1-7, 3-3, 3-4, X-4 |
| 52. | | | 2008/10/7 ~ 2008/10/26 (Mangrove: 0.67M/M) | | | |
| 53. | | | 2009/3/6 ~ 2009/4/10 (Mangrove: 1.20 M/M) | | | |
| 54. | | | 2009/7/28 ~ 2009/8/19 (Mangrove: 0.77 M/M) | | | |
| 55. | | | 2010/3/6 ~ 2010/3/27 (Agroforestry: 0.73 M/M) | | | |
| 56. | Forest Technology 2/ GIS 3 / Land Use Planning | Aki BABA (OTSUKA) | 2012/6/22 ~ 2012/7/21 | 1.00 | 1-6, 2-9, 3-3, 3-4, 3-5, 3-6, 4-2, 4-3 | 1-6, 2-9, 3-3, 3-4, 3-5, 3-6, 4-2, 4-3 |
| 57. | Silvicultural Extension/ Forest Technology | Haruko CHIKARAISHI | 2012/9/10 ~ 2012/10/10 (10/11-10/31(21) covered by NK) | 1.03 | 1-7, 2-9, 3-5, 3-6, 4-3 | 1-7, 2-9, 3-5, 3-6, 4-3 |
| 58. | GIS 1 | Akihito SAKURAI | 2007/7/2 ~ 2007/10/19 (8/5 ~ 8/8 Out of Country) | 10.47 | 1-4, 2-6, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 4-2, 4-3, X-1, X-5 | 2-6, 3-1, 3-2, 3-3, 3-4, 4-2, 4-3, X-1, X-5 TBF (basically 70-80% of all inputs were for 2-6 & X-5 :CFECN rehabilitation work) |
| 59. | | | 2008/1/10 ~ 2008/1/27 | | | |
| 60. | | | 2008/10/2 ~ 2008/10/28 | | | |
| 61. | | | 2009/2/16 ~ 2009/3/26 | | | |
| 62. | | | 2009/3/27 ~ 2009/4/10 (15 days covered by NK) | | | |
| 63. | | | 2009/7/12 ~ 2009/8/9 | | | |
| 64. | | | 2010/4/22 ~ 2010/5/31 | | | |
| 65. | | | 2010/6/1 ~ 2010/6/17 (17 days covered by NK) | | | |

| | Field | Name | Assignment Period | M/M (excluding M/M covered by NK) | Responsible Outputs and/or Activities of PDM (Planned) | Responsible Outputs and/or Activities of PDM (Actual) |
|-----|----------------------------------|-----------------------|---|--|---|---|
| 66. | | | 2011/1/16 ~ 2011/2/14 (2/15-2/27 (13) covered by NK) | | | |
| 67. | Mangrove Forestry III/ GIS 1 | | 2011/7/27 ~ 2011/8/30 | | | |
| 68. | GIS 2 | Itaru MORITA | 2008/7/27 ~ 2008/8/30 | 1.17 | 4-2, X-1 | 4-2, X-1 |
| 69. | Training/Extension | Tomohiro SHIBAYAMA | 2009/1/19 ~ 2009/2/12 | 8.96 | 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, X-5 | 2-6, X-5 (basically all inputs were for CFECN rehabilitation work) |
| 70. | | | 2009/3/17 ~ 2009/4/10 | | | |
| 71. | | | 2009/5/18 ~ 2009/6/30 | | | |
| 72. | | | 2009/8/25 ~ 2009/9/30 | | | |
| 73. | | | 2009/11/6 ~ 2009/11/28 | | | |
| 74. | | | 2010/3/1 ~ 2010/4/12 | | | |
| 75. | | | 2010/5/12 ~ 2010/6/28 (48 days covered by NK) | | | |
| 76. | | | 2010/7/6 ~ 2010/9/15 | | | |
| 77. | Training/Extension/ Marketing | Mana TANAKA | 2011/2/10 ~ 2011/3/11 | 4.20 | 2-1, 2-2, 2-3, 2-4, 2-5, 2-7, 2-8, 2-9, 4-3 | 2-1, 2-2, 2-3, 2-4, 2-5, 2-7, 2-8, 2-9, 4-3 |
| 78. | | | 2011/7/1 ~ 2011/8/18 (8/19-8/28 (10) covered by NK) | | | |
| 79. | | | 2011/9/30 ~ 2011/11/15 (11/16-11/20 (5) covered by NK) | | | |
| 80. | Training/Extension/ Marketing | Yoko KITAUCHI | 2012/3/7 ~ 2012/3/17 | 0.37 | PDM indicators | PDM indicators |
| 81. | Training/Extension/ Marketing | Michiko EBATO | 2012/7/2 ~ 2012/9/1 | 2.07 | 1-7, 2-1, 2-2, 2-3, 2-4, 2-5,, 2-7, 2-8, 2-9, | 1-7, 2-1, 2-2, 2-3, 2-4, 2-5,, 2-7, 2-8, 2-9, |
| 82. | Fish Culture | Tsuneo IWAO | 2007/5/17 ~ 2007/8/6 | 14.20 | 1-7 | 1-7, 3-3 |
| 83. | | | 2008/1/10 ~ 2008/2/8 (2/9-2/24 (16) covered by NK) | | | |
| 84. | | | 2009/1/13 ~ 2009/4/1 | | | |
| 85. | | | 2009/11/28 ~ 2010/1/24 | | | |
| 86. | | | 2010/7/11 ~ 2010/9/9 | | | |
| 87. | | | 2010/12/19 ~ 2011/1/29 | | | |
| 88. | | | 2011/6/27 ~ 2011/7/26 | | | |
| 89. | | | 2012/1/16 ~ 2012/2/8 | | | |
| 90. | 2012/6/10 ~ 2012/6/29 | | | | | |
| 91. | Marketing | Akeshi MORI | 2007/6/17 ~ 2007/8/20 | 3.67 | 1-7 | 1-7 |
| 92. | | | 2010/1/8 ~ 2010/2/21 | | | |
| 93. | Coordinator | Kouiku OGAWA | 2007/5/17 ~ 2007/6/15 (6/16-10/19 (126) covered by NK) | 8.40* | Overall Coordination | Overall Coordination |
| 94. | | | 2007/12/13 ~ 2008/1/11 (1/12-3/17 (66) covered by NK) | | | |
| 95. | Coordinator | Tetsuya SAITO | 2010/1/7 ~ 2010/3/7 | 2.00* | Overall Coordination | Overall Coordination |
| 96. | Coordinator | Mana TANKA | 2010/12/12 ~ 2011/2/9 | 2.00* | Overall | Overall |

| | Field | Name | Assignment Period | M/M (excluding M/M covered by NK) | Responsible Outputs and/or Activities of PDM (Planned) | Responsible Outputs and/or Activities of PDM (Actual) |
|--|-------------|----------------------|---|--|---|--|
| | | | | | Coordination | Coordination |
| 97. | Coordinator | Hiroyuki USUKI | 2011/9/20 ~ 2011/10/7 (10/8~12/18 (72)covered by NK) | 3.40* | Overall Coordination | Overall Coordination |
| 98. | | | 2012/1/10~ 2012/ 1/21 | | | |
| 99. | Coordinator | Aki BABA (OTSUKA) | 2012/7/22 ~ 2012/8/5 (8/6~9/15 (41)covered by NK) | 3.43* | Overall Coordination | Overall Coordination |
| 100. | | | 2012/9/16 ~ 2012/9/30 (10/1~10/31 (21)covered by NK) | | | |
| Total A(excluding M/M covered by NK and M/M of Coordinator) | | | | 133.40 | | |
| Total B (Including Coordinators' M/M which allowances are covered by JICA) | | | | 141.40 | | |
| Total C (Including Coordinators' All M/M) | | | | 152.63 | | |
| Total D (All Inputs of Experts including M/M covered by NK) | | | | 162.17 | | |

* Actual Month of Input (Coordinator).

B-1-2. Assignment of Japanese Experts II (November 2012 to March 2013 as of October, 2012)

| | Field | Name | Assignment Period (Tentative) | M/M (excluding M/M covered by NK) | Responsible Outputs and/or Activities of PDM (Planned) | Responsible Outputs and/or Activities of PDM (Actual) |
|--|--|-----------------------|---|--|---|--|
| 1. | Chief Advisor/ Community Forestry 1 | Tomohiro SHIBAYAMA | 2012/11/1 ~ 2012/12/11 (12/12~ 12/13 (2)Covered by NK) | 2.70 | Manage Overall Activities | Manage Overall Activities |
| 2. | | | 2012/12/22 ~ 2012/12/28 | | | |
| 3. | | | 2013/1/21~2013/2/22 (2012/12/29 ~ 2013/1/20 and 2013/2/23~ 2013/3/16 to be scheduled in Myanmar) | | | |
| 4. | Community Forestry 2 /Participatory Community Development 2/ Forest Technology | Hiromi YASU | 2012/11/11 ~ 2012/12/1 | 1.27 | 1-6, 1-7, 1-8, 1-9, 2-7, 2-9, 3-5, 3-6 | |
| 5. | | | 2013/1/23 ~ 2013/2/8 | | | |
| 6. | Forest Technology 2/ GIS 3 / Land Use Planning | Aki BABA (OTSUKA) | 2013/1/1 ~ 2013/1/31 | 1.03 | 1-6, 2-9, 3-4,3-5, 3-6,4-2,4-3 | |
| 7. | Training/Extension/ Marketing | Michiko EBATO | 2012/11/14 ~ 2012/12/13 | 1.00 | 2-7, 2-8, 2-9 | |
| 8. | Coordinator | Aki BABA (OTSUKA) | 2012/11/11~2012/11/15 (2012/11/1~2012/12/31 to be scheduled in Myanmar) | 1.00* (3.46**) | Overall Coordination | |
| 9. | | | (2013/2/1~2013/2/10 (2013/2/11 ~2013/3/15 to be scheduled in Myanmar) | | | |
| 10. | Coordinator | Haruko CHIKARAISHI | 2013/1/7 ~ 2013/1/21 (1/22~2/10 (20)covered by NK) | 1.17* | 1-7,3-5, 3-6 | |
| Total A(excluding M/M covered by NK and M/M of Coordinator) | | | | 6.00 | | |
| Total B (Including Coordinators' M/M which allowances are covered by JICA) | | | | 7.50 | | |

* Actual Month of Input (Coordinator). ** If in case, assigned for the project for remaining days scheduled in Myanmar.

02

1 d.

B-1-3. Assignment of Non-Expert Personnel (2007 to October 2012)

| | Field | Name | Assignment Period (Tentative) | M/M (excluding M/M covered by/NK) | Responsible Outputs and/or Activities of PDM (Planned) | Responsible Outputs and/or Activities of PDM (Actual) |
|-----------|-----------------------------|-----------------------|----------------------------------|--|---|--|
| 1. | Construction Supervision | Takashi SEKI | 2009/12/3 ~ 2009/12/9 | 0.47 | / | 2-6, X-5 |
| 2. | | | 2010/4/27 ~ 2010/5/2 | | | 2-6, X-5 |
| 3. | Construction Supervision | Shoichiro BAN | 2010/4/27~2010/5/19 | 0.80 | / | 2-6, X-5 |
| 4. | Construction Supervision | Junichi ARIMA | 2010/6/7 ~ 2010/7/9 | 1.11 | / | 2-6, X-5 |
| 5. | Technical Advice | Akihiko SASAKI | 2011/9/6 ~ 2011/9/10 | 0.23 | / | Supervise Overall Activities |
| 6. | Activity Support | Haruko CHIKARAISHI | 2012/2/7 ~ 2012/3/17 | 1.33 | / | Activity Support |
| Total M/M | | | | 3.93 | | |

Q

1 d.

B-2. List of Myanmar Personnel Trained in Japan (13 person in total)

GRT: Group Training Course
C/P: Counterpart Training Course

| | Name | Position/Organization at the time of training | Training Period | Title of Training Course | Remarks (Position/organization at the time of evaluation) |
|-----|------------------|--|---------------------------|---|---|
| 1. | U Naing Win | Range Officer | 2007/5/29~ 2007/8/18 | Conversation and Sustainable Management of Mangrove Ecosystem (GRT) | Deceased during Cyclone Nargis in May 2008. |
| 2. | U Win Maung | Assistant Director, Myanmar District, Ayeyarwaddy Division | 2007/10/21~ 2007/11/11 | Seminar on Forest Management Policy- Sustainable Forest Management with Collaboration of Local Government and Community (C/P) | Retired |
| 3. | U Win Maung Aye | Range Officer, Pyarpon Township | 2008/5/27~ 2008/8/16 | Conversation and Sustainable Management of Mangrove Ecosystem (GRT) | Studying in Germany |
| 4. | U Sein Htun | Director, Planning and Statistic Division | 2008/10/5~ 2008/10/26 | Seminar on Forest Management Policy- Sustainable Forest Management with Collaboration of Local Government and Community (C/P) | Retired |
| 5. | U Zaw Min Htun | Range Officer, Pyarpon Township | 2009/5/26~ 2009/8/15 | Conversation and Sustainable Management of Mangrove Ecosystem (GRT) | Forest Research Institute |
| 6. | U Myo Min Tun | Range Officer, Bogalay Township | 2009/9/23~ 2009/11/7 | Environmental Education For Sustainable Development-Conservation of Coastal Ecosystems for Lives of Local Communities (GRT) | Studying in University of Forestry |
| 7. | U Tual Chin Khai | Staff Officer, Planning and Statistics Division | 2010/5/25~ 2010/8/14 | Conservation and Sustainable Management of Mangrove Ecosystems (GRT) | Studying in Japan |
| 8. | U Min Maw | Staff Officer, Planning and Statistics Division | 2010/5/25~ 2010/8/14 | Conservation and Sustainable Management of Mangrove Ecosystems (GRT) | Assistant Director, Tanintharyi Nature Reserve Project |
| 9. | U Kyaw Kyaw Myo | Range Officer, Bogalay Township | 2010/9/21~ 2010/11/5 | Environmental Education For Sustainable Development-Conservation of Coastal Ecosystems for Lives of Local Communities (GRT) | Studying in University of Forestry |
| 10. | U Htay Aung | Range Officer, Planning and Statistics Division | 2011/5/24~ 2011/8/13 | Conservation and Sustainable Management of Mangrove Ecosystems (GRT) | Same |
| 11. | U Than Myint Aye | Range Officer, Laputta Township | 2011/9/20~ 2011/11/4 | Environmental Education For Sustainable Development-Conservation of Coastal Ecosystems for Lives of Local Communities (GRT) | Dry Zone Greening Department |
| 12. | U Zaw Win (4) | Director, Planning and Statistics Division | 2012/2/3~ | Roles of Forests in Natural Disaster and Revival of Forests and Forestry(C/P) | Deputy Director General |
| 13. | U Pyae Phyo Aung | Range Officer, Pyar Pon Township | 2012/9/19~ 2012/11/3 | Environmental Education For Sustainable Development-Conservation of Coastal Ecosystems for Lives of Local Communities (GRT) | Same |

25

12.

For reference: List of Myanmar Personnel participated in technical exchange program

(Cost for technical program is included in local activity cost under training)

(1) List of Myanmar Personnel Trained in Vietnam (5 person in total)

| | Name | Position/Organization at the time of training | Period | Title of Training Course | Remarks (Position/organization at the time of evaluation) |
|---|-------------------|--|-------------------------|--|---|
| 1 | U Khin Maung Lwin | Field Project Manager, MCFTF, Assistant Director, FD Myaung Mya District | 6 Days (2009/03/23 ~28) | Technology Exchange Program 2008 "Melaleuca Plantation Technologies" | Same |
| 2 | U Kan Htun | Staff Officer, FD Bogalay Township, MCFTF | 6 Days (2009/03/23 ~28) | Technology Exchange Program 2008 "Melaleuca Plantation Technologies" | Same |
| 3 | U Win Maung Aye | Range Officer, FD Pyar Pon Township, MCFTF | 6 Days (2009/03/23 ~28) | Technology Exchange Program 2008 "Melaleuca Plantation Technologies" | Studying in Germany |
| 4 | U Myo Min Htun | Range Officer, FD Bogalay Township, MCFTF | 6 Days (2009/03/23 ~28) | Technology Exchange Program 2008 "Melaleuca Plantation Technologies" | Studying in University of Forestry |
| 5 | U Min Maung Maung | Range Officer, FD Laputta Township, MCFTF | 6 Days (2009/03/23 ~28) | Technology Exchange Program 2008 "Melaleuca Plantation Technologies" | Transferred to Mandalay Division Thaug Tha Township (RO) |

(2) List of Myanmar Personnel Trained in Thailand (5 person in total)

| | Name | Position/Organization at the time of training | Period | Title of Training Course | Remarks (Position/organization at the time of evaluation) |
|----|-------------------|---|--------------------------|--|---|
| 1. | U Kyi Lin | Staff Officer, FD Pyar Pon, MCFTF | 7 Days (2010/02/28 ~3/6) | Technology Exchange Program 2009 "CF Activities and Aquaculture in Delta Area" | Same |
| 2. | U Kyaw Kyaw Myo | Range Officer, FD Bogalay, CDFTF | 7 Days (2010/02/28 ~3/6) | Technology Exchange Program 2009 "CF Activities and Aquaculture in Delta Area" | Studying in University of Forestry |
| 3. | U Tun Win Aung | Deputy Fishery Officer, Department of Fishery (DOF)* Pyin Salu Sub Township | 7 Days (2010/02/28 ~3/6) | Technology Exchange Program 2009 "CF Activities and Aquaculture in Delta Area" | - |
| 4. | U Naing Win Thein | Deputy Fishery Officer, DFO Mye Bone Township | 7 Days (2010/02/28 ~3/6) | Technology Exchange Program 2009 "CF Activities and Aquaculture in Delta Area" | - |
| 5. | U Kyaw Min | DFO, Chaung Tar Research Center, Pathein | 7 Days (2010/02/28 ~3/6) | Technology Exchange Program 2009 "CF Activities and Aquaculture in Delta Area" | - |

* DFO: Supporting Agency of this Project (Ex. Oyster Culture, Aqua-Agroforestry)

Q

12

B-3 List of Equipment Provided by Japanese Side

(1) Summary of Equipment Procured under the Project

| JFY2006 [1st Year] | Item | | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert | | |
|-------------------------|----------------------------------|--|--|----------------------------|------------|------------|--------------|--|--|------------------|----------------------|---------------|---------------|--------------------|---------------------|----------------------------------|------------------------------------|------------------------|----------------------|
| | 1-1 | Life Jacket (10) | | | | | | Espada FW2 (QTY 10) | Japan | | | | | | | | | ¥12,800 | 10 |
| JFY2007 [2nd Year-1] | Item | | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert | | |
| | 2a-1 | GPS (8) | | | | | | Megellan Explorer XL GPS | Local | | | | | | | | | USD 515 | 8 |
| | 2a-2 | Desktop PC (1) | Dell Dimension 3100 Desktop | Local | USD 1,359 | 1 | USD 1,359 | YGI | JET | 2007/8/19 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for delivery | |
| | 2a-3 | OS | Microsoft Office SB 2003 SP OEM Pack (QTY 2) | Local | USD 378 | 2 | USD 752 | YGI | JET | 2007/7/20 | NA | A | B | 0 | 0 | 2 | General Use | Equipment for delivery | |
| | 2a-4 | Desktop & UPS (1) | Dell Dimension E529 Desktop & UPS 1000W | Local | USD 1,255 | 1 | USD 1,255 | YGI | JET | 2007/7/11 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for delivery | |
| | 2a-5 | Satellite Image | Landsat 7 ETM Path:133 / Row:49 (1 CD) | Local | USD 350 | 1 | USD 350 | OS Section | FD | 2007/9/4 | NA | A | - | 0 | 0 | 1 | Output 4-2 | Equipment for delivery | |
| | 2a-6 | GPS Charger (8) | Panasonic Quick Battery Charger K-KJPS9TM | Local | USD 28 | 8 | USD 224 | BGL, PYP, I/PPT <td>OS Section <td>FD</td> <td>2007/5/16, 2007/6/30</td> <td>NA</td> <td>C</td> <td>B</td> <td>6</td> <td>2</td> <td>Output 1, Output 3</td> <td>Equipment for Expert</td> </td> | OS Section <td>FD</td> <td>2007/5/16, 2007/6/30</td> <td>NA</td> <td>C</td> <td>B</td> <td>6</td> <td>2</td> <td>Output 1, Output 3</td> <td>Equipment for Expert</td> | FD | 2007/5/16, 2007/6/30 | NA | C | B | 6 | 2 | Output 1, Output 3 | Equipment for Expert | |
| | 2a-7 | A3 Printer | OK4000 Printer (A3) | Local | 1 | 1 | 1 | YGI | JET | 2007/5/13 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2a-8 | Photocopy Machine (1) | IR-2020 Copier | Local | 4,780 | 1 | 4,780 | YGI | JET | 2007/6/13 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2a-9 | Laser Printer (1) | Canon Laser Shot LBP2900 | Local | 1 | 1 | 1 | YGI | JET | 2007/6/13 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2a-10 | Phone & Fax Machine (1) | S-155 | Local | 1 | 1 | 1 | MYM | JET | 2007/6/13 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2a-11 | UPS MYM(1) | UPS 600VA/BVC | Local | USD 34 | 1 | USD 34 | MYM | JET | 2007/9/29 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2a-12 | Drum for copy machine | Dupli Unit A1 (for Photocopy) | Local | USD 300 | 1 | USD 300 | - | - | 2007/7/25 | NA | NA (consumed) | NA (consumed) | NA | NA | 1 | General Use | Equipment for Expert | |
| | 2a-13 | Portable Generator (1) | YAMAHA EF 1000B | Local | USD 560 | 1 | USD 560 | YGI | JET | 2007/7/26 | NA | B | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| 2a-14 | Generator MYM (1) | 30 KVA Olympian Model GE133-1 | Local | USD 18,000 | 1 | USD 18,000 | MYM | JET | 2007/10/11 | NA | C | B | 0 | 0 | 1 | General Use | Equipment for Expert | | |
| JFY2007 [2nd Year-2] | Item | | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert | | |
| | 2b-1 | Digital Video Camera | | | | | | Panasonic HDC SD 5, Camera Stand, Battery VW-MG260 K, SDHC Card (4GB) | Japan | | | | | | | | | ¥110,288 | 1 |
| | 2b-2 | Boat for Reserved Forest (3) | Fiber Glass Boat | Local | USD 3,500 | 3 | USD 10,500 | LPT, PYP, BGL <td>C/FECN, FD</td> <td>2006/11/12</td> <td>NA</td> <td>A</td> <td>D</td> <td>2</td> <td>1</td> <td>General Use</td> <td>Equipment for Expert</td> | C/FECN, FD | 2006/11/12 | NA | A | D | 2 | 1 | General Use | Equipment for Expert | | |
| | 2b-3 | Computer set (for GIS) | Dell Optiplex 755 Tower System, Office 2007 | Local | USD 2,138 | 1 | 2,138 | I/PPT <td>OS Section</td> <td>FD</td> <td>2006/1/22</td> <td>2006/1/24</td> <td>A</td> <td>B</td> <td>0</td> <td>0</td> <td>1</td> <td>Output 4-2</td> <td>Equipment for Expert</td> | OS Section | FD | 2006/1/22 | 2006/1/24 | A | B | 0 | 0 | 1 | Output 4-2 | Equipment for Expert |
| | 2b-4 | UPS (for GIS) | Power Tree 850W | Local | USD 48 | 1 | USD 2,855 | I/PPT <td>OS Section</td> <td>FD</td> <td>2006/1/22</td> <td>2006/1/24</td> <td>A</td> <td>B</td> <td>0</td> <td>0</td> <td>1</td> <td>Output 4-2</td> <td>Equipment for Expert</td> | OS Section | FD | 2006/1/22 | 2006/1/24 | A | B | 0 | 0 | 1 | Output 4-2 | Equipment for Expert |
| | 2b-5 | A3 printer (for GIS) | Epson Stylus Photo 1390 (A3 Size) | Local | USD 488 | 1 | 488 | MYM | FD | 2006/1/22 | 2006/1/24 | A | B | 0 | 0 | 1 | Output 4-2 | Equipment for Expert | |
| | 2b-6 | GIS software | TNTMips ver 2007.7.3 | Local | USD 7,800 | 1 | USD 7,800 | I/PPT <td>OS Section</td> <td>FD</td> <td>2006/1/25</td> <td>2006/1/24</td> <td>A</td> <td>D</td> <td>0</td> <td>0</td> <td>1</td> <td>Output 4-2</td> <td>Equipment for Expert</td> | OS Section | FD | 2006/1/25 | 2006/1/24 | A | D | 0 | 0 | 1 | Output 4-2 | Equipment for Expert |
| | 2b-7 | Radio phone | SENNO9999, SENNO878 Model, Accessories | Local | USD 623 | 5 | USD 3,115 | LPT, PYP, BGL <td>C/FECN, FD</td> <td>2006/1/25</td> <td>2006/2/1</td> <td>-</td> <td>D</td> <td>5</td> <td>0</td> <td>General Use</td> <td>Equipment for Expert</td> | C/FECN, FD | 2006/1/25 | 2006/2/1 | - | D | 5 | 0 | General Use | Equipment for Expert | | |
| | 2b-8 | GIS A3 Scanner | Epson GT15000 Scanner (A3) | Local | USD 2,800 | 1 | USD 2,800 | MYM | JET | 2006/2/13 | NA | C | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2b-9 | Generator for C/FECN | 7.5 KVA, 13HP Engine | Local | USD 1,885 | 1 | USD 1,885 | LPT <td>C/FECN, FD</td> <td>2006/2/20</td> <td>2006/3/28</td> <td>A</td> <td>B</td> <td>0</td> <td>0</td> <td>1</td> <td>General Use</td> <td>Equipment for Expert</td> | C/FECN, FD | 2006/2/20 | 2006/3/28 | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2b-10 | Installation cost of Generator | 2007 #14 Installation Cost (MYM Office) | Local | USD 1,500 | 1 | USD 1,500 | MYM | JET | 2006/2/27 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 2b-11 | Air Conditioner (MYM) | 2 H.P. Daikin Split Type Air conditioner | Local | USD 1,800 | 1 | USD 1,800 | MYM | JET | 2006/2/27 | NA | C | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 2b-12 | Speaker & Audio | BEHRINGER AMP | Local | USD 148 | 1 | USD 148 | MYM | JET | 2006/3/4 | NA | D | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| 2b-13 | Stabilizer (MYM) | 30 KVA | Local | USD 1,585 | 1 | USD 1,585 | MYM | JET | 2006/3/10 | NA | B | B | 0 | 0 | 1 | General Use | Equipment for Expert | | |
| JFY2008 [3rd Year-1] | Item | | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert | | |
| | 3-1 | Radio (2) | | | | | | Rad 5711 N | Japan | | | | | | | | | ¥7,800 | 2 |
| | 3-2 | Portable Generator (1) | Yamaha EF 1000 Generator | Local | USD 658 | 1 | USD 658 | YGI | JET | 2006/5/18 | NA | C | B | 0 | 0 | 1 | General Use | Equipment for Expert | |
| | 3-3 | Survey equipment | For Soil survey, ecosystem culture survey, forest inventory survey | Japan | ¥323,028 | 1 | ¥323,028 | NA | NA | 2006/5/30 | 2006/9/1 | NA (consumed) | NA (consumed) | NA | NA | 1 | Output 1-2 | Equipment for Expert | |
| | 3-4 | Melaleuca seeds | | Japan | ¥70,000 | 1 | ¥70,000 | NA | NA | 2006/5/30 | 2006/9/1 | NA (consumed) | NA (consumed) | NA | NA | 1 | Output 3 | Equipment for Expert | |
| | 3-5 | Communication equipment for Emergency mailer (rental) | THMILSAT BGAN WEC 08 (5/19-7/5) | Japan | ¥70,000 | 1 | ¥70,000 | JET | JET | 2006/5/30 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 3-6 | Satellite Image | LANDSAT 5 TM, ENVIAT ASAR Image, ALOS PALSAR (NO UNIT COST) | Japan | ¥1,085,400 | 1 | ¥1,085,400 | LPT <td>OS Section</td> <td>FD</td> <td>2006/7/28</td> <td>2006/7/28</td> <td>A</td> <td>A</td> <td>0</td> <td>0</td> <td>1</td> <td>Output 4-3</td> <td>Equipment for Expert</td> | OS Section | FD | 2006/7/28 | 2006/7/28 | A | A | 0 | 0 | 1 | Output 4-3 | Equipment for Expert |
| | 3-7 | Forest survey equipment | Measuring Tape / Pole | Local | USD 44.85 | 1 | USD 44.85 | LPT, BGL, PYP | FD | 2006/9/3 | 2006/9/1 | C | B | 0 | 0 | 1 | Output 1-2 | Equipment for Expert | |
| | 3-8 | Drum for copy machine | | Local | USD 183 | 1 | USD 183 | NA | NA | 2006/10/11 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 3-9 | Installation cost of internet facility | | Local | USD 421 | 1 | USD 421 | MYM | JET | 2006/10/12 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 3-10 | Installation cost of internet facility | | Local | USD 178.72 | 1 | USD 178.72 | MYM | JET | 2006/10/16 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 3-11 | Installation cost of internet facility | | Local | USD 187 | 1 | USD 187 | MYM | JET | 2006/10/15 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 3-12 | Installation cost of internet facility | | Local | USD 300 | 1 | USD 300 | MYM | JET | 2006/10/20 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| | 3-13 | Air Conditioner | Mitsubishi 2.0 HP | Local | USD 775 | 2 | USD 1,550 | MYM | JET | 2006/10/18 | NA | C | B | 0 | 0 | 2 | General Use | Equipment for Expert | |
| | 3-14 | Installation cost of air conditioner | | Local | USD 123 | 1 | USD 123 | MYM | JET | 2006/10/20 | NA | NA | NA | NA | NA | 1 | General Use | Equipment for Expert | |
| 3-15 | Desktop PC (1) | Dell Power Edge T105 Tower System & XP OS, MS Office & UPS | Local | USD 1,289 | 1 | USD 1,289 | MYM | JET | 2006/10/21 | NA | B | B | 0 | 0 | 1 | General Use | Equipment for Expert | | |
| 3-16 | A4 Printer (1) | Canon LBP 3050 LaserJet (A4) | Local | USD 119 | 1 | USD 119 | YGI | JET | 2006/10/21 | NA | A | B | 0 | 0 | 1 | General Use | Equipment for Expert | | |
| 3-17 | Safety Boat (1) | Pharos Boat (50' x 14' x 4.5') | Local | USD 15,000 | 1 | USD 15,000 | LMG | JET | 2006/10/25 | NA | C | B | 0 | 0 | 1 | General Use | Equipment for Expert | | |
| 3-18 | Test chemicals for soil analysis | | Japan | ¥102,700 | 1 | ¥102,700 | YGI | MAS | 2006/11/20 | 2006/2/11 | NA (consumed) | NA (consumed) | NA | NA | 1 | Output X | Equipment for Expert | | |

| FY2008-10 [3rd,4th,5th year-1] | Item | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert |
|-----------------------------------|-----------|--|----------------------------|-------------|----------|---------------|------------------------------|--------------------------|----------------------|--|-------------------|----------------|--------------------|---------------------|----------------------------------|------------------------------------|
| | | | | | | | Location | Responsible Organization | | | | | | | | |
| | 3/4/SM-1 | CDMA Phone (1) | Local | USD 273 | 1 | USD 273 | YGN | JET | 2008/1/29 | 11A | E | B | 0 | 1 | General Use | Equipment for Expert |
| | 3/4/SM-2 | CDMA Phone & SIM Card (2) | Local | USD 1,831 | 2 | USD 3,662 | YGN | JET | 2009/2/3 | 11A | A | B | 0 | 2 | General Use | Equipment for Expert |
| | 3/4/SM-3 | UMTS Boat (2) | Local | USD 1,280 | 2 | USD 2,560 | Boat, Y/M | JET | 2009/2/6 | 11A | E (for emergency) | B | 0 | 2 | General Use | Equipment for Expert |
| | 3/4/SM-4 | CDMA Phone | Local | USD 289 | 1 | USD 289 | YGN | JET | 2009/2/11 | 11A | E | B | 0 | 1 | General Use | Equipment for Expert |
| | 3/4/SM-5 | Engine pump (2) | Local | USD 988 | 2 | USD 1,976 | LPT | FD | 2009/2/23 | 2009 | E | D | 2 | 0 | Output 2 | Equipment for Expert |
| | 3/4/SM-6 | GIS software | Local | USD 7,500 | 1 | USD 7,500 | IFT, (GIS) | FD | 2009/2/25 | 2009/3/3 | A | A | 0 | 1 | Output 4-2 | Equipment for Expert |
| | 3/4/SM-7 | Melaleuca and Casuarina seeds | Japan | ¥44,800 | 1 | ¥44,800 | 11A | | 2009/3/10 | 2009 | 11A | 11A (consumed) | 11A (consumed) | 11A | Output 3 | Equipment for Expert |
| | 3/4/SM-8 | GPS for border management | Local | USD 880 | 8 | USD 7,040 | YGN | SLPD | 2009/4/8 | 2009/7/3 | A | A | 0 | 8 | Output 1-4 | Equipment for Expert |
| | 3/4/SM-9 | CDMA Phone (1) | Local | USD 179 | 1 | USD 179 | YGN | JET | 2009/7/5 | 11A | A | B | 0 | 1 | General Use | Equipment for Expert |
| | 3/4/SM-10 | Boat for Reserved Forest(2) | Local | USD 3,800 | 2 | USD 7,600 | LPT, BGL | FD | 2009/7/7 | 2009 | A | A | 0 | 2 | General Use | Equipment for Expert |
| | 3/4/SM-11 | Survey equipment for border management | Local | USD 7,200 | 2 | USD 14,400 | YGN | SLPD | 2009/7/28 | 2009/7/28 | A | A | 0 | 2 | Output 1-4 | Equipment for Expert |
| | 3/4/SM-12 | Cargo Boat for Reserved Forest | Local | USD 9,800 | 3 | USD 29,400 | PYP, LPT, BGL | FD | 2009/8/12 | BGL:2009/5/30 LPT:2009/5/18 PYP:2009/5/10 | C | B | 0 | 3 | Output 2, Output 3 | Equipment for Expert |
| | 3/4/SM-13 | Satellite image | Japan | ¥310,705 | 1 | ¥310,705 | IFT, (GIS) | FD | 2009/9/27 | 2009/7/29 | C | B | 0 | 6 | Output 4-2 | Equipment for Expert |
| JFY2008-10 [3rd,4th,5th year] | Item | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert |
| | 3/4/5F-1 | Canoes (8) | Local | USD 240 | 8 | USD 1,920 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/2/20 | 2010/2/25 | A | B | 0 | 8 | General Use | Equipment for Expert |
| | 3/4/5F-2 | Melaleuca and Casuarina seeds | Japan | ¥48,225 | 1 | ¥48,225 | 11A | | 2010/2/26 | 11A | 11A (consumed) | 11A (consumed) | 11A | 11A | | Equipment for Expert |
| | 3/4/5F-3 | Desktop PC(2) | Local | USD 1,088 | 2 | USD 2,176 | IFT, (GIS) | FD | 2010/3/25 | 2010/3/25 | A | A | 0 | 2 | Output 4- | Equipment for Expert |
| | 3/4/5F-4 | CDMA Phone & SIM (1) | Local | USD 1,895.0 | 1 | USD 1,895 | YGN | JET | 2010/4/27 | 11A | A | B | 0 | 2 | General Use | Equipment for Expert |
| | 3/4/5F-5 | Shade(4) | Local | USD 182 | 4 | USD 728 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/4/28 | 2010 | C | C | 0 | 4 | Output 3 | Equipment for Expert |
| | 3/4/5F-6 | Plastic container (800) | Local | USD 5,800 | 1 | USD 5,800 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/4/28 | 2010 | C | C | 0 | 1 | Output 3 | Equipment for Expert |
| | 3/4/5F-7 | CDMA Accessory | Local | USD 385 | 1 | USD 385 | YGN | JET | 2010/5/4 | 11A | C | B | 0 | 1 | General Use | Equipment for Expert |
| | 3/4/5F-8 | Generator (4) | Local | USD 957 | 4 | USD 3,828 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/5/7 | May 2010 | B | B | 0 | 4 | General Use | Equipment for Expert |
| | 3/4/5F-9 | CDMA Phone & SIM (2) | Local | USD 1,897 | 2 | USD 3,794 | TYK, KOKL | CFSD1, FD | 2010/5/13 | 2010/6/17 | A | B | 0 | 2 | General Use | Equipment for Expert |
| | 3/4/5F-10 | CDMA Phone & SIM (1) | Local | USD 1,880 | 1 | USD 1,880 | TGT | CFSD1, FD | 2010/5/18 | 2010/5/12 | A | B | 0 | 1 | General Use | Equipment for Expert |
| | 3/4/5F-11 | CDMA Phone & SIM (1) | Local | USD 1,885 | 1 | USD 1,885 | BYM | CFSD1, FD | 2010/5/24 | 2010/6/10 | A | B | 0 | 1 | General Use | Equipment for Expert |
| | 3/4/5F-12 | Handpush Carrier | Local | USD 143 | 6 | USD 858 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/7/1, 2010/7/15 | Sep 2010 | C | B | 0 | 4 | Output 3 | Equipment for Expert |
| | 3/4/5F-13 | TV Set | Local | USD 69.2 | 5 | USD 3,460 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/9/10 | TGT: 2010/12/26 BYM: 2010/12/27 TYK: 2011/1/13 KOKL: 2011/1/15 | B | B | 0 | 4 | Output s2,4, X | Equipment for Expert |
| | 3/4/5F-14 | DVD deck | Local | USD 97.8 | 5 | USD 489 | KOKL, BYM, TYK, TGT | CFSD1, FD | 2010/9/10 | TGT: 2010/12/27 BYM: 2010/12/29 TYK: 2010/12/26 KOKL: 2010/12/24 | B | B | 0 | 4 | Output s2,4, X | Equipment for Expert |
| | 3/4/5F-15 | | | | | | | | | | | | | | | |
| JFY2010 [5th year-2] | Item | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert |
| | 5-1 | | | | | | | | | | | | | | | |
| JFY2011-13 [6th-7th year] | Item | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert |
| | 6/7-1 | Desktop PC set (with UPS, Software) | Local | MMK 724,800 | 3 | MMK 2,173,800 | LPT, BGL, PYP, FD | FD | 2011/5/22, 2011/7/26 | 2011/9/26 | B | B | 0 | 3 | General Use | Equipment for delivery |
| | | Desktop PC set (Printer) | Local | USD 478 | 3 | USD 1,434 | LPT, BGL, PYP, FD | FD | 2011/7/11 | 2011/9/26 | B | B | 0 | 3 | General Use | Equipment for delivery |
| | 6/7-2 | GPS | Local | MMK 420,750 | 4 | MMK 1,683,000 | FD (LPT, BGL, PYP, JET, YGN) | FD (+3), JET (+1) | 2012/5/5 | 2012 September | C | B | 0 | 4 | Output 1, Output 3 | Equipment for delivery |
| JICA Myanmar | Item | Specification | Int'l or Local Procurement | Unit Price | Quantity | Total Amount | Equipment Location | | Date of Purchase | Date of Delivery | Use ('1) | Mgt ('2) | # of disposed eqpt | # of available eqpt | Relevant major activity # of PDM | Equipment for Delivery/ for Expert |
| | Vehicle | Toyota New Hilux 4x4 Double Cabin | Thailand | USD 37,500 | 2 | USD 75,000 | YGN | FD | 2009/1/24 | 2007/4/29 | A | B | 0 | 2 | General Use | Equipment for delivery |

*1 Use: A-Frequently (almost every day), B-Sometimes (1-3 a week), C-Like concentrated on particular period, D-Rarely (1-3 times a year), E- No use due to particular reasons
*2 Mgt: A- Always possible to use with sufficient maintenance, B-Almost no problem in use, C-Possible to use if repaired, D-Difficult to use
NA: data is not available

(2) Summary of Total Expense for Project Equipments (JPY)

| | Jan 2007 ~ Mar 2007 JFY2006 (JPY) | Jun 2007 ~ Oct 2007 JFY2007 (JPY) | Dec 2007 ~ Mar 2008 JFY2007 (JPY) | May 2008 ~ Oct 2008 JFY2008 (JPY) | Jan 2009 ~ Aug 2009 JFY2008-10 (JPY) | Sep 2009 ~ Sep 2010 JFY2008-10 (JPY) | Dec 2010 ~ Mar 2011 JFY2010 (JPY) | Jun 2011 ~ Sep 2012 JFY2011~JFY2 012 (JPY) (Indicative) | Total (JPY) |
|---|--|--|--|--|---|---|---|--|-------------------|
| 1 | Equipment for Delivery | 0 | 952,000 | 0 | 0 | 0 | 0 | 517,000 | 1,469,000 |
| 2 | Equipment for Expert | 128,000 | 2,568,000 | 3,875,000 | 3,767,000 | 7,383,000 | 2,604,000 | 0 | 20,325,000 |
| | Total | 128,000 | 3,520,000 | 3,875,000 | 3,767,000 | 7,383,000 | 2,604,000 | 517,000 | 21,794,000 |

ca

1 d.

B-4. Disbursement of Local Activity Cost (as of September 2012)

Disbursement of Local Activity Cost (as of September 2012: Excluding Locally Procured Equipment)

| | Jan 2007 ~ Mar 2007 | Jun 2007 ~ Oct 2007 | Dec 2007 ~ Mar 2008 | May 2008 ~ Oct 2008 | Jan 2009 ~ Aug 2009 | Sep 2009 ~ Sep 2010 | Dec 2010 ~ Mar 2011 | Jun 2011 ~ Sep 2012 | Oct 2012 ~ Mar 2013 | Total (JPY) |
|--|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|----------------|
| | JFY2006 (JPY) | JFY2007 (JPY) | JFY2007 (JPY) | JFY2008 (JPY) | JFY2008-10 (JPY) | JFY2008-10 (JPY) | JFY2010 (JPY) | JFY2011-JFY2 012 | JFY2012 (JPY) | |
| 1 Local Staff | | 1,820,843 | 1,044,336 | 2,330,645 | 2,305,586 | 5,107,240 | 1,456,000 | 7,611,000 | | 21,675,652 |
| 2 Output 1 | | 471,142 | 11,356,234 | 2,168,050 | 9,196,664 | 4,553,349 | 30,000 | 1,123,000 | | 28,898,439 |
| 3 Output 2 | | | | | | 1,060,582 | 127,000 | 3,384,000 | | 4,571,582 |
| 4 Output 3 | | | | | | 37,717,526 | 96,000 | 2,523,000 | | 40,336,526 |
| 5 Output 4 | | | | | | 1,007,806 | 464,000 | 800,000 | | 2,271,806 |
| 6 Output 0 | | | | | | | | 170,000 | | 170,000 |
| 7 Local Contract (Survey, Construction etc.) | | 6,134,000 | | | | 44,250,000 | | 2,921,000 | | 53,305,000 |
| 8 Others (General Management) | | 2,679,194 | 1,189,996 | 1,900,881 | 2,114,876 | 4,550,308 | 1,886,000 | 5,263,000 | | 19,584,255 |
| 9 JICA Myanmar Office (Site Visit Cost) | 718,000 | | | | | | | | | 718,000 |
| JPY Total | 718,000 | 11,105,000 | 13,590,000 | 6,399,000 | 13,617,000 | 98,246,000 | 4,059,000 | 23,795,000 | | 171,529,000 |

14.
Q

Annex 6: Achievement of the Project

1. Achievement of Inputs

| Plan as per PDM | Results (as of November 2012) |
|--|--|
| Myanmar Side | |
| <p>1. Personnel (Members of CFTF)</p> <p>(1) Project Director (PD)</p> <p>(2) Project Manager (PM)</p> <p>(3) Project Coordinator (PC)</p> <p>(4) Field Project Manager (FPM)</p> <p>(5) Other Member of CFTF</p> <p>(6) Other Personnel mutually agreed upon as necessary</p> | <p>At present, a total of 46 staff members of the FD are assigned as the Project Personnel (22 Management Staff including PD, PM, PC, FPM, 24 Technical Staff including Staff Officer and Range Officer). And assigned 63 member as Project Staff such as Deputy Range Officer)</p> <p>(Details are described in ANNEX 4)</p> |
| <p>2. Land and Building</p> <p>(1) Office Building and facilities necessary for the implementation of the Project</p> <p>(2) Office space and necessary facilities for the Japanese experts and related staff members</p> <p>(3) Land for the Action Research</p> <p>(4) Jetty and space necessary for storage of boats and vehicles</p> <p>(5) Other facilities mutually agreed upon as necessary</p> | <p>Land building has been provided in timely manner</p> |
| <p>3. Local Operational Cost</p> <p>Minimum of US\$100,000 equivalent in 5years</p> | <p>In Myanmar FY 2007-2012, the amount of MMK 131,309,608 were allocated for the local Operational costs for the Project, apart from the salaries for the project personnel. Major items include costs for construction of the Project office in MYM, Action research Plantation (ARP), seedlings for CF Plantation etc.</p> <p>(Details are described in ANNEX 4)</p> |
| Japanese Side | |
| <p>1. Experts</p> <p>(1) Chief Advisor</p> <p>(2) Participatory Community Development</p> <p>(3) Mangrove Forestry</p> <p>(4) Coordinator</p> <p>(5) Other Experts in specific field (e.g. Extension, GIS, Agro-forestry, Fish Culture, Forestry Value-added production, Marketing and Distribution) upon mutual agreement.</p> | <p>As of October 2012, a total of 17 Experts (133.4M/M) in the following fields had been dispatched: (1) Chief advisor, (2) Community Forestry (1,2,3), (3) Agro-forestry (1,2,3), (4) Participatory Community Development (1,2,3), (5) Mangrove Conservation(1,2,3), (6) GIS(1,2,3), (7) Forest Technology, (8)Assistant Forest Technology, (9) Forestry Promotion & Extension, (10) Land Use Planning, (11) Training & Extension, (12) Marketing, (13) Fishery & Production, (14) Coordinator</p> <p>In addition, 5 experts had been dispatched for reconstruction and rehabilitation activities; (1) Construction Supervision, (2) Technical Advice, (3) Activity Support</p> <p>(Details are described in ANNEX 5)</p> |
| <p>2. Machinery & equipment</p> <p>(1) Boat(s)</p> <p>(2) Vehicle(s)</p> <p>(3) Other equipment would be provided if necessary upon mutual agreement</p> | <p>As of September 2012, approximately 21.7 million Japanese Yen (US\$ 272,000) had been provided. Major items include boats, vehicles, satellite image, copy machine, generator, desk top PC, GPS etc.</p> <p>Following equipment also had been provided for rehabilitation and reconstruction activities; survey machine, boat, medicine, COMA,</p> |

| | |
|----------------------|--|
| | generator, TV, seedlings etc (Details are described in ANNEX 5) |
| 3. Training in Japan | So far 13 members of the FD (i.e. members of CFTF) have been trained in Japan. 10 members had attended Group Training and 3 members had attended Counterpart Training) (Details are described in ANNEX 5) |
| 4. Local cost | As of September 2012, approximately 171.5 million Japanese Yen (US\$ 1.3 million) had been disbursed as local administrative and operational costs. Major items include costs for rehabilitation of CF Centers for Extension and Nursery, Training costs for technical exchange programs in Thailand and Vietnam, salaries for local staff etc. (Details are described in ANNEX 5) |

2. Achievement of Outputs

(1) Output 1: The selected communities practice environmentally and economically sustainable community forestry (CF)

| Indicators | Results |
|--|---|
| 1a. By September 2011, all the CF Management Plans of the CFUSGs, reselected in March 2011, are developed/updated | <ul style="list-style-type: none"> * Draft of CF management Plan was prepared on Apr-May 2011. It was finalizing since Jul 2011 until Jan 2012. Workshop for confirmation detail contents and by-law were conducted. (5times/villages) * 6 villages were organized/reorganized on Jul 2011. CF Management Plan, MC members list and by-law were finalized on Jun 2012. * CF Certificates were issued all 6 target villages by 31st July 2012 with Land Usage Right for 30 years. A total 2,203 acres of land was approved to use. |
| 1b. By the end of the Project, organizational capacity of the Management Committee of all target CFUSGs 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. | <ul style="list-style-type: none"> * Baseline survey was conducted on beginning of 2011. * 5-7 MC members were selected at each village. * So far, Impact assessment (IA) and Capacity assessment (CA) for CFUSGs are conducting. The end of November 2012, results of IA and CA for CFUSG is expected to find out. |
| 1c. The certified CF Management Plans (i.e. CF plantation and NFIO) of all the target CFUSGs reselected in 2011 are implemented according their annual plans | <ul style="list-style-type: none"> ➢ Distributed seedlings and forestry activities were conducted on 2009 and 2010 (without CF certificate) ➢ Draft of CF management Plan was prepared on Apr-May 2011. It was finalizing since Jul 2011 until Jan 2012. Workshop for confirmation detail contents and by-law were conducted. (5times/villages) ➢ 6 villages were organized/reorganized on Jul 2011. CF Management Plan, MC members list and by-law were finalized on Jun 2012. ➢ CF Certificates were issued all 6 target villages by 31st July 2012 with Land Usage Right for 30 years. A total 2,203 acres of land was approved to use. ➢ So far CF activities are conducting. Approximately a total 1,670 acres will be |

| | |
|--|--|
| | implemented as CF management plan since 2009 – 2012. |
| 1d. By the Project end, more than 1,460 acres (591ha) (*3) of mangrove forests are rehabilitated and managed by the CFUSGs reselected in 2011 based on the certified CF Management Plans, including CF plantation and NFIO when applicable | <ul style="list-style-type: none"> ➤ It has been 690 acres at 12 village by distributed seedlings and forestry activities were conducted on 2009 and 2010 ➤ It will be expected approximately a total of 1,670 acres at 6 villages since 2009 up to 2012. ➤ Monitoring Survey will be conducted until end of this project. |
| 1e. By the Project end, all the CFUSGs 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. | <ul style="list-style-type: none"> ➤ The beginning of this project, 'Production from CF activities and market' had been considered. Market survey also had been conducted on 2007. ➤ Related activities were suspended due to the Cyclone Nargis. After 2009, only fishery was restarted. Final Monitoring will be conducted until end of this project. In addition, Guideline of fishery and agro-forestry is under preparation at present. ➤ IA has been conducted currently and the results will be compiled within December 2012. |

(*3) The CF areas 1,460 acres (as of April 2012) including plantation areas and natural forest in the 6 CF Management Plans of the CFUSGs reselected in 2011.

(2) Outputs 2: The management and the support system of the Forest Department (FD) for CF is effective.

| Indicators | Results |
|---|--|
| 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 levels set by the Project. | <ul style="list-style-type: none"> ➤ Supported CF management and extension was discussed and confirmed on CF-SOP Meeting, Aug 2011. Necessary activities also reconfirmed on PCM/IMMP Meeting, Nov 2011. ➤ The role and responsibilities of technical members and MCFTF members were discussed on CF-SOP Meeting, PCM/IMMP Meeting, and CF short term training. ➤ During the CF-SOP Meeting, experience and capacity of MCFTF was confirmed by questionnaire, test and presentation. ➤ The needs of participants has been confirmed on CF extension workshop, Feb 2012 conducted. ➤ Questionnaire survey will be conducted on Jan 2013. |
| 2b. On average, more than 80% of all registered members of the CFUSGs 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. | <ul style="list-style-type: none"> ➤ Registered CFUSG members: KKL39, TYK59, NTP68, SPT106, TGT63, GDW83. (Total 418) ➤ Questionnaire survey will be conducted on Jan 2013 |

| | |
|--|---|
| <p>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)</p> | <ul style="list-style-type: none"> ➤ CF-SOP training on Aug 2011, PCM/IMMP training on Nov 2011, CF short term training and CF extension training on Feb 2012 and CF development training on Oct 2012 had been conducted. ➤ Draft of Training Plan was established on CF-SOP training. ➤ During the CF short term training, related text had been prepared with lector since Dec 2011 up to Jan 2012. ➤ Draft of Training Plan and Text will be attached on CF-SOP. |
| <p>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) for confirmation by the DG for further action (in English & Myanmar)</p> | <ul style="list-style-type: none"> ➤ Regarding the preparation schedule and table of contents have been discussed on CF-SOP Meeting on Aug 2011 ➤ First Draft of Myanmar version (Dec 2011) ➤ Second Draft of Myanmar version (Apr 2012) and English version (May) ➤ Third Draft of English version (Sep 2012) ➤ English version will be finalized around end of Nov to beginning of Dec 2012 ➤ Myanmar version will be finalized around end of Dec to beginning of Jan 2013. |

(3) Outputs 3: Some silvicultural techniques for the rehabilitation and the management of the mangrove and its associated forests for the Ayeyawady Delta are established.

| Indicators | Results |
|---|--|
| <p>3a. By the Project end, a technical report on Action Research (AR) for mangrove are prepared (in English and Myanmar)</p> | <p>Technical Report related the result of ARP activities and methods is preparing at present. It will be completed on end of Dec 2012.</p> |
| <p>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 findings, are published (in English and Myanmar)</p> | <p>Technical Guideline related the Forestry Technology that is applicable at target area is preparing at present. It will be completed by the end of Dec 2012.</p> |

(4) Outputs 4: A coordination mechanism is established among key sectors to address the underlying causes of mangrove deforestation in the Ayeyawady Delta.

| Indicators | Results |
|---|--|
| <p>4a. By December 2011, an inter-agency coordination meeting is organized by the FD</p> | <p>Coordination Meeting had been held on Bogalay, Nov 2011 and Patheín, Oct 2012 organized by FD.</p> |
| <p>4b. Land use information of the Target Area is updated based on the satellite images of 2007, 2009 and 2012.</p> | <p>As planned, a land use map, using satellite images (LANDSAT-ETM+) was produced in 2007. The land use information was updated using ALOS/AVNIR images in 2009. It is expected that the land use information would be updated using ALOS/AVNIR images in 2012.</p> <p>To finalize the satellite images, field survey is conducting since Oct 2012.</p> <p>Those satellite images are utilized for CF activities and ARP related Output 1 and 2. Final version will be prepared by Feb 2013.</p> |

07

14

| | |
|--|--|
| 4c. The updated land use information is shared at the inter-agency coordination meetings for discussion. | The result of the land usage analysis had been provided on Coordination meeting. Latest map of the land usage will be provided on final seminar that will be held on Feb 2013. |
| 4d. Seminars to promote synergy among the relevant sectors are organized annually | Mangrove Seminar had been conducted 7 times. Final seminar will be held on Feb 2013. |
| 4e. A donor/NGO coordination meeting for the Target Area organized by the FD once a year | (as same as Activity X-8) A donor/NGO coordination meeting had been conducted Nov-Dec 2011, and Jul 2012. |

(5) Output X: (Additional Output after the Cyclone Nargis in May 2008) Recovery from damage of Cyclone Nargis is promoted.

| Indicators | Results |
|---|--|
| 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 | By the Mid-term review, some activities had been conducted as follows; (1) Analysis of degree of damage by cyclone, (2) Analysis of degree of risk at each village, (3) Preparation of Hazard Map. Confirmation about the degree of damage at forest area also had been conducted. |
| xb. By March 2010, a report on damage & recovery survey on the communities in the Target Area is prepared | The following surveys had been conducted; Emergency Survey (May-Jun 2008), Rehabilitation Monitoring Survey (1) (Aug-Oct 2008), Rehabilitation Monitoring Survey (2) (Feb 2009), Simplified monitoring survey (Jun-Jul 2009), Rehabilitation Monitoring survey (Jan-Feb 2010). Village Profile survey had been also conducted since Aug 2009 – May 2010. |
| xc. By March 2010, Centre for CF Extension & Nursery in each RF is rehabilitated. | Since Jul 2009 up to Jul 2010, Centre for CF Extension and Nursery in each RF had been rehabilitated. |
| 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 | Seedling of Coconut and Pepper had been distributed. Some machineries and equipments had been provided to Cooperative Agencies. |
| xe. By December 2011, a report on recovery condition of mangrove vegetation (2008-2010) is prepared | Recover survey of mangrove vegetation was conducted in total of 42 plots located in 5 locations, where damage of the cyclone was serve. Monitoring Survey had been conducted up to Jan 2011. The result of the monitoring will be placed on Technical report. |

3. Achievement of Project Purpose

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.

| Indicators | Results |
|---|--|
| a. By the Project end, mangrove forest coverage is increased by 3,550 acres (1,438 ha) (*2) in the selected areas where project were implemented (i.e. CF plantation, CF-Natural Forest Improvement Operation (NFIO), and ARP sites) from the base year 2009. | Mangrove forest coverage area - CF activities (approximately total of 1,670 acres) - ARP (approximately total of 1,375 acres) Total amount of mangrove forest area will be 3,045 acres/ |
| b. At the end of the Project, among the registered members of all the target CF user groups (CFUSGs) reselected in 2011 more than 80% consider CF useful | Based on the results of IA, Questionnaire will be conducted in Jan 2013. |

(*2) The area reflecting the CF area delineated in the CF Management Plans of the CFUSGs reselected in 2011 and outer boundary areas of Action Research Plantation Plots as well as the rehabilitated during 2009-2010 by the CFUSGs which were not reselected.

4. Achievement of Overall Goal

Overall Goal: The mangrove forests are sustainably managed and poverty is alleviated among the communities in the Ayeyawady Delta

| Indicators | Results |
|--|---|
| a. Mangrove forest coverage increases by 10,000 acres (4,050ha) (*1) in the Target Area of the current Project. (i.e 4 RFs) within three years after the completion of the Project | * Approximately 1,154ha of mangrove forest will be increases by Japanese Grant Aid Project. * Other activities such like a NGOs activities and plantation to private forestry are also expected to increase around 10,000 acres. |
| b. Income levels of communities in the Target Area is improved than that of 2004 | The achievement of the indicator 2b cannot be assumed at the present stage. |

(*1) Based on Laputta and Pyar Pon District Management Plans (2011/12-2020/21)

Annex 7: Breakdown of Mangrove Forest Coverage

| Data for Overall Goal Indicator (Expected Achievement within 3 years after the completion of project (as per 2011-2020 district management plans)) | | | | | | | | | | | | | |
|--|--------------------|---|---|---|--|---|---|---|--|---|---------------------------------|---------------------------------|--|
| | | (1) Plantation Area to be rehabilitated through CF | | | | (2) Natural Forest Area to be rehabilitated through CF | | | | (3) Departmental Plantation Area to be rehabilitated | | | |
| | | a | b | c | d | e | f | g | h | i | j | k | l |
| Reserve Forest | | Plantation Area of CF to be rehabilitated by CFUSG (2013) | Plantation Area of CF to be rehabilitated by CFUSG (2014) | Plantation Area of CF to be rehabilitated by CFUSG (2015) | Total Plantation Area to be rehabilitated | NFIO Area of CF to be rehabilitated by CFUSG (2013) | NFIO Area of CF to be rehabilitated by CFUSG (2014) | NFIO Area of CF to be rehabilitated by CFUSG (2015) | Total NFIO Area to be rehabilitated | Plantation Area (2013) | Plantation Area (2014) | Plantation Area (2015) | Total Plantation Area to be rehabilitated |
| | | (plan) | (plan) | (plan) | a+b+c | (plan) | (plan) | (plan) | e+f+g | (plan) | (plan) | (plan) | l+j+k |
| 1 | Kyakankwinpauk LPT | 100 | 80 | | 180 | 3 | 3 | | 6 | | 1000 | 1000 | 2000 |
| 2 | Pyinalan LPT | 198 | 196 | | 394 | 34 | 32 | | 66 | 1000 | | | 1000 |
| 3 | Kadonkani BGL | | | | 0 | | | | 0 | 750 | 750 | 750 | 2250 |
| 4 | Pyindaye North BGL | | | | 0 | | | | 0 | | | | 0 |
| 4 | Pyindaye South PYP | 10 | 10 | | 20 | | | | 0 | 500 | 500 | 500 | 1500 |
| Total | | 308 | 286 | 0 | 594 | 37 | 35 | 0 | 72 | 2,250 | 2,250 | 2,250 | 6,750 |
| | | (4) Natural Forest Area to be rehabilitated by Department | | | | (5) Plantation Area to be rehabilitated by Others (Private) | | | | (6) Natural Forest Area to be rehabilitated by Others (Private) | | | |
| | | m | n | o | p | q | r | s | t | u | v | w | x |
| Reserve Forest | | NFIO Area to be rehabilitated (2013) | NFIO Area to be rehabilitated (2014) | NFIO Area to be rehabilitated (2015) | Total NFIO Area to be rehabilitated by the Project end | Area to be rehabilitated (2013) | Area to be rehabilitated (2014) | Area to be rehabilitated (2015) | Total NFIO Area to be rehabilitated by the Project end | Area to be rehabilitated (2013) | Area to be rehabilitated (2014) | Area to be rehabilitated (2015) | Total NFIO Area to be rehabilitated by the Project end |
| | | (plan) | (plan) | (plan) | m+n+o | (plan) | (plan) | (plan) | q+r+s | (plan) | (plan) | (plan) | u+v+w |
| 1 | Kyakankwinpauk LPT | | | | 0 | | | | 0 | | | | 0 |
| 2 | Pyinalan LPT | | | | 0 | | | | 0 | | | | 0 |
| 3 | Kadonkani BGL | | | | 0 | | | | 0 | | | | 0 |
| 4 | Pyindaye North BGL | | | | 0 | | | | 0 | | | | 0 |
| 4 | Pyindaye South PYP | | | | 0 | 1510 | 1080 | | 2590 | | | | 0 |
| Total | | 0 | 0 | 0 | 0 | 1,510 | 1,080 | 0 | 2,590 | 0 | 0 | 0 | 0 |
| | | CF | Departmental | Other Schemes | Total | | | | | | | | |
| Plantation | | 594 | 6,750 | 2,590 | 9,934 | | | | | | | | |
| NF | | 72 | 0 | 0 | 72 | | | | | | | | |
| Total | | 666 | 6,750 | 2,590 | 10,006 | | | | | | | | |
| | | | | | 10,000 | 4,050 ha | | | | | | | |

80

17.00

1. Project Title: Integrated Mangrove Rehabilitation and Management Project through Community Participation in the Ayeyawady Delta

PDM version: 3

2. Project Duration: April 2007-March 2013

Date of approval: 3 May, 2012

3. Target Area: Four reserved forests (Kyakankwinpauk, Pyinalan, Kadonkani, Pyindaye) in the Ayeyawady Delta

4. Beneficiaries: Communities practicing community forestry in the four reserved forests (Kyakankwinpauk, Pyinalan, Kadonkani, Pyindaye) in the

Ayeyawady Delta & Member of Community Forestry Task Force (MCFTC) and other relevant staff from the Forest Department

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|--|--|--|---|
| <p>Overall Goal: The mangrove forests are sustainably managed and poverty is alleviated among the communities in the Ayeyawady Delta</p> | <p>a. Mangrove forest coverage increases by 10,000 acres (4,050ha) (*1) in the Target Area of the current Project. (i.e 4 RFs) within three years after the completion of the Project b. Income levels of communities in the Target Area is improved than that of 2004</p> | <p>a. Forests resource assessment by FD (remote sensing) b. Agricultural Census report</p> | |
| <p>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.</p> | <p>a. By the Project end, mangrove forest coverage is increased by 3,550 acres (1,438 ha) (*2) in the selected areas where project were implemented (i.e. CF plantation, CF-Natural Forest Improvement Operation (NFIO), and ARP sites) from the base year 2009. b. At the end of the Project, among the registered members of all the target CF user groups (CFUSGs) reselected in 2011 more than 80% consider CF useful</p> | <p>a. Project reports b. Results from the CF Impact survey</p> | <p>1 Favourable markets exist for CF products. 2 FD's policy on the management of the four reserved forests does not change significantly. 3 Sufficient financial and other resources are allocated for the sustainable management of mangrove forests.</p> |
| <p>Outputs: 1. The selected communities practice environmentally and economically sustainable community forestry (CF).</p> | <p>1a By September 2011, all the CF Management Plans of the CFUSGs, reselected in March 2011, are developed/updated 1b By the end of the Project, organizational capacity of the Management Committee of all target CFUSGs 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. 1c The certified CF Management Plans (i.e. CF plantation and NFIO) of all the target CFUSGs reselected in 2011 are implemented according their annual plans 1d By the Project end, more than 1,460 acres (591ha) (*3) of mangrove forests are rehabilitated and managed by the CFUSGs reselected in 2011 based on the certified CF Management Plans, including CF plantation and NFIO when applicable 1e By the Project end, all the CFUSGs 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.</p> | <p>1a: CF Management Plans, 1b~1e: Monitoring report, project report</p> | <p>1 No drastic increase in the population within the four reserved forests. 2 External pressure to convert the mangrove forests to other land uses does not increase.</p> |

| | | | |
|--|---|---|--|
| 2. The management and the support system of the Forest Department (FD) for CF is effective. | <p>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 levels set by the Project.</p> <p>2b On average, more than 80% of all registered members of the CFUSGs 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.</p> <p>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)</p> <p>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) for confirmation by the DG for further action (in English & Myanmar)</p> | 2a~2d: Project reports | |
| 3. Some silvicultural techniques for the rehabilitation and the management of the mangrove and its associated forests for the Ayeyawady Delta are established. | <p>3a By the Project end, a technical report on Action Research (AR) for mangrove are prepared (in English and Myanmar)</p> <p>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 findings, are published (in English and Myanmar)</p> | 3a~3b: Project reports | |
| 4. A coordination mechanism is established among key sectors to address the underlying causes of mangrove deforestation in the Ayeyawady Delta. | <p>4a By December 2011, an inter-agency coordination meeting is organized by the FD</p> <p>4b Land use information of the Target Area is updated based on the satellite images of 2007, 2009 and 2012.</p> <p>4c The updated land use information is shared at the inter-agency coordination meetings for discussion.</p> <p>4d Seminars to promote synergy among the relevant sectors are organized annually</p> <p>4e A donor/NGO coordination meeting for the Target Area organized by the FD once a year</p> | <p>4a Meeting records</p> <p>4b Land use maps</p> <p>4c Meeting records</p> <p>4d Project reports</p> <p>4e Meeting records</p> | |
| X (Additional Output after the Cyclone Nargis in May 2008) Recovery from damage of Cyclone Narigis is promoted. | <p>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</p> <p>Xb By March 2010, a report on damage & recovery survey on the communities in the Target Area is prepared</p> <p>Xc By March 2010, Centre for CF Extension & Nursery in each RF is rehabilitated.</p> <p>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</p> <p>Xe By December 2011, a report on recovery condition of mangrove vegetation (2008-2010) is prepared</p> | <p>Xa: Hazard map,</p> <p>Xb-e: project reports</p> | |

| Activities: | Inputs | 1 No significant |
|--|--|---|
| 1-1 Select villages to introduce CF from the ones that express interest. 1-2 Conduct baseline survey on the basic socio-economic conditions of the selected villages. 1-3 Organize/reorganize CFUSGs in the selected villages 1-4 Assist the CFUSGs in preparing/updating their CF Management Plans and proposals for CF certificates through participatory planning process 1-5 Issue CF certificates to the CFUSGs based on the proposals as per the CF Instruction (CFI) 1-6 Assist the CFUSGs in implementing the certified CF Management Plans 1-7 Implement various capacity strengthening programs to enhance the income levels of the CFUSGs in partnership with Cooperating Agencies such as Department of Fisheries (DOF), Myanmar Agriculture Service (MAS), and other institutions. 1-8 Monitor and evaluate the implementation of the certified CF Management Plans 1-9 Conduct impact survey regarding the effects of CF on the livelihoods of the members of the CFUSGs. | <Myanmar Side> Personnel (Members of CF Task Force: MCFTF) 1. Project Director 2. Project Manager 3. Project Coordinator 4. Field Project Manager 5. Other MCFTF 6. Other personnel mutually agreed upon as necessary | natural hazards occur that will impact the rehabilitation of mangrove forests |
| 2-1 Identify necessary activities for CF management (*4) and CF extension & support(*5) by each Reserve Forest (RF) based on review of the CF contents of the Integrated Mangrove Management Plan (IMMP). 2-2 Confirm the roles and responsibilities of the technical members of CF Task Force (technical MCFTF)(*6) for the identified activities 2-3 Assess the needs of the technical MCFTF (e.g. financial, logistics and human resource development needs) to implement the identified activities 2-4 Develop training plan & materials based on the assessment of the human resource development needs conducted in 2.3. 2-5 Train the technical MCFTF according to the plan 2-6 Construct/renovate the CF Extension Center & Nursery in each RF 2-7 Provide extension services and support to the CFUSGs in each RF 2-8 Carry out public awareness campaigns regarding CF and the conservation of mangrove forests 2-9 Draft detailed SOP for CF for the mangrove forests based on the existing SOP of the FD (i.e. Departmental Instructions) and feedback from the Project activities | Land, Building and Facilities 1. Office building and facilities necessary for the implementation of the Project 2. Office space and necessary facilities for the Japanese experts and related staff members 3. Land for the action research 4. Jetty and space necessary for storage of boats and vehicles 5. Other facilities mutually agreed upon as necessary Local Operational Costs Minimum of US\$100,000 equivalent in 5 years | (e.g. cyclones, tsunami, floods, pests, diseases). 2 Relevant authorities and stakeholders are supportive to |
| 3-1 Conduct surveys for identification of silvicultural techniques for both community and non-community forestry with respect to the eco-geographical / management zones in the Ayeyawady Delta 3-2 Prepare the specific Action Research (AR) test designs for each of the identified silvicultural technique (e.g. seedling production, planning designs and methods, thinning, pruning, forest management). 3-3 Execute the AR in each RF 3-4 Conduct periodic technical monitoring / preliminary assessment on the AR plantation (ARP) 3-5 Prepare a technical report on action research (AR) for mangrove in English and Myanmar 3-6 Develop technical guidelines for rehabilitation and management of mangrove forests based on the findings of the AR | <Japanese Side> Personnel 1. Chief Advisor 2. Participatory community development 3. Mangrove forestry 4. Coordinator 5. Other experts in specific fields (e.g. Extension, GIS, Agro-forestry, Fish culture, Forestry Value-added Production, Marketing and Distribution) upon mutual agreement | promote sustainable management of mangrove forests |
| 4-1 Organize an inter-agency coordination meeting, consisting of relevant authorities (e.g. agriculture, fisheries, settlement and land records) at the Regional level to examine the underlying causes for mangrove deforestation in the Ayeyawady Delta. 4-2 Update the land use information on periodic basis based on the up-to-date satellite images for discussion by the coordination meeting members, including overall forest resource assessment of the region and mangrove forest conversion. 4-3 Organize seminars to promote synergies among the relevant sectors for the sustainable management of the mangrove ecosystem in the Ayeyawady Delta. 4-4 Organize a coordination meeting with donors/NGOs active in the Target Area at District Level | Machinery and Equipment 1. Boat(s) 2. Vehicle(s) 3. Other equipment would be provided if necessary upon mutual agreement. | Pre-Conditions 1 Local communities accept CF instructions |
| X-1 Prepare a hazard map based on analysis of damage of the cyclone Nargis X-2 Conduct quick damage & recovery survey in the Target Area X-3 Conduct village profile survey in the Target Area X-4 Conduct survey for recovery condition of mangrove vegetation from damage of Cyclone Nargis in the Target Area. X-5 Rehabilitate the CF Extension Center and Nursery in each RF including facility with cyclone-proof structure X-6 Support recovery or disaster prevention work of Implementation and Cooperative Organizations in the Target Area | Training in Japan Local Costs | 2 No significant changes occur in the |

| | | |
|--|--|---|
| <p>through material supply</p> <p>X-7 Conduct public awareness activities on disaster prevention in the Target Area</p> <p>X-8 Arrange necessary coordination among donors in the integrated mangrove management</p> | | <p>Government's policy</p> <p>on CF</p> |
|--|--|---|

(*1)Based on Laputta and Pyar Pon District Management Plans (2011/12-2020/21). (*2) :The area reflecting the CF area delineated in the CF Management Plans of the CFUSGs reselected in 2011 and outer boundary areas of Action Research Plantation Plots as well as the area rehabilitated during 2009-2010 by the CFUSGs which were not reselected. (*3): The CF areas 1,460 acres (as of April 2012) including plantation areas and natural forest area in the six CF Management Plans of the CFUSGs reselected in 2011. (*4): "CF management" by FD is defined as planning, supervision, monitoring and evaluation, and data organization and analysis of the activities related to CF. "CF support" consists of extension service and extension support to CF. (*5): "CF extension services" may include organization of the CFUSGs, strengthening of the organizational/management capacity of CFUSGs, provision of technical support for preparation and implementation of the CF Management Plans and income generation activities of CFUSGs, etc. "CF extension support" is defined as material support to CFUSGs, which include provision of seedlings for CF plantation delineated in the CF Management Plans, making the facilities of the CF Extension and Nursery available to the CFUSG. (*6): "MCFTC" in Output 2, include the Field Project Manager and field staff (Staff Officers (SOs), Range Officers (ROs), Deputy ROs (DROs) and foresters relevant to the Target Area.

1. 案件名: エーヤーワディ・デルタ住民参加型マングローブ総合管理計画プロジェクト

PDM バージョン 3(和文仮訳)

2. 協力期間: 2007 年 4 月～2013 年 3 月

承認日: 2012 年 5 月 3 日

3. 対象地域: エーヤーワディ・デルタ内の 4 カ所の保全林区(RF) (チャカンクインパク、ピナラン、カドンカニ、ピンダイエ)

4. 受益者: 4 カ所の RF においてコミュニティ林業(CF)を実践するコミュニティ及びミャンマー国環境保全・林業省森林局の CF タスクフォース(CFTF)メンバーとその他の関連職員

| プロジェクトの要約 | 客観的に検証可能な指標 | 指標入手手段 | 外部条件 |
|--|---|---|--|
| 上位目標: エーヤーワディ・デルタ内のマングローブ林が持続的に管理され、コミュニティの貧困が緩和される。 | a. プロジェクト終了から 3 年以内に、本プロジェクト対象地域において、マングローブ林の被覆面積が 10,000 エーカー (4,050ha) (*1) 増加する。 b. 対象地域のコミュニティの所得水準が 2004 年に比べて上がる。 | a. 森林局による森林資源アセスメント(リモート・センシング) b. 農業センサス報告書 | |
| プロジェクト目標: エーヤーワディ・デルタ内のプロジェクト活動が実施される地域において、コミュニティとマングローブ林が持続的に共生する。 | a. プロジェクト終了までに、プロジェクト活動が実施された地域 (CF 植林地、CF-天然林改善施業(NFIO)対象地、及びアクション・リサーチ用植林地)において、マングローブ林の被覆面積が、基準年(2009 年)に比べて、3,550 エーカー (1,438ha) (*2) 増加する。 b. プロジェクト終了時に、2011 年に再選定された全ての対象 CF ユーザー・グループ(CFUSG)の登録メンバーの 8 割以上が、CF を有用だとみなす。 | a. プロジェクト報告書 b. CF インパクト調査の結果 | 1.CF 生産物に有利な市場が存在する。 2.RF4 カ所の管理に関する森林局の方針が大幅に変わらない。 3 マングローブ林の持続的管理のために、十分な財政的その他の資源が配分される。 |
| アウトプット: 1. 選定されたコミュニティが環境的にも、経済的にも持続的なコミュニティ林業(CF)を実践する。 | 1a 2011 年 9 月までに、2011 年 3 月に再選定された CFUSG の全ての CF 管理計画が作成/更新される。 1b プロジェクト終了までに、2011 年に再選定された全ての対象 CFUSG の運営委員会(MC)の組織能力が、プロジェクトの設定する 5 段階評価の 3 以上の水準(すなわち、完全成就状態に比して 50%以上に達すること)に達する。 1c 2011 年に再選定されたすべての CFUSG の承認された CF 管理計画(CF 植林・NFIO を含む)が、年間計画に基づき、実行される。 | 1a. CF 管理計画 1b～1e. モニタリング報告書、プロジェクト報告書 | 1 対象 RF4 カ所において、急激な人口増加がない。 2 マングローブ林を他の土地利用に転換する外 |

| | | | |
|--|---|--|------------|
| | <p>1d プロジェクト終了までに、1,460エーカー(591ha)(*3)以上のマングローブ林が、2011年に再選定されCFUSGによって、承認されたCF管理計画に基づき、復旧・管理される(CF 植林、NFIOを含む)。</p> <p>1e プロジェクト終了までに、2011年に再選定されたすべての活発なCFUSGが、承認されたCF管理計画に記されたCF活動及びプロジェクトの支援する所得創出活動によって、利益を得る。</p> | | 部圧力が増加しない。 |
| 2. 森林局のCF管理・支援体制が効果的である。 | <p>2a プロジェクト終了までに、プロジェクトに2年以上従事しているCFタスクフォース技術メンバーの80%が、CF管理及び普及・支援について、平均して、プロジェクトが職位別に設定した5段階評価の4以上の水準(すなわち、完全成就状態に比して75%以上に達すること)に達する。</p> <p>2b 2001年に再選定されたCFUSGの登録メンバーの8割以上が、自身の受けたCF普及サービスの「理解度」「適用度」「満足度」について、平均で3段階の中以上の評価を与える。</p> <p>2c プロジェクト終了までに、森林局局长による確認とさらなる措置のために、マングローブ林のCFのための研修プログラム(研修資料を含む)が、既存のものをもとに開発される(英語・ミャンマー語)。</p> <p>2d プロジェクト終了までに、森林局局长による確認とさらなる措置のために、マングローブ林のCFのための標準作業手順書(SOP)が、森林局の既存のSOP(局令やCF令)をもとに作成される(英語・ミャンマー語)。</p> | 2a~2d. プロジェクト報告書 | |
| 3. エーヤーワディ・デルタのマングローブ林及び関連林の復旧と管理に関するいくつかの造林技術が確立される。 | <p>3a プロジェクト終了までに、アクション・リサーチ(AR)に関する技術報告書が作成される(英語・ミャンマー語)。</p> <p>3b プロジェクト終了までに、ARの結果に基づいて作成された、エーヤーワディ・デルタのマングローブ林・関連林の復旧・管理に関する、現場職員向けの造林技術ガイドラインが発行される(英語・ミャンマー語)。</p> | 3a-3b. プロジェクト報告書 | |
| 4. エーヤーワディ・デルタのマングローブ林減少の根本原因に対処するために、主要セクター間の調整メカニズムが構築される。 | <p>4a 2011年12月までに、森林局によって、関連省庁間調整会合が開かれる。</p> <p>4b 対象地域の土地利用情報が2007年、2009年、2012年の衛星画像を基に更新される。</p> <p>4c 関連省庁間調整会合において、上記土地利用情報が協議のために共有される。</p> <p>4d 関連セクターのシナジーを促進するためのセミナーが毎年開催される。</p> <p>4e 対象地域のドナー/NGO調整会合が森林局によって、年1回開かれる。</p> | <p>4a. 会合の記録</p> <p>4b. 土地利用図</p> <p>4c. 会合の記録</p> <p>4d. プロジェクト報告書</p> <p>4e. 会合の記録</p> | |
| X(2008年5月のサイクロン・ナルギス後の追加的アウトプット) サイクロン・ナルギスの被害からの復興が | <p>xa 2009年3月までに、対象地域のハザード・マップが、衛星画像(2009年)に基づいて作成される。</p> <p>xb 2010年3月までに、対象地域のコミュニティの被災・復興調査結果がまとめられる。</p> <p>xc 2010年3月までに、各RFにおいて、耐サイクロンの強化構造を備えたCF普及・苗畑センターが、再建される。</p> | <p>xa. ハザード・マップ</p> <p>xb~e. プロジェクトの報告書</p> | |

促進される。

xd 2009年～2010年に、森林局及び協力機関の災害復旧・防災事業に必要な資材が、ニーズに応じて提供される。

xe 2011年12月までに、マングローブの植生復旧状況に関するデータがまとめられる。

活動:

- 1-1 CFに関心を示す村落の中からCFを導入する村落を選定する。
- 1-2 選定した村落の基本的社会経済状況のベースライン調査を行う。
- 1-3 選定した村落において、CFUSGを組織化/再組織化する。
- 1-4 CFUSGに対し、CF管理計画及びCF証書のプロポーザル作成/更新を、参加型計画プロセスを通して支援する。
- 1-5 森林局CF令に則り、上記プロポーザルに基づき、CFUSGに対して、CF証書を発行する。
- 1-6 CFUSGに対し、承認されたCF管理計画実施を支援する。
- 1-7 CFUSGの所得水準向上のための様々な能力強化プログラムを、水産局(DOF)、ミャンマー農業サービス(MAS)といった協力機関等と連携して、実施する。
- 1-8 承認されたCF管理計画のCFUSGによる実施をモニタリング&評価する。
- 1-9 CFUSGメンバーの生計におけるCFの効果についてインパクト調査を行う。
- 2-1 総合マングローブ管理プログラム(IMMP)のCF関連箇所のレビューに基づき、CF管理(*4)及びCF普及・支援(*5)に必要な活動をRFごとに特定する。
- 2-2 特定された活動に対するCFタスクフォース(CFTF)技術メンバー(*6)の役割と責任を確認する。
- 2-3 特定された活動を実施するためCFTF技術メンバーのニーズ(例:資金、ロジスティックス、人材開発ニーズ)を評価する。
- 2-4 上記の人材開発ニーズ評価に基づき、研修計画・教材を作成する。
- 2-5 上記研修計画に基づき、CFTF技術メンバーに研修を行う。
- 2-6 各RFにおいて、CF普及・苗畑センターを建設/改修する。
- 2-7 各RFにおいて、CFUSGへの普及サービス・支援を提供する。
- 2-8 CF及びマングローブ林保全に関する広報活動を行う。

投入

<ミャンマー側>

人員 (CFTFメンバー)

- 1 プロジェクト・ディレクター
- 2 プロジェクト・マネージャー
- 3 プロジェクト・コーディネーター
- 4 フィールド・プロジェクト・マネージャー
- 5 他のCFTFメンバー
- 6 その他、必要に応じて互いに合意した人員

土地・建物・施設

- 1 プロジェクト実施に必要なオフィス・ビル及び施設
- 2 日本人専門家・関連スタッフに必要なオフィス・スペースと必要施設
- 3 アクション・リサーチ用地
- 4 ボートと車両の保管に必要な棧橋・スペース
- 5 その他、必要に応じて互いに合意した施設

ローカル・オペレーショナル・コスト

1 マングローブ林の復旧に影響を与えるような甚大な自然災害が起らない(例:サイクロン、津波、洪水、病虫害)。

2 関連機関及び関係者がマングローブ林の持続的管理促進を支持する。

前提条件

1 マングローブ林の復旧に影響を与えるような深刻な自然災害が起らない(例:サイクロン、津波、洪水、病虫害、

| | | |
|--|---|---|
| 2-9 森林局の既存 SOP(局令等)及びプロジェクト活動からのフィードバックをもとに、マングローブ林のCFに関する詳細な SOP を作成する。 | 5年間で最低 US\$100,000 相当 | 病気)。 |
| 3-1 エーヤーワディ・デルタの生態-地理的ゾーン・管理ゾーンごとに、CF及び非CFのための造林技術を特定する調査を実施する 3-2 特定された造林技術(例:苗木生産、植え付け設計・方法、伐、枝打ち、森林管理)ごとにアクション・リサーチ(AR)試験を設計する 3-3 各RFにおいてAR試験を実施する 3-4 ARの植林地において、定期的な技術モニタリング及び初期評価を実施する 3-5 マングローブ林のARに関する技術レポートを作成する 3-6 ARのファインディングに基づき、マングローブ林の復旧・管理に関する技術ガイドラインを作成する | <日本側> 人員 1 チーフ・アドバイザー 2 参加型コミュニティ開発 3 マングローブ・フォレストリー 4 業務調整 5 相互の合意に基づく特定分野のその他の専門家(例:普及、GIS、アグロフォレストリー、養魚、林産加工品生産、マーケティング・流通) | 2 関連機関及び関係者がマングローブ林の持続的 management 促進を支持する。 |
| 4-1 州(リージョン)レベルで、エーヤーワディ・デルタのマングローブ林減少の根本原因を検討するために、関連省庁(例:農業、水産、定住・土地記録)の調整会合を開く。 4-2 調整会合メンバーの協議に資するために、デルタ地域の総合的森林資源評価及びマングローブ林の転用情報を含む土地利用情報を、最新の衛星画像を基に、定期的に更新する。 4-3 エーヤーワディ・デルタのマングローブ生態系の持続的 management のため、関連セクターのシナジーを促進するセミナーを開く。 4-4 県(ディストリクト)レベルで、対象地域で活動するドナー/NGOの調整会合を開く。 | 資機材 1. ボート 2. 車両 3. その他の機材は、必要であれば、互いの合意に基づき供与される。 | |
| X-1 サイクロン・ナルギスの被害分析に基づき、ハザード・マップを作成する。 X-2 対象地域の簡易被災調査・復興調査を行う。 X-3 対象地域の村落プロフィール調査を行う。 X-4 対象地域のマングローブ植生のサイクロン・ナルギスからの復旧状況調査を行う。 X-5 各 RF において、耐サイクロン構造を備えたCF普及・苗畑センターを再建する。 X-6 対象地域における実施機関・協力機関の災害復旧・防災事業に対し、資材供給を通して支援する。 X-7 対象地域において、防災にかかる意識向上活動を行う。 X-8 総合マングローブ管理に関し、ドナー間の必要な調整を行う。 | 研修員受け入れ ローカル・コスト | |

(*1)ラプタ・ピャーボン両郡管理計画(2011/2012~2020/2021)に基づく。

(*2):計画値には、2011年に再選定されたCFUSGのCF管理計画の実際の計画及びARの面積、更に再選定からもれたCFUSGが2009年~2010年に復旧した面積が反映さ

れる。

(*3): 1,460 エーカーの CF 面積(2012 年 4 月時点)には、2011 年に再選定された CFUSG の 6 つの CF 管理計画の植林地域及び天然林地帯が含まれる。

(*4): 森林局による「CF 管理」は、CF 関連活動の計画、監督、モニタリング・評価、データ整理・分析を含むと定義される。「CF 支援」は CF 普及サービスと CF 普及支援から成る。

(*5): 「CF 普及サービス」には、CFUSG の組織化、CFUSG の組織・運営能力強化、CF 管理計画の作成・実施や CFUSG の所得創出活動に対する技術的サポート等が含まれる。一方、「CF 普及支援」は、CF 管理計画に基づく植林への苗木提供、CF 活動への CF 普及・苗畑センターの施設提供などの物質的支援と定義される。

(*6): アウトプット 2 における「CFTF 技術メンバー」は、フィールド・プロジェクト・マネージャー及び対象地域に関連する現場職員(スタッフ・オフィサー、レンジ・オフィサー、デピュティ・レンジ・オフィサー、フォレスター)を指す。