

フィリピン国  
地方都市における適正固形廃棄物管理プロジェクト  
中間レビュー報告書

平成21年7月  
(2009年)

独立行政法人国際協力機構  
フィリピン事務所

フピ事
JR
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## 序 文

フィリピン共和国では、マニラ首都圏のみならず地方の自治体でも深刻な社会問題となっている廃棄物問題に対応するべく、2001年に固形廃棄物管理法（RA9003）を施行しました。

同法律では、固形廃棄物に関する管理は地方の各自治体の責任で行うことが定められており、3Rs（Reduce、Reuse、Recycle）に関する取り組みを通じて最終処分されるごみの量をできるだけ削減するとともに、排出されたごみを適切に管理することを目指しています。また同法律では、2006年2月までに全ての不適切な最終処分場を衛生埋立処分場に移行することを決めました。

しかしながら、法律で定められている内容に対する地方自治体の関係者の理解が十分でないことや、財政的・技術的な制約から施設整備が十分に進んでおらず、全国に約1,600ある地方自治体のうち、法律で求められている適切な廃棄物の管理が行われている自治体は10%未満と、非常に限られた数に留まっていました。

当機構はこれまでも、RA9003の促進を目的として設置された国家固形廃棄物管理委員会（NSWMC）に対する専門家派遣等を通じて、廃棄物管理に関するガイドラインの整備などの支援を行ってきましたが、地方自治体が抱える課題を改善するべく、2007年10月から3年間、地方の3都市およびNSWMCの能力強化を目的とした技術協力プロジェクト「地方都市における適正固形廃棄物管理プロジェクト」を実施しています。

今般、本プロジェクト実施期間の中間点にさしかかり、当機構は、活動の進捗状況、成果の達成状況・見込みを確認するとともに、今後の持続的な発展を考慮したプロジェクトの方向性、実施方法を検討する目的で、天野史郎国際協力専門員を団長とする中間レビュー調査を2009年5月20日から6月25日まで実施しました。本報告書はその調査結果をまとめたものであり、今後のプロジェクト実施にあたって活用されることを願うものです。

ここに、本調査にご協力いただいた内外の関係各機関の方々に深く謝意を表するとともに、今後のプロジェクトの運営にあたり、引き続き一層のご支援をお願いする次第です。

2009年7月

独立行政法人国際協力機構

フィリピン事務所 松田 教男

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付属資料：ミニッツ／合同評価報告書（英文）

# プロジェクトサイトの位置図



略 語

ATP	Affordability to Pay	支払い可能額
CAS	Country Assistance Strategy	国別援助戦略
CENRO*	City Environment and Natural Resources Office	市環境天然資源局
CSSDO	City Social Services and Development Office	市社会サービス開発局
CSWMB	City Solid Waste Management Board	市固形廃棄物管理委員会
CSWMO	City Solid Waste Management Office	市固形廃棄物管理局
C/P	Counterpart	カウンターパート
CPDO	City Planning and Development Office	市計画開発局
DAO	Department Administrative Order	省令
DBP	Development Bank of the Philippines	フィリピン開発銀行
DENR	Department of Environment and Natural Resources	環境天然資源省
DepED	Department of Education	教育省
ECC	Environmental Compliance Certificate	環境適合証明書
EIA	Environmental Impact Assessment	環境影響評価
EMB	Environmental Management Bureau	環境管理局
ESWM	Ecological Solid Waste Management	生態的固形廃棄物管理
FASPO	Foreign-Assisted and Special Projects Office	海外援助特別事業局
IEC	Information, Education and Communication	情報・教育・コミュニケーション
IEE	Initial Environmental Examination	初期環境評価
IRA	Internal Revenue Allotment	内国歳入割当金
JCC	Joint Coordinating Committee	合同調整委員会
JFY	Japanese Fiscal Year	日本会計年度
JICA	Japan International Cooperation Agency	国際協力機構
LBP	Land Bank of the Philippines	フィリピン土地銀行
LGU	Local Government Unit	地方自治体
MGB	Mines and Geosciences Bureau	鉱山地質局
M/M	Minutes of Meeting	会議議事録
MRF	Material Recovery Facility	ごみ分別施設
MTPDP	Medium-Term Philippine Development Plan	中期フィリピン開発計画
NEC	National Ecology Center	ナショナル・エコロジー・センター
NEDA	National Economic Development Authority	国家経済開発庁
NSWMC	National Solid Waste Management Commission	国家固形廃棄物管理委員会
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
PENRO	Provincial Environment and Natural Resources Office	州環境天然資源省
PO	Plan of Operation	活動計画表
RA	Republic Act	共和国法
R/D	Record of Discussion	討議議事録
REC	Regional Ecology Center	リージョナル・エコロジー・センター
SLF	Sanitary Landfill	衛生埋立処分場
SWM	Solid Waste Management	固形廃棄物管理
TWG	Technical Working Group	技術作業グループ
WACS	Waste Amount and Characterization Survey	ごみ量ごみ質調査
WD	Waste Diversion	ウェイストダイバージョン
WDR	Waste Diversion Rate	ウェイストダイバージョン率
WTP	Willingness to Pay	支払い意志額

\*CENRO は本プロジェクトでは、市の行政組織の一部としてダバオ市の場合は廃棄物処理を担当し、サガイ市では環境社会配慮を担当する組織を指す。

## 評価調査結果要約表

<b>1. 案件の概要</b>	
国名：フィリピン共和国	案件名：地方都市における適正固形廃棄物管理プロジェクト
分野：廃棄物管理	援助形態：技術協力プロジェクト
所管部署：JICA フィリピン事務所	協力金額（評価時点）：3億円
協力期間	2007年10月24日～2010年10月23日
	先方関係機関：環境天然資源省（DENR）、国家固形廃棄物管理委員会（NSWMC）、サガイ市、カルバヨグ市、ダバオ市
	日本側協力機関：株式会社エヌジェーエス・コンサルタンツ
他の関連協力：	
<ol style="list-style-type: none"> <li>1) 開発調査「フィリピン国マニラ首都圏固形廃棄物処理計画調査」1997～1999年</li> <li>2) 専門家「固形廃棄物管理行政」（NSWMC）2003～2006年</li> <li>3) 在外基礎調査「固形廃棄物管理適正処理施設整備を促す優先都市選定調査」2004年4～11月</li> <li>4) 開発調査「ボラカイ島地域固形廃棄物管理計画調査」（2007年3月～2008年2月）（F/U 2009年8月～2010年3月）</li> <li>5) 円借款「地方自治体支援政策金融事業」（1998～2006年）、「産業公害防止支援政策金融事業」（1999年～2002年）、「環境開発事業」（2008年～）</li> </ol>	
<b>1. 1 協力の背景と概要</b>	
<p>フィリピン国（以下「フィ」国）では、環境問題、特に固形廃棄物に関する問題は、公衆衛生レベルの低下など社会問題となっており、マニラ首都圏のみならず地方においても深刻な問題となっている。「フィ」国は2001年に固形廃棄物管理法（RA9003）を施行し、地方自治体の責任のもとで、分別収集や資源の有効利用・リサイクルを通じて固形廃棄物の最終処分量を削減を目指すこととした。さらに同法の中で、2006年2月までに全ての処分場を衛生埋立てに移行することを定めるとともに、同法の施行促進を目的として、国家固形廃棄物管理委員会（NSWMC）を設置した。</p> <p>しかしながら、全国に約1,600ある地方自治体のうち、RA9003で定められた衛生埋立処分場への移行を完了し、適切な運営・維持管理を行っている地方自治体は施行後6年を経ても10%にも満たない状況にあった。この背景には、地方自治体の財政的および技術的な制約から、施設整備が十分に進んでいないことにあわせ、地方自治体関係者がRA9003の求める固形廃棄物管理に対する理解が十分ではなく、廃棄物管理を行うための組織・人材育成が進んでいないことが要因として考えられている。</p> <p>これらの背景を受け、「フィ」国は廃棄物の有効活用と適正な管理を目指すRA9003の理念に基づいた実践的な廃棄物管理手法を確立することを目指し、固形廃棄物管理の責任を担う地方自治体の廃棄物管理部局の職員の能力強化を図るため、日本国政府に対し技術協力プロジェクトの実施を要請した。その結果、2007年10月に、3年間の予定で当該プロジェクトが開始された。</p>	

本プロジェクトでは、6名の日本人専門家（チーフアドバイザー／固形廃棄物管理計画、ウェイストダイバージョン計画、最終処分場計画、財務分析、環境教育、環境社会配慮）が、対象都市として選ばれたサガイ市、カルバヨグ市、ダバオ市において、RA9003の目指す固形廃棄物管理の達成に向けて活動が実施された。さらに、RA9003の施行が強化されるよう、3都市での活動の成果を活かしたNSWMCの能力向上が図られた。

## 1. 2 協力内容

RA9003の目指す固形廃棄物管理の達成に向け、対象都市として選ばれたサガイ市、カルバヨグ市、ダバオ市において衛生埋立処分場の維持管理や、ごみ分別施設（Material Recovery Facility(MRF)）における情報・教育・コミュニケーション（Information, Education and Communication (IEC)）活動等を通じて3R（Reuse, Reduce, Recycle）の実践について技術指導を行うとともに、NSWMCに対してはこれら活動の成果を反映させたガイドライン作成等の計画策定能力向上支援を行った。

### (1) 上位目標

サガイ市、カルバヨグ市、ダバオ市のそれぞれの市における固形廃棄物管理の経験と知見が、他の地方自治体において実施される。

### (2) プロジェクト目標

サガイ市、カルバヨグ市、ダバオ市のそれぞれの市において固形廃棄物管理システムが確立する。

### (3) 成果

1. 地方自治体における固形廃棄物管理計画能力が強化される。
2. 固形廃棄物の減量化（ダイバージョン）システムが改善される。
3. 最終処分システムが改善される。

### (4) 投入（評価時点）

日本側：総投入額 3.66 億円

短期専門家派遣： 6人

研修員受入： 計6人

機材供与： 水質分析、車両、デジタルカメラ、パソコン、プロジェクター、コンポスター、シュレッダー等

その他（プロジェクト活動費）

現地活動費： 計 21,586,776 ペソ

フィリピン側：

C/P： サガイ市 6 名、カルバヨグ市 9 名、ダバオ市 7 名

その他： マニラおよび対象 3 都市におけるプロジェクト事務所  
スペース、パイロット MRF の運転管理費、サガイ市・  
カルバヨグ市の最終処分場のための環境適合証明書  
(Environmental Compliance Certificate (ECC)) 取  
得手続き費用および建設費等

## 2. 評価調査団の概要

調査者	総括	天野 史郎	JICA 国際協力専門員 (廃棄物分野)	
	評価分析	東中川 敏	日本工営株式会社 環境技術部	
	廃棄物管理	小槻 倫子	国際航業 (株) 国際協力事業部	
	評価管理	岩瀬 誠	JICA フィリピン事務所 所員	
	評価調整	Sealdi Calo	JICA フィリピン事務所 プログラムオフィサー	
調査期間	2009 年 5 月 20 日～2009 年 6 月 26 日		評価種類	中間レビュー

## 3. 評価結果の概要

### 3. 1 実績の確認

#### (1) プロジェクト目標

中間評価レビュー時における、プロジェクト目標の達成に向けた対象自治体による活動成果の確認ができた。

サガイ市及びカルバヨグ市の固形廃棄物管理計画に対する NSWMC の承認はまだ得られていないが、各市では同計画に明記されている活動計画及びプログラムを具現化し始めている。具体的には、パイロット MRF の建設及び稼働及び IEC キャンペーン、衛生埋立処分場の計画及び設計等である。ダバオ市では、日本人専門家の提案を参考に、市による衛生埋立処分場の建設が進められている。

今後、プロジェクト目標を達成するために、廃棄物管理計画に明記されている活動計画及びプログラムの実施に際し、衛生埋立処分場の運営開始時期、選挙による影響、予算確保のメカニズムの構築などの懸念事項があることから、プロジェクトへの影響について注視する必要がある。

#### (2) 成果

成果 1： 一部の指標について十分な情報が得られなかったものの、3 つの指標の達成度か

ら、成果1はある程度達成されたといえる。

**指標 1.1: 固形廃棄物管理計画が市議会により承認される。(サガイ市、カルバヨグ市)**

**JICA 専門家の提案がダバオ市の担当職員に理解される。(ダバオ市)**

サガイ市及びカルバヨグ市は、日本人専門家の指導の下に OJT を通じて固形廃棄物管理計画を策定し、2009年3月に NSWMC に提出している。一方、同計画をすでに作成しているダバオ市では、日本人専門家の意見を参考に、新規最終処分場の水質モニタリング計画や新規処分場の運営維持管理計画の策定などの技術面の計画策定を開始した。

**指標 1.2: 協力対象3自治体の固形廃棄物管理担当者を対象としたワークショップやセミナーが7回開催される。**

ワークショップは、2007年11月、2008年6月の2回にわたって開催され、近隣自治体、PENRO、CENRO 及び各市のバランガイから代表者が参加した。C/P が発表を行うことで、関係者間に密接な関係が築かれた。技術移転セミナーは、サガイ市とダバオ市では2008年2月、カルバヨグ市では2008年3月に開催され、近隣自治体、PENRO、CENRO 及び各市のバランガイの代表者等を対象に、廃棄物管理計画の策定に関するプレゼンテーションを行った。各都市で実施されたワークショップ及びセミナーはサガイ市及びダバオ市で各3回、カルバヨグ市では2009年6月に開催されたワークショップを含めると4回である。また、バランガイサミットは2008年7月にダバオ市で開催され、市のバランガイの代表者が招待され、出席した。サガイ市及びカルバヨグ市では、バランガイサミットがプロジェクト後半に開催される。

**指標 1.3: 廃棄物管理計画策定マニュアル**

廃棄物管理計画策定マニュアルの準備は2010年4～10月に計画されているが、NSWMC が早期に実施するように要請したため、2009年度に開始される予定である。プロジェクトで得られた各市の知見をまとめてマニュアルにインプットするため、NSWMC は3市の C/P を含めた TWG を立ち上げた。

成果2: パイロット MRF が整備され稼動を開始しており、バランガイレベルでのワークショップも開催したことから、ある程度達成しているといえる。

**指標 2.1: プロジェクト終了までに、固形廃棄物の減量化(ダイバージョン)率が25%となる。(サガイ市、カルバヨグ市)**

**パイロット MRF が選定されたバランガイにおいて建設される。(ダバオ市)**

WDR のベースラインは、カルバヨグ市では確認されたが、サガイ市では未確認である。サガイの廃棄物管理計画では2008年の WDR が一方では25%以上で他方

では 25%以下となっており、現在の WDR のベースラインデータは不明瞭である。また、専門家から働きかけを行ったものの、中間レビュー調査の時点で両市とも WDR のデータを更新しておらず、WDR の傾向は不明であったため、到達したか否かについては不明である。

パイロット MRF は 2009 年 2 月に完成し、市及びバランガイの職員によって稼動している。MRF 職員によるとパイロット MRF の稼動状況は良好である。運転時には、おが屑、ココナツ屑や動物の糞尿などで成分調整を行い、堆肥化プロセスを改善している。この MRF はデモンストレーション用として整備されたので、MRF に設置したコンポスターは大きな収容力を持っていない。このため、職員はドラム缶方式や野積み方式などの適用可能な方式を検討している。ダバオのジャンクショップは、対象バランガイへのアクセス許可を持たないため、区域内で発生する資源ごみは一旦 MRF で回収されジャンクショップに売却されている。

**指標 2.2: 3R 活動についてのワークショップが、パイロット MRF のあるバランガイにおいて 7 回開催される。**

パイロット MRF の運営ルールを決めるため、C/P 及び対象バランガイの住民等の参加を得て、2008 年 11 月にワークショップを開催した。また、2009 年 2 月の MRF 機材検証及び引渡しの際に、バランガイの住民に対して MRF 運営にかかる研修を実施した。パイロット MRF の運転が始まったので、今後は、運転方法の改善や他のバランガイへ知見を広めるためのワークショップがプロジェクト後半で開催される予定である。現在までに各市とも、対象バランガイに対するワークショップを 2 回以上開催した。

**指標 2.3: 3R (Reduce, Reuse, Recycle) に関する IEC キャンペーンが、収集区域のすべてのバランガイにおいて実施される。(サガイ市、カルバヨグ市)**

**3R (Reduce, Reuse, Recycle) に関する IEC キャンペーンが、主要なバランガイにおいて実施される。(ダバオ市)**

市からの職員の派遣、IEC 教材の準備、IEC 機材の調達など、IEC 実施のための準備作業は 2009 年 3 月までに終了し、IEC キャンペーンは 2009 年 6 月に開始された。IEC キャンペーンは社会啓発活動及び学校での環境教育の 2 つに分けられる。社会啓発活動は、パイロット MRF が建設されたバランガイを対象とし、その後ごみ収集区域内のバランガイに拡張する予定である。IEC キャンペーン計画によるとプロジェクトで対象とするバランガイの数はサガイ市で 6 箇所、カルバヨグ市で 12 箇所、ダバオ市で 44 箇所である。また、学校での環境教育については、キャンペーンの対象となるバランガイに位置する小学校から高等学校には、環境教育のための教科書が配布される。さらに、2009 年 6 月には、教師を対象とした環境教育の実施方法に関する研修が開始された。サガイ市、カルバヨグ市の PDM 指標 2.3 では収集区域の全てのバランガイが対象となっているが、IEC キャンペーンの対象となるバランガイの数がそれぞれ 12 箇所と 22 箇所になっていることから、IEC キャンペーン対象バランガイの数と指標 2.3 に記載されているバランガイの数に矛盾がある。ダバオについては、指標 2.3 で「主要なバランガイ」となっていることから、対象バランガイを特定して到達度のレベルを確認することができ

なかった。

**指標 2.4: パイロット MRF が選定されたバラングイにおいて建設され運営される。(サガイ市、カルバヨグ市)**

上述の通り、パイロット MRF は 2009 年 2 月に完成しており、稼働状況は良好である。ただし、サガイ市及びカルバヨグ市では、資源ごみのほとんどがジャンクショップによって回収されるので、MRF では資源ごみが回収できない。

成果 3 : 成果 3 はある程度達成したと言える。

**指標 3.1: 衛生埋立処分場 RA9003 に沿って建設、運営される。(サガイ市、カルバヨグ市)**

サガイ市及びカルバヨグ市では、衛生埋立処分場の設計図面、技術仕様、概算費用及び入札関連文書からなる設計図書を 2008 年 9 月に作成した。残っている重要な課題は、サガイ市においては ECC の承認、カルバヨグ市ではローンの支払い承認である。サガイ市については、2008 年 12 月に IEE チェックリストを提出した後で、DENR 鉱山地学局による候補地の地質調査が必要なことがわかった。2009 年 6 月 4 日に同局による調査が実施され、6 月中に ECC が発効する予定である。衛生埋立処分場の建設は、ECC の発効後すぐに開始される。サガイ市は、既に処分場へのアクセス道路の改良を開始し、追加の IRA (内国歳入割当金) を用いた建設費用を申請中である。カルバヨグ市については、衛生埋立処分場のローンは、基本的にフィリピン開発銀行により承認されており、フィリピン開発銀行の支払い方法の確定後、すぐに入札プロセスを開始する予定である。

**指標 3.2: 既存処分場の安全閉鎖と衛生埋立処分場の概念及び設計に技術ガイドブックが更新される。(サガイ市、カルバヨグ市)**

NSWMC が当初の予定より早期の作成を望んだため、前述した廃棄物管理計画策定マニュアルと同様に、衛生埋立処分場及び処分場の安全閉鎖に関するガイドブックの更新も 2009 年度より開始される予定である。NSWMC は TWG を設立し、プロジェクトで得られた知見を生かすために 3 都市をそのメンバーに加える予定である。3 都市には、マニュアル策定及びガイドブックを更新するため、プロジェクトで得られたデータ及び知見を共有することが望まれる。

**指標 3.3: 衛生埋立処分場の運営・維持管理に関するマニュアルが整備される。**

ダバオ市では、衛生埋立処分場の運営、維持、管理に関するマニュアルの作成を行う。また、同市は建設業者から提出された運営マニュアルの精査を開始した。

### 3. 2 評価結果の要約

#### (1) 妥当性

本プロジェクトは、「フィ」国の政策、各都市のニーズ、日本の ODA 政策に照らし合わせて高い妥当性が保たれているものと判断できる。

「フィ」国の政策に関しては、中期フィリピン国開発計画 (MTPDP2004-2010)は、廃棄物管理を環境セクターの課題の一つとして位置づけている。また MTPDP は、LGU が RA9003 を完全に実施できるよう支援を行うことの重要性について述べている。

RA9003 によると、各 LGU は固形廃棄物管理システムの確立を求められているが、ほとんどの LGU がそれを行うに十分な能力を有しておらず、対象 3 都市も例外ではない。しかし対象 3 都市はすでに RA9003 の遵守に向け、それぞれ市条例を策定し、カルバヨグ市とダバオ市においては廃棄物管理計画の策定にも取り組んでいた。さらに、3 都市は「フィ」国内の異なる地域に位置し、そこでの活動はより多くの他の LGU へ影響が及ぶものと期待された。

日本の政策と比較すると、『「フィ」国の支援計画』(外務省による)では、環境問題は優先分野の一つである。さらに、「フィ」国の国別支援方針(「フィ」国の ODA タスクフォースのワーキングペーパー)では、廃棄物管理は支援の対象分野の 1 つとなっている。

#### (2) 有効性

中間レビューの時点においては、廃棄物管理計画の実施状況、WDR、処分場の運営状況などの有効性を判断するために必要となる十分なデータがそろっていないのが現状である。

なお、廃棄物管理の活動計画及びプログラムには、プロジェクトで計画した活動以外のものも含まれていたため、指標を明確にする必要がある。また、プロジェクト目標の到達がこの指標によって証明できるかも懸念される。

また、プロジェクトで計画された活動を実施するための十分な予算確保が懸念であり、このためには提案されている料金徴収制度が実施されることが条件になる。さらに、次年度の総選挙により廃棄物管理に関わる組織改編などの影響を受けないことが有効性を保つための条件となる。

#### (3) 効率性

インタビュー調査によると、人材の投入及びその時期、研修内容、供与機材とその利用状況については、今までのところ全体として満足できるものである。そのため、

本プロジェクトの効率性は、中間レビューにおいてはほぼ満足のいくものであるといえる。

しかし、新規処分場の完工が延期になる場合、本プロジェクト期間内で十分な処分場の維持管理研修を実施するのは難しい可能性がありトレーニングの方法について検討が必要である。

#### (4) インパクト

プロジェクトの中間地点において上位目標の到達レベルについて評価するのは時期尚早ではあるが、次のような正及び負のインパクトを確認できた。

##### (a) 正のインパクト

- ・プロジェクトを通じて、近隣の自治体からの訪問者がパイロット MRF の稼動状況の見学に訪れた。
- ・技術セミナーが開催され、近隣の自治体から多数の参加者があった。そのため、プロジェクトの知見が他の自治体に波及した。
- ・サガイ市では、残渣ごみだけを受け入れる新規衛生埋立処分場の共同利用について、近隣の自治体と協議を行った。
- ・カルバヨグ市長は、現在フィリピン国の全国市長連盟の事務局長であり、連盟の活動を通じて同市の廃棄物管理のグッドプラクティスを他の自治体に広めることができる。

##### (b) 負のインパクト

- ・サガイ市及びカルバヨグ市の既存処分場の閉鎖に伴い、現在活動しているウェイトピッカーが失職するなど負のインパクトが生じる可能性があるが、その場合には低減策としてウェイトピッカーへの生計改善プログラムを策定する予定である。

#### (5) 自立発展性

本プロジェクトの自立発展性を評価するのは時期尚早ではあるが、今後、自立発展性を確保する上で必要な項目を次に掲げる。

- ・ NSWMC は、RA9003 実施のため各 LGU を技術及び財務面で支援する責務があり、その能力開発が必要である。
- ・ 本プロジェクトにおいて、マニュアルの整備及びガイドブックの改訂同様に技術移転

セミナー及びワークショップを通じた近隣の LGU と知見の共有を継続することが必要である。

- ・ 廃棄物管理計画で提案されたように、財務計画に適合するごみ料金徴収システムの改善は、財務面での自立発展性を担保する上で必要である。
- ・ 自治体、 balanガイ・キャプテン、学校教育関係者等、廃棄物管理の関係者が本プロジェクトに積極的に参加していたが、このことは自立発展性を促すものである。
- ・ 衛生埋立処分場の維持管理に関する能力開発が本プロジェクトの後半において必要である。

### 3-5 結論

- ・ プロジェクトの進捗状況および達成度合いは、いくつかの外部要因（環境保証証明書の追加取得、フィリピン開発銀行によるローン承認の遅れ、廃棄物管理計画の NSWMC での承認の遅れなど）があるにも関わらず、中間レビュー時点では十分といえる状況である。また、プロジェクトサイトが 4 箇所（サガイ、カルバヨグ、ダバオおよび NSWMC）と分かれており、各 C/P との業務に対応するために専門家チームを分けて配置せざるを得ない状況の中で上述のプロジェクト状況を達成しているのは、日本人専門家チームによる戦略的なプロジェクトの運営管理、技術的な専門性の高さ、そしてカウンターパートの積極的な関与によるところが大きい。
- ・ C/P の技術的な改善も十分であるといえる。しかしながら、その知識は文書からの理論的な知識に限定されていることから、プロジェクト後半では実務面での能力の改善がとても重要となる。
- ・ プロジェクトは近隣の地方自治体にもいくつかの成果をもたらしている。プロジェクトで得た知識・経験の普及に向けて、プロジェクト後半も引き続き、C/P の継続的な貢献が必要である。さらに、自治体による RA9003 の遵守を促進するためマニュアル、ガイドブックの作成に向けた組織的な仕組みを強化することが期待される。
- ・ 各 3 都市においては、廃棄物管理計画を具現化し、プロジェクトの活動を実施していくためには、料金徴収システムの導入など財政的な対策を講じる必要がある。また、廃棄物管理政策の継続性の確保や衛生埋め立て処分場での環境社会配慮面へのしかるべき対応は、プロジェクトの自立発展性の観点で重要である。

### 3-6 提言

（実施プロセスの改善）

- ・ プロジェクト前半の活動の進捗状況および各都市における廃棄物管理の状況の違いを考慮し、中間レビュー調査の結果に基づき、調査団は現行の PDM (Ver.2) を修正することを提案した。
- ・ 現行の活動計画 (PO) は、2007 年 7 月の R/D 署名時点から更新されていないことから、修正版の PDM (Ver.3) に基づき、調査団は変更点を PO に反映するように提言した。
- ・ プロジェクト後半には、NSWMC との協力の下、プロジェクト活動の成果について取りまとめるための様々な活動が予定されている。したがって、調査団は NSWMC に対して、3 市との緊密な連携のもと、プロジェクト活動の成果を取りまとめるとともに、主体的役割を果たすことを求めた。
- ・ 調査団は専門家および 3 市に対して、NSWMC および EMB 地域事務所との緊密な協力の下、改訂版の PDM および PO に基づき、進捗状況を定期的にモニタリングするよう求めた。

#### (上位目標・プロジェクト目標・成果の達成状況)

- ・ NSWMC は、廃棄物管理計画の承認プロセスの LGU への周知、阻害要因の特定、関係者へのフィードバック会議の調整などを通じて、計画の承認プロセスを促進する必要がある。
- ・ 異なるコンポスト技術の提供などを通じて、それぞれのパイロット MRF から異なる教訓を引き出すことは、他のバランガイへの経験の普及という観点で重要な要素となる。
- ・ 廃棄物管理計画においてごみ料金徴収システムが提案されているが、地域住民からの理解や政治的な決定が行われていないなど、財政的な側面において解決すべき事項が残っている。調査団は、それぞれの市に対して、財政的な安定を確保するためのごみ料金徴収システムの導入について、NSWMC における承認を得るための必要な手続きを行うように提案した。
- ・ WDR は成果 2 の活動の進捗状況をモニタリングする上で重要な指標のひとつであることから、調査団はそれぞれの市に対して WDR のベースラインを設定するとともに、定期的に状況をモニタリングするように提案した。また、NSWMC に対しても、フィリピンの地方自治体による廃棄物管理の現状を適切に表すため WDR を計算するための統一的な方法を定めるように提案した。

#### (キャパシティ・ディベロップメント)

- ・ それぞれの都市におけるプロジェクトの効果の検証のため、C/P の能力強化の進捗度をモニタリングする必要があり、そのためのモニタリング体制を可能な限り速や

かに立ち上げる必要がある。

- プロジェクト実施中および終了後の適切な衛生埋立処分場の運営管理のため、衛生埋立処分場の運営管理の研修に関しては、協力対象自治体の中で速やかに実施できる場所、あるいは協力対象自治体にこだわらず、フィリピン国内において適切に運営されている処分場を活用して実施する可能性の検討を提案した。
- コミュニティーの能力強化のため、調査団はそれぞれの市の関係者の更なる巻き込みを提案した。具体的には、日本における研修の実施に当たり、パイロット MRF が位置するバランガイの関係者や NSWMC 事務局、または DENR-EMB 地域事務所の廃棄物管理コーディネーターを参加者に加えることを調査団から提案した。

# 第1章 中間レビュー調査の概要

## 1-1 背景

フィリピン国（以下「フィ」国）では、環境問題、特に固形廃棄物に関する問題は、公衆衛生レベルの低下など社会問題となっており、マニラ首都圏のみならず地方においても深刻な問題となっている。「フィ」国は2001年に固形廃棄物管理法（RA9003）を施行し、地方自治体の責任のもとで、分別収集や資源の有効利用・リサイクルを通じて固形廃棄物の最終処分量を削減することを目指すこととした。さらに同法の中で、2006年2月までに全ての処分場を衛生理立に移行することを定めるとともに、同法の施行促進を目的として、大統領府の下に国家固形廃棄物管理委員会（NSWMC）を設置した。

国際協力機構（JICA）はこれまで、廃棄物管理の行政能力の強化のために NSWMC へ専門家を派遣し、最終処分の設計・運営・管理に関する技術ガイドラインや最終処分場安全閉鎖ガイドラインを作成し、さらにまた日本におけるカウンターパート研修を実施してきた。その結果、NSWMC の廃棄物管理に係る行政能力は強化されてきた。

しかしながら、全国に約 1,600 ある地方自治体のうち、RA9003 で定められた衛生理立処分場への移行を完了し、適切な運営・維持管理を行っている地方自治体は施行後 6 年を経ても 10%にも満たない状況にあった。この背景には、地方自治体の財政的および技術的な制約から、施設整備が十分に進んでいないことにあわせ、地方自治体関係者が RA9003 の求める固形廃棄物管理に対する理解が十分ではなく、廃棄物管理を行うための組織・人材育成が進んでいないことが要因として考えられている。

これらの背景を受け、「フィ」国は廃棄物の有効活用と適正な管理を目指す RA9003 の理念に基づいた実践的な廃棄物管理手法を確立することを目指し、固形廃棄物管理の責任を担う地方自治体の廃棄物管理部局の職員の能力強化を図るため、日本国政府に対し、技術協力プロジェクトの実施を要請した。その結果、2007年10月、3年間の予定で当該プロジェクトが開始された。

本プロジェクトでは、6名の日本人専門家（チーフアドバイザー／固形廃棄物管理計画、ウェイトダイバージョン計画、最終処分場計画、財務分析、環境教育、環境社会配慮）が、対象都市として選ばれたサガイ市、カルバヨグ市、ダバオ市において、RA9003の目指す固形廃棄物管理の達成に向けて活動が実施された。さらに、3都市での活動の成果を活かして RA9003 の施行が強化されるよう、NSWMC の能力向上が図られた。

## 1-2 目的

中間レビュー調査の目的は、以下の通りである。

- プロジェクトの進捗をレビューし、妥当性、有効性、効率性、インパクト、自立発展性の5つの評価項目に基づき達成度を評価する。

- とられるべき行動を検討し、プロジェクトに対し提言を行う。
- 評価調査の結果を要約し、合同評価レポートとして取りまとめる。

### 1-3 調査団の構成

中間レビューは次から構成される中間レビュー調査団（以下「調査団」）によって実施された。

- 天野 史郎（団長） 独立行政法人国際協力機構 国際協力専門員
- 東中川 敏（評価分析） 日本工営株式会社環境技術部
- 小槻 倫子（廃棄物管理） 国際航業株式会社国際協力事業部
- 岩瀬 誠（評価管理） 独立行政法人国際協力機構 フィリピン事務所所員
- Sealdi Calo（評価調整） 独立行政法人国際協力機構 フィリピン事務所プログラムオフィサー

### 1-4 調査の日程

調査団の日本側団員は以下の日程で調査を行った。

表 1：日程（第一次現地調査）2009年5月20日～2009年5月29日

月日	曜日	活動内容	場所
		評価分析・廃棄物管理団員	
5/20	水	JICA フィリピン事務所打ち合わせ	マニラ
5/21	木	NSWMC へ移動	マニラ
		調査概要説明	
		JICA 専門家インタビュー	
		NSWMC 局長表敬	
		C/P ヒアリング	
5/22	金	カルバヨグへ移動	カルバヨグ
		調査概要説明	
		市長、副市長表敬	
		C/P ヒアリング	
		関係者ヒアリング（小学校校長、バランガイ・キャプテン等）	
		パイロット MRF、新規最終処分場、既存処分場視察	
5/23	土	マニラへ移動、報告書作成	マニラ
5/24	日	報告書作成	マニラ
5/25	月	サガイへ移動	サガイ
		調査概要説明	
		市長表敬	
		C/P ヒアリング	
5/26	火	C/P ヒアリング	サガイ
		関係者ヒアリング（小学校校長、バランガイ・キャプテン等）	

		パイロット MRF、新規最終処分場、既存処分場視察	
		マニラへ移動	
5/27	水	ダバオへ移動	ダバオ
		調査概要説明	
		市長表敬	
		C/P ヒアリング	
5/28	木	C/P ヒアリング	ダバオ
		関係者ヒアリング（小学校校長、 balanガイ・キャプテン等）	
		パイロット MRF、新規最終処分場、既存処分場視察	
		マニラへ移動	
5/29	金	JICA フィリピン事務所報告	マニラ

表 2：日程（第二次現地調査）2009年6月17日～2009年6月26日

月日	曜日	活動内容	場所
		団長・評価分析・廃棄物管理・評価管理・評価調整団員	
6/17	水	JICA フィリピン事務所打ち合わせ	マニラ
6/18	木	NSWMC へ移動	マニラ
		NSWMC 局長表敬	
		調査報告書案説明	
		JICA 専門家インタビュー	
		C/P ヒアリング	
6/19	金	ダバオへ移動	ダバオ
		市長表敬	
		調査報告書案説明	
6/20	土	パイロット MRF、新規最終処分場、既存処分場視察	ダバオ
		マニラへ移動、報告書作成	
6/21	日	報告書作成	マニラ
6/22	月	カルバヨグへ移動	カルバヨグ
		市長、副市長表敬	
		調査報告書案説明	
		パイロット MRF、新規最終処分場、既存処分場視察	
6/23	火	マニラへ移動	マニラ
		報告書作成	
6/24	水	NSWMC、対象都市、日本人専門家と協議	マニラ
6/25	木	JCC 協議	マニラ
		日本国大使館報告	
		JICA フィリピン事務所報告	マニラ

## 1-5 中間レビューの方法

### 1-5-1 中間レビューに用いた PDM および PO

プロジェクト・デザイン・マトリックス (PDM) は、プロジェクトを計画し管理するツールとして用いられる、プロジェクトの要約表である。また、活動計画表 (PO) は PDM に付随する文書であり、計画された個々の活動の実施時期を示すものである。

本プロジェクトでは、PDM と PO が以下のように作成・改訂されてきた。

- PDM (ver.0) および PO (ver.0) が R/D 締結時に署名された。
- 2007 年 12 月 12 日の第 1 回 JCC において、対象各都市の状況を踏まえ、PDMs (ver.1) が個別に作成された。
- 2008 年 9 月 22 日の第 2 回 JCC において、PDMs (ver.2) がやはり対象の各都市に対して個々に作成された。これに基づいて中間レビュー調査を行った。
- 中間レビュー調査団の提案を受けて、2009 年 6 月 25 日の第 4 回 JCC において、3 都市共通に適用される PDM (ver.3) が作成され、これを元に対象の各都市に対して個々の POs (ver.1) が作成された。

### 1-5-2 評価項目

#### プロジェクトの達成度と実施プロセス

投入、成果、プロジェクト目標、上位目標の達成度を、PDMs (ver.2) および PO (ver.0) を参照してプロジェクトの進捗状況を確認することにより評価した。プロジェクトの実施状況についても、プロジェクトにおけるモニタリング活動やコミュニケーションの様子といった観点から評価した。

#### 評価項目

プロジェクトの達成度ならびに実施プロセスの確認に加えて、中間レビュー調査は以下の 5 つの評価項目に沿ってプロジェクトを評価した。

- (1) 妥当性: プロジェクトの妥当性は、政府の開発政策やターゲットグループのニーズを踏まえて上位目標に対するプロジェクト目標の正当性から評価する。
- (2) 有効性: 有効性は、プロジェクト目標と成果との関連性を明らかにしながら、プロジェクトがどの程度プロジェクト目標を達成したのかを検証することにより評価する。
- (3) 効率性: プロジェクト実施の効率性は、投入がそのタイミング、質、量といった点において成果とどのような関連を有するに着目して分析する。

- (4) インパクト: プロジェクトのインパクトは、プロジェクトによってもたらされた正負のインパクト、意図していたインパクト、予期していなかったインパクトを評価する。
- (5) 自立発展性: プロジェクトの自立発展性は、プロジェクト完了後にプロジェクトによって達成された効果が持続するかについて、制度的、財務的、技術的に評価する。

### 1-5-3 評価調査の方法

上記の評価項目を考慮して、調査団はまず評価グリッドを作成した。評価グリッドはプロジェクトを評価する際に回答を得るべき質問事項あるいは収集すべき情報を整理したものである。評価グリッドを基に、カウンターパート向けおよび日本人専門家向けの質問票を作成した。質問票は調査団が「フィ」国に訪れる前に配布・回収された。

「フィ」国では、調査は概ねカウンターパートと日本人専門家への聞き取りによって実施された。情報は、 balan g ai 関係者や学校の教師などのプロジェクト関係者からも得られた。調査団はまた、既存の廃棄物処分場、新規の衛生埋立処分場、パイロット MRF を視察し、プロジェクト実施のために供与された機材の活用状況を確認した。

収集した情報は分析した後、評価グリッドにまとめられ、これを調査結果の基礎資料としてさらに評価調査報告書（英文）を作成した。評価調査報告書（英文）は協議議事録（M/M）に添付資料として添えられた。

## 第2章 プロジェクトの概要

プロジェクトは2007年10月に開始され、1年6ヶ月が経た時点で本中間レビューが実施された。PDM (ver.2)で期待された上位目標、プロジェクト目標、成果は、以下の通りである。

### 2-1 上位目標

サガイ市、カルバヨグ市、ダバオ市のそれぞれの市における固形廃棄物管理の経験と知見が、他の地方自治体において実施される。

### 2-2 プロジェクト目標

サガイ市、カルバヨグ市、ダバオ市のそれぞれの市において固形廃棄物管理システムが確立する。

## 2-3 成果

1. 地方自治体における固形廃棄物管理計画能力が強化される。
2. 固形廃棄物の減量化（ダイバージョン）システムが改善される。
3. 最終処分システムが改善される。

## 第3章 達成度と実施プロセス

### 3-1 投入

#### 3-1-1 日本側の投入

##### (1) 日本人専門家

次のような専門家が派遣されている。詳しくは、英文評価調査報告書の Annex 4 を参照。

- チーフアドバイザー／廃棄物管理
- ごみ減量化（ウェイストダイバージョン）計画
- 最終処分計画
- 環境教育
- 財務分析
- 環境社会配慮／業務調整

##### (2) 日本におけるカウンターパート研修

日本におけるカウンターパート研修は、2008年10月27日～2008年11月15日、および2009年10月5日～24日の2回実施された。それぞれ、対象3都市それぞれから2名、合計12名が参加した。詳細は英文評価調査報告書 Annex 4 に示した。

##### (3) 機材供与

供与した機材は英文評価調査報告書 Annex 4 に示した。IEC キャンペーン教材、環境モニタリング用機器、MRF の施設と機材などである。

##### (4) 現地再委託

いくつかの業務はプロジェクトによって再委託されている。それらの詳細は英文評価調査報告書 Annex 4 に示した。

### 3-1-2 フィリピン側の投入

#### (1) カウンターパート人材

対象3都市はプロジェクト活動の各分野（廃棄物管理計画、ウェイストダイバージョン、最終処分、財務分析、環境教育（IEC）、環境社会配慮）を担当するカウンターパートを配置し、タスクチームを形成した。

NSWMC は各都市の活動の調整役として3名の職員をプロジェクトに配置した。各地域のEMB 地域事務所に配置されている廃棄物管理コーディネーターは、セミナー及びワークショップの参加を通じて本事業に携わっている。

これらカウンターパートの詳細は英文評価調査報告書 Annex 5 に示した。

#### (2) ローカルコスト

フィリピン側負担のローカルコストは、人件費、供与車輛の運転手と燃料、ECC 取得費用などに支出された。

### 3-2 プロジェクトの達成度

プロジェクト目標、成果、上位目標の達成度を、PDMs (ver.2)に示された指標を用いて評価した。

#### 3-2-1 プロジェクト目標

**『サガイ市、カルバヨグ市、ダバオ市のそれぞれの市において固形廃棄物管理システムが確立する。』**

中間評価レビュー時における、プロジェクト目標の達成に向けた対象自治体による活動成果の確認ができた。

サガイ市及びカルバヨグ市の固形廃棄物管理計画に対する NSWMC の承認はまだ得られていないが、各市では同計画に明記されている活動計画及びプログラムを具現化し始めている。具体的には、パイロット MRF の建設及び稼働及び IEC キャンペーン、衛生埋立処分場の計画及び設計等である。ダバオ市では、日本人専門家の提案を参考に、市による衛生埋立処分場の建設が進められている。

今後、プロジェクト目標を達成するために、廃棄物管理計画に明記されている活動計画及びプログラムの実施に際し、衛生埋立処分場の運営開始時期、選挙による影響、予算確保のメカニズムの構築などの懸念事項があることから、プロジェクトへの影響について注視する必要がある。

### 3-2-2 成果

#### 成果 1. 地方自治体における固形廃棄物管理計画能力が強化される。

一部の指標について十分な情報が得られなかったものの、3つの指標の達成度から、成果1はある程度達成されたといえる。

指標 1.1: 固形廃棄物管理計画が市議会により承認される。(サガイ市、カルバヨグ市)

JICA 専門家の提案がダバオ市の担当職員に理解される。(ダバオ市)

サガイ市及びカルバヨグ市は、日本人専門家の指導の下に OJT を通じて固形廃棄物管理計画を策定し、2009年3月に NSWMC に提出している。一方、同計画をすでに作成しているダバオ市では、日本人専門家の意見を参考に、新規最終処分場の水質モニタリング計画や新規処分場の運営維持管理計画の策定などの技術面の計画策定を開始した。

指標 1.2: 協力対象 3 自治体の固形廃棄物管理担当者を対象としたワークショップやセミナーが 7 回開催される。

ワークショップは、2007年11月、2008年6月の2回にわたって開催され、近隣自治体、PENRO、CENRO 及び各市のバラングイから代表者が参加した。C/P が発表を行うことで、関係者間に密接な関係が築かれた。技術移転セミナーは、サガイ市とダバオ市では 2008年2月、カルバヨグ市では 2008年3月に開催され、近隣自治体、PENRO、CENRO 及び各市のバラングイの代表者等を対象に、廃棄物管理計画の策定に関するプレゼンテーションを行った。各都市で実施されたワークショップ及びセミナーはサガイ市及びダバオ市で各3回、カルバヨグ市では 2009年6月に開催されたワークショップを含めると4回である。また、バラングイサミットは 2008年7月にダバオ市で開催され、市のバラングイの代表者が招待され、出席した。サガイ市及びカルバヨグ市では、バラングイサミットがプロジェクト後半に開催される。

指標 1.3: 廃棄物管理計画策定マニュアル

廃棄物管理計画策定マニュアルの準備は 2010年4~10月に計画されているが、NSWMC が早期に実施するように要請したため、2009年度に開始される予定である。プロジェクトで得られた各市の知見をまとめてマニュアルにインプットするため、NSWMC は3市の C/P を含めた TWG を立ち上げた。

#### 成果 2. 固形廃棄物の減量化（ダイバージョン）システムが改善される

パイロット MRF が整備され稼働を開始しており、バラングイレベルでのワークショップも開催したことから、ある程度達成しているといえる。

指標 2.1: プロジェクト終了までに、固形廃棄物の減量化（ダイバージョン）率が 25%となる。(サガイ市、カルバヨグ市)

## パイロット MRF が選定されたバランガイにおいて建設される。(ダバオ市)

WDR のベースラインは、カルバヨグ市では確認されたが、サガイ市では未確認である。サガイの廃棄物管理計画では 2008 年の WDR が一方では 25%以上で他方では 25%以下となっており、現在の WDR のベースラインデータは不明瞭である。また、専門家が働きかけを行ったにも関わらず、中間レビュー調査の時点で両市とも WDR のデータを更新しておらず WDR の傾向は不明であったため、到達したか否かについては不明である。

パイロット MRF は 2009 年 2 月に完成し、市及びバランガイの職員によって稼動している。MRF 職員によるとパイロット MRF の稼動状況は良好である。運転時には、おが屑、ココナツ屑や動物の糞尿などで成分調整を行い、堆肥化プロセスを改善している。この MRF はデモンストレーション用として整備されたので、MRF に設置したコンポスターは大きな収容力を持っていない。このため、職員はドラム缶方式や野積み方式などの適用可能な方式を検討している。ダバオのジャンクショップは、対象バランガイへのアクセス許可を持たないため、区域内で発生する資源ごみは一旦 MRF で回収されジャンクショップに売却されている。

### 指標 2.2: 3R 活動についてのワークショップが、パイロット MRF のあるバランガイにおいて 7 回開催される。

パイロット MRF の運営ルールを決めるため、C/P 及び対象バランガイの住民等の参加を得て、2008 年 11 月にワークショップを開催した。また、2009 年 2 月の MRF 機材検証及び引渡しの際に、バランガイの住民に対して MRF 運営にかかる研修を実施した。パイロット MRF の運転が始まったので、今後は、運転方法の改善や他のバランガイへ知見を広めるためのワークショップがプロジェクト後半で開催される予定である。現在までに各市とも、対象バランガイに対するワークショップを 2 回以上開催した。

### 指標 2.3: 3R (Reduce, Reuse, Recycle) に関する IEC キャンペーンが、収集区域のすべてのバランガイにおいて実施される。(サガイ市、カルバヨグ市)

3R (Reduce, Reuse, Recycle) に関する IEC キャンペーンが、主要なバランガイにおいて実施される。(ダバオ市)

市からの職員の派遣、IEC 教材の準備、IEC 機材の調達など、IEC 実施のための準備作業は 2009 年 3 月までに終了し、IEC キャンペーンは 2009 年 6 月に開始された。IEC キャンペーンは社会啓発活動及び学校での環境教育の 2 つに分けられる。社会啓発活動は、パイロット MRF が建設されたバランガイを対象とし、その後ごみ収集区域内のバランガイに拡張する予定である。IEC キャンペーン計画によるとプロジェクトで対象とするバランガイの数はサガイ市で 6 箇所、カルバヨグ市で 12 箇所、ダバオ市で 44 箇所である。また、学校での環境教育については、キャンペーンの対象となるバランガイに位置する小学校から高等学校には、環境教育のための教科書が配布される。さらに、2009 年 6 月には、教師を対象とした環境教育の実施方法に関する研修が開始された。サガイ市、カルバヨグ市の PDM 指標 2.3 では収集区域の全てのバランガイが対象となっているが、IEC キャンペーンの対象となるバランガイの数がそれぞれ 12 箇所と 22 箇所になっていることから、IEC キャンペーン対象バランガイの数と指標 2.3 に記載されているバランガイの数に矛盾がある。ダバオについては、指標 2.3 で「主要なバランガイ」となっていることから、対象バランガイを特定して到達度

のレベルを確認することができなかった。

**指標 2.4: パイロット MRF が選定されたバランガイにおいて建設され運営される。(サガイ市、カルバヨグ市)**

上述の通り、パイロット MRF は 2009 年 2 月に完成しており、稼働状況は良好である。ただし、サガイ市及びカルバヨグ市では、資源ごみのほとんどがジャンクショップによって回収されるので、MRF では資源ごみが回収できない。

**成果 3. 最終処分システムが改善される。(サガイ市、カルバヨグ市)**

**衛生埋立処分場の適切な運営、維持管理が実施される。**

成果 3 はある程度達成したと言える。

**指標 3.1: 衛生埋立処分場 RA9003 に沿って建設、運営される。(サガイ市、カルバヨグ市)**

サガイ市及びカルバヨグ市では、衛生埋立処分場の設計図面、技術仕様、概算費用及び入札関連文書からなる設計図書を 2008 年 9 月に作成した。残っている重要な課題は、サガイ市においては ECC の承認、カルバヨグ市ではローンの支払い承認である。サガイ市については、2008 年 12 月に IEE チェックリストを提出した後で、DENR 鉱山地学局による候補地の地質調査が必要ながわかった。2009 年 6 月 4 日に同局による調査が実施され、6 月中に ECC が発効する予定である。衛生埋立処分場の建設は、ECC の発効後すぐに開始される。サガイ市は、既に処分場へのアクセス道路の改良を開始し、追加の IRA (内国歳入割当金) を用いた建設費用を申請中である。カルバヨグ市については、衛生埋立処分場のローンは、基本的にフィリピン開発銀行により承認されており、フィリピン開発銀行の支払い方法の確定後、すぐに入札プロセスを開始する予定である。

**指標 3.2: 既存処分場の安全閉鎖と衛生埋立処分場の概念及び設計に技術ガイドブックが更新される。(サガイ市、カルバヨグ市)**

NSWMC が当初の予定より早期の作成を望んだため、前述した廃棄物管理計画策定マニュアルと同様に、衛生埋立処分場及び処分場の安全閉鎖に関するガイドブックの更新も 2009 年度より開始される予定である。NSWMC は TWG を設立し、プロジェクトで得られた知見を生かすために 3 都市をそのメンバーに加える予定である。3 都市には、マニュアル策定及びガイドブックを更新するため、プロジェクトで得られたデータ及び知見を共有することが望まれる。

**指標 3.3: 衛生埋立処分場の運営・維持管理に関するマニュアルが整備される。**

ダバオ市では、衛生埋立処分場の運営、維持、管理に関するマニュアルの作成を行う。また、同市は建設業者から提出された運営マニュアルの精査を開始した。

### 3-3 実施プロセス

PO は、当初 R/D の付属資料として作成されたが、PDM が 2 度改訂された際に改訂されていなかった。したがって、プロジェクトのモニタリングは、PO の代わりに各年次に提出される事業進捗報告書の作業工程表に基づいて行われていた。しかし、PO は最新版の PDM に沿ったプロジェクトの活動スケジュールを記載すべきものであり、今回調査団が提案する PDM 改訂の際には、PO の改訂も必要である。また、PDM 及び PO の改訂に当たっては、日本及びフィリピン国の合意文書が必要である。

効果的な能力開発のため、プロジェクトの開始段階で各市の C/P が業務経歴シートを記入した。それに基づき各 C/P の能力開発計画を策定するとともに、OJT、ワークショップ、セミナーを通じた能力開発が行われた。この過程で、C/P の能力レベルに応じた適切な助言がされたと考えられる。しかし、能力開発の状況はモニターされておらず、プロジェクト期間中の変遷を確認できる方法はとられていない。関係者間の人間関係及びコミュニケーションは、比較的良かったと考えられる。各サイトへのアクセスの困難さ及び限られた人材にも関わらず、C/P、日本人専門家及び各都市に常駐している現地コンサルタントの間のコミュニケーションは良好であった。また、常駐した現地コンサルタントは、プロジェクトのモニタリングを支援し、関係者に効果的に情報を提供している。

3 都市の C/P 間のオーナーシップは、プロジェクト実施には十分であったと思われる。C/P はタスクチームの中でそれぞれの役割を認識し、プロジェクトを成し遂げるべく意欲を持って臨んだ。プロジェクトを通じて C/P 自身が他の廃棄物管理関係者である市職員、バランガイ職員、教育関係者などと積極的に情報共有し、セミナー及びワークショップにおいて、近隣の LGU を招待してプロジェクトで得た知見を共有するなど、C/P がオーナーシップを持って取り組んでいたといえる。

## 第 4 章 5 項目による評価結果

### 4-1 妥当性

本プロジェクトは、「フィ」国の政策、各都市のニーズ、日本の ODA 政策に照らし合わせて高い妥当性が保たれているものと判断できる。

「フィ」国の政策に関しては、中期フィリピン国開発計画 (MTPDP2004-2010) は、廃棄物管理を環境セクターの課題の一つとして位置づけている。また MTPDP は、LGU が RA9003 を完全に実施できるよう支援を行うことの重要性について述べている。

RA9003 によると、各 LGU は固形廃棄物管理システムの確立を求められているが、ほとんどの LGU がそれを行うに十分な能力を有しておらず、対象 3 都市も例外ではない。しかし対象 3 都市はすでに RA9003 の順守に向け、それぞれ市条例を策定し、カルバヨグ市とダバオ市においては廃棄物管理計画の策定にも取り組んでいた。さらに、3 都市は「フィ」国

内の異なる地域に位置し、そこでの活動はより多くの他の LGU へ影響が及ぶものと期待された。

日本の政策と比較すると、『「フィ」国の支援計画』（外務省による）では、環境問題は優先分野の一つである。さらに、「フィ」国の国別支援方針（「フィ」国の ODA タスクフォースのワーキングペーパー）では、廃棄物管理は支援の対象分野の 1 つとなっている。

#### 4-2 有効性

中間レビューの時点においては、廃棄物管理計画の実施状況、WDR、処分場の運営状況などの有効性を判断するために必要となる十分なデータがそろっていないのが現状である。

なお、廃棄物管理の活動計画及びプログラムには、プロジェクトで計画した活動以外のもも含まれていたため、指標を明確にする必要がある。また、プロジェクト目標の到達がこの指標によって証明できるかも懸念される。

また、プロジェクトで計画された活動を実施するための十分な予算確保が懸案であり、このためには提案されている料金徴収制度が実施されることが条件になる。さらに、次年度の総選挙により廃棄物管理に関わる組織改編などの影響を受けないことが有効性を保つための条件となる。

#### 4-3 効率性

インタビュー調査によると、人材の投入及びその時期、研修内容、供与機材とその利用状況については、今までのところ全体として満足できるものである。そのため、本プロジェクトの効率性は、中間レビューにおいてはほぼ満足のいくものであるといえる。

しかし、新規処分場の完工が遅延になる場合、本プロジェクト期間内で十分な処分場の維持管理研修を実施するのは難しい可能性がありトレーニングの方法について検討が必要である。

##### (1) 人材（日本人専門家）

フィリピン国側 C/P へのインタビューによると、日本人専門家の投入及びその時期はほぼ適切であったとのことである。また、日本人専門家と C/P とのコミュニケーションを円滑にするため、各市に現地コンサルタントを派遣するなどの工夫も行っている。さらに、各市に滞在している日本人専門家は、専門外の事項についても C/P と情報共有を行い、担当の専門家と連絡を取って対応した。全体として中間レビューの時点では、日本人専門家の投入及びその時期は成果 1~3 を達成する上で適正であり、限られた時間内で効率的に活用できたといえる。本プロジェクトの後半においては、衛生埋立処分場の維持管理について指導するため、日本人専門家の派遣時期を調整することが効率性を確保する上で必要である。

##### (2) 人材（C/P）

C/P は、チームリーダー、副チームリーダー、廃棄物管理計画、最終処分、WD、財務分

析、環境教育、環境社会配慮の各担当者から構成される廃棄物管理タスクチームを設立した。何人かの C/P は、退職や異動などで本プロジェクト期間中に交代したが、大きな問題には至らなかった。そのため、C/P の配置の面でも効率性は確保されているといえる。

### (3) 本邦研修

本邦研修が 2008 年 10 月 27 日から 11 月 15 日まで実施され、言葉の壁があったものの様々な知見が得られたことから、参加した 6 人の C/P は研修内容が実務的であると高く評価していた。そのうちの 1 人は、研修後に所属が変わったが、それ以外の 5 人については日本で研修が本プロジェクトの活動を促進する上で大きな効果を果たしていると思われる。

### (4) 日本側からの供与機材及び設備

ほとんどの機材は予定通りに調達され供与されたが、ダバオの車輛については、登録が遅れているため使用できない状態である。

英文の中間レビュー報告書の Annex 4 に示す日本側から供与された機材は、パイロット MRF、ごみ量・ごみ質調査、環境モニタリング等の活動に使用されており、WD 計画や環境教育の実施のためにも使用される。これらの機材は、プロジェクトの実施に不可欠であり、適切な時期に供与された。

### (5) フィリピン国側からの支出

フィリピン側から提供されたローカルコストは、運転手の費用、供与された車輛の燃料費、事務所の維持管理費、廃棄物管理計画及び ECC 承認に関する申請手続きの費用等である。

## 4-4 インパクト

プロジェクトの中間地点において上位目標の到達レベルについて評価するのは時期尚早ではあるが、次のような正及び負のインパクトを確認できた。

### (1) 正のインパクト

- ・ プロジェクトを通じて、近隣の自治体からの訪問者がパイロット MRF の稼動状況の見学に訪れた。
- ・ 技術セミナーが開催され、近隣の自治体から多数の参加者があった。そのため、プロジェクトの知見が他の自治体に波及した。
- ・ サガイ市では、残渣ごみだけを受け入れる新規衛生埋立処分場の共同利用について、近隣の自治体と協議を行った。

- ・ カルバヨグ市長は、現在フィリピン国の全国市長連盟の事務局長であり、連盟の活動を通じて同市の廃棄物管理のグッドプラクティスを他の自治体に広めることができる。

## (2) 負のインパクト

- ・ サガイ市及びカルバヨグ市の既存処分場の閉鎖に伴い、現在活動しているウェストピッカーが失職するなど負のインパクトが生じる可能性があるが、その場合には低減策としてウェストピッカーへの生計改善プログラムを策定する予定である。

## 4-5 自立発展性

本プロジェクトの自立発展性を評価するのは時期尚早ではあるが、今後、自立発展性を確保する上で必要な項目を次に掲げる。

- ・ NSWMC は、RA9003 実施のため各 LGU を技術及び財務面で支援する責務があり、その能力開発が必要である。
- ・ 本プロジェクトにおいて、マニュアルの整備及びガイドブックの改訂同様に技術移転セミナー及びワークショップを通じた近隣の LGU と知見の共有を継続することが必要である。
- ・ 廃棄物管理計画で提案されたように、財務計画に適合するごみ料金徴収システムの改善は、財務面での自立発展性を担保する上で必要である。
- ・ 自治体、バランガイ・キャプテン、学校教育関係者等、廃棄物管理の関係者が本プロジェクトに積極的に参加していたが、このことは自立発展性を促すものである。
- ・ 衛生埋立処分場の維持管理に関する能力開発が本プロジェクトの後半において必要である。

# 第5章 結論および提言

## 5-1 結論

- ・ プロジェクトの進捗状況および達成度合いは、いくつかの外部要因（環境保証証明書の追加取得、フィリピン開発銀行によるローン承認の遅れ、廃棄物管理計画の NSWMC での承認の遅れなど）があるにも関わらず、中間レビュー時点では十分といえる状況である。また、プロジェクトサイトが4箇所（サガイ、カルバヨグ、ダバオおよび NSWMC）と分かれており、各 C/P との業務に対応するために専門家チームを分けて配置せざるを得ない状況の中で上述のプロジェクト状況を達成しているのは、日本人専門家チームによる戦略的なプロジェクトの運営管理、技術的な専門性の高さ、そしてカウンターパートの積極的な関与によるところが大きい。
- ・ C/P の技術的な改善も十分であるといえる。しかしながら、その知識は文書からの理論的な知識に限定されていることから、プロジェクト後半では実務面での能力の改善がと

- でも重要となる。
- ・ プロジェクトは近隣の地方自治体にもいくつかの成果をもたらしている。プロジェクトで得た知識・経験の普及に向けて、プロジェクト後半も引き続き、C/Pの継続的な貢献が必要である。さらに、自治体によるRA9003の遵守を促進するためマニュアル、ガイドブックの作成に向けた組織的な仕組みを強化することが期待される。
  - ・ 各3都市においては、廃棄物管理計画を具現化し、プロジェクトの活動を実施していくためには、料金徴収システムの導入など財政的な対策を講じる必要がある。また、廃棄物管理政策の継続性の確保や衛生埋立処分場での環境社会配慮面へのしかるべき対応は、プロジェクトの自立発展性の観点で重要である。

## 5-2 提言

### (実施プロセスの改善)

- ・ プロジェクト前半の活動の進捗状況および各都市における廃棄物管理の状況の違いを考慮し、中間レビュー調査の結果に基づき、調査団は現行のPDM (Ver.2)を修正することを提案した。
- ・ 現行の活動計画(PO)は、2007年7月のR/D署名時点から更新されていないことから、修正版のPDM (Ver.3)に基づき、調査団は変更点をPOに反映するように提言した。
- ・ プロジェクト後半には、NSWMCとの協力の下、プロジェクト活動の成果について取りまとめるための様々な活動が予定されている。したがって、調査団はNSWMCに対して、3市との緊密な連携のもと、プロジェクト活動の成果を取りまとめるとともに、主体的役割を果たすことを求めた。
- ・ 調査団は専門家および3市に対して、NSWMCおよびEMB地域事務所との緊密な協力の下、改訂版のPDMおよびPOに基づき、進捗状況を定期的にモニタリングするように求めた。

### (上位目標・プロジェクト目標・成果の達成状況)

- ・ NSWMCは、廃棄物管理計画の承認プロセスのLGUへの周知、阻害要因の特定、関係者へのフィードバック会議の調整などを通じて、計画の承認プロセスを促進する必要がある。
- ・ 異なるコンポスト技術の提供などを通じて、それぞれのパイロットMRFから異なる教訓を引き出すことは、他のバランガイへの経験の普及という観点で重要な要素となる。
- ・ 廃棄物管理計画においてごみ料金徴収システムが提案されているが、地域住民からの理解や政治的な決定が行われていないなど、財政的な側面において解決すべき事項が残っている。調査団は、それぞれの市に対して、財政的な安定を確保するためのごみ料金徴収システムの導入について、NSWMCにおける承認を得るための必要な手続きを行うように提案した。

- ・ WDR は成果2の活動の進捗状況をモニタリングする上で重要な指標のひとつであることから、調査団はそれぞれの市に対して WDR のベースラインを設定するとともに、定期的に状況をモニタリングするように提案した。また、NSWMC に対しても、フィリピンの地方自治体による廃棄物管理の現状を適切に表すため WDR を計算するための統一的方法を定めるように提案した。

(キャパシティ・ディベロップメント)

- ・ それぞれの都市におけるプロジェクトの効果の検証のため、C/P の能力強化の進捗度合いをモニタリングする必要がある、そのためのモニタリング体制を可能な限り速やかに立ち上げる必要がある。
- ・ プロジェクト実施中および終了後の適切な衛生埋立処分場の運営管理のため、衛生埋立処分場の運営管理の研修に関しては、協力対象自治体の中で速やかに実施できる場所、あるいは協力対象自治体にこだわらず、フィリピン国内において適切に運営されている処分場を活用して実施する可能性の検討を提案した。
- ・ コミュニティーの能力強化のため、調査団はそれぞれの市の関係者の更なる巻き込みを提案した。具体的には、日本における研修の実施に当たり、パイロット MRF が位置するバランガイの関係者や NSWMC 事務局、または DENR-EMB 地域事務所の廃棄物管理コーディネーターを参加者に加えることを調査団から提案した。

## 第6章 技術的見地からの評価結果

### 6-1 背景

PDM に基づく 5 項目の評価に加え、今般の中間レビューでは技術的能力向上の観点からの評価も行った。プロジェクトでは 3 つの成果の達成が期待されており、この達成度を判断すべく指標が設定されている。ほとんどの場合、客観的な評価を行うために、あらかじめ設定されたこれらの指標は目に見えるような形で提示できるものとし、その有無をもって成果達成に必要な技術能力が十分向上したとみなす。事前に C/P に送付しておいた質問票を用いながらインタビューを行い、技術的観点から考察するのが本評価の目的である。

### 6-2 廃棄物管理計画

#### (1) 評価の視点

廃棄物管理計画は実際のところ、10 年に一度しか策定されず、ローカルコンサルタント市場が十分に成熟しているかという疑問はあるものの、外部委託によって策定されることもしばしばである。このような考えから、サガイ市とカルバヨグ市でのインタビューは、計画策定能力自体を問うのではなく、「C/P が廃棄物管理計画策定のプロセスや方法を理解した

か」、そして「RA9003 が求めている 3 年ごとの見直しが可能か」との視点で行った。一方でダバオ市では、「日本人専門家が行ったダバオ市の廃棄物管理計画に対する提言を C/P が理解したか」という点を検討した。

## (2) 評価結果

サガイ市とカルバヨグ市でのすべての回答者が、計画策定のプロセスと方法ならびに計画の内容を理解したと回答した。いずれも、日本人専門家による技術移転に大変満足しており、プロジェクト終了後も 3 年ごとの見直しは可能であると自信をもって答えた。

ダバオ市の評価に関しては、上記評価の視点は指標 1.1 と同じ内容であり、評価グリッドの当該欄に記載済みである。

## (3) プロジェクト後半での課題

サガイ市とカルバヨグ市では、C/P 自身が理解レベルの向上を自覚しており、計画策定に関する能力向上は成功していると考えられる。計画策定に際しての積極的な参画、計画実施に伴う財政措置の必要性に対する深い認識、そして計画作成の達成感が彼らの回答から伺われたことは、今後のプロジェクト実施に向けた重要な好材料である。しかし C/P に計画内容の説明を求めた際には、将来のごみフローや数値目標に関する言及がなく、今後 10 年間において毎年何を実施し何を達成しなければならないかについての C/P の理解がまだ十分ではない印象も受けた。

廃棄物管理計画策定能力は、計画策定の過程からだけでは十分に獲得しえないものである。Plan-Do-Check-Act といういわゆる PDCA サイクルによって実施内容と計画内容とを照合していくことが、更なる計画能力の向上には不可欠と考えられる。プロジェクトが今後、計画の実施段階に入り、C/P の計画策定能力がより実践的に向上していくことが期待される。

ダバオ市では、日本人専門家の提言に関する C/P の理解度は、提言内容を彼らの計画に盛り込むというレベルには達していないようである。ミンダナオ地方の中心都市として、また RA9003 を遵守する LGU のモデルとして、C/P と日本人専門家とが提言内容を引き続き協議し十分検討していくことが望まれる。

## 6-3 WD (ウェイストダイバージョン)

### (1) 評価の視点

フィリピンでは、WD はバランガイに対する LGU の強いリーダーシップによって実現しなければならない廃棄物管理の主要課題である。WD 計画策定、MRF のパイロットプロジェクト、そして IEC という 3 つのコンポーネントからなる活動を通じて WD の向上を図るプロジェクト内容を踏まえ、C/P が WD という用語、MRF 設置のプロセス、IEC の実施準備のプロセスを理解したかという視点で評価を行った。

### (2) 評価結果

WD に関するすべての質問について、高い理解度あるいは理解度の向上が認められた。し

かし、論述的な回答を求めた際には、実践的な理解という点で C/P により差が見られた。すなわち、ある C/P からは今年の IEC キャンペーンの計画について詳細な説明がなされたが、別の C/P は IEC 計画には十分に参画していない様子であり、また WDR の意味について廃棄物管理計画に書かれているのとは異なる説明をした C/P もいた。また、別の C/P は、IEC に期待するのは、人々の行動様式が本当に変化するように人々の考え方に訴えるシステムをいかに構築するかという技術であり、それはまだプロジェクトでは得られていないと答えた。

### (3) プロジェクト後半での課題

WD 推進のために C/P が必要としているのは、パイロット MRF が建設されたバランガイ以外において、住民への啓発と施設整備を伴った MRF の設置を推進していく能力である。これを旨とするにはパイロット MRF での活動をモニタリングし、評価していく活動が重要である。IEC において適切なメッセージを適切な対象グループに効果的に伝達する能力の向上も、2009 年 6 月以降のプロジェクトで期待される。さらに、サガイ市とカルバヨグ市の WD 計画によれば、厨芥ごみのコンポスト化と剪定ごみの土壌改良剤への転換という二つの集約的施設の導入が、WDR の向上を大きく左右する。これら施設の設置技術の指導はプロジェクト活動には含まれないものの、何らかの技術移転や情報提供が必要と考えられる。

## 6-4 最終処分

### (1) 評価の視点

廃棄物管理計画の場合と同様に、衛生埋立処分場の建設は 10 年に一度、あるいはそれ以上に稀な事業である上に、詳細な図面作成やコスト積算などの設計業務は、外部委託が可能である。したがって、サガイ市とカルバヨグ市での評価は、処分場の設計技術そのものではなく、設計に伴う考え方を問う内容とした。ダバオ市については、中間評価の時点では最終処分に関する技術支援はまだ実施されていなかったため、技術評価を実施しなかった。

### (2) 評価結果

質問票に回答しインタビューに応じたすべての C/P が、処分場設計の考え方について理解が向上したと答え、このプロジェクトでの技術移転に高い満足感を示した。しかし彼らもまた、衛生処分場の建設、運営を実際に経験するのはこれからであるため、理解レベルはまだ十分ではないとも答えた。これまで得られた知識を実地経験によって確実に体得したいという彼らの意欲は、成果 3 に向けた活動が成功裏に実施される見込みを感じさせるものであった。

### (3) プロジェクト後半での課題

回答者は、市の土木プロジェクトを担当する市の土木課の技術者であり、衛生埋立処分場の建設自体は土木技術者も関与する。しかし、衛生埋立処分場の運営管理は、土木事業に類する業務に加えて、RA9003 が目指す「分別していないごみは処分しない」という方針の実践、最終処分量データの分析、あるいは水質モニタリングなどの管理業務を伴う。したがって、衛生埋立処分場の運営管理の能力向上は、土木技術者のみならず上記業務に関わる C/P を対象に行うことが期待される。

## 第7章 団長所感

フィリピン国内のそれぞれ異なる地域の三都市を対象とした本プロジェクトは、国家廃棄物管理法（RA9003）で求められている地方自治体の廃棄物管理能力の強化を目的としたもので、三つの成果から構成されている。すなわち、廃棄物管理における計画能力の強化（成果1）及び実施能力の中でとくに重要な廃棄物発生抑制・減量化（成果2）と最終処分システムの強化（成果3）である。また、条件の異なる三都市での経験を周辺自治体に広めてゆくことを上位目標としている。

プロジェクトのこれまでの実績については、廃棄物管理計画の策定やMRFの建設が終了して間もないことから、カウンターパートの廃棄物管理における知識は向上したものの、実戦的な経験を十分積むところまでは至っていない。三都市ともカウンターパートは熱心にプロジェクト活動を行なっていることが感じられ、実施能力の強化については今後の活動を通じてプロジェクトの後半に実施されるものと期待している。技術協力プロジェクトの目的はフィリピン側の廃棄物問題への対処能力を向上させることであるから、カウンターパートやその組織のキャパシティの向上を注意深くモニタリングする必要がある。

一方、懸念材料としては最終処分場建設が遅れた場合に運営管理能力強化のためのトレーニング期間が十分に取れない可能性があること、持続的な廃棄物管理を行なうための料金徴収のシステムが実施に移される確証がないこと、来年5月の選挙によるプロジェクトへの影響が考えられることなどがある。

プロジェクト開始以来、これまでの実際の活動や条件の変化がPDMで十分に反映されていないこと、またPOもそれにともなって変更されていないことから、PDMと実際の活動や状況に剥離が生じていた。今回の中間レビューでは上記のプロジェクトの枠組みは変えないまま、さまざまな変化を反映し、整合が取れるようにPDMの修正を提言した。大きな修正点は以下のとおりである。

- プロジェクト開始後に三都市にそれぞれ分割されていたPDMをプロジェクト全体のPDMとして一つに統合した。PDMはプロジェクトの枠組みとスコープを記述したものであり、プロジェクトの活動が複数の場所（三都市）で実施されてもプロジェクト全体のPDMは複数存在すべきではない。
- 成果1および3の活動に含まれていたガイドラインやマニュアルの作成に関わる活動を成果4の活動とし、NSWMCのプロジェクトでの役割と関与を明確にした。
- ダバオ市側の主体的なイニシアティブを尊重し、ダバオ市での活動を縮小した。ダバオ市ではプロジェクト開始前に廃棄物管理計画がすでに策定されていたこと、成果3の最終処分に関する活動はほぼ独自で実施していること、JICA側の支援は成果2のMRFを中心とした市民参加を重点としたいとの要望があったことなどから、ダバオ市への投入を小さくすることとした。

また、ダバオ市側の都合でレビュー報告書作成に関する十分な協議ができなかったことを踏まえ、今回の中間レビューは合同評価とせず、日本側チームによる評価の位置づけとした。これに関して、終了時評価は合同で実施するように JCC のミニッツに記載した。

パイロット MRF については当初は市街地でのクラスター化を想定していたが、それぞれの市の条件の違いからカルバヨグ市のみをクラスターMRF とし、サガイ市では MRF と近隣学校との連携、ダバオ市では大規模コミュニティーにおける MRF の運営管理という独自性を持たせている。RA9003 の実施には廃棄物の分別や減量化に対するコミュニティーの参画が不可欠であり、プロジェクト後半でのコミュニティーの積極的な活動が望まれる。

付 属 資 料

ミニッツ・合同評価報告書（英文）

**MINUTES OF MEETINGS  
BETWEEN THE JAPANESE MID-TERM REVIEW TEAM AND  
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF  
THE REPUBLIC OF THE PHILIPPINES  
ON JAPANESE TECHNICAL COOPERATION PROJECT  
FOR ESTABLISHMENT OF ECOLOGICAL SOLID WASTE MANAGEMENT  
SYSTEM IN THREE CITIES**

The Japanese Mid-Term Review Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Shiro Amano, visited the Republic of the Philippines from May 20 to May 29 and June 17 to June 26, 2009 for the purpose of conducting the mid-term review on the Japanese technical cooperation project for Establishment of Ecological Solid Waste Management System in Three Cities (hereinafter referred to as "the Project").

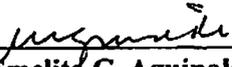
During its stay, both the Japanese Team and the authorities concerned of the Republic of the Philippines had a series of discussions and exchanged views on the Project.

As a result of the intensive study and analysis of the activities and achievements of the project, the Team prepared the Mid-Term Review Report (hereinafter referred to as "the Report") attached hereto and presented it to the Joint Coordinating Committee (hereinafter referred to as "the JCC") held on June 25, 2009.

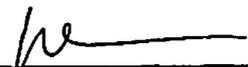
After discussions in respect of recommendations and issues for the successful implementation of the project, the JCC approved the contents of the Report and the respective representatives of the Philippine side and the Japanese sides agreed to the matters referred to in the documents attached hereto and forward it to the respective Governments.

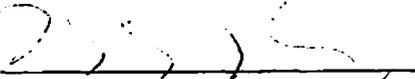
Quezon City, June 25, 2009

  
\_\_\_\_\_  
**Mr. Shiro Amano**  
Leader  
Mid-Term Review Team  
Japan International Cooperation Agency

  
\_\_\_\_\_  
**Ms. Emelita C. Aguinaldo**  
Deputy Executive Director  
Secretariat of the National Solid Waste  
Management Commission  
The Republic of the Philippines

  
\_\_\_\_\_  
**Hon. Ronaldo P. Aquino**  
Vice Mayor  
Chairman of the City SWM Board  
City of Calbayog  
The Republic of the Philippines

  
\_\_\_\_\_  
**Engr. Marivic L. Reyes**  
Acting Assistant Department Head  
City Environment and Natural Resources Office  
City of Davao  
The Republic of the Philippines

  
\_\_\_\_\_  
**Engr. Manuel A. Lopez**  
Executive Director-Sagay City SWMC  
City of Sagay  
The Republic of the Philippines

## THE ATTACHED DOCUMENT

### I. Mid-Term Review Report

The Team presented the Mid-Term Review Report (hereinafter referred to as "the Report"), attached as Appendix I, to the Joint Coordinating Committee (hereinafter referred to as "the JCC"). The members of the JCC considered and approved its contents as presented.

### II. Recommendation and Issues for the implementation of the latter half of the Project

The Team and the members of the JCC discussed the following issues and both parties acknowledged the importance of taking necessary actions.

#### (1) Improvement of the Project Implementation Process

- Revision of the Project Design Matrix (PDM) and the Plan of Operation (PO)

The team suggests that the current PDM (version 2) be revised as Annex 2.1 for the reasons indicated as Annex 2.2 of the Report. The modifications made in the proposed PDM (version 3) take into account the initiative of the city of Davao as well as the changed conditions taking place up to the time of the Mid-Term Review. It is also recommended to update and revise the PO to reflect the modifications made in the proposed PDM (version 3) as soon as possible for smooth implementation of the rest of the project period. The revised PO should be agreed on among parties concerned.

- The role and involvement of the NSWMC

The secretariat of the NSWMC should assume a major role to consolidate experience and knowledge obtained through the project into manuals and guidebooks during the latter half of the project period.

- The important objective of the project is to enhance the capacity of each city to respond to problems associated with solid waste. It is therefore essential for the city to closely work with the Japanese experts. In order to ensure appropriate guidance of the Japanese experts and to make the most of the technical expertise of such experts, each city is required to provide them with as much information as required.

#### (2) Desirable measures to be taken for the latter half of the project period

- Training of Philippine personnel

In order to promote and ensure active and proper waste diversion activities, capacity of people engaged in the operation and management of the pilot MRFs needs to be enhanced. From this view, the Team recommends that stakeholders in the barangays of the pilot MRFs be provided an opportunity to participate in the counterpart training in Japan in order to learn successful waste minimization activities and technologies suitable to the Philippine situation. Since the role of the NSWMC becomes more and

more important in the latter half of the project, inclusion of personnel from the Secretariat of the NSWMC or EMB Regional Office-SWM Coordinators into such training in Japan is also recommended.

- Proper operation and maintenance of sanitary landfills

It is suggested that the possibility of conducting training for operation and maintenance of the new sanitary landfills be explored at a site where the operation can be started at the earliest timing among three cities or at a site where landfill operation is successfully implemented in the Philippines in order to ensure the proper operation and maintenance during and after the project period.

(3) Issues recommended to NSWMC

- Approval of Ecological Solid Waste Management Plan of LGUs

The approval process of ESWM of LGUs needs to be accelerated by disseminating the approval process, clarifying what actually hinders the process, and arranging a feedback session with the stakeholders.

- Waste Diversion Rate

It is also suggested that NSWMC standardize rules on how to calculate the Waste Diversion Rate in order to properly grasp the current situation of SWM of LGUs in the Philippines.

(4) Other issues

- Joint Terminal Evaluation

A joint terminal evaluation will be conducted by both Philippine and Japanese sides a few months before the end of the project based on the agreement in the Records of Discussions.

**List of Appendix**

Appendix I: Mid-Term Review Report

# Appendix - 1

Mid-Term Review Report

for

the Project on Establishment of  
Ecological Solid Waste Management System  
in Three Cities in the Philippines

June 2009

Mid-Term Review Team

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## **ANNEXES**

### **Annex 1:**

**Annex 1.1: Project Design Matrix (PDM ver.2)**

**Annex 1.2: PDM ver.2 by Combining the PDMs of Three Cities**

**Annex 1.3: Plan of Operation (PO ver.0) with the Actual Time Frame of Project Implementation**

### **Annex 2:**

**Annex 2.1: Proposed PDM ver.3**

**Annex 2.2: Comparative Sheet for PDM (ver.2) and PDM (ver.3)**

**Annex 3: Evaluation Grid of the Mid-Term Review**

**Annex 4: List of the Input from the Japanese Side**

**Annex 5: List of the Input from the Philippine Side**

**Annex 6: Activities and Status of Their Achievement**

## ABBREVIATIONS AND ACRONYMS

ATP	Affordability to Pay
CAS	Country Assistance Strategy
CENRO	City Environment and Natural Resources Office
CSSDO	City Social Services and Development Office
C/P	Counterpart
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
ECC	Environmental Compliance Certificate
EIA	Environmental Impact Assessment
EMB	Environmental Management Bureau
ESWM	Ecological Solid Waste Management
IEC	Information, Education and Communication
IEE	Initial Environmental Examination
JCC	Joint Coordinating Committee
JFY	Japanese Fiscal Year
JICA	Japan International Cooperation Agency
LGU	Local Government Unit
MGB	Mines and Geosciences Bureau
M/M	Minutes of Meeting
MTPDP	Medium-Term Philippine Development Plan
NSWMC	National Solid Waste Management Commission
NGO	Non-governmental Organization
ODA	Official Development Assistance
PENRO	Provincial Environment and Natural Resources Office
PDM	Project Design Matrix
PO	Plan of Operation
RA	Republic Act
R/D	Record of Discussion
SLF	Sanitary Landfill
SWM	Solid Waste Management
WACS	Waste Characterization Survey
WD	Waste Diversion
WDR	Waste Diversion Rate
WTP	Willingness to Pay

## **Chapter 1. OUTLINE OF THE REVIEW STUDY**

### **1.1. Background of the Review Study**

In the Philippines, inadequate solid waste management is a social concern that threatens public health and sanitation not only in the Manila Metropolitan area but also in the local cities. In order to address the issue, the Government of the Philippines enacted Ecological Solid Waste Management Act (RA 9003) in 2001, which sets forth the implementing responsibility of local government units (LGUs), provisions of ecologically sustainable Solid Waste Management (SWM) and establishment of the National Solid Waste Management Commission (NSWMC) under the Office of the President to promote the Act.

The Japan International Cooperation Agency (JICA), the official entity implementing technical assistance of Japan, has been dispatching experts to NSWMC for strengthening its administrative capability on SWM and prepared a technical guideline on SWM design and operation, and a guideline for safe closure of disposal sites; and, had accepted the counterparts as participants in study programs held in Japan as well. Consequently, the administrative capability of NSWMC on SWM has been enhanced.

However, the total number of Local Government Units (LGUs) implementing the suitable SWM are actually less than 2% among approximately 1,600 LGUs existing in the country. There is no effective mechanism relating to SWM from the central government to the LGUs which supports them to procure necessary equipment, and to manage institutional and human resource development for SWM.

Under the above mentioned circumstances of SWM in the Philippines, implementation of a Technical Cooperation Project was agreed between the Philippine and Japanese governments to introduce a suitable SWM system into the three cities, namely Sagay, Calbayog and Davao. In July 2007, a Record of Discussions (R/D) was exchanged between the two governments to set out the "Project on Establishment of Ecological Solid Waste Management System in Three Cities" through the technical assistance scheme of Japan.

The project commenced in October 2007 with an implementation period of three years. As one year and seven months had passed since its commencement, the mid-term review was to be conducted to enhance the smooth execution of the project.

### **1.2. Objectives of the Review Study**

The objectives of the review study are as follows.

- To identify the extent of achievement of the project purpose and outputs stipulated in the PDM.

- To identify the positive issues and negative issues, if any, for project implementation.
- To reconsider and revise the Project Design Matrix (PDM) and Plan of Operation (PO), if necessary.

### **1.3. Members of the Review Team**

The Mid-term Review was executed by the Mid-term Review Team (hereinafter referred to as “the Team”) consisting of the following members.

- Mr. Shiro Amano (Leader), Senior Advisor, JICA
- Mr. Satoshi Higashinakagawa (Evaluation Analysis), Nippon Koei Co., Ltd.
- Ms. Noriko Otsuki (Solid Waste Management), Kokusai Kogyo Co., Ltd.
- Mr. Makoto Iwase (Evaluation Management), JICA Philippine Office
- Ms. Sealdi Calo (Evaluation Coordinator), JICA Philippine Office

### **1.4. Process and Schedule of the Review Study**

The review study was executed in the following process and schedule.

#### **1.4.1. Initial Examination**

In middle of May 2009, the review members of Japan reviewed available documents related to the Project, clarified information additionally required, and prepared an evaluation grid, which lists the specific review points and the data collection methods, and questionnaires for the counterparts (C/Ps) and the Japanese experts. The questionnaires were sent to them before visiting the Philippines.

#### **1.4.2. First Study in the Philippines**

Two reviewers, Mr. Higashinakagawa and Ms. Otsuki, visited the Philippines for the following objectives.

- To explain the review methodology that is based on the Project Cycle Management.
- To identify to what extent the activities, outputs, project purpose, and overall goal described in the PDM have been implemented and/or achieved.
- To review the process and results of technology transfer.
- To observe the current conditions of procured equipment and facilities.
- To confirm that the project had followed the procedures in terms of environmental due care.

The study was mostly carried out by interviewing the C/Ps and the Japanese experts using the questionnaires. Information was also collected from relevant stakeholders such as barangay officials and school principals working for SWM. The study itinerary is also presented below. The reviewers also observed the existing and/or proposed landfill sites, pilot Material Recovery Facilities (MRFs) and the

equipment provided for project implementation. The following table indicates the schedule of the first study.

Date	Day	Activity	Place
May 20	Wed	Meeting at JICA Philippine Office	Manila
May 21	Thu	Interview to JICA Experts	Manila
		Meeting with deputy executive director of NSWMC	
		Interview to NSWMC C/P	
May 22	Fri	General orientation of Mid-term review	Calbayog
		Courtesy call and interview to Deputy Mayor	
		Interview to C/P	
		Field visit (pilot MRF, existing dump site)	
May 23	Sat	Reporting	Manila
May 24	Sun	Reporting	Manila
May 25	Mon	Courtesy call and interview to Mayor	Sagay
		Interview to C/P	
May 26	Tue	Interview to C/P	Sagay
		Interview to Barangay Captain and Principal of Elementary School	
		Field Visit (pilot MRF, existing dump site, new SLF)	
May 27	Wed	General Orientation of Mid-term Review and Interview to C/Ps	Davao
		Field Visit (pilot MRF)	
May 28	Thu	Field Visit (new SLF)	Davao
		Interview to C/P	
May 29	Fri	Meeting at JICA Philippine Office	Manila

#### 1.4.3. Interim Examination

Based on the results of the first study in the Philippines, the Team filled out the evaluation grid, prepared a draft review report, examined the necessity to revise the PDM and PO and clarified the further issues to be discussed in the second study.

#### 1.4.4. Second Study in the Philippines

The second study was carried out as shown in the following itinerary. The review report, evaluation grids, PDM and PO were reviewed and finalized based on the findings and discussions during the study.

Date	Day	Activity	Place
June 17	Wed	Meeting at JICA Philippine Office	Manila
June 18	Thu	Interview to JICA Experts at NSWMC	Manila

		Interview to NSWMC C/P	
June 19	Fri	Meeting and Interview to Representative of Davao City	Davao
		Explanation of Draft Evaluation Grid of Mid-term Review	
June 20	Sat	Field Site Visit (MRF, SLF, etc)	Manila
June 21	Sun	Drafting Mid-term Review Report and M/M	Manila
June 22	Mon	Meeting and Interview to and Vice Mayor	Calbayog
		Explanation of Draft Evaluation Grid of Mid-term Review	
		Field Visit (MRF, SLF, etc)	
June 23	Tue	Drafting Mid-term Review Report and M/M	Manila
June 24	Wed	Discussion about the Draft of Mid-term Review Report with representative of NSWMC and 3 municipalities	Manila
June 25	Thu	Joint Coordination Committee	Manila
		Reporting to the Embassy of Japan	
		Reporting to JICA	

## 1.5. Methodology of Review

### 1.5.1. PDM and PO referred to for review

Initially, a single Project Design Matrix (PDM) (ver.0) and three Plans of Operation (POs) (ver.0) for the three cities were prepared when the Record of Discussion (R/D) was signed by the JICA representative in the Philippines, Executive Director of NSWMC, and the mayors of the three cities in July 2007. Through the close discussion in the Joint Coordination Committee (JCC) held on December 12, 2007, three PDMs (ver.1) were prepared for the cities considering individual situation of SWM. Further, in the second JCC on September 22, 2008, the PDMs were revised as the PDMs (ver.2). However, the POs were not revised along with the revision of the PDM. Accordingly, the Mid-term Review was carried out based on the three PDMs (ver.2) and the POs (ver.0). These are shown in Annex 1.

### 1.5.2. Points for the review

#### *Achievement and Implementation Process of the Project*

The achievement levels in terms of Inputs, Activities, Outputs, and Project Purpose were assessed comparing the actual progress of the Project and the PDMs (ver.2) and POs (ver.0). The implementation process of the Project was also confirmed from the various viewpoints such as monitoring and communication.

#### *Evaluation Criteria*

In addition to verification of achievement level and implementation process of the Project, the mid-term review study assessed the Project from the following five evaluation criteria.

- (1) **Relevance:** Relevance of the Project is reviewed by the validity of the Project Purpose and Overall Goal in connection with the Government development policy and the needs of the target group and/or ultimate beneficiaries in the Philippines
- (2) **Effectiveness:** Effectiveness is assessed to what extent the Project has achieved its Project Purpose, clarifying the relationship between the Project Purpose and Outputs.
- (3) **Efficiency:** Efficiency of the Project implementation is analyzed with emphasis on the relationship between Outputs and Inputs in terms of timing, quality and quantity.
- (4) **Impact:** Impact of the Project is assessed in terms of positive/negative, and intended/unintended influence caused by the Project.
- (5) **Sustainability:** Sustainability of the Project is assessed in terms of institutional, financial and technical aspects by examining the extent to which the achievements of the Project will be sustained after the Project is completed.

## **Chapter 2. OUTLINE OF THE PROJECT**

The Project has been carried out since October 2007 and at present it follows the PDMs (ver.2) dated on September 9, 2008. The expected Overall Goal, Project Purpose and Outputs written in the PDMs (ver.2) are as follows:

### **2.1. Overall Goal:**

Knowledge and experience of ecological solid waste management (SWM) in each city (Sagay, Calbayog and Davao) is replicated in other local government unit (LGUs).

### **2.2. Project Purpose:**

Ecological SWM system is established in each city (Sagay, Calbayog, Davao)

### **2.3. Output:**

1. Capacity of LGUs on SWM planning is strengthened
2. Solid waste diversion system is improved.
3. Final disposal system is improved.

## **Chapter 3. ACHIEVEMENT AND IMPLEMENTATION PROCESS**

### **3.1. Inputs**

#### **3.1.1. Inputs from the Japanese side**

##### **(1) Dispatch of Japanese experts**

The following experts were dispatched and assigned. For details, please refer to Annex 4.

- Chief Advisor / Solid Waste Management
- Waste Diversion
- Final Disposal
- Information, Education and Communication (IEC)
- Financial Analysis
- Environmental and Social Consideration / Coordinator

##### **(2) Counterpart Training in Japan**

To date, two C/Ps from each city, in total six C/Ps were sent to the two weeks training course from October 27 to November 15 in Japan.

##### **(3) Provision of equipment**

The provided equipment by the Project is detailed in Annex 4 such as office equipment, IEC campaign material, environmental monitoring equipment, MRF equipment, etc.

##### **(4) Local Consultant**

JICA provided the teams of local consultants. Total contract cost of first half of the project is Php.21,586,776 for 3 cities (Php.4,180,683 in JFY2007 and Php.17,406,093 in JFY2008). The details are shown in the attached documents. Please see Annex 4 for detail.

#### **3.1.2. Inputs from the Philippine Side**

The Philippine side has allocated the necessary human resources. Each city formulated a Solid Waste Management Task Team including a task team leader, deputy task team leader, and the persons in charge of SWM planning, waste diversion, financial analysis, environmental and social consideration, final disposal, and IEC. Three officers of NSWMC who are responsible for Region VI, VIII and XI, where Sagay, Calbayog and Davao are located, respectively, work with the Japanese experts to monitor and coordinate the Project, and most of the technical staff is engaged in manual/guidebooks preparation. Also, three SWM coordinators belonging to the EMB Regional Offices of those regions took part in the project

by participating the seminars and workshops. The physical input included office space with necessary furniture and operation cost necessary for project implementation were input by the Philippine side. Please refer to Annex 5 for detail.

### **3.2. Achievement of the Project**

#### **3.2.1. Project Purpose**

**“Ecological SWM system is established in each city.”**

There are some measurable outputs produced that partly satisfy the indicator for the Project Purpose at the time of the Mid-term Review.

Though the SWM plans of Sagay and Calbayog have not been approved by NSWMC, each city already started to actualize the plans and programs stipulated in the SWM Plan. Some of the activities that have started include the construction and operation of the pilot MRF, IEC campaign and planning and designing of SLF.

In Davao City, the new SLF is under construction by the initiative of the city.

For the later stage of the Project, however, there are some concerns about the implementation of the plans and programs in the SWM Plan in order to achieve the project purpose.

Such concerns include the following:

- Delay of operation of new sanitary landfills in all the three cities.
- Adverse organizational change due to political changes as a result of the election.
- Difficulties to employ an efficient funding mechanism to secure sufficient budget.

#### **3.2.2. Outputs**

**Output 1. “Capacity of LGUs on SWM planning is strengthened”**

Output 1 is partly achieved.

The SWM plans of Sagay and Calbayog Cities drafted their SWM plans through the OJT of C/Ps, and were finalized through the advice of the Japanese experts and submitted to NSWMC in March 2009. In Davao City, some actions such as planning of water quality monitoring for the new SLF have been started. (Indicator 1.1).

Workshops were held in November 2007 and June 2008 in three cities and another in June 2009 in Calbayog, and were attended by representatives from neighboring LGUs, PENRO, CENRO and

barangays in each city. The C/Ps were encouraged to make presentations, and close communication between the C/Ps, the Japanese experts and other stakeholders was stimulated. The technical seminar was held in February 2008 in Sagay and Davao and in March 2008 in Calbayog, where the C/Ps made presentations on the SWM Plan to the audiences including the representatives from neighboring LGUs, PENRO, CENRO and barangays in the city. The total number of workshops and seminars conducted was three in Sagay and Davao, and four in Calbayog. Furthermore, Barangay Summit was held in July 2008 in Davao City, where representatives of all of the barangays in the city were invited. In Sagay and Calbayog, Barangay Summit will be held in the later half of the Project. (Indicator 1.2).

The preparation of the manual was planned in the fourth year (April-October 2010) but is to start during JFY 2009 since NSWMC requested to implement this earlier. NSWMC organized a technical working group for this purpose and will involve the C/Ps of three cities so as to integrate their experience and know-how obtained in the Project. Three cities are expected to input the data, experience and knowledge for the formulation of the manual (Indicator 1.3).

## **Output 2. "Solid Waste Diversion System is improved"**

Output 2 is partly being achieved, since the Pilot MRFs were constructed and commenced the operation and some workshops at the barangay level were held.

A baseline of WDR has been set in Calbayog, but not in Sagay. In the SWM Plan of Sagay, two different figures are given for WDR in 2008, one being over 25% and the other below 25%. The current baseline data of WDR is not clear. Further, since both cities have no updated WDR data at the time of the Mid-term Review, the trend of WDR is not known and the level of achievement can not be determined. (Indicator 2.1 for Sagay and Calbayog cities).

A workshop to work out the operation rule of the pilot MRFs was held in November 2008 with attendants from the C/Ps and the residents of pilot barangays where the pilot MRFs were constructed. On the occasion of the turnover and inspection of MRFs equipment in February 2009, training of operations was conducted for the barangay residents. As the operation of the pilot MRFs has just started, workshops to improve its operation and to disseminate its experience to other barangays are to be held in the latter half of the Project period. In total, two workshops for operation and maintenance were held in the pilot barangays (Indicator 2.2 for Sagay, Calbayog and Davao cities).

The construction of the pilot MRFs was completed in February 2009 in the selected barangays and they are currently operated by the staff from cities and/or barangays. The operation condition of the pilot MRFs is good according to the staff of MRF. They try to improve the operation condition by using saw dust, coco dust and/or animal manure to improve operation. Since the MRFs are installed as demonstration MRFs, the composters installed in the MRFs do not have large capacity, but this encouraged the operators to consider the application of more affordable methods such as drum composting and windrow. However, the MRFs in Sagay and Calbayog cannot collect recyclable waste

because the recyclables are mostly collected by the existing junk buyers. In Davao City, the MRF collects and sells recyclables to junk buyers since junk buyers are not allowed to access to some of the areas in the pilot barangay. (Indicator 2.4 for Sagay and Calbayog cities, Indicator 2.1 for Davao City).

The preparatory works for IEC campaign such as the allocation of necessary personnel from the city, the printing of IEC materials, and the procurement of IEC equipment were completed by March 2009. The IEC campaign will start in June 2009. The IEC campaign has two components, namely social awareness activities and environmental education in schools. The social awareness activities first target the barangay where the pilot MRF is constructed and expand to other barangays in waste collection areas. According to the IEC campaign plan, the number of barangays to be covered during the project period will be 6, 12 and 44 in Sagay, Calbayog and Davao, respectively. As for the environmental education, primary schools and high schools located in the barangays targeted by the campaign are to be provided with the textbooks for pupils prepared by the Project and environmental education will be initiated. The training for teachers on how to execute environmental education started in June 2009 using the textbooks for teachers. The number of barangays covered by the campaign and that stated in Indicator 2.3 has a discrepancy since Indicators 2.3 for Sagay and Calbayog require IEC campaign in “every barangay in the collection areas”, in other words, in 12 and 22 barangays, respectively. For Davao City, it is not possible to determine the level of achievement since Indicator 2.3 only states “major barangays”. (Indicator 2.3 for Sagay, Calbayog and Davao).

### **Output 3. “Final Disposal System is improved” for Sagay and Calbayog Cities, “Suitable Operation/Maintenance/Management of Sanitary Landfill is acquired” for Davao City**

The achievement level of Output 3 is moderate at the time of the Mid-term Review and so was identified by the condition of the indicator, as explained below.

Required design documents including design drawings, technical specifications, cost estimates, and bid documents of the SLF in Sagay and Calbayog were prepared by September 2008. The remaining critical issues are the approval of ECC for Sagay City and the approval of loan disbursement for Calbayog City. As for Sagay City, after the submission of the IEE checklist in December 2008, it was revealed that geological assessment by MGB (Mines and Geosciences Bureau of the DENR) was inevitable at the proposed site although the geological survey was thoroughly done by the Project. The MGB’s assessment was implemented on June 4, 2009 without any significant issues and the ECC is expected to be issued in June. The construction of SLF will start as soon as the ECC is issued. Sagay City already started to improve the road to the site and the fund allocation for construction is on the way, utilizing the delivery of additional IRA, though there was a delay from the expected schedule. As for Calbayog City, the loan for the SLF was basically approved by DBP (Development Bank for the Philippines). Right after the completion of disbursement procedure of DBP, the tender process will be started. (Indicator 3.1 for Sagay and Calbayog).

In Davao City, the preparation of a manual on operation/maintenance/management of the sanitary landfill has already started by their initiative, since the city started to examine an operation manual recently drafted and submitted by the contractor. (Indicator 3.1 for Davao)

As in the case of the SWM planning manual mentioned earlier, the updating of the guidebooks is to start during JFY 2009 since NSWMC requested to implement this earlier than as scheduled. NSWMC organized a technical working group for each guidebook and will involve the C/Ps of three cities so as to integrate their experience and know-how obtained in the Project. Three cities are expected to input the data, experience and knowledge for the updating the guidebooks. (Indicator 3.2 for Sagay and Calbayog).

### **3.2.3. Implementation Process**

The PO was first prepared as an attachment to the R/D. However, it has never been revised although the PDMs were revised twice. Monitoring has been implemented using the work schedule in the inception report (IC/R) of each year instead of the PO. Because the PO is the official document to describe the scheduled activities of the project in line with the latest PDM, the PO should be revised whenever or wherever necessity arises. Any revisions on the PDM or PO need to be agreed in writing by both the Philippine and Japanese sides.

For efficient capacity development, the job description sheets were filled out at the beginning of the Project for all the relevant personnel of the cities. The capacity development plans of all the C/Ps were then prepared and capacity development was initiated through OJT, workshops and seminars. Such a process allowed the Project to provide advises and suggestions appropriate to the capacity level of the C/Ps. However, capacity development is not monitored or assessed in such a manner that the change in the capacity level can be traced over the Project period.

The relationship and communication among stakeholders is considered relatively appropriate. In spite of difficult access to the project sites and limited human resources, communication among the C/Ps, Japanese expert team and the local consultants, who always stayed in the Project areas even during the absence of the Japanese experts, is good. The local consultants also assist the monitoring of the project and transfer the information to other stakeholders.

Ownership of the C/Ps in all three cities seems sufficient for the implementation of the Project. Each of the C/Ps well recognizes his/her role in the project task team and has firm willingness to accomplish the Project. In the seminar and workshops, the C/Ps invited some neighboring LGUs and shared their experience and knowledge of the Project.

## **Chapter 4. REVIEW BY FIVE CRITERIA**

### **4.1. Relevance**

It is concluded that the Project remains highly relevant in terms of the policy of Philippines, the needs of the LGUs and Japanese ODA policy.

In respect of the consistency with the Philippine policy, the Medium-Term Philippine Development Plan (MTPDP2004-2010) highlights solid waste management as one of target issues of the environment sector. And the MTPDP also stated the importance to support the LGUs for full implementation of RA9003.

Each LGU needs to establish an ESWM System with technical assistance and supervision of NSWMC according to RA9003. However, most of LGUs do not have enough capability for the establishment of the Ecological Solid Waste Management System with formulation of the SWM plan. The project focused on the selected three LGUs to establish the Ecological Solid Waste Management System including SLF, WD system, etc as the Project Purpose and to disseminate the experience and knowledge acquired in the Project to other LGUs as the Overall Goal. Therefore, the Project appropriately addresses the issues most concerned in the Philippines.

In respect of the consistency with the Japanese policy, environmental issues are one of the priority areas according to the "Assistance Plan for the Philippines" (by the Ministry of Foreign Affairs in Japan). Furthermore, the Country Assistance Strategy (CAS) for the Philippines (Working Paper of ODA Taskforce of Philippines) also mentioned that solid waste management is one of the target areas for assistance.

#### **4.2. Effectiveness**

There is no sufficient evidence to conclude the successful achievement of the Project Purpose at the time of the Mid-term Review.

However, the indicator needs clarification since plans and programs in the SWM plan included more activities than those planned in this project. It is, therefore, not assured that the achievement of the project purpose can be verified by such an indicator.

There are some concerns whether each city can secure sufficient budget to implement the activities described in this Project or not. Furthermore, the national and local elections next year may adversely change the organization regarding solid waste management.

#### **4.3. Efficiency**

According to the interview survey, the inputs and timing of human resources, training course, facilities and equipment and the level of utilization are overall satisfactory in comparison with achieved outputs so far. Therefore, it is concluded that the efficiency of the Project is almost satisfactory up to timing of the Mid-term review.

However, if the completion of new SLF site is extended, it may be difficult to conduct sufficient training for the operation and maintenance of the new SLF within the project period. The consideration of training procedure for the operation and maintenance of the new SLF will be needed.

#### Human resources (Japanese experts)

According to the interview with the Philippine side, the input of human resources (Japanese experts) and its timing are almost appropriate. In each city, a local consultant is assigned during the half of the project period to facilitate communication between the C/P and JICA experts. In addition, Japanese experts, during their assigned period in the city, tried to share the information with the C/Ps even if it was outside of his field of expertise. Overall, the input and timing of Japanese experts are appropriate to achieve the Output 1 to 3 up to the time of Mid-term review. In the later stage of the Project, the assignment of Japanese experts for operation and maintenance of SLF need to be considered to secure efficiency.

#### Human resources (C/Ps)

The C/Ps were appointed to form a Solid Waste Management Task team including task team leader, deputy task team leader, and persons in charge of SWM planning, waste diversion, final disposal, financial analysis, Information Education Campaign (IEC) and environmental and social consideration. Though some of the C/Ps were replaced during the Project due to retiring or changing the job, it did not cause any major issues. Therefore, the efficiency will be secured in terms of assignment of C/Ps.

#### Training course in Japan

The training in Japan was conducted from October 27 to November 15, 2008. Six C/Ps who participated in the training highly appreciated the training opportunity, although the language barrier caused inconvenience in some occasions. One of them left the project after he was assigned to a different office, but according to the interview to the other five persons, the experience of the training in Japan seems sufficiently motivate them to actively work for the Project.

#### Equipment and facility provided by Japanese side

Most of the equipment from the Japanese side were procured and provided as scheduled, though the multi-purpose vehicle for Davao City has not been in operation due to the delay of registration.

The equipment provided by JICA listed in Annex 4 is now fully utilized for the operation at the pilot MRFs, Waste Characterization Survey (WACS), environment monitoring or other activities and will be utilized for the actualization of WD plan and implementation of IEC. These were inevitable for project execution and were incurred at appropriate time.

#### Expenses provided by Philippine side

The local expenses born by the Philippine side include cost for drivers and fuel for donated vehicles, the utility cost for office, administration fee for the SWM plan and ECC approval.

#### **4.4. Impact**

It is too early to evaluate of the achievement of overall goal on the halfway of the whole process. The following are positive or negative impacts on the Project.

There are, however some positive negative effects observed as follows:

##### **Positive impact**

- Through the project, the visitors from neighboring LGUs sometimes visit to observe the operation of the pilot MRF.
- The technical seminar was held with participants from neighboring LGUs. Therefore, its knowledge and experience were also conveyed to other LGUs to some extent.
- The joint use of the new SLF has been discussed among neighboring LGUs in Sagay City to accept only residual waste from them.
- The mayor of Calbayog City is the current Secretary-General of the League of Cities in the Philippines, who can promote the good practices of SWM in his city to other LGUs.

##### **Negative impact**

- The closure of existing dump site in Sagay and Calbayog and may have some negative impacts on the waste pickers but Sagay and Calbayog would try to prepare the livelihood programs for the waste pickers.

#### **4.5. Sustainability**

It is still too early to evaluate the sustainability of the Project. The consideration of the following items is necessary in order to secure sustainability.

- NSWMC is mandated to provide technical and financial support to the LGUs for the implementation of RA9003 but the capacity of NSWMC needs to be developed.
- In the Project, the experience and knowledge are shared with neighboring LGUs through the technical transfer seminars and workshops as well as the preparation of the manual and the updating guidebooks. The continuous implementation of these

activities is needed to secure the sustainability of the Project.

- Improvement of waste charging system to fit into the financial plan as proposed in the SWM plan is needed to secure the financial sustainability.
- The solid waste management staff of the LGUs, barangay captains and school staff and other stakeholders related to solid waste management took part in the project actively.
- Capacity development regarding operation and maintenance of the SLF is needed in the latter stage of the Project.

## **Chapter 5. RESULTS OF REVIEW**

### **5.1. Conclusions**

- The progress and achievement of the project is satisfactory at this stage in spite of external factors such as the submission of additional requirements for the ECC, the delay of loan approval by DBP, and the delay of approval of Sagay and Calbayog SWM plans by NSWMC. Since the Japanese experts have to distribute its human resources to three cities (Sagay, Calbayog, Davao) and NSWMC to work with four counterpart organizations, the said achievement largely owes strategic project management and high technical expertise of the Japanese experts as well as the aggressive contribution of the C/Ps.
- The C/Ps' technical improvement was also adequate. What they attained, however, is mostly limited to the theoretical knowledge based on written material. Project activities in the latter half of the project are significantly important to improve their capacity in practical terms.
- The Project also provided some effects to other neighboring LGUs. In the latter half of the project, the continuous contribution of C/Ps is necessary for the dissemination of the knowledge and experience gained in the Project. Furthermore, the project is expected to strengthen the institutional mechanism by developing the manual/guidebooks which will help facilitate the LGUs to comply with RA9003.
- All the three cities, however, have to handle fiscal measures to implement the project and to materialize the SWM Plans. In particular the waste fee charging system should be enforced. Consistency of the SWM policy and due care for the environmental and social aspects at the SLFs can be other issues to influence project sustainability.

### **5.2. Recommendations**

#### **Improvement of Project Implementation Process**

- To reflect the progress of the activities within the first half of the Project and the difference of SWM in each city, the Team proposed to modify the current PDM (ver.2) as attached, based on the report of the midterm review.
- Based on the modified PDM (ver.3), the Team recommends revising the Plan of Operation (PO) to reflect the current changes. The PO is not yet updated since the Records of Discussion was signed in July 2007.
- In addition, at the latter half of the project period, the project will conduct several activities to consolidate the outputs of the project with the cooperation of NSWMC. Thus, the Team recommends that NSWMC takes a major role to consolidate outputs of the project, in close cooperation with the 3 cities.
- The Team recommends to the Experts and to the 3 cities to periodically monitor the progress of the project based on the revised PDM and PO, in close coordination with NSWMC and the EMB Regional Offices.

#### Achievement of Output, Project Purpose and Overall Goal

- The SWM plan approval process of NSWMC has to be accelerated by disseminating the approval process, clarifying what actually hinders the process, and arranging a feedback session with the stakeholders.
- It is strongly needed to draw lessons that can be replicated from the different pilot MRFs. Such attempt is to provide different composting technologies as promising factors to disseminate the lessons learned to other barangays.
- On the financial aspect, though the waste charging system is proposed in the SWM plans, there are still issues to be resolved, such as public consensus and political decision making. The Team suggests to each city to take necessary action to get an endorsement from Solid Waste Management Board to introduce the system for securing the more financial sustainability.
- Waste Diversion Rate (WDR) is one of the major indicators to monitor the progress of the activities of Output 2, so the Team recommends each city to set the baseline of WDR, and monitor the situation of their WDRs periodically. On the other hand, the Team also recommends to NSWMC to set the unified rule on how to calculate the WDR in order to properly show the current situation of SWM of LGUs in the Philippines.

#### Capacity Improvement

- The progress of capacity enhancement of C/Ps should be monitored to assess the effect of Project in each city. Such monitoring mechanism needs to be institutionalized as soon as possible.
- To ensure the appropriate operation and maintenance of the SLF, during and after the project period, it is recommended to explore the possibility to conduct O&M trainings at the site where the SLF

can start operation earliest or even at sites, other than the three target cities, where landfill operation is successfully implemented in the Philippines.

- To enhance the capacity of the community, the Team recommends more involvement of stakeholders of each city. As part of the effort, the Team suggests to include the stakeholders from the barangay where the Pilot MRF is located and a representative from NSWMC-Secretariat or EMB Regional Office-SWM Coordinator as a member of the counterpart training in Japan.

Project Title: The Establishment of Ecological Solid Waste Management System in Three Cities Primary Target: Residents of Calbayog City Duration: 2007/10-2010/10

Project Area: Calbayog City	Version 2 Date 2/28/09	Means of Verification	Important Assumptions
<p><b>Narrative Summary</b></p> <p>Knowledge and experience of ecological solid waste management (SWM) in Calbayog City is replicated in other local government unit (LGUs)</p>	<p>National Status Report: SWM Plans are approved in many neighboring LGUs and implement waste diversion plan and improvement of disposal sites.</p>	<p>Distribute list of the manuals. Attendance list and program of workshops and seminars.</p>	<p>Calbayog City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>Overall Goal</b></p> <p>The manuals prepared through the project activities are utilized in other LGUs.</p>	<p>Objectively Verifiable Indicators</p>	<p>Technical seminars for officials responsible for SWM in neighboring LGUs are held 3 times.</p>	<p>Calbayog City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>Project Purpose</b></p> <p>Ecological SWM system is established in Calbayog City</p>	<p>The manuals prepared through the project activities are utilized in other LGUs.</p>	<p>Technical seminars for officials responsible for SWM in neighboring LGUs are held 3 times.</p>	<p>Calbayog City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>Outputs</b></p> <p>1. Capacity of LGUs on SWM planning is strengthened</p> <p>2. Solid waste diversion system is improved</p> <p>3. Final disposal system is improved</p>	<p>Plan and programs formulated under the SWM plan are implemented in Calbayog City</p> <p>1-1 Approval of ESWM Plan</p> <p>1-2 Workshops and seminars for officials responsible for SWM in Calbayog City are held 7 times.</p> <p>1-3 A Manual on formulation of SWM plan</p> <p>2-1 Waste Diversion Rate (WDR) is achieved at 25% by the end of the project</p> <p>2-2 Workshops on 3Rs activities in the Barangay located Pilot MRF are held 7 times.</p> <p>2-3 IEC campaign on 3Rs activities is carried out at every Barangay in collection area.</p> <p>2-4 Pilot Material Recovery Facility (MRF) is constructed in the selected Barangay and operated.</p> <p>3-1 Sanitary landfill is constructed and operated in compliance with RA9003.</p> <p>3-2 Updating of the technical guidebooks on the safe closure of disposal facilities and the concept and design of sanitary landfill.</p>	<p>Annual Report prepared by LGUs at end of every year shows years' activities.</p> <p>1-1 ESWM Plan is formulated, submitted and approved by NSWMC</p> <p>1-2 Attendance list and program of workshops and seminars.</p> <p>1-3 SWM planning Manual is formulated</p> <p>2-1 Annual Report prepared by LGUs at end of every year by shows years' WDR.</p> <p>2-2 Attendance list and meeting minutes of workshops.</p> <p>2-3 IEC campaign program and activity report</p> <p>2-4 Design, drawings and completion report of the Pilot MRF construction work and continuation of the activities of Pilot MRF</p> <p>3-1-1 Design documents and completion report of sanitary landfill site are prepared</p> <p>3-1-2 Operation and monitoring records of landfill site are prepared</p> <p>3-2 Technical guidebooks on safe closure and design of waste disposal sites are updated and the existing open dump site is closed based on the conditions of the guide book</p>	<p>Calbayog City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>Activities</b></p> <p>1.1 Study the current SWM and identify the issues to be addressed.</p> <p>1.2 Conduct a cost analysis of the current SWM practices in Calbayog</p> <p>1.3 Formulate a Calbayog SWM plan in accordance with NSWMC guideline</p> <p>1.4 Conduct a financial study on the SWM plan and formulate a financial plan based on the concept for charging waste fee</p> <p>1.5 Implement the Calbayog SWM plan</p> <p>1.6 Review and modify the Calbayog SWM plan and the SWM fee changing and collection systems</p> <p>1.7 Update a manual to formulate the ESWM plan for replication by other LGUs</p> <p>2.1 Conduct field investigations to determine the current waste flow.</p> <p>2.2 Study the current waste diversion (WD) system focusing on good practices.</p> <p>2.3 Formulation of a WD plan reflecting the characteristics of the area conditions.</p> <p>2.4 Conduct information education campaigns (IEC) to raise WD rate.</p> <p>2.5 Conduct a pilot project to introduce a cluster MRF to urban areas where MRFs are difficult to locate individually</p> <p>2.6 Review and modify the WD plan</p> <p>3.1 Conduct site investigation and necessary surveys for the existing dump site.</p> <p>3.2 Conduct site investigation and necessary surveys for the proposed site for SLF.</p> <p>3.3 Examine a possibility of continuous use of the open dump site by converting into a SLF</p> <p>3.4 Conduct design and feasibility study of a SLF at the proposed site</p> <p>3.5 Conduct EIA for the proposed site</p> <p>3.6 Assist to arrange a fund for construction of the SLF</p> <p>3.7 Assist to prepare for bidding for the construction of the SLF</p> <p>3.8 Assist to supervise the construction work of the SLF</p> <p>3.9 Assist to operate and maintain the SLF</p> <p>3.10 Formulate a manual for operation and management of SLF</p> <p>3.11 Formulate a plan and design of safe closure of the existing dump site</p> <p>3.12 Assist to prepare for bidding for safe closure work</p> <p>3.13 Assist to conduct safe closure of the existing disposal site based on the plan</p> <p>3.14 Update a guidebook on safe closure of disposal sites</p>	<p>Inputs</p> <p>Japanese Side</p> <p>Human Resources</p> <p>1. Chief Advisor / Solid Waste Management</p> <p>2. Waste Diversion</p> <p>3. Final Disposal</p> <p>4. Environmental and Social Considerations</p> <p>5. Financial Analysis</p> <p>Equipment</p> <p>1. All-in one type printer</p> <p>2. IEC Campaign Materials</p> <p>3. Potable equipment for water quality analysis</p> <p>4. Multi-purpose Vehicle</p> <p>5. MRF equipment for pilot project</p>	<p>Philippine Side</p> <p>Human Resources (Solid Waste Management Task Team)</p> <p>1. Solid Waste Management</p> <p>2. Waste Diversion</p> <p>3. Final Disposal</p> <p>4. Environmental and Social Considerations</p> <p>5. Financial Analysis</p> <p>Equipment</p> <p>1. Office space</p> <p>2. Desks and chairs</p> <p>3. Other facilities</p> <p>NSWMC</p> <p>1. Counterpart</p> <p>2. EMB Regional officer</p>	<p>1. Counterparts are assigned and participate to the project activities.</p> <p>2. Pilot MRF construction is completed and start operation as scheduled.</p> <p>3. SLF construction work is completed and start operation as scheduled by Calbayog City</p> <p>Pre-Conditions</p>

# Annex 1-1②

Project Title: The Establishment of Ecological Solid Waste Management System in Three Cities  
 Project Area: Sagay City

Primary Target: Residents of Sagay City  
 Duration: 2007/10- 2010/10

Version 2, Date 2008/09/9	Means of Verification	Objectively Verifiable Indicators	Narrative Summary	Important Assumptions
<p><b>Overall Goal</b>                      Knowledge and experience of ecological solid waste management (SWM) in Sagay City is replicated in other local government unit (LGUs)</p>	<p>National Status Report: SWM Plans are approved in many neighboring LGUs and implement waste diversion plan and improvement of disposal sites.                      Distribute list of the manuals.                      Attendance list and program of workshops and seminars.</p>	<p>The manuals prepared through the project activities are utilized in other LGUs.                      Technical seminars for officials responsible for SWM in neighboring LGUs are held 3 times.</p>	<p>Ecological SWM system is established in Sagay City</p>	<p>Sagay City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>Project Purpose</b>                      Ecological SWM system is strengthened</p>	<p>Annual Report prepared by LGUs at end of every year shows years' activities.</p>	<p>Plan and programs formulated under the SWM plan are implemented in Sagay City</p>	<p>1. Capacity of LGUs on SWM planning is strengthened</p>	<p>Sagay City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>Outputs</b></p>	<p>1-1 ESWM Plan is formulated, submitted and approved by NSWMC                      1-2 Attendance list and program of workshops and seminars                      1-3 SWM planning Manual is formulated                      2-1 Annual Report prepared by LGUs at end of every year by shows years' WDR.                      2-2 Attendance list and meeting minutes of workshops.                      2-3 IEC campaign program and activity report                      2-4 Design, drawings and completion report of the Pilot MRF construction work and continuation of the activities of Pilot MRF.                      3-1-1 Design documents and completion report of sanitary landfill site are prepared.                      3-1-2 Operation and monitoring records of landfill site are prepared                      3-2 Technical guidebooks on safe closure and design of waste disposal sites are updated and the existing open dump site is closed based on the conditions of the guide book</p>	<p>1-1 Approval of ESWM Plan                      1-2 Workshops and seminars for officials responsible for SWM in Sagay City are held 7 times.                      1-3 A Manual on formulation of SWM plan                      2-1 Waste Diversion Rate (WDR) is achieved at 25% by the end of the project                      2-2 Workshops on 3Rs activities in the Barangay located Pilot MRF are held 7 times.                      2-3 IEC campaign on 3Rs activities is carried out at every Barangay in collection area.                      2-4 Pilot Material Recovery Facility (MRF) is constructed in the selected Barangay and operated                      3-1 Sanitary landfill is constructed and operated in compliance with RA9003.                      3-2 Updating of the technical guidebooks on the safe closure of disposal facilities and the concept and design of sanitary landfill.</p>	<p>2. Solid waste diversion system is improved</p>	<p>Sagay City shall allocate sufficient budget for SWM to implement the annual action plan.</p>
<p><b>3. Final disposal system is improved</b></p>	<p>Inputs                      Japanese Side                      Human Resources                      1. Chief Advisor / Solid Waste Management                      2. Waste Diversion                      3. Final Disposal                      4. Environmental and Social Considerations                      5. Financial Analysis                      Equipment                      1. A/I-in one type printer                      2. IEC Campaign Materials                      3. Potable equipment for water quality analysis                      4. Multi-purpose Vehicle                      5. MRF equipment for pilot project</p>	<p>Philippine Side                      Human Resources (Solid Waste Management Task Team)                      1. Solid Waste Management                      2. Waste Diversion                      3. Final Disposal                      4. Environmental and Social Considerations                      5. Financial Analysis                      Equipment                      1. Office space                      2. Desks and chairs                      3. Other facilities                      NSWMC                      1. Counterpart                      2. EMB Regional officer</p>	<p>1.5 Implement the Sagay SWM plan                      1.6 Review and modify the Sagay SWM plan and the SWM fee charging and collection systems                      1.7 Update a manual to formulate the ESWM plan for replication by other LGUs                      2.1 Conduct field investigations to determine the current waste flow.                      2.2 Study the current waste diversion (WD) system focusing on good practices.                      2.3 Formulation of a WD plan reflecting the characteristics of the area conditions.                      2.4 Conduct information education campaigns (IEC) to raise WD rate.                      2.5 Conduct a pilot project to introduce a cluster MRF to urban areas where MRFs are difficult to locate individually                      2.6 Review and modify the WD plan                      3.1 Conduct site investigation and necessary surveys for the existing dump site.                      3.2 Conduct site investigation and necessary surveys for the proposed site for SLF.                      3.3 Examine a possibility of continuous use of the open dump site by converting into a SLF                      3.4 Conduct design and feasibility study of a SLF at the proposed site                      3.5 Conduct EIA for the proposed site                      3.6 Assist to arrange a fund for construction of the SLF                      3.7 Assist to prepare for bidding for the construction of the SLF                      3.8 Assist to supervise the construction work of the SLF                      3.9 Assist to operate and maintain the SLF                      3.10 Formulate a manual for operation and management of SLF                      3.11 Formulate a plan and design of safe closure of the existing dump site                      3.12 Assist to prepare for bidding for safe closure work                      3.13 Assist to conduct safe closure of the existing disposal site based on the plan                      3.14 Update a guidebook on safe closure of disposal sites</p>	<p>1. Counterparts are assigned and participate to the project activities.                      2. Pilot MRF construction is completed and start operation as scheduled.                      3. SLF construction work is completed and start operation as scheduled by Sagay City</p>
<p><b>Activities</b></p>	<p>Pre-Conditions</p>	<p>Pre-Conditions</p>	<p>Pre-Conditions</p>	<p>Pre-Conditions</p>

# Annex 1-13

Project title: The Establishment of Ecological Solid Waste Management System in Three Cities  
 Project Area: Davao City

Primary Target: Residents of Davao City

Duration: 2007/10- 2010/10  
 Version 2 Date 2008/9/9

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b>                      Knowledge and experience of ecological solid waste management (SWM) in Davao City is replicated in other local government unit (LGUs)</p> <p><b>Project Purpose</b>                      Ecological SWM system is established in Davao City</p> <p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>Capacity of Davao City on SWM planning is strengthened</li> <li>Solid waste diversion system is improved</li> <li>Appropriate Operation/Maintenance/Management of Sanitary Landfill is attained.</li> </ol> <p><b>Activities</b></p> <ol style="list-style-type: none"> <li>1.1 Make advices and recommendations for SWM issues.</li> <li>1.2 Conduct training through workshops, technical seminars and on the job training (OJT) on SWM activities</li> <li>1.3 Assist the implementation of the SWM Plan.</li> <li>2.1 Conduct field investigations to determine the current waste flow.</li> <li>2.2 Make advices and recommendation for solid waste diversion (WD) plan.</li> <li>2.3 Monitor and promote the solid waste diversion plan.</li> <li>2.4 Assist Information, Education, Communication (IEC) campaigns.</li> <li>3.1 Prepare a manual on Operation/Maintenance/Management of sanitary landfill</li> <li>3.2 Prepare a plan and design of safe closure of existing open dump site.</li> <li>3.3 Assist supervision work for safe closure work.</li> </ol>	<p>The manuals prepared through the project activities are utilized in other LGUs.</p> <p>Technical seminars for officials responsible for SWM in neighboring LGUs are held 3 times.</p> <p>Plan and programs formulated under the SWM plan are implemented in Davao City</p> <ol style="list-style-type: none"> <li>1.1 JICA Experts' Recommendations are understood by the Davao city officials concerned (MT1)</li> <li>1-2 Workshops and seminars for the officials responsible for SWM are held 7 times.</li> <li>1-3 A Manual on formulation of SWM plan</li> <li>2-1 Pilot Material Recovery Facility (MRF) is constructed in the selected Barangay.</li> <li>2-2 Workshops on 3Rs activities are held 7 times at the Barangay where the Pilot MRF is constructed.</li> <li>2-3 IEC Campaign on 3Rs activities is carried out at the major Barangays.</li> <li>3-1 Prepare a manual on Operation/Maintenance/Management of sanitary landfill.</li> </ol>	<p>National Status Report: SWM Plans are approved in many neighboring LGUs and implement waste diversion plan and improvement of disposal sites.</p> <p>Distribute list of the manuals.</p> <p>Attendance list and program of workshops and seminars.</p> <p>Annual action plan is formulated and implemented.</p> <ol style="list-style-type: none"> <li>1-1 The documents on SWM issues is prepared and explained to the counterpart staff</li> <li>1-2 Attendance list of capacity development / training programs</li> <li>1-3 SWM planning Manual is prepared and explained</li> <li>2-1 Design, drawings and completion report of Pilot MRF and continuation of the Pilot MRF activities</li> <li>2-2 Attendance list of capacitating / developing activities</li> <li>2-3 IEC Campaign program and activity report</li> <li>3-1 Preparation of design review report and operation and maintenance manual for new SLF</li> </ol>	
	<p><b>Inputs</b></p> <p>Philippine Side</p> <p>Human Resources (Solid Waste Management Task Team)</p> <ol style="list-style-type: none"> <li>Solid Waste Management</li> <li>Waste Diversion</li> <li>Final Disposal</li> <li>Environmental and Social Considerations</li> <li>Financial Analysis</li> </ol> <p>Equipment</p> <ol style="list-style-type: none"> <li>Office space</li> <li>Desks and chairs</li> <li>Other facilities</li> </ol> <p>NSWMC</p> <ol style="list-style-type: none"> <li>Counterpart</li> <li>EMB Regional office staff</li> </ol>	<p>Japanese Side</p> <p>Human Resources</p> <ol style="list-style-type: none"> <li>Chief Advisor / Solid Waste Management</li> <li>Waste Diversion</li> <li>Final Disposal</li> <li>Environmental and Social Considerations</li> <li>Financial Analysis</li> </ol> <p>Equipment</p> <ol style="list-style-type: none"> <li>All-in one type printer</li> <li>IEC Campaign Materials</li> <li>Portable equipment for water quality analysis</li> <li>Multi-purpose Vehicle</li> <li>MRF equipment for pilot project</li> </ol>	<ol style="list-style-type: none"> <li>Counterparts are assigned and participate the project activities</li> <li>Pilot MRF construction is completed and start operation as scheduled.</li> <li>SLF construction work is completed and start operation as scheduled by Davao City</li> </ol> <p>Pre-Conditions</p> <p>Technical capacity of the counterpart staff is upgraded and encouraged for implementation of the plans and programs of the ESWM Plan</p>

ANNEX 1.2

**PDM ver.2 by Combining the PDMs of Three Cities**

**Project Title:** Establishment of Ecological Solid Waste Management in 3 Cities  
**Target Group:** LGU Officers involved with SWM and Residents of the 3 Cities  
**Project Duration:** 36 months (from October/2007 to October/2010)

PDM Ver. 2 Combined, Date: June 23, 2009

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal:</b>                      Knowledge and experience of ecological solid waste management (SWM) in the three cities are replicated in other LGUs.</p> <p><b>Project Purpose:</b>                      Ecological SWM system is established in the three cities.</p>	<p>1. The manual prepared through the pilot activities are utilized in other LGUs.                      2. Technical seminars for officials responsible for SWM in neighboring LGUs are held 3 times.</p> <p>Plan and programs formulated under the SWM plan are implemented in 3 cities.</p>		
<p><b>Outputs:</b></p> <p>1. Capacity of LGUs on SWM planning is strengthened.</p> <p>2. Solid waste diversion system is improved.</p>	<p>1-1 Approval of ESWM Plan. (Sagay &amp; Calbayog)</p> <p>1-1 JICA Experts' Recommendations are understood by the Davao City officials concerned. (Davao)</p> <p>1-2 Workshops and seminars for officials responsible for SWM in 3 cities are held 7 times. (All cities)</p> <p>1-3 A Manual on formulation of SWM plan (All cities)</p> <p>2-1 Waste Diversion Rate (WDR) is achieved at 25% by the end of the project. (Sagay &amp; Calbayog)</p> <p>2-1 Pilot MRF is constructed in the selected Barangay. (Davao)</p> <p>2-2 Workshop on 3Rs activities in the Barangay located Pilot MRF are held 7 times. (All cities)</p> <p>2-3 IEC campaign on 3Rs activities is carried out at every Barangay in collection area. (Sagay &amp; Calbayog)</p> <p>2-3 IEC campaign on 3Rs activities is carried out at the major Barangays. (Davao)</p> <p>2-4 Pilot Material Recovery Facility (MRF) is constructed in the selected Barangay and operated. (Sagay &amp; Calbayog)</p>	<p>1-1 The documents on SWM issues is prepared and explained to the counterpart staff                      1-1 The documents on SWM issues is prepared and explained to the counterpart staff                      1-2 Attendance list of capacity development / training programs                      1-3 SWM planning Manual is prepared and explained                      2-1 Annual Report prepared by LGUs at end of every year by shows years' WDR.                      2-1 Design, drawings and completion report of Pilot MRF and continuation of the Pilot MRF activities                      2-2 Attendance list and meeting minutes of workshops.                      2-3 IEC campaign program and activity report</p> <p>2-4 Design, drawings and completion report of the Pilot MRF construction work and continuation of the activities of Pilot MRF</p>	

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<p>3. Final disposal system is improved. (Sagay &amp; Calbayog) Appropriate operation/maintenance/management of sanitary landfill is attained. (Davao)</p>	<p>3-1 Sanitary landfill (SLF) is constructed and operated in compliance with RA9003. (Sagay &amp; Calbayog)</p> <p>3-2 Updating of the technical guidebooks on the safe closure of disposal facilities and the concept and design of sanitary landfill. (Sagay &amp; Calbayog)</p> <p>3-1 Prepare a manual on Operation/Maintenance of sanitary landfill. (Davao)</p>	<p>3-1-1 Design documents and completion report of sanitary landfill site are prepared.</p> <p>3-1-2 Operation and monitoring records</p> <p>3-2 Technical guidebooks on safe closure and design of waste disposal sites are updated and the existing open dump site is closed based on the conditions of the guide book</p> <p>3-1 Preparation of design review report and operation and maintenance manual for new SLF</p>	
<p><b>Activities:</b> <b>For Sagay &amp; Calbayog</b></p> <p>1.1 Review the current status of SWM and identify issues to be addressed.</p> <p>1.2 Conduct a cost analysis of the current SWM practices</p> <p>1.3 Formulate a SWM plan in accordance with NSWMC guideline</p> <p>1.4 Conduct a financial study on the SWM plan and prepare a financial plan with fee collection systems</p> <p>1.5 Implement the SWM plan</p> <p>1.6 Review and modify the SWM plan and the SWM fee collection systems</p> <p>1.7 Update a manual to formulate the SWM plan for replication by other LGUs</p> <p>2.1 Conduct field investigations to determine the current waste flow</p> <p>2.2 Study the current waste diversion (WD) system focusing on good practices</p> <p>2.3 Formulation of a WD plan reflecting characteristics of area conditions</p> <p>2.4 Conduct information education campaigns (IEC) to raise WD rate</p> <p>2.5 Conduct a pilot project to introduce a cluster MRF to urban areas where MRFs are difficult to locate individually</p> <p>2.6 Review and modify the WD plan</p> <p>3.1 Conduct site investigation and necessary surveys for the site(s).</p> <p>3.2 Conduct site investigation and necessary surveys for the proposed site</p> <p>3.3 Examine a possibility of continuous use of the site by converting into a SLF</p>		<p><b>Inputs:</b> <b>Japanese Side:</b> <b>Human Resources</b></p> <ol style="list-style-type: none"> <li>1. Chief Advisor/SWM</li> <li>2. Waste Diversion</li> <li>3. Final Disposal</li> <li>4. Environmental and Social Considerations</li> <li>5. Financial Analysis</li> </ol> <p><b>Equipment</b></p> <ol style="list-style-type: none"> <li>1. All-in one type printer</li> <li>2. IEC Campaign Materials</li> <li>3. Portable equipment for water quality analysis</li> <li>4. Multi-purpose Vehicles</li> <li>5. MRF equipment for pilot projects</li> </ol> <p><b>Philippines Side:</b></p>	<ol style="list-style-type: none"> <li>1. Counterparts are assigned and participate to the project activities. (All cities)</li> <li>2. Pilot MRF construction is completed and start operation as scheduled. (All cities)</li> <li>3. SLF construction work is completed and start operation as scheduled. (All cities)</li> </ol>

ANNEX 1.2

<p>3.4 Conduct design of a SLF at the proposed site</p> <p>3.5 Conduct EIA on the plan for the proposed site</p> <p>3.6 Assist to arrange funding for construction of the SLF</p> <p>3.7 Assist to prepare for bidding for construction of the SLF</p> <p>3.8 Assist to supervise the construction work of the SLF</p> <p>3.9 Assist to operate and maintain the SLF</p> <p>3.10 Formulate a manual for operation and management of SLF</p> <p>3.11 Formulate a plan and design of safe closure of the existing dump site</p> <p>3.12 Assist to prepare for bidding for safe closure work</p> <p>3.13 Conduct safe closure of the existing disposal site based on the plan</p> <p>3.14 Update a manual on safe closure of a dumpsite for other LGUs</p> <p><b>For Davao</b></p> <p>1.1 Make advices and recommendations for SWM issues.</p> <p>1.2 Conduct training through workshops, technical seminars and on-the-job training (OJT) on SWM activities</p> <p>1.3 Assist the implementation of the SWM Plan</p> <p>2.1 Conduct field investigations to determine the current waste flow</p> <p>2.2 Make advices and recommendation for solid waste diversion (WD) plan</p> <p>2.3 Monitor and promote the solid waste diversion plan</p> <p>2.4 Assist IEC campaigns</p> <p>3.1 Prepare a manual on Operation/Maintenance of SLF</p> <p>3.2 Prepare a plan and design of safe closure of the existing open dump site</p> <p>3.3 Assist supervision work for safe closure work</p>	<p><b>Human Resources (SWM Task Team)</b></p> <ol style="list-style-type: none"> <li>1. Solid Waste Management</li> <li>2. Waste Diversion</li> <li>3. Final Disposal</li> <li>4. Environmental and Social Considerations</li> <li>5. Financial Analysis</li> </ol> <p><b>Equipment</b></p> <ol style="list-style-type: none"> <li>1. Office space</li> <li>2. Desk and chairs</li> <li>3. Other facilities</li> </ol> <p><b>NSWMC</b></p> <ol style="list-style-type: none"> <li>1. Counterpart</li> <li>2. EMB Regional Officer</li> </ol>	<p><b>Pre-conditions:</b></p> <ol style="list-style-type: none"> <li>1. Technical capacity of the counterpart staff is upgraded and encouraged for implementation of the plans and programs of the ESWM Plan (Davao)</li> </ol>
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# Annex 1.3: Plan of Operation (PO ver.0) with the Actual Time Frame of Project Implementation (Calbayog)

Project Title: Establishment of Ecological Solid Waste Management in 3 Cities  
 Sub-Project Title: Establishment of Ecological Solid Waste Management in Calbayog  
 Sub-Project Site: Calbayog  
 Target Group: Officers involved with SWM in Calbayog and Residents of Calbayog

Project period: Three years from Oct 2007 to Sep 2010  
 ■■■■■ Planned Working Period  
 ■■■■■ Actual Working Period

Activities	2007JFY			2008JFY			2009JFY			2010JFY		
	10	11	12	10	11	12	10	11	12	10	11	12
<b>1. Capacity Development of LGU in SWM Planning</b>	■	■	■	■	■	■	■	■	■	■	■	■
1.1 Study the current SWM and identify the issues to be addressed	■	■	■	■	■	■	■	■	■	■	■	■
1.2 Conduct a cost analysis of the current SWM practices in Calbayog	■	■	■	■	■	■	■	■	■	■	■	■
1.3 Formulate a Calbayog SWM plan in accordance with NSWMC guideline	■	■	■	■	■	■	■	■	■	■	■	■
1.4 Conduct a financial study on the SWM plan and prepare a financial plan with fee collection systems	■	■	■	■	■	■	■	■	■	■	■	■
1.5 Implement the Calbayog SWM plan	■	■	■	■	■	■	■	■	■	■	■	■
1.6 Review and modify the Calbayog SWM plan and the SWM fee collection systems	■	■	■	■	■	■	■	■	■	■	■	■
1.7 Develop a manual on a LGU SWM plan for replication by other LGUs	■	■	■	■	■	■	■	■	■	■	■	■
<b>2. Assessment of Solid Waste Diversion System</b>	■	■	■	■	■	■	■	■	■	■	■	■
2.1 Conduct field investigations to determine the current waste flow	■	■	■	■	■	■	■	■	■	■	■	■
2.2 Study the current waste diversion (WD) system focusing on good practices	■	■	■	■	■	■	■	■	■	■	■	■
2.3 Formulation of a WD plan reflecting characteristics of area conditions	■	■	■	■	■	■	■	■	■	■	■	■
2.4 Conduct information education campaigns (IEC) to raise WD rate	■	■	■	■	■	■	■	■	■	■	■	■
2.5 Conduct a pilot project to introduce an combined MRF to urban areas where MRFs are difficult to locate individually	■	■	■	■	■	■	■	■	■	■	■	■
2.6 Review and modify the WD plan	■	■	■	■	■	■	■	■	■	■	■	■
<b>3. Assessment of Final Disposal System</b>	■	■	■	■	■	■	■	■	■	■	■	■
3.1 Conduct site investigation and necessary surveys for the existing dump site	■	■	■	■	■	■	■	■	■	■	■	■
3.2 Conduct site investigation and necessary surveys for the proposed site	■	■	■	■	■	■	■	■	■	■	■	■
3.3 Examine a possibility of continuous use of the site by converting into a SLF	■	■	■	■	■	■	■	■	■	■	■	■
3.4 Conduct design and feasibility study of a SLF at the proposed site	■	■	■	■	■	■	■	■	■	■	■	■
3.5 Conduct EIA on the plan for the proposed site	■	■	■	■	■	■	■	■	■	■	■	■
3.6 Arrange funding for construction of the SLF	■	■	■	■	■	■	■	■	■	■	■	■
3.7 Prepare for bidding for construction of the SLF	■	■	■	■	■	■	■	■	■	■	■	■
3.8 Supervise the construction work of the SLF	■	■	■	■	■	■	■	■	■	■	■	■
3.9 Operate and maintain the SLF	■	■	■	■	■	■	■	■	■	■	■	■
3.10 Develop a manual for managing a SLF	■	■	■	■	■	■	■	■	■	■	■	■
3.11 Develop a plan and design of safe closure of the existing dump site	■	■	■	■	■	■	■	■	■	■	■	■
3.12 Prepare for bidding for safe closure	■	■	■	■	■	■	■	■	■	■	■	■
3.13 Conduct safe closure of the site based on the plan	■	■	■	■	■	■	■	■	■	■	■	■
3.14 Develop a manual on safe closure of a dumpsite for other LGUs	■	■	■	■	■	■	■	■	■	■	■	■

Mid-term Review Point

# Annex 1.3: Plan of Operation (PO ver.0) with the Actual Time Frame of Project Implementation (Sagay)

Project Title: Establishment of Ecological Solid Waste Management in 3 Cities

Sub-Project Title: Establishment of Ecological Solid Waste Management in Sagay

Sub-Project Site: Sagay

Target Group: Officers involved with SWM in Sagay and Residents of Sagay

Legend: ■■■■■ Planned Working Period  
 ■■■■■ Actual Working Period

Activities	2007.JFY			2008.JFY			2009.JFY			2010.JFY		
	1Q	2Q	3Q	1Q	2Q	3Q	1Q	2Q	3Q	1Q	2Q	
<b>1. Capacity Development of LGU on SWM Planning</b>	■	■	■	■	■	■	■	■	■	■	■	
1.1 Study the current SWM and identify the issues to be addressed.	■	■	■	■	■	■	■	■	■	■	■	
1.2 Conduct a cost analysis of the current SWM practices in Sagay	■	■	■	■	■	■	■	■	■	■	■	
1.3 Formulate a Sagay SWM plan in accordance with NSWMC guideline	■	■	■	■	■	■	■	■	■	■	■	
1.4 Conduct a financial study on the SWM plan and prepare a financial plan with fee collection systems	■	■	■	■	■	■	■	■	■	■	■	
1.5 Implement the Sagay SWM plan	■	■	■	■	■	■	■	■	■	■	■	
1.6 Review and modify the Sagay SWM plan and the SWM fee collection systems	■	■	■	■	■	■	■	■	■	■	■	
1.7 Develop a manual on a LGU SWM plan for replication by other LGUs	■	■	■	■	■	■	■	■	■	■	■	
<b>2. Improvement of Solid Waste Diversion System</b>	■	■	■	■	■	■	■	■	■	■	■	
2.1 Conduct field investigations to determine the current waste flow	■	■	■	■	■	■	■	■	■	■	■	
2.2 Study the current waste diversion (WD) system focusing on good practices	■	■	■	■	■	■	■	■	■	■	■	
2.3 Formulation of a WD plan reflecting characteristics of area conditions	■	■	■	■	■	■	■	■	■	■	■	
2.4 Conduct information education campaigns (IEC) to raise WD rate	■	■	■	■	■	■	■	■	■	■	■	
2.5 Conduct a pilot project to introduce an combined MRF to urban areas where MRFs are difficult to locate individually	■	■	■	■	■	■	■	■	■	■	■	
2.6 Review and modify the WD plan	■	■	■	■	■	■	■	■	■	■	■	
<b>3. Improvement of Final Disposal System</b>	■	■	■	■	■	■	■	■	■	■	■	
3.1 Conduct site investigation and necessary surveys for the existing dump site	■	■	■	■	■	■	■	■	■	■	■	
3.2 Conduct site investigation and necessary surveys for the proposed site	■	■	■	■	■	■	■	■	■	■	■	
3.3 Examine a possibility of continuous use of the site by converting into a SLF (If Yes, then go to 3.4; else go to 3.4b)	■	■	■	■	■	■	■	■	■	■	■	
3.4 Conduct design and feasibility study of a SLF at the proposed site	■	■	■	■	■	■	■	■	■	■	■	
3.5 Conduct EIA on the plan for the proposed site	■	■	■	■	■	■	■	■	■	■	■	
3.6 Arrange funding for construction of the SLF	■	■	■	■	■	■	■	■	■	■	■	
3.7 Prepare for bidding for construction of the SLF	■	■	■	■	■	■	■	■	■	■	■	
3.8 Supervise the construction work of the SLF	■	■	■	■	■	■	■	■	■	■	■	
3.9 Operate and maintain the SLF	■	■	■	■	■	■	■	■	■	■	■	
3.10 Develop a manual for managing a SLF	■	■	■	■	■	■	■	■	■	■	■	
3.11 Develop a plan and design of safe closure of the current dump site	■	■	■	■	■	■	■	■	■	■	■	
3.12 Prepare for bidding for safe closure	■	■	■	■	■	■	■	■	■	■	■	
3.13 Conduct safe closure of the site based on the plan	■	■	■	■	■	■	■	■	■	■	■	
3.14 Develop a manual on safe closure of a dumpsite for other LGUs	■	■	■	■	■	■	■	■	■	■	■	

A Political decision on SWM fee system

A Target of waste diversion rate shall be decided

A Pilot project site will be selected and confirmed

A Evaluation of EMB on use of current dumpsite

A Decision on the future SLF site

Mid-term Review Point



**ANNEX 2.1**

**Proposed PDM (ver. 3)**

**Project Title:** Establishment of Ecological Solid Waste Management in 3 Cities  
**Target Group:** LGU Officers involved with SWM and Residents of the 3 Cities  
**Project Duration:** 36 months (from October/2007 to October/2010)

PDM Ver. 3, Date: June 23, 2009

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal:</b>                      Knowledge and experience of ecological solid waste management (SWM) in the three cities are replicated in other LGUs.</p>	<ol style="list-style-type: none"> <li>1. The number of seminars and workshops held at regional or national level by the NSW/MC for other LGUs</li> <li>2. The number of participating LGUs in the abovementioned seminars and workshops.</li> <li>3. The number of approved ESWM plans</li> </ol>	<ol style="list-style-type: none"> <li>1. Reports on workshops and seminars</li> <li>2. Attendance lists of the abovementioned workshops and seminars</li> </ol>	
<p><b>Project Purpose:</b>                      Ecological SWM system is established in the three cities.</p>	<ol style="list-style-type: none"> <li>1. ESWM Plan is reviewed annually (Sagay &amp; Calbayog)</li> <li>2. Waste Diversion Rate (WDR) is improved as compared with the baseline. (All cities)</li> <li>3. New sanitary landfills are operated in compliance with RA9003. (Sagay &amp; Calbayog; Category 2)</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual report on SWM</li> <li>2. Monitoring report on WDR</li> <li>3. Monitoring report on the landfill</li> </ol>	<ol style="list-style-type: none"> <li>1. Tools such as manuals and guidebooks developed through the project are utilized by other LGUs.</li> <li>2. Financial assistance mechanisms for LGUs are established and become operational at the national level.</li> <li>3. Department Administrative Order (DAO) is issued to reflect the contents of the materials developed by the project.</li> </ol>
<p><b>Outputs:</b>                      i. Capacity of LGUs on SWM planning is strengthened.</p>	<ol style="list-style-type: none"> <li>1-1 The developed ESWM Plan is approved by the city council. (Sagay &amp; Calbayog)</li> <li>1-2 Workshops and seminars for officials responsible for SWM in 3 cities are held at least 7 times. (All cities)</li> <li>1-3 Cost on SWM is grasped in detail. (All cities)</li> <li>1-4 Fee collection options are proposed to the city SWM Board. (Sagay &amp; Calbayog)</li> <li>1-5 Basic managerial indicators such as collection efficiency, unit figures per various operations are collected and analyzed annually. (All cities)</li> </ol>	<ol style="list-style-type: none"> <li>1-1 M/M of city council</li> <li>1-2 Attendants list and the program of workshops and seminars</li> <li>1-3 SWM account report</li> <li>1-4 Agenda of the city SWM Board</li> <li>1-5 Annual report on SWM</li> </ol>	<ol style="list-style-type: none"> <li>1. ESWM Plan is approved by the NSW/MC.</li> <li>2. Proposed fee collection system is implemented.</li> <li>3. Any political change of the national as well as local government as a result of the election does not adversely affect the Project.</li> </ol>

**ANNEX 2.1**

<p>2. Solid waste diversion system is improved.</p> <p>3. Final disposal system is improved.</p> <p>4. Guidebooks and manuals are developed as a tool for planning and implementation of SWM based on the experience of the three cities.</p>	<p>2-1 WDR is monitored periodically. (All cities)</p> <p>2-2 The amount and type of materials collected at the pilot MRF are recorded and reported monthly. (All cities)</p> <p>2-3 The number of barangays where IEC campaign on 3Rs activities is carried out according to the IEC campaign plan. (All cities)</p> <p>3-1 The current dump site is closed in accordance with the safe closure guidebook (*1). (Sagay &amp; Calbayog)</p> <p>3-2 On-site training for sanitary landfill management is conducted using the operation and maintenance manual. (Sagay &amp; Calbayog)</p> <p>4-1 The number of technical working group meetings held</p> <p>4-2 The number of LGUs who participated in the consulting seminar</p> <p>4-3 The necessary procedure for the Department Administrative Order is initiated by the NSWMC to reflect the contents of the manuals/guidebooks produced.</p>	<p>2-1 Monitoring report on the WDR</p> <p>2-2 Monthly reports of MRFs</p> <p>2-3 Progress reports</p> <p>3-1 Closure completion report</p> <p>3-2 Progress report</p> <p>4-1 Meeting agenda and attendants list</p> <p>4-2 Attendants list</p> <p>4-3 NSWMC Resolution</p>	
<p><b>Activities:</b> <b>For Sagay &amp; Calbayog</b></p> <p>1.1 Review the current status of SWM and identify issues to be addressed</p> <p>1.2 Conduct a cost analysis of the current SWM practices</p> <p>1.3 Formulate a SWM plan in accordance with NSWMC guidelines</p> <p>1.4 Conduct a financial study on the SWM plan and prepare a financial plan with fee collection system</p> <p>1.5 Monitor the implementation of the SWM plan</p> <p>2.1 Conduct field investigations to determine the current waste flow</p> <p>2.2 Study the current waste diversion (WD) system focusing on good practices</p> <p>2.3 Establish a baseline for WDR</p> <p>2.4 Formulate a WD plan reflecting characteristics of area conditions</p> <p>2.5 Conduct a pilot project to establish a model MRF in close collaboration with schools (Sagay)</p> <p>2.6 Conduct a pilot project to establish a model cluster MRF (Calbayog)</p> <p>2.7 Conduct information education campaigns (IEC) to raise WDR</p> <p>2.8 Monitor the implementation of the WD plan</p> <p>3.1 Conduct site investigation and necessary surveys for the site(s).</p> <p>3.2 Conduct site investigation and necessary surveys for the proposed site</p>		<p><b>Inputs:</b></p> <p>Japanese Side: Dispatch of Experts</p> <p>Training of Philippine personnel</p> <p>Provision of Equipment</p> <p>Other necessary expense for project implementation</p> <p>Philippines Side: Counterparts</p> <p>Office space</p> <p>Local cost</p>	<p>1. Counterparts are assigned and participate in the project activities throughout the project period. (All cities)</p> <p>2. The required regulatory permit and/or financial arrangement does not significantly delay the construction schedule of SLFs.</p> <p>3. Weather conditions do not significantly delay the construction schedule of SLFs.</p>

ANNEX 2.1

<p>3.3 Examine a possibility of continuous use of the site by converting into a SLF</p> <p>3.4 Conduct design of a SLF at the proposed site</p> <p>3.5 Conduct EIA on the plan for the proposed site</p> <p>3.6 Facilitate the necessary financial arrangement for construction of the SLF</p> <p>3.7 Prepare for bidding for construction of the SLF</p> <p>3.8 Carry out the construction work of the SLF</p> <p>3.9 Operate and maintain the SLF</p> <p>3.10 Formulate a manual for operation and management of the new SLF</p> <p>3.11 Formulate a plan and design of safe closure of the current dump site</p> <p>3.12 Prepare for bidding for safe closure work</p> <p>3.13 Carry out safe closure of the site based on the plan</p> <p><b>For Davao</b></p> <p>1.1 Conduct training through workshops, technical seminars and on-the-job training (OJT) on SWM activities</p> <p>2.1 Conduct field investigations to determine the current waste flow</p> <p>2.2 Conduct a pilot project to establish a model MRF at a large barangay</p> <p>2.3 Conduct IEC campaigns</p> <p><b>For NSWMC &amp; All cities</b></p> <p>4.1 Establish a working group for development of materials</p> <p>4.2 Develop a practical manual on a LGU SWM plan for replication by other LGUs</p> <p>4.3 Review and update the NSWMC guidebook on landfill design &amp; operation (**)</p> <p>4.4 Review and update the NSWMC guidebook on safe closure of landfills (*)</p> <p>4.5 Hold seminars to share the developed materials with other LGUs</p>	<p><b>Pre-conditions:</b></p>
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Note: \*<sup>1</sup> Guidebook for Safe Closure of Disposal Sites (2006)

\*<sup>2</sup> The Technical Guidebook on Solid Waste Disposal Design and Operation (2005)

## Comparative Sheet for PDM (Ver.2) and PDM (Ver.3)

	PDM (Ver.2)	Revised PDM (Ver.3)	Reasons/Explanation
<b>Narrative Summary</b>	Knowledge and experience of ecological solid waste management (SWM) in the three cities are replicated in other LGUs. 1. The manual prepared through the pilot activities are utilized in other LGUs. 2. Technical seminars for officials responsible for SWM in neighboring LGUs are held 3 times.	Not changed. 1. The number of seminars and workshops held at regional or national level by the NSWMC for other LGUs 2. The number of participating LGUs in the abovementioned seminars and workshops. 3. The number of approved ESWM plans	Although the Project expects other LGUs to use the manual, decision on its use rests on them. Therefore, Indicator 1 of PDM(2) is rather an external condition, and should be considered as an important assumption toward the overall goal. Indicator 2 of PDM(2) seems to mention about the technical seminars that are to be held in this project. Since the overall goal is the goal to be achieved some years after project termination, it is modified as Indicator 1 of PDM(3). Indicator 2 of PDM(3) is added to ensure the understanding of the LGUs about the manual/guidebooks. Indicator 3 of PDM(3) is proposed considering that the manual, integrating the experience of this project, is practically useful for the LGUs to formulate comprehensive SWM Plans.
<b>Objective Verifiable Indicators</b>			
<b>Means of Verification</b>	National Status Report: SWM Plans are approved in many neighboring LGUs and implement waste diversion plan and improvement of disposal sites. Distribute list of the manuals. Attendance list and program of workshops and seminars. None.	1. Reports on workshops and seminars 2. Attendants lists of the above 3. NSWAMC resolution.	According to the change in the indicators, means of verifications are changed.
<b>Important Assumptions</b>		1. Tools such as manuals and guidebooks developed through the project are utilized by other LGUs. 2. Financial assistance mechanisms for LGUs are established and become operational at the national level. 3. Department Administrative Order (DAO) is issued to reflect the contents of the materials developed by the project.	Three assumptions are proposed as they are considered necessary to achieve the overall goal.
<b>Narrative Summary</b>	Ecological SWM system is established in each city.	Not changed.	
<b>Objective Verifiable Indicators</b>	Plan and programs formulated under the SWM plan are implemented in 3 cities.	1. ESWM Plan is reviewed annually (Sagay & Calbayog) 2. Waste Diversion Rate (WDR) is improved as compared with the baseline. (All cities) 3. New sanitary landfills are operated in compliance with RA9003. (Sagay & Calbayog: Category 2)	Plans and programs in the SWM plan include more activities than those planned in this project. It is, therefore, not assured that the indicator of PDM(2) can verify the achievement of the project purpose. New indicators are proposed considering on what aspects and in which cities the project can contribute to the establishment of the ecological SWM system.
<b>Means of Verification</b>	Annual Report prepared by LGUs at end of every year shows years' activities.	1. Annual report of the city 2. Monitoring report on the WDR 3. Monitoring report on the landfill	According to the change in the indicators, means of verifications are changed.
<b>Important Assumptions</b>	Sagay City and Calbayog City shall allocate sufficient budget for SWM to implement the annual action plan.	1. The ESWM Plans of Sagay and Calbayog are approved by the NSWMC. 2. Proposed fee collection systems are implemented. 3. Any political change of the national as well as local government as a result of the national election does not adversely affect the Project.	The important assumption of PDM(2) is more specifically expressed in Important Assumption 2 of PDM(3). Also, approval of the ESWM Plan by NSWMC, which was considered as an indicator of Output 1 of PDM(2), is added as an important assumption since it is outside of the project's control. The potential influence by the election next year is also considered external and Important Assumption 3 is added.
<b>Project Purpose</b>			

## ANNEX 2.2

Narrative Summary	<p>1. Capacity of LGUs on SWM planning is strengthened.</p> <p>2. Solid waste diversion system is improved.</p> <p>3. Final disposal system is improved. (Sagay &amp; Calbayog)</p> <p>3. Appropriate operation/maintenance/management of sanitary landfill is attained. (Davao)</p>	<p>Not changed.</p> <p>Not changed.</p> <p>3. Final disposal system is improved. (Sagay and Calbayog)</p> <p>4. The manual/guidebooks are developed based on the experience of the three cities as a tool for planning and implementation of SWM.</p> <p>1-1 The developed ESWM Plan is approved by the city council. (Sagay &amp; Calbayog)</p> <p>1-1 JICA Experts' Recommendations are understood by the Davao city officials concerned. (Davao)</p> <p>1-2 Workshops and seminars for officials responsible for SWM in 3 cities are held 7 times. (All cities)</p> <p>1-3 A Manual on formulation of SWM plan (All cities)</p> <p>None.</p> <p>1-3 Cost on SWM is grasped in detail. (All cities)</p> <p>1-4 Fee collection systems are proposed to the city SWM Board. (Sagay &amp; Calbayog)</p> <p>1-5 Basic managerial indicators such as collection efficiency, unit figures per various operations are collected and analyzed annually. (All cities)</p> <p>2-1 Waste Diversion Rate (WDR) is achieved at 25% by the end of the project. (Sagay &amp; Calbayog)</p> <p>2-2 Workshop on 3Rs activities in the Barangay located Pilot MRF are held 7 times. (All cities)</p> <p>2-3 IEC campaign on 3Rs activities is carried out at every Barangay in collection area. (Sagay &amp; Calbayog)</p> <p>2-3 IEC campaign on 3Rs activities is carried out at the major Barangays. (Davao)</p> <p>2-4 Pilot Material Recovery Facility (MRF) is constructed in the selected Barangay and operated. (Sagay &amp; Calbayog)</p> <p>2-1 Pilot MRF is constructed in the selected Barangay. (Davao)</p> <p>None.</p> <p>3-1 Sanitary landfill (SLF) is constructed and operated in compliance with RA9003. (Sagay &amp; Calbayog)</p> <p>3-2 Updating of the technical guidebooks on the safe closure of disposal facilities and the concept and design of sanitary landfill. (Sagay &amp; Calbayog)</p> <p>3-1 Prepare a manual on Operation/Maintenance of sanitary landfill. (Davao)</p> <p>None.</p> <p>None.</p> <p>None.</p>	<p>As described below, no activity is planned for Davao. Accordingly, no output regarding final disposal is necessary for Davao.</p> <p>The development of the manual/guidebooks is considered as an independent output because it does not seek for Output 1, 2 or 3.</p> <p>Indicator 1-1 for Sagay and Calbayog: The approval of the ESWM Plans by the city councils is under the project's control, but that by NSWMC is not.</p> <p>Indicator 1-1 for Davao: The city intends to deal with the issues considered in the Japanese experts' Recommendations by itself and its contractor. Therefore Indicator 1-1 is no longer appropriate.</p> <p>A term "at least" is added considering the possibility to hold the seminars/workshops more than 7 times.</p> <p>Indicator 1-3 of PDM(2) is deleted since the manual is developed towards Output 4, which is newly added.</p> <p>A new indicator is added considering that it is important to understand the present cost on SWM for introducing new fee collection systems.</p> <p>A new indicator is added considering that the introduction of the new fee collection systems is vital for the project purpose and the overall goal.</p> <p>A new indicator is added considering that the capacity on SWM planning, whose strengthening is aimed at as Output 1, should include the capacity to monitor the status of SWM.</p> <p>Increase in WDR is considered to be an indicator for the project purpose as shown above.</p> <p>What is concerned is whether the pilot MRF is appropriately operated. Workshops stated in Indicator of PDM(2) are the process for improved operation, and the new indicator more directly addresses the issue of operation.</p> <p>Indicators of PDM(2) do not clearly state about the number of barangays to be covered by IEC campaign. Now that there are the IEC campaign plans, its implementation should follow the plan.</p> <p>The construction of the MRFs is a one-shot action and does not necessarily verify the improved solid waste diversion system. Their operation is more specifically stated in new Indicator 2-2.</p> <p>The new indicator regarding the dump site closure is added since it is inevitable to improve the final disposal system.</p> <p>Indicator 3-1 of PDM(2) is considered to be an indicator of the project purpose. The new indicator is proposed considering that the training is necessary for operation and maintenance of the SLFs.</p> <p>Indicator 3-2 of PDM(2) is deleted since the guidebooks are updated towards Output 4, which is newly added.</p> <p>Indicator 3-1 of PDM(2) for Davao is deleted since the manual preparation was completed by the city.</p> <p>The new indicator is proposed to monitor the progress of development of the manual/guidebooks.</p> <p>The new indicator is proposed to monitor the progress of development of the manual/guidebooks.</p> <p>The new indicator is proposed to determine the possibility of material/guidebooks to be widely used even after the project.</p>
Objective Verifiable Indicators	<p>4-1 The number of working group meetings held.</p> <p>4-2 The number of LGUs participated in the consulting seminar</p> <p>4-3 The necessary procedure for the Department Administrative Order is taken by the NSWMC to reflect the contents of the manuals/guidebooks produced.</p>	<p>None.</p> <p>3-1 The current dump site is closed in accordance with the safe closure guidebook (*1). (Sagay &amp; Calbayog)</p> <p>3-2 On-site training for sanitary landfill management is conducted using the operation and maintenance manual. (Sagay &amp; Calbayog)</p> <p>None.</p> <p>None.</p> <p>4-1 The number of working group meetings held.</p> <p>4-2 The number of LGUs participated in the consulting seminar</p> <p>4-3 The necessary procedure for the Department Administrative Order is taken by the NSWMC to reflect the contents of the manuals/guidebooks produced.</p>	

Means of Verification	See the PDM(2).	See the PDM(3).	Means of verification are changed according to the changes in indicators.
Important Assumptions	<p>1. Counterparts are assigned and participate to the project activities. (All cities)</p> <p>2. Pilot MRF construction is completed and start operation as scheduled. (All cities)</p> <p>3. SLF construction work is completed and start operation as scheduled. (All cities)</p>	<p>1. Counterparts are assigned and participate in the project activities throughout the project period. (All cities)</p> <p>2. The required regulatory permit and/or financial arrangement does not significantly delay the construction schedule of SLFs.</p> <p>3. Weather conditions do not significantly delay the construction schedule of SLFs.</p>	<p>Important Assumption 2 is deleted as it is no longer appropriate. Instead, Important Assumption 2 is newly proposed since mid-term review has found several inhibiting factors.</p> <p>Important Assumption 3 is revised to specify the factor that may influence the progress of SLF construction.</p>
Activities for Sagay and Calbayog	<p>1.1 Review the current status of SWM and identify issues to be addressed.</p> <p>1.2 Conduct a cost analysis of the current SWM practices</p> <p>1.3 Formulate a SWM plan in accordance with NSWMC guideline</p> <p>1.4 Conduct a financial study on the SWM plan and prepare a financial plan with fee collection systems</p> <p>1.5 Implement the SWM plan</p> <p>1.6 Review and modify the SWM plan and the SWM fee collection systems</p> <p>1.7 Update a manual to formulate the SWM plan for replication by other LGUs</p> <p>2.1 Conduct field investigations to determine the current waste flow</p> <p>2.2 Study the current waste diversion (WD) system focusing on good practices</p> <p>2.3 Formulation of a WD plan reflecting characteristics of area conditions</p> <p>2.4 Conduct information education campaigns (IEC) to raise WD rate</p> <p>2.5 Conduct a pilot project to introduce a cluster MRF to urban areas where MRFs are difficult to locate individually</p> <p>2.6 Review and modify the WD plan</p> <p>3.1 Conduct site investigation and necessary surveys for the site(s).</p> <p>3.2 Conduct site investigation and necessary surveys for the proposed site</p> <p>3.3 Examine a possibility of continuous use of the site by converting into a SLF</p> <p>3.4 Conduct design of a SLF at the proposed site</p> <p>3.5 Conduct EIA on the plan for the proposed site</p> <p>3.6 Assist to arrange funding for construction of the SLF</p> <p>3.7 Assist to prepare for bidding for construction of the SLF</p> <p>3.8 Assist to supervise the construction work of the SLF</p> <p>3.9 Assist to operate and maintain the SLF</p> <p>3.10 Formulate a manual for operation and management of SLF dump site</p> <p>3.11 Formulate a plan and design of safe closure of the existing dump site</p> <p>3.12 Assist to prepare for bidding for safe closure work</p> <p>3.13 Conduct safe closure of the existing disposal site based on the plan</p> <p>3.14 Update a manual on safe closure of a dumpsite for other LGUs</p>	<p>1.1 Review the current status of SWM and identify issues to be addressed</p> <p>1.2 Conduct a cost analysis of the current SWM practices</p> <p>1.3 Formulate a SWM plan in accordance with NSWMC guidelines</p> <p>1.4 Conduct a financial study on the SWM plan and prepare a financial plan with fee collection system</p> <p>1.5 Monitor the implementation of the SWM plan</p> <p>2.1 Conduct field investigations to determine the current waste flow</p> <p>2.2 Study the current waste diversion (WD) system focusing on good practices</p> <p>2.3 Establish a baseline for WDR</p> <p>2.4 Formulate a WD plan reflecting characteristics of area conditions</p> <p>2.5 Conduct a pilot project to establish a model MRF in close collaboration with a neighboring school. (Sagay)</p> <p>2.6 Conduct a pilot project to establish a model cluster MRF (Calbayog)</p> <p>2.7 Conduct information education campaigns (IEC) to raise WD rate</p> <p>2.8 Monitor the implementation of the WD plan</p> <p>3.1 Conduct site investigation and necessary surveys for the site(s).</p> <p>3.2 Conduct site investigation and necessary surveys for the proposed site</p> <p>3.3 Examine a possibility of continuous use of the site by converting into a SLF</p> <p>3.4 Conduct design of a SLF at the proposed site</p> <p>3.5 Conduct EIA on the plan for the proposed site</p> <p>3.6 Facilitate the necessary financial arrangement for construction of the SLF</p> <p>3.7 Prepare for bidding for construction of the SLF</p> <p>3.8 Carry out the construction work of the SLF</p> <p>3.9 Operate and maintain the SLF</p> <p>3.10 Formulate a manual for operation and management of the new SLF</p> <p>3.11 Formulate a plan and design of safe closure of the current dump site</p> <p>3.12 Prepare for bidding for safe closure work</p> <p>3.13 Carry out the safe closure of the dump site based on the plan</p>	<p>Activities 1.5 of PDM(2) is deleted because Output 1 only concerns planning capacity and Activity 1.5 includes several activities in the plan that are not implemented in the Project.</p> <p>Moreover, activities related to WD and final disposal are listed below.</p> <p>Activity 1.6 of PDM(2) is replaced by Activity 1.5 of PDM(3), where "review" should be considered as implementation monitoring, "modify" is deleted as plan modification may not be possible during the Project, and the introduction of fee collection is outside of the project's control.</p> <p>Activity 1.7 of PDM(2) is deleted since activities related to the manual should be listed below.</p> <p>Activity 2.3 is newly added since the establishment of baseline of WDR should be the starting point towards Output 2.</p> <p>As for Activity for 2.5(PDM 2), the MRFs in Sagay is not a cluster MRF, but an MRF with collaboration with a neighboring school.</p> <p>Activity 2.6 of PDM(2) is replaced by Activity 2.8 of PDM(3), where "review" should be considered as implementation monitoring, "modify" is deleted as plan modification may not be possible during the Project, and the introduction of fee collection is outside of the project's control.</p> <p>Expression using the word "assist" in the activities of PDM(2) are modified since the activities should be carried out by cooperative work of the CPFs and the Japanese experts.</p> <p>Activity 3.14 of PDM(2) is moved to the next section.</p>
Activities			

ANNEX 2.2

<p>Activities for Davao</p>	<p>1.1 Make advices and recommendations for SWM issues. 1.2 Conduct training through workshops, technical seminars and on-the-job training (OJT) on SWM activities 1.3 Assist the implementation of the SWM Plan  2.1 Conduct field investigations to determine the current waste flow 2.2 Make advices and recommendation for solid waste diversion (WD) plan 2.3 Monitor and promote the solid waste diversion plan 2.4 Assist IEC campaigns 3.1 Prepare a manual on Operation/Maintenance of SLF 3.2 Prepare a plan and design of safe closure of the existing open dump site 3.3 Assist supervision work for safe closure work None.</p>	<p>1.1 Conduct training through workshops, technical seminars and on-the-job training (OJT) on SWM activities  2.1 Conduct field investigations to determine the current waste flow 2.2 Conduct a pilot project to establish a model MRF at a large barangay 2.3 Conduct IEC campaigns  None.</p>	<p>Activity 1.1 and 1.3 are deleted since the city intends to deal as own initiatives.  Activities 2.2 and 2.3 of PDM(2) are deleted since the needs of the city for these activities are not sufficient. Activity 2.4 of PDM(2) is modified to Activity 2.3 of PDM(3) by changing "assist" to "conduct" since it is carried out by both the Philippine and Japanese sides. Activity 2.2 of PDM(3) is added since the pilot MRF in Davao was constructed and can be a model MRF for other large barangays.  All activities are deleted since the city intends to deal with the matters of SLF by itself and its contractor.</p>
<p>For NSWMC &amp; All cities</p>	<p>None.</p>	<p>4.1 Establish a working group for development of materials replication by other LGUs 4.2 Develop a practical manual on a LGU SWM plan for &amp; operation (*1) 4.3 Review and update the NSWMC guidebook on landfill design 4.4 Review and update the NSWMC guidebook on safe closure of landfills (*2) 4.5 Hold seminars to share the developed materials with other LGUs</p>	<p>Activities 1.7, 3.10 and 3.14 of PDM(2) are listed here. Activities 4.1 and 4.5 are added considering that these are required to achieve Output 4.</p>
<p>Pre-conditions</p>			

\*1: Guidebook for Safe Closure of Disposal Sites (First Edition in 2006)

\*2: Technical Guidebook on Solid Waste Disposal Design and Operation (First Edition in 2005)

### Evaluation Grid for Calbayog City

#### 1. Verification of Achievement

Items	Sub-items	Questions	Review Results
Achievement	Inputs	<p>Were inputs of the Japanese side secured as scheduled?</p>	<p><b>Japanese Experts:</b> Six experts comprising of a chief advisor in charge of SWM planning and five experts in charge of waste diversion, IEC, final disposal, financial analysis and environmental and social considerations were engaged. In terms of total man-month, the input of the experts was implemented as scheduled and one-fourth of the total man-month was allocated in Calbayog. The replacement of the waste diversion expert did not pose any problems since as job assignment was carefully taken over. The detail assignment schedule is attached in Annex 4.</p> <p><b>Training in Japan:</b> The training in Japan was conducted from October 27 to November 15, 2008, and two C/Ps from Calbayog took part in it.</p> <p><b>Equipment:</b> All the equipment from the Japanese side was procured and provided within the expected schedule as attached in Annex 4. The status of each item is as follows.</p> <ul style="list-style-type: none"> <li>● The all-in-one type printer is used in the project office of the Japanese experts and fully utilized.</li> <li>● The IEC campaign materials were developed, and shipped to Calbayog City and are to be used in IEC activities from June 2009.</li> <li>● The equipment for IEC campaign (laptop computer, digital camera, etc.) was provided for Calbayog City and ready to be used when IEC campaign starts in June 2009.</li> <li>● The portable equipment for water quality analysis was provided and entry-level training was undertaken so as to start water quality monitoring in the vicinity of the SLF construction site from the construction stage.</li> <li>● The multi-purpose vehicle was provided and fully used.</li> <li>● MRF equipment for pilot project is fully used. However, the composter was procured for demonstration purposes only and does not have enough capacity to treat large amounts of biodegradable waste, hence giving an issue to the stakeholders in the barangay about how to manage the excessive biodegradable waste. They are planning to utilize oil drums for composting the excessive biodegradable waste.</li> </ul> <p><b>Local Consultant :</b> JICA provided with the teams of local consultants. Total cost of the contract cost of first half of the project is Php.21,586,776 for 3 cities (Php.4,180,683 in JFY2007 and Php.17,406,093 in JFY2008). The details are shown in the attached documents.</p>
		Were inputs of the Philippine	<p><b>Counterpart Personnel:</b> The C/Ps were designated, in addition to their regular function to form a task team in Calbayog City. The team included a task team leader, deputy task team leader (who acts as a project</p>

	side secured as scheduled?	<p>coordinator), and persons in charge of SWM planning, waste diversion, financial analysis, environmental and social consideration, final disposal, and also a C/P in charge of IEC.</p> <p><b>Office Space with Furniture:</b> The office space was secured with adequate furniture in city hall.</p> <p><b>Running Expenses Necessary for the Project Implementation:</b> The local expenses, including cost for such items as personnel, a driver and fuel for the donated vehicle, and protocol for the approval of the SWM Plan and ECC were incurred by the city. The input from the Philippine side is as attached in Annex 5.</p>
Achievement of Outputs	<p><b>Outputs</b></p> <p>1. Capacity of LGU on SWM planning is strengthened.</p> <p>2. Solid waste diversion system is improved.</p>	<p><b>Objectively Verifiable Indicator (PDM(2))</b></p> <p>1.1 Approval of ESWM Plan</p> <p>1.2 Workshop and seminars for officials responsible for SWM in Calbayog City are held 7 times.</p> <p>1.3 A manual on formulation of SWM Plan</p> <p>2-1 Waste Diversion Rate (WDR) is achieved at 25% by the end of the</p>
		<p><b>Review Result</b></p> <p>The ESWM Plan was drafted in September 2008. The draft further included cost and economic analysis and the recommendations from the city council. It was then finalized and approved by the city council in January 2009. Following its submission to the EMB Regional Office, it was finally submitted to NSWMC in March 2009. It is still awaiting approval from NSWMC.</p> <p>Workshops were held in November 2007, June 2008 and June 2009. These were attended by the representatives from neighboring LGUs, PENRO, CENRO, EMB, recycling industry, NGOs and barangays in the city. The technical seminar was held in March 2008, wherein the C/Ps made presentations on the SWM plan to the audiences including the representatives from neighboring LGUs, PENRO, CENRO, DBP and barangays in the city. The total number of workshops and seminars conducted was four.</p> <p>The preparation of the manual was planned to be implemented during in the fourth year (April-October 2010). NSWMC has the primary responsibility of preparing the manual, and organized a working group for this purpose. NSWMC is expecting active involvement of the C/Ps of the city so as to integrate their experience and know-how attained in the Project.</p> <p>The WDR of 2008 is 23.8%, which is set as baseline. The WDR is planned to be 25% in 2009 and 28% in 2010. The level of achievement which cannot be determined since the</p>

	<p><b>Project.</b></p> <p>2-2 Workshops on 3Rs activities in the Barangay located Pilot MRF are held 7 times.</p> <p>2-3 IEC campaign on 3Rs activities is carried out at every Barangay in collection area.</p> <p>2-4 Pilot MRF is constructed in the selected Barangay and operated.</p>	<p>city do not have the updated WDR data which is to taken in the late 2009.</p> <p>A workshop was held in November 2008 and was attended by the C/Ps and the residents of Barangay Payahan (pilot barangay) and its neighboring barangays to work out the operation rule of the pilot MRF.</p> <p>During the occasion of the turnover and inspection of MRF equipment last in February 2009, the training on its operation was also conducted for the barangay residents. Since the operation of the pilot MRF started in the middle of February 2009, workshops to improve its operation and to disseminate its experience to other barangays are to be held in the latter half of the Project period. 3 more workshops will be held this year and 2 workshops next year. In total two workshops for operation and maintenance were held in Barangay Payahan.</p> <p>The preparatory works such as the allocation of necessary personnel from the city, the printing of IEC materials and the procurement of IEC equipment were completed in March 2009. The IEC campaign is to start in June 2009. The IEC campaign has two components, namely social awareness activities in the barangays and environmental education in schools. The social awareness activities will target seven barangays including the pilot barangay in 2009 and another five barangays in 2010; the environmental education in schools will start in 3 elementary schools in 2009 and in another 5 elementary schools and one high school in 2010. Since the city has 22 barangays in its waste collection area and 23 elementary and high schools, the IEC campaign is not planned to ensure the achievement of Indicator 2-3 and the reconsideration of the IEC campaign plan and/or Indicator 2-3 is required.</p> <p>The construction of the pilot MRF was completed in February 2009. Its operation started in February 2009. The</p>
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		<p>3. Final disposal system is improved.</p>	<p>3-1 Sanitary landfill is constructed and operated in compliance with RA9003.</p> <p>3-2 Updating of the technical guidebooks on the safe closure of disposal facilities and the concept and design of sanitary landfill.</p>	<p>pilot MRF was turned over to the city in March 2009. 1 person from the city, 1 person from Barangay Payahan and 2 persons from Barangay Carmen are engaged in the operation.</p> <p>Required design documents were completed in September 2008. In December 2008, the city council addressed a special resolution that entrusted the city mayor to go into a loan agreement with DBP for the construction of the SLF. During the meeting between the city and DBP in December 2008, DBP basically confirmed its approval and requested additional documents, which were later submitted by the city. As for EIA procedure, the IEE checklist was submitted to the EMB Regional Office in December 2008 and ECC was approved in February 2009. Once the loan agreement is approved, the city can start to tender for the SLF construction. Since the institutionalization of loan disbursement is outside of the Project's control, there are no clear prospects of the final approval and loan disbursement. The city decided to allocate part of its annual revenue to 10% of total cost of the sanitary landfill construction as loan equity.</p> <p>The preparation of the manual was planned to be implemented during in the fourth year (April-October 2010). NSWMC has the primary responsibility of preparing the technical guidebooks, and organized 2 working groups for this purpose. NSWMC is expecting active involvement of the C/Ps of the city so as to integrate their experience and know-how attained in the Project..</p>
		<p>Project Purpose</p> <p>Ecological SWM system is established in Calbayog City</p>	<p>Objectively Verifiable Indicator (PDM(2))</p> <p>Plan and programs formulated under the ESWM plan are implemented in Calbayog City</p>	<p>Review Results</p> <p>There have been some measurable outputs produced that partly satisfies the indicator for the Project Purpose at the time of the Mid-term Review.</p> <p>Among the plans and programs stipulated in the SWM Plan (Table 11.2.1 Annual Project Costs of Ten Year Solid Waste Management Plan of Calbayog City), the following</p>

			<p>were implemented.</p> <ul style="list-style-type: none"> <li>• The pilot MRF was constructed and operationalized.</li> <li>• The preparatory work for IEC campaign was completed.</li> <li>• The preparatory work for sanitary landfill construction was completed.</li> <li>• The establishment of independent SWM accounting system was studied.</li> </ul> <p>The plans and programs in the SWM Plan for the years 2009 and 2010 also include the following.</p> <ul style="list-style-type: none"> <li>• The construction of other MRFs (2 in 2009 and 2 in 2010). (a)</li> <li>• IEC campaign. (b)</li> <li>• The construction and operation of a sanitary landfill. (c)</li> <li>• The planning and implementation of the closure of the existing landfill. (d)</li> </ul> <p>The latter three marked with (b), (c) and (d) are integrated in the project activities and planned to be carried out in the latter half of the Project. Although (d) may have strict time constraint because (c) will take 3 months more than as planned. Considering that the establishment of new MRFs is one of the key elements in the SWM plan, the stimulation of Program (a) by the Project is highly expected and it is necessary to draw useful lessons from the pilot MRF project and apply them to the next steps.</p>
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2. Verification of Implementation Process

Items	Sub-Items	Questions Concerned	Study Result
Implementation Process		<p>Are the activities implemented as scheduled? If revision is needed, why?</p>	<p>As the Plan of Operation (PO) was not revised during the project, progress of activities were reviewed by referring to the PO(0). Currently, the monitoring is carried out by the work schedule included in the updated IC/R. See Annex 6 for detail about the actual time frame of each activity.</p> <p><b>Activities for Output 1:</b> <i>Activities 1.1 – 1.4</i> were implemented as scheduled. The SWM Plan was drafted as scheduled in September 2008 and was approved by SWM Board in December 2008, and approved by the City Council in January 2009.</p> <p><i>Part of Activity 1.5</i> is started as such activities as pilot MRF construction and SLF construction are included in the SWM plan.</p> <p><i>Activity 1.6</i> has not yet been started.</p> <p><i>Activity 1.7</i> is expected to start ahead of schedule.</p> <p><b>Activities for Output 2:</b> <i>Activities 2.1 – 2.3</i> were implemented as scheduled.</p> <p><i>Activities 2.4</i> will start on June 2009 after the preparation of IEC material.</p> <p><i>Activity 2.5</i>, a pilot MRF was constructed and the pilot project of waste diversion using the MRF is proceeding. It is the cluster MRF serving for more than 1 barangay as specified in the Activity 2.5 of the PDM(2).</p> <p><i>Activity 2.6</i> has not yet been started.</p> <p><b>Activities for Output 3:</b> <i>Activities 3.1 – 3.5</i> were implemented as scheduled except the F/S of the new SLF.</p> <p><i>Activity 3.6</i> “Assist to arrange a fund for construction of the SLF” has been also pursued, but the issue of delayed loan disbursement is outside of the Project’s control.</p> <p><i>Activity 3.7</i> was implemented ahead of schedule.</p> <p>Due to the delay of Activity 3.6, <i>Activity 3.8– 3-13</i> (SLF construction, operation and maintenance, and landfill closure) has not yet been started.</p> <p><i>Activity 3.14</i> is expected to start ahead of schedule.</p>
	Progress of Activities	<p>Has the capacity of individuals and of organizations been developed?</p>	<p>At the beginning of the project, job description sheets were prepared for all the officials/workers of the city working for SWM and such information as educational background, years of experience and job assigned were compiled. Based on this understanding, the capacity of individuals and the organization (CSWMO) were assessed. The project then further worked out capacity development plans from December 2007 to September 2008 and from October 2008 to March 2009 for each C/P and for the</p>
	Technology Transfer		

		<p>CSWMO. The capacity development plans show what capacity was expected to be strengthened for the said period and what capacity was actually strengthened and how. The review of the capacity development plans tells that capacity development of the individuals was achieved as expected mostly through OJT and presentations made by the C/Ps at the seminar and workshops, and were regarded as a milestone of capacity development. At the organizational level, the preparation of the SWM plan is one of the most important intellectual assets. The Project also strengthened the organizational capacity in terms of physical assets by procuring equipment and the pilot MRF.</p>
Implementation Status of Monitoring	Who has been monitoring the progress? How and how often was the Project monitored? Was monitoring result reflected to project operation?	<p>The overall Project has been monitored through JCC. In addition, progress of activities for each project site has been monitored by the C/Ps and the Japanese experts using a work plan. During the absence of Japanese experts, a local consultant entrusted by the Japanese experts played a vital intermediate role to smoothen the mutual communication between the C/Ps and the Japanese experts and prepared weekly reports and monthly reports to enhance the decision making regarding project execution.</p> <p>However, as described in "Progress of Activities", PO has not been revised to reflect the current condition.</p>
Relationship and Communication among the C/Ps, the Japanese Experts, and Others Concerned	Is the communication between the Japanese experts and JICA (headquarters and Philippine office) effective?	<p>The Japanese experts visited the JICA Philippine office when they submitted three progress reports (February 2008, September 2008 and March 2009) and the monthly reports to the JICA Philippine Office. Additional information exchange was done through other meetings or e-mails. The chief advisor also visited the JICA headquarters more than six times a year before and after his assignment in the Philippines. At the latter half of the project period, the project will conduct several activities to consolidate the outputs of the project with the cooperation of NSWMC and 3 LGUs. These activities are very important to ensure the sustainability of the Project, and to replicate it to other LGUs. Also, applying lessons learned from JICA's projects in other countries enhances the outcome of project in the Philippines. Thus, more close communication is required among JICA Philippines, JICA HQ and Experts in order to consult the future direction and outcomes of the Project.</p>
	Is the communication among project teams (among Japanese experts / between the Japanese experts and the C/P) effective?	<p>As mentioned above, the Japanese experts also have to visit and work in other cities, aside from Calbayog, and in the process could not visit the city together. Thus there are some difficulties in directly relaying and communicating with the other experts. E-mails and telephone calls are the essential communication tools in maintaining effective communication among the project teams. The local project staff are also essential in maintaining clear and open communication and coordination between the Japanese experts and the C/Ps. Correspondences are also documented and filed accordingly.</p>
	Is communication between	Two workshops and one seminar were held inviting audiences from barangays,

	<p>project teams and the relevant stakeholders (governmental organizations, business entities, NGOs, residents, etc.) effective?</p>	<p>neighboring LGUs, CENRO and PENRO, and their views and comments were taken up for further consideration. A Barangay Summit is planned in July 2009 to deepen the understanding of the SWM plan by barangays and to promote the cooperation of the city and barangays. A public opinion survey was conducted at the initial stage of the Project to understand the way of thinking towards SWM of the city residents in general. An opinion survey in the pilot barangay was also carried out in order to ensure the barangay-led operation of the pilot MRF. Further, an interview survey was conducted to the waste pickers at the existing landfill as a part of a waste characterization survey. From these evidences, the information of the Project and the SWM plan has been well delivered and communication with the relevant stakeholders is effective.</p>
<p>Ownership of the Recipient Country</p>	<p>Do the C/Ps have ownership of the Project?</p>	<p>The C/P team is led by the Vice Mayor who himself has thoroughly recognized the progress of the project. The LGU staff understands the necessity of the project. The LGU initiated the conduct of workshops and trainings for barangay officials, DepEd representatives, private sector, and government organizations to formulate the strategy in disseminating the information for the implementation of the City SWM Plan. The City Government also funded the rehabilitation of the access road to the sanitary landfill. With regards to the MRF, the City Government with Brgys. Payahan and Carmen jointly assigned personnel to manage and operate the facility, with the City providing the furniture and operating expenses of the MRF. The Mayor, as overall project manager, initiated to contact the DBP to facilitate the release of loan.</p>
<p>Other issues</p>	<p>Are there any issues to be sorted out for project implementation? What are their causes?</p>	<p>None.</p>

## 3. Review by Five Evaluation Items

Items	Sub-items	Questions	Review Results
Relevance	Needs	Is the Project consistent with the needs of the target group (administrative organization, NGO, residents, etc) ?	The Medium-Term Philippine Development Plan (MTPDP2004-2010) highlights solid waste management as one of target issues of the environment sector. And also MTPDP stated the importance to technically support the LGUs for full implementation of RA9003. Prior to project implementation, the City submitted a SWM Plan, but was not approved due to limited technical capabilities. The City understood the need to come up with a SWM Plan as required by RA9003, but lack the technical capability to prepare and implement the plan. Overall, the needs of the city for the Project are deemed to be high.
		Is the Project consistent with the solid waste management policy in the Philippines?	As for the solid waste management policy of the government of the Philippines, establishment of a sanitary landfill site (SLF), achieving a waste diversion rate of 25% and the safe closure of open dump sites are mandatory according to RA9003 and all are incorporated in the Project. In this Project, the activities of arrangement of SLF and safe closure of open dumpsite and waste diversion plan toward more than 25 % waste diversion by waste reduction and segregation at source through IEC programs based on the prepared ISWM plan. Therefore, these activities are consistent with the solid waste management policy in the Philippines
	Consistency with the national policy with Japan and the Philippines	Is the Project consistent with the official development policy in Japan and JICA's country-specific implementation plan for the Philippines?	In the "Assistance Plan for the Philippines" (by the Ministry of Foreign Affairs in Japan), it states the importance of "environmental conservation including strengthening of administrative capacity, measures for general waste disposal and industrial pollution, and natural environmental conservation", thus environmental issues is one of the priority areas in the Assistance Plan. The environmental related programs are included in the "Environment Challenges" under "Sustainable Economic Growth for More Employment", which is one of the three policy pillars in the Assistance Plan. Furthermore, the Country Assistance Strategy (CAS) for the Philippines (Working Paper of ODA Taskforce of Philippines) also mentioned that solid waste management issues is one of the target areas for assistance by Japan's ODA
	Appropriateness in term of procedures	Is the project appropriate in terms of strategy issues of solid waste management in the Philippines?	All of the LGUs are required to establish an Ecological Solid Waste Management System with technical assistance and supervision of NSWMC according to RA9003. However, most of the LGUs do not have enough capability to do so. The project focused on the three selected LGUs to establish the Ecological Solid Waste Management System including SLF, WD system, etc and to disseminate the experience and knowledge acquired in the Project to other LGUs. Therefore, the Project appropriately addresses the priority concerns and issues in the Philippines.
		Is the transfer of technology and experience conducted appropriately?	The capacity of the C/Ps regarding SWM planning capacity, including the investigation of current and future waste flow, WD planning and designing the Pilot MRF and a new SLF, has been developed through the assistance of the Japanese experts as well as C/P training in

	Prospect of Project Purpose	Is the achievement level of the Project Purpose adequate at this stage?	Japan. The capacity development of IEC campaign and SLF operation has not been acknowledged since practical activities has not yet been started. During the process of technical transfer, the practical know-how such as the plan and design of pilot MRF and design of SLF has been provided to the C/Ps through the OJT. However, according to the interviews with the C/Ps, their practical capacity is not yet sufficient due to the lack of actual experience even though their basic knowledge on their planning and designing is developed.
Effectiveness	Outputs	Were the Outputs sufficient to achieve the Project Purpose	Please refer to the "1. Verification of Achievement" of the Evaluation Grid for details.
	Inhibiting and promoting factors	Are there any changes in external factors?	To achieve the Project Purpose, Outputs 1 to 3 are considered sufficient provided that the SWM plan is approved and implemented by the city. The Elections in May 2010 may prove to be inhibiting factor, if the national and local governments are adversely affected by political changes. The change of political administrations at both the national and local levels will affect organizational and institutional capacity and implementation in all levels. The financial situation of the LGU may be an inhibiting factor, unless a suitable institutional system of waste collection fee charging system is introduced.
	Achievement of output	Is the achievement level of the output is sufficient? Are there inhibiting factors of the achievement of output?	Please refer to the "1. Verification of Achievement" of the Evaluation Grid for details.  The following are considered potential inhibiting factors. 1. Due to the delay of approval of loan application, the construction of SLF may not be started as initially planned. 2. The future administrative system, if influenced by the political change, may affect the organizational and institutional capability regarding SWM in the Philippines. 3. Weather condition may delay the SLF construction.
Efficiency	The amount and timing of input	Is the input for the implementation based on the plan appropriate in terms of quantity, quality and timing?	The interviews with the C/Ps indicate that input is generally satisfactory on human resources (Japanese experts) and trainings and equipment provided enough and that the timing of the input is almost appropriate. However, if the completion of new SLF site is delayed, it may be difficult to conduct sufficient training for the operation and maintenance of the new SLF within the project period. The other parts of input are generally suitable for the needs of the Philippine side.
	Is the important assumption described in the current PDM appropriate now? Are there any other important assumptions?	Important Assumption 2 is no longer appropriate as pilot MRF was constructed and started operation as scheduled. Important Assumption 3 should be modified to specify the factor that may influence the progress of SLF construction, which is weather condition. Further, financial arrangement is considered to be an important assumption.	

	Operation and management system of the Project	Is the operation and management system of the Project effective for the project implementation?	<p>JCC was held three times during the first half of the project period on December 12, 2007, September 22, 2008 and February 24, 2009 to review the overall progress of the project. For smooth implementation of the project in Calbayog, the following measures were taken:</p> <ol style="list-style-type: none"> <li>1. A local consultant was assigned during the first half of the project period to facilitate communication between C/P and JICA experts.</li> <li>2. In addition, each of Japanese experts, during their assigned period in the city, tried to share the information with the C/Ps even if it was outside of his field expertise.</li> </ol>
	Prospect of achievement of overall goal	Are there prospects that the Overall Goal will be achieved as an effect of the Project?	<p>If the city continues to share the knowledge and experience of the project and keep communicating with the neighboring municipalities, the overall goal is likely to be achieved for the following reasons:</p> <ol style="list-style-type: none"> <li>1. Through the project, some visitors came to observe the operation of the pilot MRF.</li> <li>2. The technical transfer seminar was held with participants from more than ten neighboring LGUs.</li> <li>3. There is a strong possibility for the City, through the City Mayor, to promote SWM in other LGUs since the Mayor is the current Secretary-General of the League of Cities in the Philippines. He is in a good position to promote the good practices of SWM in his city to other LGUs.</li> </ol>
Impact		Are there any inhibiting factors to achieve the Overall Goal?	<p>The overall goal is not likely to be achieved if the following take place:</p> <ol style="list-style-type: none"> <li>1. Absence of strong initiative of NSWMC to disseminate the good practices of the project.</li> <li>2. Lack of financial background or support for other LGUs to formulate and implement their ESWM Plans.</li> <li>3. Lack of technical support on SWM for the EMB Regional Office.</li> </ol>
	Influential effect	Are there any ripple effects to the other target groups such as other LGUs?	No any ripple effect.
	Negative impact	Are there any negative impacts by the implementation of the Project? Are there any mitigation measures which have been conducted?	<p>Some negative effects of the project on the waste pickers may be expected by the construction of a new landfill and closure of the existing landfill since the new landfill does not allow waste picking on site.</p> <p>According to the interview to the waste pickers conducted at the waste characterization survey, 70% of waste pickers replied that they will find other means of livelihood after the construction of new SLF. Some waste pickers are engaged in agriculture and do waste picking in their spare time to have additional income. Calbayog City is going to support them through livelihood programs, if they want to participate.</p>
Sustainability	Administrative and institutional aspects	Do the institutional and administrative assistances by the Philippine government continue after the Project	<p>NSWMC is mandated to provide technical and financial support to the LGUs for the implementation of RA9003.</p> <p>In addition, NSWMC has been establishing the Regional Ecology Center, including assigning a solid waste management coordinator from the EMB Regional Office to support</p>

	implementation?  Are there any mechanisms to give an impact to other areas in the Philippines?	<p>LGUs in each region. Though the organization does not have enough capacity to support each LGU in the region, NSWMC intends to support LGUs through the Regional Ecology Center.</p> <p>The project is designed to establish ESWM in three cities in different regions. As an impact of the project, dissemination of good practices of the project in different LGUs in the region is expected from the three cities with the support of NSWMC.</p> <p>In this project, the experience and knowledge are shared with neighboring LGUs through the technical transfer seminars and workshops. In addition, the guidebooks for SLF and for safe closure of dump sites will be updated with the input from the experience of the city, which will be useful for other LGUs to construct a sanitary landfill and close an old dump site safely. In addition, the manual to prepare SWM plan will be formulated with the initiative of NSWMC. NSWMC intends to have DAO issued which reflects the contents of the manual/guidebooks.</p>
	Does the organization have financial capability for the project implementation with sustainability?	<p>The current financial capability of Calbayog City for the implementation of the SWM Plan is weak. They applied for a loan from DBP and will try to introduce fee charging system for waste collection services (tag-system) but how much they will charge and when they will implement the system have not yet been determined.</p> <p>If the fee charging system for SWM is fully implemented, the Project achievements will be more sustained.</p>
Organizational and financial aspects	Does the organization related to SWM have the capability of operation and management?	<p>The solid waste management staff of the LGU, Barangay captain, staff of schools and other stakeholders related to solid waste management took part in the project actively. The activities of the pilot MRF and IEC are carried out by the teams consisting of the persons from the CSWMO, Department of Education, and/or the barangay, and it is assumed that their capacity have been improved to some extent through the Project. As for the operation and maintenance of the SLF, organizational capacity development is not addressed yet since it is planned in the later stage of the Project.</p>
	Is technical transfer implemented in line with their technical capability? Did the C/P acquire the technical knowledge and experience in the process of technical transfer?	<p>When the project started, a baseline assessment was made to determine the capability of the C/Ps. Based on this assessment the Project came up with appropriate capacity development plan. During the first half of the project period, the capacity development of the C/P have been implemented through the OJT, workshops, the seminar and C/P training in Japan. However, activities to develop capacity to sustain the new SLF such as operation and maintenance capacity of SLF may not be fully implemented due to time constraints.</p>
Social and environmental aspects	Due to the lack of consideration for economically marginalized and informal sector (waste pickers, et), are	<p>No major inhibiting factor is anticipated.</p> <p>Though there is no concrete plan regarding the consideration for waste pickers in the existing dump site, the waste pickers will try to find other means of livelihood, once the</p>

Annex 3-1

	<p>there any inhibiting factors of the Project? Are there any synergic effects of the project implementation such as employment of waste pickers or arrangement of access road?</p> <p>Are there any possibilities to prevent the sustainability due to the lack of environmental consideration (ex. Resettlement issues, opposition of residents in the project site, other environmental issues)?</p>	<p>new sanitary landfill site start its operations. Calbayog City will provide the livelihood program for waste pickers as described in the impact evaluation section of this evaluation grid.</p>
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## Evaluation Grid for Sagay City

1. Verification of Achievement		Review Results
Items	Sub-Items	Questions
Achievement		<p>Were inputs of the Japanese side secured as scheduled?</p> <p><b>Japanese Experts:</b> Six experts, comprising of a chief advisor in charge of SWM planning and five experts in charge of waste diversion, IEC, final disposal, financial analysis and environmental and social considerations were engaged. In terms of total man-month, the input of the experts was implemented as scheduled, and one-fourth of the total man-month was allocated in Sagay. The replacement of the waste diversion expert did not pose any problems since job assignment was carefully taken over. The detail assignment schedule is attached in Annex 4.</p> <p><b>Training in Japan:</b> The training in Japan was conducted from October 27 to November 15, 2008, and two C/Ps from Sagay took part in it.</p> <p><b>Equipment:</b> All the equipment from the Japanese side was procured and provided within the expected schedule as attached in Annex 4. The status of each item is as follows.</p> <ul style="list-style-type: none"> <li>● The all-in-one type printer is used in the Project office of the Japanese experts and fully utilized.</li> <li>● The equipment for IEC campaign (laptop computer, digital camera, etc.) was provided for Sagay city and ready to be used when IEC campaign starts in June 2009.</li> <li>● The portable equipment for water quality analysis was provided but training was not yet undertaken at the time of the first study of the mid-term review.</li> <li>● The multi-purpose vehicle was provided in October, 2008 and fully used.</li> <li>● MRF equipment for pilot project is fully used. However, the composter was procured for demonstration purposes only and do not have enough capacity to treat a large amount of biodegradable waste, hence giving an issue to the stakeholders in the barangay about how to manage the excessive biodegradable waste. They are planning to do composting the excessive biodegradable waste through vermin culture.</li> </ul> <p><b>Local Consultant :</b> JICA provided with the teams of local consultants. Total cost of the contract cost of first half of the project is Php.21,586,776 for 3 cities (Php.4,180,683 in JFY2007 and Php.17,406,093 in JFY2008). The details are shown in the attached documents.</p>
	Inputs	<p>Were inputs of the Philippine side secured as scheduled?</p> <p><b>Counterpart Personnel:</b> The C/Ps were designated, in addition to their regular function to form a task team in Sagay city. The team included a task team leader, and persons in charge of SWM planning (and who also acts as the project coordinator), waste diversion, financial analysis, sanitary landfill construction and operation, environmental and social consideration (who also takes part in SWM planning), and IEC.</p> <p><b>Office Space with Furniture:</b> The office space was secured with adequate furniture in the Sagay City Hall.</p>

	Achievement of Outputs	<p>Outputs</p> <p>1. Capacity of LGU on SWM planning is strengthened</p>	<p>Objectively Verifiable Indicator (PDM(2))</p> <p>1.1 Approval of ESWM Plan</p> <p>1.2 Workshop and seminars for officials responsible for SWM in Sagay city are held 7 times.</p> <p>1.3 A manual on formulation of SWM Plan</p> <p>2-1 Waste Diversion Rate (WDR) is achieved at 25% by the end of the Project.</p> <p>2-2 Workshops on 3Rs activities in the Barangay located Pilot MRF are held 7 times.</p>	<p>Review Result</p> <p>The ESWM plan was drafted in September 2008. It was finalized with inclusion of cost and economic analysis. Following its submission to the EMB Regional Office, it was finally submitted to NSWMC in March 2009. It is still awaiting comments from NSWMC and the approval of the City Council.</p> <p>Workshops were held in November 2007 and June 2008, and were attended by representatives from neighboring LGUs, PENRO, CENRO and barangays in the city. The C/Ps were encouraged to make presentations. The technical seminar on the SWM Plan to 2008, wherein the C/Ps made presentations on the SWM Plan to representatives from neighboring LGUs, PENRO, CENRO and barangays in the city. The total number of workshops and seminars conducted was three.</p> <p>The preparation of the manual was planned to be implemented during the fourth year (April-October 2010), but NSWMC requested to implement this earlier. NSWMC has the primary responsibility of preparing the manual, and organized a working group for this purpose. NSWMC is expecting active involvement of the C/Ps of the city so as to integrate their experience and know-how attained in the Project.</p> <p>According to the SWM Plan, the WDR on Page 6-3 is 21.1% for 2008 and 43.0 % for 2010. Meanwhile on Page 7-3, the WDR is 25.6 % for 2008 and 41.8 % for 2010. Thus, there is a discrepancy about the planned WDR in the SWM plan. In addition, since there is no updated WDR data at the time of the Mid-term Review, the trend of WDR is not known and the level of achievement can not be determined. The LGU plans to review the data and correction will be made accordingly.</p> <p>A workshop was held in November 2008 and was attended by the C/Ps and the residents of Barangay Rizal to work out the operational guidelines of the pilot MRF. During the occasion of the turnover and inspection of MRF equipment in February 2009, the training on its operation was also conducted for the barangay residents. Since the</p>
		<p><b>Running Expenses Necessary for the Project Implementation:</b> The local expenses including cost for such items as personnel, a driver and fuel for the donated vehicle, and protocol for the approval of the SWM Plan and ECC were incurred by the city. The input from the Philippine side is as attached in Annex 5.</p>		

		<p>2-3 IEC campaign on 3Rs activities is carried out at every Barangay in collection area.</p> <p>2-4 Pilot MRF is constructed in the selected Barangay and operated.</p> <p>3-1 Sanitary landfill is constructed and operated in compliance with RA9003.</p> <p>3-2 Updating of the technical guidebooks on the safe closure of disposal facilities and the</p>	<p>operation of the pilot MRF has just started, workshops to improve its operation and to disseminate its experience to other barangays are to be held in the latter half of the Project period. In total, two workshops for operation and maintenance were held in Barangay Rizal.</p> <p>The preparatory works such as the allocation of necessary personnel from the city, the printing of IEC materials, and the procurement of IEC equipment were completed in March 2009. The IEC campaign is to start in June 2009. The IEC campaign has two components, namely, social awareness activities in the barangays and environmental education in schools. The social awareness activities will target three barangays including Barangay Rizal (pilot barangay) in 2009 and another three barangays in 2010, the environmental education in schools will start in four elementary schools in 2009 and in another four elementary and two high schools in 2010. As the city has 12 barangays in its waste collection area and 30 elementary or high schools, the IEC campaign is not planned to ensure the achievement of Indicator 2-3 and the reconsideration of the IEC campaign plan and/or Indicator 2-3 is required.</p> <p>The construction of the pilot MRF was completed in February 2009. Its operation started in May 2009. Six persons from the Barangay Rizal and three other LGU personnel are engaged in the operation.</p> <p>Required design documents were prepared by September 2008. The City Council concluded to allocate its own financial resource to the SLF construction in February 2009. The city already started to improve the road to the site. The fund allocation for SLF construction is on the way, although the delivery of additional IRA is behind the expected schedule. The remaining hurdle is the approval of ECC. After the submission of the IEE checklist in December 2008, it was finally revealed that geological assessment by MGB (Mine and Geosciences Bureau of the DENR) was inevitable at the proposed site although the geological survey was thoroughly done by the Project and, according to the Japanese expert, such a prerequisite is not readily understood from the official documents on ECC. The MGB's assessment was implemented in June 4, 2009. Construction will start as soon as the ECC is issued.</p> <p>The preparation of the manual was planned to be implemented during the fourth year (April-October 2010). NSWMC has the</p>
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		<p>concept and design of sanitary landfill.</p>	<p>primary responsibility of preparing the technical guidebooks, and organized 2 working groups for this purpose. NSWMC is expecting active involvement of the C/Ps of the city so as to integrate their experience and know-how attained in the Project.</p>
<p>Achievement of Project Purpose</p>	<p>Project Purpose Ecological SWM system is established in Sagay City</p>	<p>Objectively Verifiable Indicator (PDM(2)) Plan and programs formulated under the SWM plan are implemented in Sagay City</p>	<p>Review Results There have been some measurable outputs produced that partly satisfy the indicator for the Project Purpose at the time of the Mid-term Review. Among the plans and programs stipulated in the SWM Plan (Table 11.2.1: Annual Project Costs of Ten Year SWM Plan of Sagay City), the following were implemented.</p> <ul style="list-style-type: none"> <li>• The pilot MRF was constructed and operationalized.</li> <li>• The preparatory work for IEC campaign was completed.</li> <li>• The preparatory work for sanitary landfill construction was completed.</li> <li>• The establishment of independent SWM accounting system was studied.</li> </ul> <p>The plans and programs in the SWM Plan for the years 2009 and 2010 also include the following.</p> <ul style="list-style-type: none"> <li>• The construction of other MRFs (4 in 2009 and 4 in 2010). (a)</li> <li>• IEC campaign. (b)</li> <li>• The construction and operation of a sanitary landfill. (c)</li> <li>• The planning and implementation of the closure of the existing landfill. (d)</li> </ul> <p>The latter three marked with (b), (c) and (d) are integrated in the project activities and planned to be carried out in the latter half of the Project. Although (d) may have strict time constraint because (c) will take 3 months more than as planned. Considering that the establishment of new MRFs is one of the key elements in the SWM plan, the stimulation of Program (a) by the Project is highly expected and it is necessary to draw useful lessons from the pilot MRF project and apply them to the next steps.</p>

## 2. Verification of Implementation Process

Items	Sub-Items	Questions Concerned	Study Result
Implementation Process	Progress of Activities	Are the activities implemented as scheduled? If revision is needed, why?	<p>As the Plan of Operation (PO) was not revised during the project, progress of activities were reviewed by referring to the PO(0). Currently, the monitoring is carried out by the work schedule included in the updated IC/R.</p> <p>See Annex 6 for detail about the actual time frame of each activity.</p> <p><b>Activities for Output 1:</b>  <i>Activities 1.1 – 1.4</i> were implemented as scheduled. The SWM Plan was drafted in September 2008 as stated the PO(0). But it is not yet submitted for approval by the City Council.</p> <p><i>Part of Activity 1.5</i> is started, as such activities as pilot MRF construction and SLF construction are included in the SWM plan.</p> <p><i>Activity 1.6</i> has not yet been started.</p> <p><i>Activity 1.7</i> is expected to start ahead of schedule.</p> <p><b>Activities for Output 2:</b>  <i>Activities 2.1 – 2.3</i> were implemented as scheduled.</p> <p><i>Activities 2.4</i> started in June 2009 after the preparation of IEC material.</p> <p><i>As for Activity 2.5</i>, a pilot MRF was constructed and the pilot project of waste diversion using the MRF is proceeding. It is, however, not the cluster MRF as specified in the Activity 2.5 of the PDM(2), but the MRF will be for single use of the pilot barangay and operate in close collaboration with the school in the same barangay.</p> <p><i>Activity 2.6</i> has not yet been started.</p> <p><b>Activities for Output 3:</b>  <i>Activities 3.1 – 3.4</i> were implemented as scheduled except the F/S of the new SLF.</p> <p><i>Activity 3.5</i> "Conduct EIA for the proposed site" is not yet completed due to delay of ECC approval.</p> <p><i>Activity 3.6</i> "Assist to arrange a fund for construction of the SLF" has proceeded.</p> <p><i>Activity 3.7</i> was implemented ahead of schedule.</p> <p>Due to the delay of <i>Activity 3.5</i>, <i>Activities 3.8 – 3.13</i> (SLF construction, operation and maintenance, and landfill closure) have not yet been started.</p> <p><i>Activity 3.14</i> is expected to start ahead of schedule.</p>
Technology Transfer		Has the capacity of individuals and of organizations been developed?	<p>At the beginning of the project, job description sheets were prepared for all the officials/workers of the city working for SWM and such information as educational background, years of experience and job assigned were compiled. Based on this understanding, the capacity of individuals and the organization (General Service Office, GSO) were assessed. The project then further worked out capacity development plans from December 2007 to September 2008 and from October 2008 to March 2009 for each</p>

			<p>C/P and for the GSO. The capacity development plans show what capacity was expected to be strengthened for the said period and what capacity was actually strengthened and how. The review of the capacity development plans tells that capacity developments of the individuals was achieved as expected mostly through OJT and presentations made by the C/Ps at the seminar and workshops, and were regarded as a milestone of capacity development. At the organizational level, the preparation of the SWM plan is one of the most important intellectual assets. The Project also strengthened the organizational capacity in terms of physical assets by procuring equipment and the pilot MRF.</p> <p>The Project has been monitored overall through JCC. In addition, progress of activities for each project site has been monitored by the C/Ps and the Japanese experts using a work plan. During the absence of Japanese experts, a local consultant entrusted by the Japanese experts played a vital intermediate role to smoothen the mutual communication between the C/Ps and the Japanese experts and prepared weekly reports and monthly reports to enhance the decision making regarding project execution.</p> <p>However, as described in "Progress of Activities", PO has not been revised to reflect the current condition.</p>
Implementation Status Monitoring	Who has been monitoring the progress? How and how often was the Project monitored? Was monitoring result reflected to project operation?	Is the communication between the Japanese experts and JICA (headquarters and Philippine office) effective?	<p>The Japanese experts visited the JICA Philippine office when they submitted three progress reports (February 2008, September 2008 and March 2009) and the monthly reports to the JICA Philippine Office. Additional information exchange was done through other meetings or e-mails. The chief advisor also visited the JICA headquarters more than six times a year before and after his assignment in the Philippines. At the latter half of the project period, the project will conduct several activities to consolidate the outputs of the project with the cooperation of NSWMC and 3 LGUs. These activities are very important to ensure the sustainability of the Project, and to replicate it to other LGUs. Also, applying lessons learned from JICA's projects in other countries enhances the outcome of project in the Philippines. Thus, more close communication is required among JICA Philippines, JICA HQ and Experts in order to consult the future direction and outcomes of the Project.</p>
Relationship and Communication among the C/Ps, the Japanese Experts, and Others Concerned	Is the communication among project teams (among Japanese experts / between the Japanese experts and the C/P) effective?	Is communication between project teams and the relevant stakeholders (governmental	<p>As mentioned above, the Japanese experts also have to visit and work in other cities, aside from Sagay, and in the process could not visit the city together. Thus there are some difficulties in directly relaying and communicating with the other experts. However, e-mails and telephone calls are the essential communication tools in maintaining effective communication among the project teams. Correspondences are also documented and filed appropriately. There is a harmonious working relationship among them.</p> <p>Two workshops and one seminar were held inviting audiences from barangays, neighboring LGUs, CENRO, PENRO and their views and comments were taken up for further consideration. A Barangay Summit is planned sometime in June or July 2009 to</p>

	<p>organizations, business entities, NGOs, residents, etc.) effective?</p>	<p>deepen the understanding of the SWM plan by barangays and to promote the cooperation between the City and barangays. A public opinion survey was conducted at the initial stage of the Project to understand the way of thinking towards SWM of the city residents in general. An opinion survey in the pilot barangay was also carried out in order to ensure the barangay-led operation of the pilot MRF. Further, an interview survey was conducted to the waste pickers at the existing landfill as a part of a waste characterization survey. From these evidences, the information of the project and the SWM Plan has been well delivered and communication with the relevant stakeholders is effective.</p>
<p>Ownership of the Recipient Country</p>	<p>Do the C/Ps have ownership of the Project?</p>	<p>The C/P team is led by the Sagay city administrator. The information of the Project and its progress is sufficiently shared by not only the C/P members but also by their support staff. This enabled smooth turnover when some of the C/Ps were replaced. According to the results of interview with the C/Ps, their contribution to the SWM plan is 50 – 60% as the SWM Task Team.</p>
<p>Other issues</p>	<p>Are there any issues to be sorted out for project implementation? What are their causes?</p>	<p>None.</p>

## 3. Review by Five Evaluation Items

Relevance	Needs	<p>The Medium-Term Philippine Development Plan (MTPDP2004-2010) highlights solid waste management as one of target issues of the environment sector. And also MTPDP stated the importance to support the LGUs for full implementation of RA9003. In Sagay City, solid waste management is needed to sustain and further enhance the present efforts of the LGUs to provide its constituents with safe and environmentally clean community as the City moves towards quality urbanization. It is also in support of the mandates of RA 9003, and in response to the problems brought about by global warming.</p>
Consistency with the national policy with Japan and the Philippines	Is the Project consistent with the solid waste management policy in the Philippines?	<p>As for the solid waste management policy of the government of the Philippines, establishment of a sanitary landfill site (SLF), achieving a waste diversion rate of 25% and the safe closure of open dump sites are mandatory according to RA9003 and all are incorporated in the Project. In this Project, the activities of arrangement of SLF and safe closure of open dumpsite and waste diversion plan toward more than 25 % waste diversion by waste reduction and segregation at source through IEC programs based on the prepared ISWM plan. Therefore, these activities are consistent with the solid waste management policy in the Philippines.</p>
Appropriateness in term of procedures	Is the Project consistent with the official development policy in Japan and JICA's country-specific implementation plan for the Philippines?	<p>In the "Assistance Plan for the Philippines" (by the Ministry of Foreign Affairs in Japan), it states the importance of "environmental conservation including strengthening of administrative capacity, measures for general waste disposal and industrial pollution, and natural environmental conservation", thus environmental issues is one of the priority areas in the Assistance Plan. The environmental related programs are included in the "Environment Challenges" under "Sustainable Economic Growth for More Employment", which is one of the three policy pillars in the Assistance Plan. Furthermore, the Country Assistance Strategy (CAS) for the Philippines (Working Paper of ODA Taskforce of Philippines) also mentioned that solid waste management issues is one of the target areas for assistance by Japan's ODA</p>
	Is the project appropriate in terms of strategy issues of solid waste management in the Philippines?	<p>All of the LGUs are required to establish an Ecological Solid Waste Management System with technical assistance and supervision of NSWMC according to RA9003. However, most of the LGUs do not have enough capability to do so. The project focused on the three selected LGUs to establish the Ecological Solid Waste Management System including SLF, WD system, etc and to disseminate the experience and knowledge acquired in the Project to other LGUs. Therefore, the Project appropriately addresses the priority concerns and issues in the Philippines..</p>
	Is the transfer of technology and experience conducted appropriately?	<p>The capacity of the C/Ps regarding SWM planning including the investigation of current and future waste flow, WD planning and designing the Pilot MRF and a new SLF has been developed through the assistance of the Japanese experts as well as C/P training in Japan.</p>

			<p>The capacity development of IEC campaign and SLF operation has not been acknowledged since practical activities have not yet been started. During the process of technical transfer, the practical know-how such as the plan and design of pilot MRF and design of SLF has been provided to the C/Ps through the OJT. However, according to the interviews with the C/P, their practical capacity is not yet sufficient due to lack of actual experience even though their basic knowledge on their planning and designing is developed.</p>
Effectiveness	Prospect of Project Purpose	Is the achievement level of the Project Purpose adequate at this stage?	Please refer to the "1. Verification of Achievement" of the Evaluation Grid for details.
	Outputs	Were the Outputs sufficient to achieve the Project Purpose?	To achieve the Project Purpose, Outputs 1 to 3 are considered sufficient provided that the SWM Plan is approved and implemented by the city.
	Inhibiting and promoting factors	Are there any changes in external factors?	The change of leadership after the Elections in May 2010 may be an inhibiting factor, if the national and local governments are adversely affected by political changes. The change of political administrations at both the national and local levels will affect organizational and institutional capacity and implementation in all levels. The financial situation of the LGU may be an inhibiting factor, unless a suitable institutional system of waste collection fee charging system is introduced, from which the city is seriously considering.
Efficiency		Is the achievement level of the output is sufficient?	Please refer to the "1. Verification of Achievement" of the Evaluation Grid for details.
	Achievement of output	Are there inhibiting factors of the achievement of output?	<p>The following are considered potential inhibiting factors:</p> <ol style="list-style-type: none"> <li>1. Due to the delay of approval of the ECC, the construction of SLF may not be started as initially planned.</li> <li>2. The future administrative system, if influenced by the political change, may affect the organizational and institutional capability regarding SWM of LGU.</li> <li>3. Weather condition may delay the SLF construction. In fact, the improvement of the access road was delayed because of abnormal weather condition.</li> </ol>
		Is the input for the implementation based on the plan appropriate in terms of quantity, quality and timing?	The interviews with the C/Ps indicate that input is generally satisfactory on human resources (Japanese experts), trainings and equipment provided enough and that the timing of the input is almost appropriate.
	The amount and timing of input	Is the important assumption described in the current PDM appropriate now? Are there any other important	<p>However, if the completion of new SLF site is delayed, it may be difficult to conduct sufficient training for the operation and maintenance of the new SLF within the project period. The other parts of input are generally suitable for the needs of the Philippine side.</p> <p>Important Assumption 2 is no longer appropriate as pilot MRF was constructed and started operation as scheduled. Important Assumption 3 should be modified to specify the factor that may influence the progress of SLF construction, which is weather condition. Further, ECC approval and financial arrangement are considered to be an important assumption.</p>

	assumptions?	<p>JCC was held three times during the first half of the project period - December 12, 2007, September 22, 2008, and February 24, 2009 to review the overall progress of the project. For smooth implementation of the project, in Sagay city, the following measures were taken:</p> <ol style="list-style-type: none"> <li>1. A local consultant was assigned during the first half of the project period to facilitate communication between C/P and JICA experts.</li> <li>2. In addition, each of the Japanese experts, during his assigned period in the city, tried to share the information with the C/Ps even if it was outside of his field of expertise.</li> </ol> <p>If the city continues to share the knowledge and experience of the project and keep communicating with the neighboring municipalities, the overall goal is likely to be achieved for the following reasons:</p> <ol style="list-style-type: none"> <li>1. Through the project, the visitors from neighboring LGUs such as Cadiz and Escalante cities sometimes come to observe the operation of the Pilot MRF and Sagay City aims to expand its link with other neighboring cities/municipalities and share the experience gained in SWM..</li> <li>2. The technical seminar was held with participants from these two LGUs. Therefore, its knowledge and experience were also conveyed to other LGUs to some extent.</li> <li>3. The joint use of the new SLF has been discussed among those LGUs and Sagay city intends to accept only residual waste from Cadiz and Escalante.</li> </ol> <p>The overall goal is not likely to be achieved if the following take place:</p> <ol style="list-style-type: none"> <li>1. Absence of strong initiative of NSWMC to disseminate the good practices of the project.</li> <li>2. Lack of financial background or support for other LGUs to formulate and implement their ESWM Plans.</li> </ol> <p>There are no ripple effects.</p>
Operation and management system of the Project	Is the operation and management system of the Project effective for the project implementation?	<p>Are there prospects that the Overall Goal will be achieved as an effect of the Project?</p>
Prospect of achievement of overall goal	Are there any inhibiting factors to achieve the Overall Goal?	<p>Are there any ripple effects to the other target groups such as other LGUs?</p>
Influential effect	Are there any negative impacts by the implementation of the Project? Are there any mitigation measures which have been conducted?	<p>Some negative effects of the project on the waste pickers may be expected by the construction of a new landfill and closure of the existing landfill since the new landfill does not allow waste-picking on site. Most of the waste pickers have means of livelihood and some of them are students who do waste picking as a part time job.</p> <p>At this time, no concrete mitigation measure is implemented but, the LGU has developed a plan for assistance to would be displaced waste pickers (livelihood training program, among</p>
Negative impact		
Impact		

Sustainability			<p>others) and also a resettlement action plan for affected families at the SLF. However, according to the interview to waste pickers conducted at the time of waste characterization study, they replied that they will return to their original jobs or means of livelihood, such as farming, once the existing open dump site is closed.</p> <p>NSWMC is mandated to provide technical and financial support to the LGUs for the implementation of RA9003.</p> <p>In addition, NSWMC has been establishing the Regional Ecology Center, including assigning a solid waste management coordinator from the EMB Regional Office to support LGUs in each region. Though the organization does not have enough capacity to support each LGU in the region, NSWMC intends to support LGUs through the Regional Ecology Center.</p>
Administrative and institutional aspects	Do the institutional and administrative assistances by the Philippine government continue after the Project implementation?	<p>The project is designed to establish ESWM in three cities in different regions. As an impact of the project, dissemination of good practices of the project in different LGUs in the region is expected from the three cities with the support of NSWMC.</p> <p>In this project, the experience and knowledge are shared with neighboring LGUs through the technical transfer seminars and workshops. In addition, the guidebooks for SLF and for safe closure of dump sites will be updated with the input from the experience of the city, which will be useful for other LGUs to construct a sanitary landfill and close an old dump site safely. In addition, the manual to prepare SWM plan will be formulated with the initiative of NSWMC. NSWMC intends to have DAO issued which reflects the contents of the manual/guidebooks.</p>	
Organizational and financial aspects	Does the organization have financial capability for the project implementation with sustainability?	<p>According to the SWM plan, the waste charging system for households is considered and the several different amounts of fee for households have been analyzed based on the WTP (Willingness to Pay) and ATP (Affordability to Pay). However, according to the Mayor's opinion, it is uncertain if the waste charging system for households will be introduced because waste collection is considered social responsibility of the City to its constituents. In addition, political changes may cause some problems for actual implementation.</p>	
	Does the organization related to SWM have the capability of operation and management?	<p>If the fee charging system for SWM is fully implemented, the Project achievements will be more sustained.</p> <p>The solid waste management staff of the LGU, Barangay captain, staff of schools and other stakeholders related to solid waste management took part in the project actively. The activities of the pilot MRF and IEC are carried out by the teams consisting of the persons from the GSO, Department of Education, and/or the barangay, and it is assumed that their capacity have been improved to some extent through the Project. As for the operation and maintenance of the SLF, organizational capacity development is not addressed yet since it is planned in the later stage of the Project.</p>	

	<p>Technical aspect</p>	<p>Is technical transfer implemented in line with their technical capability?          Did the C/P acquire the technical knowledge and experience in the process of technical transfer?</p>	<p>When the project started, a baseline assessment was made to determine the capability of the C/Ps. Based on this assessment the Project came up with appropriate capacity development plan. During the first half of the project period, the capacity development of the C/P have been implemented through the OJT, workshops, the seminar and C/P training in Japan. However, activities to develop capacity to sustain the new SLF such as operation and maintenance capacity of SLF may not be fully implemented due to time constraints.</p>
<p>Social and environmental aspects</p>	<p>Due to the lack of consideration for economically marginalized and informal sector (waste pickers, etc), are there any inhibiting factors of the Project?          Are there any possibilities to prevent the sustainability due to a lack of environmental consideration (ex. Resettlement issues, opposition of residents in the project site, other environmental issues?)</p>	<p>No major inhibiting factor is anticipated.           Though there is no concrete plan regarding the consideration for waste pickers in the existing dump site, it is their intension to move to other jobs, if the new SLF starts its operation. There are both permanent and temporary waste-pickers. Sagay city is considering the plan for supporting waste pickers with livelihood program to find other jobs such as employment of composting facility or to initiate income training activities according to the SWM Plan.           Though there are four dwelling units to be resettled due to the construction of SLF, Resettlement Action Plan (RAP) will be prepared based on the employment opportunity or desire of the target residents. They already agreed with resettlement. Though there are some permanent and temporarily waste pickers in the site, Sagay city will develop the livelihood program for the permanent worker in existing sites.</p>	

### Evaluation Grid for Davao City

#### 1. Verification of Achievement

Items	Sub-Items	Questions	Review Result
Achievement	Input	Were inputs of the Japanese side secured as scheduled?	<p><b>Japanese Experts:</b> Six experts comprising of a chief advisor in charge of SWM planning and five experts in charge of waste diversion, IEC, final disposal, financial analysis and environmental and social considerations were engaged. In terms of total man-month, the input of the experts was implemented and one-fourth of the total man-month was allocated in Davao City. The replacement of the waste diversion expert did not pose any problems since job assignment was carefully taken over. The detail assignment schedule is attached in Annex 4.</p> <p><b>Training in Japan:</b> The training in Japan was conducted from October 27 to November 15, 2008, and two C/Ps from Davao City took part in it. One of them, however, left the Project after the training.</p> <p><b>Equipment:</b> All the equipment from the Japanese side were procured and provided within the expected schedule as attached in Annex 4. The status of each item is as follows.</p> <ul style="list-style-type: none"> <li>● The all-in-one type printer is used in the project office of the Japanese experts and fully utilized.</li> <li>● The IEC campaign materials were developed, and shipped to Davao city and are to be used in IEC activities from June 2009.</li> <li>● The equipments for IEC campaign (laptop computer, digital camera, etc.) were provided for Davao City and are ready to be used when IEC campaign starts in June 2009.</li> <li>● The portable equipment for water quality analysis was provided and training was undertaken.</li> <li>● The multi-purpose vehicle was provided to Davao, but is not utilized since car registration process has not yet been completed.</li> <li>● MRF equipment for pilot project is fully used. As a demonstration MRF, the composter does not have large capacity. This presents an issue on how to manage excess biodegradable waste to the barangay stakeholders operating the MRF. The barangay, where the pilot MRF has been installed, is considers introducing a system of producing carbon briquette from yard waste or producing hollow blocks from residual waste using the technology introduced by NSWMC.</li> </ul> <p><b>Local Consultant :</b> JICA provided the teams of local consultants. Total contract cost of first half of the project is Php.21,586,776 for 3 cities (Php.4,180,683 in JFY2007 and Php.17,406,093 in JFY2008). The details are shown in the attached documents.</p>
		Were inputs of the Philippine side secured as scheduled?	<p><b>Counterpart Personnel:</b> The C/Ps were designated, in addition to their regular functions, to form a task team in Davao city. The team included a task team leader, deputy task team leader who is also in charge of SWM planning, and the persons in charge of waste diversion, financial analysis, environmental and social consideration, final disposal and IEC.</p> <p><b>Office Space with Furniture:</b> The office space was secured with adequate furniture at the department of the Davao city hall.</p> <p><b>Running Expenses Necessary for the Project Implementation:</b> The local expenses including personnel costs were incurred by the city. The input from the Philippine side is as attached in Annex 5.</p>

Achievement of Outputs	Outputs	Objectively Verifiable Indicator (PDM(2))	Review Result
	1. Capacity of Davao City on SWM planning is strengthened.	1-1 JICA Experts' Recommendations are understood by the Davao city officials concerned.	<p>The main focus of the JICA Experts' Recommendations was the compliance with DENR Administrative Order No.10, Series of 2006 (DAO 06-10), which stipulates the four categories of SLF and the requirements for each category. The recommendations were submitted to the city in March 2008 as part of Progress Report (1) and were verbally explained since then to the city by the Project Team. In February 2009, CENRO, City Engineer's Office and City Planning and Development Coordinator Office and the JICA experts discussed issues recommended and the requirements to satisfy the criteria for the SLF of Category 4, and agreed that the city should take necessary actions to comply with the criteria, particularly the leachate treatment system.</p> <p>At the time of the first study of the mid-term review, the city started to examine the SLF operation procedure using an operations manual prepared by the contractor. The city dealt with the private contractor on the design and operations including leachate management of the SLF. The water testing equipment from JICA will be used in the SLF operations for monitoring purposes. Granting that there is a problem in the leachate management, the city government will deal with the contractor regarding the matter, as part of the contract.</p>
		1-2 Workshops and seminars for the officials responsible for SWM are held 7 times.	<p>Workshops were held in November 2007 and June 2008, where attended the representatives from different organizations of the city government, PENRO, CENRO and barangays in the city. The C/Ps were encouraged to make presentations. The technical seminar was held in February 2008, where the C/Ps made presentations on the ISWM Plan to the attendants including the representatives from neighboring LGUs, PENRO, CENRO, EMB and barangays in the city. The total number of workshops and seminars conducted are three.</p>
		1-3 A manual on formulation of SWM Plan	<p>The preparation of the manual was planned to be implemented during the fourth year (March-October 2010), but NSWMC requested to implement this earlier. NSWMC has the primary responsibility of preparing the manual, and organized a working group for this purpose. NSWMC is expecting active involvement of the C/Ps of the city so as to integrate their experience and know-how attained in the Project.</p>
	2. Solid waste diversion system is improved.	2-1 Pilot Material Recovery Facility (MRF) is constructed in the selected Barangay.	<p>The construction of the pilot MRF was completed in February 2009 in Barangay Hizon. Its operation started in February 2009 after the equipment turnover. It is currently under temporary operation since they still have to establish the collection system. Five persons from Barangay Hizon are engaged in the operation. Four of these persons are paid by the City, meanwhile, the Barangay pays for the salary of the remaining person.</p>

			<p>Full operation or house to house collection will be by July 1, a total of 2005 households in the barangay.</p> <p>Indicator 2-1, however, only concerns "construction" which is a one-shot action and does not necessarily verify the improved solid waste diversion system. The indicator should also address MRF operation, as in the case of Sagay and Calbayog.</p> <p>A workshop was held in November 2008 and was attended by the C/Ps and the residents of Barangay Hizon to work out the operation guidelines of the pilot MRF. During the occasion of the turnover and inspection of MRF equipment in February 2009, training for its operation was conducted for the barangay residents. Since the barangay captain has plans to introduce a new segregated-collection scheme in June 2009, and to introduce briquette making from yard waste and/or hollow-block production from residual waste, more 3R workshops are anticipated in the latter half of the Project.</p> <p>The two workshops for operation and maintenance were held in Barangay Hizon. The total number of 3R activities, particularly in IEC campaign, is more than 20 and these 3R activities were attended by participants from other provinces. The number of visits increased because the launch of the MRF was televised by a major TV network, and the barangay captain is also very active in the conduct of IEC campaigns.</p> <p>The preparatory works such as the allocation of necessary personnel from the city, the printing of IEC materials, and the procurement of IEC equipment were completed in March 2009. The IEC campaign started in June 2009. The IEC campaign has two components, namely social awareness activities and environmental education in schools. The social awareness activities will target 10 barangays including barangay Hizon (pilot barangay) in JFY 2009, and 34 barangays in JFY 2010.</p> <p>As for the environmental education in schools, 21 elementary schools and 5 high schools are to be provided with the textbooks prepared by the Project. The training on how to use the textbooks to the science teachers will start by the end of June. However it was suggested that the training for science teachers should be coursed through with the schools division superintendent. There is a plan by the school division to integrate it in all subject areas.</p> <p>The operation manual of the SLF was already completed by the contractor.</p>
	<p>2-2 Workshops on 3R activities are held 7 times at the Barangay where the Pilot MRF is constructed.</p> <p>2-3 IEC Campaign on 3Rs activities is carried out at the major barangays.</p>		
<p>3. Appropriate Operation/Maintenance/Management of Sanitary</p>	<p>3-1 Prepare a manual on Operation/Maintenance/Management of sanitary landfill.</p>		

		<p>Landfill is attained.</p>		
	<p>Achievement of Project Purpose</p>	<p>Project Purpose Ecological SWM system is established in Davao City</p>	<p>Objectively Verifiable Indicator (PDM(2)) Plan and programs formulated under the SWM plan are implemented in Davao City</p>	<p>Review Results There have been some measurable outputs produced that partly satisfy the indicator for the Project Purpose at the time of the Mid-term Review.  Among the main program of the Integrated Solid Waste Management Plan of Davao City (Table 4-6 to 4-10), the main progress grasped by the Mid-term review team were as follows:   <ul style="list-style-type: none"> <li>● The construction of the new SLF is nearly finished in spite of the delay due to the weather condition.</li> <li>● The procurement of the equipment for improvement of a large number of waste bins and 10 compactor trucks is about to proceed as the budget allocation was approved (Davao City).</li> <li>● The closure and rehabilitation of existing Lacson dump site is delayed due to the delay of the construction of the new SLF</li> <li>● The IEC program is under implementation</li> </ul> <p>It is to be noted, however, that some activities for these programs are not incorporated in the PDM(2). This implies the indicator may not be appropriate for the project purpose.</p> </p>

2. Verification of Implementation Process		Review Result
Items	Sub-Items	Questions Concerned
	Progress of Activities	Are the activities implemented as scheduled? If revision is needed, why?
		As the Plan of Operation (PO) was not revised during the project, progress of activities were reviewed by referring to the PO(0). Currently, the monitoring is carried out by the work schedule included in the updated IC/R. See Annex 6 for detail about the actual time frame of each activity. <b>Activities for Output 1:</b> <i>Activity 1.1</i> was implemented as scheduled. <i>Activities 1.2 and 1.3</i> are proceeding, although <i>Activity 1.3</i> is limited to IEC promotion ( <i>Activity 2.4</i> ) and the preparation of an operation/maintenance/management manual for SLF ( <i>Activity 3.1</i> ). <b>Activities for Output 2:</b> <i>Activity 2.1</i> was carried out as scheduled. <i>Activity 2.2</i> was done and there are some discrepancies regarding the city's WDR calculation. <i>Activity 2.3</i> did not proceed as scheduled. <i>Activity 2.4</i> started in June 2009. There is no description of the construction of a pilot MRF in the activities in the PDM but a pilot MRF has been installed in Barangay Hizon. <b>Activities for Output 3:</b> <i>Activity 3.1</i> has just started as the operation manual submitted by the contractor will still undergo CENRO's review. Nonetheless, SLF operation will not start until the beginning of 2010 because financing for new heavy machinery for SLF is not available within 2009, as the task team leader commented. Therefore, even though a manual can be drafted before operation, its finalization by reflecting actual practice will be possible only in the closing stage of the Project. Regarding <i>Activity 3.2</i> and <i>Activity 3.3</i> The safe closure of Carmen landfill site has been completed and the safe closure of the current Lacson landfill needs to be implemented according to the ISWM plan.
	Technology Transfer	Has the capacity of individuals and of organizations been developed?
	Implementation Status of Monitoring	Who has been monitoring the progress? How and how often was
Implementation Process		At the beginning of the project, job description sheets were prepared for all city personnel working for SWM and such information as educational background, years of experience and job assigned were compiled. Based on this understanding, the capacity of individuals and the organization (CENRO) were assessed. The project then further worked out capacity development plans for time periods from December 2007 to September 2008 and from October 2008 to March 2009 for each C/P and for the organization. The capacity development plans show what capacity was expected to be strengthened for the said period and what capacity was actually strengthened and how it was done. The review of the capacity development plans shows that capacity development of the individuals were regarded as expected mostly through OJT and presentations made by the C/Ps at the seminar and workshops were regarded as a milestone of capacity developed into the manual as an asset of organization. The Project has been monitored overall through JCC. In addition, progress of activities for each project site has been monitored by the C/Ps and the Japanese experts using a work plan. During the absence of Japanese experts, a local consultant entrusted by the Japanese experts played a vital role as intermediate to smoothen the mutual

		<p>communication between the C/Ps and the Japanese experts and to prepare weekly reports and monthly reports to enhance the decision making regarding project execution. However, as described in "Progress of Activities", PO has not been revised to reflect the current condition.</p> <p>The Japanese experts visited the JICA Philippines office when they submitted three progress reports (February 2008, September 2008 and March 2009) and the monthly reports to the JICA Philippines Office. Additional information exchange was done through other meetings or e-mails. The chief advisor also visited the JICA headquarters more than six times a year before and after his assignment in the Philippines.</p> <p>At the later half of the project period, the project will conduct several activities to consolidate the outputs of the project with the cooperation of NSWMC and 3 LGUs. These activities are very important to ensure the sustainability of the Project, and to replicate it to other LGUs. Also, applying lessons learned from JICA's projects in other countries enhances the outcome of project in the Philippine. Thus, more close communication is required among JICA Philippine, JICA Headquarters and the Japanese experts in order to consult the future direction and outcomes of the Project.</p> <p>As mentioned above, the Japanese experts also have to visit and work in other cities and in the process could not visit the city together. Thus there are some difficulties in directly communicating and relaying concerns with other experts. However, e-mails and telephone calls are the essential communication tools to keep effective communication among the project teams. The correspondences are also documented and filed appropriately.</p> <p>Two workshops and one seminar were held inviting audiences from such organizations as barangays, neighboring LGUs, and PENRO, and their views and comments were taken up for further consideration. A Barangay Summit was held in July 2008 to give a comprehensive view of the ISWM plan to all the barangay captains. A public opinion survey was conducted at the initial stage of the Project to understand the way of thinking towards SWM by the city residents in general. An opinion survey in the pilot barangay was also carried out in order to ensure the barangay-led operation of the pilot MRF. From these evidences, the information of the Project and the ISWM Plan has been well delivered and communication with the relevant stakeholders is effective.</p> <p>The C/Ps have been executing SWM since 1996 and are highly motivated as SWM service provider. Therefore, the C/Ps intends to strategically sort out the project components. In addition, the team leader expressed strong willingness to share its experience to other LGUs. These suggest strong ownership of the C/Ps.</p>
	<p>the Project monitored? Was monitoring result reflected to project operation?</p> <p>Is the communication between the Japanese experts and JICA (headquarters and Philippine office) effective?</p> <p>Is the communication among project teams (among Japanese experts / between the Japanese experts and the C/P) effective?</p> <p>Is communication between project teams and the relevant stakeholders (governmental organizations, business entities, NGOs, residents, etc.) effective?</p> <p>Do the C/Ps have ownership of the Project?</p>	
Ownership of the Recipient Country		
Other issues	<p>Are there any issues to be sorted out for project implementation? What are their causes?</p>	None.

Annex 3-3

3. Review by Five Evaluation Items

Items	Sub-Items	Questions Concerned	Review Result
Relevance	Needs	Is the Project consistent with the needs of the target group (administrative organization, NGO, resident, etc) ?	<p>The Medium-Term Philippine Development Plan (MTPDP2004-2010) highlights solid waste management as one of target issues of environment sector. Also, MTPDP stated the importance to support the LGUs for full implementation of RA9003.</p> <p>At the local level, the ISWM plan was prepared just before the Project and the willingness of the city to implement the plan was high. Although the city has been managing their solid waste quite well, it still needs to be enhanced in some particular areas such as SLF operation and IEC promotion.</p>
	Consistency with the national policy with Japan and the Philippines	Is the Project consistent with the solid waste management policy in the Philippines?	<p>As for the solid waste management policy of the government of the Philippines, establishment of a sanitary landfill site (SLF), achieving a waste diversion rate of 25% and the safe closure of open dump sites are mandatory according to RA9003 and all are incorporated in the Project. In this Project, the activities of arrangement of SLF and safe closure of open dumpsite and waste diversion plan toward more than 25 % waste diversion by waste reduction and segregation at source through IEC programs based on the prepared ISWM plan. Therefore, these activities are consistent with the solid waste management policy in the Philippines.</p>
		Is the Project consistent with the official development policy in Japan and JICA's country-specific implementation plan for the Philippines?	<p>In the "Assistance Plan for the Philippines" (by the Ministry of Foreign Affairs in Japan), it states the importance of "environmental conservation including strengthening of administrative capacity, measures for general waste disposal and industrial pollution, and natural environmental conservation", thus environmental issues is one of the priority areas in the Assistance Plan. The environmental related programs are included in the "Environment Challenges" under "Sustainable Economic Growth for More Employment", which is one of the three policy pillars in the Assistance Plan. Furthermore, the Country Assistance Strategy (CAS) for the Philippines (Working Paper of ODA Taskforce of Philippines) also mentioned that solid waste management issues is one of the target areas for assistance by Japan's ODA.</p>
	Appropriateness in term of procedures	Is the project appropriate in terms of strategy issues of solid waste management in the Philippines?	<p>All of the LGUs are required to establish an Ecological Solid Waste Management System with technical assistance and supervision of NSWMC according to RA9003. However, most of the LGUs do not have enough capability to do so. The project focused on the three selected LGUs to establish the Ecological Solid Waste Management System including SLF, WD system, etc and to disseminate the experience and knowledge acquired in the Project to other LGUs. Therefore, the Project appropriately addresses the priority concerns and issues in the Philippines.</p>
		Is the transfer of technology and experience conducted appropriately?	<p>Through the capacity development plan, the capacity of the C/Ps regarding the investigation of current and future waste flow, and designing of the pilot MRF and leachate treatment system of SLF has been enhanced through the assistance of the Japanese experts as well as C/P training in Japan. The capacity enhancement of IEC campaign using the materials developed by the Project has not been acknowledged since practical activities has not started yet.</p>

Effectiveness	Prospect of Project Purpose	Is the achievement level of the Project Purpose adequate at this stage?	Please refer to the "1. Verification of Achievement" of the Evaluation Grid for details.	
	Outputs	Were the Outputs sufficient to achieve the Project Purpose	To achieve the Project Purpose, Outputs 1 to 3 are considered sufficient if the other activities described in the ISWM plan are implemented in the city.	
	Inhibiting and promoting factors	Are there any changes in external factors?	The election in 2010 may prove to be inhibiting factor, if the organization is adversely affected by political changes. The financial situation on the LGU may be an inhibiting factor, unless a suitable institutional system of waste collection fee charging system is introduced.	
Efficiency	Achievement of output	Is the achievement level of the output sufficient? Are there inhibiting factors of the achievement of output?	Please refer to the "1. Verification of Achievement" of the Evaluation Grid for details.  The following are considered potential inhibiting factors: 1. Due to the delay of construction of SLF, the plan, design and supervision of safe closure of existing open dump site may not be completed as initially planned. 2. The future administrative system, if influenced by the political change, may affect the organizational and institutional capability regarding ISWM of LGU.	
	The amount and timing of input	Is the input for the implementation based on the plan appropriate in terms of quantity, quality and timing? Is the important assumption described in the current PDM appropriate now? Are there any other important assumptions?	The interview survey indicates that input is satisfactory on general for human resources (Japanese experts), trainings and equipment provided and the timing of the input is almost appropriate. The other parts of input are generally suitable for the need of the Philippines side  Important Assumption 2 is no longer appropriate as pilot MRF was constructed and started operation as scheduled. Important Assumption 3 should be modified to specify the factor that may influence the progress of SLF construction, which is weather condition. Further, financial arrangement is considered to be an important assumption.	
	Operation and management system of the Project	Is the operation and management system of the Project effective for the project implementation?	JCC was held three times during the first half of the project period on December 12, 2007, September 22, 2008, and February 24, 2009 to review the overall progress of the project. For smooth implementation of the project, in Davao city, the following measures were taken: 1. A local consultant was assigned during the first half of the project period to facilitate communication between C/P and JICA experts. 2. In addition, each of Japanese experts, during his assigned period in the city, tried to share the information with the C/Ps even if it was outside of his field of expertise.	

Impact	Prospect of achievement of overall goal	<p>Are there prospects that the Overall Goal will be achieved as an effect of the Project?</p> <p>Are there any inhibiting factors to achieve the Overall Goal?</p> <p>Are there any ripple effects to the other target groups such as other LGUs?</p>	<p>If the city continues to share the knowledge and experience of the project and keep communicating with the neighboring municipalities, the overall goal is likely to be achieved as following reasons.</p> <ol style="list-style-type: none"> <li>1. Through the project, the visitors sometimes came to observe the operation of the pilot MRF.</li> <li>2. The technical transfer seminar was held with approximately 20 participants from other neighboring LGUs.</li> </ol> <p>The overall goal is not likely to be achieved if the following take place:</p> <ol style="list-style-type: none"> <li>1. Absence of strong initiative of NSWMC for disseminate the good practices of the project</li> <li>2. Lack of financial background or support for other LGUs to formulate and implement their SWM Plans</li> </ol> <p>No any ripple effect</p>
	Influential effect	<p>Are there any negative impacts by the implementation of the Project? Are there any mitigation measures which have been conducted?</p>	<p>Some negative effects of the project on the waste pickers may be expected by the construction of a new landfill and closure of the existing landfill since the new landfill does not allow waste-picking on site.</p> <p>There are around 100 waste pickers in Lacson landfill site. After commencement of the operation of new Carmen SLF, they will need some mitigation measures such as preparation of new livelihood opportunities.</p>
Sustainability	Administrative and institutional aspects	<p>Do the institutional and administrative assistances by the Philippine government continue after the Project implementation?</p> <p>Are there any mechanisms to give an impact to other areas in the Philippine?</p>	<p>NSWMC is mandated to provide technical and financial support and expanding the support to the LGU for the implementation of RA9003.</p> <p>In addition, NSWMC has been establishing the Regional Ecology Center including appointing a solid waste management coordinator to support LGUs in each region. Though the organization does not have enough capacity to support each LGU in the region, NSWMC intends to support each LGU through the Regional Ecology Center.</p> <p>The project is designed to establish ESWM in three cities in different regions. As an impact of the project, dissemination of good practices of the project in different LGUs in the region is expected from the three cities with the support of NSWMC.</p> <p>In this project, the experience and knowledge are shared with neighboring LGUs through the technical transfer seminars and workshops. In addition, the guidebooks for SLF and for safe closure of dump sites will be updated with the input from the experience of the city, which will be useful for other LGUs to construct a sanitary landfill and close an old dump site safely. In addition, the manual to prepare SWM plan will be formulated with the initiative of NSWMC. NSWMC intends to have DAO issued which reflects the contents of the manual/guidebooks.</p>

	<p>Does the organization have financial capability for the project implementation with sustainability?</p>	<p>According to the ISWM plan, the waste charging system for households has been considered based on the "floor area". It is uncertain if the waste charging system for households will be introduced. In addition, political change may cause some problems for actual implementation. If the proposed system in the ISWM Plan to secure funding for SWM is fully implemented, outcomes of the project will be more sustained.</p>
<p>Organizational and financial aspects</p>	<p>Does the organization related to SWM have the capability of operation and management?</p>	<p>The solid waste management staff of the LGU, Barangay captain and staff of school or the education department or other stakeholders related to solid waste management took part in the Project. The activities of the pilot MRF and IEC are carried out by the teams consisting of the persons from Department of Education, CSSDO, and barangay, and it is assumed that their capacity have been improved to some extent through the Project. As for the operation and maintenance of the SLF, organizational capacity development is not addressed yet since it is planned in the later stage of the Project.</p>
	<p>Is technical transfer implemented in line with their technical capability? Does the C/P acquire the technical knowledge and experience in the process of technical transfer?</p>	<p>When the project started, a baseline assessment was made to determine the capability of the C/Ps. Based on this assessment the Project came up with appropriate capacity development plan. During the first half of the project period, the capacity development of the C/Ps have been implemented through the OJT, workshops, the seminar and C/P training in Japan. However, activities to develop capacity to sustain the new SLF such as operation and maintenance capacity of SLF have not been implemented due to the delay of the construction of the new SLF.</p>
<p>Technical aspect</p>	<p>Due to the lack of consideration for social weak persons (waste pickers, etc.), are there any inhibiting factors of the Project? Are there any synergic effect of the project implementation such as employment of waste pickers or arrangement of access road? Are there any possibilities to prevent the sustainability due to the lack of environmental consideration (ex. Resettlement issues, opposition of residents in the project site, other environmental issues).</p>	<p>No major inhibiting factor is anticipated.</p> <p>Davao city have already prepared IEE report and received the ECC. There are no issues regarding the resettlement and opposition of the surrounding residents in this moment.</p> <p>The improvement of leachate treatment system and the preparation of landfill operation and monitoring plan to satisfy the criteria of Category 4 based on the Guidelines on the Categorized Final Disposal Facilities are necessary.</p>
<p>Social and environmental aspects</p>		

#### Annex 4: List of Input from Japan

##### 1. List of the Japanese Experts

Task	Name	Assignment Period
Chief Advisor / Solid Waste Management	Takashi Goto	23/10/2007-05/03/2008 12/05/2008-30/07/2008 20/08/2008-18/10/2008 17/11/2008-16/12/2008 19/01/2009-27/02/2009 27/04/2009-present
Final Disposal	Masaharu Takasugi	23/10/2007-16/12/2007 28/02/2008-13/03/2008 12/05/2008-08/09/2008 14/01/2009-14/03/2009 11/05/2009-present
Waste Diversion	Sanpei Nakanishi (Kenji Igarashi)	23/10/2007-16/12/2007 13/02/2008-13/03/2008 12/05/2008-10/06/2008 30/06/2008-29/07/2008 01/09/2008-30/09/2008 20/10/2008-03/12/2008 28/01/2009-13/03/2009 15/06/2009-present
Financial Analysis	Kimiya Tachiyama	23/10/2007-16/12/2007 20/02/2008-05/03/2008 28/07/2008-25/09/2008 01/06/2009-present
Information Education Campaign	Kenji Takayanagi	17/11/2007-16/12/2007 01/09/2008-30/09/2008 17/11/2008-16/12/2008 01/06/2009-present
Environmental and Social Consideration / Coordinator	Masashi Watanabe	23/10/2007-13/02/2008 13/02/2008-13/03/2008 12/05/2008-10/06/2008 01/09/2008-30/09/2008 27/04/2009-29/05/2009

##### 2. List of Provided Equipment

Items	Equipment or facility	Target City	Quantity	Price
Equipment for Waste Characterization Survey	Portable weigh bridge	Calbayog, Sagay, Davao	1 for 3 cities (total)	29,320 [USD]
Water Quality Analysis Material	Portable Water Quality Meter with standard accessories and cable 10m	Calbayog, Sagay, Davao	1 for each city	550,000 [PhP]
	Portable Total Nitrogen and Total Phosphorous Series Absorption Meter	Davao	1 for Davao	272,000 [PhP]
IEC Campaign Material	Video Recorder with accessories and consumables	Calbayog, Sagay, Davao	1 for each city	63,000 [PhP]
	Digital Camera with Accessories	Calbayog, Sagay, Davao	1 for each city	78,000 [PhP]
	Laptop PC with Pre-installed OS Windows Vista Home Basic Edition, MS Office and accessories	Calbayog, Sagay, Davao	1 for each city	195,000 [PhP]
	Printer with accessories	Calbayog, Sagay, Davao	1 for each city	36,500 [PhP]

	LCD Projector with accessories	Calbayog, Sagay, Davao	1 for each city	191,400 [PhP]
	Mini Screen	Calbayog, Sagay, Davao	1 for each city	10,800 [PhP]
	Vehicle	Calbayog, Sagay, Davao	1 for each city	5,040,000 [PhP]
	Printing Materials (Teacher's and Student's Texts, Pamphlets, Posters)	Calbayog, Sagay, Davao	2,000 texts for teachers, 6,000 texts for students, 60,000 pamphlets, 1,000 posters (for 3 cities (total))	21,700 [PhP]
	T-shirts	Calbayog, Sagay, Davao	2000 pieces (for each city)	
Material Recovery Facilities	Buildings for Waste Processing and Office (Reinforced concrete with steel structure)	Calbayog, Sagay, Davao	1 for each city	65,629 [USD] (Sagay)
	Rotating Composter (Movable drum type)	Calbayog, Sagay, Davao	1 for each city	63,216 [USD] (Calbayog)
	Shredder (Movable Type Driven by Electric Motor)	Calbayog, Sagay, Davao	1 for each city	61,737 [USD] (Davao)
	Platform Scale Dial (Dial Type Scale)	Calbayog, Sagay, Davao	1 for each city	
	Water Jet Cleaner (Movable Type Driven by Electric Motor)	Calbayog, Sagay, Davao	1 for each city	

### 3. List of Subcontracting Work

#### (1) Subcontracting work during 2007 JFY

Subcontracting work	Contract amount (US \$)	Contract amount (PhP)
1. Topographic survey	14,046	599,200
2. Geological survey	18,482	788,480
3. Public awareness survey	13,071	557,603
4. Waste flow survey	9,962	425,000
5. Local expert	35,602	1,810,400
Total	91,163	4,180,683

#### (2) Subcontracting work during 2008 JFY

Subcontracting work	Contract amount (US \$)	Contract amount (PhP)
1. Local experts (including design of final disposal)	165,669	7,156,598
2. Water quality survey	4,932	216,000
3. Construction of pilot MRFs	190,582	8,906,790.70
3-1. Davao City	61,737	2,885,247.72
3-2. Sagay City	65,629	3,067,170.01
3-3. Calbayog City	63,216	2,954,372.87
4. Maintenance of Home page	2,301	100,800
5. Preparation of IEC material	21,700	1,025,904.00
Total	385,184	17,406,093

4. Training in Japan

The training for C/Ps has been implemented from October 27, 2008 to November 15, 2008 in Japan. The participants are as follows.

Name of City	Task	Position	Remarks
Sagay	SWM Plan, WD	Executive Director, City SWM Council	
	SWM Plan, Financial Analysis	Head, City Planning and Development	
Calbayog	Task Team Leader	Vice Mayor	
	Deputy Task Team Leader	CSWMO	
Davao	Task Team Leader	Acting Dep. Head, CENRO	
	Environmental and Social Consideration	Engineer, CENRO	Replaced a former C/P who attended training in Japan but left the project.

Annex 5: List of the Input from the Philippines

1. List of C/P

Present C/P Personnel in Each City (Participants of the Training in Japan are listed in boldface.)

(1) Sagay

Task	Position	Remarks	Assignment Period [week]
<b>Task Team Leader</b>	<b>City Administrator</b>		11
<b>SWM Plan, WD</b>	<b>Executive Director, City SWM Council</b>		11
<b>SWM Plan, Financial Analysis</b>	<b>Head, City Planning and Development</b>		5
WD	Engineer, General Service Office (GSO)	Used to be in charge of FD as an engineer of City Engineers Office, replaced a former C/P who had retired, and moved to GSO.	9
Final Disposal	Engineer, City Engineers Office	Replaced the abovementioned engineer who used to be in charge of final disposal.	8
Env'l and Social Consideration, IEC	Head, CENRO		5

(2) Calbayog

Task	Position	Remarks	Assignment Period [week]
<b>Task Team Leader</b>	<b>Vice Mayor</b>		11
<b>Deputy Task Team Leader</b>	<b>Department Head, City SWM Office</b>	Mostly engaged in project coordination.	11
SWM Planning	Asst. Department Head, City SWM Office		
WD	Project Evaluation Officer, City SWM Office		9
Financial Analysis	City Councilor, City Council		5
SWM Environmental and Social Consideration	Department Head, City SWM Office		2
Final Disposal	Engineer, City Engineers Office		8
IEC	Principal of Carmen Elementary School, Department of Education		3

(3) Davao

Task	Position	Remarks	Assignment Period [week]
<b>Task Team Leader</b>	<b>Acting Dep. Head, CENRO</b>		12
<b>Deputy Task Team Leader/ SWM Plan</b>	<b>Acting Assistant Department Head, CENRO</b>		12
Final Disposal	Engineer, City Engineers Office		6
WD	CENRO		9
Financial Analysis	City Budget Office		3
	City Accountant's Office		3
IEC	City Schools Superintendent, Dep. of Education		3
	Education Supervisor, Dep. of Education		3
Environmental and	Engineer, CENRO	Replaced a former C/P who attended	2

Social Consideration		training in Japan but left the project.	
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### 3. Main Project Operation Cost

Item	Price [PhP]
Administration Cost (office equipment, utility cost, transportation cost, etc)	- <sup>1</sup>
ECC Acquisition Cost	8,000 (4,000 for Sagay and Calbayog each city)
Land acquisition cost for new SLF	3.5 million (2.5 million for Sagay, 1 million for Calbayog)
O & M cost for pilot MRFs	0.72million

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<sup>1</sup> It is difficult to determine because the administration cost for the Project is included in the other activities in the LGUs.

## Annex 6: Activities and Status of Their Achievement

### 1. Sagay City

	Activities	Status of achievement		Finding
		Planned Time Frame	Present	
Output 1	1.1 Study the current SWM and identify the issues to be addressed.	From Oct 2007 to March 2008	Achieved	The current SWM such as existing facilities for SWM, legislation, organizations in charge of SWM, social activities for SWM, present 3R activities, recyclables' market, and SWM operation (waste collection and final disposal) were studied.
	1.2 Conduct a cost analysis of the current SWM practices in Sagay	From Oct 2007 to March 2008	Achieved	Current cost for SWM was studied and included in the SWM Plan but only including the collection and transportation cost.
	1.3 Formulate a Sagay SWM plan in accordance with NSWMC guideline	From May 2008 to March 2009	In progress	The draft SWM plan was prepared in September 2008 and submitted to NSWMC March 2009 after EMB Regional Office. Now, it is under approval process in NSWMC.
	1.4 Conduct a financial study on the SWM plan and formulate a financial plan based on the concept for charging waste fee	From May 2008 to October 2009	In progress	The financial study has been implemented and incorporated into SWM plan but the detail of waste charge system has not been prepared yet.
	1.5 Implement the Sagay SWM plan	2008 to 2010	In progress	Some of the activities such as preparatory works of construction of new SLF, IEC campaign and construction and operation of the pilot MRF are implemented based on the SWM plan which has been approved by only the city council.
	1.6 Review and modify the Sagay SWM plan and the SWM fee charging and collection systems	-	Not started yet	SWM fee charging and collection system will be considered in this year.
	1.7 Update a manual to formulate the ESWM plan for replication by other LGUs	From June 2009 to December 2009	Start soon	The manual will be prepared by the NSWMC with support from JICA experts to disseminate the experiences to other LGUs.
Output 2	2.1 Conduct field investigations to determine the current waste flow.	From Oct 2007 to March 2008	Achieved	Waste characterization survey has been carried out to determine the current waste flow.
	2.2 Study the current waste diversion (WD) system focusing on good practices.	From Oct 2007 to March 2008	Achieved	The current diversion system in Sagay has been studied and incorporated in the SWM plan.
	2.3 Formulation of a WD plan reflecting the characteristics of the area conditions.	From Oct 2007 to March 2008	Achieved	Based on the waste flow developed by the Project, a WD plan was formulated and incorporated in the SWM Plan.
	2.4 Conduct information education campaigns (IEC) to	From Oct 2007 to March 2008	In progress	The equipment for IEC campaign was provided for

	raise WD rate.			Sagay city and IEC campaign started in June 2009.
	2.5 Conduct a pilot project to introduce a cluster MRF to urban areas where MRFs are difficult to locate individually.	From April 2008 to October 2010	In progress	The construction of pilot MRF has been completed and fully used. During the commissioning period, the operation condition will be improved.
	2.6 Review and modify the WD plan	-	Not started yet	-
Output 3	3.1 Conduct site investigation and necessary surveys for the existing dump site.	From Oct 2007 to March 2008	Achieved	Site investigation and necessary survey was implemented to consider the possibility that existing dump site is utilized after the improvement toward SLF.
	3.2 Conduct site investigation and necessary surveys for the proposed site for SLF.	From Oct 2007 to March 2008	Achieved	Site investigation and necessary survey including geological and topographic survey has been implemented.
	3.3 Examine a possibility of continuous use of the open dump site by converting into a SLF	From Oct 2007 to March 2008	Achieved	The possibility of the continuous use of the existing open dump site by converting into a SLF was examined. According to the examination, converting into a SLF will be better due to the small area of existing site and a return demand of the land owner of the site.
	3.4 Conduct design and feasibility study of a SLF at the proposed site	From May 2008 to March 2009	Achieved	The design of a SLF was conducted but not the feasibility study.
	3.5 Conduct EIA for the proposed site	From May 2008 to March 2009	In progress	Though IEE has been completed, they could not receive the ECC due to the lack of geological assessment by MGB. However, geological assessment was implemented on June and ECC will be issued within this month after the submission of the geological assessment report.
	3.6 Assist to arrange a fund for construction of the SLF	From Oct. 2008 to March 2009	Achieved	Arrangement of the fund for construction of SLF is on the way and the delivery of additional IRA is behind the expected schedule.
	3.7 Prepare for bidding for the construction of the SLF	From Oct. 2008 to March 2009	Achieved	The bidding document has been prepared though the construction will be implemented by Sagay city by themselves.
	3.8 Assist to supervise the construction work of the SLF.	From June 2009 to March 2010	Start soon	The construction of SLF has not commenced yet due to the delay of the issue of ECC.
	3.9 Assist to operate and maintain the SLF	From April 2010 to Oct. 2010	Not started yet	
	3.10 Formulate a manual for operation and management of SLF	From June 2009 to March 2010	Start soon	The manual will be prepared by the NSWMC with support from JICA experts to disseminate the experiences to other LGUs.

	3.11 Formulate a plan and design of safe closure of the existing dump site	From Oct. 2009 to March 2010	Not started yet	The plan, design and implementation of safe closure of the existing dump site has not been yet started due to the delay of the operation of the new SLF.
	3.12 Assist to prepare bidding for safe closure work	From Dec. 2009 to March 2010	Not started yet	
	3.13 Assist to conduct safe closure of the existing disposal site based on the plan	From April 2010 to Oct. 2010	Not started yet	
	3.14 Update a guidebook on the safe closure of disposal sites	From June 2009 to March 2010	Start soon	The guidebook will be updated by the NSWMC with support from JICA experts to disseminate the experiences to other LGUs.

## 2. Calbayog City

	Activities	Status of achievement		Finding
		Planned Time Frame	Present	
Output 1	1.1 Study the current SWM and identify the issues to be addressed.	From Oct 2007 to March 2008	Achieved	Such items as existing facilities for SWM, legislation, organizations in charge of SWM, social activities for SWM, present 3R activities, recyclables' market, and SWM operation (waste collection and final disposal) were studied.
	1.2 Conduct a cost analysis of the current SWM practices in Calbayog	From Oct 2007 to March 2008	Achieved	Current cost for SWM was studied and included in the SWM Plan.
	1.3 Formulate a Calbayog SWM plan in accordance with NSWMC guideline	From May 2008 to March 2009	In progress	The draft SWM plan was prepared in September 2008 and submitted to NSWMC March 2009 after approval of city council and EMB Regional Office. Now, it is under approval process in NSWMC.
	1.4 Conduct a financial study on the SWM plan and formulate a financial plan based on the concept for charging waste fee	From May 2008 to October 2009	In progress	The financial study has been implemented and incorporated into SWM plan but the detail of waste charge system has not been prepared yet.
	1.5 Implement the Calbayog SWM plan	From 2008 to Oct 2010	In progress	Some of the activities such as preparatory works of construction of new SLF, IEC campaign and construction and operation of the pilot MRF are implemented based on the SWM plan which has been approved by only the city council.
	1.6 Review and modify the Calbayog SWM plan and the SWM fee charging and collection systems	-	Not started yet	SWM fee charging and collection system will be considered in this year.
	1.7 Update a manual to formulate the ESWM plan for replication by other LGUs	From June 2009 to December 2009	Start soon	The manual will be prepared by the NSWMC with support from JICA experts to disseminate the experiences to other LGUs.
Output	2.1 Conduct field investigations to determine the current waste	From Oct 2007 to March 2008	Achieved	Waste characterization survey has been carried out to

	flow.			determine the current waste flow.
	2.2 Study the current waste diversion (WD) system focusing on good practices.	From Oct 2007 to March 2008	Achieved	Current diversion system in Calbayog has been studied and incorporated in the SWM plan.
	2.3 Formulation of a WD plan reflecting the characteristics of the area conditions.	From Oct 2007 to March 2008	Achieved	Based on the waste flow developed by the Project, a WD plan was formulated and incorporated in the SWM Plan.
	2.4 Conduct information education campaigns (IEC) to raise WD rate.	From Oct 2007 to March 2008	In progress	The equipment for IEC campaign was provided for Calbayog city and IEC campaign started in June 2009.
	2.5 Conduct a pilot project to introduce a cluster MRF to urban areas where MRFs are difficult to locate individually.	From April 2008 to October 2010	In progress	The construction of pilot MRF has been completed and fully used. During the commissioning period, the operation condition will be improved.
	2.6 Review and modify the WD plan	-	Not started yet	-
Output 3	3.1 Conduct site investigation and necessary surveys for the existing dump site.	From Oct 2007 to March 2008	Achieved	Site investigation and necessary survey was implemented to consider the possibility that existing dump site is utilized after the improvement toward SLF.
	3.2 Conduct site investigation and necessary surveys for the proposed site for SLF.	From Oct 2007 to March 2008	Achieved	Site investigation and necessary survey including geological and topographic survey has been implemented.
	3.3 Examine a possibility of continuous use of the open dump site by converting into a SLF	From Oct 2007 to March 2008	Achieved	The possibility of the continuous use of the existing open dump site by converting into a SLF was examined. According to the examination, converting into a SLF will be better due to topographic feature of existing open dump site which is not suitable for filling area.
	3.4 Conduct design and feasibility study of a SLF at the proposed site	From May 2008 to March 2009	Achieved	The design of a SLF was conducted but not the feasibility study.
	3.5 Conduct EIA for the proposed site	From May 2008 to March 2009	Achieved	Calbayog City received ECC from EMB Regional office April, 2009.
	3.6 Assist to arrange a fund for construction of the SLF	From Oct. 2008 to March 2009	Not achieved	The loan for the construction of SLF has not disbursed yet.
	3.7 Prepare for bidding for the construction of the SLF	From Oct. 2008 to March 2009	Achieved	The bidding document has been prepared.
	3.8 Assist to supervise the construction work of the SLF.	From June 2009 to March 2010	Start soon	The construction of SLF has not commenced yet due to the delay of loan disbursement.
	3.9 Assist to operate and maintain the SLF	From April 2010 to Oct. 2010	Not started yet	
	3.10 Formulate a manual for operation and management of SLF	From June 2009 to March 2010	Start soon	The manual will be prepared by the NSWMC with support from JICA experts to disseminate the experiences to other LGUs.
	3.11 Formulate a plan and design of safe closure of the	From Oct. 2009 to March 2010	Not started yet	The a plan, design and implementation of safe closure

	existing dump site			of the existing dump site has not been yet started due to the delay of the operation of the new SLF.
	3.12 Assist to prepare bidding for safe closure work	From Dec. 2009 to March 2010	Not started yet	
	3.13 Assist to conduct safe closure of the existing disposal site based on the plan	From April 2010 to Oct. 2010	Not started yet	
	3.14 Update a guidebook on the safe closure of disposal sites	From June 2009 to March 2010	Start soon	The guidebook will be updated by the NSWMC with support from JICA experts to disseminate the experiences to other LGUs.

### 3. Davao City

	Activities	Status of achievement		Finding
		Planned Time Frame	Present	
Output 1	1.1 Make advices and recommendations for SWM issues	From Oct 2007 to March 2008	Achieved	Japanese experts made the recommendation regarding SWM plan, especially final disposal.
	1.2 Conduct training through workshops, technical seminars and on the job training (OJT) on SWM activities	From Oct 2007 to Oct 2010	In progress	Two workshops and a technical transfer seminar were hold. During the workshop and seminar, C/Ps made presentations as training.
	1.3 Assist the implementation of the SWM plan	From May 2008 to Oct 2010	In progress	Japanese experts prepared the recommendation for planning of the new SLF in line with each category described DAO 06-10. CENRO, City engineering office, city planning office and JICA experts discussed this issue. After the discussion, the city will follow the recommendation. However, the plan includes only leachate detention pond and recirculation but not leachate treatment pond, which are required by Category 4 in DAO 06-10. Therefore, further discussion will be required.
Output 2	2.1 Conduct field investigations to determine the current waste flow.	From Oct 2007 to March 2008	Achieved	Waste characterization survey has been carried out to determine the current waste flow. The result of the survey is not reflected into the ISWM. The survey does not include the survey of the amount and quality of generated waste.
	2.2 Make advices and recommendation for solid waste diversion (WD) plan.	From Oct 2007 to March 2008	-	WD plan has already been prepared by Davao city.
	2.3 Monitor and promote the solid waste diversion plan.	From April 2008 to Oct 2010	-	
	2.4 Assist Information, Education, Communication (IEC) campaigns	From April 2008 to Oct 2010	In progress	The equipment for IEC campaign was provided for Davao city and IEC campaign started in June 2009 in

				Barangay Hizon.
Output 3	3.1 Prepare a manual on Operation/Maintenance/Management of sanitary landfill.	From Apr 2009 to December 2009	In progress	The preparation of the manual on operation, maintenance and management of SLFs started with consideration of the suggestion by the Japanese experts, based on the O&M manual prepared by the contractor.
	3.2 Prepare a plan and design of safe closure of existing open dump site.	-	Not started yet	The previous open dump site in Camern has been closed and existing Lacson open dump site will be closed after the operation of new SLF in Camern. Therefore, the closure work of existing open dump site has not started yet.
	3.3 Assist supervision work for safe closure work.	-	Not started yet	