

モザンビーク共和国
マプト市における持続可能な 3 R 活動
推進プロジェクト
中間レビュー調査報告書

平成 27 年 3 月
(2015 年)

独立行政法人国際協力機構
地球環境部

環 境
J R
15-037

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プロジェクトの位置図



写 真



郊外地区のコンテナ (Enviro Serve 社)



コンテナ周りにごみがよく落ちている



有価物回収を行うコーポラティブ (組合)
“Recicla”



Recicla の有価物 (プラ、PET) 回収の作業場



リサイクル原料として圧縮された PET



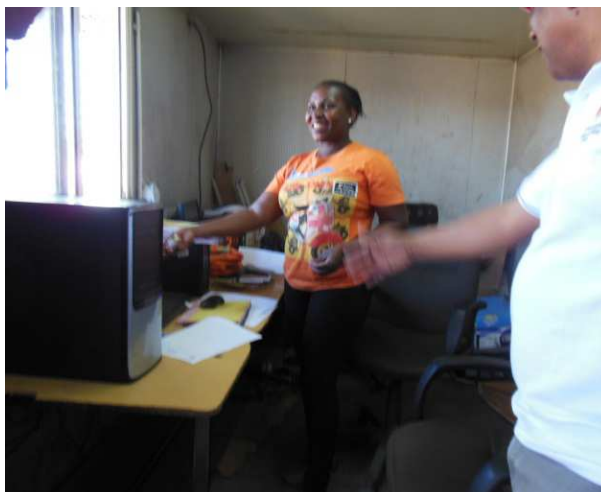
フレン最終処分場



フレム最終処分場（ウェイトピッカーも多い）



トラックスケール（運搬量測定）
（車は市街地コントラクター Eco-life 社）



処分場の管理棟内部



トラックスケールの重量表示（2,000kg）



市街地収集作業の様子 Eco-life 社



Eco-life 社の収集運搬パフォーマンスは
比較的良い



NGO の AMOR が市街地に有価物回収拠点 Eco-Point を置く



大学と協同で有機ごみ減量化の PP を準備中



市長表敬の後プレスリリースによる TV・ラジオ局の取材



郊外地区のチョベ（一輪車）による一次回収



分別収集パイロットとして有価物を青色バケツに回収



排出された有価物の重さを量る

略 語 表

略 語	正式名称	日本語
CMM	Municipal Council of Maputo	マプト市役所
DMGRSUS	Directorate of Urban Solid Waste Management and Sanitation, CMM	廃棄物管理・衛生局
EDM	Electricity of Mozambique	モザンビーク電力公社
FUNAB	National Fund of Environment	国家環境基金
MICOA	Ministry for the Coordination and Environmental Affairs	環境活動調整省
ME	Micro Enterprise	マイクロ・エンタープライズ
PNA	National Environmental Policy (Politica Nacional do Ambiente)	国家環境政策
PP	Pilot Project	パイロットプロジェクト
PROMAPUTO	Maputo Municipal Development Program	マプト市開発プログラム
UEM	University of Eduardo Mondlane (Universidade Eduardo Mondlane)	エドゥアルド・モンドラーネ大学
3R	Reduce, Reuse, Recycle	リデュース・リユース・リサイクル

中間レビュー結果要約表

1. 案件の概要		
国名：モザンビーク共和国		案件名：マプト市における持続可能な 3R 活動推進プロジェクト
分野：環境管理		援助形態：技術協力
所轄部署：地球環境部		協力金額（評価時点）：3 億 5,000 万円
協力期間	2013 年 3 月～2017 年 3 月 (4 年間)	先方関係機関：マプト市廃棄物管理・衛生局 (DMGRSUS)
	(延長)：なし	日本側協力機関：なし
	(F/U)：なし	他の関連協力：なし
1-1 協力の背景と概要		
<p>都市化の発展に伴う廃棄物問題の深刻化は、先進国、途上国を問わず世界共通の課題である。モザンビーク共和国（以下、「モザンビーク」と記す）の首都マプト市も同様に、近年の人口増加に伴い、廃棄物量の増加と種類の多様化が進行していた。このため、1997 年に「都市固形廃棄物の清掃条例」を定め、都市廃棄物の管理を行ってきたが、民間事業者や NGO 等の多様なアクターの無秩序な参入に、現行制度が追いつかず、適正な廃棄物管理業務が困難な状況になっていた。</p> <p>このため、マプト市役所（Municipal Council of Maputo：CMM）は、GTZ（現 GIZ：ドイツ国際協力公社）の協力の下、2007 年に「マプトにおける都市計画管理マスタープラン（以下、「M/P」と記す）」を策定し、廃棄物総合管理に向けたさまざまな改善に取り組んできた。しかし、依然 CMM の廃棄物管理能力不足により適正な廃棄物管理の達成までには至っていない。したがって既存 M/P で提案されている 3R（Reduce、Reuse、Recycle）の導入は、有価物のリサイクル等が行われているものの、その普及、定着に向けて多くの課題がある。</p> <p>このような背景の下、廃棄物管理の改善及び 3R 活動推進のための技術協力がわが国に要請された。本要請を受けて、JICA は 2012 年 5 月に「マプト市における持続可能な 3R 活動推進プロジェクト」（以下、「本プロジェクト」と記す）の詳細計画策定調査を実施し、問題分析の結果、CMM の廃棄物分野における能力向上への支援の必要性と 3R 活動推進に向けての多くの課題を確認し、2012 年 11 月に技術協力プロジェクトのデザインについて CMM と合意し、R/D を締結した。</p>		
1-2 協力内容		
(1) 上位目標		
マプト市の都市環境・住環境が改善される		
(2) プロジェクト目標		
マプト市役所（CMM）の廃棄物管理能力が強化される		

(3) 成果

1. CMMにおける廃棄物管理に係る課題分析能力が向上する
2. プロジェクト活動地域における（民間との連携を含む）廃棄物収集・運搬能力が向上する
3. CMMの廃棄物管理に係る財務管理能力が向上する
4. プロジェクト活動地域における（民間業者を含んだ）廃棄物処分量削減のための3R活動が導入される

(4) 投入

1) 日本側

専門家派遣：50.25人/月（2015年3月まで含む）

資機材：車両2台

研修員受入：8名

2) モザンビーク側

カウンターパート（Counterpart：C/P）配置：13名（プロジェクトダイレクター含む）

土地・施設提供：専門家の執務スペース提供

ローカルコスト負担：光熱費等

2. 評価調査団の概要

調査者	担当分野	氏名	所属
	総括	柴田 和直	JICA 地球環境部 環境管理第二チーム 課長
	協力企画	奥村 憲	JICA 地球環境部 環境管理第二チーム 調査役
	評価分析	十津川 淳	佐野総合企画株式会社海外事業部 部長

調査期間 2014年11月11日～2014年11月29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

3-1-1 成果1の達成状況（課題分析能力の向上）

成果1は中間レビュー時点において順調な進捗をみせている。

M/Pのレビュー作業を通して、廃棄物管理・衛生局（Directorate of Urban Solid Waste Management and Sanitation：DMGRSUS）の課題分析能力は向上してきた。最近では同局職員が提案型かつ体系的なコメントを出すことが増加しており、かつデータに基づいた意見を示す例も増加している。加えて、会議やレポートの方法も改善された。総じて成果1の課題分析能力は順調に進捗していると判断できる。

3-1-2 成果2の達成状況（収集・運搬能力/監督能力の向上）

成果2は中間レビュー時点において順調な進捗をみせている。

DMGRSUS の収集・運搬を担う民間企業を監督指導する能力は向上しており、下記の事例に、その能力向上を確認することができる。

- ①民間企業が行っている廃棄物の収集運搬の実態を把握することができるようになった。
- ②民間企業とのミーティング頻度が増加した。
- ③郊外で廃棄物収集を行うマイクロエンタープライズ（Micro Enterprise：ME）に対して、効果的かつ効率的な廃棄物収集の方法を指導する機会が増えた。

他方で、データ収集に係るモニタリングについてはいまだ改善の余地が大きい。特に民間企業が月末に提示する収集運搬量に係るデータと DMGRSUS が把握しているデータに乖離が生じているため、この点を解決していくことが今後求められる。

3-1-3 成果3の達成状況（財務管理能力の向上）

成果3は中間レビュー時点において順調な進捗をみせている。

プロジェクトの前半期間は DMGRSUS の財務管理の現況に係る分析を行い、取り組むべき課題を抽出することに集中した。これら課題のうち、プロジェクトは既にいくつかの課題に着手しており、下記の成果を挙げた。

- ①大規模な廃棄物排出会社に係るデータベース更新
- ②財務データの記録、モニタリングのフォーマット変更
- ③コスト分析

これらの取り組みを通して、DMGRSUS 職員の財務管理能力は徐々に向上してきたと判断できる。

3-1-4 成果4の達成状況（3R 導入）

成果4は達成に向け、初期段階から中間段階に移行しつつある。

プロジェクトではリサイクルできる有価物ごとの収集業者、収集・販売価格、販売先等の情報をまとめた「マテリアル・フロー」を、3度にわたるワークショップ開催を通じて作成した。この作成は DMGRSUS にとって初めての活動であり、本フロー情報をもって、市内の3R市場を俯瞰することが初めて可能となった。プロジェクトを開始するまで、DMGRSUS 内で蓄積されていた3Rに関する知見は極めて限定的であったことに比べれば、中間レビュー時点において職員の能力は着実に向上しているといえる。

3-1-5 プロジェクト目標の達成状況

プロジェクトは目標の達成に向けて順調に進捗している。

本プロジェクトの目標である廃棄物管理能力とは、各成果が定めている能力内容であり、具体的には課題分析能力、収集・運搬能力（及び収集・運搬を担う民間業者を監督する能力）、財務管理能力、3R 実施・推進能力を指す。これまでの成果達成状況が示すように、それぞれの能力は順調に向上しており、DMGRSUS が担うべき総合的な廃棄物管理能力は向上し始めていると判断できる。

3-2 評価結果の要約

評価結果は「高い」「おおむね高い」「中程度」「やや低い」「低い」の5段階とした。

(1) 妥当性：高い

本プロジェクトは、モザンビーク・マプト市の政策・開発計画並びに日本の対モザンビーク支援政策に整合した取り組みである。

モザンビークにおける環境政策の柱である、国家環境政策（National Environmental Policy/Nacional do Ambiente：PNA）では固形廃棄物の処理及びリサイクルシステムの導入等がうたわれている。また、2012年には廃棄物管理に特化した「統合的廃棄物管理に関する国家戦略」が策定されており、2025年までに3R原則を導入する旨がうたわれている。

このほか、一連のプロジェクト活動やめざす方向性は、マプト市及び地域住民のニーズに整合しており、かつその支援内容にも日本の経験や知見が有効に活用されている。これら観点から、本プロジェクトの妥当性は「高い」と判断できる。

(2) 有効性：高い

本プロジェクトはおおむね順調に進捗しており、プロジェクト目標達成の見込みは高い。今後は、これまでの課題分析や現場調査に加えて、実際に住民と協同作業を行うパイロットプロジェクト（Pilot Project：PP）の本格稼働を通して、DMGRSUS職員の能力向上が図られることとなる。中間レビュー時点における有効性は、「高い」と評価できる。

(3) 効率性：高い

日本側の人的投入は人数及び専門性において、おおむね妥当である。モザンビーク側からもDMGRSUS内の各関係課の人員がプロジェクトに参加しており、適正と判断できる。また、本邦研修もC/Pの知見の蓄積に大いに貢献したばかりでなく、研修帰国後にはDMGRSUS内に住民啓発室を新設するなどのインパクトも生んだ。以上から、効率性は「高い」と評価できる。

(4) インパクト：おおむね高い

上位目標達成の見込みはモザンビーク側の今後の取り組みによるものの、本プロジェクトが策定するM/Pが確実に実行されれば、その達成は十分に可能性がある。

他方、本プロジェクトでは組織面でインパクトが発現している。本邦研修から帰国した後、DMGRSUSは住民啓発の重要性を強く認識し、同局内の一部署として住民啓発室を新設した。住民啓発室は市行政他部局のキャンペーン活動に頻繁に参加を要請されており、廃棄物管理の側面にスポットを当てながら、住民、関係者への啓発活動を行っている。また、小中学校を多数訪問し、環境教育活動もこれまで以上に充実してきた。

ただし、その他側面でのインパクトはいまだみられないため、総合的なインパクトは「おおむね高い」と評価された。

(5) 持続性：これまでの進捗からは、一定程度の持続性を期待できるものの、高低に係る評価判断は、プロジェクト後半の活動結果によってなされるものとした。

＜政策・法規制面＞

市内人口が今後も増加すると見込まれるマプト市にとって、適正な廃棄物管理を行うことは重要な政策課題の1つである。他方、今後 3R 活動を進めていくためには、行政、民間企業、住民等の各プレイヤーの役割・責任の所掌を示す法規制を整備することが、持続性を担保するうえで求められる。

＜組織・技術面＞

現在の DMGRSUS の組織構成及び各部署の人数自体は、現行業務を行ううえでおおむね適正である。ただし、局内に工学分野の技術的なアカデミックバックグラウンドを有した人材は極めて少ない。今後の更なる業務内容の発展のために、衛生工学や環境工学、化学、経済等の人材を徐々に確保していくことが望ましい。

＜財政面＞

2015 年 1 月から清掃税が現行価格から 30% 値上げされることが決定されている。また、本プロジェクトが実施している廃棄物排出業者のデータベース更新及び導入による歳入増も合わせて期待できる。このように適正な廃棄物管理を行うための予算確保に向けて、持続性を高める動きが散見される。

3-3 効果発現に貢献した要因

(1) 本邦研修

本邦研修によって、C/P は体系的に日本の廃棄物管理への取り組みについて知見を深めることができた。研修帰国後には、DMGRSUS は住民啓発の重要性にかんがみ、同局内に新たに住民啓発室を設立し、3R をはじめとした各種活動において住民啓発を進める体制づくりを整備するに至った。

(2) C/P と専門家のチームワーク

DMGRSUS の C/P と日本人専門家の良好な関係が、日常的な業務進捗を支える大きなファクターとなっている。

3-4 問題点及び問題を惹起した要因

特になし。

3-5 結論

本プロジェクトは急増する都市人口及び廃棄物の増大といった課題を抱えるマプト市の喫緊のニーズに対応した、妥当性の高い取り組みである。プロジェクトは市の廃棄物管理を担う DMGRSUS 職員の能力向上に焦点を当てながら、おおむね順調に進捗しており、有効性は高い。また、人的、物的投入も成果、プロジェクト目標達成に妥当な内容であり、特に本邦研修は研修員帰国後に DMGRSUS 内に住民啓発室を設立するインパクトも生んだ。そのため、効率性も高い。インパクトとしては住民啓発室の活動が DMGRSUS 内にとどまらず、他部局のキャンペーン活動にも貢献している点が挙げられる。持続性については、清掃税の値上げや大規模排出

会社のデータベース更新による歳入増の可能性など、持続性を支える兆候もみえつつある。

総じて、中間レビュー時点における評価としては、本プロジェクトは順調な進捗と総括できる。

3-6 提言

(1) プロジェクト後半の重要活動

C/P より、プロジェクト後半に注力したい活動が挙げられた (M/P 作成、データ収集と分析の能力の向上、3R 活動、精確なトラックスケール、委託収集運搬業者のパフォーマンス把握と管理、予算計画能力の向上、大規模排出業者のデータベース修正・更新、業務コストの明確化、環境教育ガイドブック、住民啓発戦略の作成)。これら活動項目に焦点を当てた技術移転が求められる。

(2) パイロットプロジェクト (PP)

各 PP に関して、以下の事項が PP の実施段階において考慮される必要があり、かつ M/P 及びアクションプランに反映される必要がある。

1) 分別収集の導入

分別収集の手法も含めて、アプローチの再検証が必要である。他のパイローへのスケールアップに際しては、プロジェクト活動として費用対効果の検討を行い、拡大のための計画づくりを支援する。

2) 収集運搬の改善 (計画中)

DMGRSUS の収集運搬委託業者のパフォーマンス管理能力を向上に焦点を当てた内容を検討する。

3) 有機性廃棄物の有効活用

PP を通じて家庭単位で普及・実証するうえでの制約要因の明確化を図る。

4) 既往のリサイクル事業の拡大 (計画中)

拠点回収にて有価物を回収する Eco-Point を、郊外地区に拡大する内容を検討中である。リサイクル業者等の利害関係者が生まれるため、DMGRSUS の調整役としての役割強化が必須である。

(3) 住民啓発の実施

DMGRSUS 及び CMM は、JICA 専門家の支援を受けて、住民啓発を実施するうえでのターゲット、手法、それらに応じた行動を継続して計画し続けていくことが重要である。また、清掃料金の値上げの際には、住民に対して受益者負担の概念を含め、丁寧な説明を行い、住民の理解の促進を図っていくことが必要である。

(4) 2015 年の第三国研修実施の提案

海外研修の実施地を検討する際には、費用対効果や言語の壁なども考慮に入れるべきである。C/P のなかからは、日本以外の国の事例も学びたいという希望の声も聞かれた。この見地に立ち、2015 年の本邦研修を第三国研修に変えることを提言する。

(5) 実効性のある予算計画・執行プロセス

DMGRSUS の財務セクションと CMM の財務部は、より実効性のある予算計画・執行プロセスの実現のために相互の連携をより強化すべきである。

(6) 知識・技能の他都市への普及

C/P がプロジェクトを通じて会得した経験・ノウハウ、すなわち M/P・アクションプランを策定する能力や、財務管理の改善、3R 活動の促進等は、他都市でも廃棄物管理を改善するために将来的に必要となる。DMGRSUS 及び CMM は、環境活動調整省（Ministry for the Coordination and Environmental Affairs : MICOA）、国家環境基金（National Fund of Environment : FUNAB）をはじめとした関連機関と連携して、知識・技能の他都市への移転を進めるべきである。

(7) 国家環境政策（PNA）の改訂プロセスへのインプット

MICOA による国家環境政策（PNA）の反映において、CMM が実務的な見地からコメントを行う重要な役割を負っていることが確認された。この連携を保ちながら、持続可能な 3R 活動の促進等、プロジェクトで得られた経験・ノウハウを PNA の改訂に反映していくことが望ましい。

(8) 3R 活動の促進の根拠法について

多様なステークホルダーの責任体制が曖昧であるため、既存の市条例をレビューしたうえで、3R 促進のための根拠法を策定することが望ましい。

(9) マトラ新規衛生埋立処分場の建設プロセスについて

モザンビーク側、特に MICOA 及び FUNAB は完工まで、マトラ処分場建設に関するプロセスの前進を継続的にモニタリングすべきである。

Summary of Mid-Term Review

I. Outline of the Project		
Country : Mozambique	Project title : The Project for Promotion of 3R Activities in Maputo	
Issue/Sector : Environmental Management	Cooperation scheme : Technical Cooperation Project	
Division in charge: Global Environment Department	Total cost : about 350 million Yen	
Period of Cooperation	Cooperation period: March 2013- March 2017	Partner Country's Implementing Organization : Directorate of Urban Solid Waste Management and Sanitation, Municipal Council of Maputo (DMGRSUS)
		Supporting Organization in Japan : Nil
<p>1. Background of the Project</p> <p>Whether it developing or advanced nations, the whole world shares in the struggle for managing the increasingly severe solid waste problem that accompanies the advance of urbanization. Situation in Maputo City, the capital of Mozambique is not an exception. In accordance with recent population growth, the amount and types of waste have also been on the rise. To combat this, the regulation for solid waste management (SWM) was enacted in 1997. Solid waste in the capital was managed, but due to the disorderly interference of various actors like NGOs and private entities the system could not keep up, and a suitable SWM system had yet to emerge.</p> <p>Because of this, the Municipal Council of Maputo (CMM), with cooperation from GTZ (currently GIZ), established the "Master Plan for Solid Waste Management in Municipal Council of Maputo (hereinafter referred to as M/P)" and worked towards various improvements for comprehensive waste management. However the institutional vulnerability of CMM, particularly technical aspect of SWM obstructs progressing adaption of appropriate waste management. Consequently, the 3R (Reduce, Reuse, Recycle) concept proposed in M/P, despite the existing recycling practice of valuables, has various problems regarding its promotions and development.</p> <p>Under these circumstances, technical cooperation was requested to Japan Government for improving Maputo's SWM and promoting 3R activities. In May of 2012, upon accepting this request, the JICA implemented the Detailed Planning Survey and the results of the survey confirmed the necessity to support the improvement of the CMM's capacity and verified the various problems in regards to the promotion of 3R activities. In November 2012, the JICA came to a mutual agreement with the CMM regarding the technical cooperation project design and the Record of Discussion (R/D) was filed.</p> <p>2. Project Overview</p> <p>(1) Overall Goal: The urban environmental and living condition in Maputo City is improved.</p>		

(2) Project Purpose:

Capacity for Solid Waste Management (SWM) in CMM is improved.

(3) Outputs:

- 1) Capacity to analyze the current status of SWM in CMM is improved.
- 2) Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.
- 3) Capacity for financial management of SWM in CMM is improved.
- 4) 3R activities for reduction of solid waste (including private sector) is introduced in project target area.

(4) Inputs

Japanese side :

- 1) Experts 50.25 MM (Including the period until March 2015)
- 2) Trainees received 8 persons (Japan)
- 3) Equipment 2 vehicles

Mozambican Side :

- 1) Counterparts: 13 counterparts
- 2) Facilities (Project office)
- 3) Local cost for utility charges

II. Evaluation Team

Members of Evaluation Team	No.	Name	Position	Organization
	1	Mr. Kazunao Shibata	Leader	Director, Environmental Management Team 2, Global Environment Department, JICA
	2	Mr. Ken Okumura	Cooperation Planning	Assistant Director, Environmental Management Team 2, Global Environment Department, JICA
	3	Mr. Jun Totsukawa	Evaluation Analysis	Director, International Department Sano Planning Co., Ltd

Period of Evaluation	11/November/2014-29/November/2014	Type of Evaluation : Mid Term Review
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III. Results of Evaluation

3-1 Accomplishment of the Project

3-1-1 Achievement of the Outputs

(1) Output 1 : Capacity to analyze

Output 1 has been steadily progressing.

As of the Mid-term Review, the Project has already completed the review of the current M/P with briefly draft updates of the contents. Through the review processes, many of DMGRSUS staffs successfully

improved the analysis capacity in general. The improvement is observed in their opinions with solid data presentation. In addition, reporting structure/formats were also modified.

(2) Output 2 : Capacity to collect and transport of solid wastes

Output 2 has been steadily progressing.

Looking at capacity of DMGRSUS staffs regarding collection and transportation with private companies, the following positive changes are observed: 1) they now understand how private companies collect and transport wastes, and what the important viewpoints are to instruct and monitor; 2) there are more meetings with the private companies; 3) they conduct more instructions to Micro Enterprises, who are in charge of waste collection in suburb.

On the other hand, there are still challenges in proper monitoring particularly in data consistency between the reports of private companies and ones that DMGRSUS keeps.

(3) Output 3 : Capacity for financial management

Output 3 has been steadily progressing.

Tangible outcomes up to now are 1) to update the database of waste producers in large scale, 2) to change the format for easier financial recording and monitoring, 3) cost analysis for solid waste management covering the whole process including fuel, manpower, and other logistical costs. Through these activities with experts, financial management capacity of DMGRSUS has been growing step by step.

(4) Output 4 : 3R activities (Capacity to promote 3R)

Output 4 has proceeded gradually, and now transferred from the early to middle stage towards achievement.

The Project has worked on making the “material flow” of recyclables by holding workshops three times that invited private companies and NGOs. Through a series of workshops, the staffs of DMGRSUS have accumulated the technical knowledge on how to make and analyze the material flow, which gives current picture of 3R market in the Maputo city.

3-1-2 Achievement of the Project Purpose

The Project purpose is on the right track towards achievement as of the Mid-term review.

As categorized in each Output, the capacity of analysis, collection and transportation, financial management, and implementation of 3R activities have been developing step by step until now. It is evaluated that the Project purpose, capacity of solid waste management in total, is possibly achieved by the end of the Project.

3-2 Summary of Evaluation

* Five categories are evaluated by five ranks: high, relatively high, moderate, relatively lower, and low.

3-2-1 Relevance: High

The Project is in accordance with the priority of development policies of Mozambique government and CMM, and also with Japan's Assistance policy.

The primary policy of the environmental sector in the country, National Policy of Environment, declares that the country needs to accelerate/improve solid waste management with introduction of recycle system. In addition, the National Strategy of Integrated Management of Urban Solid Wastes in 2012 mentions that 3R would be introduced by the year of 2025.

The Project's contents and direction meets with the CMM's needs, which is to raise technical capacity of staffs along with development of new SWM Master plan. Also, the Project effectively utilizes Japanese technical advantages and experiences. In this line, the relevance of the Project is evaluated high.

3-2-2 Effectiveness: High

Among the four Output areas, there has been steady progress in all the Outputs at the time of the Mid-term Review, and the Project Purpose is also on the right track. In addition to the review works and field surveys onto which the Project has paid attention, it is expected to raise the capacity of SWM in the DMGRSUS staffs through the pilot projects which are to be conducted with local people in the latter half of the Project.

3-2-3 Efficiency: High

Manpower inputs for Japanese side are appropriate in terms of the number and expertise. Mozambican inputs are also evaluated appropriate, since all the key personnel from each division participated in the Project activities.

Training in Japan also made contribution to developing the skill and knowledge of the participants, and led to positive impact, which was to establish the office of civic education in DMGRSUS.

3-2-4 Impact: Relatively high

It can be forecasted that the overall goal would be achieved after the Project ends as long as the new Master plan is certainly implemented.

Impacts on organizational aspect are observed. Training in Japan led to establishment of "office of civic education" in DMGRSUS. The office has been frequently invited by other directorates of the city government and asked to give instructions to local people in their campaign activities.

The office has also visited primary schools/junior schools to offer environmental education much more than before establishment of the office in DMGRSUS.

Other aspects of impacts are expected in the latter half of the Project.

Overall, the impact of the Project is evaluated relatively high as of the Mid-term review.

3-2-5 Sustainability: The rank will be determined after confirming the performance of the Project during the latter half of the Project.

1) Policy and legal aspect

It is highly possible for the CMM to keep placing importance on solid waste management under the rapidly expansion of urban population.

The detailed legislative preparations are necessary as the next step for promoting efficient management including 3R activities. Responsibilities on each step of disposal and cost burden among government, private companies and local people have to be clarified in the law/regulation.

2) Organizational and technical aspect

From the viewpoint of structure and the number of allocated staffs in the directorate, the current DMGRSUS has the almost reasonable organizational capacity at this moment.

In order to enhance the technical capability of the directorate, it is ideal to have more staffs with the academic background of environmental engineering, sanitary engineering, chemistry and/or related academic fields.

3) Financial aspect

The cleaning tax is planned to be raised by 30% from the year of 2015. It would give great impacts on the revenue. In addition, the revised database of waste producers in large scale would contribute to increasing the revenue as well. Such positive signs are confirmed in the financial sustainability's viewpoint as of the Mid-term review.

3-3 Contribution factors

- Training in Japan

The trainings provided the counterparts with the opportunities to observe actual solid waste management in Japan. The observation and learnings in Japan led to establish "office of civic education" in the DMGRSUS because they realized the importance of civic education for solid waste management.

- Relationship between Mozambican counterparts and Japanese experts

Mozambican counterparts and Japanese experts have formulated tight and reliable relationship. Such team-working environment is one of the contribution factors to steadily progress the Project activities until now.

3-4 Inhibition factors

Nil

3-5 Conclusion

Maputo city has been facing the challenges to manage solid waste efficiently and effectively, while the population of the city has been rapidly increasing along with growth of solid waste. The relevance of the Project is high in this line.

The Project has steadily progressed toward its project purpose's achievement, which is to develop SWM capacity of DMGRSUS. Effectiveness as of the Mid-term review is evaluated high.

Efficiency is also evaluated high since inputs of manpower and material are appropriate, and training in Japan led to production of impact such as the new office establishment, office of civic education. The staffs of the office are now working not only for DMGRSUS but also for other directorates' activities such as their special campaigns and events. This is one of the highlights of the impact of the Project.

Efforts of the DMGRSUS's staffs during the latter half of the Project will determine the sustainability, though; there are some positive signs to enhance sustainability. The representative example is to raise the cleaning tax by 30% from 2015.

Overall, it is evaluated that the Project has been progressing well enough as of the Mid-term review.

3-6 Recommendations

(1) Primary Activities in the Latter Half of the Project

The following items were raised as the activities to which C/P staffs showed a strong intention to commit; Finalizing a master plan, Skills of data collection and analysis, 3R activities, Cross-checking records from contracted enterprises, Management of performance of contracted enterprises on collection and transportation, Gaining ability to plan a budget appropriately, Updating database on large-scale waste producers, Clarifying a fundamental cost for routine operation, Preparation of guidebook of environmental education, and Development of public awareness strategy. The Japanese Expert Team should regard them as the primary activities of technical transfer in this Project.

(2) Pilot Projects

For each pilot project, the following matters should be examined in the implementation process of pilot projects and then reflected into the Master Plan and the Action Plan.

- 1) Introduction of recyclable collection : Effective measures of recyclable collection should be reassessed. Considering extension to other birros, it is necessary to make cost-benefit analysis, and then, step forward to develop the plan for extension.
- 2) Improvement of waste collection and transportation (under planning) : The PP should focus on raising DMGRSUS' s capacity in managing performance of contracted enterprises including monitoring and instruction.
- 3) Utilization of organic waste : It is necessary to clarify limitations and challenges for further extension of the method, and to reflect them into the Master Plan.
- 4) Expansion of recycle activities (under planning) : It is necessary for DMGRSUS to play coordinator' s role among private companies of recyclables, NGOs and others.

(3) Raising Public Awareness

CMM/DMGRSUS should continuously plan targets, methodologies, and corresponding actions for public awareness raisings with a support from Japanese Expert Team. CMM/DMGRSUS should also give a detail explanation to citizens when cleaning tax is raised, including explanation of a concept of benefit principle, thereby promoting citizens' understanding.

(4) Suggestion of Third-country Training in 2015

Selection of venue for the overseas training should be taken to the fact that Mozambique and Japan have many differences in social and cultural systems or in a scale of economics. Also, cost-efficiency and language barriers should be taken into account. Besides, it is confirmed that there are wills from some of C/P staffs to observe practices in other country besides Japan. In this regard, it is recommended replacing training in Japan in 2015 to a third country training.

(5) More Effective and Workable Budget Process

Financial section of DMGRSUS and financial department of CMM should liaise with each other more for more effective and workable budget process.

(6) Dissemination of knowledge and skills to other cities

The experience and know-hows that C/P are now obtaining through the Project, namely; ones related to developing a Master Plan or an Action Plan, improving financial management, promotion of 3R activities etc., will be needed in other cities for their better solid waste management in the future. DMGRSUS/CMM is recommended to transfer the knowledge and skills to other cities in collaboration with the MICOA, FUNAB and related institutions.

(7) Incorporating knowledge obtained in the Project to the revised PNA

In revising National Environmental Policy by MICOA, it is confirmed that CMM plays an important role in commenting from the practical point of view. It is recommended to keep this collaboration in revising the policy and to reflect the experience and know-hows gained in the Project such as promotion of sustainable 3R activities.

(8) Legal basis for promotion of 3R activities

Since the responsibilities of different stakeholders are not clearly defined legally as of now. It is recommended CMM should review the existing ordinances, and then elaborate a legal basis for promotion of 3R.

(9) Continuation of the construction process of the new sanitary landfill site in Matola

Mozambican side, especially MICOA and FUNAB should continuously push forward the process and complete the construction of the new sanitary landfill site in Matola.

第1章 中間レビュー調査の概要

1-1 調査の背景

モザンビーク共和国（以下、「モザンビーク」と記す）の首都マプト市は、近年の都市人口増加に伴い、廃棄物量の増加と種類の多様化が進んでいるほか、廃棄物収集業務についても多様なアクター（民間セクター、NGO等）が参入していることから統制がとれず、適正な廃棄物管理が困難な状況になっている。

こうした状況を踏まえてマプト市は、GTZ（現 GIZ：ドイツ国際協力公社）の協力により 2007 年に「マプト市における都市固形廃棄物管理マスタープラン（2007 年）」（以下、「M/P」と記す）を策定し、それに基づき廃棄物総合管理に向けたさまざまな改善に取り組んできた。しかし、マプト市役所（Municipal Council of Maputo：CMM）の組織の脆弱性、特に技術面での廃棄物管理能力は不足した状況であり、廃棄物管理の適正化は依然として進んでいない。また、M/P では廃棄物総合管理の推進に向けて、3R（Reduce, Reuse, Recycle）の導入を将来的に重要な取り組みと位置づけているが、本格的な実施に向けては、分別収集の適正な実施をはじめとして、課題が山積している。

「マプト市における持続可能な 3R 活動推進プロジェクト」（以下、「本プロジェクト」と記す）は、2012 年 5 月に詳細計画策定調査、同年 11 月に R/D 締結を行い、2013 年 3 月から 2017 年 3 月までの 4 年間を協力期間とし、マプト市廃棄物管理・衛生局（Directorate of Urban Solid Waste Management and Sanitation：DMGRSUS）を相手国側実施機関として開始した。今般、開始から 1 年 8 カ月を迎え、中間レビューを実施する。

1-2 調査の目的

- (1) 投入実績、活動実績、プロジェクト目標達成度を、プロジェクトの内容について定めた R/D に基づき、モザンビーク側と確認・評価し、課題と問題点の整理を行う。
- (2) JICA 事業評価ガイドラインに基づき、5 項目（妥当性、有効性、効率性、インパクト、持続性）の観点から評価を実施し、プロジェクトが順調に成果発現に向けて実施されているかを検証する。
- (3) 上記の調査結果に基づき、今後の活動計画に関する提言を行う。
- (4) 上記変更や、評価結果を合同評価レポートにまとめ、合同調整委員会（Joint Coordinating Committee：JCC）にて承認、今後の活動に反映させる。

1-3 プロジェクトの概要

- (1) 協力期間：2013 年 3 月～2017 年 3 月までの 4 年間
- (2) 事業費（事前評価時点）：約 3 億 5,000 万円
- (3) 上位目標：マプト市の都市環境・住環境が改善される。

(4) プロジェクト目標：マプト市役所（CMM）の廃棄物管理能力が強化される。

(5) 期待される成果

成果 1：CMM における廃棄物管理に係る課題分析能力が向上する。

成果 2：プロジェクト活動地域における（民間との連携を含む）廃棄物収集・運搬能力が向上する。

成果 3：CMM の廃棄物管理に係る財務管理能力が向上する。

成果 4：プロジェクト活動地域における（民間業者を含んだ）廃棄物処分量削減のための 3R が導入される。

(6) 対象地域：マプト市（農村部カテンベと離島部イニャカを除く）

(7) カウンターパート（Counterpart：C/P）：マプト市役所 廃棄物管理・衛生局（DMGRSUS）

(8) 業務実施契約：日本工営株式会社、契約人/月：約 76 人/月

1-4 評価の枠組みと評価基準

本終了時評価調査では、「JICA 事業評価ガイドライン」を指針として、プロジェクトの実績と実施プロセスを把握し、プロジェクトの妥当性、有効性、効率性、インパクト、持続性を総合的に検証した。

(1) 妥当性

妥当性は、プロジェクトの上位目標やプロジェクトの目標が、モザンビークの政策、日本の対モザンビーク協力量針、ターゲットグループのニーズに合致しているか否か、プロジェクトアプローチとしての適切さ等を評価する。

(2) 有効性

有効性は、プロジェクトによって産出された成果により、どの程度プロジェクト目標が達成されたのか、あるいは達成が見込まれるのか等を評価する。

(3) 効率性

効率性は、実施過程のなかでさまざまな投入がいかに関率的に成果に結びつけられたか、人的投入、物的投入、研修等の各側面から評価する。

(4) インパクト

インパクトはプロジェクト実施の結果、起こる影響や変化を評価する視点である。インパクトは上位目標に対する影響のほか、直接的・間接的な影響・変化、望ましい、あるいは望ましくない影響・変化などさまざまな側面が含まれる。

(5) 持続性

持続性は、外部からの支援がなくなった段階でもプロジェクトの便益が持続するかどうかという視点において評価する。

1-5 評価のプロセス

本終了時評価調査にあたっては、評価グリッドにおいて設定した調査項目/サブ項目への調査・検討を中心に据えながら、日本・モザンビーク国側双方からの合同評価団によって調査を実施した。現地調査では、プロジェクトの記録や各種資料の精査に加え、日本人専門家、DMGRSUS内の各部署のC/P、パイロットプロジェクト（Pilot Project：PP）にかかわるエドゥアルド・モンドラーネ大学（University of Eduardo Mondlane/Universidade Eduardo Mondlane：UEM）やローカルコンサルタント等に対する質問票や聞き取り調査等を通して、本評価調査に必要な情報収集を行った。加えて、本調査ではマプト市長への表敬や世界銀行ミッションとの情報共有も行った。

調査は主に下記のとおり実施した。

- ① 日本人専門家に対する質問票及び聞き取り調査
- ② DMGRSUS内のC/Pに対する質問票及び聞き取り調査
- ③ マプト市評議員（プロジェクトダイレクター）に対する聞き取り調査
- ④ UEM教員に対する聞き取り調査
- ⑤ ローカルコンサルタント実施の住民調査への随行（聞き取り）調査
- ⑥ リサイクル業者への聞き取り調査
- ⑦ 他ドナーでの聞き取り調査（世界銀行PROMAPUTO IIミッション）
- ⑧ マプト市長表敬

これらに加え、現地調査時に、最終処分場職員への聞き取り調査なども実施した。

1-6 評価設問と必要なデータ・評価指標

本終了時評価調査における主要な調査項目は、評価5項目に即した表1-1の内容である。また、必要な情報・データについては上述のとおり、多様な関係者への質問票回答依頼、聞き取り調査、並びにプロジェクトが作成した資料によった。

表1-1 終了時評価の主要な調査項目

5項目	サブ項目
妥当性	モザンビーク政策との整合性
	日本援助方針との整合性
	ターゲットグループ・ニーズ（マプト市、住民）
	C/Pとしての妥当性
	プロジェクト・デザインの適切性
	日本の技術の優位性・経験蓄積の有無
有効性	プロジェクト目標及び成果達成の見込み
	達成に係る貢献要因
	達成に係る阻害要因
	外部条件の充足
効率性	人的投入（日本・モザンビーク国側双方）
	物的投入（日本・モザンビーク国側双方）

	本邦研修の効果
	調達機材の効果・妥当性
	その他の効率性促進要因
	重複活動の有無
インパクト	上位目標達成見通し
	波及効果（政策、組織、制度、財政、社会、経済、環境）
持続性	政策面
	技術面
	組織面
	財政面
	社会経済面

1-7 合同中間レビュー調査団の構成

担当分野	氏名	所属
総括	柴田 和直	JICA 地球環境部 環境管理第二チーム 課長
協力企画	奥村 憲	JICA 地球環境部 環境管理第二チーム 調査役
評価分析	十津川 淳	佐野総合企画株式会社 海外事業部 部長

1-8 中間レビュー調査日程

現地調査は2014年11月11日から11月29日までの期間で実施された。

調査日程の概要は、以下のとおりである。

11月		柴田総括	奥村団員（協力企画）	十津川団員（評価分析）
11	火			18:25 成田発
12	水			10:45 マプト着 PM ・JICA モザンビーク事務所 ・日本人専門家聞き取り
13	木			・日本人専門家及び C/P 聞き取り
14	金			
15	土			・資料整理
16	日			・資料整理
17	月			・日本人専門家及び C/P 聞き取り
18	火			

19	水		16:25 羽田発	
20	木		10:45 マプト着 PM 団内打合せ及び専門家打合せ	AM 報告書作成 PM 団内打合せ及び専門家打合せ
21	金	18:25 成田発	AM 評価結果に係る打合せ (Mr. Joao Agostinho Mucavele、Ms.Luisa Langa Bila など) PM PDM 指標に係る打合せ (Mr. Mucavele、Mr. Sergio Manhique)	
22	土	10:45 マプト着 (柴田総括) PM 現場視察 (全員) : フレン処分場、リサイクル業者面会、団内打合せ		
23	日	AM 現場視察 : 市街区、UEM 大学等 PM 打合せ (団内及び日本人専門家)		
24	月	AM M/M 協議 PM マプト市評議員面談 (Mr.Florentino Ablio Ferreira) PM 世界銀行面談		
25	火	AM M/M 協議 PM 市長表敬		
26	水	AM パイロットプロジェクト視察 (Chamanlo D Bairro) PM M/M 協議		
27	木	AM JCC 及び M/M サイン PM JICA モザンビーク事務所報告		
28	金	11:30 マプト発		
29	土	19:15 羽田着		20:15 成田着

第2章 プロジェクトの実績

2-1 投入実績

日本・モザンビーク国側双方の投入の概要は、表2-1のとおりである。

表2-1 日本側及びモザンビーク側による投入実績一覧

項目		概要
モザンビーク側	人材	<ul style="list-style-type: none"> ・プロジェクトディレクター（1名）～マプト市評議員 ・プロジェクトマネジャー（1名）～DMGRSUS 局長 ・プロジェクトコーディネーター（1名）～DMGRSUS 計画・モニタリング部長 ・上記に加え、主たる C/P として 10 名が配置された。所属先は、計画・モニタリング部、廃棄物管理部、人事総務・財務部、国際関係部から成る。
	施設・設備・機材	<ul style="list-style-type: none"> ・プロジェクト事務所 ・活動実施に必要な一般事務用資機材及び消耗品
	事業費	<ul style="list-style-type: none"> ・事務所光熱費
日本側	人材	<ul style="list-style-type: none"> ・専門家派遣 50.25 人/月 （プロジェクト第2年次終了時まで含む：2015年3月末） 内訳：総括/廃棄物管理、副総括/廃棄物収集・運搬、3R 計画、住民啓発/社会調査、財務強化、インパクト評価、業務調整
	施設・設備・機材	<ul style="list-style-type: none"> ・車両 2 台、資機材（事務機器及び PP 用の消耗品等）
	本邦研修	<ul style="list-style-type: none"> ・計 1 回、計 8 名の研修受入れ（2013 年 10 月 13 日～10 月 26 日）

2-2 アウトプットの達成状況

アウトプット（成果）の達成状況は表2-2～表2-5のとおりである。

表2-2 成果1の達成状況

成果1：CMMにおける廃棄物管理に係る課題分析能力が向上する	
指標	活動実績及び指標達成状況
1) CMM が既存の M/P の施策の実施進捗、状況の変化を把握している	<p>マプト市の廃棄物管理を担う DMGRSUS は、現行の M/P（2007 年）における記載事項と現況の違い、プランの進捗及び一連の課題についての分析を既に終えている。</p> <p>また、プランのレビューに加えて、DMGRSUS では四半期、半期、年度の頻度で主たる指標（収集量、最終処分量、リサイクル率など）をモニターしており、その結果を年次報告書にまとめている。</p>

	<p>以上から、中間レビュー時点において、本指標は充足されていると判断できる。</p>
<p>2) CMM が廃棄物管理に対する住民の認識を把握している</p>	<p>本プロジェクトで実施した社会調査や多数のフィールド調査、住民集会等を通して、廃棄物管理に対する住民の認識をDMGRSUS は把握している。</p> <p>これら一連の調査結果を踏まえて、住民啓発に係るアプローチ方法や PP における分別収集、3R 推進を念頭に置いた有機廃棄物活用等の計画が策定された。</p> <p>中間レビュー時点では本指標も充足されていると判断できる。</p>
<p>評価総括：</p> <p>成果 1 は中間レビュー時点において順調な進捗をみせている。</p> <p>上記のとおり、M/P のレビュー作業を通して、DMGRSUS の課題分析能力は向上してきたといえる。能力向上を示す例としては、1) これまで職員は各種会議において、思いつきに似た単発的なコメントを発するケースが多かったが、最近では提案型かつ体系的なコメントを出すことが増加した、2) データに基づいた意見や提案が増加したことが挙げられる。</p> <p>加えて、会議やレポーティングの方法も以前と異なり、報告者・担当者の名前、関係者の役割所掌、業務進捗、今後のスケジュール及び課題、解決方策等が体系的に網羅されるようになっており、関係者が情報を共有するにあたり便利なだけでなく、事後のフォローアップも可能な体制を構築し始めている。</p> <p>各指標の達成状況に加えて、このような変化の事例も散見されていることから、成果 1 の課題分析能力は順調に進捗していると判断できる。</p>	

表 2-3 成果 2 の達成状況

<p>成果 2：プロジェクト活動地域における（民間との連携を含む）廃棄物収集・運搬能力が向上する</p>	
指 標	活動実績及び指標達成状況
<p>1) プロジェクト活動地域における廃棄物収集・運搬量が××%増加する</p>	<p>中間レビューの現在、市街区の廃棄物収集は新たに契約を締結した清掃業者である Eco-life 社が担当している（2013 年 10 月より）。Eco-life 社は、従前の契約業者の時代に利用されていたコンテナをすべて新品に替えるとともに、収集トラックを多数導入し、積極的に業務を遂行している。そのため、これまでのところ総じて良好なパフォーマンスを維持しており、収集・運搬量は基本的に増加しているものと推測できる。</p>

2) プロジェクト活動地域において分別収集が継続的に実施される地区 (bairros) が××カ所増加する	中間レビューの現在、チャマンクロ D 地区において分別収集の PP が実施されている。同 PP では、3 種類のインセンティブを住民に提示しながら、分別収集の定着度を検証する作業を行っている ¹ 。現在は同地区 1 カ所のみで分別収集が実施されている状況であり、今後、実施する地区を増加させるか否か（及び自発的に増加するか否かも含め）は、チャマンクロ D 地区での効果を検証した後に改めて検討する予定である。
3) プロジェクト活動地域において破損しているコンテナの割合が××%減少する	上記のとおり、以前のコンテナは一掃されており、現在はおおむね良好な状態にある。ただし、現状で破損しているコンテナの割合は把握されていない。
4) 適切に配置されたコンテナの数が××個増加する	Eco-life 社との契約時に、コンテナの配置場所も見直しがなされた。また、聞き取り調査の結果によれば、以前に比して、ごみが溢れかえったまま放置されているコンテナの数も減少していることが報告されている。
<p>評価総括：</p> <p>成果 2 は中間レビュー時点において順調な進捗をみせている。</p> <p>DMGRSUS の民間企業を監督指導する能力は向上しており、下記のような点に、その能力向上を確認することができる。1) プロジェクトが実施した現場調査、特にタイム・アンド・モーション調査を通じて、民間企業が行っている廃棄物の収集運搬の実態を把握することができるようになった。このことは DMGRSUS にとって、どのような点に注視した監督指導を行うべきか、その重点を把握できるようになったことを意味する。2) 大規模民間企業とのミーティング頻度が増加した。3) マイクロ・エンタープライズ (Micro Enterprise : ME) に対して、効果的かつ効率的な廃棄物収集の方法を指導する機会が増えた。同時に ME 協会のリーダーや地域の住民グループとのミーティング回数も増加している²。このようなミーティング等の実績を重ねることで、DMGRSUS の民間企業を監督指導する能力（民間企業とともに収集・運搬を行う能力）は少しずつ向上してきたといえる。</p> <p>ただし、能力向上の実績もみられる一方で、データ収集に係るモニタリングについてはいまだ改善の余地が大きい。特に民間企業が月末に提示する収集運搬量に係るデータ（＝収集運搬量に即した請求額となる）と DMGRSUS が把握しているデータに乖離が生じているため、財務管理の側面からも改善することが求められている。この点は、成果 2 の達成レベルを高めるためにも取り組むべき課題といえる。</p>	

¹ 住民へのインセンティブは 1) 容器配布、2) 物品配布（洗剤）、3) 戸別訪問による啓発の 3 種類であり、対象として 1,000 世帯を検証する作業を行っている。結果はインパクト調査として、PDM の枠組みとは別途実施している。

² 現在、市内の全 43 バイローにそれぞれの地域を担当する ME が配置されており、市内の廃棄物収集カバー率は実質的にほぼ 100%と推測されている（専門家聞き取り情報より）。

表 2-4 成果 3 の達成状況

成果 3 : CMM の廃棄物管理に係る財務管理能力が向上する								
指 標	活動実績及び指標達成状況							
1) 廃棄物財務管理の業務手順が明確化される	プロジェクトは、予算計画策定に必要な各種のプロセス、執行管理に係る方法及び関係部署の役割等を示したガイドブックを既に作成し始めている。ガイドブックの最終版はプロジェクト終了までに完成する予定である。							
2) 廃棄物管理に係る支出・収入データが定期的に収集・整理され報告される	支出・収入データは毎年定期的に収集、報告されている。 ただし、現状ではマプト市内の全民間企業数が正確に捕捉されていないため、本来、廃棄物の収集を通じて得られるべき収入の一部が看過されているものと推測されている。そのため、既にプロジェクトは、CMM 本体に対して企業数に関する情報協力依頼を提出した。加えて、電気料金徴収の観点からも企業数を判断することが可能であるため、CMM への情報依頼と並行して、モザンビーク電力公社 (Electricity of Mozambique : EDM) に対しても情報協力を依頼する準備に取りかかっている ³ 。							
3) 前年度の予算と実績の乖離を踏まえて翌年度の予算が計画される	プロジェクトは過去数年間の予算と実績の対比を行い、両者の乖離状況及び乖離の原因について詳細な分析を行った。これら分析結果は DMGRSUS 内の関係者と共有がなされており、2016 年度の予算作成時にはその留意点及び教訓を反映する予定である。							
<p>評価総括：</p> <p>成果 3 は中間レビュー時点において順調な進捗をみせている。</p> <p>プロジェクトの前半期間は DMGRSUS の財務管理の現況に係る分析を行い、取り組むべき課題を抽出することに集中してきた。これら課題のうち、プロジェクトは既にいくつかの課題に着手しており、上記指標項目のほかに、下記の成果を挙げてきた。</p>								
	<table border="1"> <thead> <tr> <th>着手項目</th> <th>現在までの課題</th> <th>これまでの進捗</th> </tr> </thead> <tbody> <tr> <td>規模な廃棄物排出会社に係るデータベース更新</td> <td>1) データベースに登録されている会社の数が少ない。プロジェクト開始時にはわずか 600 社程度のみが廃棄物収集サービス料を支払っていた (電気代からの天引きとは別途に排出量に連動するサービス料部分)。加えて、マプト市内の民間企業数</td> <td>1) データベース登録について、約 4,300 社を一義的な目標として、登録を進めている。中間レビュー時点において、約 2,000 社の書き込み作業が終了した。 2) スーパーバイザーを対</td> </tr> </tbody> </table>	着手項目	現在までの課題	これまでの進捗	規模な廃棄物排出会社に係るデータベース更新	1) データベースに登録されている会社の数が少ない。プロジェクト開始時にはわずか 600 社程度のみが廃棄物収集サービス料を支払っていた (電気代からの天引きとは別途に排出量に連動するサービス料部分)。加えて、マプト市内の民間企業数	1) データベース登録について、約 4,300 社を一義的な目標として、登録を進めている。中間レビュー時点において、約 2,000 社の書き込み作業が終了した。 2) スーパーバイザーを対	
着手項目	現在までの課題	これまでの進捗						
規模な廃棄物排出会社に係るデータベース更新	1) データベースに登録されている会社の数が少ない。プロジェクト開始時にはわずか 600 社程度のみが廃棄物収集サービス料を支払っていた (電気代からの天引きとは別途に排出量に連動するサービス料部分)。加えて、マプト市内の民間企業数	1) データベース登録について、約 4,300 社を一義的な目標として、登録を進めている。中間レビュー時点において、約 2,000 社の書き込み作業が終了した。 2) スーパーバイザーを対						

³ 廃棄物収集に関するサービス料は電気料金と連動するように定められており、EDM が徴収する電気料金から天引きする形で廃棄物収集サービス料が徴収されている。ただし、企業については電気料金連動部分に加えて、廃棄物排出量に合わせた収集サービス料を支払うことが義務づけられている。

	も不明である（1万5,000社程度と推測されている）。 2) 登録データに誤情報が多い。仮に登録されている会社であっても、廃棄物排出量が極端に少なく登録されているケースも多い。	象企業に訪問させるなどして、誤情報に係るデータ更新を進行させている ⁴ 。
財務データの記録、モニタリングのフォーマット変更	1) 財務関連のデータ整理にあたり、関係者個々で異なるフォーマットを利用していた。そのため、部署全体で支出関連の統一的なモニタリングを行うことが難しかった。	1) 統一フォーマットを適用し始めた。現在は関係者間でモニタリング内容を共有できるようになっている。
コスト分析	1) 廃棄物管理にかかるユニット当たりのコスト分析が明確になされていなかった。	1) 人件費、燃料、運送費等の全項目からt当たりのコスト分析を進めている。

これらの取り組みを通して、DMGRSUS 職員の財務管理能力は徐々に向上してきたと判断できる。

他方、今後はこれまでコミュニケーションが限られていたとされるマプト市行政本体の財務部との関係性を強化することも求められる。市行政本体との関係強化の過程で、市内の廃棄物管理に必要な予算について相互理解を深め、適正な予算確保を実現することにつなげることがねらいである。

他方、今後は DMGRSUS 職員の能力向上と並行しながら、これまでコミュニケーションが少なかったとされるマプト市行政本体の財務部との関係性を強化することも求められている。

表 2-5 成果 4 の達成状況

成果 4：プロジェクト活動地域における（民間業者を含んだ）廃棄物処分量削減のための 3R 活動が導入される	
指 標	活動実績及び指標達成状況
1) 3R に関する教材が作成される	3R に関する教材は現在作成中である。
2) 住民啓発室が設立される	2013 年 12 月に住民啓発室が DMGRSUS 内に設立された。中間レビュー時点において、職員 2 名及びインターン 2 名の体制で業務にあたっている。

⁴ 正確には 2,072 社のデータベース登録作業が終了した。このうち、1,843 社については実際のデータ内容と登録企業の状況との照合も終えている。照合作業のためのデータ収集は、スーパーバイザーによる企業訪問及び企業自らが DMGRSUS に来訪した際の情報提供によって実施した。

3) PP が実施された地域において、有価物回収量が××%増加する	本指標に関する PP は今後実施される予定である。
4) PP が実施された地域において、コンポスト量が××%増加する	本指標に関する PP は今後実施される予定である。
<p>評価総括：</p> <p>成果 4 は徐々に進捗をみせており、達成に向けて初期段階から中間段階に移行しつつある。プロジェクトではリサイクルできる有価物ごとの収集業者、収集・販売価格、販売先等の情報をまとめた「マテリアル・フロー」を作成した。フロー作成にあたっては、市内の民間業者や NGO 等を一堂に集めたワークショップを実施し、これまで 3 回にわたって、フロー情報を更新してきた。この作成は DMGRSUS にとって初めての活動であり、本フロー情報をもって、DMGRSUS 市内の 3R 市場を俯瞰することが初めて可能となった。プロジェクトを開始するまで、DMGRSUS 内で蓄積されていた 3R に関する知見は極めて限定的であったことに比べれば、中間レビュー時点において職員の能力は着実に向上しているといえる。</p> <p>今後プロジェクトは、有機廃棄物を利用した 3R 活動 PP（家庭有機ごみを利用した土壌調整剤づくり）を約 30 戸、2 バイローを対象に実施する予定である。また有価物回収に関する PP の実施も予定している。</p>	

2-3 プロジェクト目標の達成状況

プロジェクト目標に係る達成状況は表 2-6 のとおりである。

表 2-6 プロジェクト目標の達成状況

プロジェクト目標：CMM の廃棄物管理能力が強化される	
指 標	活動実績及び指標達成状況
1) プロジェクト終了後の M/P が承認される	プロジェクトは 2007 年に策定された M/P のレビュー、並びに重要項目に焦点を当てた簡易なアップデートを既に終了している。今後、プロジェクトでは PP の教訓や現場調査から得た各種情報を、新規 M/P に反映する予定である。中間レビュー時点での計画では、ドラフト版を 2016 年のうちに終了し、マプト市での承認プロセスを順次進める予定である。
2) マプト市において、××個の 3R システムが提案される	プロジェクトでは 3R に関して、有機廃棄物利用による土壌調整剤づくり、及び有価物回収の PP を 2014 年及び 15 年からそれぞれ開始する予定である。これら PP の各種教訓は、新規 M/P のなかで 3R 活動促進に係る提案（アクションプラン）として記載される予定である。

3) マプト市の廃棄物管理ガイドライン、プロジェクト以降のドラフトマスタープラン及び2021年までのアクションプランが策定される	廃棄物管理ガイドラインをはじめ、上記の M/P、アクションプランはプロジェクト後半に作成される予定である。
<p>評価総括：</p> <p>プロジェクトは目標の達成に向けて順調に進捗している。</p> <p>本プロジェクトの目標である廃棄物管理能力とは、各成果が定めている能力内容であり、具体的には課題分析能力、収集・運搬能力（及び収集・運搬を担う民間業者を監督する能力）、財務管理能力、3R 実施・推進能力を指す。これまでの成果達成状況が示すように、それぞれの能力は順調に向上しており、DMGRSUS が担うべき総合的な廃棄物管理能力は向上し始めていると判断できる。</p>	

2-4 上位目標の達成の見込み

上位目標「マプト市の都市環境・住環境が改善される」については、最近、住民からの廃棄物管理に係る不満の声（満杯になったまま放置されているコンテナや道路に散乱するごみからの異臭、悪臭等に関する改善依頼）が減少傾向にあることが報告されていることなどから判断すると、目標が達成される可能性はあると考えられる。

ただし、上位目標達成を判断するタイミングまでにはいまだ5年以上の時間があることに加え、本中間レビューにおいて、具体的な達成指標を設定することとしたため、達成の可能性は今後更に精査されることが必要である。

2-5 実施プロセスにおける特記事項

(1) コミュニケーション

日本人専門家とプロジェクトの C/P との情報交換及び共有は、日常的なコミュニケーションに加え、隔週で開催されるプロGRESS・ミーティングを通して円滑に進んでいる。プロジェクトでは同ミーティングの議事録を英語、ポルトガル語に翻訳したうえで、現地不在者も含めた全員にメールで回覧している。また、現地不在の専門家との個別のコミュニケーションにおいては、その重要度にかんがみながら、折々で英語、ポルトガル語の双方に翻訳したうえでのメール交換も行っている。

このように共通言語不在の問題にも随時対応しながら、両者間での情報交換は関係者が満足できるレベルで進められているものと判断できる。

(2) モニタリング

プロジェクトでは、PDM の活動項目ごとに進捗状況を確認できるモニタリングシートを導入している。隔週で実施されるプロGRESS・ミーティングの場では、モニタリングシートに照らしながら、活動実績及び今後の予定、課題等が話し合われており、モニタリング体制はおおむね十分なレベルで整備されていると判断できる。

なお、同ミーティングには情報共有の場としての効用のみならず、C/P 自身が自ら会議を進め、計画策定に係る議論を通じた能力向上の場としての効用も期待した活動と位置づけており、そのため毎回2時間以上の十分な時間を充てている。

(3) PDM の修正

PDM の指標について、本中間レビューを通じて、指標内容の明確化及び現状に即した内容への変更が議論され、JCC の場で PDM 改訂版が提案された。一部の指標数値については、PP が一定程度進捗した後でなければ定められない項目もあるため、すべての指標が定められる最終版は3年次以降となる予定である。

第3章 5項目評価による評価結果⁵

3-1 妥当性：高い

本プロジェクトは、モザンビーク及びマプト市の政策や開発戦略並びに日本の対モザンビーク支援政策に整合した取り組みである。また、一連の活動やめざす方向性は、関係機関のニーズに整合しており、かつその支援内容にも日本の経験や知見が有効に活用されている。これら観点から、本プロジェクトの妥当性は「高い」。

3-1-1 モザンビーク政府の政策・開発計画との整合性

モザンビークにおける環境政策の柱は、1995年に公布された国家環境政策（National Environmental Policy/Politica Nacional do Ambiente：PNA）であり、同政策において固形廃棄物の処理及びリサイクルシステムの導入、衛生埋立地の建設と管理の促進等がうたわれている。

また、2012年には廃棄物管理に特化した「統合的廃棄物管理に関する国家戦略」が策定されており、2025年までに3R原則を導入する旨がうたわれている。同戦略では、3R導入を実現するにあたって、特に一般市民やCBO（Community Based Organization：地域共同体団体）が主体的な役割を果たすことが重要と規定している。

このようにモザンビークでは廃棄物管理、とりわけ3R原則の導入を重視するとともに、地域住民の役割も重要視している。本プロジェクトは、マプト市行政職員の能力向上の側面から、地域住民を巻き込みつつ、マプト市の3R活動推進を支援する取り組みであり、同国の政策・戦略の内容に整合した活動を展開しているものである。

3-1-2 日本政府の支援政策との整合性

わが国の対モザンビーク共和国国別援助方針（2013年）では、同国の潜在力を生かした持続可能な経済成長の推進と貧困削減の大目標に対して、都市部における環境質の改善に貢献することを示している。同方針では具体的に「環境汚染が都市機能を低下させる原因となっているところ、都市部の廃棄物処理能力向上をはじめとした環境対策支援を行う」旨が記載されている。

以上から、本プロジェクトはわが国の援助方針にも即しているものと判断できる⁶。

3-1-3 ニーズとの整合性

(1) マプト市行政のニーズ

マプト市は2007年に策定されたM/Pに即して、これまで廃棄物管理に係る一連の改善作業に着手してきた。しかしながら、急増する同市の人口に合わせて廃棄物も増大の一途をたどっており、5年以上が過ぎたM/Pの内容は現状に即さない面が多々みられるようになっていた。そのため、同市では現況及び将来予測を踏まえた、新たなM/P策定が喫緊の課題と認識されていた。

加えて、市内における適正な廃棄物管理を実現するためには、マプト市行政、特に廃棄

⁵ 評価は「高い」「おおむね高い」「中程度」「やや低い」「低い」の5段階とした。

⁶ 本プロジェクトは対モザンビーク国事業展開計画においては、マプト市の都市機能強化を図る「マプト回廊開発・整備プログラム」の一環に位置づけられている。

物管理・衛生局（DMGRSUS）職員の能力向上が求められていたが、職員らに対するセクターに特化した専門的な研修機会は事実上一切存在しておらず、その知見、技術力向上を果たすための機会を求めている状況にあった。

本プロジェクトは M/P のレビュー、策定や各種の PP の実施を通して、DMGRSUS 職員の能力向上を支援する取り組みであり、マプト市のニーズに整合した内容といえる。

(2) 住民のニーズ

本プロジェクト前半に実施した社会調査において、地域住民の廃棄物管理改善に係るニーズが非常に高いことが確認された。特にごみなどが道路に常時散乱している状況やごみで満杯となったまま放置されているコンテナ収集の頻度等を改善してもらいたいとの声が多く寄せられていた。加えて、同調査では住民自身も分別回収に興味を有していることも確認された（80%以上が興味ありとの回答）。

本プロジェクトは PP での直接的な効果をはじめ、最終的には市内の廃棄物管理全体の改善に貢献することを目標としているものであり、地域住民のニーズに即した取り組みである。

3-1-4 プロジェクトデザインの適切性—ステークホルダー関与の有無

プロジェクト実施において必要なステークホルダーの関与はおおむねみられたが、成果達成度を高めるためにはマプト市行政本体の更なる関与があることが望ましい。これまでもプロジェクトにおいては、JCCのみならず折々でマプト市行政本体と議論を行う機会を設けてきたが、今後は特に財務管理の成果達成において、マプト市財務部との協議機会を増やし、実効性のある予算確保に向けて相互認識を深めることが求められる。

3-1-5 日本技術の優位性

日本には 3R 活動を含めた、廃棄物管理全般に係る長年の経験が豊富に蓄積されている。本プロジェクトでは、日本の制度や技術・知見を紹介しながら、分別収集と効率的適正処理/資源化/運搬収集を視野に入れた活動を展開している。

また、日本は多くの国々において廃棄物管理に関する技術協力を数多く実施してきた経験も有しており、これら他国での各種経験・教訓、更にはガイドブック等の成果物なども適宜有効に活用している。

3-2 有効性：高い

本プロジェクトはおおむね順調に進捗しており、プロジェクト目標達成の見込みは高い。今後は、これまでの課題分析や現場調査に加えて、実際に住民と協同作業を行う PP の本格稼働を通して、DMGRSUS 職員の能力向上が図られることとなる。中間レビュー時点における有効性は、「高い」と評価できる。

3-2-1 プロジェクト目標の達成見込み

プロジェクト目標の達成見込みは高い。本プロジェクトが目標としている、DMGRSUS 職員の廃棄物管理能力は、課題分析能力、民間企業との収集・運搬能力、財務管理能力、3R 活動

促進に向けた住民・企業へのアプローチ能力から構成されるものであり、これらは総合的に向上の過程にある。

3-2-2 プロジェクト目標及び成果の因果関係

本プロジェクトの目標である廃棄物管理能力は、4つの成果で規定された能力分野から構成されるものと規定されている。これら成果の達成が同時にプロジェクト目標を達成することを担保する関係となっており、目標と成果の因果関係は成立している。

3-2-3 プロジェクト目標・成果達成に係る貢献要因

本プロジェクトの成果及びプロジェクト目標の進捗に対して、下記の点が主たる貢献要因として挙げられる。

(1) 本邦研修

本邦研修は、日本の廃棄物管理に係る行政、民間企業、住民のそれぞれの役割や法規制の仕組み、3Rの仕組み等について、C/Pが実見する貴重な機会となった。訪問先は中央省庁（環境省）から地方自治体（東京都調布市、愛知県名古屋市、岐阜県多治見市など）、リサイクルセンター、処分場、バイオガス、たい肥センターなど、多様な機関を網羅しており、体系的に日本の取り組みについて知見を深めることができた。結果、研修帰国後には、DMGRSUSは住民啓発の重要性にかんがみ、同局内に新たに住民啓発室を設立し、3Rをはじめとした各種活動において住民啓発を進める体制づくりを整備するに至った。

(2) マプト市行政上層部の理解

マプト市長をはじめ市評議員などが、本プロジェクトの意義に高い関心と理解を寄せており、プロジェクト実施のサポーターとなっている。市長については、マプト市の各種イベントのたびに3Rの重要性を繰り返し発言してきた。このことは、メディアなどを通して、住民の意識向上、啓発に寄与しているものと考えられる。

(3) C/Pと専門家のチームワーク

DMGRSUSのC/Pと日本人専門家の良好な関係が、日常的な業務進捗を支える大きなファクターとなっている。本プロジェクトの活動では、一般的な市行政部局の業務時間を超えたり、休日出勤での業務を求められたりするものの、この両者間の信頼関係を基礎として、これまでおおむね順調に業務を進めることができたものと考えられる。

3-2-4 プロジェクト目標・成果達成に係る阻害要因

プロジェクト目標、成果の達成度を阻害してきた要因にはあたらないものの、今後改善が望まれる点として、以下の点が挙げられた。

(1) C/Pの長期休暇と専門家滞在時期の調整

モザンビークでは一般的に1カ月程度の長期休暇を取得することが多いため、C/Pとの協同作業が効率よく進まない例がみられる。専門家のモザンビーク滞在時期とC/Pの長期

休暇が重複しないよう、両者間で事前に調整することが求められる。

3-3 効率性：高い

日本側・モザンビーク国側双方ともに成果達成におおむね適正な人的投入及び物的投入がなされてきた。特に本邦研修は、DMGRSUS 内で新たに住民啓発室を設立するなどのインパクトにも通じた投入となった。

3-3-1 人的投入

(1) 日本側投入

日本人専門家の投入については、4つの成果に即した専門家がそれぞれ配置されており、人数及び専門性については適切である。派遣期間自体は各専門家がそれぞれ分散した形となっているが、全専門家が相互に専門家同士の活動分野を適宜フォローすることによって対応している。

(2) モザンビーク側投入

モザンビーク側からは、C/P の DMGRSUS の局長をはじめ、局内の主たる人員がプロジェクトに参加しており、適切な投入がなされている。他方、上述のとおり、成果達成度を高めるためにもマプト市行政とのかかわりを増加させることも求められる。

(3) その他投入

プロジェクトでは社会調査や現況調査等においてローカルコンサルタントを適宜投入してきた。現地に通じるコンサルタントを利用することで、内容面及び調査実施・完了に至るまでのプロセス面の双方において効率性の高い投入であったといえる。

また、プロジェクトは UEM との協同作業を通じ、PP における土壌調整剤づくりを進めている。同大学のコンポストづくりに係る知見を効率的に活用した事例といえる（中間レビュー時点では試作中。今後 PP で本格導入される予定である）。

3-3-2 物的投入

本プロジェクトによる物的投入はプロジェクト活動に必要な車両（2台）と資機材（事務用機器や PP に係る消耗品等）で占められており、数量、仕様の観点から適切といえる。

3-3-3 本邦研修

本プロジェクトで実施した本邦研修は高い効果を生み、住民啓発室を設立するに至る効果を生んだ（詳細は「3-2-3 プロジェクト目標・成果達成に係る貢献要因」参照）。

3-3-4 投入（予算）

プロジェクトに必要な予算はおおむね適切であった。これまで予算不足や遅延を要因として、活動スケジュールや内容が大幅に影響を受けたことはない。

3-3-5 補完効果

プロジェクトは世界銀行のプログラムである PROMAPUTO II と定期的に情報交換を行いながら、活動を進めてきた。世銀の同プログラムはマプト市の廃棄物管理に係る予算の約3割を支援するものであり、いわば財政面からの支援に特化した取り組みである。他方、本プロジェクトはマプト市の廃棄物管理の向上を職員の能力向上の観点から支援するものである。つまり、両プロジェクト・プログラムは財政面と技術面の双方からのアプローチによってマプト市の廃棄物管理を改善させることを目標としており、相互に補完関係がある。

3-3-6 重複活動の有無

本プロジェクトの活動と重複する他ドナーによる活動等はみられない。

3-4 インパクト：おおむね高い（予測）

上位目標達成の見込みはモザンビーク側の今後の取り組みによるものの、本プロジェクトが策定する M/P が確実に実行されれば、その達成は十分に可能性がある。他方、本プロジェクトでは組織面においてインパクトが発現しているが、その他の技術面や社会経済面でのインパクトは今後の PP 進捗に合わせて期待されている状況にあるため、まだ多くは発現していない。これらを合わせ、総合的なインパクトは「おおむね高い」と評価できる。

3-4-1 波及効果

これまで下記の波及効果を確認できる。

（組織面）

住民啓発室の設立

- ・本プロジェクトの本邦研修から帰国した後、DMGRSUS は住民啓発の重要性を強く認識し、同局内の一部署として住民啓発室を新設した（2013年12月）。マプト市行政内の各局において、住民啓発に関する独立部署を設けている例は同局以外にない。そのため、同室の職員は他部局のキャンペーン活動に頻繁に参加を要請されており、例えばマラリア撲滅キャンペーンや、市場美化キャンペーン等に参加し、廃棄物管理の側面にスポットを当てながら、住民、関係者への啓発活動を行っている。住民啓発室の参加は、これら他部局のキャンペーンの内容・効果を充実させる効果をもたらしているといえる。
- ・また、住民啓発室は小中学校での環境教育にも力を入れており、同室設立以来、これまで46の小中学校で環境教育に係る説明会などを実施してきた。DMGRSUS では、これまでも同様に小中学校を訪問していたが、住民啓発室を設立してからの訪問数は明らかに増加している。

（社会経済面）

中間レビューの時点では明確なインパクト発現は確認されていないが、今後は PP の進展に伴い、プロジェクト参加住民を中心に社会面や経済面でのインパクト発現が期待できる。

3-5 持続性：これまでの進捗からは、一定程度の持続性を期待できるものの、高低に係る評価判断は、プロジェクト後半の活動結果によってなされるものとした。

3-5-1 政策・法規制面

市内人口が今後も増加すると見込まれるマプト市にとって、適正な廃棄物管理を行うことは重要な政策課題の1つである。プロジェクト終了後の政策面での持続性は高いと予測できる。

他方、現在のモザンビークにおいては廃棄物管理に関する戦略こそ定められているものの、具体的な法規制の整備は進んでいない。今後、特に3R活動を進めていくためには、行政、民間企業、住民等の各プレイヤーの役割・責任の所掌を示す法規制を整備することが、持続性を担保するうえで求められる。

3-5-2 組織・技術面

現在のDMGRSUSの組織構成及び各部署の人数自体は、現行業務を行ううえでおおむね適正である。

ただし、局内に工学分野の技術的なアカデミックバックグラウンドを有した人材は極めて少ない。今後の更なる業務内容の発展のために、民間企業が行う廃棄物管理の各種手法・技術を適正に指導、監督及び評価するうえでは、衛生工学や環境工学、化学、経済等の人材を徐々に確保していくことが望ましい。

3-5-3 財政面

2015年12月に廃棄物管理予算の約30%に相当する財政支援を行っていたPROMAPUTO IIが終了する予定であり、今後は財務面の強化がますます重要かつ喫緊の課題となる。

持続性確保に寄与し得る昨今の動きとしては、2015年1月から清掃税が現行価格から30%値上げされることが決定されており、この値上げによって一定レベルの歳入増が期待できる点⁷が特記される⁷。また、本プロジェクトが実施している廃棄物排出業者のデータベース更新及び導入による歳入増も合わせて期待できる⁸。このように適正な廃棄物管理を行うための予算を確保し続けることは、継続的な課題であり続けるものの、持続性を高める動きが散見されるようになっている。

⁷ 世界銀行の試算では30%の値上げによって、必要予算の82%をカバーできると試算している（調査団が行った世銀からの聞き取りによる）。

⁸ 中間レビュー時点での専門家の試算では、改訂データベースの適用（更新済みの1,843社分）をもって、歳入が14%増加する見込みが立てられている（清掃税の30%値上げを含まない前提による試算であり、30%の値上げが実現されれば、更なる増加が期待できる）。

第4章 結論と提言

4-1 結論

本プロジェクトは急増する都市人口及び廃棄物の増大といった課題を抱えるマプト市の喫緊のニーズに対応した、妥当性の高い取り組みである。

プロジェクトは市の廃棄物管理を担う DMGRSUS 職員の能力向上に焦点を当てながら、これまでは現状分析や PP の準備・実施に取り組んできた。中間レビューの現在、期待された成果の「分析能力」「(民間業者との) 運搬・収集能力」「財務管理能力」「3R 導入」はおおむね順調に進捗しており、有効性は高い。

また、人的、物的投入も成果、プロジェクト目標達成に妥当な内容であり、特に本邦研修は研修員帰国後に DMGRSUS 内に住民啓発室を設立するインパクトも生んだ。そのため、効率性も高いと判断できる。

インパクトとしては上述の住民啓発室の活動が DMGRSUS 内にとどまらず、他部局のキャンペーン活動にも貢献している点が挙げられる。

持続性については、今後の DMGRSUS 職員の努力による部分も多いが、清掃税の値上げや大規模排出会社のデータベース更新による歳入増の可能性など、持続性を支える兆候もみえつつある。

総じて、中間レビュー時点における評価としては、本プロジェクトは順調な進捗と総括できる。

4-2 提言

(1) プロジェクト後半の重要活動

C/P スタッフへのインタビュー結果を総合すると、下記の活動が C/P スタッフが優先して行いたい活動として挙げられた。

項目	関連する成果
1) M/P の着実な作成	1
2) データ収集と分析の能力の向上	1、2、3、4
3) 市民に対する 3R 活動を促進	1、2、4
4) 委託収集運搬業者からの記録を、正確なバックアップデータと照合させること（精確なトラックスケール等）	2
5) 委託収集運搬業者のパフォーマンスの把握と管理	2
6) 予算を適切に計画する能力の向上（個人的能力のみならず、組織制度面の充実も必要）	3
7) 大規模排出業者のデータベースの修正・更新・完成等による歳入増加の方策の実行	3
8) 通常業務で発生する基本的なコストの明確化	3
9) 教師向け環境教育ガイドブックの作成	4
10) 住民啓発戦略の策定	4

C/P スタッフより挙げられた上記 10 の活動は、いずれも DMGRSUS 及び CMM の能力の向上を達成するには、基本的かつ最重要事項であると考えられる。したがって、JICA 専門家チームにおいても、これらの活動を本プロジェクトにおいて最重要な活動と位置づけて技術

移転に臨むべきである。

(2) パイロットプロジェクト (PP)

各 PP に関して、以下の事項が PP の実施段階において考慮される必要があり、かつ M/P 及びアクションプランに反映される必要がある。

1) 分別収集の導入

まずは、PP の結果の検証が必要なのはいうまでもないが、定時収集ではなく、拠点回収を望む声が地元で上がったことがあり、分別収集の手法も含めて、再検証が必要である。加えて、結果の検証から派生して、仮に DMGRSUS が最も効果のあった介入手段を実際の施策とする際には、他のパイローへのスケールアップに際しては、プロジェクト活動として費用対効果の検討を行い、拡大のための計画づくりを支援する。

2) 収集運搬の改善 (計画中)

中間レビュー調査時点では計画中であるが、DMGRSUS の収集運搬委託業者のパフォーマンス管理能力を向上に焦点を当てた内容が検討され得る。また安定的に精確な収集運搬量を把握する方策も検討課題である。

3) 有機性廃棄物の有効活用

UEM 農学部との協働により、有機ごみの減量化をコスタドソル地区等 30 数世帯対象に準備中。肥料の代替となる「堆肥」への期待が家庭単位でも多いと予想されるが、質を担保するためには入念な手入れが必要となり、家庭単位での取り組みになじむかは今のところ未知数である。このこともあり、まずは有機ごみを減量化させて土壌調整剤を製造する活動を PP で行う。PP を通じて家庭単位で普及・実証するうえでの制約要因の明確化を図る。

4) 既往のリサイクル事業の拡大 (計画中)

NGO 団体 AMOR が市街区で拠点回収にて有価物を回収する Eco-Point を、郊外地区に拡大する内容を検討中。市のイニシアティブにより行うため、リサイクル業者等の利害関係者の DMGRSUS の調整役としての役割強化が必須である。

(3) 住民啓発の実施

1) DMGRSUS 及び CMM は、JICA 専門家の支援を受けて、住民啓発を実施するうえでのターゲット、手法、それらに応じた行動を継続して計画し続けていくこと。これらにより住民とより一層の信頼関係を醸成することを提言する。住民啓発の活動には住民の排出・分別行動の啓発、3R 等に関するキャンペーンを含む。

2) 清掃料金の値上げの際には、住民に対して受益者負担の概念を含め、丁寧な説明を行い、住民の理解の促進を図っていくことを提言する。

(4) 2015 年の第三国研修実施の提案

2013 年に行われた本邦研修は DMGRSUS にとって有意義なものとなり、研修員の帰国後、業務遂行に前向きな効果をもたらした。本邦研修は第 3 年次 (2015 年) にも計画されているが、モザンビークと日本には社会・文化システムや経済規模において多くの相違点があるこ

とには留意すべきである。また、費用対効果や言語の壁も考慮に入れるべきである。加えて C/P のなかからは、日本以外の国の事例も学びたいという希望の声が聞かれた。この見地に立ち、2015 年の本邦研修を第三国研修に変えることを提言する。

(5) 実効性のある予算計画・執行プロセス

DMGRSUS の財務セクションと CMM の財務部は、より実効性のある予算計画・執行プロセスの実現のために相互の連携をより強化すべきである。

(6) 知識・技能の他都市への普及

C/P が現在プロジェクトを通じて会得している経験・ノウハウ、すなわち M/P・アクションプランを策定する能力や、財務管理の改善、3R 活動の促進等は、他都市でも廃棄物管理を改善するために将来的に必要となる。DMGRSUS 及び CMM は、環境活動調整省（Ministry for the Coordination and Environmental Affairs : MICOA）、国家環境基金（National Fund of Environment : FUNAB）をはじめとした関連機関と連携して、知識・技能の他都市への移転を進めるべきである。

(7) 国家環境政策（PNA）の改訂プロセスへのインプット

MICOA による国家環境政策（PNA）の反映において、CMM が実務的な見地からコメントを行う重要な役割を負っていることが確認された。この連携を保ちながら、持続可能な 3R 活動の促進等、プロジェクトで得られた経験・ノウハウを PNA の改訂に反映していくことが望ましい。

(8) 3R 活動の促進の根拠法について（Legal basis for promotion of 3R activities）

- 1) モザンビークでは 3R に係る記載が「戦略」にはあるが、法的な条項は存在していないところ、多様なステークホルダーの責任体制が曖昧である。モザンビーク側は 3R 促進のための根拠法を策定することが望ましい。
- 2) 特にマプト市においては、CMM が独自に条例を策定できるところ、既存の市の条例をレビューして 3R 活動促進の法的根拠を策定することが望ましい。

(9) マトラ新規衛生埋立処分場の建設プロセスについて

マトラ市の新規衛生埋立処分場の建設は、マプト市の廃棄物管理にも影響を及ぼす重要な要素である。モザンビーク側、特に MICOA 及び FUNAB は完工までプロセスの前進を継続的にモニタリングすべきである。

4-3 団長所感

- (1) 本中間レビューでは、全般的に活動の順調な進捗が確認され、プロジェクト終了までの目標・成果達成の可能性は十分であると判断された。4 つの成果（①分析能力②収集運搬能力③財務管理能力④3R 活動導入）に関し、DMGRSUS は、ごみ質・量調査や社会調査により廃棄物問題の全体像を把握して既存マスタープラン（M/P）のレビューを完了し（①）、大規模及び小規模の委託業者の収集運搬実施状況を把握して行政指導の頻度を増やし（②）、予算

と実績の乖離の現状把握とともに重要な収入源である民間企業の産業廃棄物排出量データベースの更新作業に着手し (③)、民間業者・団体によりリサイクルされる物資の流れを把握した (④)。活動が引き続き順調に継続されれば、プロジェクト目標である廃棄物管理能力強化の指標 (改訂 M/P 及び廃棄物管理ガイドラインの承認等) がプロジェクト終了 (2017 年 3 月) までに達成される可能性は十分ある。専門家と C/P は机を並べ日々ともに業務を行っており、緊密で良好な人間関係が円滑な活動実施につながっていることが感じられた。

- (2) 市の廃棄物収集運搬サービスについては、Eco-life 社への委託開始に伴い、市中心部の収集状況が 2013 年 10 月以降顕著に改善された一方、郊外でのサービスには依然大きな課題がある。零細企業による一次収集のカバー率や Enviroserv 社による二次収集の規則性などの向上のために、DMGRSUS の監督能力強化は極めて重要である。
- (3) 更に大きな挑戦は、世銀 PROMAPUTO II の補助金終了後の財務的持続性と市民の支持の確保である。同時期にモザンビークを訪れた世銀実施支援ミッションとの意見交換の結果、廃棄物関連予算の約 3 割を占める同補助金の 2014 年終了を踏まえ、市は 2015 年初めからの清掃税 30%増額 (予算の 58%→82%) を既に議決し、更に一般予算投入 (18%) を行う予定であることが明らかになった。マトラに最終処分場が建設された後は、運搬費上昇のため更に 15%の増税が必要な見込みである。市は近日中に市民説明を開始するとのことであり、今後の推移を要注視である。
- (4) 一方、本プロジェクトのタイトルでもある 3R (Reduce, Reuse, Recycle) はパイロット事業が端緒についたところであり、プロジェクト後半には、普及する対象と戦略を見極めて改訂 M/P とアクションプランに具体化することが必要である。現時点で分別収集のパイロットを評価中であり、今後は、収集運搬サービスの改善、有機ごみ減容化と既往の有価物回収事業の拡大といった更に 3つのパイロット事業が予定されているが、排出から、収集・運搬、中間処理、処分までの各段階のどこで何の 3R を普及拡大することの実現性が高いのか見極めが必要であり、多くのステークホルダーの利害調整も絡む。この点で DMGRSUS が、3R にかかわるステークホルダーを俯瞰し、必要な施策を実行する能力の養成が不可欠である。3R 普及には関係機関の責任を規定する根拠法や条例の制定も必要であり、MICOA や市当局への打ち込みを行うことも望ましい。
- (5) 他方、パイロット事業数増により想定される業務量増加に対する C/P のインセンティブ確保のため超過勤務手当の支給励行を提言したところ、厳しい財政状況から極めて困難であるものの、市当局が現行規定内での解決策を検討することをミニッツで確認した。
- (6) 本レビューの機会を利用し、市トップへの打ち込みやメディアへの広報も行うことができた。11 月 25 日に David Simango マプト市長に対しレビュー結果概要報告と 3 点の申し入れ (清掃税値上げ推進と市民の理解・支持促進、3R の法的基盤整備、C/P 予算とスタッフ残業代確保) を行い、同市長からは本プロジェクトへの感謝、支持表明とともに、清掃税値上げへの指導力発揮と C/P 予算確保に関し肯定的回答がなされた。引き続きメディア取材に対応

し、同日夜に TIM (TV)、RM (ラジオ) で紹介された。

(7) 以上の結果を踏まえ、事務所及びプロジェクトに対しては本案件の目標達成や成果拡大に関連する以下の項目についてフォローと情報収集をお願いしたい：①清掃税に関する市民説明及び値上げの実施状況確認、②C/P 予算と残業代支給に関する市の対応状況確認・督促、③MICOA における国家環境政策改訂と Lvia (伊 NGO) 支援の現状確認とプロジェクトの経験に基づく 3R 促進の打ち込み、④本案件の成果の国内他都市への普及拡大 [MICOA 所管の国家環境基金 (FUNAB) が南部諸都市を対象としたセミナー開催を計画中]、⑤マトラの新最終処分場建設進捗状況の把握 (FUNAB によれば現在は詳細設計を実施中)。

(8) なお、分別収集パイロット事業におけるインパクト評価実施は、JICA で初の環境分野事業及び民間活用技術協力プロジェクトへのインパクト評価組み込みを行った先進事例である。1,000 世帯に対する本調査実施は、介入の効果実証のみならず、郊外のごみ排出及び収集の実態に関する多くの情報と教訓をもたらしており、今後 JICA 内外で成果共有・発信を行っていくこととしたい。

最後に、円滑なレビュー調査実施に多大なご支援を頂いたプロジェクト専門家の皆様に心より御礼申し上げたい。

付 属 資 料

- 1 . PDM (和文)
- 2 . JCC Minutes of Meeting (英文Mid-term review report含む)

1. PDM (和文)

Project Design Matrix (PDM)

プロジェクトタイトル マプト市における持続可能な3R活動推進プロジェクト
 プロジェクト期間 4年
 対象 マプト市役所
 対象地域 マプト市(カチンベ、イニヤカを除く)

20版ドラフト
 2014年2月24日

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	External conditions
Overall Goal マプト市の都市環境・住環境が改善される。 →「マプト市の生活環境が改善される」に変更した方がよい。	1) 不適切な廃棄物排出量が減少する。 →「不適切な廃棄物排出」の定義を明示する必要がある。 2) 1人当たりの最終処分量が減少する。	市の報告書 一般啓蒙の詳細目次について議論する必要がある。	
Project Purpose マプト市役所の廃棄物管理能力が強化される。	1) プロジェクト終了後のマスタープランが承認される。 2) マプト市において、××個の3Rシステムが提案される。 →「3Rシステム」の定義を明示する必要がある。 3) マプト市の廃棄物管理ガイドライン、プロジェクト以降のドラフトマスタープラン及び2021年までのアクションプランが策定される。	1) マプト市議会のミニッツ(マスタープランの承認) 2) プロジェクト報告書	・廃棄物管理に関するマプト市の政策と法が大幅に変更されない。 ・マプト市役所において、プロジェクトで提案された活動を継続するために必要な予算が十分確保されている。
Outputs 1. マプト市役所における廃棄物管理に係る課題分析能力が向上する。 2. プロジェクト活動地域における(民間との連携を含む)廃棄物収集・運搬能力が向上する。 3. マプト市役所における廃棄物管理に係る財務管理能力が向上する。 4. プロジェクト活動地域における(民間業者を含む)廃棄物処分量削減のための3R活動が導入される。	1) マプト市役所が既存のマスタープランの提案の実施進捗、状況の変化を把握している。 2) マプト市役所が廃棄物管理に対する住民の認識を把握している。 1) プロジェクト活動地域における廃棄物収集・運搬量が××%増加する。 →広大な範囲で3Rが導入された場合には、廃棄物収集・運搬量は減少する可能性もあることから再考を要するため、3Rの可能性検討の段階で算定する。 2) プロジェクト活動地域において分別収集が継続的に実施される地区(bairro)が××ヶ所増加する。 3) プロジェクト活動地域において破壊しているコンテナの割合が××%減少する。 4) 適切に設置されたコンテナの数が××%増加する。 →市役所における新規コンテナの収集運搬活動がフル稼働した時点で、コンテナのペースライン条件や目標を設定する必要がある。 マプト市における廃棄物管理にかかる支出が把握され、予算計画が作成されている。 →一般財に係る指標は、現状を踏まえての更なる関係者間協議で、明確な工程下で定量化できる指標とすることが望ましい。例は、「収入ベースラインデータ」、「歳入ベースラインデータ」、「予算執行率」が指標として考えられる。 また、「財務運営マニュアル/ガイドライン」の策定も指標として考えられる。 1) 3Rに関する教材が作成される。 2) マプト市役所が3Rに係る住民啓蒙を行うキャンペーンを有している。 →より定量的な指標(望ましい)、また、住民啓蒙に係る新しいキャンペーンの設立も指標として考えられる。 3) PPが実施された地域において、有機物回収量が××%増加する。 4) PPが実施された地域において、コンポスト量が××%増加する。 →具体的な数字は、第2年次のPP設計時に協議・検討し、設定する。	1) アップデートされたマスタープラン 2) 住民の認識に関する社会調査 1) トラックスケールレポートに記録された廃棄物収集・運搬量 2) 分別回収が継続的に実施されている地区の数 3.4) 市の報告書/ペースライン調査 1) 年次会計報告書 2) 年次予算報告書 1) プロジェクト報告書/市の年次報告書 2) プロジェクト報告書/市の年次報告書(住民啓蒙活動に関する報告書) 3.4) プロジェクト報告書/市の年次報告書	プロジェクト期間中にカウンターパートの人員に大幅な異動がない。
Activities	Input		
1-1 既存のマスタープランをレビューし、現状との相違点を確認する。 1-2 現在発生しているごみ量ごみ質データ、最終処分量データの信頼性を収集、レビューする。 1-3 既存のマスタープランをアップデートする。 1-4 アップデートされたマスタープランに基づき、プロジェクト期間中の実行計画を作成する。 1-5 マプト市の廃棄物管理に関するガイドラインを作成する。 1-6 プロジェクト終了後の廃棄物管理に係る目標を設定し、プロジェクト終了後のマスタープラン案を作成する。 1-7 2021年に向けた実行計画を作成する。 2-1 マプト市における廃棄物収集運搬の現状を把握する。 2-2 民間業者と連携した廃棄物収集・運搬PP案を作成する。 2-3 民間業者と連携した廃棄物収集・運搬改善PPを実施する。 2-4 活動2-3で実施した廃棄物収集・運搬PPの結果をレビュー、フィードバックする。 2-5 活動2-1の結果を基に、郊外地区一次収集での分別回収導入のためのPPを計画を作成する。 2-6 活動2-5で計画した郊外地区一次収集での分別回収導入のためのPPを実施する。 2-7 活動2-6で実施したPPの結果をレビュー、フィードバックする。 2-8 廃棄物収集・運搬の改善に係る実行計画を作成する。 3-1 現在の廃棄物管理に係る財務体制の課題を確認、分析する。 3-2 毎月定期的に廃棄物管理の支出と収入データを収集する。 3-3 データを入力し年間予算と月間実支出額を算出する。 3-4 年次会計報告書を作成する。 3-5 年次予算計画を作成する。 3-6 料金徴収体系を見直す。 3-7 財務管理の改善に係る実行計画を作成する。 4-1 有機物(古紙・ガラス・金属・プラスチック)及び有機性廃棄物のリサイクル事業の現状を確認する。 4-2 (ウェイストピッカーとの連携を含めた)有機物のリサイクルの可能性を確認する。 4-3 3R導入のための啓蒙プログラムをレビュー、改善する。 4-4 改善された3R導入のための啓蒙プログラムを実施する。 4-5 活動4-2で確認した既存有機物リサイクル事業推進のためのPP計画を作成する。 4-6 活動4-2で確認した既存有機物リサイクル事業推進のためのPP(民間業者連携)を実施する。 4-7 活動4-6で実施したPPの結果を検証し、推進計画を作成する。 4-8 有機性廃棄物(厨芥ごみ)のコンポスト化に係るPP実施計画を作成する。 4-9 有機性廃棄物(厨芥ごみ)のコンポスト化PPを実施する。 4-10 活動4-9で実施したPPの結果を検証し、コンポスト化事業の推進計画を作成する。 4-11 有機物PP及びコンポスト化PP拡大の実行計画を作成する。	1 日本側 (a) 専門家の派遣 - 総括廃棄物管理 - 廃棄物収集・運搬 - 3R計画 - 住民啓蒙/キャンペーン/ティベロップメント - 財務管理強化 (b) 車両 (c) PP及び住民啓蒙活動に必要な燃料、資料 (d) 本邦研修の実施(CP2-3名×2回) 2. モザンビーク側 (a) カウンターパート(C/P) (b) 施設、機材 (c) 日本人専門家のオフィススペース (d) 活動に必要な費用 - 役人の謝金・日当 - 電気、ガス、水道代 - 国内輸送等に必要費用		
			Pre-conditions マプト市役所において、プロジェクト遂行に必要な予算が十分確保されている。

**MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MAPUTO MUNICIPALITY
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR PROMOTION OF SUSTAINABLE 3R ACTIVITIES
IN MAPUTO**

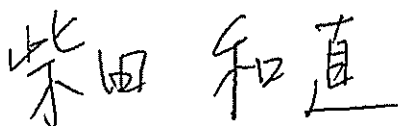
Japanese Mid-Term Review team (hereinafter referred to as “the Team”) organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”) visited the Republic of Mozambique from November 12th to November 27th, 2014, for the purpose of conducting the Joint Mid-Term Review on Japanese technical cooperation project on the Project for Promotion of Sustainable 3R Activities in Maputo (hereinafter referred to as “the Project”) on the basis of the Record of Discussion (hereinafter referred to as “R/D”) signed on November 27th, 2012.

During its stay in Mozambique, the Team had a series of discussions and exchanged views with Mozambican officials concerned (hereinafter referred to as “the Mozambican side”).

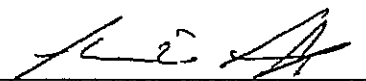
As a result of discussions, both the Mozambican side and the Team (hereinafter referred to as “both sides”) mutually agreed upon the matters referred to in the Joint Mid-Term Review Report attached as appendixes.

(These documents were done in both English and Portuguese, each text being equally authentic. In case of any divergence of interpretation, the English text shall prevail.)

Maputo, November 27th, 2014



Mr. Kazunao Shibata
Leader, Mid-Term Review Team
Japan International Cooperation Agency



Mr. Florentino Ablio Geraldês Ferreira
Councilor
Maputo Municipality

ATTACHED DOCUMENT

I. Mid-Term Review Report

The Joint Mid-Term Review Team consisting of Mozambican and Japanese members presented the results of the Joint Mid-Term Review Report (attached as Appendix II) to the Joint Coordinating Committee (hereinafter referred to as "JCC"). Both sides confirmed that the members of the JCC reviewed and approved its contents of this Mid-Term Review Report.

II. Main Pointes Discussed

1. Adequate Remuneration for Counterpart(C/P) staff

At the time of Mid-Term Review, two pilot projects, namely a pilot project for introduction of recyclable collection and a pilot project for utilization of organic waste, have already been started. From 2015, in addition to the following-up of the above-mentioned two pilot projects, two new pilot projects will start, namely, a pilot project for improvement of waste collection and transportation, and a pilot project for promotion of recycle activities. As the work volume of the C/Ps will be increased, it will be necessary to ensure adequate remuneration which guarantees the C/Ps' performance.

The Team expressed its concern that giving adequate remuneration for C/P staff would be a critical matter to progress project activities. The Team suggested two means to Municipal Council of Maputo (CMM) to deal with this matter:

- 1) CMM authority's responsibility to secure over-time allowances in accordance with the law and regulations in public servants for C/P staffs' engagement to the project activities
- 2) Level of involvement of project activities should reflect in higher rate in the assessment of daily job performance which is periodically conducted in Directorate of Urban Solid Waste Management and Sanitation (DMGRSUS)

CMM will find a way to solve this matter in accordance with law and regulations existing in the Government of Mozambique.

2. Securing Budget for Project Activity

Both sides understand that, it will be necessary to secure budget for purchases on materials for project activities and execute it adequately, as four pilot projects will be implemented and followed-up at the same time.

3. Importance of Sustainable Financial Management

Both sides agreed that sustainable financial management is highly important to secure a source of revenue for solid waste management after the completion of PROMAPUTO II. Both sides also

agreed it will be important that CMM will give a detail explanation to citizens about raising cleaning tax, including the concept of benefit principle, thereby promoting citizens' understanding.

4. CMM's Leadership in Expanding Good Practices of Solid Waste Management in Mozambique

Both sides understand importance of CMM/DMGRSUS's leadership in expanding practices of solid waste management:

- 1) The experience and know-hows that C/Ps are now obtaining through the Project, namely; ones related to developing a Master Plan or an Action Plan, improvement of financial management, promotion of 3R activities and others, are necessary in other cities for better solid waste management in the future. CMM/DMGRSUS will ensure to transfer the knowledge and skills to other cities in collaboration with FUNAB, MICOA, and related institutions.
- 2) In revising National Environmental Policy (Politica Nacional do Ambiente) by MICOA, the Team confirmed that CMM plays an important role in commenting from the practical point of view. Mozambican side understands the importance of reflecting the experience and know-hows gained in the Project such as promotion of sustainable 3R activities.

5. To Achieve Project Goal

In order to achieve the Project Goal, CMM ensures that a Master Plan for post-termination of the Project (the Updated M/P) will be reviewed and approved during the time of the Project, not after the Project, not to compromise progress and objectives of the Project. In the latter half of the Project, CMM authority agreed to continue taking necessary measures to fulfill important pre-condition such as:

- 1) CMM will not change drastically the personnel and positions in DMGRSUS, and if appropriate, will take actions to develop organizational structure of DMGRSUS.
- 2) CMM will immediately deal with situations where they have to clarify to the citizens about the importance of the pilot projects in order to gain their cooperation.

6. Revised Project Design Matrix

Mozambican side, Japanese Experts, and the Team exchanged views on indicators in Project Design Matrix (hereinafter referred to as "PDM") during the Mid-Term Review, and proposed PDM version 3 in which some indicators are revised, as shown in Appendix III. Both sides agreed to continue discussion on revising PDM and approve it in the next JCC to be held around June 2015.

Appendix I	List of Attendants in Maputo
Appendix II	Joint Mid-Term Review Report
Appendix III	Project Design Matrix (PDM) Version 3
Appendix IV	Agenda of 4th JCC

44
2

List of Attendants in Maputo

1. Participants from Mozambican side

(1) Municipal Council of Maputo (CMM)

Mr. Florentino Abilio Geraldès City Councilor of Solid Waste Management
Ferreira

Mr. Joao Agostinho Mucavele Director, Municipal Directory of Urban Solid
Waste Management

Ms. Luisa Langa Bila Coordinator of the Planning and Monitoring
Department

Mr. Sergio Manhique Head of the Section of Monitoring and Quality
Control

For other participants see ANNEX 7 of Joint Mid-Term Review Report

(2) National Fund of Environment (FUNAB)

Mrs. Anchia Bobina National Fund of Environment

2. Participants from Japanese side

(1) Mid-Term Review Team

Mr. Kazunao Shibata Leader

Mr. Ken Okumura Planning Cooperation

Mr. Jun Totsukawa Evaluation Analysis

(2) JICA Mozambique Office

Ms. Chiharu Morita Deputy Resident Representative of JICA Mozambique
Office

Ms. Megumi Tsukizoe Representative of JICA Mozambique Office

Joint Mid-Term Review Report
on
The Project for Promotion of Sustainable 3R Activities in Maputo
in the Republic of Mozambique

November, 2014

The Joint Mid-Term Review Team

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ABBREVIATIONS AND ACRONYMS

CMM	Municipal Council of Maputo
C/P	Counterpart
DMGRSUS	Directorate of Urban Solid Waste Management and Sanitation, CMM
FUNAB	National Fund of Environment
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
MICOA	Ministry for the Coordination and Environmental Affairs
MAPUTO	Maputo Municipal Development Program
ME	Micro enterprise
M/P	Master Plan
M/M	Minutes of Meetings
OVI	Objectively Verifiable Indicator
PDM	Project Design Matrix
PNA	National Environmental Policy
PO	Plan of Operation
R/D	Record of Discussions
SWM	Solid waste management
3R	Reduce, Reuse, Recycle

1. Outline of the Review

1-1. Background

In Mozambique, Maputo City, the capital of the country, enacted the regulation for solid waste management in 1997, and has promoted the solid waste management. However, due to rapid urban population growth, increasing of urban waste, the diversification of types of waste and participation of various actors into solid waste management (Private sector, NGOs etc.), it has been difficult to manage solid waste properly. Based on above situation, "Master Plan for Solid Waste Management in Maputo Municipality" (hereinafter "M/P") was formulated in 2007 by the cooperation with GTZ.

This M/P points out various challenges in solid waste management. For example, collection rate of the total solid waste is less than 50% in the year of 2007, maintenance and operation of equipment for waste collection is insufficient, the final disposal site has not been managed appropriately and solid waste are scattered throughout the Maputo city. Moreover, M/P indicates a major problem is the low capacity of solid waste management in Maputo Municipality.

Furthermore, proper waste collection services have not existed in surrounding areas of Maputo city and it leads to rapid increase of illegal dumping site and negative impacts on environment and health of residents. In this background, the Maputo Municipality has been working on countermeasure for improvement of solid waste management based on M/P.

However, the institutional vulnerability of Maputo Municipality, particularly technical aspects of solid, waste management, obstructs progressing adaption of appropriate waste management. Although, introduction of 3R (Reduce, Reuse, Recycle) has positioned in M/P as an important role for the promotion of comprehensive waste management in the future, there are still many challenges to implement 3R activities.

As a result of these situations, the technical cooperation project "the Project for Promotion of Sustainable 3R Activities in Maputo (hereinafter referred to as "the Project")", which aims at the improvement of solid waste management and sustainable development of 3R in Maputo Municipality, was requested by the GOM.

About one and half year has passed since the Project was launched in March 2013. Considering that the Project will be completed in March 2017, the Mid-term Review was conducted with an aim to review activities and outputs which come up in the Project, and to make recommendations on the activities for the remaining period of the Project.

1-2. Objectives

- (1) To review the activities of the project and its process of implementation based on the Record of Discussions (R/D).
- (2) To analyze and discuss the achievement of the project in terms of five evaluation criteria (relevance, effectiveness, efficiency, impact and sustainability).
- (3) To identify and recommend measures for solving problems on the project operation to related organizations of Mozambique and Japan based on the result of (1) and (2), and to discuss the activities of the project for the rest of the cooperation period.
- (4) To propose to revise the Project Design Matrix (PDM) and Plan of Operation (PO) based on the results of discussions, if necessary.
- (5) To prepare and agree on the Mid-term Review Report with the Government of Mozambique and to exchange the Minutes of Meetings (M/M).

1-3. Outline of the Project

The outline of the Project is shown as follows and the details are as described in the PDM (Annex 1):

(1) Overall Goal:

The urban environmental and living condition in Maputo City is improved.

(2) Project Purpose:

Capacity for Solid Waste Management (SWM) in CMM is improved.

(3) Outputs:

- 1) Capacity to analyze the current status of SWM in CMM is improved.
- 2) Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.
- 3) Capacity for financial management of SWM in CMM is improved.
- 4) 3R activities for reduction of solid waste (including private sector) is introduced in project target area.

1-4. Methodology

1-4-1. Method of Review

The Mid-term Review was conducted in accordance with the latest “JICA Guidelines for Project Evaluations” issued in June 2010. The review was performed using PDM as a reference. Current project status and outcomes were assessed from the aspects of the five criteria of relevance, effectiveness, efficiency, impact, and sustainability.

The Mid-term Review Team conducted surveys at the project sites through the interviews and questionnaires to the Mozambican project personnel, other related organizations, and the Japanese experts involved in the Project to review the Project on the basis of the evaluation grid.

1-4-2. Five Evaluation Criteria for the Review

Description of the five evaluation criteria that were applied in the analysis for the Mid-term Review is given in Table 1 below. The relationship between the five evaluation criteria and PDM (Overall Goal,

Project Purpose, Outputs and Inputs) are also described in the following (Figure 1).

Table 1: Description of Five Evaluation Criteria

Criteria	Definitions
Relevance	Degree of compatibility between the development assistance and priority of policy of the target group, the recipient, and the donor.
Effectiveness	A measure of the extent to which an aid activity attains its objectives.
Efficiency	Efficiency measures the outputs -- qualitative and quantitative -- in relation to the inputs. It is an economic term which is used to assess the extent to which aid uses the least costly resources possible in order to achieve the desired results. This generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted.
Impact	The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.
Sustainability	Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable.

Source: "JICA Guidelines for Project Evaluations", June 2010

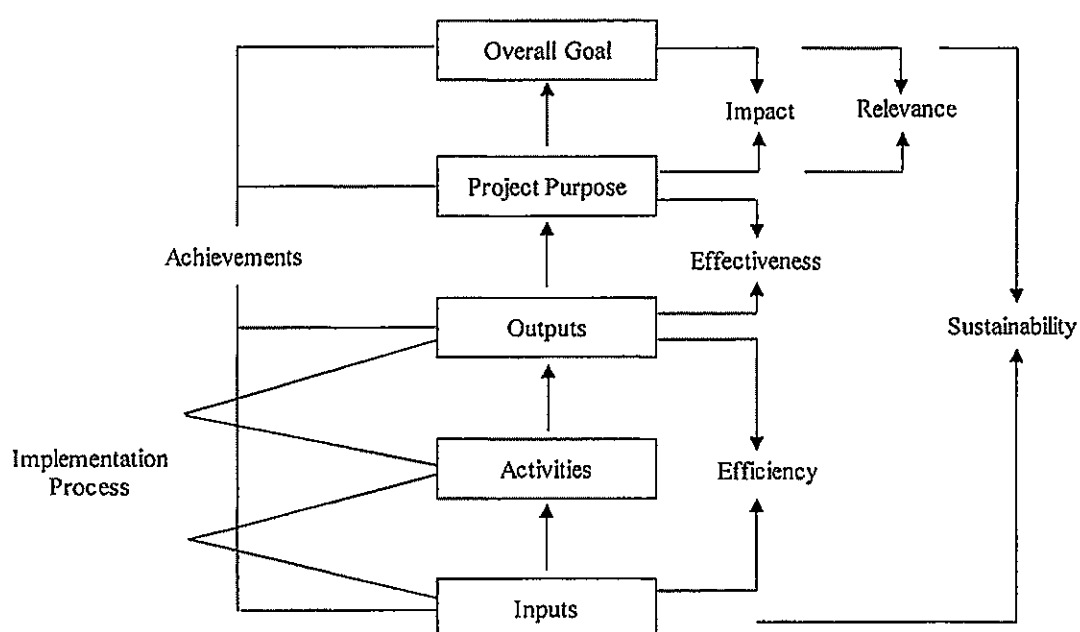


Figure 1: Relationship between the Five Criteria and PDM

Source: "Practical Methods for Project Evaluation" March 2004

1-4-3. Collection Methods and Data Sources

The data collection methods and main data sources are specified as shown in the evaluation grid. The specific methods and sources are described below.

- Documents related to the Project
- Progress reports
- Answers for the questionnaire from Japanese experts and Mozambican counterparts
- Record of Inputs from both sides and Activities of the Project
- Interviews with the Project counterpart personnel, experts, and personnel in related organizations
- Field Survey

1-5. Members of the Joint Mid-term Review Team

<Japanese Side>

Name	Role in the Team	Position and Organization
Mr. Kazunao Shibata	Leader	Director, Environmental Management Team 2, Global Environment Department, JICA
Mr. Ken Okumura	Cooperation Planning	Assistant Director, Environmental Management Team 2, Global Environment Department, JICA
Mr. Jun Totsukawa	Evaluation Analysis	Director, Sano Planning Co, Ltd

<Mozambican Side>

Name	Position, Organization
Mr. Florentino Abilio Geraldés Ferreira	City Councilor of Solid Waste Management
Mr. Joao Agostinho Mucavele	Director, Municipal Directory of Urban Solid Waste Management
Ms. Luisa Langa Bila	Coordinator of the Planning and Monitoring Department
Mrs. Anchia Bobina	National Fund of Environment (FUNAB)

1-6. Schedule of the Joint Mid-term Review

The Mid-term Review was conducted during the period between 12th of November and 27th of November, 2014 (See Annex 9).

2. Achievements of the Project

2-1. Records of Inputs

The following are the achievements of inputs by the time of the Mid-term Review by both Japanese side and Mozambican side.

2-1-1 Japanese Side

1) Assignment of Experts

From the onset of the Project, a total of nine experts were assigned to the Project, in total 50.25 Man-month (until the end of 2nd year, March of 2015).

2) Training in Japan

As a part of Japanese side's inputs, one training course has been provided in Japan. In total, 8 Mozambican counterparts have received training in Japan. The training course was implemented in October 2013 for 14 days, and visited Ministry of Environment, local governments in Tokyo, Aichi and Gifu, repository sites, recyclables centers, etc.

3) Provision of Machinery and Equipment

The Japanese side has provided office equipment that is necessary for project implementation, and two vehicles as attached in Annex 6.

2-1-2 Mozambican Side

1) Assignment of Counterparts

The Mozambican side has assigned 12 primary counterparts in total as of the Mid-term Review.

2) Facilities

The Mozambican side provided office spaces in the DMGRSUS for project implementation.

2-2. Results of the Activities and Achievement of the Outputs

Achievement status of the expected each output is as follows:

Output 1: Capacity to analyze the current status of SWM in CMM is improved.	
OVI	Activities and Achievement Level
1. CMM understands progress and differences of the current M/P.	CMM, DMGRSUS as counterpart, already completed reviewing the current M/P and analysis of the difference between the actual and the targets in the M/P. Besides the review of M/P, DMGRSUS has kept monitoring the progress of major indicators such as collection rate, final dumping volume, recycle rates and others by every quarter, semi-annual, and annual basis, and made annual report. This indicator was already fulfilled as of the Mid-term review.
2. CMM understands public perception about SWM.	Through social survey, a series of field visits and workshops with local people, DMGRSUS understands local people's needs on solid waste management.
Overall Assessment: Output 1 has been steadily progressing.	

As of the Mid-term Review, the Project has already completed the review of the current M/P with briefly draft updates of the contents. Through the review processes, many of CMM staffs successfully improved the analysis capacity in general. The improvement is observed in these examples: 1) There are more opinions presented with solid suggestions in meetings occasion, not just only making comments; 2) Opinions are expressed on the basis of data presentation. In addition, reporting structure/formats were also modified, which added the name of reporter, participants with description of each responsibility, progress and necessary follow up schedule, etc. The change enables the staffs easily to take follow up actions. This kind of change has also directly and indirectly enhanced the analysis capacity.

Output 2: Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.

OVIs	Activities and Achievement Level
1) Amount of collection and transportation of solid waste is increased by XX%.	As of the Mid-term review, the Project is on the stage that field surveys including the time and motion survey have completed. Amount of collection and transportation will be continuously monitored in the latter half of the Project period. It is, however, forecasted that the amount of collection and transportation in urban area are possibly increased from macro viewpoint because the new contractor, Eco Life, has been showing good performance until now.
2) Number of Bairros where recyclable collection of solid waste is continually implemented is increased to XX (number).	Recyclable collection has been implemented one Bairro, namely, Chamanculo D, in the framework of pilot project as of the Mid-term review.
3) Rate of broken container is decreased by XX%.	Due to replacement of containers by the new contractor in urban area, the number of broken containers has drastically decreased.
4) Number of container adequately allocated is increased to XX (number).	Due to reallocation of containers by the new contractor, the number of containers allocated inappropriate place has decreased. In addition, the number of containers which are left for a while with full of wastes are also smaller, comparing with before.
<p>Overall Assessment: Output 2 has been steadily progressing. Looking at capacity of DMGRSUS staffs regarding collection and transportation with private companies, the following positive changes are observed: 1) they now understand how private companies collect and transport wastes, and what the important viewpoints are to instruct and monitor</p>	

through field surveys including time and motion survey; 2) there are more meetings with the private companies; 3) they conduct more instructions to Micro Enterprises, ME, how to effectively and efficiently collect wastes, and have more meetings with leaders of ME association and local people's group.

In line with this, the capacity of DMGRSUS staffs has been developing in general, though, there are still challenges in proper monitoring particularly in data consistency between the reports of private companies and ones that DMGRSUS keeps. Including this challenge, the Project is expected to accelerate the series of activities including pilot project which implements recyclable collection activities.

Output 3: Capacity for financial management of SWM in CMM is improved:

OVis	Activities and Achievement Level
1) Financial operation procedure is shared with official document.	The Project is in the process of making the guideline showing the financial operation procedure, which are the necessary processes for budget planning, monitoring with specified roles of each department/section. The final version of the guideline will be possibly completed by the end of the Project.
2) Revenue baseline data is regularly collected and reported.	Revenue baseline data has been continuously collected and reported every year. As of the Mid-term review, the Project is re-checking the exact number of all registered companies in the city in order to capture the potentials of the increase/decrease in the revenue.
3) Budget is planned by considering the variance between budget execution and budget plan of the previous year.	The Project has already completed the analysis of the variance between budget execution and the plan for the past years. The analysis results will be reflected to the budget planning for the coming years.

Overall Assessment:

Output 3 has been steadily progressing.

In the beginning half of the Project period, the Project has paid particular attention on analysis of the current situation and challenging factors on the financial management. In the process of analysis together with counterparts and experts, the Project have focused necessary issues to tackle and actually started several activities. Tangible outcomes up to now are 1) to update the database of waste producers in large scale, 2) to change the format for easier financial recording and monitoring, 3) cost analysis for solid waste management through the whole process including fuel, manpower, and other logistical costs. Above all, the updating database is expected to give significant impacts on the revenue from collection of wastes. As of the Mid-term review, approximately 2,000 companies are already digitized with updated information in the database among 4,300 targets in total. Through these

activities with experts, financial management capacity of DMGRSUS has been growing step by step. However, there are many tackling issues for improvement of financial management in DMGRSUS including its completion of the database and actual application. Collaborative actions with the financial department of the CMM headquarters are also key issues in order to conduct financial management in particular of planning phase.

Output 4: 3R activities for reduction of solid waste (including private sector) is introduced in project target area	
OVI	Activities and Achievement Level
1) Educational material about 3R is developed.	Materials for education of 3R are in the process of making.
2) New office for civic education is established in DMGRSUS.	The office of civic education was established in DMGRSUS in 2014 after the staffs of CMM returned from the training in Japan. As of the Mid-term review, three staffs and two trainees are actively working in the office.
3) Amount of material recovery in the Pilot Project area is increased by XX%.	This indicator will be measured after the pilot project starts.
4) Amount of compost in the Pilot Project area is increased by XX%.	This indicator will be measured after the pilot project starts.
<p>Overall Assessment:</p> <p>Output 4 has proceeded gradually, and now transferred from the early to middle stage towards achievement.</p> <p>The Project has worked on making the “material flow” of recyclables by holding workshops that invited private companies and NGOs, which counted to 20-30 representatives. Through a series of workshops, the staffs of DMGRSUS have accumulated the technical knowledge on how to make and analyze the material flow, which gives current picture of 3R market in the Maputo city.</p> <p>As of the Mid-term review, the Project is now about to start the pilot project on making composts with local people covering more than 30 households at 2 Bairros.</p> <p>Introduction of 3R activities to the city, which is the goal of the Output 4, is expected to be achieved by fully utilizing the lessons of the pilot projects from now on.</p>	

2-3. Achievement of Project Purpose

Project Purpose: Capacity for Solid Waste Management (SWM) in CMM is improved.

OVI	Activities and Achievement Level
1) The M/P for post-termination of the Project is approved by CMM.	The Project has already completed reviewing the current M/P, and pointed out necessary issues to update. The new version of M/P reflects the lessons from the pilot project and other various activities by the Project. It is highly possible for the new M/P to be completed and entered the approval procedure within the city government. It is, however, difficult to estimate the necessary period for its final approval.
2) XX (number) components of 3R system are proposed in Maputo City.	As of the Mid-term review, recyclable collection and compost making are tested in the framework of the pilot project. Through the experiences in the pilot project, it would be possible to propose some of the 3R components to Maputo City.
3) A guideline of SWM for Maputo City, a draft of M/P for post-termination of the Project, the Action Plan toward 2021 are developed.	The Project starts to work on these outputs of this indicator in the latter half of the Project period.
<p>Overall Assessment:</p> <p>The Project purpose is on the right track towards achievement as of now.</p> <p>As categorized in each Output, the capacity of analysis, collection and transportation, financial management, and implementation of 3R activities have been developing step by step until now. It is evaluated that the Project purpose, capacity of solid waste management in total, is possibly achieved by the end of the Project.</p>	

2-4. Prospect of Achievement of Overall Goal

<p>Overall goal: The urban environmental and living condition in Maputo City is improved.</p>
<p>OVI:</p> <p>1) Amount of inadequate waste disposal is decreased.</p> <p>2) Amount of final waste disposal per person is decreased.</p>
<p>Prospect:</p> <p>Although the Mid-term review is at too early stage to forecast the possibility of overall goal's achievement, positive signs are observed in the decrease of local people's complaints regarding waste disposal such as left-alone containers full of wastes. It may be because of performance of the new private contractors for the time being, though, it can be expected to sustain such better condition as long as DMGRSUS would properly instruct and monitor the private companies' works.</p> <p>For achievement of the overall goal, local people's involvement is also the key issues besides the proper monitoring of private companies. It is expected the Project's Output in particular of Output 2</p>

and 4 would enhance understandings and actual actions taken by local people.

2-5. Implementation Process of the Project

2-5-1 Communication

Sharing and exchange of information between Japanese experts and counterparts are almost satisfactory in general through bi-weekly meetings called Progress meetings. The Project always keeps the records of the meetings' contents and circulates them by e-mails after translated into English and Portuguese.

Even some of e-mails are translated into both languages to ensure the understandings each other.

Through such efforts with the systematic information sharing structure, necessary information is shared almost enough among the entire Project related persons.

2-5-2 Monitoring

The Project is now introducing the monitoring sheets to track the progresses of the activities, and report them at the Progress meeting bi-weekly. Monitoring sheets are categorized by PDM activities respectively. On the basis of the reporting at the meetings, counterparts and Japanese experts exchange opinions, and determine the next steps towards solutions. It is evaluated the monitoring has been conducted well enough.

3. Evaluation by Five Criteria

Each criterion is evaluated using the following five rankings: "high", "relatively high", "moderate", "relatively low", and "low".

3-1. Relevance

The relevance of the Project is high.

The Project is in accordance with the priority of development policies of Mozambique and CMM, the needs of the key stakeholders/counterparts, and Japan's Official Development Assistance (ODA) policy. Also, the Project effectively utilizes Japanese experiences.

3-1-1 Consistency with the development policy of the government

The primary policy of the environmental sector in the country is the National Policy of Environment, Política Nacional do Ambiente: PNA, which was issued in 1995. The policy declares that the country needs to accelerate/improve solid waste management with introduction of recycle system.

In addition to the environmental sector policy, the government established the National Strategy of Integrated Management of Urban Solid Wastes in 2012, which focused on solid waste management in the country. The strategy mentions that 3R would be introduced by the year of 2025 through active involvement of local people and community based organizations.

In these line, it is confirmed that the Mozambican government places importance on solid waste

management with an eye to introduce of 3R in the long run, and also pays particular attention on the role of local people as the key players of solid waste management.

The Project is to assist in solid waste management in the Maputo city from the capacity development aspect of the city government officers. It is evaluated the Project is exactly in line with the Mozambican policy.

3-1-2 Consistency with Japanese ODA policy/plan

The Country Assistance Policy for Mozambique issued in 2013 places the importance on improvement of environmental quality in urban area. The policy describes “since the deterioration of environmental affects the function of the urban areas, Japan assists in countermeasures of environmental improvement, including the aspect such as capacity development to manage solid wastes.

It is confirmed that the project is consistent with the Japanese policy.

3-1-3 Consistency with the needs

1) Needs of CMM

Solid waste management of the Maputo city has been conducted on the basis of the Master Plan made in 2007. The city government has implemented various programs and showed improvements in accordance with the plan’s direction.

However, since the city has been rapidly developing with much more population for these years, the Master plan is now required to be modified and/or upgraded to the new version.

In addition, capacity development of the city government officers has been required in order to deal with the increasing solid wastes in the city. Although there are training courses for city government officers in general subjects, specifically expertise courses including solid waste management are not offered.

The Project’s contents for capacity development of the DMGRSUS staffs are meeting with such needs of the CMM.

2) Needs of local people

According to the social survey’s results conducted by the Project, local people showed their wishes to live under the environment that solid wastes are properly managed. Many people, more than 80 % of answers, also showed the positive interests in participation in recyclables collection in order to realize the cleaner living environment.

The Project is consistent with such local people’s needs.

3-1-4 Appropriateness of the Project design: involvement of stakeholders

Necessary stakeholders are almost involved, though, it would be better to strengthen the involvement in particular of CMM headquarters.

Until now some of the key persons at the financial section of CMM headquarters have participated time to time in the discussion with the Project CP and experts. In order to secure appropriate amount of budget on solid waste management, it would be better for the headquarters to be involved more from the planning

phase at DMGRSUS.

3-1-5 Advantage of Japanese technologies

Japan has accumulated various experiences and lessons in the field of solid waste management including 3R activities. The Project took advantage of these experiences and lessons.

In addition, Japan has experienced technical cooperation projects in other countries on solid waste management. Lessons learned from the other projects can be also utilized for implementation of the Project.

3-2. Effectiveness

The effectiveness of the Project is high.

The Project has been producing tangible results through high commitment of the counterpart organization and experts.

3-2-1 Progress of Project purpose and outputs

Among the four Output areas, there has been steady progress in Output 1, 2, 3 and 4 at the time of the Mid-term Review, and the Project Purpose is also on the right track. The pilot projects on Output 2 and 4 are planned to be accelerated in the latter half of the Project period.

3-2-2 Contribution factors

1) Training in Japan

The trainings provided the participants with the opportunities to observe actual solid waste management in Japan from various aspects such as legal/regulation, local government's roles, 3R activities, and others. The observation and learnings in Japan produced positive effects in their workplace after returned. The representative example is to establish "office of civic education" in the DMGRSUS because they realized the importance of civic education for solid waste management. Considering the fact that the newly established office has actively and effectively worked in the field for local people, it is highly evaluated the effectiveness of the training in Japan.

2) Recognition of high level personnel of CMM

The mayor of CMM and councilors of the city government have been the strong supporters of the Project with high recognition of the importance of the Project activities. The mayor frequently made speeches on the importance of solid waste management including the 3R concept in the several occasion of city events. It is possible that these announcement effects have contributed to enhancing local people's recognition on 3R gradually.

3) Relationship between Mozambican counterparts and Japanese experts

Through mutual efforts and sincere commitment to the Project activities, Mozambican counterparts and Japanese experts have formulated tight and reliable relationship. Such team-working environment is one

of the contribution factors to steadily progress the Project activities until now.

3-2-3 Inhibition factors

There are no crucial inhibition factors for achievement of the Project purpose and outputs.

Although followings are not inhibition factors, the evaluation team takes notes regarding the schedule issues.

1) New assignment of contractor for solid waste collection

Since the new contractor was assigned for solid waste collection, the Project suspended for a while to commence the pilot project. The judge of schedule adjustment was made because new contractors in general would show a better performance in the beginning period of the contract, therefore, it would be better to monitor after commencement of the works for a while.

The evaluation team sees it reasonable adjustment.

2) Adjustment of schedule between CP and experts

Relatively longer period of CP's leaves/vacation sometimes coincides with the Japanese experts' assignment period in Mozambique. It would be ideal to avoid such overlapping period through mutual coordination in advance.

3-3. Efficiency

Efficiency of the Project is high.

Manpower inputs from both Japanese and Mozambican side contributed to achievement of outputs. Trainings in particular are also functioning to enhance the Project's effectiveness.

3-3-1 Manpower inputs

1) Japanese manpower input

Manpower inputs from Japanese side in terms of the number and expertise are evaluated appropriate. The inputs are well balanced corresponding to the four types of Outputs' requirements.

The relatively limited assignment period of experts in Mozambique has been well managed owing to each expert's supplement efforts one another.

2) Mozambican manpower input

Manpower inputs from Mozambican side in terms of the number and expertise are evaluated appropriate. Key persons of the Project activities have been assigned from each key department.

3) Other manpower input

The Project effectively made manpower inputs of local consultants in social survey, impact survey and others. The knowledge and experiences of university, Universidade Eduardo Maondlane, on compost making are contributing to implementation of the pilot project.

3-3-2 Material inputs

Material inputs in the Project are two vehicles and some necessary equipment such as office materials, kit tools for compost making, etc. It is evaluated reasonable inputs for the Project implementation.

3-3-3 Complementary effects and duplication of activities

The Project has kept good communication with the World Bank project, PROMAPUTO II, which provides budget support to Maputo city in solid waste management. Towards improvement of solid waste management in the city, the PROMAPUTO II supports financial aspect, while the Project does capacity development aspects. In this line, there are complementary effects in such a big picture.

It is noted, however, there have been no direct collaborative actions between two projects such as joint workshops, trainings etc.

On the other hand, there are no duplicated activities observed.

3-4. Impact (prospect)

Impact of the Project is relatively high.

Impacts on organizational aspects are observed in the organizational aspect until the Mid-term review. Impacts on other aspects are expected to be observed in the latter half of the Project period.

3-4-1 Positive impact

Impacts on organizational aspect are observed.

Training in Japan led to establishment of “office of civic education” in DMGRSUS.

The office has actively been working as follows:

- The office has been frequently invited by other directorates of the city government such as health, transportation and economy, and asked to give presentations and/or instructions to local people in their campaign activities. Their presence has contributed to enriching the campaign’s effects from the viewpoint of local people’s involvement.
- The office has visited 46 primary schools/junior schools to offer environmental education since its establishment in December 2013. The number of school visits increased much more than before establishment of the office in DMGRSUS.

3-4-2 Negative impact

There are no negative impacts observed.

3-5. Sustainability (prospect)

At the time of the Mid-term Review, it is difficult to foresee the prospect of the Project’s sustainability. Ensuring and increasing the sustainability depends on continuous efforts by the Mozambican side.

3-5-1 Policy aspect

1) Prospects of policy direction

It is highly possible for the CMM to keep placing importance on solid waste management including 3R activities under the rapidly expansion of urban population.

The present mayor of the Maputo city and several councilors have high recognition on solid waste issues and give frequently supportive presentations. These also would be a part of positive signs in the sustainability of policy aspect.

2) Legal/regulation aspect

Although the strategy on solid waste management was already made by MICOA, the detailed legislative preparations are now necessary as the next step for promoting efficient management including 3R activities. Responsibilities on each step of disposal and cost burden among government, private companies and local people have to be clarified in the law/regulation.

3-5-2 Organizational aspect

From the viewpoint of structure and the number of allocated staffs in the directorate, the current DMGRSUS has the almost reasonable organizational capacity at this moment.

However, as the 3R activities are disseminated in the mid-long run, the specific section on 3R would be possibly required.

Also, in order to enhance the technical capability of the directorate, it is ideal to have more staffs with the academic background of environmental engineering, sanitary engineering, chemistry and/or related academic fields.

3-5-3 Technical aspect

Looking at the development of technical capacity of DMGRSUS, a certain level of sustainability is confirmed as of the Mid-term review. Nearly all the technical aspects that the Project has targeted, which are categorized by the four types of output in PDM, namely, capacity of analysis, collection and transportation, financial management, and 3R introduction with approach method to local people, are gradually enhanced until now.

Further enhancements are depending on all the staffs' efforts with collaborative actions with experts.

3-5-3 Financial aspect

As of the Mid-term review, the cleaning tax is planned to be raised by 30% from the year of 2015. It would give great impacts on the revenue. In addition, the revised database of waste producers in large scale would contribute to increasing the revenue as well. Such positive signs are confirmed in the financial sustainability's viewpoint.

3-6. Conclusions

Maputo city has been facing the challenges to manage solid waste efficiently and effectively particularly

for these years, while the population of the city has been rapidly increasing along with growth of solid waste. The Project is meeting with such needs of the CMM from the aspect of capacity development of DMGRSUS staffs. The importance of proper solid waste management is also stressed by the environmental policy and strategies. The relevance of the Project is high in this line.

The Project has worked on the analysis of the current situation of solid waste management in the CMM. Through the analysis and a series of field surveys, the expected Outputs, namely, capacity of analysis, collection and transportation, financial management, and 3R approaches were enhanced in the counterparts of DMGRSUS. Effectiveness as of the Mid-term review is evaluated high.

Efficiency is also evaluated high since inputs of manpower and material are appropriate for implementation of the Project.

Impact as of the Mid-term review is observed in the new establishment of civic education office in DMGRSUS after they returned from the training in Japan. The staffs of the office are now working not only for DMGRSUS but also for other directorates' activities such as their special campaigns and events. Efforts of the DMGRSUS's staffs during the latter half of the Project will determine the sustainability, though there are some positive signs to enhance sustainability. The representative example is to raise the cleaning tax by 30% from 2015.

Overall, it is evaluated that the Project has been progressing well enough as of the Mid-term review.

4. Recommendations

(1) Primary Activities in the Latter Half of the Project

Through the interview to C/P staffs, the following items were raised as the activities to which C/P staffs showed a strong intention to commit;

Items	Related Output No.
1) Steadily finalizing a master plan	1
2) Skills of data collection and analysis	1,2,3,4
3) Promotion of 3R activities to citizen	1,2,4
4) Cross-checking records from contracted enterprises with verifiable data	2
5) Comprehension and management of performance of contracted enterprises collection and transportation	2
6) Gaining Ability to plan a budget appropriately (not only individual ability but also institutional ability)	3
7) Measures to increase revenue such as update of data-base on large-scale waste producers	3
8) Clarifying a fundamental cost for routine operation	3
9) Preparation of guidebook of environmental education for teachers	4
10) Development of public awareness strategy	4

All of the above-mentioned 10 activities are fundamental elements to achieve improvement of capacity of DMGRSUS/CMM. Therefore the Japanese Expert Team should regard them as the primary activities of technical transfer in this Project.

(2) Pilot Projects

For each pilot project, the following matters should be examined in the implementation process of pilot projects and then reflected into the Master Plan and the Action Plan.

- 1) Introduction of recyclable collection: Examination of results which associates with consideration of cost and work volume if DMGRSUS should adapt the most effective incentive measure into an actual mean.
- 2) Improvement of waste collection and transportation (under planning): Raising DMGRSUS's capacity in managing performance of contracted enterprises including monitoring and instruction. Retaining constantly accurate data regarding amount of collection and transportation.
- 3) Utilization of organic waste: Taking root of separation of organic waste. Getting rid of expectation of "compost" as fertilizer and utilization as soil conditioner. Clarification of limitations and reflection of them into the Master Plan.
- 4) Expansion of recycle activities (under planning): Expansion of existing initiatives. Establishment of relationships among stakeholders and reinforcement of DMGRSUS's coordination.

(3) Raising Public Awareness

- 1) The team recommends CMM/DMGRSUS should continuously plan targets, methodologies, and corresponding actions for public awareness raisings with a support from Japanese Expert Team, thereby building a more robust trust relationship with citizens. Such actions include campaigns regarding improvement of residents' behavior in discharge and separation as well as 3R.
- 2) The team also recommends that CMM/DMGRSUS should give a detail explanation to citizens when cleaning tax is raised, including explanation of a concept of benefit principle, thereby promoting citizens' understanding.

(4) Suggestion of Third-country Training in 2015

Training in Japan provided significant implication to DMGRSUS and had a positive impact toward their operation. At the moment, training in Japan is planned again in the third year (2015). However, attention should be taken to the fact that Mozambique and Japan have many differences in social and cultural systems or in a scale of economics. Also, cost-efficiency and language barriers should be taken into account. Besides, it is confirmed that there are wills from some of C/P staffs to observe practices in other country besides Japan. In this regard, the Team recommends replacing training in Japan in 2015 to a third country training.

(5) More Effective and Workable Budget Process

Financial section of DMGRSUS and financial department of CMM should liaise with each other more for

more effective and workable budget process.

(6) Dissemination of knowledge and skills to other cities

The experience and know-hows that C/P are now obtaining through the Project, namely; ones related to developing a Master Plan or an Action Plan, improving financial management, promotion of 3R activities etc., will be needed in other cities for their better solid waste management in the future. DMGRSUS/CMM is recommended to transfer the knowledge and skills to other cities in collaboration with the MICOA, FUNAB and related institutions.

(7) Incorporating knowledge obtained in the Project to the revised PNA

In revising National Environmental Policy (hereinafter referred to as PNA) by MICOA, the Team confirmed that CMM plays an important role in commenting from the practical point of view. It is recommended to keep this collaboration in revising PNA and to reflect the experience and know-hows gained in the Project such as promotion of sustainable 3R activities.

(8) Legal basis for promotion of 3R activities

- 1) In Mozambique there is a strategy to promote 3R, but there is no specific legal basis to promote it. Under these circumstances, responsibility of different stakeholders are not clearly defined. It is desired that Mozambican side should elaborate a legal basis for promotion of 3R.
- 2) Especially it is recommended CMM should review the existing ordinances and include a specific legal basis to promote 3R Activities.

(9) Continuation of the construction process of the new sanitary landfill site in Matola

The construction of a new sanitary landfill site in Matola is an essential factor which will have an impact on solid waste management in Maputo as addressed in the M/P. Mozambican side, especially MICOA and FUNAB should continuously push forward the process and complete the construction of the new sanitary landfill site.

(ANNEXES)

Annex 1: PDM version 2.0 used for the Mid-Term Review

Annex 2: Plan of Operation used for the Mid-Term Review

Annex 3: Record of JCC

Annex 4: Dispatch of International Experts

Annex 5: List of Seminars and Workshops Organized in Mozambique

Annex 6: List of Machinery and Equipment Provided by JICA

Annex 7: List of Counterpart Personnel in Mozambique

Annex 8: Participants of Training in Japan (2013)

Annex 9: Schedule

Project Design Matrix (PDM)

ANNEX 1

Project Title: The Project for Promotion of Sustainable 3R Activities in Maputo
 Duration of the Project: 4 years
 Target Group: Municipal Council of Maputo (CMM) and people living in Maputo City
 Target Area: Maputo City (excluding Katembe and Kanyaka)

Version 2.0
 Date: 27 June 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal</p> <p>The urban environmental and living condition in Maputo City is improved.</p>	<p>1) Amount of inadequate waste disposal is decreased. -> Definition of "adequate waste disposal" will be discussed and determined when the MIP would be updated in 2017. 2) Amount of final waste disposal per person is decreased.</p>	<p>1,2) Report of CMM -> Clear contents of the report shall be discussed during the project.</p>	
<p>Project Purpose</p> <p>Capacity for Solid Waste Management (SWM) in CMM is improved.</p>	<p>1) The MIP for post-termination of the Project is approved by CMM. 2) XX (number) components of 3R system are proposed in Maputo City. -> Definition of "3R system" shall be discussed and determined during the project. 3) A guideline of SWM for Maputo City, a draft of MIP for post-termination of the Project, the Action Plan toward 2021 are developed.</p>	<p>1) Minutes of Municipal Council (Approval of MIP) 2) Project Report</p>	<ul style="list-style-type: none"> The current policies and laws for SWM in Maputo City will not change drastically. The CMM will secure the enough budget to continue the activities proposed in the Project.
<p>Outputs</p> <p>1. Capacity to analyze the current status of SWM in CMM is improved.</p>	<p>1) CMM understands progress and differences of the current MIP. 2) CMM understands public perception about SWM.</p>	<p>1) Updated MIP 2) Social survey about public perception -> Through the obtaining these means, it shall be considered how to measure the understanding of above indicators quantitatively.</p>	<p>The Mozambican counter personnel of the Project will not change their position dramatically during the Project term. Stakeholders will not oppose to the implementation of each Pilot Projects.</p>

<p>2. Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.</p>	<p>1) Amount of collection and transportation of solid waste is increased by XX%. -> It shall be determined when the future projection of waste generation would be done at the stage of M/P updating. 2) Number of Bairros where recyclable collection of solid waste is continually implemented is increased to XX (number). -> Definition of "recyclable collection" will be determined in 2nd year. 3) Rate of broken container is decreased by XX%. 4) Number of container adequately allocated is increased to XX (number). -> These will be carefully discussed based on the monitoring result on waste container collection.</p>	<p>1) Project report / annual monitoring report of DMGRSUS (to describe solid waste collection and transportation amount quoting from weightbridge report). 2) Project report / annual monitoring report of DMGRSUS (to measure the number of Bairros to implement recyclable collection). 3,4) Project report / annual monitoring report of DMGRSUS</p>
<p>3. Capacity for financial management of SWM in CMM is improved.</p>	<p>1) Financial operation procedure is shared with official document. 2) Revenue baseline data is regularly collected and reported. 3) Budget is planned by considering the variance between budget execution and budget plan of the previous year.</p>	<p>1) Financial operation manual 2) Annual financial report 3) Annual budget planning report</p>
<p>4. 3R activities for reduction of solid waste (including private sector) is introduced in project target area.</p>	<p>1) Educational material about 3R is developed. -> Types of "educational material" shall be discussed in 2nd year. 2) New office for civic education is established in DMGRSUS. 3) Amount of material recovery in the Pilot Project area is increased by XX%. 4) Amount of compost in the Pilot Project area is increased by XX%. -> Detail value of indicators shall be discussed and determined in the Pilot Project designing stage in 2nd Year</p>	<p>1) Project Report / Annual Report of CMM 2) Establishment of a new office for civic education and its activity report. 3,4) Project Report / Annual Report of CMM</p>

Activities	Input
<p>1-1 Review the existing MIP and identify differences compared to actual situation.</p> <p>1-2 Collect and review latest information and data of waste quantity and composition and final disposal volume.</p> <p>1-3 Update the existing MIP.</p> <p>1-4 Develop an Action Plan for the project period based on the updated MIP.</p> <p>1-5 Develop a guideline of SWM for Maputo City.</p> <p>1-6 Set a target of SWM for post-termination of the Project and develop a draft of MIP.</p> <p>1-7 Develop the Action Plan toward 2021.</p>	<p>1. Japanese Side</p> <ul style="list-style-type: none"> (a) Dispatch of Experts <ul style="list-style-type: none"> - Chief Advisor / Solid Waste Management - Solid Waste Collection and Transportation - 3R Planning - Environmental Public Awareness Raising / Capacity Development - Financial Management Development (b) Vehicle (c) Equipment and Materials necessary for the Pilot Projects and Public Awareness Raising (d) Counterpart Training in Japan (2-3 counterpart personnel (C/Ps) x twice)
<p>2-1. Review the situation of waste collection and transportation in Maputo City.</p> <p>2-2. Develop a plan for a Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area.</p> <p>2-3. Implement the Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area.</p> <p>2-4. Review and feedback the result of the Pilot Project conducted in Activity 2-3.</p> <p>2-5 Based on the result of Activity 2-1, a plan for a Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs is planned.</p> <p>2-6. Implement the Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs planned in Activity 2-5.</p> <p>2-7. Review and feedback the result of the Pilot Project conducted in Activity 2-6.</p> <p>2-8. Develop the Action Plan for improvement of waste collection and transportation.</p>	<p>2. Mozambican Side</p> <ul style="list-style-type: none"> (a) Assign of Counterpart Personnel (C/Ps) (b) Facilities and Equipment Necessary for the Project implementation (c) Office Space for the Japanese Experts (d) Necessary Expenses for the Activities <ul style="list-style-type: none"> - Salaries and Other Allowance for Government Officials - Expenses for Utility such as Electricity, Water Supply, and Gas Fuel - Operational Expenses for Customs Clearance, Storage and Domestic Transportation
<p>3-1. Review and analyze the current financial management of SWM to identify problems.</p> <p>3-2. Collect periodical data on tax-and-spend of wastes every month.</p> <p>3-3. Enter the data and calculate annual budget and monthly expense.</p> <p>3-4. Develop annual financial report.</p> <p>3-5. Develop annual budget planning.</p> <p>3-6. Review the waste service fee.</p> <p>3-7. Develop the Action Plan for improvement of the financial management.</p>	

4-1. Review the current status of recycling activities for recyclable materials (waste papers, glass, metals, and plastics) and organic wastes.

4-2. Study possibility for recycling of materials (including cooperation with waste pickers).

4-3. Review and improve public awareness raising programs for 3R introduction.

4-4. Implement improved programs for 3R introduction.

4-5. Develop a plan for a Pilot Project for promotion of recycling activities (cooperation with private sector) based on the results of Activity 4-2.

4-6. Implement a Pilot Project for expansion of the recycling activities (cooperation with private sector) based on the result of Activity 4-2.

4-7. Review the result of the Pilot Project in Activity 4-6, and develop a plan for promotion of the Pilot Project.

4-8. Develop a plan for a Pilot Project for the utilization of organic waste.

4-9. Implement the Pilot Project for the utilization of organic waste.

4-10. Review the result of the Pilot Project in Activity 4-9, and develop a plan for promotion of organic waste utilization.

4-11. Develop the Action Plan for expansion of the Pilot Project for valuables recycling and organic waste utilization.

Pre-Conditions
 The CIMM will secure the enough budget to implement the Project.

Plan of Operation (PO): Revision after 3rd JCC	Actual Progress			Schedule														
	Activity			2013			2014			2015			2016			2017		
	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR	6TH YEAR	7TH YEAR	8TH YEAR	9TH YEAR	10TH YEAR	11TH YEAR	12TH YEAR	13TH YEAR	14TH YEAR	15TH YEAR	16TH YEAR	17TH YEAR	
Output 1. Capacity to analyze the current status of SWM in Maputo Municipality is improved.																		
1-1 Review the existing MAP and identify differences compared to actual situation.																		
1-2 Collect and review latest information and data of waste quantity and composition and final disposal volume																		
1-3 Update the existing MAP.																		
1-4 Develop an Action Plan for the project period based on the updated MAP.																		
1-5 Develop a guideline of SWM for Maputo City.																		
1-6 Set a target of SWM for post-termination of the Project and develop a draft of MAP.																		
1-7 Develop the Action Plan toward 2021.																		
Output 2. Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.																		
2-1 Review the situation of waste collection and transportation in Maputo City.																		
2-2 Develop a plan for a Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area.																		
2-3 Implement the Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area.																		
2-4 Review and feedback the result of the Pilot Project conducted in Activity 2-3.																		
2-5 Based on the result of Activity 2-1, a plan for a Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs is planned.																		
2-6 Implement the Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs planned in Activity 2-5.																		
2-7 Review and feedback the result of the Pilot Project conducted in Activity 2-6.																		
2-8 Develop the Action Plan for improvement of waste collection and transportation.																		
Output 3. Capacity for financial management of SWM in CJMM is improved.																		
3-1 Review and analyze the current financial management of SWM to identify problems.																		
3-2 Collect periodical data on tax-and-spend of wastes every month.																		
3-3 Enter the data and calculate annual budget and monthly expense.																		
3-4 Develop annual financial report.																		
3-5 Develop annual budget planning.																		
3-6 Review the waste service fee.																		
3-7 Develop the Action Plan for improvement of the financial management.																		
Output 4. JRC activities for reduction of solid waste (including private sector) is introduced in project target area.																		
4-1 Review the current status of recycling activities for recyclable materials (waste papers, glass, metals, and plastics) and organic wastes.																		
4-2 Study possibility for recycling of materials (including cooperation with waste pickers).																		
4-3 Review and improve public awareness raising programs for JRC introduction.																		
4-4 Implement improved programs for JRC introduction.																		
4-5 Develop a plan for a Pilot Project for promotion of recycling activities (cooperation with private sector) based on the result of Activity 4-2.																		
4-6 Implement a Pilot Project for expansion of the recycling activities (cooperation with private sector) based on the result of Activity 4-2.																		
4-7 Review the result of the Pilot Project in Activity 4-6, and develop a plan for promotion of the Pilot Project.																		
4-8 Develop a plan for a Pilot Project for the utilization of organic waste.																		
4-9 Implement the Pilot Project for the utilization of organic waste.																		
4-10 Review the result of the Pilot Project in Activity 4-9, and develop a plan for promotion of organic waste utilization.																		
4-11 Develop the Action Plan for expansion of the Pilot Project for valuable recycling and organic waste utilization.																		
Evaluation																		

Note: After the 3rd JCC, it was confirmed by JICA headquarters and JICA project team that the mid-term review will be carried out in November, 2014, shifted from February 2015 which was planned in the original PO.

Annex 3 Record of Joint Coordinating Committee (JCC)

(1) JFY 2012 and 2013 (February 2013 - March 2014 : 1st Year)

No.	Venue	Date	Issues Discussed/Agreed	
1	1st JCC	DMGRSUS	1 April 2013	Work Plan of the Project
2	2nd JCC	DMGRSUS	31 July 2013	Preliminary Review Result of Current Situations in the M/P 2007 Preliminary Result of Capacity Survey Review of Indicators of PDM Draft Capacity Development Plan Future Activity Schedule

(2) JFY 2014 (April 2014 - March 2015 : 2nd Year)

No.	Venue	Date	Issues Discussed/Agreed	
1	3rd JCC	DMGRSUS	9 June 2014	Report of Progress of the 1st Year Activities Introduction of Action Plan during the Project Period Proposal for Modification of PDM Explanation of Work Plan of 2nd Year Activity
2	4th JCC	DMGRSUS	27 November 2014	Mid-term review and Agreement on recommendation by the review team

ANNEX 4: Dispatch of International Experts

Name	Title	Period of Assignment
Shungo SOEDA/ Mr.	Chief Adviser/ Solid Waste Management	2013: 18/Mar. – 26/Apr., 19/Jun. – 8/Aug., 6/Nov. – 10/Dec., 2014: 16/Jan. – 14/Feb., 8/May – 13/Jun. 2/Nov. up to 27/Nov.
Takahiro KAMISHITA/Mr.	Deputy Chief Adviser/ Solid Waste Collection and Transportation	2013: 18/Mar. – 11/Apr., 22/Apr. – 10/Jun., 15/Sep. – 16/Oct., 2014: 6/Feb. – 5/Mar., 2/Jun. – 16/Jul.
Kenji IGARASHI/ Mr.	3R Planning	2013: 21/Apr. – 10/Jun., 7/Oct. – 15/Nov., 2014: 13/Jan. – 19/Feb., 9/Jun – 9/Jul. 28/Oct. up to 27/Nov.
Akiko ABE/Ms.	Civic Education/ Social Survey	2013: 19/Mar. – 24/Apr., 3 - 8/Jun., 24/Jun. – 6/Jul., 22/Jul. – 9/Aug., 19 - 21 and 26 - 31/Aug., 2 - 4/Sep. 27/Sep. – 8/Oct., 2014: 6 - 30/Jan., 10 – 14/Feb.
Choshin HANEJI/Mr.		2014: 23/Aug. – 1/Oct.
Grace Marco NEPTUNO/Ms.	Financial Management Development	2013: 2/Apr. – 16/May, 29/Jun. – 12/Aug., 2014: 21/Jan. – 8/Mar., 4/Nov. up to 27/Nov.
Tomoyuki HOSONO/Mr.	Impact Evaluation	2013: 29/Jun. – 27/Jul., 25/Oct. – 30/Nov. 2014: 8/May – 13/Jun., 5/Aug. – 20/Sep. 11/Nov. up to 27/Nov.
Ryu KOIDE/Mr.	Project Coordinator/ 3R Planning and Impact Analysis II	2013: 18/Mar. – 30/May, 2014: 3/Feb. – 5/May., 8/May – 11/Jun. 7/Sep. – 25/Oct.

Annex 5 List of Seminars and Workshops Organized in Mozambique

1) Project Overall

01 April 2013	JCC	1st JCC	Project Presentation
02 April 2013	External Meeting	Projects Presentation at CMM	Project Presentation
31 Jul 2013	JCC	2 nd JCC	Confirm progress of Project activity Discuss future Project activity
9 Jun 2014	JCC	3 rd JCC	Confirm progress of Project activity Discuss future Project activity

2) Output 1

14 July 2014	Presentation Meeting	Workshop (waste composition)	Training in Excel Sheet for the waste amount composition computation
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3) Output 2

7 June 2014	Workshop	Community Meeting in Chamanculo D	Explanation and discussion of the source separation the P/P Distribution of leaflet
14 June 2014	Workshop	Community Meeting in Chamanculo D	Explanation and discussion of the source separation the P/P Distribution of leaflet
24 June 2014	Workshop	Educational meeting to school students about P/P	Explanation of the source separation the P/P Distribution of leaflet
8 July 2014	Workshop	Educational meeting to school students about P/P	Explanation of the source separation the P/P Distribution of leaflet
15 July 2014	Workshop	Educational meeting to school students about P/P	Explanation of the source separation the P/P Distribution of leaflet

4) Output 3


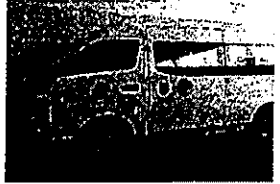
4-1) 3R

28 Nov 2013	Workshop	1 st Workshop for 3R (Waste flow)	Discussion with participants to collect data and information on Waste flow
17 Feb 2014	Workshop	2 nd Workshop for 3R (Waste flow)	Discussion with participants to collect data and information on Waste flow
2 July 2014	Workshop	3rd Workshop for 3R (Promotion of 3R)	- 2 nd Project year activities - Organic waste reduction PP - Material Flow

4-2) Civic Educations

12 Jul. 2013	Workshop	Civic Education Program	Discussion with stakeholders on Civic Education Program
02 – 04 Sep 2013	Campaign	Civic Education Program	Civic Education Campaign
08 Jan 2014	Campaign	Cleaning Campaign	Cleaning campaign in beach, Costa de Sol

ANNEX 6 List of Machinery and Equipment Provided by JICA

No.	Name of equipment	Model	Manufacturer	Original Quantity	Location	Photo
1	car	Hardbody 2.5 Double Cab 4WD	NISSAN	1	DMGRSUS	
2	Car	Urban 2.5TDi 15 Seats 4x2	NISSAN	1	DMGRSUS	

ANNEX 7 List of Counterpart Personnel in Mozambique

Name of Counterpart	Position/Department	Related Output
Florentino Abílio Geraldes Ferreira	City Councilor of Solid Waste Management	Project Director
João Agostinho Mucavele	Director, Municipal Directory of Urban Solid Waste Management	Project Manager 1, (2,3,4)
Luiza Langa Bila	Coordinator of the Planning and Monitoring Department	1, (2,3,4)
Sergio Manhique	Head of Distribution Monitoring & Quality Control	1,3
Martins Mandlate	Head of Department of Urban Solid Waste Management	2, (1)
Mariamo Stela	Coordinator of Cleaning campaigns, Reporting activities, analysis and processing of Hulene	2, (4)
Anselmo Salvador Inguane	Manager of secondary collection contracts	2
Euridia Isabel	Coordinator Collect primary activities in the suburban area	2,4
Florencia Francisco	Coordinator of Civic Education activities and secondary Collection	2,4
Ludite Sara	Coordinating the activities of Environmental Education in Schools 3Rs hierarchy/ Monitoring of Master Plan and protective social reintegration into civil society of collectors	4
Rute Massingue	Coordinating the activities of Environmental Education in Schools 3Rs hierarchy/ Monitoring of Master Plan and protective social reintegration into civil society of collectors	4
Carlos Siteo	Budgetary planning and investment	3
Rosa Paulo Chissico	RAF income management	3

ANNEX 8 Participants of Training in Japan (2013)

Name of Counterpart	Position/Department	Related Output
Florentino Abilio Geraldes Ferreira	City Councilor of Solid Waste Management	Project Director
João Agostinho Mucavele	Director, Municipal Directory of Urban Solid Waste Management	Project Manager 1, (2,3,4)
Sergio Manhique	Head of Distribution Monitoring & Quality Control	1,3
Martins Mandlate	Head of Department of Urban Solid Waste Management	2, (1)
Anselmo Salvador Inguane	Manager of secondary collection contracts	2
Euridia Isabel Cesar Sithoy	Coordinator Collect primary activities in the suburban area	2,4
Florencia Francisco Martins	Coordinator of Civic Education activities and secondary Collection	2,4
Rosa Paulo Chissico	RAF income management	3

ANNEX 9 Schedule

Date		Kazunao Shibata JICA Global Env. Dep.	Ken Okumura JICA Global Env. Dep.	Jun Totsukawa Evaluation and Analysis Consultant
11	Tue			18:25 Dep. Narita
12	Wed			10:45 Arr. Maputo PM Meeting with JICA office staff Interview to Mr. Soeda (Nippon Koei), chief of JICA Expert team
13	Thu			Interview to each JICA expert
14	Fri			Interview to C/Ps
15	Sat			
16	Sun			
17	Mon			Interview to C/Ps (continued)
18	Tue			Meeting with JICA Expert
19	Wed		16:25 Dep. Haneda	Report drafting
20	Thu		10:45 Arr. Maputo PM Internal Meeting	AM Report drafting PM Internal Meeting
21	Fri	18:25 Dep. Narita	9:00-11:00 Meeting with Mr. Joao Agostinho Mucavele and Ms. Luisa Langa Bila to explain preliminary result of Review 13:30-15:00 Meeting with Mr. Mucavele and Mr. Sergio Manhique on revising indicators of PDM	
22	Sat	10:45 Arr. Maputo		
		Site Visit to Suburb Area, Hulene dumping site, Recycling Activity by Cooperative, Internal Meeting		
23	Sun	Site Visit to Central Area, Eduardo Mondlane University, Internal Meeting		
24	Mon	9:00-12:00 Discussion with C/Ps on Minutes of Meetings (M/M) and Report		
		14:00-15:00 Courtesy Call to Project Director (Mr. Florentino Ablio Ferreira)		
		15:15-16:30 Discussion with the World Bank PROMAPUTO II mission		
25	Tue	8:00-12:00 Discussion with C/Ps on M/M and Report, revising indicators of PDM		
26	Wed	AM JICA Mission conduct site visit of Endline survey in Chamanclo D Bairro		
		13:00-14:00 Finalizing M/M and Report among Joint Review Team		
27	Thu	8:30-11:30 Joint Coordination Committee and Signing of M/M Report to JICA office		
28	Fri	11:30 Dep. Maputo		
29	Sat	19:15 Arr. Haneda		20:15 Arr. Narita

Project Design Matrix (PDM)

Project Title: The Project for Promotion of Sustainable 3R Activities in Maputo
 Duration of the Project: 4 years
 Target Group: Municipal Council of Maputo (CMM) and people living in Maputo City
 Target Area: Maputo City (excluding Kalambo and Kanyata)

APPENDIX III

Version 3.0
 Date: 27 November 2014

Narrative Summary	Objectively Verifiable Indicators	Objectively Verifiable Indicators (revised)	Means of Verification	Important Assumption
<p>Overall Goal</p> <p>The urban environmental and living condition in Maputo City is improved.</p>	<p>1) Amount of inadequate waste disposal is decreased. -> Definition of "adequate waste disposal" will be discussed and determined when the MP would be updated in 2017. 2) Amount of final waste disposal per person is decreased.</p>	<p>1) Amount of inadequate waste disposal (1) is decreased. 2) Amount of final waste disposal per person is decreased. 3) Amount of collected recyclables is increased. 4) Rate of residents who understand the definition of 3R and embrace 3R activities increases from X% in 2017 to X% in 2020. 5) Satisfaction of citizens for solid waste management is increased.</p>	<p>1) 2) 3) 4) 5) Annual Social Survey of CMM -> Clear contents of the report shall be discussed during the project.</p>	
<p>Project Purpose</p> <p>Capacity for Solid Waste Management (SWM) in CMM is improved.</p>	<p>1) The MP for post-termination of the Project is approved by CMM. 3) A guideline of SWM for Maputo City, a draft of MP for post-termination of the Project, the Action Plan toward 2021 are developed.</p>	<p>1) The MP for post-termination of the Project including plans to promote sustainable 3R activities is approved by CMM. 2) Results of capacity assessment achieve at X point of 5 scale evaluation. 3) Workshops to share and examine details of the Guideline, the Action plan, and the MP for post-termination of the Project, are held among related authorities and stakeholders at least 2 times during the Project period. 4) Guidelines of SWM for Maputo city are approved by CMM.</p>	<p>1) 4) Minutes of Municipal Council (Approval of MP) 2) Capacity Assessment sheet 3) Project Report</p>	<ul style="list-style-type: none"> The current policies and laws for SWM in Maputo City will not change drastically. The CMM will secure the enough budget to continue the activities proposed in the Project.
<p>Outputs</p> <p>1. Capacity to analyze the current status of SWM in CMM is improved.</p>	<p>1) CMM understands progress and differences of the current MP. 2) CMM understands public perception about SWM.</p>	<p>1) CMM understands progress and differences of the current MP. 2) CMM understands current status about SWM.</p>	<p>1) Updated MP 2) Social survey, waste quantity & composition survey, time & mission survey, current situation survey -> Through the obtaining these means, it shall be considered how to measure the understanding of above indicators quantitatively.</p>	<p>The Mozambican counterpart personnel of the Project will not change their position dramatically during the Project term. Stakeholders will not oppose to the implementation of each PDM Projects.</p>
<p>2. Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.</p>	<p>1) Amount of collection and transportation of solid waste is increased by XX%. -> It shall be determined when the future projection of waste generation would be done at the stage of MP updating. 2) Number of Baimos where recyclable collection of solid waste is continuously implemented is increased to XX (number). -> Definition of "recyclable collection" will be determined in 2nd year. 3) Rate of broken container is decreased by XX%. 4) Number of container adequately allocated is increased to XX (number). -> These will be carefully discussed based on the monitoring result on waste container collection.</p>	<p>1) Amount of collection and transportation of solid waste is accurately monitored by CMM and mission data or discrepancy with data reported by the large-scale contractors is less than X % of the total amount. 2) Number of Baimos where recyclable collection of solid waste is continuously implemented is increased to at least 1. 3) Number of instructions to large-scale contractors is more than X times. 4) Number of claims relative waste collection from the residents in Maputo city decreases 20 %.</p>	<p>1) Project report / annual monitoring report of DMGRSUS (to describe solid waste collection and transportation amount (quoting from weighbridge report). 2) Project report / annual monitoring report of DMGRSUS (to measure the number of Baimos to implement recyclable collection). 3.4) Project report / annual monitoring report of DMGRSUS</p>	

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<p>3. Capacity for financial management of SWM in CIAM is improved.</p> <p>4. 3R activities for reduction of solid waste (including private sector) is introduced in project target area.</p>	<p>1) Financial operation procedure is shared with official document. 2) Revenue baseline data is regularly collected and reported. 3) Budget is cleared by considering the variance between budget execution and budget plan of the previous year.</p> <p>1) Educational material about 3R is developed. → Types of educational material shall be discussed in 2nd year. 2) New office for civic education is established in DMGRSUS. 3) Amount of material recovery in the Pilot Project area is increased by XX%. 4) Amount of compost in the Pilot Project area is increased by XX%. → Detail value of indicators shall be discussed and determined in the Pilot Project designing stage in 2nd Year</p>	<p>1) Financial operation procedure is shared with official document. 2) Basic Revenue and Cost data is regularly collected and reported. 3) Annual budget execution rate reaches to 100% ± 15% in 2015 and 2016. 4) Sustainable financial management strategy for SWM sector is developed.</p> <p>1) Educational material about 3R is developed. 2) New office for civic education is established in DMGRSUS. 3) (Number) schools conduct civic education related 3R. 4) Participation rate of households who conducted separation of recyclables in the PP area is doubled. 5) 50% of households who participated the PP for utilization of organic waste continues the activity. 6) Number of participants from private sector in 3R workshops is increased to XX(number).</p>	<p>1) Financial operation manual 2) Annual financial report 3) Annual budget planning report 4) Sustainable financial management strategy for SWM sector</p> <p>1) 2) 3) 4) 5) Project Report / Annual Report of CIAM</p>
<p>Activities</p> <p>1-1 Review the existing MP and identify differences compared to actual situation. 1-2 Collect and review latest information and data of waste quantity and composition and final disposal volume. 1-3 Update the existing MP. 1-4 Develop an Action Plan for the project period based on the updated MP. 1-5 Develop a guideline of SWM for Maputo City. 1-6 Set a target of SWM for post-implementation of the Project and develop a draft of MP. 1-7 Develop the Action Plan toward 2021.</p> <p>2-1. Review the situation of waste collection and transportation in Maputo City. 2-2. Develop a plan for a Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area. 2-3. Implement the Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area. 2-4. Review and feedback the result of the Pilot Project conducted in Activity 2-3. 2-5. Based on the result of Activity 2-4, a plan for a Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs is planned. 2-6. Implement the Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs planned in Activity 2-5. 2-7. Review and feedback the result of the Pilot Project conducted in Activity 2-6. 2-8. Develop the Action Plan for improvement of waste collection and transportation.</p> <p>3-1. Review and analyze the current financial management of SWM to identify problems. 3-2. Collect periodical data on tax-and-spend of wastes every month. 3-3. Enter the data and calculate annual budget and monthly expense. 3-4. Develop annual financial report. 3-5. Develop annual budget planning. 3-6. Review the waste services fee. 3-7. Develop the Action Plan for improvement of the financial management.</p>	<p>Input</p> <p>1. Japanese Side (a) Dispatch of Experts - Chief Advisor / Solid Waste Management - Solid Waste Collection and Transportation - 3R Planning - Environmental Public Awareness Raising / Capacity Development - Financial Management Development (b) Vehicle (c) Equipment and Materials necessary for the Pilot Projects and Public Awareness Raising (d) Counterpart Training in Japan (2-3 counterpart personnel (CJPS) x twice)</p> <p>2. Mozambican Side (a) Assignment of Counterpart Personnel (CJPS) (b) Facilities and Equipment Necessary for the Project Implementation (c) Office Space for the Japanese Experts (d) Necessary Expenses for the Activities - Salaries and Other Allowances for Government Officials - Expenses for Utility such as Electricity, Water Supply, and Gas Fuel - Operational Expenses for Customs Clearance, Storage and Domestic Transportation</p>	<p>1) Financial operation manual 2) Annual financial report 3) Annual budget planning report 4) Sustainable financial management strategy for SWM sector</p> <p>1) 2) 3) 4) 5) Project Report / Annual Report of CIAM</p>	

4-1. Review the current status of recycling activities for recyclable materials (waste papers, glass, metals, and plastics) and organic wastes.
 4-2. Study possibility for recycling of materials (including cooperation with waste picklers).
 4-3. Review and improve public awareness raising programs for 3R introduction.
 4-4. Implement improved programs for 3R introduction.
 4-5. Develop a plan for a Pilot Project for promotion of recycling activities (cooperation with private sector) based on the results of Activity 4-2.
 4-6. Implement a Pilot Project for expansion of the recycling activities (cooperation with private sector) based on the result of Activity 4-2.
 4-7. Review the result of the Pilot Project in Activity 4-6, and develop a plan for promotion of the Pilot Project.
 4-8. Develop a plan for a Pilot Project for the utilization of organic waste.
 4-9. Implement the Pilot Project for the utilization of organic waste.
 4-10. Review the result of the Pilot Project in Activity 4-8, and develop a plan for promotion of organic waste utilization.
 4-11. Develop the Action Plan for expansion of the Pilot Project for valuable recycling and organic waste utilization.

*1. "Inadequate waste management" signifies inadequate management of containers, negligence of regular collection, illegal dumping or insanitary final disposal.

Pre-Conditions
 The CMAA will secure the enough budget to implement the Project.

The Project for Promotion of Sustainable 3R Activities in Maputo
Japan International Cooperation Agency - Technical Cooperation Project



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Agenda for 4th Joint Coordination Committee Meeting

Purpose:

- To review and discuss the progress of the project
- To share the result of the Joint Mid-Term Review
- To discuss the future plans and activities

Date and Time	27 th November (Thu.), 9:00A.M. to 11:45P.M.
Venue	Training Center of CMM
Chair	Florentino Ferreira (CMM City Councilor)
M/C	Sergio Manhique (Planning and Monitoring Department: DMGRSUS)

Agenda

8:30- 9:00	Registration by DMGRSUS/JET
9:00- 9:10	Introduction of Participants
9:10- 9:20	Opening Remarks CMM/Florentino Ferreira (City Councilor) JICA Mozambique/Chiharu Morita (Deputy Resident Representative)
9:20- 10:10	Reporting Result of Mid-term Review (Joint Evaluation team) - Achievement of the project activities (Luisa Langa Bila) - Evaluation by 5 Criteria (Jun Totsukawa) - Results and Recommendations (Ken Okumura) - Contents of Minutes of Meetings (Ken Okumura)
10:10-10:30	Questions and Answers
10:30-10:45	Tea and Coffee break
10:45-11:20	Wrap-up Discussion and Confirmation - Confirming PDM indicators/ Sergio Manhique (DMGRSUS) - Wrap up comments for the project activities/ Shungo Soeda (JET Chief Advisor) - Wrap up Comment/ Kazunao Shibata (Mission Leader)
11:20-11:30	Closing Remark CMM/Florentino Ferreira (City Councilor)
11:40	Signing of Minutes of meeting

- END-

**ACTA DA REUNIÃO
ENTRE
A AGÊNCIA JAPONESA DE COOPERAÇÃO INTERNACIONAL
E
MUNICÍPIO DE MAPUTO
SOBRE A**

**COOPERACAO TÉCNICA JAPONESA
PARA
O PROJECTO PARA A PROMOÇÃO DE ACTIVIDADES
SUSTENTÁVEIS DE 3R EM MAPUTO**

A Equipa Japonesa de Revisão (doravante referida como “A Equipa ”) organizada pela Agência Japonesa de Cooperação Internacional (doravante referida como “JICA”) visitou a República de Moçambique de 12 a 27 de Novembro de 2014, com o propósito de realizar a Revisão Intermédia Conjunta no âmbito do projecto de cooperação técnica Japonesa no contexto do Projecto para a Promoção de Actividades Sustentáveis de 3R em Maputo (Doravante referido como “o Projecto”) com base nos Registos da Discussão (doravante referido como “R/D”) assinados no dia 27 Novembro de 2014.

Durante a sua estadia em Moçambique, a Equipa manteve várias discussões e trocas de opiniões com oficiais Moçambicanos relevantes(doravante referido como “A Contraparte Moçambicana ”).


Como resultado das discussões, tanto a contraparte Moçambicana como a Equipa Japonesa (doravante referido como “Ambos os lados”) concordaram mutuamente sobre as questões referidas no Relatório da Revisão Intermédia que constam como apêndices.

(Este documento foi redigido nas duas linguas: Inglês e Português, sendo cada texto igualmente autêntico. No caso de alguma de divergencia a interpretação do texto em Inglês deve prevalecer!.)

Maputo, 27 de Novembro de 2014



Sr. Kazunao Shibata
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DOCUMENTO EM ANEXO

I. Relatório da Revisão Intermédia

A Equipa conjunta da revisão Intermédia composta por membros Moçambicanos e Japoneses apresentou os resultados do Relatório de Revisão Intermédia (contidos no Apêndice II) ao Comitê de Coordenação Conjunta (doravante referido como “JCC”). Ambos os lados confirmaram que os membros do JCC reviram e aprovaram os conteúdos do Relatório de Revisão Intermédia.

II. Principais Aspectos Discutidos

1. Remuneração Adequada para a Contraparte(C/P)

Aquando da realização da Revisão Intermédia, dois projectos piloto, nomeadamente o projecto piloto para a introdução da recolha de material reciclável e o projecto piloto para a utilização de resíduos orgânicos, já tinham começado. Em 2005, para além do acompanhamento dos dois projectos piloto acima mencionados, vão começar dois novos projectos piloto, nomeadamente, o projecto piloto para a melhoria da recolha e transporte de resíduos, e o projecto piloto para a promoção de actividades de reciclagem. Visto que o volume de trabalho dos funcionários da C/P vai aumentar, será necessário encontrar garantir remuneração adequada que garantam o desempenho dos funcionários da C/P.

A Equipa manifestou a sua preocupação com o facto de que dando uma remuneração adequada para os funcionários da C/P poderá constituir uma questão importante para o progresso das actividades do Projecto. A Equipa sugeriu duas formas para o Concelho Municipal de Maputo lidar com esta questão:

- 1) Responsabilidade das autoridades do CMM garantir subsídios de horas extras de acordo com as leis e regulamentos vigentes no Aparelho do Estado pelo envolvimento dos funcionários da CP nas actividades do Projecto
- 2) O nível de envolvimento dos funcionários nas actividades do Projecto deve influenciar, em grande medida, a avaliação de desempenho diária que é periodicamente realizada na Direcção Municipal de Gestão de Resíduos Sólidos Urbanos e Saneamento (DMGRSUS)

O CMM irá encontrar formas de resolução desta questão de com as leis e regulamentos existentes no Governo de Moçambique.

2. Garantia de Orçamento para as Actividades do Projecto

Ambas as partes confirmaram que será necessário garantir orçamento para a aquisição de material/ equipamento para as actividades do projecto e com a execução apropriada de tal

orçamento, visto que os quatro projectos piloto serão implementados ou acompanhados ao mesmo tempo.

3. Importância da Gestão Financeira Sustentável

Ambas as partes concordaram que a gestão financeira sustentável é extremamente importante para assegurar uma fonte de rendimentos para a gestão de resíduos sólidos depois do término do PROMAPUTO II. Ambas as partes também confirmaram que será importante que o CMM dê uma explicação detalhada aos munícipes sobre o aumento da taxa de limpeza, incluindo o conceito de princípio de benefício, promovendo assim a compreensão dos munícipes.

4. Liderança do CMM na Expansão das Boas Práticas de Gestão de Resíduos Sólidos em Moçambique

Ambas as partes compreendem a importância da liderança do CMM/DMGRSUS na expansão das boas práticas de gestão de resíduos sólidos.

- 1) As experiências e *know-how* que a C/P está a obter actualmente do Projecto, nomeadamente, aquelas relacionadas com a elaboração do Plano Director ou de um Plano de Acção, melhoria da gestão financeira, promoção de actividades de 3R, etc., serão necessárias em outras cidades para uma melhor gestão de resíduos sólidos no futuro. A DMGRSUS/ CMM vão assegurar a transferência de conhecimento e habilidades para outras cidades, em colaboração com o MICOA e instituições relacionadas.
- 2) Na revisão da Política Nacional do Ambiente pelo MICOA, a equipa confirmou que CMM desempenha um papel importante ao comentar a partir do ponto de vista prático. O lado Moçambicano compreende a importância de reflectir a experiência e *know-how* adquiridos no projecto, tal como a promoção de actividades sustentáveis 3R.

5. Para Alcançar o Objectivo

De forma a alcançar o Objectivo do Projecto, o CMM garante que o Plano Director (o Plano Director Actualizado) para o período pós término do Projecto será revisto e aprovado durante o período do Projecto, e não depois do Projecto, de forma a não comprometer o progresso e os objectivos do Projecto. Na última metade do Projecto, as autoridades do CMM concordam em continuar a tomar as medidas necessárias para o cumprimento de pré-condições importantes, tais como:

- 1) O CMM não vai mudar drasticamente os funcionários e as posições na DMGRSUS, e se for apropriado, vai tomar medidas para o desenvolvimento da estrutura organizacional da DMGRSUS

2) O CMM vai lidar, imediatamente, com situações em que tenha que esclarecer aos Municípios sobre a importância dos projectos –piloto de modo a obter a sua cooperação.

6. Matrix do Desenho de Projecto Revista

O lado Moçambicano, os Especialistas e Japoneses e a Equipa trocaram ideias sobre os indicadores na Matrix do Desenho do Projecto (doravante referida como “PDM”) durante a Revisão Intermédia, e foi proposta a versão 3 da PDM na qual alguns indicadores são revistos, conforme ilustrado no Apêndice III. Ambas as partes concordaram em continuar a discutir sobre a revisão da PDM e sua aprovação realizada em Junho de 2015.

Anexo I	Lista dos Participantes em Maputo
Anexo II	Relatório Conjunto da Revisão Intermédia
Anexo III	Matrix do Desenho do Projecto (PDM) Versão 3
Anexo IV	Agenda da 4ª reunião do JCC

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Lista de Participantes em Maputo

1. Participantes do lado Moçambicano

(1) Município de Maputo

Sr. Florentino Abilio Geraldês Ferreira	Vereador, Municipal para a Gestão de Resíduos Sólidos Urbanos
Sr. João Agostinho Mucavel	Director da Direcção Municipal de Gestão de Resíduos Sólido Urbanos
Sra. Luisa Langa Bila	Coordenadora do do Departamento de Planificação e Monitoria
Sr. Sérgio Manhique	Chefe da Repartição de Monitoria e Controlo de Qualidade

Outros participantes: vide ANEXO VII do Relatório de Avaliação

2. Fundo Nacional do Ambiente (FUNAB)

Sra. Anchia Bobina

3. Participantes do lado Japonês

(1) Equipa da Pesquisa Detalhada

Sr. Kazunao Shibata	Líder
Sr. Ken Okumura	Planificação da Cooperação
Sr. Jun Totsukawa	Análise da Avaliação

(2) Escritório da JICA em Moçambique

Sra. Chiharu Morita	Representante Residente Adjunta da JICA em Moçambique
Sra. Megumi Tsukizoe	Representante do Escritório da JICA em Moçambique

Joint Mid-Term Review Report
on
The Project for Promotion of Sustainable 3R Activities in Maputo
in the Republic of Mozambique

November, 2014

The Joint Mid-Term Review Team

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ABBREVIATIONS AND ACRONYMS

CMM	Municipal Council of Maputo
C/P	Counterpart
DMGRSUS	Directorate of Urban Solid Waste Management and Sanitation, CMM
FUNAB	National Fund of Environment
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
MICOA	Ministry for the Coordination and Environmental Affairs
MAPUTO	Maputo Municipal Development Program
ME	Micro enterprise
M/P	Master Plan
M/M	Minutes of Meetings
OVI	Objectively Verifiable Indicator
PDM	Project Design Matrix
PNA	National Environmental Policy
PO	Plan of Operation
R/D	Record of Discussions
SWM	Solid waste management
3R	Reduce, Reuse, Recycle

1. Outline of the Review

1-1. Background

In Mozambique, Maputo City, the capital of the country, enacted the regulation for solid waste management in 1997, and has promoted the solid waste management. However, due to rapid urban population growth, increasing of urban waste, the diversification of types of waste and participation of various actors into solid waste management (Private sector, NGOs etc.), it has been difficult to manage solid waste properly. Based on above situation, "Master Plan for Solid Waste Management in Maputo Municipality" (hereinafter "M/P") was formulated in 2007 by the cooperation with GTZ.

This M/P points out various challenges in solid waste management. For example, collection rate of the total solid waste is less than 50% in the year of 2007, maintenance and operation of equipment for waste collection is insufficient, the final disposal site has not been managed appropriately and solid waste are scattered throughout the Maputo city. Moreover, M/P indicates a major problem is the low capacity of solid waste management in Maputo Municipality.

Furthermore, proper waste collection services have not existed in surrounding areas of Maputo city and it leads to rapid increase of illegal dumping site and negative impacts on environment and health of residents. In this background, the Maputo Municipality has been working on countermeasure for improvement of solid waste management based on M/P.

However, the institutional vulnerability of Maputo Municipality, particularly technical aspects of solid, waste management, obstructs progressing adaption of appropriate waste management. Although, introduction of 3R (Reduce, Reuse, Recycle) has positioned in M/P as an important role for the promotion of comprehensive waste management in the future, there are still many challenges to implement 3R activities.

As a result of these situations, the technical cooperation project "the Project for Promotion of Sustainable 3R Activities in Maputo (hereinafter referred to as "the Project")", which aims at the improvement of solid waste management and sustainable development of 3R in Maputo Municipality, was requested by the GOM.

About one and half year has passed since the Project was launched in March 2013. Considering that the Project will be completed in March 2017, the Mid-term Review was conducted with an aim to review activities and outputs which come up in the Project, and to make recommendations on the activities for the remaining period of the Project.

1-2. Objectives

- (1) To review the activities of the project and its process of implementation based on the Record of Discussions (R/D).
- (2) To analyze and discuss the achievement of the project in terms of five evaluation criteria (relevance, effectiveness, efficiency, impact and sustainability).
- (3) To identify and recommend measures for solving problems on the project operation to related organizations of Mozambique and Japan based on the result of (1) and (2), and to discuss the activities of the project for the rest of the cooperation period.
- (4) To propose to revise the Project Design Matrix (PDM) and Plan of Operation (PO) based on the results of discussions, if necessary.
- (5) To prepare and agree on the Mid-term Review Report with the Government of Mozambique and to exchange the Minutes of Meetings (M/M).

1-3. Outline of the Project

The outline of the Project is shown as follows and the details are as described in the PDM (Annex 1):

(1) Overall Goal:

The urban environmental and living condition in Maputo City is improved.

(2) Project Purpose:

Capacity for Solid Waste Management (SWM) in CMM is improved.

(3) Outputs:

- 1) Capacity to analyze the current status of SWM in CMM is improved.
- 2) Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.
- 3) Capacity for financial management of SWM in CMM is improved.
- 4) 3R activities for reduction of solid waste (including private sector) is introduced in project target area.

1-4. Methodology

1-4-1. Method of Review

The Mid-term Review was conducted in accordance with the latest "JICA Guidelines for Project Evaluations" issued in June 2010. The review was performed using PDM as a reference. Current project status and outcomes were assessed from the aspects of the five criteria of relevance, effectiveness, efficiency, impact, and sustainability.

The Mid-term Review Team conducted surveys at the project sites through the interviews and questionnaires to the Mozambican project personnel, other related organizations, and the Japanese experts involved in the Project to review the Project on the basis of the evaluation grid.

1-4-2. Five Evaluation Criteria for the Review

Description of the five evaluation criteria that were applied in the analysis for the Mid-term Review is given in Table 1 below. The relationship between the five evaluation criteria and PDM (Overall Goal,

Project Purpose, Outputs and Inputs) are also described in the following (Figure 1).

Table 1: Description of Five Evaluation Criteria

Criteria	Definitions
Relevance	Degree of compatibility between the development assistance and priority of policy of the target group, the recipient, and the donor.
Effectiveness	A measure of the extent to which an aid activity attains its objectives.
Efficiency	Efficiency measures the outputs -- qualitative and quantitative -- in relation to the inputs. It is an economic term which is used to assess the extent to which aid uses the least costly resources possible in order to achieve the desired results. This generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted.
Impact	The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.
Sustainability	Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable.

Source: "JICA Guidelines for Project Evaluations", June 2010

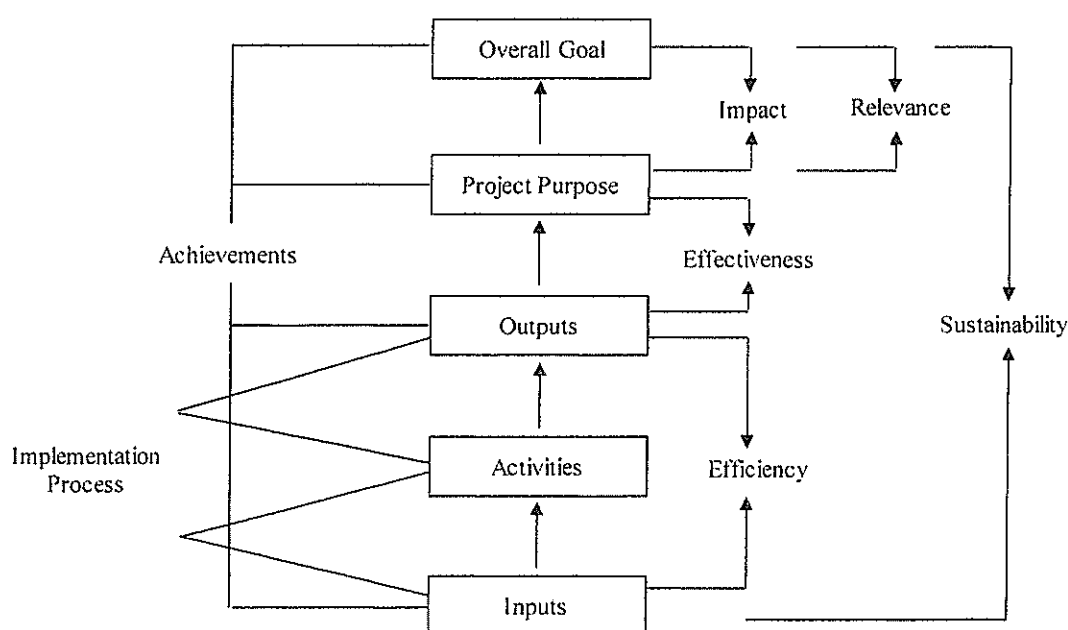


Figure 1: Relationship between the Five Criteria and PDM

Source: "Practical Methods for Project Evaluation" March 2004

1-4-3. Collection Methods and Data Sources

The data collection methods and main data sources are specified as shown in the evaluation grid. The specific methods and sources are described below.

- Documents related to the Project
- Progress reports
- Answers for the questionnaire from Japanese experts and Mozambican counterparts
- Record of Inputs from both sides and Activities of the Project
- Interviews with the Project counterpart personnel, experts, and personnel in related organizations
- Field Survey

1-5. Members of the Joint Mid-term Review Team

<Japanese Side>

Name	Role in the Team	Position and Organization
Mr. Kazunao Shibata	Leader	Director, Environmental Management Team 2, Global Environment Department, JICA
Mr. Ken Okumura	Cooperation Planning	Assistant Director, Environmental Management Team 2, Global Environment Department, JICA
Mr. Jun Totsukawa	Evaluation Analysis	Director, Sano Planning Co, Ltd

<Mozambican Side>

Name	Position, Organization
Mr. Florentino Abilio Geraldés Ferreira	City Councilor of Solid Waste Management
Mr. Joao Agostinho Mucavele	Director, Municipal Directory of Urban Solid Waste Management
Ms. Luisa Langa Bila	Coordinator of the Planning and Monitoring Department
Mrs. Anchia Bobina	National Fund of Environment (FUNAB)

1-6. Schedule of the Joint Mid-term Review

The Mid-term Review was conducted during the period between 12th of November and 27th of November, 2014 (See Annex 9).

2. Achievements of the Project

2-1. Records of Inputs

The following are the achievements of inputs by the time of the Mid-term Review by both Japanese side and Mozambican side.

2-1-1 Japanese Side

1) Assignment of Experts

From the onset of the Project, a total of nine experts were assigned to the Project, in total 50.25 Man-month (until the end of 2nd year, March of 2015).

2) Training in Japan

As a part of Japanese side's inputs, one training course has been provided in Japan. In total, 8 Mozambican counterparts have received training in Japan. The training course was implemented in October 2013 for 14 days, and visited Ministry of Environment, local governments in Tokyo, Aichi and Gifu, repository sites, recyclables centers, etc.

3) Provision of Machinery and Equipment

The Japanese side has provided office equipment that is necessary for project implementation, and two vehicles as attached in Annex 6.

2-1-2 Mozambican Side

1) Assignment of Counterparts

The Mozambican side has assigned 12 primary counterparts in total as of the Mid-term Review.

2) Facilities

The Mozambican side provided office spaces in the DMGRSUS for project implementation.

2-2. Results of the Activities and Achievement of the Outputs

Achievement status of the expected each output is as follows:

Output 1: Capacity to analyze the current status of SWM in CMM is improved.	
OVI	Activities and Achievement Level
1. CMM understands progress and differences of the current M/P.	CMM, DMGRSUS as counterpart, already completed reviewing the current M/P and analysis of the difference between the actual and the targets in the M/P. Besides the review of M/P, DMGRSUS has kept monitoring the progress of major indicators such as collection rate, final dumping volume, recycle rates and others by every quarter, semi-annual, and annual basis, and made annual report. This indicator was already fulfilled as of the Mid-term review.
2. CMM understands public perception about SWM.	Through social survey, a series of field visits and workshops with local people, DMGRSUS understands local people's needs on solid waste management.
Overall Assessment: Output 1 has been steadily progressing.	

As of the Mid-term Review, the Project has already completed the review of the current M/P with briefly draft updates of the contents. Through the review processes, many of CMM staffs successfully improved the analysis capacity in general. The improvement is observed in these examples: 1) There are more opinions presented with solid suggestions in meetings occasion, not just only making comments; 2) Opinions are expressed on the basis of data presentation. In addition, reporting structure/formats were also modified, which added the name of reporter, participants with description of each responsibility, progress and necessary follow up schedule, etc. The change enables the staffs easily to take follow up actions. This kind of change has also directly and indirectly enhanced the analysis capacity.

Output 2: Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.	
OVI	Activities and Achievement Level
1) Amount of collection and transportation of solid waste is increased by XX%.	As of the Mid-term review, the Project is on the stage that field surveys including the time and motion survey have completed. Amount of collection and transportation will be continuously monitored in the latter half of the Project period. It is, however, forecasted that the amount of collection and transportation in urban area are possibly increased from macro viewpoint because the new contractor, Eco Life, has been showing good performance until now.
2) Number of Bairros where recyclable collection of solid waste is continually implemented is increased to XX (number).	Recyclable collection has been implemented one Bairro, namely, Chamanculo D, in the framework of pilot project as of the Mid-term review.
3) Rate of broken container is decreased by XX%.	Due to replacement of containers by the new contractor in urban area, the number of broken containers has drastically decreased.
4) Number of container adequately allocated is increased to XX (number).	Due to reallocation of containers by the new contractor, the number of containers allocated inappropriate place has decreased. In addition, the number of containers which are left for a while with full of wastes are also smaller, comparing with before.
Overall Assessment: Output 2 has been steadily progressing. Looking at capacity of DMGRSUS staffs regarding collection and transportation with private companies, the following positive changes are observed: 1) they now understand how private companies collect and transport wastes, and what the important viewpoints are to instruct and monitor	

through field surveys including time and motion survey; 2) there are more meetings with the private companies; 3) they conduct more instructions to Micro Enterprises, ME, how to effectively and efficiently collect wastes, and have more meetings with leaders of ME association and local people's group.

In line with this, the capacity of DMGRSUS staffs has been developing in general, though, there are still challenges in proper monitoring particularly in data consistency between the reports of private companies and ones that DMGRSUS keeps. Including this challenge, the Project is expected to accelerate the series of activities including pilot project which implements recyclable collection activities.

Output 3: Capacity for financial management of SWM in CMM is improved.	
OVI	Activities and Achievement Level
1) Financial operation procedure is shared with official document.	The Project is in the process of making the guideline showing the financial operation procedure, which are the necessary processes for budget planning, monitoring with specified roles of each department/section. The final version of the guideline will be possibly completed by the end of the Project.
2) Revenue baseline data is regularly collected and reported.	Revenue baseline data has been continuously collected and reported every year. As of the Mid-term review, the Project is re-checking the exact number of all registered companies in the city in order to capture the potentials of the increase/decrease in the revenue.
3) Budget is planned by considering the variance between budget execution and budget plan of the previous year.	The Project has already completed the analysis of the variance between budget execution and the plan for the past years. The analysis results will be reflected to the budget planning for the coming years.
<p>Overall Assessment:</p> <p>Output 3 has been steadily progressing.</p> <p>In the beginning half of the Project period, the Project has paid particular attention on analysis of the current situation and challenging factors on the financial management. In the process of analysis together with counterparts and experts, the Project have focused necessary issues to tackle and actually started several activities. Tangible outcomes up to now are 1) to update the database of waste producers in large scale, 2) to change the format for easier financial recording and monitoring, 3) cost analysis for solid waste management through the whole process including fuel, manpower, and other logistical costs. Above all, the updating database is expected to give significant impacts on the revenue from collection of wastes. As of the Mid-term review, approximately 2,000 companies are already digitized with updated information in the database among 4,300 targets in total. Through these</p>	

activities with experts, financial management capacity of DMGRSUS has been growing step by step. However, there are many tackling issues for improvement of financial management in DMGRSUS including its completion of the database and actual application. Collaborative actions with the financial department of the CMM headquarters are also key issues in order to conduct financial management in particular of planning phase.

Output 4: 3R activities for reduction of solid waste (including private sector) is introduced in project target area

OVI	Activities and Achievement Level
1) Educational material about 3R is developed.	Materials for education of 3R are in the process of making.
2) New office for civic education is established in DMGRSUS.	The office of civic education was established in DMGRSUS in 2014 after the staffs of CMM returned from the training in Japan. As of the Mid-term review, three staffs and two trainees are actively working in the office.
3) Amount of material recovery in the Pilot Project area is increased by XX%.	This indicator will be measured after the pilot project starts.
4) Amount of compost in the Pilot Project area is increased by XX%.	This indicator will be measured after the pilot project starts.

Overall Assessment:

Output 4 has proceeded gradually, and now transferred from the early to middle stage towards achievement.

The Project has worked on making the “material flow” of recyclables by holding workshops that invited private companies and NGOs, which counted to 20-30 representatives. Through a series of workshops, the staffs of DMGRSUS have accumulated the technical knowledge on how to make and analyze the material flow, which gives current picture of 3R market in the Maputo city.

As of the Mid-term review, the Project is now about to start the pilot project on making composts with local people covering more than 30 households at 2 Bairros.

Introduction of 3R activities to the city, which is the goal of the Output 4, is expected to be achieved by fully utilizing the lessons of the pilot projects from now on.

2-3. Achievement of Project Purpose

Project Purpose: Capacity for Solid Waste Management (SWM) in CMM is improved.

OVI	Activities and Achievement Level
1) The M/P for post-termination of the Project is approved by CMM.	The Project has already completed reviewing the current M/P, and pointed out necessary issues to update. The new version of M/P reflects the lessons from the pilot project and other various activities by the Project. It is highly possible for the new M/P to be completed and entered the approval procedure within the city government. It is, however, difficult to estimate the necessary period for its final approval.
2) XX (number) components of 3R system are proposed in Maputo City.	As of the Mid-term review, recyclable collection and compost making are tested in the framework of the pilot project. Through the experiences in the pilot project, it would be possible to propose some of the 3R components to Maputo City.
3) A guideline of SWM for Maputo City, a draft of M/P for post-termination of the Project, the Action Plan toward 2021 are developed.	The Project starts to work on these outputs of this indicator in the latter half of the Project period.
<p>Overall Assessment:</p> <p>The Project purpose is on the right track towards achievement as of now.</p> <p>As categorized in each Output, the capacity of analysis, collection and transportation, financial management, and implementation of 3R activities have been developing step by step until now. It is evaluated that the Project purpose, capacity of solid waste management in total, is possibly achieved by the end of the Project.</p>	

2-4. Prospect of Achievement of Overall Goal

<p>Overall goal: The urban environmental and living condition in Maputo City is improved.</p>
<p>OVI:</p> <p>1) Amount of inadequate waste disposal is decreased.</p> <p>2) Amount of final waste disposal per person is decreased.</p>
<p>Prospect:</p> <p>Although the Mid-term review is at too early stage to forecast the possibility of overall goal's achievement, positive signs are observed in the decrease of local people's complaints regarding waste disposal such as left-alone containers full of wastes. It may be because of performance of the new private contractors for the time being, though, it can be expected to sustain such better condition as long as DMGRSUS would properly instruct and monitor the private companies' works.</p> <p>For achievement of the overall goal, local people's involvement is also the key issues besides the proper monitoring of private companies. It is expected the Project's Output in particular of Output 2</p>

and 4 would enhance understandings and actual actions taken by local people.

2-5. Implementation Process of the Project

2-5-1 Communication

Sharing and exchange of information between Japanese experts and counterparts are almost satisfactory in general through bi-weekly meetings called Progress meetings. The Project always keeps the records of the meetings' contents and circulates them by e-mails after translated into English and Portuguese.

Even some of e-mails are translated into both languages to ensure the understandings each other.

Through such efforts with the systematic information sharing structure, necessary information is shared almost enough among the entire Project related persons.

2-5-2 Monitoring

The Project is now introducing the monitoring sheets to track the progresses of the activities, and report them at the Progress meeting bi-weekly. Monitoring sheets are categorized by PDM activities respectively. On the basis of the reporting at the meetings, counterparts and Japanese experts exchange opinions, and determine the next steps towards solutions. It is evaluated the monitoring has been conducted well enough.

3. Evaluation by Five Criteria

Each criterion is evaluated using the following five rankings: "high", "relatively high", "moderate", "relatively low", and "low".

3-1. Relevance

The relevance of the Project is high.

The Project is in accordance with the priority of development policies of Mozambique and CMM, the needs of the key stakeholders/counterparts, and Japan's Official Development Assistance (ODA) policy. Also, the Project effectively utilizes Japanese experiences.

3-1-1 Consistency with the development policy of the government

The primary policy of the environmental sector in the country is the National Policy of Environment, Politica Nacional do Ambiente: PNA, which was issued in 1995. The policy declares that the country needs to accelerate/improve solid waste management with introduction of recycle system.

In addition to the environmental sector policy, the government established the National Strategy of Integrated Management of Urban Solid Wastes in 2012, which focused on solid waste management in the country. The strategy mentions that 3R would be introduced by the year of 2025 through active involvement of local people and community based organizations.

In these line, it is confirmed that the Mozambican government places importance on solid waste

management with an eye to introduce of 3R in the long run, and also pays particular attention on the role of local people as the key players of solid waste management.

The Project is to assist in solid waste management in the Maputo city from the capacity development aspect of the city government officers. It is evaluated the Project is exactly in line with the Mozambican policy.

3-1-2 Consistency with Japanese ODA policy/plan

The Country Assistance Policy for Mozambique issued in 2013 places the importance on improvement of environmental quality in urban area. The policy describes “since the deterioration of environmental affects the function of the urban areas, Japan assists in countermeasures of environmental improvement, including the aspect such as capacity development to manage solid wastes.

It is confirmed that the project is consistent with the Japanese policy.

3-1-3 Consistency with the needs

1) Needs of CMM

Solid waste management of the Maputo city has been conducted on the basis of the Master Plan made in 2007. The city government has implemented various programs and showed improvements in accordance with the plan’s direction.

However, since the city has been rapidly developing with much more population for these years, the Master plan is now required to be modified and/or upgraded to the new version.

In addition, capacity development of the city government officers has been required in order to deal with the increasing solid wastes in the city. Although there are training courses for city government officers in general subjects, specifically expertise courses including solid waste management are not offered.

The Project’s contents for capacity development of the DMGRSUS staffs are meeting with such needs of the CMM.

2) Needs of local people

According to the social survey’s results conducted by the Project, local people showed their wishes to live under the environment that solid wastes are properly managed. Many people, more than 80 % of answers, also showed the positive interests in participation in recyclables collection in order to realize the cleaner living environment.

The Project is consistent with such local people’s needs.

3-1-4 Appropriateness of the Project design: involvement of stakeholders

Necessary stakeholders are almost involved, though, it would be better to strengthen the involvement in particular of CMM headquarters.

Until now some of the key persons at the financial section of CMM headquarters have participated time to time in the discussion with the Project CP and experts. In order to secure appropriate amount of budget on solid waste management, it would be better for the headquarters to be involved more from the planning

phase at DMGRSUS.

3-1-5 Advantage of Japanese technologies

Japan has accumulated various experiences and lessons in the field of solid waste management including 3R activities. The Project took advantage of these experiences and lessons.

In addition, Japan has experienced technical cooperation projects in other countries on solid waste management. Lessons learned from the other projects can be also utilized for implementation of the Project.

3-2. Effectiveness

The effectiveness of the Project is high.

The Project has been producing tangible results through high commitment of the counterpart organization and experts.

3-2-1 Progress of Project purpose and outputs

Among the four Output areas, there has been steady progress in Output 1, 2, 3 and 4 at the time of the Mid-term Review, and the Project Purpose is also on the right track. The pilot projects on Output 2 and 4 are planned to be accelerated in the latter half of the Project period.

3-2-2 Contribution factors

1) Training in Japan

The trainings provided the participants with the opportunities to observe actual solid waste management in Japan from various aspects such as legal/regulation, local government's roles, 3R activities, and others. The observation and learnings in Japan produced positive effects in their workplace after returned. The representative example is to establish "office of civic education" in the DMGRSUS because they realized the importance of civic education for solid waste management. Considering the fact that the newly established office has actively and effectively worked in the field for local people, it is highly evaluated the effectiveness of the training in Japan.

2) Recognition of high level personnel of CMM

The mayor of CMM and councilors of the city government have been the strong supporters of the Project with high recognition of the importance of the Project activities. The mayor frequently made speeches on the importance of solid waste management including the 3R concept in the several occasion of city events. It is possible that these announcement effects have contributed to enhancing local people's recognition on 3R gradually.

3) Relationship between Mozambican counterparts and Japanese experts

Through mutual efforts and sincere commitment to the Project activities, Mozambican counterparts and Japanese experts have formulated tight and reliable relationship. Such team-working environment is one

of the contribution factors to steadily progress the Project activities until now.

3-2-3 Inhibition factors

There are no crucial inhibition factors for achievement of the Project purpose and outputs.

Although followings are not inhibition factors, the evaluation team takes notes regarding the schedule issues.

1) New assignment of contractor for solid waste collection

Since the new contractor was assigned for solid waste collection, the Project suspended for a while to commence the pilot project. The judge of schedule adjustment was made because new contractors in general would show a better performance in the beginning period of the contract, therefore, it would be better to monitor after commencement of the works for a while.

The evaluation team sees it reasonable adjustment.

2) Adjustment of schedule between CP and experts

Relatively longer period of CP's leaves/vacation sometimes coincides with the Japanese experts' assignment period in Mozambique. It would be ideal to avoid such overlapping period through mutual coordination in advance.

3-3. Efficiency

Efficiency of the Project is high.

Manpower inputs from both Japanese and Mozambican side contributed to achievement of outputs. Trainings in particular are also functioning to enhance the Project's effectiveness.

3-3-1 Manpower inputs

1) Japanese manpower input

Manpower inputs from Japanese side in terms of the number and expertise are evaluated appropriate. The inputs are well balanced corresponding to the four types of Outputs' requirements.

The relatively limited assignment period of experts in Mozambique has been well managed owing to each expert's supplement efforts one another.

2) Mozambican manpower input

Manpower inputs from Mozambican side in terms of the number and expertise are evaluated appropriate. Key persons of the Project activities have been assigned from each key department.

3) Other manpower input

The Project effectively made manpower inputs of local consultants in social survey, impact survey and others. The knowledge and experiences of university, Universidade Eduardo Maondlane, on compost making are contributing to implementation of the pilot project.

3-3-2 Material inputs

Material inputs in the Project are two vehicles and some necessary equipment such as office materials, kit tools for compost making, etc. It is evaluated reasonable inputs for the Project implementation.

3-3-3 Complementary effects and duplication of activities

The Project has kept good communication with the World Bank project, PROMAPUTO II, which provides budget support to Maputo city in solid waste management. Towards improvement of solid waste management in the city, the PROMAPUTO II supports financial aspect, while the Project does capacity development aspects. In this line, there are complementary effects in such a big picture.

It is noted, however, there have been no direct collaborative actions between two projects such as joint workshops, trainings etc.

On the other hand, there are no duplicated activities observed.

3-4. Impact (prospect)

Impact of the Project is relatively high.

Impacts on organizational aspects are observed in the organizational aspect until the Mid-term review.

Impacts on other aspects are expected to be observed in the latter half of the Project period.

3-4-1 Positive impact

Impacts on organizational aspect are observed.

Training in Japan led to establishment of “office of civic education” in DMGRSUS.

The office has actively been working as follows:

- The office has been frequently invited by other directorates of the city government such as health, transportation and economy, and asked to give presentations and/or instructions to local people in their campaign activities. Their presence has contributed to enriching the campaign’s effects from the viewpoint of local people’s involvement.
- The office has visited 46 primary schools/junior schools to offer environmental education since its establishment in December 2013. The number of school visits increased much more than before establishment of the office in DMGRSUS.

3-4-2 Negative impact

There are no negative impacts observed.

3-5. Sustainability (prospect)

At the time of the Mid-term Review, it is difficult to foresee the prospect of the Project’s sustainability. Ensuring and increasing the sustainability depends on continuous efforts by the Mozambican side.

3-5-1 Policy aspect

1) Prospects of policy direction

It is highly possible for the CMM to keep placing importance on solid waste management including 3R activities under the rapidly expansion of urban population.

The present mayor of the Maputo city and several councilors have high recognition on solid waste issues and give frequently supportive presentations. These also would be a part of positive signs in the sustainability of policy aspect.

2) Legal/regulation aspect

Although the strategy on solid waste management was already made by MICOA, the detailed legislative preparations are now necessary as the next step for promoting efficient management including 3R activities. Responsibilities on each step of disposal and cost burden among government, private companies and local people have to be clarified in the law/regulation.

3-5-2 Organizational aspect

From the viewpoint of structure and the number of allocated staffs in the directorate, the current DMGRSUS has the almost reasonable organizational capacity at this moment.

However, as the 3R activities are disseminated in the mid-long run, the specific section on 3R would be possibly required.

Also, in order to enhance the technical capability of the directorate, it is ideal to have more staffs with the academic background of environmental engineering, sanitary engineering, chemistry and/or related academic fields.

3-5-3 Technical aspect

Looking at the development of technical capacity of DMGRSUS, a certain level of sustainability is confirmed as of the Mid-term review. Nearly all the technical aspects that the Project has targeted, which are categorized by the four types of output in PDM, namely, capacity of analysis, collection and transportation, financial management, and 3R introduction with approach method to local people, are gradually enhanced until now.

Further enhancements are depending on all the staffs' efforts with collaborative actions with experts.

3-5-3 Financial aspect

As of the Mid-term review, the cleaning tax is planned to be raised by 30% from the year of 2015. It would give great impacts on the revenue. In addition, the revised database of waste producers in large scale would contribute to increasing the revenue as well. Such positive signs are confirmed in the financial sustainability's viewpoint.

3-6. Conclusions

Maputo city has been facing the challenges to manage solid waste efficiently and effectively particularly

for these years, while the population of the city has been rapidly increasing along with growth of solid waste. The Project is meeting with such needs of the CMM from the aspect of capacity development of DMGRSUS staffs. The importance of proper solid waste management is also stressed by the environmental policy and strategies. The relevance of the Project is high in this line.

The Project has worked on the analysis of the current situation of solid waste management in the CMM. Through the analysis and a series of field surveys, the expected Outputs, namely, capacity of analysis, collection and transportation, financial management, and 3R approaches were enhanced in the counterparts of DMGRSUS. Effectiveness as of the Mid-term review is evaluated high.

Efficiency is also evaluated high since inputs of manpower and material are appropriate for implementation of the Project.

Impact as of the Mid-term review is observed in the new establishment of civic education office in DMGRSUS after they returned from the training in Japan. The staffs of the office are now working not only for DMGRSUS but also for other directorates' activities such as their special campaigns and events. Efforts of the DMGRSUS's staffs during the latter half of the Project will determine the sustainability, though there are some positive signs to enhance sustainability. The representative example is to raise the cleaning tax by 30% from 2015.

Overall, it is evaluated that the Project has been progressing well enough as of the Mid-term review.

4. Recommendations

(1) Primary Activities in the Latter Half of the Project

Through the interview to C/P staffs, the following items were raised as the activities to which C/P staffs showed a strong intention to commit;

Items	Related Output No.
1) Steadily finalizing a master plan	1
2) Skills of data collection and analysis	1,2,3,4
3) Promotion of 3R activities to citizen	1,2,4
4) Cross-checking records from contracted enterprises with verifiable data	2
5) Comprehension and management of performance of contracted enterprises collection and transportation	2
6) Gaining Ability to plan a budget appropriately (not only individual ability but also institutional ability)	3
7) Measures to increase revenue such as update of data-base on large-scale waste producers	3
8) Clarifying a fundamental cost for routine operation	3
9) Preparation of guidebook of environmental education for teachers	4
10) Development of public awareness strategy	4

All of the above-mentioned 10 activities are fundamental elements to achieve improvement of capacity of DMGRSUS/CMM. Therefore the Japanese Expert Team should regard them as the primary activities of technical transfer in this Project.

(2) Pilot Projects

For each pilot project, the following matters should be examined in the implementation process of pilot projects and then reflected into the Master Plan and the Action Plan.

- 1) Introduction of recyclable collection: Examination of results which associates with consideration of cost and work volume if DMGRSUS should adapt the most effective incentive measure into an actual mean.
- 2) Improvement of waste collection and transportation (under planning): Raising DMGRSUS's capacity in managing performance of contracted enterprises including monitoring and instruction. Retaining constantly accurate data regarding amount of collection and transportation.
- 3) Utilization of organic waste: Taking root of separation of organic waste. Getting rid of expectation of "compost" as fertilizer and utilization as soil conditioner. Clarification of limitations and reflection of them into the Master Plan.
- 4) Expansion of recycle activities (under planning): Expansion of existing initiatives. Establishment of relationships among stakeholders and reinforcement of DMGRSUS's coordination.

(3) Raising Public Awareness

- 1) The team recommends CMM/DMGRSUS should continuously plan targets, methodologies, and corresponding actions for public awareness raisings with a support from Japanese Expert Team, thereby building a more robust trust relationship with citizens. Such actions include campaigns regarding improvement of residents' behavior in discharge and separation as well as 3R.
- 2) The team also recommends that CMM/DMGRSUS should give a detail explanation to citizens when cleaning tax is raised, including explanation of a concept of benefit principle, thereby promoting citizens' understanding.

(4) Suggestion of Third-country Training in 2015

Training in Japan provided significant implication to DMGRSUS and had a positive impact toward their operation. At the moment, training in Japan is planned again in the third year (2015). However, attention should be taken to the fact that Mozambique and Japan have many differences in social and cultural systems or in a scale of economics. Also, cost-efficiency and language barriers should be taken into account. Besides, it is confirmed that there are wills from some of C/P staffs to observe practices in other country besides Japan. In this regard, the Team recommends replacing training in Japan in 2015 to a third country training.

(5) More Effective and Workable Budget Process

Financial section of DMGRSUS and financial department of CMM should liaise with each other more for

more effective and workable budget process.

(6) Dissemination of knowledge and skills to other cities

The experience and know-hows that C/P are now obtaining through the Project, namely; ones related to developing a Master Plan or an Action Plan, improving financial management, promotion of 3R activities etc., will be needed in other cities for their better solid waste management in the future. DMGRSUS/CMM is recommended to transfer the knowledge and skills to other cities in collaboration with the MICOA, FUNAB and related institutions.

(7) Incorporating knowledge obtained in the Project to the revised PNA

In revising National Environmental Policy (hereinafter referred to as PNA) by MICOA, the Team confirmed that CMM plays an important role in commenting from the practical point of view. It is recommended to keep this collaboration in revising PNA and to reflect the experience and know-hows gained in the Project such as promotion of sustainable 3R activities.

(8) Legal basis for promotion of 3R activities

- 1) In Mozambique there is a strategy to promote 3R, but there is no specific legal basis to promote it. Under these circumstances, responsibility of different stakeholders are not clearly defined. It is desired that Mozambican side should elaborate a legal basis for promotion of 3R.
- 2) Especially it is recommended CMM should review the existing ordinances and include a specific legal basis to promote 3R Activities.

(9) Continuation of the construction process of the new sanitary landfill site in Matola

The construction of a new sanitary landfill site in Matola is an essential factor which will have an impact on solid waste management in Maputo as addressed in the M/P. Mozambican side, especially MICOA and FUNAB should continuously push forward the process and complete the construction of the new sanitary landfill site.

(ANNEXES)

Annex 1: PDM version 2.0 used for the Mid-Term Review

Annex 2: Plan of Operation used for the Mid-Term Review

Annex 3: Record of JCC

Annex 4: Dispatch of International Experts

Annex 5: List of Seminars and Workshops Organized in Mozambique

Annex 6: List of Machinery and Equipment Provided by JICA

Annex 7: List of Counterpart Personnel in Mozambique

Annex 8: Participants of Training in Japan (2013)

Annex 9: Schedule

Project Design Matrix (PDM)

ANNEX 1

Project Title: The Project for Promotion of Sustainable 3R Activities in Maputo
 Duration of the Project: 4 years
 Target Group: Municipal Council of Maputo (CMM) and people living in Muputo City
 Target Area: Maputo City (excluding Kalembe and Kanyaka)

Version 2.0
 Date: 27 June 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal</p> <p>The urban environmental and living condition in Maputo City is improved.</p>	<p>1) Amount of inadequate waste disposal is decreased. -> Definition of "inadequate waste disposal" will be discussed and determined when the MIP would be updated in 2017. 2) Amount of final waste disposal per person is decreased.</p>	<p>1,2) Report of CMM -> Clear contents of the report shall be discussed during the project.</p>	
<p>Project Purpose</p> <p>Capacity for Solid Waste Management (SWM) in CMM is improved.</p>	<p>1) The MIP for post-termination of the Project is approved by CMM. 2) XX (number) components of 3R system are proposed in Maputo City. -> Definition of "3R system" shall be discussed and determined during the project. 3) A guideline of SWM for Maputo City, a draft of MIP for post-termination of the Project, the Action Plan toward 2021 are developed.</p>	<p>1) Minutes of Municipal Council (Approval of MIP) 2) Project Report</p>	<ul style="list-style-type: none"> The current policies and laws for SWM in Maputo City will not change drastically. The CMM will secure the enough budget to continue the activities proposed in the Project.
<p>Outputs</p> <p>1. Capacity to analyze the current status of SWM in CMM is improved.</p>	<p>1) CMM understands progress and differences of the current MIP. 2) CMM understands public perception about SWM.</p>	<p>1) Updated MIP 2) Social survey about public perception -> Through the obtaining these means, it shall be considered how to measure the understanding of above indicators quantitatively.</p>	<p>The Mozambican counterpart personnel of the Project will not change their position dramatically during the Project term. Stakeholders will not oppose to the implementation of each Pilot Projects.</p>

<p>2. Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved.</p>	<p>1) Amount of collection and transportation of solid waste is increased by XX%. -> It shall be determined when the future projection of waste generation would be done at the stage of M/P updating. 2) Number of Bairros where recyclable collection of solid waste is continually implemented is increased to XX (number). -> Definition of "recyclable collection" will be determined in 2nd year. 3) Rate of broken container is decreased by XX%. 4) Number of container adequately allocated is increased to XX (number). -> These will be carefully discussed based on the monitoring result on waste container collection.</p>	<p>1) Project report / annual monitoring report of DMGRSUS (to describe solid waste collection and transportation amount quoting from weighbridge report) 2) Project report / annual monitoring report of DMGRSUS (to measure the number of Bairros to implement recyclable collection). 3.4) Project report / annual monitoring report of DMGRSUS</p>
<p>3. Capacity for financial management of SWM in CMM is improved.</p>	<p>1) Financial operation procedure is shared with official document. 2) Revenue baseline data is regularly collected and reported 3) Budget is planned by considering the variance between budget execution and budget plan of the previous year.</p>	<p>1) Financial operation manual 2) Annual financial report 3) Annual budget planning report</p>
<p>4. 3R activities for reduction of solid waste (including private sector) is introduced in project target area.</p>	<p>1) Educational material about 3R is developed. -> Types of "educational material" shall be discussed in 2nd year. 2) New office for civic education is established in DMGRSUS. 3) Amount of material recovery in the Pilot Project area is increased by XX%. 4) Amount of compost in the Pilot Project area is increased by XX%. -> Detail value of indicators shall be discussed and determined in the Pilot Project designing stage in 2nd Year</p>	<p>1) Project Report / Annual Report of CMM 2) Establishment of a new office for civic education and its activity report. 3.4) Project Report / Annual Report of CMM</p>

Activities	Input
<p>1-1 Review the existing MIP and identify differences compared to actual situation.</p> <p>1-2 Collect and review latest information and data of waste quantity and composition and final disposal volume.</p> <p>1-3 Update the existing MIP.</p> <p>1-4 Develop an Action Plan for the project period based on the updated MIP.</p> <p>1-5 Develop a guideline of SWM for Maputo City.</p> <p>1-6 Set a target of SWM for post-termination of the Project and develop a draft of MIP.</p> <p>1-7 Develop the Action Plan toward 2021.</p>	<p>1. Japanese Side</p> <p>(a) Dispatch of Experts</p> <ul style="list-style-type: none"> - Chief Advisor / Solid Waste Management - Solid Waste Collection and Transportation - 3R Planning - Environmental Public Awareness Raising / Capacity Development - Financial Management Development <p>(b) Vehicle</p> <p>(c) Equipment and Materials necessary for the Pilot Projects and Public Awareness Raising</p> <p>(d) Counterpart Training in Japan (2-3 counterpart personnel (C/Ps) x twice)</p> <p>2. Mozambican Side</p> <p>(a) Assign of Counterpart Personnel (C/Ps)</p> <p>(b) Facilities and Equipment Necessary for the Project Implementation</p> <p>(c) Office Space for the Japanese Experts</p> <p>(d) Necessary Expenses for the Activities</p> <ul style="list-style-type: none"> - Salaries and Other Allowance for Government Officials - Expenses for Utility such as Electricity, Water Supply, and Gas Fuel - Operational Expenses for Customs Clearance, Storage and Domestic Transportation
<p>2-1. Review the situation of waste collection and transportation in Maputo City.</p> <p>2-2. Develop a plan for a Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area.</p> <p>2-3. Implement the Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area.</p> <p>2-4. Review and feedback the result of the Pilot Project conducted in Activity 2-3.</p> <p>2-5. Based on the result of Activity 2-1, a plan for a Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs is planned.</p> <p>2-6. Implement the Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs planned in Activity 2-5.</p> <p>2-7. Review and feedback the result of the Pilot Project conducted in Activity 2-6.</p> <p>2-8. Develop the Action Plan for improvement of waste collection and transportation.</p>	
<p>3-1. Review and analyze the current financial management of SWM to identify problems.</p> <p>3-2. Collect periodical data on tax-and-spend of wastes every month.</p> <p>3-3. Enter the data and calculate annual budget and monthly expense.</p> <p>3-4. Develop annual financial report</p> <p>3-5. Develop annual budget planning.</p> <p>3-6. Review the waste service fee.</p> <p>3-7. Develop the Action Plan for improvement of the financial management.</p>	

4-1. Review the current status of recycling activities for recyclable materials (waste papers, glass, metals, and plastics) and organic wastes.

4-2. Study possibility for recycling of materials (including cooperation with waste pickers).

4-3. Review and improve public awareness raising programs for 3R introduction.

4-4. Implement improved programs for 3R introduction.

4-5. Develop a plan for a Pilot Project for promotion of recycling activities (cooperation with private sector) based on the results of Activity 4-2.

4-6. Implement a Pilot Project for expansion of the recycling activities (cooperation with private sector) based on the result of Activity 4-2.

4-7. Review the result of the Pilot Project in Activity 4-6, and develop a plan for promotion of the Pilot Project.

4-8. Develop a plan for a Pilot Project for the utilization of organic waste.

4-9. Implement the Pilot Project for the utilization of organic waste.

4-10. Review the result of the Pilot Project in Activity 4-9, and develop a plan for promotion of organic waste utilization.

4-11. Develop the Action Plan for expansion of the Pilot Project for valuable recycling and organic waste utilization.

Pre-Conditions

The CMM will secure the enough budget to implement the Project.

Annex 3 Record of Joint Coordinating Committee (JCC)

(1) JFY 2012 and 2013 (February 2013 - March 2014 : 1st Year)

No.		Venue	Date	Issues Discussed/Agreed
1	1st JCC	DMGRSUS	1 April 2013	Work Plan of the Project
2	2nd JCC	DMGRSUS	31 July 2013	Preliminary Review Result of Current Situations in the M/P 2007 Preliminary Result of Capacity Survey Review of Indicators of PDM Draft Capacity Development Plan Future Activity Schedule

(2) JFY 2014 (April 2014 - March 2015 : 2nd Year)

No		Venue	Date	Issues Discussed/Agreed
1	3rd JCC	DMGRSUS	9 June 2014	Report of Progress of the 1st Year Activities Introduction of Action Plan during the Project Period Proposal for Modification of PDM Explanation of Work Plan of 2nd Year Activity
2	4th JCC	DMGRSUS	27 November 2014	Mid-term review and Agreement on recommendation by the review team

ANNEX 4: Dispatch of International Experts

Name	Title	Period of Assignment
Shungo SOEDA/ Mr.	Chief Adviser/ Solid Waste Management	2013: 18/Mar. – 26/Apr., 19/Jun. – 8/Aug., 6/Nov. – 10/Dec., 2014: 16/Jan. – 14/Feb., 8/May – 13/Jun. 2/Nov. up to 27/Nov.
Takahiro KAMISHITA/Mr.	Deputy Chief Adviser/ Solid Waste Collection and Transportation	2013: 18/Mar. – 11/Apr., 22/Apr. – 10/Jun., 15/Sep. – 16/Oct., 2014: 6/Feb. – 5/Mar., 2/Jun. – 16/Jul.
Kenji IGARASHI/ Mr.	3R Planning	2013: 21/Apr. – 10/Jun., 7/Oct. – 15/Nov., 2014: 13/Jan. – 19/Feb., 9/Jun – 9/Jul. 28/Oct. up to 27/Nov.
Akiko ABE/Ms.	Civic Education/ Social Survey	2013: 19/Mar. – 24/Apr., 3 - 8/Jun., 24/Jun. – 6/Jul., 22/Jul. – 9/Aug., 19 - 21 and 26 - 31/Aug., 2 - 4/Sep. 27/Sep. – 8/Oct., 2014: 6 - 30/Jan., 10 – 14/Feb.
Choshin HANEJI/Mr.		2014: 23/Aug. – 1/Oct.
Grace Marco NEPTUNO/Ms.	Financial Management Development	2013: 2/Apr. – 16/May, 29/Jun. – 12/Aug., 2014: 21/Jan. – 8/Mar., 4/Nov. up to 27/Nov.
Tomoyuki HOSONO/Mr.	Impact Evaluation	2013: 29/Jun. – 27/Jul., 25/Oct. – 30/Nov. 2014: 8/May – 13/Jun., 5/Aug. – 20/Sep. 11/Nov. up to 27/Nov.
Ryu KOIDE/Mr.	Project Coordinator/ 3R Planning and Impact Analysis II	2013: 18/Mar. – 30/May, 2014: 3/Feb. – 5/May., 8/May – 11/Jun. 7/Sep. – 25/Oct.

Annex 5 List of Seminars and Workshops Organized in Mozambique

1) Project Overall

01 April 2013	JCC	1st JCC	Project Presentation
02 April 2013	External Meeting	Projects Presentation at CMM	Project Presentation
31 Jul 2013	JCC	2 nd JCC	Confirm progress of Project activity Discuss future Project activity
9 Jun 2014	JCC	3 rd JCC	Confirm progress of Project activity Discuss future Project activity

2) Output 1

14 July 2014	Presentation Meeting	Workshop (waste composition)	Training in Excel Sheet for the waste amount composition computation
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3) Output 2

7 June 2014	Workshop	Community Meeting in Chamanculo D	Explanation and discussion of the source separation the P/P Distribution of leaflet
14 June 2014	Workshop	Community Meeting in Chamanculo D	Explanation and discussion of the source separation the P/P Distribution of leaflet
24 June 2014	Workshop	Educational meeting to school students about P/P	Explanation of the source separation the P/P Distribution of leaflet
8 July 2014	Workshop	Educational meeting to school students about P/P	Explanation of the source separation the P/P Distribution of leaflet
15 July 2014	Workshop	Educational meeting to school students about P/P	Explanation of the source separation the P/P Distribution of leaflet

4) Output 3

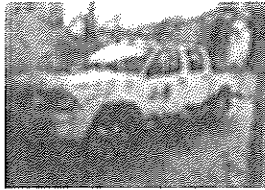
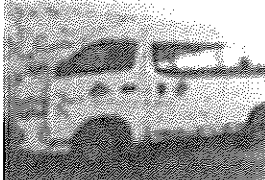
4-1) 3R

28 Nov 2013	Workshop	1 st Workshop for 3R (Waste flow)	Discussion with participants to collect data and information on Waste flow
17 Feb 2014	Workshop	2 nd Workshop for 3R (Waste flow)	Discussion with participants to collect data and information on Waste flow
2 July 2014	Workshop	3 rd Workshop for 3R (Promotion of 3R)	- 2 nd Project year activities - Organic waste reduction PP - Material Flow

4-2) Civic Educations

12 Jul. 2013	Workshop	Civic Education Program	Discussion with stakeholders on Civic Education Program
02 – 04 Sep 2013	Campaign	Civic Education Program	Civic Education Campaign
08 Jan 2014	Campaign	Cleaning Campaign	Cleaning campaign in beach, Costa de Sol

ANNEX 6 List of Machinery and Equipment Provided by JICA

No.	Name of equipment	Model	Manufacturer	Original Quantity	Location	Photo
1	car	Hardbody 2.5 Double Cab 4WD	NISSAN	1	DMGRSUS	
2	Car	Urban 2.5TDi 15 Seats 4x2	NISSAN	1	DMGRSUS	

ANNEX 7 List of Counterpart Personnel in Mozambique

Name of Counterpart	Position/Department	Related Output
Florentino Abilio Geraldés Ferreira	City Councilor of Solid Waste Management	Project Director
João Agostinho Mucavele	Director, Municipal Directory of Urban Solid Waste Management	Project Manager 1, (2,3,4)
Luiza Langa Bila	Coordinator of the Planning and Monitoring Department	1, (2,3,4)
Sergio Manhique	Head of Distribution Monitoring & Quality Control	1,3
Martins Mandlate	Head of Department of Urban Solid Waste Management	2, (1)
Mariamo Stela	Coordinator of Cleaning campaigns, Reporting activities, analysis and processing of Hulene	2, (4)
Anselmo Salvador Inguane	Manager of secondary collection contracts	2
Euridia Isabel	Coordinator Collect primary activities in the suburban area	2,4
Florencia Francisco	Coordinator of Civic Education activities and secondary Collection	2,4
Ludite Sara	Coordinating the activities of Environmental Education in Schools 3Rs hierarchy/ Monitoring of Master Plan and protective social reintegration into civil society of collectors	4
Rute Massingue	Coordinating the activities of Environmental Education in Schools 3Rs hierarchy/ Monitoring of Master Plan and protective social reintegration into civil society of collectors	4
Carlos Siteo	Budgetary planning and investment	3
Rosa Paulo Chissico	RAF income management	3

ANNEX 8 Participants of Training in Japan (2013)

Name of Counterpart	Position/Department	Related Output
Florentino Abilio Gerales Ferreira	City Councilor of Solid Waste Management	Project Director
João Agostinho Mucavele	Director, Municipal Directory of Urban Solid Waste Management	Project Manager 1, (2,3,4)
Sergio Manhique	Head of Distribution Monitoring & Quality Control	1,3
Martins Mandlate	Head of Department of Urban Solid Waste Management	2, (1)
Anselmo Salvador Inguane	Manager of secondary collection contracts	2
Euridia Isabel Cesar Sithoy	Coordinator Collect primary activities in the surburban area	2,4
Florencia Francisco Martins	Coordinator of Civic Education activities and secondary Collection	2,4
Rosa Paulo Chissico	RAF income management	3

ANNEX 9 Schedule

Date		Kazunao Shibata JICA Global Env. Dep.	Ken Okumura JICA Global Env. Dep.	Jun Totsukawa Evaluation and Analysis Consultant
11	Tue			18:25 Dep. Narita
12	Wed			10:45 Arr. Maputo PM Meeting with JICA office staff Interview to Mr. Soeda (Nippon Koei), chief of JICA Expert team
13	Thu			Interview to each JICA expert
14	Fri			Interview to C/Ps
15	Sat			
16	Sun			
17	Mon			Interview to C/Ps (continued)
18	Tue			Meeting with JICA Expert Report drafting
19	Wed		16:25 Dep. Haneda	
20	Thu		10:45 Arr. Maputo PM Internal Meeting	AM Report drafting PM Internal Meeting
21	Fri	18:25 Dep. Narita	9:00-11:00 Meeting with Mr. Joao Agostinho Mucavele and Ms. Luisa Langa Bila to explain preliminary result of Review 13:30-15:00 Meeting with Mr. Mucavele and Mr. Sergio Manhique on revising indicators of PDM	
22	Sat	10:45 Arr. Maputo		
		Site Visit to Suburb Area, Hulene dumping site, Recycling Activity by Cooperative, Internal Meeting		
23	Sun	Site Visit to Central Area, Eduardo Mondlane University, Internal Meeting		
24	Mon	9:00-12:00 Discussion with C/Ps on Minutes of Meetings (M/M) and Report 14:00-15:00 Courtesy Call to Project Director (Mr. Florentino Ablio Ferreira) 15:15-16:30 Discussion with the World Bank PROMAPUTO II mission		
25	Tue	8:00-12:00 Discussion with C/Ps on M/M and Report, revising indicators of PDM		
26	Wed	AM JICA Mission conduct site visit of Endline survey in Chamanclo D Bairro 13:00-14:00 Finalizing M/M and Report among Joint Review Team		
27	Thu	8:30-11:30 Joint Coordination Committee and Signing of M/M Report to JICA office		
28	Fri	11:30 Dep. Maputo		
29	Sat	19:15 Arr. Haneda		20:15 Arr. Narita

Project Design Matrix (PDM)

APPENDIX III

Project Title: The Project for Promotion of Sustainable 3R Activities in Maputo
 Duration of the Project: 4 years
 Target Group: Municipal Council of Maputo (CMM) and people living in Maputo City
 Target Area: Maputo City (excluding Kalande and Kenzate)

Version 3.0
 Date: 27 November 2014

Narrative Summary	Objectively Verifiable Indicators	Objectively Verifiable Indicators (revised)	Means of Verification	Important Assumption
<p>Overall Goal</p> <p>The urban environmental and living condition in Maputo City is improved.</p>	<p>1) Amount of inadequate waste disposal is decreased. -> Definition of "adequate waste disposal" will be discussed and determined when the MPP will be updated in 2017. 2) Amount of final waste disposal per person is decreased.</p>	<p>1) Amount of inadequate waste disposal ("I") is decreased. 2) Amount of final waste disposal per person is decreased. 3) Amount of collected recyclables is increased. 4) Rate of residents who understand the definition of 3R and engage 3R activities increases from X% in 2017 to X% in 2020. 5) Satisfaction of citizen for solid waste management is increased.</p>	<p>1) 2) 3) 5) Annual Social Survey of CMM -> Clear contents of the report shall be discussed during the project</p>	
<p>Project Purpose</p> <p>Capacity for Solid Waste Management (SWM) in CMM is improved.</p>	<p>1) The MPP for post-termination of the Project is approved by CMM 3) A guideline of SWM for Maputo City, a draft of MPP for post-termination of the Project, the Action Plan toward 2021 are developed</p>	<p>1) The MPP for post-termination of the Project including plans to promote sustainable 3R activities is approved by CMM. 2) Results of capacity assessment achieve at X form of 5 scale evaluation. 3) Workshops to share and examine drafts of the Guidelines, the Action plan, and the MPP for post-termination of the Project, are held among related authorities and stakeholders at least 2 times during the Project period. 4) Guidelines of SWM for Maputo City are approved by CMM.</p>	<p>1) 4) Minutes of Municipal Council (Approval of MPP) 2) Capacity Assessment sheet 3) Project Report</p>	<p>The current policies and laws for SWM in Maputo City will not change drastically. • The CMM will secure the enough budget to continue the activities proposed in the Project.</p>
<p>Outputs</p> <p>1. Capacity to analyze the current status of SWM in CMM is improved.</p>	<p>1) CMM understands progress and differences of the current MPP. 2) CMM understands public perception about SWM</p>	<p>1) CMM understands progress and differences of the current MPP. 2) CMM understands current status about SWM.</p>	<p>1) Updated MPP 2) Social survey, waste quantity & composition survey, time & motion survey, current situation survey -> Through the obtaining these means, it shall be considered how to measure the understanding of above indicators quantitatively.</p>	<p>The Mozambican counter personnel of the Project will not change their position dramatically during the Project term. Stakeholders will not oppose to the implementation of each Pilot Projects.</p>
<p>2. Capacity to collect and transport of SWM in project target area (cooperation with private sector) is improved</p>	<p>1) Amount of collection and transportation of solid waste is increased by XX% -> It shall be determined when the future projection of waste generation would be done at the stage of MPP updating 2) Number of Barrios where recyclable collection of solid waste is continually implemented is increased to XX (number) -> Definition of "recyclable collector" will be determined in 2nd year. 3) Rate of broken container is decreased by XX% 4) Number of container adequately allocated is increased to XX (number) -> These will be carefully discussed based on the monitoring result on waste container collection</p>	<p>1) Amount of collection and transportation of solid waste is accurately monitored by CMM and missing data or discrepancy with data reported by the large-scale contractors is less than X % of the total amount 2) Number of Barrios where recyclable collection of solid waste is continually implemented is increased to at least 1. 3) Number of instructions to large-scale contractors is more than X times. 4) Number of citizens regarding waste collection from the residents in Maputo city decreases 20 %.</p>	<p>1) Project report / annual monitoring report of DMGRSUS to describe solid waste collection and transportation amount quoting from neighborhood report. 2) Project report / annual monitoring report of DMGRSUS (to measure the number of Barrios to implement recyclable collection) 3) 4) Project report / annual monitoring report of DMGRSUS</p>	

2024/10/10

<p>3. Capacity for financial management of SWM in CHM is improved.</p>	<p>1) Financial operation procedure is shared with official document. 2) Revenue baseline data is regularly collected and reported. 3) Budget is planned by considering the variance between budget execution and budget plan of the previous year.</p>	<p>1) Financial operation procedure is shared with official document. 2) Basic Revenue and Cost data is regularly collected and reported. 3) Annual budget execution rate reaches to 100% ± 1.5% in 2015 and 2016. 4) Sustainable financial management strategy for SWM sector is developed.</p>	<p>1) Financial operation manual 2) Annual financial report 3) Annual budget planning report 4) Sustainable financial management strategy for SWM sector</p>
<p>4. 3R activities for reduction of solid waste (including private sector) is introduced in project target area.</p>	<p>1) Educational material about 3R is developed -> Types of educational material shall be discussed in 2nd year. 2) New office for civic education is established in DMGRSUS. 3) Amount of material recovery in the Pilot Project area is increased by XX%. 4) Amount of compost in the Pilot Project area is increased by XX%. -> Detail value of indicators shall be discussed and determined in the Pilot Project designing stage in 2nd Year</p>	<p>1) Educational material about 3R is developed 2) New office for civic education is established in DMGRSUS. 3) XNUM schools conduct civic education related 3R. 4) Participation rate of households who conduct segregation of recyclables in the PP area is doubled. 5) 50% of households who participated the PP for utilization of organic waste continues the activity. 6) Number of participants from private sector in 3R workshops is increased to XX(number).</p>	<p>1) (1,2),3),4),5) Project Report / Annual Report of CHM</p>
<p>Activities</p> <p>1-1 Review the existing MIP and identify differences compared to actual situation. 1-2 Collect and review latest information and data of waste quantity and composition and final disposal volume 1-3 Update the existing MIP. 1-4 Develop an Action Plan for the project period based on the updated MIP 1-5 Develop a guideline of SWM for Maputo City. 1-6 Set a target of SWM for post-termination of the Project and develop a draft of MIP. 1-7 Develop the Action Plan toward 2021.</p> <p>2-1. Review the situation of waste collection and transportation in Maputo City 2-2. Develop a plan for a Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area. 2-3. Implement the Pilot Project for improvement of waste collection and transportation in cooperation with private sector in urban area. 2-4. Review and feedback the result of the Pilot Project conducted in Activity 2-3. 2-5. Based on the result of Activity 2-4, a plan for a Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs is planned 2-6. Implement the Pilot Project for introduction of recyclable collection at the primary collection of solid waste in suburbs planned in Activity 2-5. 2-7. Review and feedback the result of the Pilot Project conducted in Activity 2-6. 2-8. Develop the Action Plan for improvement of waste collection and transportation</p> <p>3-1. Review and analyze the current financial management of SWM to identify problems. 3-2. Collect periodical data on tax-and-spend of wastes every month. 3-3. Enter the data and calculate annual budget and monthly expense. 3-4. Develop annual financial report. 3-5. Develop annual budget planning. 3-6. Review the waste service fee. 3-7. Develop the Action Plan for improvement of the financial management</p>	<p>Input</p> <p>1. Japanese Site (a) Dispatch of Experts - Chief Advisor / Solid Waste Management - Solid Waste Collection and Transportation - 3R Planning - Environmental Public Awareness Raising / Capacity Development - Financial Management Development (b) Vehicle (c) Equipment and Materials necessary for the Pilot Projects and Public Awareness Raising (d) Counterpart Training in Japan (2-3 counterpart personnel (C/PS) × twice) 2. Mozambican Side (a) Assign of Counterpart Personnel (C/PS) (b) Facilities and Equipment Necessary for the Project Implementation (c) Office Space for the Japanese Experts (d) Necessary Expenses for the Activities - Salaries and Other Allowance for Government Officials - Expenses for Utility such as Electricity, Water Supply, and Gas Fuel - Operational Expenses for Customs Clearance, Storage and Domestic Transportation</p>	<p>1) Japanese Site (a) Dispatch of Experts - Chief Advisor / Solid Waste Management - Solid Waste Collection and Transportation - 3R Planning - Environmental Public Awareness Raising / Capacity Development - Financial Management Development (b) Vehicle (c) Equipment and Materials necessary for the Pilot Projects and Public Awareness Raising (d) Counterpart Training in Japan (2-3 counterpart personnel (C/PS) × twice) 2. Mozambican Side (a) Assign of Counterpart Personnel (C/PS) (b) Facilities and Equipment Necessary for the Project Implementation (c) Office Space for the Japanese Experts (d) Necessary Expenses for the Activities - Salaries and Other Allowance for Government Officials - Expenses for Utility such as Electricity, Water Supply, and Gas Fuel - Operational Expenses for Customs Clearance, Storage and Domestic Transportation</p>	

4-1. Review the current status of recycling activities for recyclable materials (waste papers, glass, metals, and plastics) and organic wastes.
 4-2. Study possibility for recycling of materials (including cooperation with waste pickers).
 4-3. Review and improve public awareness raising programs for 3R introduction.
 4-4. Implement improved programs for 3R introduction.
 4-5. Develop a plan for a Pilot Project for promotion of recycling activities (cooperation with private sector) based on the results of Activity 4-2.
 4-6. Implement a Pilot Project for expansion of the recycling activities (cooperation with private sector) based on the result of Activity 4-2.
 4-7. Review the result of the Pilot Project in Activity 4-6, and develop a plan for promotion of the Pilot Project.
 4-8. Develop a plan for a Pilot Project for the utilization of organic waste.
 4-9. Implement the Pilot Project for the utilization of organic waste.
 4-10. Review the result of the Pilot Project in Activity 4-9, and develop a plan for promotion of organic waste utilization.
 4-11. Develop the Action Plan for expansion of the Pilot Project for valuable recycling and organic waste utilization.

*1. Inadequate waste management signifies inadequate management of containers, negligence of regular collection, illegal dumping or incineration, illegal disposal.

Pre-Conditions
 The CMM will secure the enough budget to implement the Project.

Projecto para a Promoção de Actividades Sustentáveis de 3R em Maputo
Agência Japonesa de Cooperação Internacional – Projecto de Cooperação Técnica



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Agenda para a 4ª Reunião do Comité de
Coordenação Conjunta

Objectivo:

- Rever e discutir o progresso do projecto
- Partilhar os resultados da Revisão Intermédia Conjunta
- Discutir planos e actividades futuras

Data e hora	27 de Novembro (Quinta Feira), 9:00 – 11:45
Local	Centro de Formação da CMM
Presidente	Florentino Ferreira (Vereador Municipal do CMM)
M/C (Mestre de Cerimónias)	Sérgio Manhique (Departamento de Planificação e Monitoria: DMGRSUS)

Agenda

8:30- 9:00	Registo dos participantes: DMGRSUS/JET
9:00- 9:10	Apresentação dos Participantes
9:10- 9:20	Notas de Abertura CMM/Florentino Ferreira (Vereador Municipal) JICA Moçambique/Chiharu Morita (Representante Residente Adjunta)
9:20- 10:10	Apresentação dos Resultados da Revisão Intermédia (equipa de Avaliação Conjunta) - Realizações das actividades do projecto (Luisa Langa Bila) - Avaliação com base nos 5 Critérios (Jun Totsukawa) - Resultados e Recomendações (Ken Okumura) - Conteúdos da Acta (Ken Okumura)
10:10-10:30	Sessão de Perguntas e Respostas
10:30-10:45	Intervalo para Café/ Chá
10:45-11:20	Discussão final e Confirmação - Confirmação dos Indcadores da PDM/ Sérgio Manhique (DMGRSUS) - Comentários finais sobre as actividades do projecto/ Shungo Soeda (Assessor Chefe da JET) - Comentários finais/ Kazunao Shibata (Líder da Missão)
11:20-11:30	Observações Finais CMM/Florentino Ferreira (Vereador Municipal)
11:40	Assinatura da Acta da Reunião

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