

DEC/ NCDC, Papua New Guinea

MECDM/ HCC/ GTC, Solomon

DEPC/ PVM/ LM/ Lenakel, Vanuatu

MNRE, Samoa

Improvement of Solid Waste Management – A & E
Papua New Guinea, Solomon, Vanuatu and Samoa
Project Completion Report

March 2014

Japan International Cooperation Agency

Yachiyo Engineering Co., Ltd.

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In this report the following exchange rates are applied (as of March, 2014)

Exchange Rate

PGK 1 = JPY 40.178 (March, 2014)

SBD 1 = JPY 14.093 (March, 2014)

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WST1 = JPY 45.04 (March, 2014)

Pictures of Activities in Papua New Guinea No.1



Ronnie, C/Ps conducting waste audit interviews (Jul. '13)



Vivianne and Ronnie, C/Ps preparing waste audit samples (Aug. '13)



Newspaper article on waste audit (Sep. '13)



MTR Team visiting Baruni with C/Ps (Sep. '13)



Baruni event presentation by Ms. Janet, C/Ps (Oct. '13)



Mr. James, C/P explaining Baruni rehabilitation design at Baruni event (Oct. '13)

Pictures of Activities in Papua New Guinea No.2



Chief Advisor Amano with Peter and other waste pickers (Oct. '13)



Newspaper article on Baruni event organized by JICA PNG Office (Oct. '13)



Winners of the Logo Competition, with JICA's Mr. Ito (Feb. '14)



John, Ronnie and Vivianne (C/Ps) explaining time & motion results at workshop (Feb. '14)



Group discussions at the workshop (Feb. '14)



Faafetai, Assistant Chief Advisor summarizing workshop discussions (Feb. '14)



DEC Secretary Joku, NCDC DCM Kiap, & JICA RR Sugiyama at 3rd JCC meeting (Feb. '14)



Participants in 3rd JCC meeting (Feb., '14)

Pictures of Activities in Solomon Islands No.3



Participants of Launching program for Waste Audit Survey Report (Aug. '13)



Presentation by Fijian Trainers at 2nd Eco School Program Workshop (Sep. '13)



Demonstration of Compost by JOCV at 2nd Eco School Program Workshop (Sep. '13)



Follow up School Visit Participants for Eco School Program (Oct. '13)



Community Meeting at Panatina Valley Community for the Pilot Project (Aug. '13)



Signboards Constructed at Panatina Valley Community for the Pilot Project (Jan. '13)



Official Guests at Launching Program for Collection Point/Waste Segregation Pilot Project (Feb. '14)



Entertainment by Community Group at Launching Program for Collection Point/Waste Segregation Pilot Project (Feb. '14)

Pictures of Activities in Solomon Islands No.4

	
<p>Site Visit at Ranadi Dumpsite with Counterparts (Aug. '13)</p>	<p>Installation of Gate at Ranadi Dumpsite (Dec. '13)</p>
	
<p>Waste Collection Observation with Counterparts in Honiara (Jul. '13)</p>	<p>Monthly Honiara Counterparts Meeting (Jul. '13)</p>
	
<p>Presentation of Action Plan by Teachers at Eco School Program Workshop in Gizo (Oct. '13)</p>	<p>Craft Arts with Recyclable Materials at Schools in Gizo (Feb. '13)</p>
	
<p>Site Visit at Gizo Dumpsite with Counterparts in Gizo (Oct. '13)</p>	<p>Distribution of 3R Stickers for Vehicles in Gizo (Nov. '13)</p>

Pictures of Activities in Vanuatu No.5



Waste discharge at Central market before Pilot Project implementation (Aug. '13)



Waste discharge at Freswota market before Pilot Project implementation (Aug. '13)



Heavy equipment at Luganville disposal site rented a few days every 6 months (Aug. '13)



Amos, PVMC C/P participating in waste audit survey in Luganville (Aug. '13)



C/P Amos, JICA's Asano san and JOCV Utako meeting with Wan Smol Bag, NGO (Aug. '13)



WSB and C/Ps implementing Mamas awareness at Central Market (Sep. '13)



WSB and C/Ps implementing Mamas awareness at Central Market (Sep. '13)



Launching Market Waste Compost PP (Oct. '13)

<u>Pictures of Activities in Vanuatu No.6</u>	
	
<p>Waste separation at Central market (Nov. '13)</p>	<p>C/P Roger inspecting waste separation at Freswota Market (Nov. '13)</p>
	
<p>Market green waste composting at Vanuatu Direct farm (Feb. '14)</p>	<p>DEPC Director Albert and LMC Town Clerk Peter, 3rd JCC Meeting in Luganvill (Feb., '14)</p>
	
<p>3rd JCC Meeting, LMC (Feb., '14)</p>	<p>3rd JCC meeting participants inspecting LMC disposal site (Feb. '14)</p>
	
<p>Director Albert and Facilitator Malcolm at Waste Minimization Policy W/S (Feb. '14)</p>	<p>Group discussions at Waste Minimization Policy W/S (Feb. '14)</p>

<u>Pictures of Activities in Samoa No.7</u>	
	
J-PRISM Steering Committee meeting participation (Sep. ' 13)	Inspection visit to Vaaiata disposal site with C/P (Sep. ' 13)
	
Operation of weighbridge at Tafaigata landfill (Sep. ' 13)	C/P Meredith (Tam) operating weighbridge (Sep. ' 13)
	
C/Ps set up collection point for bulky waste discharge (Oct. ' 13)	Bulky waste collection points (Oct. ' 13)
	
C/Ps booth for waste day (Oct. ' 13)	C/Ps organize school awareness (Oct. ' 13)

<u>Pictures of Activities in Samoa No.8</u>	
	
Composting demonstration at landfill (Sep. '13)	Composting demonstration at landfill (Sep. '13)
	
Waste separation at landfill (Jan. '14)	Landfill internal road after rain (Jan., '14)
	
Remains of aerator at leachate pond (Jan. '14)	Leachate outlet pipe in the pond (Jan. '14)
	
Pilot project collection truck (Feb., '14)	Bulky waste collection by PP (Feb. '14)

Project Target Areas

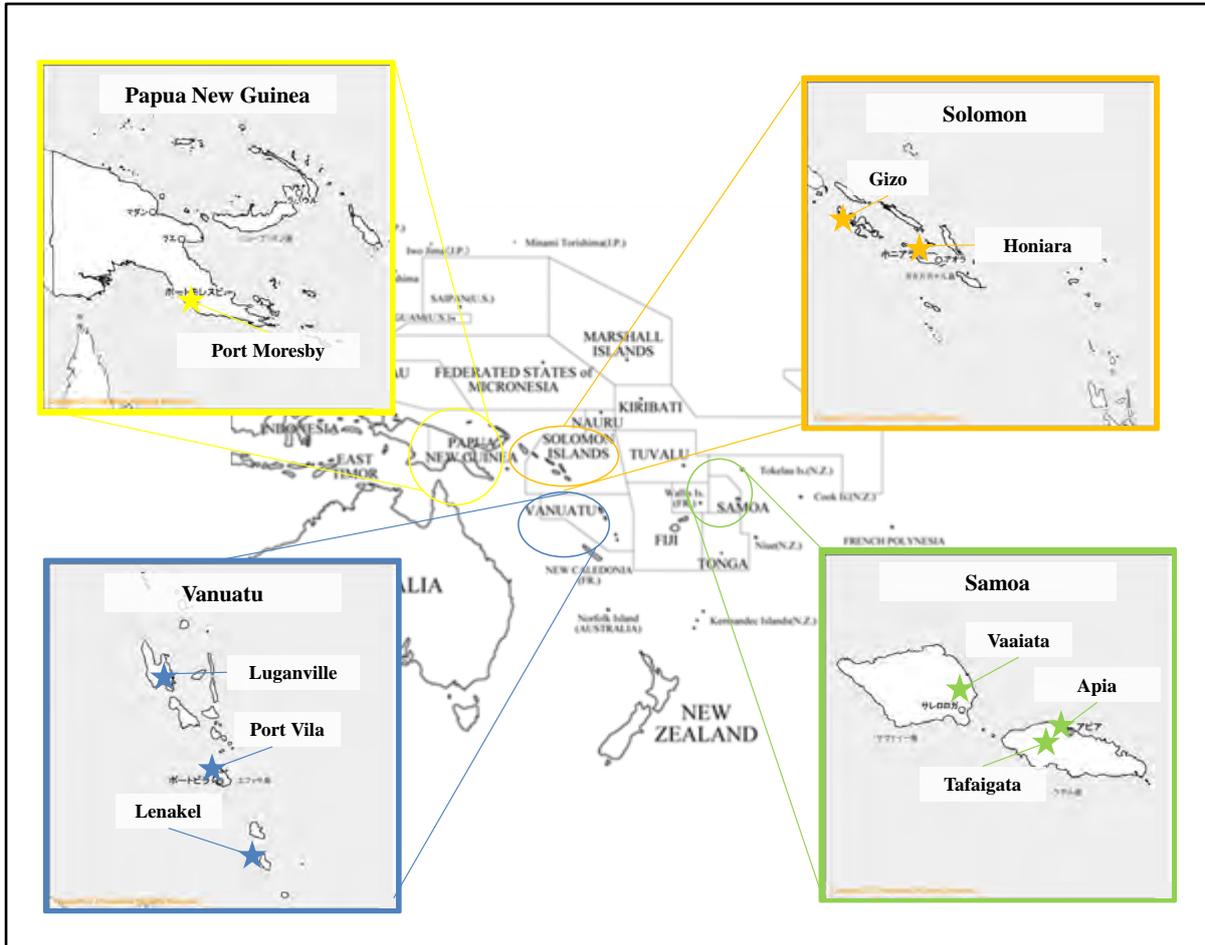


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List of Abbreviations

Abbreviations	English
3Rs	Reduce, Re-use and Recycle
3Rs HEART	Pilot project in Port Moresby of 3Rs for improvement of H ealth, E nvironment, A ttitude, R esource efficiency and T houghts
BOQ	Bill of Quantities
C/P	Counterpart
cap.	capita
CDL	Container Deposit Legislation
DEC	Department of Environment and Conservation, PNG
DEPC	Department of Environmental Protection and Conservation, Ministry of Climate Change, Vanuatu
DNPM	Department of National Planning and Monitoring, PNG
EIA	Environmental Impact Assessment
FS	Feasibility Study
GTC	Gizo Town Council, Solomon
HCC	Honiara City Council, Solomon
IFC	International Finance Corporation, World Bank (implementing a study in Samoa)
JCC	Joint Coordinating Committee
JET	JICA Expert Team (refers to the team formed by Yachiyo Engineering Co., Ltd to implement this assignment under contract with JICA)
JFY	Japanese Fiscal Year
JICA	Japan International Cooperation Agency
JOCV	Japan Overseas Cooperation Volunteers
J-PRISM	Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries
LM	Luganville Municipality
LMC	Luganville Municipal Council
MECDM	Ministry of Environment, Climate Change, Disaster Management and Meteorology, Solomon
MHMS	Ministry of Health and Medical Services, Solomon

Abbreviations	English
M/P	Master Plan
MNRE	Ministry of Natural Resources and Environment, Samoa
MoH	Ministry of Health, Vanuatu
MoLENR	Ministry of Lands, Environment and Natural Resources, Vanuatu
MOU	Memorandum of Understanding
MTR	Mid-term Review (implemented by JICA to evaluate the project progress)
MTRT	Mid-term Review Team
MWCPP	Market Waste Compost Pilot Project, implemented in Port Vila, Vanuatu
NCDC	National Capital District Commission
NGO	Non-Government Organization
NSWMS	National Solid Waste Minimization Strategy, Vanuatu
NWMS	National Waste Management Strategy, Vanuatu
NZAID	New Zealand Agency for International Development
NZ-VSA	Volunteer Services Abroad, New Zealand
O&M	Operation and Maintenance
PA	Project Assistant
PALM	Pacific Islands Leaders Meeting
PDM	Project Design Matrix
PGK	Kina (Papua New Guinea currency)
PIC	Pacific Island Countries
PMU	Project Management Unit, PNG
PNG	Papua New Guinea
PO	Plan of Operation
POM	Port Moresby, Papua New Guinea
PPP	Public Private Partnership
PVM	Port Vila Municipality
PVMC	Port Vila Municipal Council
RS2010	Pacific Regional Solid Waste Management Strategy (2010 - 2015)
SBD	Solomon Dolar (Solomon currency)
SPREP	Secretariat of the Pacific Regional Environmental Programme
SWM	Solid Waste Management
T&M	Time and Motion survey
t/d	ton per day

Abbreviations	English
VCCI	Vanuatu Chamber of Commerce and Industry
VT, VUV	Vatu (Vanuatu currency)
WMD	Waste Management Division, PNG
WPG	Western Provincial Government, Solomon
WSB	Won Smol Bag, NGO, Vanuatu
WST	Tala (Samoa currency)

Preface Background of the Assignment

1.1 Introduction

During the 1st Japan-Pacific Islands Leaders Meeting (PALM), convened in 1997, the importance of providing assistance by Japan to the Solid Waste Management sector in the Pacific Island Countries (PICs) was determined. In successive PALM meetings, which are held every three years, initiatives were taken to translate this decision into actions. Since 2000 JICA has been working closely with the Secretariat of the Pacific Regional Environmental Programme (SPREP) both on the regional as well as bilateral levels to improve SWM in the PICs, through dispatch of experts, developing the regional SWM strategy and provision of equipment and training. As shown in Figure 1, as a result of PALM 5 meeting, the Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries (hereinafter referred to as J-PRISM project) was inaugurated in February, 2011 and is scheduled to run up to February, 2016.

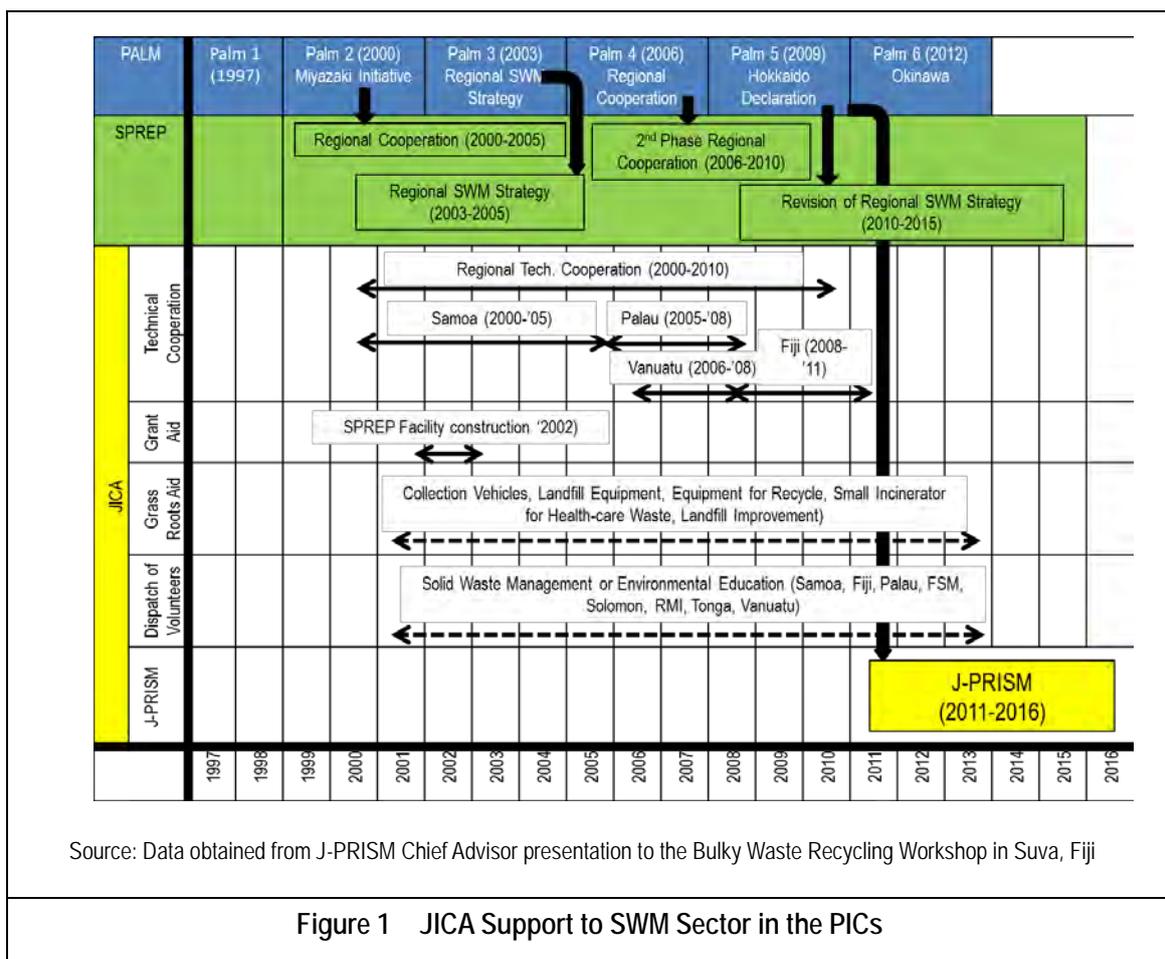
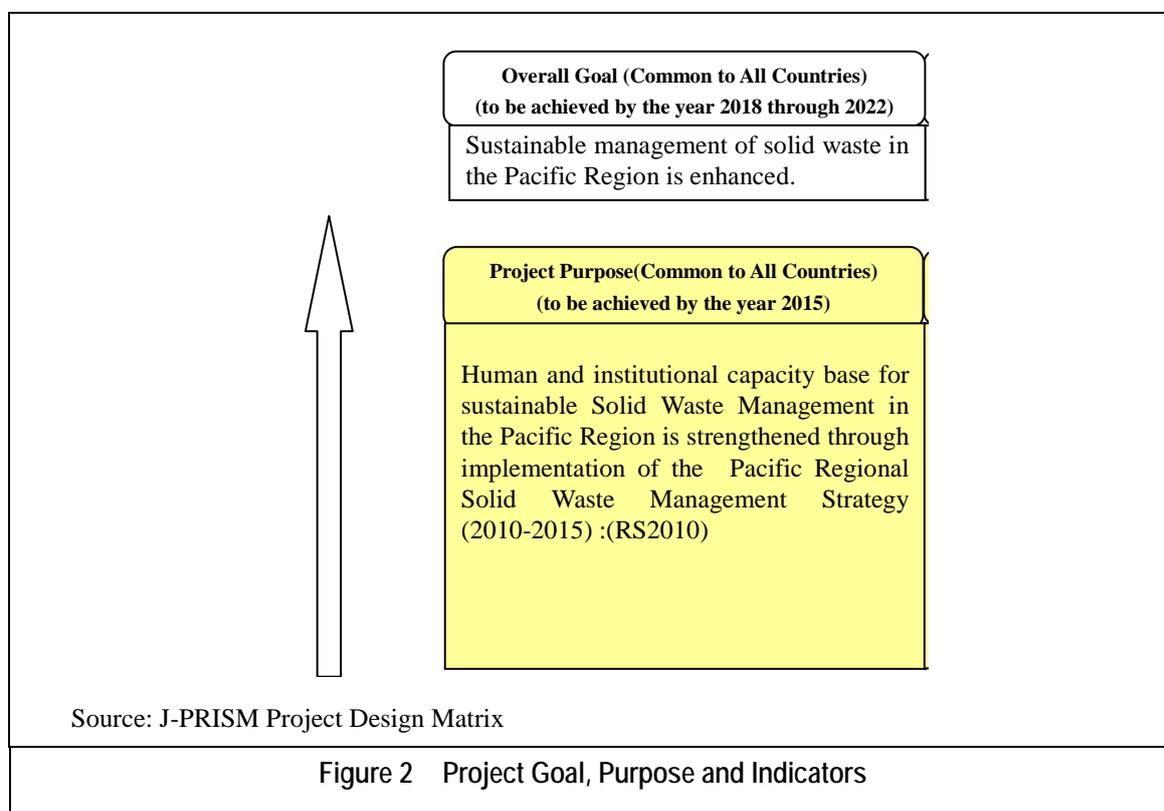


Figure 1 JICA Support to SWM Sector in the PICs

1.2 J-PRISM Regional Level Description and Objectives

The Overall Goal of J-PRISM is to enhance the sustainable management of solid waste in the PICs, as shown in Figure 1-2.



The Secretariat of the Pacific Regional Environment Programme (SPREP) and JICA prepared the Pacific Regional Solid Waste Management Strategy (2010-2015) (hereafter referred to as RS2010) where a number of priority areas were identified for the SWM sector. The J-PRISM regional outputs were developed considering some of these priorities. The five outputs and their relation with the RS2010 priorities are shown in Table 1.

Table 1 J-PRISM Regional Outputs

J-PRISM Regional Outputs	Priorities under RS2010
Output 1: Human capacity of SWM is strengthened through trainings and workshops	5. Capacity Building
Output 2: Waste management options for atoll are studied	2-2 Waste Disposal
Output 3: Standardized waste audit program is developed	(as above)
Output 4: Regional network among PIC countries is strengthened	7. Policy, Planning, Performance

J-PRISM Regional Outputs	Priorities under RS2010
Output 5: Regional system to monitor the RS2010 - 2015 is established	(*) Monitoring system of RS2010
Source: JPRISM Project Design Matrix (PDM) - Region-wide	

1.3 This JICA Expert Team

The activities of the J-PRISM project are implemented through assignment of counterparts by each of the 11 PICs covered in the Project to work with experts dispatched by JICA.

The JICA Chief Advisor for this project is stationed in Samoa and is supported by a regional expert serving as Assistant Chief Advisor and two JICA project coordinators dispatched from Japan. During the period from project commencement in 2011 to 2013, JICA dispatched 6 short term experts to the region, working under the Chief Advisor and having responsibilities for specified countries of the 11 PICs covered under the project. Short term experts A and E were assigned responsibilities for PNG, Solomon and Vanuatu. Samoa was covered directly by the Project Office.

The Experts dispatched under this JICA Expert Team (JET) were responsible for the Project activities in the four PIC countries of PNG, Solomon, Vanuatu and Samoa.

In addition to the regional outputs, each of the 11 individual countries developed their own outputs. These are shown in Figure 3, together with the cities targeted in each country for the project and the populations and estimated waste generation amounts for each of these cities. Details of the PDMs for each of the four countries are provided in the attachments of this report.

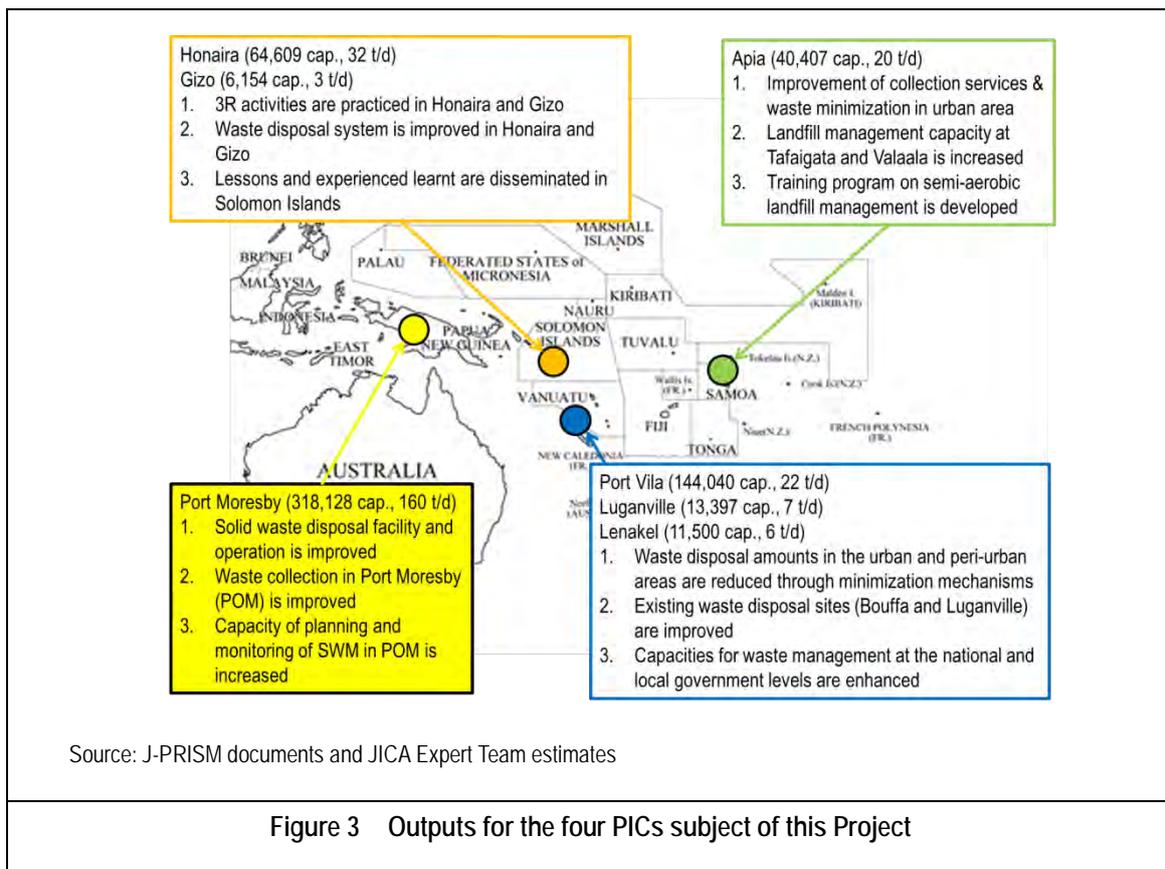


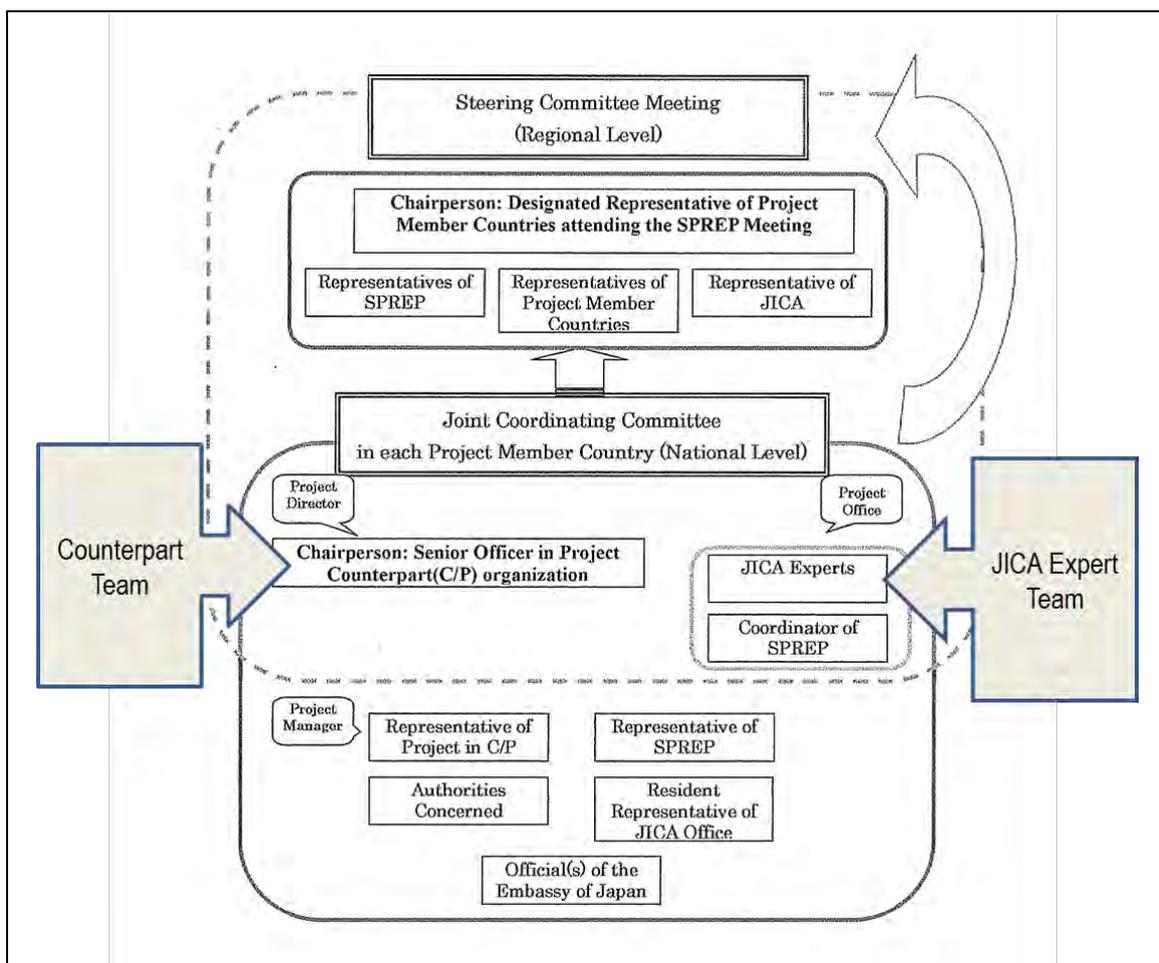
Figure 3 Outputs for the four PICs subject of this Project

It is clear from the outputs, that there is stress on the improvement of disposal facilities followed by waste minimization. In the case of PNG, SWM planning is determined as one of the outputs.

1.4 Project Organization

The organization structure for the Project is reproduced in Figure 4. A Steering Committee has been set up comprising members of each of the 11 PICs and meets once a year. The project activities at the country level are implemented by the Joint Coordinating Committee (JCC), the Counterparts and the JICA experts.

JCC is responsible to formulate the annual work plan of the Project, review the Project progress and exchange opinions on major issues that arise during the project implementation. The JICA Expert Team worked with the counterparts in each of the four countries, under the directions of the National Project Director and Project Office respectively.



Source: JPRISM Record of Discussion

Figure 4 Organization Structure for the J-PRISM Project

1.5 Assignment Reports

During the course of this assignment, JET has compiled and submitted the following reports to JICA and the counterparts.

(1) Work Plans

Four reports were prepared for each of PNG, Solomon, Vanuatu and Samoa. Each report contained the project background description, JET team assignment schedule, proposed methodology to implement the assignment tasks, JET’s understanding of the Project status in the respective countries and the counterpart composition.

The report was submitted to the Counterparts in each of the four countries, the JICA representative and branch offices, and the Project Office (Samoa) during the period of July and

August, 2013 for PNG, Solomon and Vanuatu and September 2013 for Samoa.. The report served as a base to reach a common appreciation of the status of the project activities as well as to re-confirm the counterparts assigned to the project.

(2) Assignment Completion Reports

Four reports were prepared for each of PNG, Solomon, Vanuatu and Samoa. Each report was prepared for each respective country in February 2014 and submitted to the relevant agencies of the counterparts, the JICA representative and branch offices, and the Project Office (Samoa). The report outlined the project activities implemented during the assignment period, as well as general recommendations. Each report included a number of attachments. The attachments contained reports, presentations, analysis and designs prepared basically by the counterparts during this assignment period as part of the Project activities, and under the guidance and support of JET.

(3) Project Completion Reports

The four reports submitted in February 2014 were compiled into one report which was produced in both English and Japanese. This final report was submitted to JICA in March 2014. In addition to the contents as described in section (2) the report also contained details of the expenses incurred during the JET assignment.

1.6 Local Expenses by JICA Expert Team

The estimated local expenses, covered by JICA Expert Team for 4 target countries, are shown in the table below. This cost only include domestic airfares; international airfares are excluded.

Table 2 Estimated Local Expenses by JICA Expert Team

	PNG (Kina)	Solomon (SBD)	Vanuatu (Vatu)	Samoa (Tala)
Employment of Local Staff	945.00	23,744.50	201,500.00	0.00
Rent of Vehicles	23,246.73		280,575.00	621.00
Rent of Meeting Spaces	0.00	0.00	0.00	0.00
Consumable Goods	0.00	0.00	0.00	0.00
Travel Fare	0.00	14,528.00	229,100.00	0.00
Communication (internet etc.)	1,230.00	5,450.00	27,550.00	460.00
Document Preparation (copy etc.)	500.00	1,090.00	0.00	0.00
Miscellaneous expenditure	9,822.33	16,901.00	154,039.00	222.00
TOTAL (Local currency)	35,744.06	61,713.50	892,764.00	1,303.00
Exchange Rate	40.178	14.093	1.075	45.04
TOTAL (JPY)	¥1,436,000	¥869,000	¥959,000	¥58,000
Total Amount				¥3,322,000

A Papua New Guinea

A-1 Assignment Implementation Brief

1.1 Project Members and Assignment Period

The JICA Expert Team was composed of four members as shown in Table 3.

Table 3 JICA Expert Team

Name		
1	Mahmoud RIAD	Team Leader/ SWM Expert E (PNG, Vanuatu, Samoa)
2	Hiroshi ABE	SWM Expert A1 (Solomon)/ Landfill Improvement (PNG, Solomon)
3	Akihiro OSADA	SWM Expert A2 (Solomon)
4	Takatoshi ARAI	SWM Expert E2 (Vanuatu)

Mr. Mahmoud RIAD and Mr. Hiroshi ABE were assigned to PNG as indicated in Table 4.

Table 4 JET Assignment in PNG

Name	Title	2013						2014	
		Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
Mahmoud RIAD	SWM-E	(13) ■	(14) ■		(14) ■			(7) ■	(6) ■
Hiroshi ABE	SWM-A1		(12) ■		(14) ■		(15) ■	(18) ■	

Note: Figures in parenthesis are numbers of days

Together both experts had a combined assignment period of 112 days.

It should be noted that the Project Office dispatched Mr. Faafetai, Assistant Chief Advisor to PNG three times during this period and Mr. Makoto Tsukiji twice.

The counterparts who directly participated in the Project activities during this assignment period are listed in Table 5.

Table 5 List of Counterparts - PNG

Name	Organization	Title	Comment
Gunther Juko	DEC	Secretary	Project Director
Joshua Sam	WMD, NCDC	Acting Manager	Project Manager
Janet Haua	WMD, NCDC	Senior Waste Management Officer	Project Coordinator
Simeon Terina	WMD, NCDC	Senior Waste Management Officer	Output 1 Manager
John Navara	WMD, NCDC	Senior Waste Management Officer	Output 2 Manager
Ronnie Ranu	WMD, NCDC	Senior Waste Management Officer	Output 3 Manager
Vivianne Morofa	WMD, NCDC	Waste Management Officer	
Kupil Alau	WMD, NCDC	Waste Management Officer	
Nanai Raja	WMD, NCDC	Waste Management Officer	
Walter Aukleya	WMD, NCDC	Waste Management Officer	
Paul Wisi	WMD, NCDC	Waste Management Officer	
Joseph Kaupa	WMD, NCDC	Supervisor	Disposal site
Sneka	WMD, NCDC	Supervisor	

1.2 Summary of Assignment Results

This Assignment period coincided with the 3rd FY of the Project; (April 2013 to March 2014). The most significant activities during this year and to which there was contribution from the JET team are as follows:

- (1) Designs for the Baruni rehabilitation were completed by the Counterpart and Project Engineer and related Bill of Quantities and cost estimates were made (Activity 1-2).
- (2) The Environmental Permit (Activity 1-3) was finally issued by DEC, paving the way for the rehabilitation works to commence in Baruni.
- (3) The items of the Operation and Maintenance Manual for Baruni disposal site were discussed in details between the Counterparts, present operations contractor and JET and the Manual has been prepared (Activity 1-5).
- (4) Water samples for testing water quality from surface water were obtained at Baruni disposal site, downstream the site and analyzed (Activity 1-6).

- (5) Other related works that were done included a survey of the waste pickers in Baruni to determine their numbers, ethnic backgrounds and those that are living inside the disposal site.
- (6) A survey of the incoming waste vehicles at the Baruni disposal site was started.
- (7) The Counterparts started the procedural works to procure the titles of the plots directly adjacent to Baruni in order to expand the site in the future
- (8) The Counterparts implemented time and motion surveys targeting both commercial and domestic wastes. The survey results were analyzed and a workshop was held with some of the waste collection contractors (Activity 2-2).
- (9) The 3Rs Pilot Project for schools launched the 3Rs logo competition amongst students (Activity 3-1).
- (10) Waste audit for domestic and commercial wastes was implemented in July – August 2013 (Activity 3-3).
- (11) The table of contents for the NCDC SWM Plan was drafted (Activity 3-5).
- (12) Support to the Mid-term Review Team

The Mid-term Review Team visited PNG in September, 2013 and held a number of interviews and meetings with the counterparts as well as visited the facilities. The JET Expert supported the MTR from time to time at meetings and facilities visits.

- (13) Public Awareness raising through use of the media started this year with the release of the first press release of the Project (on waste audit), wide coverage of the Baruni site visit by high officials of PNG arranged by JICA PNG office, and issuing of the first Newsletter.

1.3 Daily Activities

Over a total period of 112 days, the SWM Experts' daily activities are shown in Table 6.

Table 6 Main Activities during the Assignment Periods in PNG

No.	Date	Activity
First Assignment in PNG (SWM Expert E)		
1	2013/7/20	Arrival Port Moresby
2	2013/7/21	● Documents and data review
3	2013/7/22	● Meeting with C/Ps ● Meeting with JICA PNG Office
4	2013/7/23	(National Holiday) ● Internal meeting with Mr. Faafetai and Mr. Tsukiji
5	2013/7/24	● Site inspection visit to Baruni disposal site ● Meeting with Mr. Ravu Frank, Engineering Division
6	2013/7/25	● Counterpart team meeting
7	2013/7/26	● Meeting with Mr. Gunther Jock, Acting Secretary, DEC ● Inspection of waste audit sampling areas
8	2013/7/27	● Documents and data review at NCDC WMD office
9	2013/7/28	● Documents and data review
10	2013/7/29	● Meeting with representatives of Baruni waste pickers at the office
11	2013/7/30	● Meeting with Baruni disposal site operations contractor ● Meeting with C/Ps ● Inspecting waste audit survey activities
12	2013/7/31	● Meeting with PNG Recycling Company ● Meeting with Mr. Leslie, Acting City Manager ● Meeting with Mr. Augustine Ravi, Financial Advisor / Controller, NCDC
13	2013/8/1	● Counterpart Team meeting ● Reporting to JICA PNG Office
14	2013/8/2	Departure PNG
Second Assignment in PNG (SWM Expert E and A1)		
1	2013/8/26	Arrival Port Moresby (Riad and Abe)
3	2013/8/27	● Meetings with Counterparts individually ● Reporting to JICA PNG Office
4	2013/8/28	● Baruni disposal site inspection visit
5	2013/8/31	● Inspected the on-going waste audit survey
6	2013/9/1	● Documents and data review
7	2013/9/2	● Meeting with landfill group

No.	Date	Activity
		<ul style="list-style-type: none"> ● Inspected on-going waste audit survey
8	2013/9/3	<ul style="list-style-type: none"> ● Meeting with Goilala Foundation Incorporated to discuss about waste pickers ● Observation of waste audit survey ● Meeting with Mr. Augustine Ravi, Financial Advisor, NCDC
9	2013/9/4	<ul style="list-style-type: none"> ● Observation of waste audit survey ● Meetings with Counterparts individually
10	2013/9/5	<ul style="list-style-type: none"> ● Meeting with Counterparts' 3Rs Pilot Project group ● Meeting with Education Services, NCDC ● Meeting with the Mid-term Review Team
11	2013/9/6	<ul style="list-style-type: none"> ● Baruni disposal site inspection visit together with MTR Team
12	2013/9/7	<ul style="list-style-type: none"> ● Reporting to JICA PNG Office
13	2013/9/8	<ul style="list-style-type: none"> ● Meeting with MTR Team <p>SWM Expert A1 (Abe) departure Port Moresby</p>
14	2013/9/9	SWM Expert E (Riad) departure Port Moresby
Third Assignment in PNG (SWM Expert E and A1)		
1	2013/10/13	<p>SWM Experts E and A1 arrival Port Moresby</p> <ul style="list-style-type: none"> ● Meeting with Chief Advisor and JICA PNG Office Representative
2	2013/10/14	<ul style="list-style-type: none"> ● Meeting with Acting WMD Manager ● Meeting with Counterparts responsible for Output 1 ● Meeting with Acting City Manager
3	2013/10/15	<ul style="list-style-type: none"> ● Participation in Baruni Disposal Site event, arranged by JICA PNG Office
4	2013/10/16	<ul style="list-style-type: none"> ● Counterpart team meeting ● Meeting with Chief Advisor
5	2013/10/17	<ul style="list-style-type: none"> ● Meeting with Counterparts' landfill design team ● Reporting to JICA PNG office
6	2013/10/18	<ul style="list-style-type: none"> ● Meeting with Baruni landfill operator, Kana Construction ● Meeting with Counterparts responsible for the waste audit ● Meeting with Counterparts dealing with the waste pickers survey
7	2013/10/19	<ul style="list-style-type: none"> ● Discussion with Counterpart on collection and collection contractors
8	2013/10/20	<ul style="list-style-type: none"> ● Documents and data review
9	2013/10/21	<ul style="list-style-type: none"> ● Meeting with Acting WMD Manager

No.	Date	Activity
		● Discussed with supervisors on capacity assessment evaluation
10	2013/10/22	● Visit to Baruni disposal site ● Meeting with Sustainable Coastlines, NGO, NZ
11	2013/10/23	● Meeting with Kiui Samba Contractors (collection contractor)
12	2013/10/24	● Meeting with Counterparts individually ● Reporting to JICA PNG Office
13	2013/10/25	SWM Experts E and A1 departure Port Moresby
Fourth Assignment in PNG (SWM Expert A1)		
1	2013/12/1	SWM Expert A1 arrival Port Moresby
2	2013/12/2	● Meeting with Counterparts ● JICA PNG Office meeting
3	2013/12/3	● Meetings with Counterparts individually to discuss 3Rs logo competition, and T&M survey
4	2013/12/4	● Meetings with Counterparts
5	2013/12/5	● Meetings with Counterparts to discuss Project January schedule
6	2013/12/6	● Visit to Baruni disposal site
7	2013/12/7	● Documents and Data review ● Internal team meeting with Mr Faafetai and Mr Tsukiji
8	2013/12/8	● Documents and data review
9	2013/12/9	● Counterparts landfill group discussion
10	2013/12/10	● Counterparts landfill group discussion
11	2013/12/11	● C/Ps and landfill operator meeting
12	2013/12/12	● Visit to Baruni disposal site
13	2013/12/13	● Meeting with counterparts ● Reporting to JICA PNG Office
14	2013/12/14	SWM Expert A1 departure Port Moresby
Fifth Assignment in PNG (SWM Experts A1 and E)		
1	2014/1/12	SWM Expert A1 arrival Port Moresby
2	2014/1/13	● C/Ps meeting ● JICA PNG meeting
3	2014/1/14	● Meeting with Counterparts concerning Baruni disposal site
4	2014/1/15	● Meeting with NARI on water quality testing
5	2014/1/16	● Visit to Baruni disposal site to confirm water sampling locations
6	2014/1/17	● Preparations for waste vehicles incoming survey and water quality

No.	Date	Activity
		survey
7	2014/1/18	● Documents and data review
8	2014/1/19	● SWM Expert E arrival Port Moresby ● Documents and data review/ Internal team meeting
9	2014/1/20	● C/P meeting on JCC meeting arrangements ● JICA PNG Office meeting
10	2014/1/21	● Observation of incoming waste vehicles survey ● Meeting with Acting Secretary, DEC at JICA PNG office
11	2014/1/22	● Observation of incoming waste vehicles survey ● Meeting with UN WOMEN on market waste composting potential ● Counterpart team meeting
12	2014/1/23	● Water sampling observation ● Counterparts meeting on time and motion survey results analysis ● JICA PNG Office reporting
13	2014/1/24	● SWM Expert E departure Port Moresby ● Follow up on Baruni surveys
14	2014/1/25	● Incoming vehicle waste survey resumed at Baruni ● Counterparts individual meeting
15	2014/1/26	● SWM Expert A1 flight cancelled
16	2014/1/27	● Attended WMD Meeting
17	2014/1/28	SWM Expert A1 departure POM
Sixth Assignment in PNG (SWM Expert E)		
1	2014/2/24	SWM Expert E arrival POM ● Meeting with Counterparts
2	2014/2/25	● 3Rs HEART Logo Competition Award Ceremony and Collection contractors workshop
3	2014/2/26	● Discussions with Counterparts and preparing for 3 rd JCC meeting
4	2014/2/27	● 3 rd JCC Meeting ● Meeting with City Manager and UN WOMEN
5	2014/2/28	● JICA PNG Office Reporting
6	2014/3/1	Departure Port Moresby

1.4 Implementation Methodology

During the assignment periods in PNG, JET worked under the following guidelines.

- (1) Maintaining the J-PRISM principle of developing C/Ps' capacities through their direct implementation of the Project activities. During this assignment period, the Counterparts, receiving advise and comments from the JET, implemented the following main tasks directly:
 1. The design, BOQ and costs estimates for Baruni rehabilitation
 2. Preparation, submission and follow-up on the Environmental Permit application for Baruni rehabilitation
 3. Developing an operation and maintenance manual
 4. Conducting waste pickers survey
 5. Conducting incoming waste vehicles survey
 6. Implementing time & motion survey, analyzing the data and preparing the draft report
 7. Workshop for the waste collection contractors based on results of the T&M survey
 8. Developing the 3Rs Pilot Project, visiting schools and stakeholders, and launching the logo competition
 9. Conducting waste audit survey and analyzing the data
 10. Explaining and making presentations at the Baruni event (October 15, 2013), newspapers and on radio and TV. Themes the Counterparts covered included overall SWM in POM, Baruni rehabilitation designs, waste audits and T&M surveys.
- (2) Working in the same office with the C/Ps most of the time
- (3) Site visits and meetings with stakeholders were principally conducted together with a C/P
- (4) Regular discussions with the C/Ps on an individual as well as collective basis
- (5) Minimizing interruptions to the C/Ps' daily works while maximizing utilization of the limited assignment periods
- (6) Maintaining personal records of activities and discussions
- (7) Reporting to JICA PNG Office and the Project Office on a regular basis
- (8) Trying to understand the cultural and work environment
- (9) Providing realistic and suitable suggestions, advice and guidance to the C/Ps
- (10) Being patient and keeping an open mind

A-2. Details of the Assignment Implementation

2.1 Details of the Assignment Implementation

2.1.1 Plan of Operation

The Plan of Operation (PO) was amended based on recommendations put forward by the MTR Team in September 2013 and accepted by the PNG C/Ps in January 2014.

The PO is summarized as follows.

	Overall Goal (Same for all PICs)	Objectively Verifiable Indicator
	Sustainable management of solid waste is enhanced.	1. To be discussed
↑	Project Purpose	Objectively Verifiable Indicator
	Human and institutional capacity base for sustainable solid waste management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010 – 2015) (RS2010)	[PNG] 1. Four (4) Experts (Trainers) are listed in the SPREP inventory 2. Landfill management/ collection services are implemented according to the SWM plan

Project Outputs and Associated Activities - PNG

Outputs and Activities	Objectively Verifiable Indicator
OUTPUT 1 Solid waste disposal facility and operation is improved	
1-1 Conduct site investigation into Baruni dumpsite	1-1 Baruni upgrading plan is prepared and implemented
1-2 Develop a work plan for the rehabilitation of the Baruni dumpsite	1-2 Operation and maintenance manual is prepared and implemented
1-3 Undertake Environment Permit application process in order to obtain an Environment Permit	
1-4 Undertake upgrading work on the Baruni rehabilitation	

<p>1-5 Develop an O&M manual for Baruni dump</p> <p>1-6 Establish water monitoring system</p> <p>1-7 Conduct training for operators</p> <p>1-8 Monitor upgraded landfill operations and evaluate efficiency</p>	
OUTPUT 2 Waste collection in Port Moresby is improved	
<p>2-1 Develop work plan to carry out time-and-motion study</p> <p>2-2 Undertake time-and-motion study</p> <p>2-3 Analyse results and generate study report</p> <p>2-4 Amendments to the collection contractors contracts</p> <p>2-5 Conduct training for all contractors</p> <p>2-6 Monitor and evaluate at scheduled intervals</p>	<p>2-1 Collection coverage is increased to 70%</p> <p>2-2 Number of complaints are reduced by 30%</p> <p>2-3 One Time and Motion study conducted by NCDC itself annually</p>
OUTPUT 3 Capacity of planning and monitoring of Solid Waste Management in Port Moresby (National Capital District: NCDC) is increased	
<p>3-1 Promotion of 3Rs for inclusion in the plan</p> <p>3-2 Develop work plan for the waste characterization exercise</p> <p>3-3 Undertake waste characterization exercise</p> <p>3-4 Analyze results and generate report</p> <p>3-5 Develop Solid Waste Management Plan for Port Moresby</p> <p>3-6 Adoption of Waste Plan by DEC and NCDC managements</p> <p>3-7 Implement and monitor the Waste Management Plan</p>	<p>3-1 SWM Plan is developed and adopted</p> <p>3-2 Solid Waste Management budget is prepared and SWM expenditure is analyzed for FY2015</p>

2.1.2 Progress of the Plan of Operations Activities

The status of each of the activities and the progress during this assignment period is described hereafter.

OUTPUT 1 Solid waste disposal facility and operation is improved
1-1 Conduct site investigation into Baruni dumpsite
<p>The Counterpart responsible has developed the basic design and determined the project costs and resources required. The adopted basic design was a modification of the previous conceptual designs prepared in earlier years. NCDC has also moved to acquire the four adjacent plots to the Baruni disposal site. Further details are in Attachment A-1</p>
1-2 Develop a work plan for the rehabilitation of the Baruni dumpsite
<p>The site investigation into the Baruni Dump site was completed in the previous fiscal year and the report was submitted to NCDC. However, certain geotechnical information was missing so a letter was addressed to the Consulting firm requesting the resubmission of this information.</p>
1-3 Undertake Environment Permit application process in order to obtain an Environment Permit
<p>After discussions amongst counterparts, Project Chief Advisor wrote to DEC in April 2011 and requested for a down grade in EIA process due to the rehabilitation nature of work. DEC consented to the request and on the 26th of June 2011, officially downgraded the project from a Level 3 (category 21.1) activity to a Level 2B (Category 11.3) activity. Accordingly an EIA would not be required. NCDC however needed to apply for an Environmental Permit to discharge waste into the environment, and this was done during this fiscal year. The environmental permit was issued by DEC in December 2013.</p>
1-4 Undertake upgrading work on the Baruni rehabilitation
<p>During this assignment period discussions were held with the contractor proposed by NCDC to implement both the operation and the rehabilitation works on a 3-year contract. Preliminary rehabilitation works were implemented to improve the site conditions before the Baruni visit event which was held on October 15th, 2013. The entrance area of the site was levelled and much of the scrap metal in this area and along the access road leading up to the site was removed.</p> <p>Preliminary survey of the waste pickers started with the identification of the number of waste pickers living and working at the site and their groups' formation, as shown in Attachment A-2. Discussions were held with some of them to explain the rehabilitation objectives. This work is expected to continue as the rehabilitation work progresses.</p> <p>The survey of the incoming waste vehicles commenced in January 2014 but was suspended after three (3) days due to heavy rainfalls. The Counterparts are expected to re-start the survey.</p>

1-5 Develop an O&M manual for Baruni dump
The requirements of the operation and maintenance of a sanitary landfill were discussed within the Project Team and together with the operation contractor. Presently a detailed O&M Manual is being developed. The O&M contents are shown in Attachment A-3 .
1-6 Establish water monitoring system
Surface water samples were taken from locations downstream of the site during the rainy season (January and February, 2014). The results were analyzed and will form the baseline for future monitoring of the effectiveness of the rehabilitation and improved operations at the site. The boreholes prepared in 2011-'12 for groundwater monitoring need to be re-checked as they have been filled up with waste. Results of the water sampling and analysis are shown in Attachment A-4 .
1-7 Conduct training for operators
Preliminary discussions on the operation requirements have commenced. On-site training will be conducted as the implementation work actually commences and the contract formalities with the proposed contractor/ operator completed.
1-8 Monitor upgraded landfill operations and evaluate efficiency
The rehabilitation works are expected to be completed in phases over three years. Operation of the upgraded landfill will be monitored in accordance with the phasing schedule and should start with the completion of the 1 st phase of the upgrading work, so as to be conducted within this Project.
OUTPUT 2 Waste collection in Port Moresby is improved
2-1 Develop work plan to carry out time-and-motion study
This activity had been completed according to NCDC.
2-2 Undertake time-and-motion study
The time-and-motion study for both commercial waste and domestic waste collection were implemented during this fiscal year. All the WMD officers participated in the survey works.
2-3 Analyze results and generate study report
The report of the time and motion study completed in 2011 was drafted and reviewed. It is now under finalization. The analysis of the survey data of this year has been completed and a preliminary report has been prepared. The Counterparts have made enormous efforts to implement the survey, input and analyze the data. They realize the need to make more efforts to produce the final report in order to benefit all the stakeholders. Preliminary

analysis results for the time and motion done in 2013 are provided in Attachment A-5 .
2-4 Amendments to the collection contractors contracts
No work was done on this activity during this fiscal year.
2-5 Conduct training for all contractors
Based on the analysis of the Time and Motion survey a workshop was held with a number of the operators and issues were discussed. A brief explanation of the workshop proceedings are given in Attachment A-6 .
2-6 Monitor and evaluate at scheduled intervals
No work was done on this activity during this fiscal year.
OUTPUT 3 Capacity of planning and monitoring of Solid Waste Management in Port Moresby (National Capital District: NCDC) is increased
3-1 Promotion of 3Rs for inclusion in the plan
<p>During this fiscal year the Project team introduced this activity in the Plan of Operation. The 3Rs school pilot project was launched with meetings with the educational authorities to confirm the plan and schools to be selected, meetings in schools to promote 3Rs and launching of the 3Rs logo competition. The selected logos were announced in a ceremony held on February 25th, 2014 and the selected logo is shown in Attachment A-7. The implementation of this pilot project will be done in the coming fiscal year.</p> <p>The Project team has also started considering implementing a compost pilot project using the market green waste. The team is now trying to secure a location for the composting, possibly at Baruni landfill and end-users for the produced compost. As these arrangements are made the team is following the activities of UN Women to improve market conditions and will advise on the program to improve segregation of the green market waste at the markets and the required bins and space.</p>
3-2 Develop work plan for the waste characterization exercise
This activity had been completed.
3-3 Undertake waste characterization exercise
Reports for the waste characterization survey done in 2011 are not yet completed. The Project team implemented a new waste audit survey during this fiscal year and developed the results. The study on waste incoming to Baruni dumpsite has been undertaken in January, 2014.
3-4 Analyze results and generate report

<p>For the waste audit survey implemented in 2011 the counterparts analyzed the results and prepared the draft report. For the 2013 waste audit survey the counterparts analyzed the results. The experts have reviewed the analysis for both surveys and the draft report prepared for 2011. It is now necessary for the counterparts to finalize the reports for both surveys.</p>
<p>3-5 Develop Solid Waste Management Plan for Port Moresby</p>
<p>This activity has been progressing slowly to date, and is one year behind schedule. However the counterpart team intends to develop the plan during the next fiscal year. A draft table of contents, prepared by SWM Expert E is now under review by the Counterpart Team (refer to Attachment A-8).</p>
<p>3-6 Adoption of Waste Plan by DEC and NCDC managements</p>
<p>The Project team intends to produce a draft of the plan by October of 2014, and hold a number of consultation meetings with stakeholders by the end of 2014. The plan will then be submitted to the managements of DEC and NCDC by early next year for ratification and adoption.</p>
<p>3-7 Implement and monitor the Waste Management Plan</p>
<p>As indicated above, the target of the team is to adopt the Waste Management Plan for Port Moresby during the next fiscal year and implementation should then proceed in 2015. This will coincide with the last year of this project.</p>

2.2 Mid-term Review Team Recommendations

The Mid-term Review Team (MTRT) formed by JICA visited PNG during August - September 2013. The team members conducted site visits, interviews with the counterparts and reviewed the project documents and data.

2.2.1 Evaluation of the Level of Achievement for the Project Outputs

The MTR report determined the levels of achievement for each of the three outputs as shown in Table 7.

Table 7 Mid-term Review evaluation of Outputs

Output	Level of Achievement	Description
OUTPUT 1 Solid waste disposal	C	<i>Delays of some activities have started to affect the achievement of this Output. It</i>

Output	Level of Achievement	Description
facility and operation is improved		<i>requires substantial effort to achieve this Output within the project period</i>
OUTPUT 2 Waste collection in Port Moresby is improved	B/C	
OUTPUT 3 Capacity of planning and monitoring of Solid Waste Management in Port Moresby (National Capital District: NCDC) is increased	B	<i>Although some activities have been slightly delayed, it will most likely recover its delay without any difficulties. At this moment, any progress has yet been reflected on the changes of the indicators.</i>
Source: Mid-term Review Report, September 2013		

The report has been circulated to the Counterparts and its contents will not be described further here.

2.2.2 MTR Recommendations to the Project and Countermeasures

The recommendations outlined in the MTR report and directed “to the Project (Implementing Agency and JICA Experts)” have been discussed with the Counterparts. The Counterparts have accepted the recommendations and described the countermeasures they will take for each recommendation as shown in Table 8.

Table 8 MTR Team Recommendations and Counterparts' Countermeasures

No.	MTR Team Recommendation to the Project	Countermeasures
1	To make alterations of indicators in the PDM and PO	The Counterparts have reviewed the suggestions and made amendments to the PDM and PO indicators.
2	To review and apply necessary and/or additional inputs to recover the delay of the Project	The senior officers intend to become more involved in the Project activities.
3	More frequent and better coverage of JICA experts' dispatch periods; the C/Ps requested sequential visits by JICA experts spread over longer periods.	The Counterparts request JICA to consider longer assignment periods for the JICA experts in PNG.

No.	MTR Team Recommendation to the Project	Countermeasures
4	To maintain the PMU's structure	Management changes involving the senior officers occurred twice during this assignment period. NCDC shall reflect these changes to the PMU structure and its responsibilities.
5	To maximize the opportunity for promoting general public awareness during the high level visit to Baruni dumpsite during October 2013	This has been done. Also after the visit, the counterparts have held at least two TV interviews to follow up on the Baruni rehabilitation plan and SWM in general.
6	To enhance dialogue with waste pickers and develop a consensus: It will be important to explain to the waste pickers what is going to happen at the dumpsite and how it will affect them. A framework should be developed that is acceptable to all concerned parties and which contains activities to improve the condition, environment and social services for waste pickers.	As the project proceeds, the dialogue shall go ahead. NCDC shall determine what it can do for some of the waste pickers NCDC shall control and coordinate the contractor's promises to the waste pickers.
7	To involve private sectors and/or NGOs interested in cleaning up or waste management for promotion of 3R activities.	The Counterparts intend to involve a number of stakeholders in the 3R activities.
8	To strengthen the involvement of supervisors of WMD to the Project and include them to the related activities.	Supervisors are already involved in the implementation of the surveys.
9	To invite SPREP, JICA Papua New Guinea Office and JICA headquarters to JCC (if possible via video conference)	The Counterparts welcome the involvement of these organizations.
Source: Recommendations from the MTR team report, and the countermeasures were discussed in the Counterpart meeting held on 22 nd January, 2014.		

2.2.3 Amendments Suggested to the PDM

The MTR Team suggested a number of amendments to the PDM/ PO especially for the Objectively Verifiable Indicators. Quantitative values were suggested for the indicators as much as possible. The amendments have been discussed with the Counterparts (in the counterpart meeting, 22nd January 2014) and have been accepted by them.

The amended PDM is provided in **Attachment A-9**.

2.3 Convening of the 3rd JCC Meeting

The 3rd JCC Meeting was convened on February 27th, 2014. The proceedings of the JCC meeting are provided in **Attachment A-10**.

2.4 Individual Capacity Assessment

The Counterparts were provided with two forms; Form 1 for filling in their duties and expectations from the J-PRISM project, and Form 2 for them to evaluate their own capacities in the respective SWM categories and sub-categories. The replies of nine of the Counterparts are analyzed here.

It is interesting to note the Counterparts expectations from the J-PRISM Project. Some of these expectations are as follows (in the Counterparts own words):

- To become a fully pledged and qualified waste management Officer in planning, development and operations
- Improve collection efficiency and time to taken to collect waste
- Household waste is segregated at source
- Participation at all level of community is achieved. Individual, Societal & Governmental
- Media utilization is maximized
- To collect, compile and analyze data collected in the waste characterization exercise and generate report
- Develop communication skills & knowledge of SW between stakeholders and communities
- Basic construction planning and execution
- To understand fully the meaning of JPRISM in the country
- Application of the new 3R's as a sub activity will never be a problem at all

- The reporting on SWM activities is not a problem
- Understand the idea of landfill management

The key words in the examples provided for the Counterparts' expectations of the Project are: planning, operations improvement, communications and public awareness, surveys, 3Rs, landfill construction and operation, and fully applying J-PRISM in PNG.

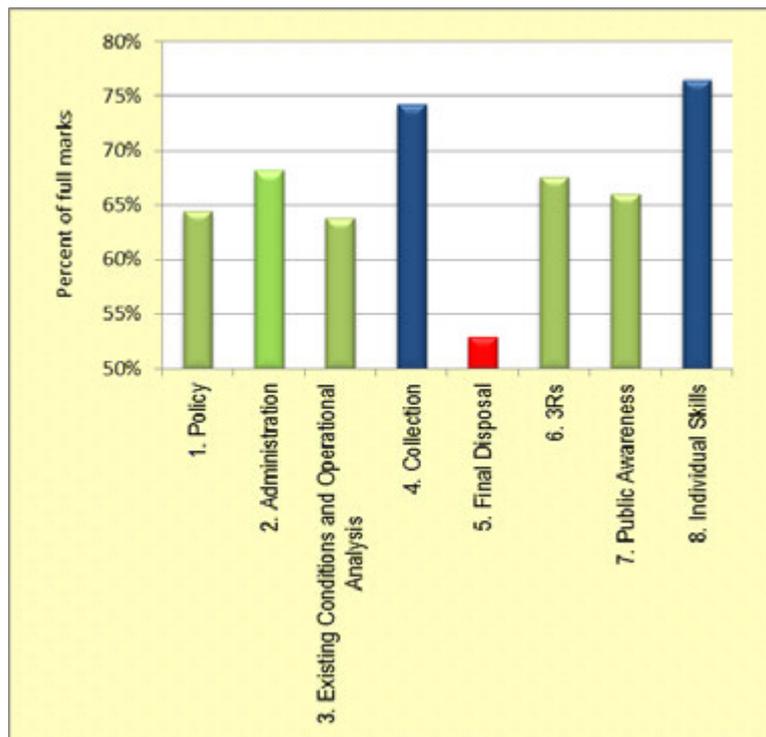
The SWM categories and sub-categories items (Form 2) are shown in Table 9.

Table 9 Individual Capacity Assessment Items

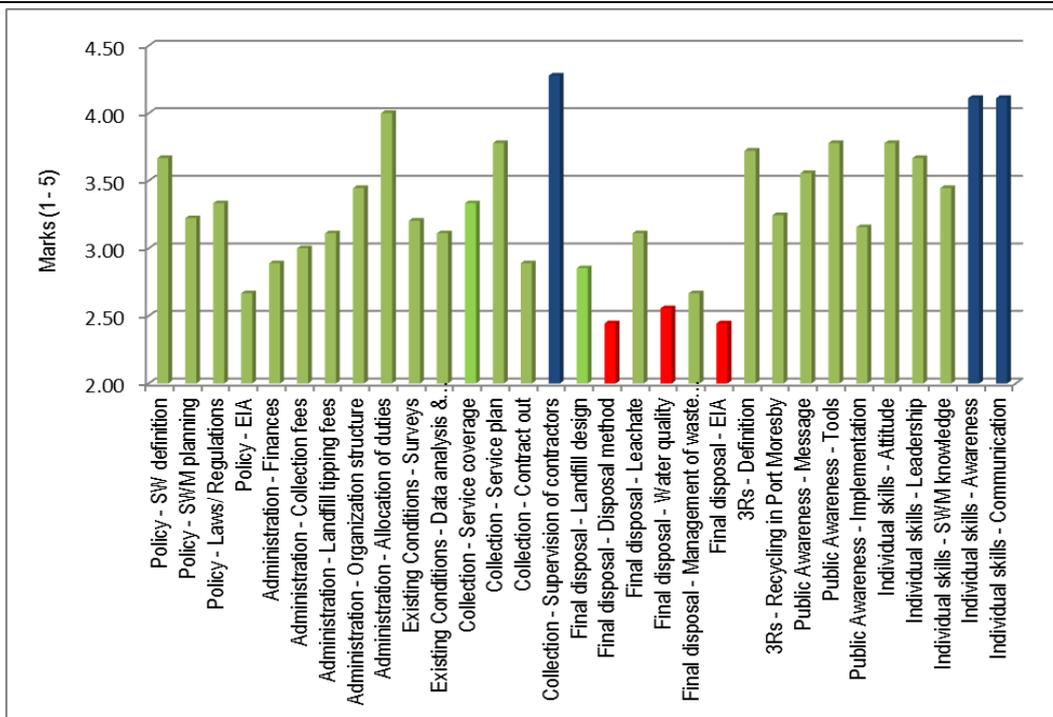
Main Category	Sub-category	Check points in terms of capacity
1. Policy	Solid waste	I understand the definition of solid waste and the waste categories
	SWM planning	I clearly understand the policies associated with SWM
	Relevant laws/Regulations	I know the existing laws on SWM and their contents
	Environmental Impact Assessment	I understand the procedures for EIA clearly based on the State regulation of EIA
2. Administration	Finances	I know overall balance of annual revenue and expenditure of SWM (cost of collection, fuel, maintenance cost, and dumpsite management) and their breakdown).
	Collection fees	I understand the basis for setting the collection fees (how to set fee collection; fee amount, method to collect)
	Landfill tipping fees	I understand the basis for setting the tipping fees(how to set tipping fee, fee amount, method to collect)
	Organizational structure	I know the government and local government agencies related to SWM and their responsibilities
	Allocation of duties	I understand the task/responsibility of my organization related to SWM. I understand my task/ responsibility in SWM
3. Existing Conditions and Operational Analysis	Surveys	I have experience to conduct waste audit survey for residential waste
		I have experience to conduct waste audit survey for commercial waste
		I have experience to conduct incoming waste survey at dumpsite
		I can conduct survey to understand collection amount
		I have experience to conduct Time and Motion study for collection service
		I have experience to conduct public awareness survey
Data analysis and reporting	I can analyze the survey data to evaluate the SWM operations and prepare the plan	
4. Collection	Collection service coverage	I understand current collection area and its population covered by collection service
	Service plan	I can plan the collection service (method, collection points, types of dustbins, frequency, truck types, awareness program)
	Contract out	I understand clearly the contents of contracts of the collection service
	Supervision of	I can assign the supervisors the tasks related to collection

Main Category	Sub-category	Check points in terms of capacity
	collection contractors	supervision I can monitor the supervisors field work and reports
5. Final Disposal	Landfill design	I understand the principles of the landfill design
		I know the required landfill facilities
		I can design the landfill
	Disposal method	I know the incoming waste amount at the dump site (amount by waste categories, truck numbers, arrival times, etc.)
		I can plan the operation and maintenance plan of the dumpsite
		I can monitor and improve landfill operation and maintenance
		I can develop closure plan of the current dumpsite
	Leachate	I understand what is leachate and its problems at the dumpsite
Water quality	I can monitor leachate and groundwater qualities at the dumpsite such as COD, pH etc.	
Management of waste pickers	I know how to manage waste pickers (number of waste pickers, what they collect, those that live at the site, etc.)	
EIA	I know the contents related to conducting an EIA for a new landfill	
6. 3Rs	Definition	I understand the difference between Reduce, Reuse and Recycle (Recover)
		I understand the 4 th R, Return, which is pertinent to the Pacific Island Countries
	Recycling in PNG	I know the types of recyclable waste materials in PNG
		I know which waste materials are recycled inside PNG
		I know the waste materials and their amounts that are exported overseas
		I know the private recycling companies operating in PNG
	I can conduct a recycling survey	
7. Public Awareness	Message	I understand why and what messages I need to make the public aware of for SWM
	Tools	I know the tools to use for public awareness, such as media, campaigns, billboards, leaflets, newsletters, etc.
	Implementation	I can develop Action Plan for awareness /3R program
		I can develop awareness material for the SWM awareness/3R program
		I have conducted to plan school education programs for SWM
		I have planned and implemented community awareness programs
	I have dealt with public complaints related to SWM	
8. Individual Skills	Attitude	My Work attitude is good and suitable to the task
	Leadership	I can take leadership in management of SWM
	Knowledge and skills	I have strong knowledge and experience on SWM
	Awareness	I want to learn more about SWM
	Communication	I can communicate with management, peers and subordinates using reports, meetings, emails and presentations

While individual assessment is made separately, for reference the totaled evaluation marks of the Counterparts are summarized in the following graphs, in Figure 5.



(a) Evaluation by SWM Category



(b) Evaluation by Sub-category

Figure 5 Graphical Presentation of Total Self-assessment Marks

Considering SWM categories, the Counterparts rated themselves highly in seven of the eight categories with the lowest evaluation, Final Disposal category, just above 50% of the total marks. This indicates the need to work more on raising capabilities and interest in Final Disposal. Collectively, the Counterparts have comparatively highly evaluated their capabilities in the sectors of individual skills and solid waste collection.

In the case of the SWM sub-categories, all the Counterparts gave themselves the highest marks for “Collection – Supervision of Contractors”, followed by “Individual skills – Awareness” and “Individual skills - Communication”. The lowest collective mark was for “Final disposal – Disposal method”, with slightly better marks for other activities in the same category of “Water quality“, and “EIA”.

A-3. Conclusions and Recommendations

3.1 Evaluation of the Achievement during the Assignment Period

The following Table 10 evaluates the input of the JICA Expert Team (JET) and Counterpart during this assignment period by Activity.

Table 10 Evaluation of JET Input by Activity

Output												
Activity	Janet	Simeon	Joshua	John	Ronnie	Vivianne	Nanai	Kupil	Paul	Walter	James	
Contents												
OUTPUT 1 Solid waste disposal facility and operation is improved												
1-1 Conduct site investigation into Baruni dumpsite												
N/A												
1-2 Develop a work plan for the rehabilitation of the Baruni dumpsite												
The Counterpart responsible has developed the basic design and determined the project costs and resources required. JET provided support.	○											◎
1-3 Undertake Environment Permit application process in order to obtain an Environment Permit												
Counterpart team prepared the Environmental Permit application and DEC issued the permit. JET provided support.	○	◎			◎							
1-4 Undertake upgrading work on the Baruni rehabilitation												
In preparing for the rehabilitation works, the Counterparts started to implement the incoming waste vehicles and waste pickers surveys. JET provided technical support.	○							○		◎		
1-5 Develop an O&M manual for Baruni dump												
The contents of the O&M manual were discussed by the Counterparts and JET.		◎										
1-6 Establish water monitoring system												
JET commissioned NARI to implement the water sampling and analysis survey. The work was done under the supervision of JET	○				◎						◎	

Output											
Activity	Janet	Simeon	Joshua	John	Ronnie	Vivianne	Nanai	Kupil	Paul	Walter	James
Contents											
and the Counterparts.											
1-7 Conduct training for operators											
N/A											
1-8 Monitor upgraded landfill operations and evaluate efficiency											
N/A											
OUTPUT 2 Waste collection in Port Moresby is improved											
2-1 Develop work plan to carry out time-and-motion study											
N/A											
2-2 Undertake time-and-motion study											
The Counterparts implemented the time and motion study with some advice from JET.	○			○	⊙	⊙	○		○	○	
2-3 Analyze results and generate study report											
The Counterparts implemented the time and motion study with some advice from JET.					⊙	⊙					
2-4 Amendments to the collection contractors contracts											
N/A											
2-5 Conduct training for all contractors											
The Counterparts held a workshop with contractors to review the T&M results with the support of JET.				⊙	○	○			○		
2-6 Monitor and evaluate at scheduled intervals											
N/A											
OUTPUT 3 Capacity of planning and monitoring of Solid Waste Management in Port Moresby (National Capital District: NCDC) is increased											
3-1 Promotion of 3Rs for inclusion in the plan											
The Counterparts launched the 3Rs logo competition, selected the winning logo and visited schools and other stakeholders. JET provided advice.				⊙			○		○		
3-2 Develop work plan for the waste characterization exercise											
N/A											
3-3 Undertake waste characterization exercise											
The Counterparts implemented the waste audit					⊙	⊙					

Output											
Activity	Janet	Simeon	Joshua	John	Ronnie	Vivianne	Nanai	Kupil	Paul	Walter	James
Contents											
survey with advice and some financial support from JET.											
3-4 Analyze results and generate report											
The Counterparts prepared the draft report of the 2011 waste audit. The JET reviewed and commented on the report.					◎						
3-5 Develop Solid Waste Management Plan for Port Moresby											
JET prepared a draft Table of Contents for the SWM plan for Port Moresby which is being reviewed by the Counterparts.			◎								
3-6 Adoption of Waste Plan by DEC and NCDC managements											
N/A											
3-7 Implement and monitor the Waste Management Plan											
N/A											
Notes: (1) N/A refers to activities not implemented during this assignment period (2) ◎ Refers to counterparts who provided major role, ○ refers to those who provided supporting role											

3.2 Lessons Learnt

There are some lessons that may be learnt from the implementation of the Project. These include the following:

- (1) The manager of the Waste Management Division (WMD), the main counterpart agency was changed twice during the assignment's short period of 8 months. The WMD manager also serves as the Project Manager. The negative influence of these frequent management changes was avoided by designating Output Managers for each of the project's three outputs. The Output Managers, who are at the same time Senior Waste Manager Officers in WMD continued to implement the project activities in spite of the WMD management changes. Therefore designating a leader for each output helped to keep the project activities going on.
- (2) The Counterpart responsible for the Baruni rehabilitation activity was specifically nominated for the Fukuoka Sanitary Landfill training course in Japan in November 2013.

Already he had worked on the design for a while in PNG before receiving training in Japan. Therefore he could benefit much more from the training course in Japan, having an initial understanding of the Fukuoka system as well as to input in his final designs some of the things he learnt during the training. Therefore the nomination of suitable candidates for training is very important.

- (3) WMD basically contracts out all the waste collection and landfill operation, with WMD responsible for monitoring and supervision. Our Counterparts implementation of waste audits and time and motion surveys has given them a deeper understanding of the operations side and the issues related to operations. This makes them better monitors.
- (4) During this assignment period the media was used a number of times to cover the Counterparts' activities. The utilization of media to reach the public is a tool our Project team is learning to use to improve understanding of SWM.
- (5) The direct participation of all the senior officers in implementing the project surveys shows the interest all the members of the Counterparts have in learning from the Project activities.

3.3 Recommendations

Working in the SWM sector in Port Moresby is not an easy task. Security issues, open burning of waste, private contractors that require strict monitoring, a public that is unaware of SWM and many other factors compound the difficulty of SWM in Port Moresby. The staff members of WMD need to work as one strong group together in order to support each other. Some recommendations that would support strengthening the bond between the members and increasing their pride in working in SWM sector are as follows:

- (1) Sharing the SWM technical information

Under the Project the Counterparts have conducted a number of surveys and done most of the analysis. However the survey reports have not been prepared. These reports provide the chance for all members to benefit from the information gained from the surveys. We recommend that the Counterparts finalize the reports, with the help of JET members, so that the reports may be available to all.

- (2) Determine the policy of WMD

There are two paramount policy issues that need to be defined. The first is the contract out of the services, and the second is the responsibility of WMD to manage hazardous wastes.

Presently WMD is contracting out all the collection and landfill operations. Has this been determined as the best way forward for SWM in Port Moresby? It is time to look back and decide on the policy WMD should adopt and re-define its responsibilities under the full contract out system.

WMD also has the responsibility to manage hazardous wastes but does not have the means, in terms of facilities and human resources to do so. WMD further does not have the information on the waste types and their quantities. It is recommended that NCDC discusses the management of industrial and hazardous wastes with the authority concerned for overseeing permitting to manufacturing facilities. The generators should bear the responsibility for management directly following adequate laws and regulations,

(3) Better utilization of the WMD Supervisors

Within the WMD there are four levels of staffing; the Manager, Senior Waste Management Officers, Waste Management Officers, and Supervisors. The Supervisors are responsible to monitor the services of the waste collection and disposal provided by the service providers and report to their respective Officers. Their work is basically outside the office. In order to go to the collection areas and disposal sites the supervisors ask the collection contractors to ride with the collection trucks. It is more appropriate to designate transport means for the supervisors, independent of the collection contractors so that they can move around more freely and quickly as required by their work. Also they should also have appropriate monitoring forms to ensure that the information they are collecting is enough for the Officers to take necessary actions.

(4) The functioning of the PMU

The PNG has allocated a budget for the Project and stipulated the setting up of a PMU and a Steering Committee. NCDC should pay more attention to these stipulations and abide by the reporting requirements of DNPM.

(5) The Project Stakeholders

There are many agencies and organizations involved in the J-PRISM project. Some of these are JICA, SPREP, NCDC, DEC and DNPM. Each of these agencies can play some role to facilitate the project activities. It is therefore important for the Project team in WMD to keep these agencies informed of the project activities and request any specific actions from them in a timely manner in order to maintain the project progress.

B Solomon

B-1. Assignment Implementation Brief

1.1 Project Members and Assignment Period

The JICA Expert Team (“JET”) was composed of four members as shown in Table 11.

Table 11 JICA Expert Team

Name		
1	Mahmoud RIAD	Team Leader/ SWM Expert E (PNG, Vanuatu, Samoa)
2	Hiroshi ABE	SWM Expert A1 (Solomon)/ Landfill Improvement (PNG, Solomon)
3	Akihiro OSADA	SWM Expert A2 (Solomon)
4	Takatoshi ARAI	SWM Expert E2 (Vanuatu)

Mr. Mahamoud RIAD, Hiroshi ABE and Mr. Akihiro OSADA were assigned to Solomon as indicated in Table 12.

Table 12 JET Assignment in Solomon

Name	Title	2013						2014	
		Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
Mahmoud RIAD	SWM-E	(10) ■							
Hiroshi ABE	SWM-A1		(17) ■		(15) ■				(18) ■
Akihiro OSADA	SWM-A2		(41) ■■■■		(32) ■■■■		(15) ■		(27) ■■■

Note: Figures in parenthesis are numbers of days

Together both experts had a combined assignment period of 175 days. It should be noted that the Project Office dispatched Mr. Shiro AMANO, Chief Advisor of J-PRISM Project to Solomon once during this period and Mr. Makoto Tsukiji twice.

The counterparts who directly participated in the Project activities during this assignment period are listed in Table 13.

Table 13 List of Counterparts – Solomon

Name	Organization	Title	Comment
Rosemary Apa	MECDM	Chief Environment Officer	Project manager
Edward Danitofea	MECDM	Senior Environment Officer	
Debra Kereseke Potakana	MECDM	Senior Environment Officer	
Joseph Maeke	MECDM	Senior Environment Officer	
Wendy Beti	MECDM	Environment Officer	
George Titiulu	HCC	Chief Environmental Health Inspector	
John Labu Talu	HCC	Works Manager	
Ella Rizwold	HCC	Principal Environmental Health Inspector	
Robert Bara	HCC	Senior Works Officer	
Christina Onahikeni	HCC	Senior Environmental Health Inspector	
Jerome Enato'o	HCC	Environmental Health Inspector	
Francis Fiku	HCC	Works Officer	
Kelly Oge	HCC	Works Officer	
Tom Nanau	MHMS	Director of Health	
Emmanuel Rarumae	MHMS	Chief Quarantine Officer	
Patterson Bobby	MHMS	Chief Environmental Health Officer	
Jimmy Hilly	MHMS	Senior Environmental Health & Management Officer	
Eric Kikolo	WPG	Deputy Provincial Secretary	
Peter Buka	WPG	Chief Land Officer	
Fredrick Naphtalai	MHMS (WPG)	Chief Environmental Health Inspector	
Rendy Solomon	WPG	Environmental Health Inspector	
Margaret Movini	WPG	Provincial Planning Officer	
Derald Michael	GTC	Town Clerk	
Dobson Aseri	GTC	Accountant	

1.2 Summary of Assignment Results

This Assignment period coincided with the 3rd FY of the Project; (April 2013 to March 2014). The most significant activities during this year and to which there was contribution from the JET team are as follows:

- (1) Waste audit report was officially launched in August 8th, which is based on the survey conducted in 2011 by the Counterparts (Activity 1-2).
- (2) Incoming vehicle report was drafted and the results were analyzed. (Activity 1-2).
- (3) The work plan of Eco School Program was developed (Activity 1-6).
- (4) The work plan of Collection Point and Waste Segregation Pilot Project was developed (Activity 1-6).
- (5) The 2nd workshop for teachers for Eco School Program was held in September 26th and 27th. The follow up activities at each school were implemented after the workshop to finalize action plans (Activity 1-7).
- (6) The launching program for Collection Point and Waste Segregation Pilot Project was implemented on February 23rd (Activity 1-7).
- (7) Permanent Secretary of the Ministry of Lands, Housing and Survey issued a letter to grant the Randi dumpsite as landfill site operated by Honiara City Council from September 1st, 2013, and the land ownership issues were solved (Activity 2-2).
- (8) The Public Environment Report for Environmental Impact Assessment Study for Ranadi Dumpsite Rehabilitation was officially submitted and approved by the Ministry of Environment, Climate Change and Disaster Management on February 3rd. The permission includes the expansion area of Ranadi Dumpsite (Activity 2-2).
- (9) The rehabilitation plan of Ranadi Dumpsite was drafted. The application for Grass Root Grant by Japanese Embassy was drafted for a site office at Ranadi Dumpsite (Activity 2-3).
- (10) The procurement of a tractor attachment in Gizo was prepared (Activity 2-4).
- (11) JET gave instructions on Randi landfill operation to staff members of Public Works Division of Honiara City Council (Activity 2-6).
- (12) JET supported to the Mid-term Review Team, conducted in Solomon. The Mid-term Review Team visited Solomon in August, 2013 and held a number of interviews and

meetings with the counterparts as well as visited the facilities. The JET supported the MTR from time to time such as providing the related information.

1.3 Daily Activities

Over a total period of 175 days, the SWM Experts' daily activities are shown in Table 14.

Table 14 Main Activities during the Assignment Periods in Solomon

No.	Date	Activity
First Assignment in Solomon (SWM Expert E: July 11-20, A1: August 10- 26, A2: July 11- August 20)		
1	2013/7/11	<ul style="list-style-type: none"> ● Flight from Japan (Narita) to Australia (Brisben) (SWM E & A2)
2	2013/7/12	<ul style="list-style-type: none"> ● Flight from Australia (Brisben) to Solomon (Honiara) (SWM E & A2)
3	2013/7/13	<ul style="list-style-type: none"> ● Site visit at Ranadi dumpsite ● Site visit at residential areas
4	2013/7/14	<ul style="list-style-type: none"> ● Internal meeting with Mr. Tsukiji
5	2013/7/15	<ul style="list-style-type: none"> ● Meeting with Wendy, Project Coordinator at MECDM and Edward Danitofea, MECDM, to discuss the project progress ● Courtesy call with Joe Horokou, Director, MECDM ● Meeting with Dr. Mataki, PS, MECDM, to discuss the project directions ● Meeting with John Labu, Director of Works Division, HCC and his staff; Robert Bara and Francis Fiku, to discuss the project progress ● Meeting with George Titiulu, Chief Env. Health Officer, HCC and his staff; Jerome Enato'o and Christine Onahikeni, to discuss the project progress
6	2013/7/16	<ul style="list-style-type: none"> ● Meeting with Ms Obata and Mr Munakata, Japanese Embassy ● Site visit at Rax Boy, scrap recycling company (Mr. Ben Maenu) ● Site visit at TMT, aluminum cans recycling company (Mr Jeff Geoffrey Aihunu) ● Site visit at Design Technology Center , Mr Lindsay Teobasi, of Design Technology Center (attended by Edward, Christine and Wendy)
7	2013/7/17	<ul style="list-style-type: none"> ● Observation survey on the waste collection system
8	2013/7/18	<ul style="list-style-type: none"> ● Meeting with Mr. George Titiulu, Chief Environmental Health Inspector, to discuss Eco School Program

No.	Date	Activity
		<ul style="list-style-type: none"> ● Courtesy call at Dr. Melchior Mataka, PS of MECDM and Mr. Taiji Usui, representative of JICA Solomon Islands office ● Courtesy call at Cr. Andrew Mua, Lord Mayor (HCC), Mr. Charles Kelly, Honiara City Clerk, and Land officer
9	2013/7/19	<ul style="list-style-type: none"> ● Meeting with Mr. Taiji Ushui, Representative of JICA office
10	2013/7/20	<ul style="list-style-type: none"> ● Documents and data review ● Flight from Honiara to Port Vila (SWM E)
11	2013/7/21	<ul style="list-style-type: none"> ● Documents and data review
12	2013/7/22	<ul style="list-style-type: none"> ● Capacity assessment (individual)
13	2013/7/23	<ul style="list-style-type: none"> ● Meeting with Mr. George Titiulu, Chief Environmental Health Inspector, to discuss Collection Pilot Project ● Meeting with Mr. Charles Kelly, Honiara City Clerk, to discuss Ranadi land issues ● Site visit at Ranadi Landfill Site ● Meeting with Mr. Daniel Austin, Horticulture Expert, Solomon Enviro-Beautification (NGO) ● Meeting with Mr. Alen Mae, Individual temporary collection contractor
14	2013/7/24	<ul style="list-style-type: none"> ● Meeting with Mr. Kawee Meksongruek, Integration Manager, from Solomon Breweries Ltd. ● Meeting with Mr. Rex Iro, Private Collection Contractor ● Meeting with Mr. Mathew Riibako, Private Collection Contractor ● Meeting with Ms. Delight Mamunia, Private Collection Contractor,
15	2013/7/25	<ul style="list-style-type: none"> ● Meeting with JICA Solomon Office ● Meeting with Mr. Moses Kaukui, Treasurer from HCC ● Meeting with Counterparts on “1. Eco School Program”, “2. Collection Pilot Project” and “3. Launching Program for Waste Characterization Reports”
16	2013/7/26	<ul style="list-style-type: none"> ● Meeting with Mr. George, Mr. Francis, Mr. John Labu, to discuss Ranadi land issues ● Site visit at Randadi dumping site
17	2013/7/27	<ul style="list-style-type: none"> ● Documents and data review
18	2013/7/28	<ul style="list-style-type: none"> ● Documents and data review

No.	Date	Activity
19	2013/7/29	<ul style="list-style-type: none"> ● Meeting with Mr. George, to discuss Collection Pilot Project ● Meeting with JICA Solomon Office
20	2013/7/30	<ul style="list-style-type: none"> ● Meeting with Mr. Newton Magi, one of the community members from Palatina Valley Community, at Palatina Valley, Zone 9 ● Meeting with Mr. Oliver Oli, Health Promotion Division (HCC) and Mr. George to discuss Launching Program for Waste Audit Survey Report
21	2013/7/31	<ul style="list-style-type: none"> ● Site Visit at Panatina Valle Community, Zone 9 ● Meeting with Ms. Rosemary, to discuss the project directions ● Eco School Program Meeting with Ms. Rosemary, Mr. George, Mr. Oliver, Mr. Jimmy, Mr. Christina, Mr. Jerome, Mr. Satoshi
22	2013/8/1	<ul style="list-style-type: none"> ● Meeting with Mr. Melchior Mataki, Ms. Laka Naoko, to discuss Ranadi land issues ● 1st Community Meeting for Collection Pilot Project at the community house of Panatina Valley, Zone 9
23	2013/8/2	<ul style="list-style-type: none"> ● Trip from Honiara to Gizo
24	2013/8/3	<ul style="list-style-type: none"> ● Site Visit at Gizo Dumping Site ● Meeting with Mr. Kohei Yamato, JOCV ● Site Visit at Residential Areas, Beaches, and Market
25	2013/8/4	<ul style="list-style-type: none"> ● Site Visit at Residential Areas, Beaches, and Market
26	2013/8/5	<ul style="list-style-type: none"> ● Site Visit at Source Separation at Medical Residence ● Meeting with Mr. Fred Naphtalai, MHMS (WPG), and Mr. Dobson Aseri, Treasurer of GTC, Mr. Yamato, to discuss the project directions ● Site Visit with Mr. Jimmy Cedrich, composting farmer
27	2013/8/6	<ul style="list-style-type: none"> ● Trip from Gizo to Honiara
28	2013/8/7	<ul style="list-style-type: none"> ● 7th Honiara Counterparts Meeting
29	2013/8/8	<ul style="list-style-type: none"> ● Launching Program for Waste Audit Survey Reports ● Meeting with Mr. George
30	2013/8/9	<ul style="list-style-type: none"> ● Eco School Program Meeting
31	2013/8/10	<ul style="list-style-type: none"> ● Documents and data review ● Flight from Japan (Narita) to PNG (Port Moresby) (SWM A1)
32	2013/8/11	<ul style="list-style-type: none"> ● LIVE Broadcasting of Launching Program

No.	Date	Activity
		<ul style="list-style-type: none"> ● 2nd Community meeting at Panatina Valley ● Flight from Japan (Narita) to PNG (Port Moresby) (SWM A1) ● Flight from PNG (Port Moresby) to Solomon (Honiara) (SWM A1)
33	2013/8/12	<ul style="list-style-type: none"> ● Meeting with Counterparts on Mid-term evaluation
34	2013/8/13	<ul style="list-style-type: none"> ● Meeting with Mr. Mataki Melchior, PS ● Site Visit at Ranadi Dumping Site ● Meeting with Mr. Stanley Waleanisia, PS of Ministry of Lands, Housing & Survey
35	2013/8/14	<ul style="list-style-type: none"> ● Meeting with Public Works Division to discuss Ranadi land issues ● Meeting on Eco School Program
36	2013/8/15	<ul style="list-style-type: none"> ● Meeting with Public Works Division to discuss Ranadi rehabilitation ● Telephone meeting with Samoa project office
37	2013/8/16	<ul style="list-style-type: none"> ● Meeting with Public Works Division to discuss Ranadi rehabilitation ● Meeting with JICA Solomon Islands Office
38	2013/8/17	<ul style="list-style-type: none"> ● Documents and data review
39	2013/8/18	<ul style="list-style-type: none"> ● 1st Panatina Valley Community Committee members meeting
40	2013/8/19	<ul style="list-style-type: none"> ● Discussion on Ranadi rehabilitation plan with Public Works Division ● Flight from Solomon (Honiara) to Australia (Brisben) (SWM A2)
41	2013/8/20	<ul style="list-style-type: none"> ● Discussion on Ranadi rehabilitation plan with Public Works Division ● Flight from Australia (Brisben) to Japan (Narita) (SWM A2)
42	2013/8/21	<ul style="list-style-type: none"> ● Discussion on waste collection methods with Public Works Division
43	2013/8/22	<ul style="list-style-type: none"> ● Discussion on Ranadi rehabilitation plan with Public Works Division
44	2013/8/23	<ul style="list-style-type: none"> ● Meeting with City Mayor and City Clerk on landfill rehabilitation
45	2013/8/24	<ul style="list-style-type: none"> ● Documents and data review
46	2013/8/25	<ul style="list-style-type: none"> ● Documents and data review ● 2nd Panatina Valley Community Committee members meeting
47	2013/8/26	<ul style="list-style-type: none"> ● Flight from Solomon (Honiara) to PNG (Port Moresby) (SWM A1)
Second Assignment in Solomon (SWM Expert A2: September 21- October 22)		
1	2013/9/21	<ul style="list-style-type: none"> ● Flight from Japan (Narita) to Korea (Seoul) (SWM A2) ● Flight from Korea (Seoul) to Australia (Brisbane) (SWM A2)
3	2013/9/22	<ul style="list-style-type: none"> ● Flight from Korea (Seoul) to Australia (Brisbane) (SWM A2)

No.	Date	Activity
4	2013/9/23	● Flight from Australia (Brisbane) to Solomon (Honiara) (SWM A2)
5	2013/9/24	● Meeting with Ms. Premila and Ms. Nafiza, Fijian Trainers to discuss Eco School Program Workshop
6	2013/9/25	<ul style="list-style-type: none"> ● Briefing meeting for eco school program workshop ● Site visit at St. Nicolas School (target school of eco school program) with Fijian trainers
7	2013/9/26	● 2 nd Eco school program workshop (preparation of action plan)
8	2013/9/27	● 2 nd Eco school program workshop (including site visit)
9	2013/9/28	● Documents and data review
10	2013/9/29	● Documents and data review
11	2013/9/30	<ul style="list-style-type: none"> ● Meeting with Mr. John Labu and Mr. Robert to discuss landfill rehabilitation ● Meeting with Mr. George to discuss Eco School Program follow up
12	2013/10/1	● Meeting with Mr. George to discuss Collection Pilot Project
13	2013/10/2	<ul style="list-style-type: none"> ● Meeting with Mr. George to discuss Eco School Program follow up ● Meeting with Mr. Merci and Ms. Christina to discuss Collection Pilot Project
14	2013/10/3	● Follow up of Eco School program by phone
15	2013/10/4	● Meeting with Red Devil Company to discuss the quotation for landfill rehabilitation
16	2013/10/5	● Documents review
17	2013/10/6	<ul style="list-style-type: none"> ● Committee meeting for Collection Pilot Project at Panatina Valley ● Documents review
18	2013/10/7	● Meeting with Mr. Jimmy, Mr. George to discuss Eco School Program follow up
19	2013/10/8	● Meeting with Mr. Amano, Chief Advisor of J-PRISM
20	2013/10/9	<ul style="list-style-type: none"> ● Meeting with Mr. Mechior Mataki, PS of MECDM to discuss the progress ● JICA Solomon Office meeting ● Visit at Japanese Embassy to discuss the progress ● School visit (Mbua Valley School, Palm Drive International School)

No.	Date	Activity
21	2013/10/10	<ul style="list-style-type: none"> ● Landfill visit with Mr. Robert, Mr. George, Ms. Christina, Ms. Ella, Mr. Jerome ● School visit (Panatina Valley School, St. Nicolas School)
22	2013/10/11	<ul style="list-style-type: none"> ● Counterparts meeting ● Meeting with City Mayor, City Clerk to discuss the progress ● School visit (Mbokonavera School)
23	2013/10/12	<ul style="list-style-type: none"> ● Documents and data review
24	2013/10/13	<ul style="list-style-type: none"> ● Documents and data review
25	2013/10/14	<ul style="list-style-type: none"> ● Meeting with Mr. George to discuss Eco School Program follow up
26	2013/10/15	<ul style="list-style-type: none"> ● Meeting with Mr. George to discuss Collection Pilot Project
27	2013/10/16	<ul style="list-style-type: none"> ● Meeting with Ms. Rosemary to discuss Gizo trip and Mid-term Review Report
28	2013/10/17	<ul style="list-style-type: none"> ● Trip from Honiara to Gizo ● Counterpart meeting in Gizo
29	2013/10/18	<ul style="list-style-type: none"> ● Eco School Program Workshop for teachers in Gizo
30	2013/10/19	<ul style="list-style-type: none"> ● Documents and data review
31	2013/10/20	<ul style="list-style-type: none"> ● Trip from Gizo to Honiara
32	2013/10/21	<ul style="list-style-type: none"> ● Flight from Solomon (Honiara) to Australia (Brisbane) (SWM A2)
33	2013/10/22	<ul style="list-style-type: none"> ● Flight from Australia (Brisbane) to Japan (Narita) (SWM A2)
Third Assignment in Solomon (SWM Expert A1: October 26- November 9)		
1	2013/10/26	<ul style="list-style-type: none"> ● Documents and data review
2	2013/10/27	<ul style="list-style-type: none"> ● Committee meeting for Collection Pilot Project at Panatina Valley ● Documents review
3	2013/10/28	<ul style="list-style-type: none"> ● Meeting with Public Works Division to discuss a landfill rehabilitation plan ● Meeting with Rax Boy, scrap metal recycling company
4	2013/10/29	<ul style="list-style-type: none"> ● Documents and data review
5	2013/10/30	<ul style="list-style-type: none"> ● Counterpart meeting
6	2013/10/31	<ul style="list-style-type: none"> ● Meeting with Public Works Division to discuss landfill rehabilitation and operation

No.	Date	Activity
7	2013/11/1	<ul style="list-style-type: none"> ● Meeting with Public Works Division to discuss landfill rehabilitation and operation
8	2013/11/2	<ul style="list-style-type: none"> ● Documents and data review
9	2013/11/3	<ul style="list-style-type: none"> ● Trip from Honiara to Gizo ● Site visit at a dumpsite in Gizo
10	2013/11/4	<ul style="list-style-type: none"> ● Counterpart meeting in Gizo to discuss landfill rehabilitation
11	2013/11/5	<ul style="list-style-type: none"> ● Trip from Gizo to Honiara ● Meeting with Public Works Division to discuss landfill rehabilitation and operation
12	2013/11/6	<ul style="list-style-type: none"> ● 9th Honiara Counterpart meeting ● Visit to Tongs Company, dealer to discuss landfill equipment in Gizo
13	2013/11/7	<ul style="list-style-type: none"> ● Documents and data review
14	2013/11/8	<ul style="list-style-type: none"> ● Meeting with JICA Solomon Office
15	2013/11/9	<ul style="list-style-type: none"> ● Flight from Solomon (Honiara) to Japan (Narita)
Fourth Assignment in Solomon (SWM Expert A2: November 23 - December 7)		
1	2013/11/23	<ul style="list-style-type: none"> ● Flight from Japan (Narita) to PNG (Port Moresby) (SWM A2)
2	2013/11/24	<ul style="list-style-type: none"> ● Flight from Japan (Narita) to PNG (Port Moresby) (SWM A2) ● Flight from PNG (Port Moresby) to Solomon (Honiara) (SWM A2)
3	2013/11/25	<ul style="list-style-type: none"> ● Meeting with Mr. George and Ms. Merci to discuss Collection Pilot Project
4	2013/11/26	<ul style="list-style-type: none"> ● Meeting with Ms. Rosemary to discuss the progress ● School visit (Lau Valley School) ● Telephone meeting with J-PRISM Samoa Office
5	2013/11/27	<ul style="list-style-type: none"> ● Meeting with City Mayor and City Clerk to discuss landfill rehabilitation ● Site visit at Kastom Garden, NGO to discuss the collaboration of Collection Pilot Project ● Meeting with Mr Ben Maenu, Rax Boy, to discuss scrap metal clean up at Ranadi dumpsite
6	2013/11/28	<ul style="list-style-type: none"> ● Visit at Tongs Company, dealer for tractor attachment in Gizo
7	2013/11/29	<ul style="list-style-type: none"> ● Meeting with Patricia, committee member of Panatina, to discuss

No.	Date	Activity
		Collection pilot Project ● Meeting with Dr. Mataki Meichior, PS of MECDM, to discuss landfill rehabilitation and operation
8	2013/11/30	● Documents and data review
9	2013/12/1	● Documents and data review
10	2013/12/2	● Meeting with City Clerk and Mr. John to discuss landfill rehabilitation and operation ● Site visit at Ranadi landfill
11	2013/12/3	● Visit at Tongs Company, dealer for tractor attachment in Gizo
12	2013/12/4	● Meeting with Mr Ben Maenu, Rax Boy, to discuss scrap metal clean up at Ranadi dumpsite ● Visit at Tongs Company, dealer for tractor attachment in Gizo ● Site visit at Ranadi landfill
13	2013/12/5	● Meeting with City mayor, City Clerk, Mr. John to discuss landfill rehabilitation and operation
14	2013/12/6	● Meeting with JICA Solomon Office
15	2013/12/7	● Flight from Solomon (Honiara) to Japan (Narita) (SWM A2)
Fifth Assignment in Solomon (SWM Expert A1: January 28 - February 15, A2: February 3-March 1)		
1	2014/1/28	● Flight from PNG (Port Moresby) to Solomon (Honiara) (SWM A1)
2	2014/1/29	● Counterparts Meeting ● Meeting with companies for landfill rehabilitation
3	2014/1/30	● Meeting with Public Works Division to discuss landfill rehabilitation and operation ● Meeting with companies for landfill rehabilitation
4	2014/1/31	● Meeting with companies for landfill rehabilitation
5	2014/2/1	● Documents and data review
6	2014/2/2	● Documents and data review
7	2014/2/3	● Meeting with Public Works Division to discuss landfill rehabilitation and operation ● Flight from Japan (Narita) to Australia (Brisbane) (SWM A2)
8	2014/2/4	● Meeting with Public Works Division to discuss landfill rehabilitation

No.	Date	Activity
		and operation ● Meeting with companies for landfill rehabilitation ● Flight from Australia (Brisbane) to Solomon (Honiara) (SWM A2)
9	2014/2/5	● Meeting with Ms. Rosemary to discuss the progress ● Meeting with Public Works Division to discuss landfill rehabilitation and operation
10	2014/2/6	● Meeting with Mr. George to discuss Collection Pilot Project
11	2014/2/7	● Meeting with Counterparts to discuss PDM/ PO revision
12	2014/2/8	● Documents and data review
13	2014/2/9	● Documents and data review
14	2014/2/10	● Meeting with Mr. Tsukiji
15	2014/2/11	● Meeting with City Clerk and City Mayor to discuss the progress
16	2014/2/12	● Honiara Counterparts Meeting
17	2014/2/13	● Meeting with Dr. Mataki Meichior, PS, MECDM to discuss the progress ● Meeting with Japanese Embassy to discuss grass roots grant
18	2014/2/14	● Meeting with New Zealand Aid to share the project progress
19	2014/2/15	● Documents and data review ● Flight from Solomon (Honiara) to Japan (Narita) (SWM A1)
20	2014/2/16	● Committee meeting for Collection Pilot Project ● Documents and data review
21	2014/2/17	● Trip from Honiara to Gizo ● Counterpart meeting in Gizo ● Visit at GF store, aluminum cans collectors in Gizo
22	2014/2/18	● Meeting with Ms. Rendy, to share her action plan
23	2014/2/19	● School visit (Ngari School, Titiana School, Gizo School, Emanuel School) ● Trip from Gizo to Honiara
24	2014/2/20	● Meeting with Counterparts to prepare launching program for Collection Pilot Project
25	2014/2/21	● Meeting with Counterparts to prepare launching program for

No.	Date	Activity
		Collection Pilot Project ● Meeting with Mr. George to prepare an application for Japanese Embassy Grass Roots Grant
26	2014/2/22	● Documents and data review
27	2014/2/23	● Launching program for Collection Pilot Project
28	2014/2/24	● Meeting with Counterparts to discuss Collection Pilot Project ● Preparation of the reports ● Meeting with Mr. George to prepare an application for Japanese Embassy Grass Roots Grant
29	2014/2/25	● Preparation of the reports ● Meeting with Mr. George to prepare an application for Japanese Embassy Grass Roots Grant
30	2014/2/26	● School visit (Palm Drive School)
31	2014/2/27	● Meeting with Counterparts to discuss PDM/ PO revision ● School visit (Panatina School)
32	2014/2/28	● Flight from Solomon (Honiara) to Australia (Brisbane) (SWM A2)
33	2014/3/1	● Flight from Australia (Brisbane) to Japan (Narita) (SWM A2)
No.	Date	Activity

1.4 Implementation Methodology

During the assignment periods in Solomon Islands, JET worked under the following guidelines.

(1) Maintaining the J-PRISM principle of developing C/Ps' capacities through their direct implementation of the Project activities. During this assignment period, the Counterparts, receiving advise and comments from the JET, implemented the following main tasks directly:

1. Discussion to solve Ranadi landfill ownership issues
2. Elaboration and approval of Public Environment Report for Environmental Impact Assessment Study for Ranadi Dumpsite Rehabilitation
3. Preparation of draft landfill rehabilitation plan
4. Preparation of an application for Grass Root Grant by Japanese Embassy was drafted for a site office
5. Preparation to allocate landfill supervisor at Ranadi dumpsite including advertisement

6. Development and launching of waste audit survey report
 7. Preparation of draft incoming vehicle survey report
 8. Development of Eco School Program including a workshop and the follow up activities
 9. Development and launching of Collection Pilot Project including establishment of a community committee and coordination with community members
 10. Discussion between Honiara and Gizo Counterparts
- (2) Working in the same office with the C/Ps most of the time
 - (3) Site visits and meetings with stakeholders were principally conducted together with a C/P
 - (4) Regular discussions with the C/Ps on an individual as well as collective basis
 - (5) Minimizing interruptions to the C/Ps' daily works while maximizing utilization of the limited assignment periods
 - (6) Maintaining personal records of activities and discussions
 - (7) Reporting to JICA Solomon Office and the Project Office on a regular basis
 - (8) Trying to understand the cultural and work environment
 - (9) Providing realistic and suitable suggestions, advice and guidance to the C/Ps
 - (10) Being patient and keeping an open mind

B-2. Details of the Assignment Implementation

2.1 Project Outputs and Activities

2.1.2 Plan of Operation

The Plan of Operation (PO) is planned to be amended during the coming JCC meeting in April, 2014, based on recommendations put forward by the MTR Team in September 2013.

The current PO is summarized as follows.

Overall Goal (Same for all PICs)	Objectively Verifiable Indicator
Sustainable management of solid waste is enhanced.	1. To be discussed
Project Purpose	Objectively Verifiable Indicator
Human and institutional capacity base for sustainable solid waste management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010 – 2015) (RS2010)	<p style="text-align: center;">[Solomon]</p> <p>1. # of experts (Trainers) in the field of ● ● listed in the SPREP inventory</p> <p>2-1 # of initiatives on waste minimization introduced</p> <p>2-2 Proportion of recyclables and green waste disposed of at the landfill is decreased by XX %</p>

Project Outputs and Associated Activities - Solomon

Outputs and Activities	Objectively Verifiable Indicator
OUTPUT 1: 3R activities are practiced in Honiara and Gizo.	
1-1 Develop a work plan for the baseline survey	1-1 National Policy/Strategy for 3R is developed
1-2 Conduct the baseline surveys including environmental condition, public awareness, waste characterization study, etc.	1-2-1 Recycle rate increases 1-2-2 Proportion of incoming wastes at the dumpsite decreases
1-3 Develop a communication strategy	1-3 Level of recognition on 3Rs in Honiara and Gizo increase after implementation of activities
1-4 Identify the feasible options for management of recyclable waste/materials	1-4 Draft legislation for 3Rs is developed: Deposit program, waste disposal fees, etc.
1-5 Review of existing waste collection system	1-5-1 10 schools in Honiara develop 3R action plan
1-6 Develop the implementation plan for 3R	

<p>pilot project</p> <p>1-7 Implement the 3R pilot project</p> <p>1-8 Prepare the draft of policies / strategies / legislation / regulation for 3R activities</p> <p>1-9 Monitor the progress of pilot project</p>	<p>1-5-2 5 schools in Gizo develop 3R action plan</p> <p>1-6-1 Three 3R pilot projects are implemented in Honiara</p> <p>1-6-2 Two 3R pilot projects are implemented in Gizo</p>
<p>OUTPUT 2: Waste disposal system is improved in Honiara and Gizo</p>	
<p>2-1 Conduct site investigation of existing dumpsite</p> <p>2-2 Conduct the EIA study and follow the required procedure</p> <p>2-3 Prepare the rehabilitation plans for existing dumpsites</p> <p>2-4 Implement the rehabilitation of dump sites</p> <p>2-5 Develop the operation manuals for each site</p> <p>2-6 Train staff of dump sites on landfill operation</p>	<p>2-1 Different types of waste materials are disposed at appropriate cells</p> <p>2-2 Annual operation plan is developed</p> <p>2-3-1 10 officers and operators are trained for landfill operation in Honiara</p> <p>2-3-2 5 officers and operators are trained for landfill operation in Gizo</p> <p>2-4 Management of Leachate is established</p> <p>2-5 Waste pickers are registered and managed properly</p>
<p>OUTPUT 3: Lessons and experiences learnt are disseminated in Solomon Islands</p>	
<p>3-1 Establish a multi-stakeholder National Committee to help disseminate experience to other areas within the country</p> <p>3-2 Preparation of educational materials for disseminating experience to other areas</p> <p>3-3 Conduct the workshop to disseminate the lessons and experiences learnt</p>	<p>3-1 Good practices on 3R and landfill management identified through the project activities are available in all provincial centers</p> <p>3-2 Officers from each provincial government learn good practices on 3R and landfill management</p>

2.1.2 Progress of the Plan of Operations Activities

The status of each of the activities and the progress during this assignment period is described hereafter.

OUTPUT 1: 3R activities are practiced in Honiara and Gizo.	
1-1 Develop a work plan for the baseline survey	
	(Honiara) This activity had been completed according to the Counterparts. (Gizo) This activity had been completed according to the Counterparts.
1-2 Conduct the baseline surveys including environmental condition, public awareness, waste characterization study, etc.	
	(Honiara) This activity had been done according to the Counterparts. In August, 2013, Waste Audit Survey Report was launched, and the incoming vehicle survey report is planned to be launched in the following fiscal year. The data and analysis should be reviewed again, because some data was not analyzed in a proper way; it would be necessary to conduct additional survey if necessary. (Gizo) This activity had been done according to the Counterparts. The data and analysis should be reviewed again, because some data was not analyzed in a proper way; it would be necessary to conduct additional survey if necessary.
1-3 Develop a communication strategy	
	This activity had been completed according to the Counterparts.
1-4 Identify the feasible options for management of recyclable waste/materials	
	(Honiara) The visit at recycling companies was done with the Counterparts. The feasible options haven't been analyzed in detail. (Gizo) This activity had been done according to the Counterparts. One company was newly identified as aluminum cans collection company in Gizo in December, 2013, which should be interviewed to analyze the feasibility.
1-5 Review of existing waste collection system	
	(Honiara) This activity had been completed according to the Counterparts; however, analysis and actions to improve the existing waste collection system haven't been completed. (Gizo) This activity had been done and still ongoing according to the Counterparts. The zoning survey of waste collection such as the number of households and habitants was finished. Waste collection stations are planned to be installed in the following fiscal year,

and now the budget is under the process of approval by the Counterparts.
1-6 Develop the implementation plan for 3R pilot project
<p>(Honiara) This activity had been done according to the Counterparts. As 3R pilot projects, 1) Eco School Program, 2) Collection Point and Waste Segregation Pilot Project in Panatina Valley Community have been elaborated. In addition, Eco Bag Program is going to be planned.</p> <p>(Gizo) This activity had been done according to the Counterparts. 1) The implementation plan of Eco School Program been elaborated. 2) The plan of community awareness program is under the preparation as the second 3R pilot project in Gizo.</p>
1-7 Implement the 3R pilot project
<p>(Honiara) This activity is ongoing. 1) The 2nd workshop of Eco School program was held in September 2013, and the following-up visit at each participant school was under the implementation. The launching program is planned in April, 2014. 2) Collection Point and Waste Segregation Pilot Project was launched in Panatin aValley Community in February, 2014.</p> <p>(Gizo) This activity is ongoing. 1) The workshop for teachers was help in October, 2013, and then 2 schools have already started the activities out of 5 schools as of February, 2014. 2) Community awareness program is under preparation, integrated with the action plan of Ms. Rendy Solomon, who joined the training in Japan. The baseline survey of zoning collection areas has been completed.</p>
1-8 Prepare the draft of policies / strategies / legislation / regulation for 3R activities
No work was done on this activity during this fiscal year.
1-9 Monitor the progress of pilot project
No work was done on this activity during this fiscal year.
OUTPUT 2: Waste disposal system is improved in Honiara and Gizo
2-1 Conduct site investigation of existing dumpsite
<p>(Honiara) This activity had been completed according to the Counterparts.</p> <p>(Gizo) This activity had been completed according to the Counterparts.</p>
2-2 Conduct the EIA study and follow the required procedure
(Honiara) This activity had been completed according to the Counterparts. The Public Environment Report for Environmental Impact Assessment Study for Ranadi Dumpsite Rehabilitation was officially submitted and approved by the Ministry of Environment, Climate Change and Disaster Management on February 3rd. The permission includes the

<p>consent of the development in the expansion area of Ranadi Dumpsite. (Gizo) This activity had been completed according to the Counterparts.</p>
<p>2-3 Prepare the rehabilitation plans for existing dumpsites</p>
<p>(Honiara) The rehabilitation plan of Ranadi Dumpsite was drafted. The application for Grass Root Grant by Japanese Embassy was drafted for a site office at Ranadi Dumpsite. Landfill supervisor was advertised in February, 2014, who will be permanently stationed on site. (Gizo) This activity had been completed according to the Counterparts.</p>
<p>2-4 Implement the rehabilitation of dump sites</p>
<p>(Honiara) The rehabilitation is under preparation, and no work was done on this activity during this fiscal year. (Gizo) The procurement of attachment of a tractor was prepared, such as getting quotations and finding a dealer company. The rehabilitation work itself hasn't started.</p>
<p>2-5 Develop the operation manuals for each site</p>
<p>(Honiara) Landfill operations are instructed by JICA Expert Team; however, an operation manual hasn't been prepared. (Gizo) Landfill operations are instructed by JICA Expert Team; however, an operation manual hasn't been prepared.</p>
<p>2-6 Train staff of dump sites on landfill operation</p>
<p>(Honiara) JICA Expert Team has given advice to the staff member of Public Works Division, Honiara City Council. (Gizo) JICA Expert Team has given advice to the Counterparts.</p>
<p>OUTPUT 3: Lessons and experiences learnt are disseminated in Solomon Islands</p>
<p>3-1 Establish a multi-stakeholder National Committee to help disseminate experience to other areas within the country</p>
<p>No work was done on this activity during this fiscal year.</p>
<p>3-2 Preparation of educational materials for disseminating experience to other areas</p>
<p>No work was done on this activity during this fiscal year.</p>
<p>3-3 Conduct the workshop to disseminate the lessons and experiences learnt</p>
<p>No work was done on this activity during this fiscal year.</p>

2.2 Mid-term Review Team Recommendations

The Mid-term Review Team (MTRT) formed by JICA visited Solomon during August - September 2013. The team members conducted site visits, interviews with the counterparts and reviewed the project documents and data.

2.2.1 Evaluation of the Level of Achievement for the Project Outputs

The MTR report determined the levels of achievement for each of the three outputs as shown in Table 15.

Table 15 Mid-term Review evaluation of Outputs

Output	Level of Achievement	Description
OUTPUT 1: 3R activities are practiced in Honiara and Gizo.	B	<i>Most difficulties might be attributed to the absence of JICA short-term experts from December 2011 to October 2012, however, many C/Ps are actively engaged with this output, and this has contributed in minimizing delays.</i>
OUTPUT 2: Waste disposal system is improved in Honiara and Gizo	B/C	<i>This output is considered as having different levels of attainment between Honiara and Gizo, as Ranadi dumpsite in Honiara is subject to a land issue.</i>
OUTPUT 3: Lessons and experiences learnt are disseminated in Solomon Islands	NA	<i>There are substantial delays with some activities, mainly, due to the ten month absence of JICA short-term experts. It is currently too early to assess if the Output 3 is achievable.</i>
Source: Mid-term Review Report, September 2013		

The report has been circulated to the Counterparts and its contents will not be described further here.

2.2.2 MTR Recommendations to the Project and Countermeasures

The recommendations outlined in the MTR report and directed “to the Project (Implementing Agency and JICA Experts)” have been discussed with the Counterparts. The Counterparts have accepted the recommendations and described the countermeasures they will take for each recommendation as shown in Table 16.

Table 16 MTR Team Recommendations and Counterparts’ Countermeasures

No.	MTR Team Recommendation to the Project	Countermeasures
1	Revision of the current PDM and PO	The Counterparts agreed to revise the PDM and PO in the next JCC meeting.
2	To review and apply necessary and/or additional inputs to recover the Project delay	The Counterparts agreed to reviewed the inputs.
3	To further activate communication between Honiara and Gizo C/Ps	The communication has been improved, after the Project Manager visited Gizo in October, 2013.
4	To maximize the effect of existing resources such as JOCV’s and NGO’s initiatives	The Counterparts agreed that the coming JOCVs in Honiara and Gizo and NGOs such as Kastom Garden and Solomon Environmental Beautifications should be ininvolved in the activities.
5	Support the cost of fuel and/or vehicle hire for special events for the Project.	This has been done and ongoing: in the Eco School Program Workshop the cost of hiring a bus was covered by JICA Expert budget.
6	Increase in the number of in-country trainings: Most C/Ps have obtained additional knowledge through various training opportunities, however; it was noted that many C/Ps felt uncomfortable with teaching others due to a lack of practice. It would be helpful for JICA experts to hold workshops during their assignment periods.	JICA Experts Team agreed to hold some workshops during the assignment periods. The topics should be discussed among the Counterparts.
7	More frequent and better coverage of dispatch periods of JICA short-term experts: Sometimes, several JICA short-term experts	JICA Experts Team agreed to take this into consideration to cover longer periods, rather than visiting the same time.

No.	MTR Team Recommendation to the Project	Countermeasures
	visit the Solomon Islands at the same time. However, C/Ps would prefer sequential JICA expert visits spread over longer periods.	
8	To make clear distinguish between implementing agencies and collaborating agencies: C/Ps are the direct target to receive technical transfer, and they are the ones taking tasks and responsibility of project activities. Since the officer from Ministry of Culture & Tourism does not take any responsibilities on activities under the project, the Ministry of Culture& Tourism should be listed as collaborating agency. Similarly, JOCV volunteers are not C/Ps but supporting members of the Project.	The Counterparts agreed to revise the implementing agencies and collaborating agencies in the coming JCC meeting.

Source: Recommendations from the MTR team report, and the countermeasures were discussed in the Counterpart meeting held in October, 2013 and in February, 2014.

2.2.3 Amendments Suggested to the PDM

The MTR Team suggested a number of amendments to the PDM/ PO especially for the Objectively Verifiable Indicators. Quantitative values were suggested for the indicators as much as possible. The amendments have been discussed with the Counterparts (in the counterpart meeting, February 12th, 2014) and will be approved in the coming JCC meeting.

2.3 Individual Capacity Assessment

The Counterparts were provided with a form of individual capacity assessment, to evaluate their own capacities in the respective SWM categories and sub-categories. A total of 11 C/P from Honiara and 4 C/P from Gizo filled the form. The replies of the Counterparts are analyzed here.

The SWM categories and sub-categories items are shown in Table 17.

Table 17 Individual Capacity Assessment Items

Main Category	Sub-category	Check points in terms of capacity
1. Policy	National SWM Plan	I understand clearly the contents of National SWM Strategy (Current situation, Policy, Goal, Action Plan).
	Laws/ regulations	I know the existing laws on SWM and their contents
	Environmental Impact Assessment	I understand the procedures for EIA clearly based on the State regulation of EIA
2. Administration	Finances	I know overall balance of annual revenue and expenditure of SWM (cost of collection, fuel and dumpsite management etc.) and their breakdown.
	Collection fees	I understand basis for the collection fees (how to set fee collection; fee amount, method to collect)
	Landfill tipping fees	I understand the basis for setting the tipping fees(how to set tipping fee, fee amount, method to collect)
	Organizational structure	I understand organizational charts of local government especially the SWM related department(s).
	Allocation of duties	I understand my organization's and my task/responsibility of in SWM.
3. Existing Conditions and Operational Analysis	Surveys	I have experience to conduct waste generation survey from residents and commercial areas.
		I have experience to conduct incoming waste survey at dumpsite
		I have experience to conduct Time and Motion study for collection service.
		I have experience to conduct public awareness survey
	Data analysis and	I have experience to conduct public awareness survey
4. Collection	Collection service coverage	I understand current collection area and its population covered by collection service
	Service plan	I can plan collection service (method, collection points; types of dustbins, frequency, awareness program)
	Contract out (*1)	I understand clearly the contents of contract of collection service with HCC.
	Supervision of collection contractors	I can monitor collection performance of HCC/GTC collectors.
	Vehicle Maintenance and procurement	I know the type of waste collection vehicles which waste collectors use for collection service.
5. Final Disposal	Landfill design	I understand the principles of the landfill design
		I know the required landfill facilities
		I can design the landfill
	Disposal method	I know the incoming waste amount at the dump site (amount

Main Category	Sub-category	Check points in terms of capacity
		by waste categories, truck numbers, arrival times, etc.)
		I can plan the operation and maintenance plan of the dumpsite
		I can monitor and improve landfill operation and maintenance
	Leachate	I understand what is leachate and its problems at the dumpsite
	Management of waste pickers	I know how to manage waste pickers (number of waste pickers, what they collect, those that live at the site, etc.)
	EIA	I know the contents related to conducting an EIA for a new landfill
6. 3Rs	Definition	I understand the difference between Reduce, Reuse and Recycle (Return).
	Recycling in Solomon	I know the types of recyclable waste materials in Honiara/Gizo.
		I know the waste materials and their amounts that are exported overseas
		I know the private recycling companies operating in Solomon
7. Public Awareness	Tools	I know the tools to use for public awareness, such as media, campaigns, billboards, leaflets, newsletters, etc.
	Implementation	I can develop Action Plan for awareness /3R program
		I can develop awareness material for the SWM awareness/3R program
		I have experiences to plan school education programs for SWM
		I have implemented community awareness programs
8. Individual Skills	Awareness	My Work attitude is good and suitable to the task, and high motivation to learn about SWM.
	Leadership	I can take leadership in management of SWM
	Knowledge and skills	I have strong knowledge and experience on SWM
	Communication	I can communicate with management, peers and subordinates using reports, meetings, emails and presentations

(*1) The question of this subcategory is only applied in Honiara, not in Gizo.

While individual assessment is made separately, for reference the totaled evaluation marks of the Counterparts in Honiara and Gizo are summarized in the following graphs, in Figure 6 and 7.

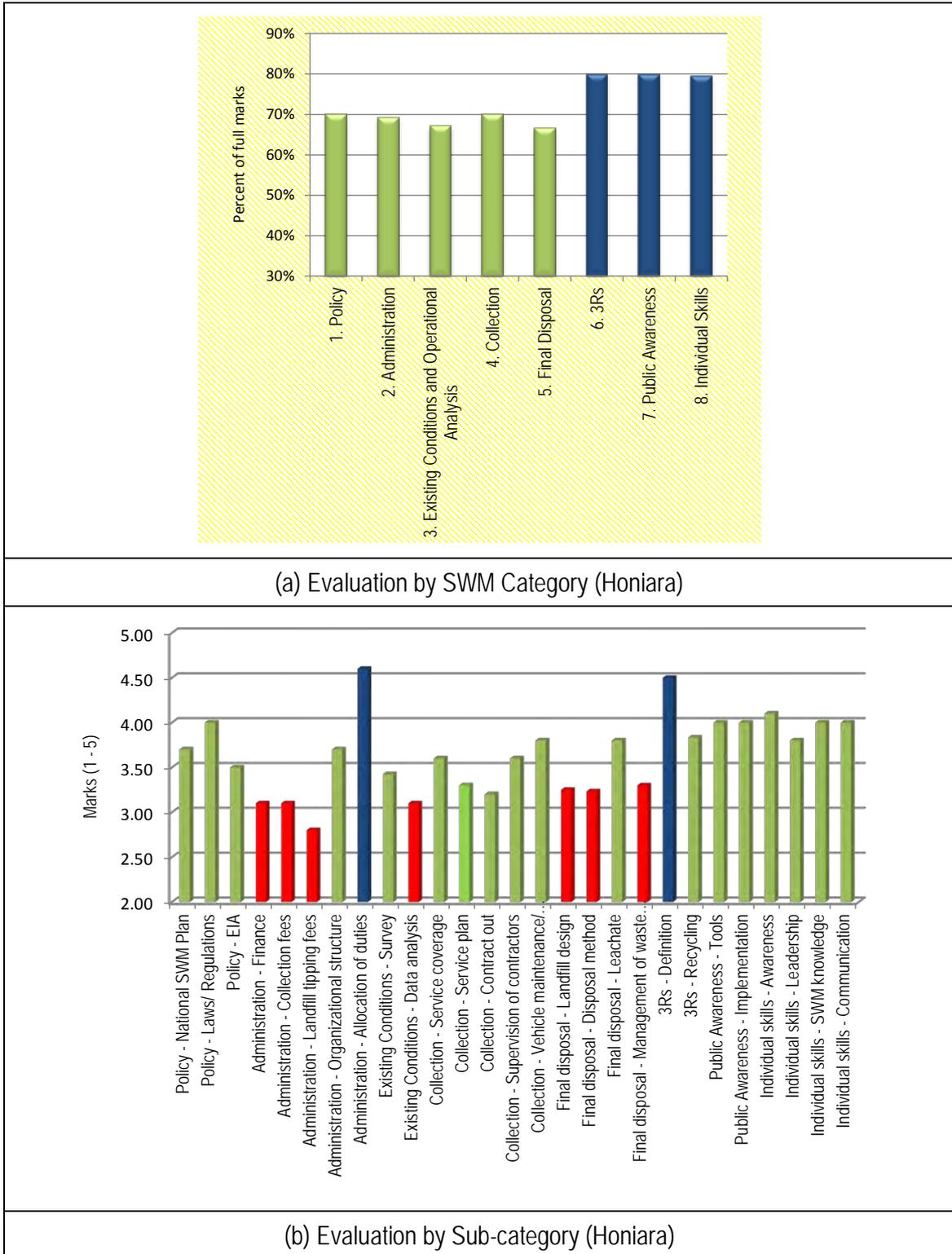


Figure 6 Graphical Presentation of Total Self-assessment Marks (Honiara)

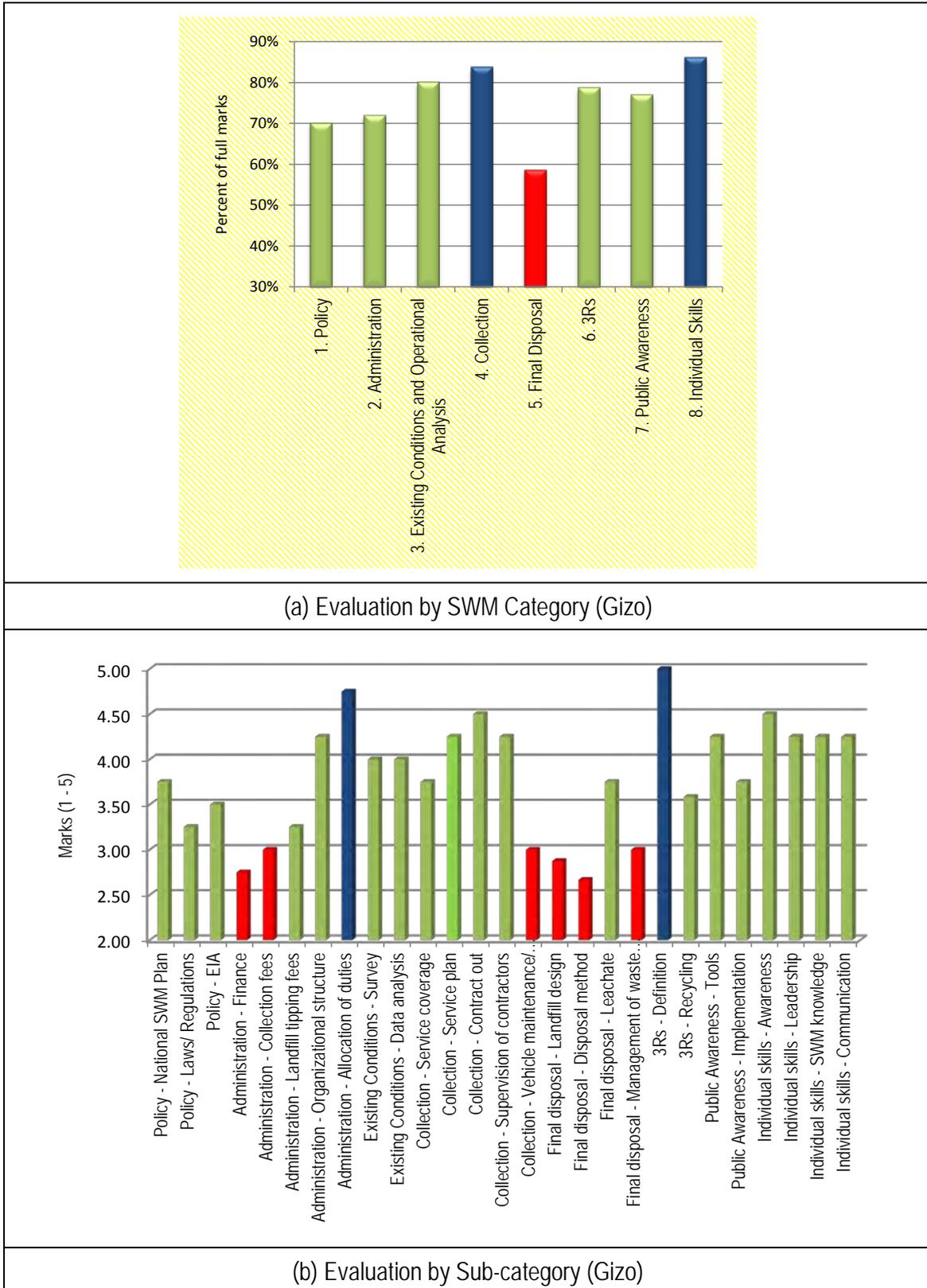


Figure 7 Graphical Presentation of Total Self-assessment Marks (Gizo)

Considering SWM categories, the Counterparts in Honiara rated themselves relatively highly in all the categories with the lowest evaluation just below 70% of the total marks. Especially 6) 3R, 7) Public awareness, 8) Individuals are the higher-rated categories. It shows that the 3R concepts are recognized well among the Counterparts in Honiara. Eco School Program and Collection Pilot Project has been started, which also has given the Counterparts more confidence in their capacity. In the case of the SWM sub-categories, items related to a) financial issues such as collection fee, and b) landfill management are relatively low.

On the other hand, the Counterparts in Gizo answered the higher rate for all the SWM categories except final disposal, which is still under the preparation stage; in the next fiscal year the improvement in final disposal site is expected, by the procurement of a tractor attachment. Regarding the SWM sub categories, as is the same with Honiara Counterparts, items related to a) financial issues such as collection fee, and b) landfill management are rated lower than other items.

B-3. Conclusions and Recommendations

3.1 Conclusions and Recommendations

The following Table 18 evaluates the input of the JICA Expert Team (JET) and Counterpart during this assignment period by Activity.

Table 18 Evaluation of JET Input by Activity (Honiara)

Output	Rosemary	Edward	Debra	Wendy	George	Christina	Jerome	Mercy	Judith	John	Robert	Francis	Oge	Jimmy
Activity														
Contents														
OUTPUT 1: 3R activities are practiced in Honiara and Gizo														
1-1 Develop a work plan for the baseline survey														
N/A (This activity has been already completed)														
1-2 Conduct the baseline surveys including environmental condition, public awareness, waste characterization study, etc.														
Counterparts launched Waste Audit Survey, and drafted Incoming Vehicle Survey. JET provided the support on the analysis of the data.	☉		○	☉	☉	○	○							○
1-3 Develop a communication strategy														
N/A (This activity has been already completed)														
1-4 Identify the feasible options for management of recyclable waste/materials														
The visit at recycling companies was done with the support of JET.	○	○		☉	☉	○	○			○		○		
1-5 Review of existing waste collection system														
N/A (This activity has been already completed)														
1-6 Develop the implementation plan for 3R pilot project														
Counterparts elaborated plans for 1) Eco School Program, 2) Collection Point and Waste Segregation Pilot Project in Panatina Valley Community. Eco Bag Program is going to be planned. JET provided technical support.	☉			○	☉	○	○	○	○	○				☉
1-7 Implement the 3R pilot project														
Counterparts organized the 2nd workshop of Eco School program, and the following-up visits at each participant school. 2) Counterparts launched Collection Point and Waste Segregation Pilot Project in Panatina Valley Community. JET provided technical advice on the preparation and implementation of the both programs.	○			○	☉	○	○	☉	☉	○				○
1-8 Prepare the draft of policies / strategies / legislation / regulation for 3R activities														
N/A														

Output																	
Activity	Rosemary	Edward	Debra	Wendy	George	Christina	Jerome	Mercy	Judith	John	Robert	Francis	Oge	Jimmy			
Contents																	
1-9 Prepare the draft of policies / strategies / legislation / regulation for 3R activities																	
N/A (The pilot projects haven't been started)																	
OUTPUT 2: Waste disposal system is improved in Honiara and Gizo																	
2-1 Conduct site investigation of existing dumpsite																	
N/A (This activity has been already completed)																	
2-2 Conduct the EIA study and follow the required procedure																	
Counterparts completed and got approval of EIA, including the land ownership issues, with some support of JET.	○	◎		◎	◎						○						
2-3 Prepare the rehabilitation plans for existing dumpsites																	
Counterparts drafted a rehabilitation plan. JET gave technical advice.	○			○	◎						◎	○					
2-4 Implement the rehabilitation of dump sites																	
JET gave technical support on landfill rehabilitation. JET gave support for application of Grass Roots Grant by Japanese Embassy.					◎						○						
2-5 Develop the operation manuals for each site																	
JET gave technical support on landfill operation (the manual hasn't been prepared yet).					○						○						
2-6 Train staff of dump sites on landfill operation																	
JET gave technical support for Public Works Division, HCC, on landfill operation.					○						○					○	
OUTPUT 3 Lessons and experiences learnt are disseminated in Solomon Islands																	
3-1 Establish a multi-stakeholder National Committee to help disseminate experience to other areas within the country																	
N/A																	
3-2 Preparation of educational materials for disseminating experience to other areas																	
N/A																	
3-3 Conduct the workshop to disseminate the lessons and experiences learnt																	
N/A																	
Notes:																	
(1) N/A refers to activities not implemented during this assignment period																	
(2) ◎ Refers to counterparts who provided major role, ○ refers to those who provided supporting role																	

3.2 Lessons Learnt

The lessons learnt from the implementation of the Project in Solomon Islands are described as follows:

- (1) The Ranadi land ownership issues were solved relatively quickly, thanks to the strong leadership of related agency such as MECDM and Honiara City Council. The serious engagement by the heads of national and local government is necessary to solve the land issues.
- (2) The process of building good relationship between community members and the Counterparts has been ongoing in the Collection Pilot Project. Close communication such as repeating face-to-face committee meetings and community meetings is helpful to make a better relationship.
- (3) Fijian trainers were invited to the Eco School Program Workshop, which motivated the Counterparts in an effective way. The exchange programs among the pacific islands countries are very useful tools to encourage the Counterparts to the actions. The follow up of the exchange program should also be taken into consideration.
- (4) Two counterparts from Gizo joined the Eco School Workshop Program in Honiara, which stimulated their interests in the program; after the workshop, they have started to hold the initiatives of Eco School Program in Gizo. Especially, in small towns like Gizo, to mobilize a small number of human resources as project core members would be easier and more practical for the beginning of a program.
- (5) The procurement of tractor attachment was intended during the project; however, the J-PRISM project team found out that it would take much time for the whole procurement process. It should be carefully anticipated that the time for procurement in small islands could be longer than expected.
- (6) Mr. George and Ms. Mercy, Honiara City Council, joined the training in Japan, and their action plans were incorporated into the J-PRISM activities. Ms. Rendy, from Western Provincial Government, who also participated in the training in Japan, is eager to engage herself in the J-PRISM project, and can be the key person of the community awareness in Gizo. By J-PRISM's support, they have been more motivated to implement the plans, and it has helped the efficient project operation. Utilization of the human resources coming back from training should be fully considered.

3.3 Recommendations

The following points are suggested as recommendations to improve the Project in Solomon Islands.

(1) Proper utilization of the SWM technical information

Under the J-PRISM several surveys such as waste audit survey, incoming vehicle survey and Time & Motions survey have been implemented; however, the data isn't analyzed in a proper way. The Counterparts should review the results again, based on the advice of JICA Experts, and implement additional survey if necessary.

(2) Stronger leadership for landfill rehabilitation and operation in Honiara

Currently the Public Works Division, Honiara City Council, is in charge of Ranadi landfill; however, the rehabilitation work has been delayed. The commitment by the person in charge is essential to improve the landfill. In February, 2014, landfill supervisor recruitment was advertised, and it is indispensable that he/she take the initiatives as one of the members.

(3) Demarcation with other donors and related partners

In 2014 New Zealand Aid has been planning a survey of waste conditions in Honiara, then to commence some projects on solid waste management. One of the options they mentioned is to allocate one longer-term expert at Public Works Division, Honiara City Council, which would have close relations with the J-PRISM activities. LEAF, Japanese NGO, also start their activities from April, 2014. The demarcation with these organizations should be closely discussed.

(4) Knowledge sharing between Honiara and Gizo

Currently the knowledge and experiences between Honiara and Gizo haven't been done so frequently. It is advisable to highlight the advantages of having two target areas in the scope of J-PRISM project. As a good example of knowledge sharing, Gizo Counterparts were invited in the Eco School Workshop in Honiara in 2013, then they initiated an Eco School Program in Gizo, taking leadership of the Program. It is also recommendable as one of the options, that teachers who have a good practice in Gizo are invited in the Awarding of Eco School Program in Honiara. As the Output 3, the dissemination of the knowledge is inside the scope of the J-PRISM, so these kinds of activities are helpful to develop the experiences over other Provinces.

(5) Collaboration with JOCVs and NGOs

Two JOCVs are assigned in both target areas in Honiara and in Gizo, who should be involved in the J-PRISM project in an effective way. Currently the collaboration with JOCVs isn't always discussed. In addition, the NGOs such as Kastom garden should be utilized more actively for 3R Pilot Project, especially the Collection Pilot Project, which contributes to sustainability of the project as a local partner.

(6) Utilization of trainings

Since the beginning of the J-PRISM project, most of the counterparts have had the opportunities to join the trainings in Japan and other pacific islands, which can be the strong points to mobilize the project resources. It is recommendable that proper persons should be selected for the training and be proactively involved in the project after the trainings. The trainings among the pacific islands counties such as Vanuatu should be also encouraged, to share the experiences and motivate the Counterparts.

C Vanuatu

C-1. Assignment Implementation Brief

1.1. Project Members and Assignment Period

The JICA Expert Team (JET) was composed of four members as shown in Table 19.

Table 19 JICA Expert Team

Name		
1	Mahmoud RIAD	Team Leader/ SWM Expert E (PNG, Vanuatu, Samoa)
2	Hiroshi ABE	SWM Expert A1 (Solomon)/ Landfill Improvement (PNG, Solomon)
3	Akihiro OSADA	SWM Expert A2 (Solomon)
4	Takatoshi ARAI	SWM Expert E2 (Vanuatu)

Mr. Mahmoud RIAD and Mr. Takatoshi ARAI were assigned to Vanuatu as indicated in Table 20.

Table 20 JET Assignment in Vanuatu

Name	Title	2013					2014	
		Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
Mahmoud RIAD	SWM-E	(24) ■						(12) ■
Takatoshi ARAI	SWM-E2				(13) ■		(13) ■	

Note: Figures in parenthesis are numbers of days

Together both experts had a combined assignment period of 62 days.

It should be noted that the Project Office dispatched Mr. Makoto Tsukiji, Project Coordinator once during this assignment period.

The counterparts who directly participated in the Project activities during this assignment period are listed in Table 21.

Table 21 List of Counterparts - Vanuatu

Name	Organization	Title	Comment
Albert Williams	DEPC	Director	Project Director
Roger Tary	PVM	Environmental Health Manager	Project Manager
Caarol Rovo	DEPC	Senior Waste and Pollution Control Officer	Project Coordinator (study abroad from Feb., '14)
Amos Mathias	PVM	Landfill Operational Supervisor	
Andrew Ala	LMC	Environmental Health Manager	
Keith Jacob	Santo Province	Environmental Health Officer	
Anaclet Philip	DEPC (Santo)	Environmental Extension Officer	
Prosper Buletere	Santo Province	Provincial Planner	
Nanai Raja	WMD, NCDC	Waste Management Officer	
Pakoa Ranu	DPH, MOH	Environmental Health Officer	
Andrew Mark	PVM	Construction Officer (Landfill)	
Trinison Tari	DEPC	Senior Environment Officer	Project Coordinator (from Feb. '14)
Bretain Tambe	Biosecurity	Biosecurity Officer	
Tom Nalau	Lenakel	Environmental Health Officer	
Mark Vurobaravu	MOA	Officer	
Berry George	PVM	Market Waste Officer	Monitor for PP, then hired by PVM, Feb., '14
Gina Tary	LMC	Waste Management Officer	From Feb. '14
Ray Eddie	LMC	Environmental Officer	From Feb. '14
Touasi Tiwok	DEPC	Senior Executive Officer	
Utako Jinno	JOCV	Environmental Education	Support to JPRISM
Mayuka Kozawa	JOCV	Environmental Education	Support to JPRISM
Mary O'Reilly	NZ-VSA	Waste Management	Support to LMC
Sean Toland	NZ-VSA	Geologist	Support to LMC
Elizabeth Brown	NZ-VSA	Waste Management	Support to Lenakel

1.2 Summary of Assignment Results

This Assignment period coincided with the 3rd FY of the Project; (April 2013 to March 2014). The most significant activities during this year and to which there was contribution from the JET team are as follows:

- (1) The results of the market waste audit were presented to the PVMC councilors by the Counterparts (Activity 1-1-1).
- (2) LMC conducted their solid waste audit in September 2013. PVMC Counterparts participated on the first day (Activity 1-1-2)
- (3) LMC built a large scale compost bin at the Market House in May 2013 (Activity 1-2).
- (4) PVMC implemented the Market Waste Compost Pilot Project for two months at the end of 2013 (Activity 1-2).
- (5) A workshop was held to discuss the waste minimization policy draft in February 2014 (Activity 1-3-1).
- (6) LMC expanded the aluminum can collection program (Activity 1-5)
- (7) Operation logs were introduced to provide daily reports of the landfill operation (Activity 2-4).
- (8) At Bouffa landfill, incoming waste vehicles data was collected and analyzed in January 2013
- (9) Support to the Mid-term Review Team

The Mid-term Review Team visited Vanuatu in September, 2013 and held a number of interviews and meetings with the counterparts as well as visited the facilities.

1.3 Daily Activities

Over a total period of 62 days, the SWM Experts' daily activities are shown in Table 22.

Table 22 Main Activities during the Assignment Periods in Vanuatu

No.	Date	Activity
First Assignment in Vanuatu (Riad, SWM Expert E)		
1	2013/8/2	Arrival Port Vila
2	2013/8/3	● Documents and data review

No.	Date	Activity
3	2013/8/4	<ul style="list-style-type: none"> ● Meeting with JICA Vanuatu office Project Formulation Advisor ● Documents and data review
4	2013/8/5	<ul style="list-style-type: none"> ● Meeting with Counterparts ● Meeting with JICA Vanuatu Office Resident Representative
5	2013/8/6	<ul style="list-style-type: none"> ● Site inspection visit to Bouffa disposal site
6	2013/8/7	<ul style="list-style-type: none"> ● Observation of collection trucks operations ● Meeting with Ms. Cornelia Wylie, Director, Vanuatu Direct
7	2013/8/8	<ul style="list-style-type: none"> ● Discussion with Director, DEPC ● Meeting with Wan Smol Bag ● Attended PVMC internal meeting with drivers and crews ● Attended showing of “Trash” at the Australian High Commission
8	2013/8/9	<ul style="list-style-type: none"> ● Meeting with Recycle Corp ● Meeting with Live and Learn (NGO)
9	2013/8/10	<ul style="list-style-type: none"> ● Documents and data review
10	2013/8/11	<ul style="list-style-type: none"> ● Documents and data review
11	2013/8/12	<ul style="list-style-type: none"> ● Meeting with C/Ps ● TV Conference meeting with JICA Tokyo Hq.
12	2013/8/13	<ul style="list-style-type: none"> ● Support to meeting MTR team requirements
13	2013/8/14	<ul style="list-style-type: none"> ● Counterpart Team meeting
14	2013/8/15	<p>National holiday</p> <ul style="list-style-type: none"> ● Documents and data review
15	2013/8/16	<ul style="list-style-type: none"> ● Meeting with DEPC Director ● Visit to Bouffa landfill ● Meeting with C/P
16	2013/8/17	<ul style="list-style-type: none"> ● Meeting with JICA Vanuatu Project Formulation Advisor ● Documents and data review
17	2013/8/18	<ul style="list-style-type: none"> ● Documents and data review
18	2013/8/19	<p>Visit to Luganville</p> <ul style="list-style-type: none"> ● Observation of Luganville disposal site ● Visit to medical waste incinerator ● Meeting with LMC C/Ps

No.	Date	Activity
		● Visit to composting facility at the market
19	2013/8/20	● Participated in the waste audit survey ● Visited candidate sites for the new landfill Returned to Port Vila
20	2013/8/21	● Meeting with Wan Smol Bag ● Telephone meeting with Samoa Project Office
21	2013/8/22	● Meeting with C/Ps ● Visit to quarantine waste incinerator
22	2013/8/23	● Meeting with Ms. Cornelia Wylie, Vanuatu Direct ● Meeting with Acting Town Clerk
23	2013/8/24	● Documents and data review
24	2013/8/25	Departure Port Vila
Second Assignment in Vanuatu (Arai, SWM Expert E2)		
1	2013/11/3	Arrival Port Vila
2	2013/11/4	● Counterpart Team meeting ● Reporting to JICA Vanuatu Office
3	2013/11/5	● Pilot project activities, Meeting with Wan Smol Bag,
4	2013/11/6	● Pilot project activities
5	2013/11/7	● Pilot project activity, Bouffa landfill visit
6	2013/11/8	● Inspection of collection trucks at Freswota depot
7	2013/11/9	● Documents and data review
8	2013/11/10	● Documents and data review
9	2013/11/11	● Pilot project activity
10	2013/11/12	● Counterpart team meeting ● TV conference with Project Office
11	2013/11/13	● Reporting to JICA Vanuatu Office
12	2013/11/14	Departure Port Vila
Third Assignment in Vanuatu (Arai, SWM Expert E2)		
1	2014/1/13	Arrival Port Vila
2	2014/1/14	● Counterpart Team meeting ● Reporting to JICA Vanuatu Office

No.	Date	Activity
3	2014/1/15	● Pilot project activities, Meeting with Director, DEPC
4	2014/1/16	● Bouffa landfill incoming waste survey
5	2014/1/17	● Bouffa landfill incoming waste survey
6	2014/1/18	● Pilot project activities
7	2014/1/19	● Documents and data review
8	2014/1/20	● Documents and data review
9	2014/1/21	● Pilot project activity, Meeting with Vanuatu Direct
10	2014/1/22	● Counterpart team meeting
11	2014/1/23	● Reporting to JICA Vanuatu Office
12	2014/1/24	Departure Port Vila
Fourth Assignment in Vanuatu (Riad, SWM Expert E)		
1	2014/2/11	Arrival Port Vila ● Meeting with main counterparts individually ● Meeting with DEPC Director ● Visits to Bouffa landfill and Central Market ● Meeting with JICA Vanuatu office
2	2014/2/12	● Counterpart team meeting ● Meeting with DEPC Director
3	2014/2/13	● Meeting with Tourism Division counterpart ● Preparation for the Workshop ● Visit to Freswota market ● Meeting with JICA Vanuatu office
4	2014/2/14	● Meetings with counterpart to prepare for JCC meeting
5	2014/2/15	● Documents and data review
6	2014/2/16	● Preparing assignment completion report
7	2014/2/17	● 3 rd JCC Meeting, Luganville
8	2014/2/18	● JCC meeting minutes ● Preparation for workshop
9	2014/2/19	● Workshop on waste minimization ● Meeting with Project Manager
10	2014/2/20	● Observation of Central Market waste loading and meeting with

No.	Date	Activity
		<p>mamas</p> <ul style="list-style-type: none"> ● Vanuatu Direct to observe the compost ● Bouffa landfill observation visit
11	2014/2/21	<p>National holiday</p> <ul style="list-style-type: none"> ● JICA Vanuatu office meeting and submission of the Assignment Completion Report
12	2014/2/22	Departure Port Vila

1.4 Implementation Methodology

During the assignment periods in Vanuatu, JET worked under the following guidelines.

- (1) Maintaining the J-PRISM principle of developing C/Ps' capacities through their direct implementation of the Project activities. During this assignment period, the Counterparts, receiving advise and comments from the JET, implemented the following main tasks directly:
 1. Presentation of the waste audit results to the PVMC Council
 2. Annual waste audit in LMC (basically with guidance of NZ-VSA and support of J-PRISM)
 3. Implementation of market waste compost pilot project in two markets in PVMC
 4. Considerations on new landfill development in LMC and safety closure of existing landfill
 5. Holding of the workshop to discuss the draft waste minimization policy
 6. Consideration on power supply problem to install the weighbridge at Bouffa landfill
 7. Develop operational logs at Bouffa landfill
 8. Holding of the 3rd JCC meeting in Luganville
- (2) Having more contact with Project Director (DEPC Director) and Town Clerk to get their support for the project activities
- (3) Regular discussions with the C/Ps on an individual as well as collective basis
- (4) Site visits and meetings with stakeholders were principally conducted together with a C/P
- (5) Visits to Luganville on two occasions and maintaining communication with the Counterpart and NZ-VSA volunteers there
- (6) Minimizing interruptions to the C/Ps' daily works while maximizing utilization of the limited assignment periods
- (7) Maintaining personal records of activities and discussions
- (8) Reporting to JICA Vanuatu Office and the Project Office on a regular basis

- (9) Trying to understand the cultural and work environment
- (10) Providing realistic and suitable suggestions, advice and guidance to the C/Ps

C-2. Details of the Assignment Implementation

2.1 Project Outputs and Activities

2.1.1 Plan of Operation

The Plan of Operation (PO) was amended based on recommendations put forward by the MTR Team in September 2013 and accepted by the Vanuatu C/Ps in February 2014.

The PO is summarized as follows.

	Overall Goal (Same for all PICs)	Objectively Verifiable Indicator
↑	Sustainable management of solid waste is enhanced.	1-1. 60% of the registered experts (trainers) on the SPREP list will participate as trainers at least one workshop and/or training in region and/or in-country should there be an opportunity for them to do so. 1-2. Amounts of waste disposal at Port Vila & Luganville landfills are decreased by at least 7% respectively.
	Project Purpose	Objectively Verifiable Indicator
	Human and institutional capacity base for sustainable solid waste management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010 – 2015) (RS2010)	[Vanuatu] 1. Three (3) experts are listed in the SPREP inventory 2. Bouffa and Luganville landfill are managed as planned in the Annual Operation Plans 3. One or more provinces implement their respective action plans to promote minimizations and composting in respective provinces.

Project Outputs and Associated Activities - Vanuatu

Outputs and Activities	Objectively Verifiable Indicator
OUTPUT 1: Waste disposal amounts in the urban and peri-urban area are reduced through minimization mechanisms	
1-1-1 Undertake waste characterization studies (Port Vila)	1-1 Amount of organic waste generated from market is reduced by 20% (Port Vila)
1-1-2 Undertake waste characterization studies	1-2 NWMS is established

<p>(Luganville) 1-1-3 Undertake waste characterization studies (Lenakel) 1-2 Explore the use of organic waste for composting in partnership with Agriculture Department/ organic farming groups and Ministry of Health (Port Vila and Luganville) 1.3.1 Review and finalization of National Waste Management Strategy (NWMS) 1.3.2 Development of National Solid Waste Minimization Strategy (NSWMS) 1.3.3 Review, evaluation and updating of waste management plan of Port Vila Municipality (2008) 1.4 Establish and implement collection system for cans and plastic bottles (Port Vila) 1.5 Establish and implement collection system for cans and plastic bottles (Luganville)</p>	<p>1-3 Collection system for cans is established</p>
<p><u>OUTPUT 2: Existing waste disposal sites (Bouffa and Luganville) are improved</u></p>	
<p>2.1 Conduct Feasibility Study (FS) on establishment of weighbridge system for Bouffa landfill. 2.2 Establish weighbridge system for Bouffa landfill 2.3 Develop and update a centralized data management system at Bouffa landfill with a weighbridge system 2.4 Develop the operational/ management master plan for Bouffa Landfill to incorporate data management 2.5 Develop closure plan for Luganville disposal site</p>	<p>2-1 Weighbridge system is established in Bouffa landfill 2-2 Data management system is established in Bouffa landfill 2-3 Operation and management master plan for Bouffa landfill is utilized 2-4 Closure plan for Luganville disposal site is established</p>
<p><u>OUTPUT 3: Capacities for waste management at the national and local government levels are enhanced</u></p>	
<p>3.1 Conduct in-country training on waste characterization 3.2 Undertake in-country training on landfill management/ operations 3.3 Conduct training for waste collection operators/ handlers</p>	<p>3-1 More than one provincial officer recognizes the importance of waste minimization and SWM. 3-2 Manual for developing Solid Waste Management master plans at province level is prepared.</p>

2.1.2 Progress of the Plan of Operations Activities

The status of each of the activities and the progress during this assignment period is described hereafter.

<u>OUTPUT 1: WASTE DISPOSAL AMOUNTS IN THE URBAN AND PERI-URBAN AREA ARE REDUCED THROUGH MINIMIZATION MECHANISMS</u>	
1.1.1 Undertake waste characterization studies (Port Vila)	
	A market waste study was implemented. The waste audit results were announced in presentation made by the Counterparts to the PVMC Councilors in September 2013 (Attachment C-1). The report has not yet been compiled.
1.1.2 Undertake waste characterization studies (Luganville)	
	A solid waste audit was implemented in September and the report was prepared. Counterparts from PVMC participated in the survey.
1.1.3 Undertake waste characterization studies (Lenakel)	
	This activity has not yet been implemented.
1.2 Explore the use of organic waste for composting in partnership with Agriculture Department/ Organic Farming groups and Ministry of Health (Port Vila and Luganville)	
	<p>A Market Waste Compost pilot project was implemented in Port Vila from October for two months at the Main Market and Freswota Market. This pilot project brought together a number of stakeholders; PVMC, DEPC, End-user (Vanuatu Direct), Wan Smol Bag, and etc. The implementation covered public awareness, source separation, separate collection and composting of the green wastes. A report for the pilot project has been prepared by the Mr Roger Tari, the Project Manager and is attached separately with this report.</p> <p>In Luganville, a large scale compost bin was built at the Market House in May 2013 to take all organic waste (apart from baskets and coconut husks) (Attachment C-2). In January this year an agreement was made with the Vanuatu Agricultural College to take the excess organic waste, it will be used to make compost and as a food source for the piggery on site.</p>
1.3.1 Review and finalization of National Waste Management Strategy (NWMS)	
	During this year there was no further progress in this activity.
1.3.2 Development of National Solid Waste Minimization Strategy (NSWMS).	
	A workshop was implemented in February 2014 to discuss the draft policy paper prepared. The Project Director has indicated that DEPC now prefers to develop a policy on waste minimization and include this policy in the revised NWMS which is scheduled to be reviewed in 2014. The proceedings of the workshop are provided in Attachment C-3. The

policy is expected to be developed by the end of this year.
1.3.3 Review, evaluation and updating of waste management plan of Port Vila Municipality (2008).
During this year there was no further progress in this activity.
1.4 Establish and implement collection system for cans and plastic bottles (Port Vila)
Planning for the pilot project started this year and implementation is expected in 2014. The Counterparts shall consider the demand for the plastic bottles and consider on how to include these recyclable materials in the system to be established.
1.5 Establish and implement collection system for cans and plastic bottles (Luganville)
The existing aluminum can collection programme has now been advertised, expanded and made more efficient. Thirty (30) restaurants, bars, cafes, resorts and shops now have cages that are collected every two months by Recycle Corp, the money is given directly to Rotary to pay for materials to make more cages. A new design of cage has been built and will be trialed at Unity Park next month for public use.
<u>OUTPUT 2: EXISTING WASTE DISPOSAL SITES (BOUFFA AND LUGANVILLE) ARE IMPROVED</u>
2.1 Conduct Feasibility Study (FS) on establishment of weighbridge system for Bouffa landfill.
Little progress has been made on this activity. The Counterparts are yet to meet with the organization responsible for expanding the power grid to discuss their plans to extend power supply to Bouffa. In the meantime information was collected on alternative power supplies for the weighbridge from manufacturers for review and consideration.
2.2 Establish weighbridge system for Bouffa landfill
This activity can start only after the weighbridge is installed.
2.3 Develop and update a centralized data management system at Bouffa landfill with a weighbridge system
This activity can start only after the weighbridge is installed.
2.4 Develop the operational/ management master plan for Bouffa Landfill to incorporate data management
Daily operational logs have been developed to commence the collection and analysis of the present operation. The analysis of the collected data will support the development of the master plan in 2014. Furthermore an incoming waste vehicle survey was implemented in January 2014. Refer to Attachment C-4.
2.5 Develop closure plan for Luganville disposal site
Mr. Amos Mathias, PVMC counterpart well trained and experienced in sanitary landfill

traveled to Luganville twice this financial year to visit the disposal site and discuss with the LMC counterpart on the landfill closure requirements. His report is provided in Attachment C-5.

OUTPUT 3: CAPACITIES FOR WASTE MANAGEMENT AT THE NATIONAL AND LOCAL GOVERNMENT LEVEL ARE ENHANCED

3.1 Conduct in-country training on waste characterization

During this fiscal year training was done for Lenakel officials.

3.2 Undertake in-country training on landfill management/ operations

No training in-country training was conducted during this fiscal year

3.3 Conduct training for waste collection operators/ handlers

This activity is planned to start in 2014.

2.2 Mid-term Review Team Recommendations

The Mid-term Review Team (MTRT) formed by JICA visited Vanuatu during August - September 2013. The team members conducted site visits, interviews with the counterparts and reviewed the project documents and data.

2.2.1 Evaluation of the Level of Achievement for the Project Outputs

The MTR report determined the levels of achievement for each of the three outputs as shown in Table 23.

Table 23 Mid-term Review evaluation of Outputs

Output	Level of Achievement	Description
OUTPUT 1: Waste disposal amounts in the urban and peri-urban area are reduced through minimization mechanisms	B/C	<i>(Level B) Although some activities have been slightly delayed, it will most likely recover its delay without any difficulties. At this moment, any progress has yet been reflected on the changes of the indicators.</i> <i>(Level C) Delays of some activities have started to affect the achievement of this Output. It requires substantial effort to achieve this Output within the project period</i>
OUTPUT 2: Existing waste disposal sites (Bouffa and Luganville) are improved	N/A	
OUTPUT 3: Capacities for waste management at the	B	<i>(Level B) Although some activities have been slightly delayed, it will most likely recover its</i>

Output	Level of Achievement	Description
national and local government levels are enhanced		<i>delay without any difficulties. At this moment, any progress has yet been reflected on the changes of the indicators.</i>
Source: Mid-term Review Report, September 2013		

The report has been circulated to the Counterparts and its contents will not be described further here.

2.2.2 MTR Recommendations to the Project and Countermeasures

The recommendations outlined in the MTR report and directed “to the Project (Implementing Agency and JICA Experts)” have been discussed with the Counterparts. The Counterparts have accepted the recommendations and described the countermeasures they will take for each recommendation as shown in Table 24.

Table 24 MTR Team Recommendations and Counterparts' Countermeasures

No.	MTR Team Recommendation to the Project	Countermeasures
1)	Revision of the current PDM and PO	<i>Recommended revisions have been accepted as reported later in this minutes</i>
2)	To review and apply necessary and/or additional inputs to recover the Project delay	<i>There has been an increase in Project staffing through the appointment by PVMC of a Waste Management Officer for the Market House and the appointment of a Project Assistant by J-PRISM Expert Team.</i>
3)	To collaborate with and learn from the waste management advisor of LMC (VSA volunteer) with regard to how she proceeds with her activities.	<i>The holding of the JCC meeting in Luganville is a good step to strengthen coordination amongst the two municipalities and benefit from their respective experiences.</i>
4)	Maximize the advantages of being a regional project, by sharing 3Rs promotion ideas and materials with other member countries.	<i>The counterparts have produced a number of reports on their activities which are available to the Project Office to disseminate to other regional countries.</i>
5)	To make clear distinction between C/Ps and supporting members	<i>Agreed.</i>
6)	To involve decision making level officers and leaders to the Project	<i>Both PVMC and LMC Town Clerks have been invited to the 3rd JCC meeting which is chaired by the Director of DEPC.</i>
Source: Recommendations from the MTR team report, and the countermeasures were discussed in the		

No.	MTR Team Recommendation to the Project	Countermeasures
	Counterpart meeting held in January/February, 2014.	

2.2.3 Amendments Suggested to the PDM

The MTR Team suggested a number of amendments to the PDM/ PO especially for the Objectively Verifiable Indicators. Quantitative values were suggested for the indicators as much as possible. The amendments have been discussed with the Counterparts (in the counterpart meeting, 12th February 2014) and have been accepted by them.

Table 25 Amended OVIs in the PDM

Item	Original Objectively Verifiable Indicators	Amended Objectively Verifiable Indicators
Overall Goal	Sustainable management of solid waste in the Pacific Region is enhanced.	
	1. to be discussed	1-1. 60% of the registered experts (trainers) on the SPREP list will participate as trainers at least one workshop and/or training in region and/or in-country should there be an opportunity for them to do so. 1-2. Amounts of waste disposal at Port Vila & Luganville landfills are decreased by at least 7% respectively.
Project Purpose	Human and institutional capacity base for sustainable Solid Waste Management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010 - 2015) (RS2010)	
	1. # of experts (Trainers) in the field of landfill management listed in the SPREP inventory 2. Amount of waste disposal at Bouffa landfill is decreased by XX % 3. Capacity of landfill management is enhanced.	1. Three experts are listed in the SPREP inventory. 2. Bouffa and Luganville landfill are managed as planned in the Annual Operation Plans 3. One or more provinces implement their respective action plans to promote minimizations and composting in respective provinces.
Output 1	1.1 Amount of organic waste generated from households and market is reduced by 5% (Port Vila) 1.2 NWMS is established	1.1 Amount of organic waste generated from market is reduced by 20% (Port Vila) 1.2 Same 1.3 Same

Item	Original Objectively Verifiable Indicators	Amended Objectively Verifiable Indicators
	1.3 Collection system for cans is established	
Output 2		No amendments recommended
Output 3	3.1 # of trainings conducted with each local authority Port Vila, Luganville & Lenakel 3.2 # of participants trained on waste characterization, landfill management/operation/waste collection operators in each local authority Port Vila Luganville & Lenakel	3.1 More than one provincial officer recognizes the importance of waste minimization and SWM 3.2 Manual for developing Solid Waste Management master plans at province level is prepared

2.3 Convening of the 3rd JCC Meeting

The 3rd JCC Meeting was convened on February 17th, 2014, in Luganville. The proceedings of the JCC meeting are provided in **Attachment C-6**.

2.4 Individual Capacity Assessment

The Counterparts were provided with two forms; Form 1 for filling in their duties and expectations from the J-PRISM project, and Form 2 for them to evaluate their own capacities in the respective SWM categories and sub-categories. The replies of four of the Counterparts are analyzed here.

It is interesting to note the Counterparts expectations from the J-PRISM Project. Some of these expectations are as follows:

- Waste Minimization policy should be developed and endorsed
- Need to develop capacities in all activities related to sanitary landfill (plan, design, O&M, tipping fees, heavy equipment maintenance, leachate monitoring and safe closure)
- A deeper understanding on collection and recycling of waste
- Introduction of Efficient Collection System
- Ability to Develop Action Plan and its implementation

The Counterparts desire to develop their capacities in all the SWM sectors of collection, recycling, and landfill. They also desire that the project support the need to develop and endorse the waste minimization policy.

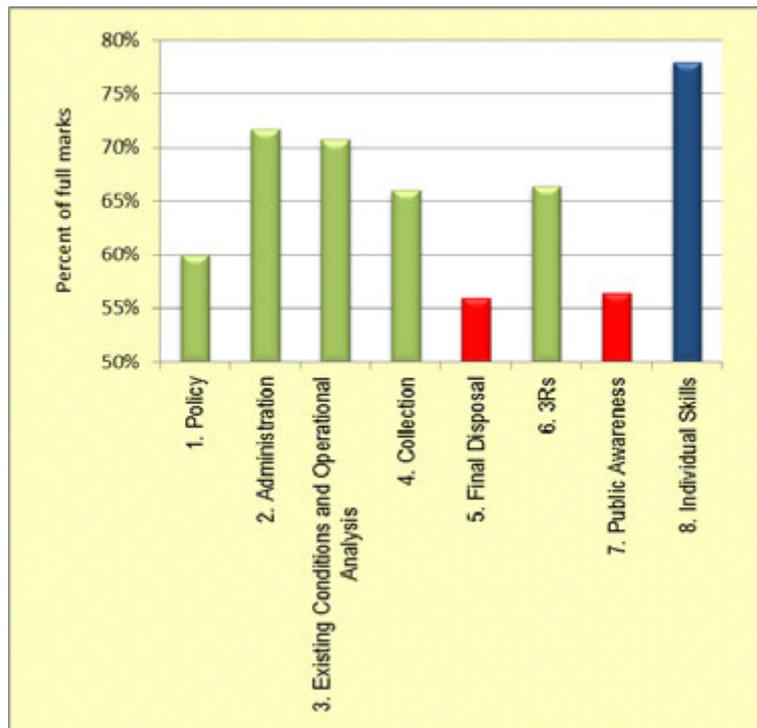
The SWM categories and sub-categories items (Form 2) are shown in Table 26.

Table 26 Individual Capacity Assessment Items

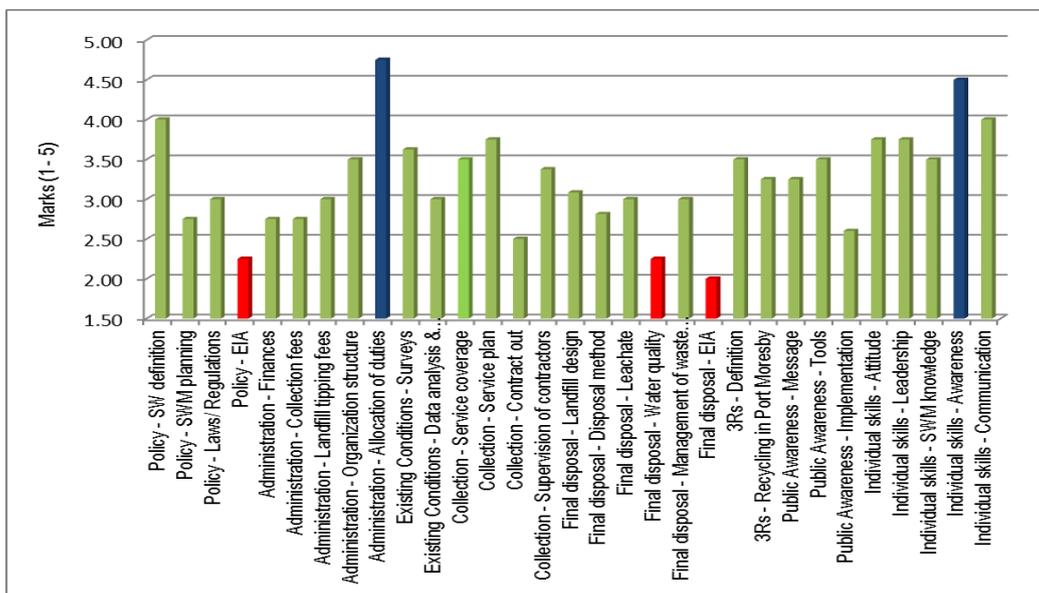
Main Category	Sub-category	Check points in terms of capacity
1. Policy	Solid waste	I understand the definition of solid waste and the waste categories
	SWM planning	I clearly understand the policies associated with SWM
	Relevant laws/ Regulations	I know the existing laws on SWM and their contents
	Environmental Impact Assessment	I understand the procedures for EIA clearly based on the State regulation of EIA
2. Administration	Finances	I know overall balance of annual revenue and expenditure of SWM (cost of collection, fuel, maintenance cost, and dumpsite management) and their breakdown).
	Collection fees	I understand the basis for setting the collection fees (how to set fee collection; fee amount, method to collect)
	Landfill tipping fees	I understand the basis for setting the tipping fees(how to set tipping fee, fee amount, method to collect)
	Organizational structure	I know the government and local government agencies related to SWM and their responsibilities
	Allocation of duties	I understand the task/responsibility of my organization related to SWM. I understand my task/ responsibility in SWM
3. Existing Conditions and Operational Analysis	Surveys	I have experience to conduct waste audit survey for residential waste
		I have experience to conduct waste audit survey for commercial waste
		I have experience to conduct incoming waste survey at dumpsite
		I can conduct survey to understand collection amount
		I have experience to conduct Time and Motion study for collection service
	I have experience to conduct public awareness survey	
Data analysis and reporting	I can analyze the survey data to evaluate the SWM operations and prepare the plan	
4. Collection	Collection service coverage	I understand current collection area and its population covered by collection service
	Service plan	I can plan the collection service (method, collection points, types of dustbins, frequency, truck types, awareness program)
	Contract out	I understand clearly the contents of contracts of the collection service
	Supervision of collection contractors	I can assign the supervisors the tasks related to collection supervision I can monitor the supervisors field work and reports
5. Final	Landfill design	I understand the principles of the landfill design

Main Category	Sub-category	Check points in terms of capacity
Disposal		I know the required landfill facilities
		I can design the landfill
	Disposal method	I know the incoming waste amount at the dump site (amount by waste categories, truck numbers, arrival times, etc.)
		I can plan the operation and maintenance plan of the dumpsite
		I can monitor and improve landfill operation and maintenance
		I can develop closure plan of the current dumpsite
	Leachate	I understand what is leachate and its problems at the dumpsite
	Water quality	I can monitor leachate and groundwater qualities at the dumpsite such as COD, pH etc.
	Management of waste pickers	I know how to manage waste pickers (number of waste pickers, what they collect, those that live at the site, etc.)
EIA	I know the contents related to conducting an EIA for a new landfill	
6. 3Rs	Definition	I understand the difference between Reduce, Reuse and Recycle (Recover)
		I understand the 4 th R, Return, which is pertinent to the Pacific Island Countries
	Recycling in Vanuatu	I know the types of recyclable waste materials in Vanuatu
		I know which waste materials are recycled inside Vanuatu
		I know the waste materials and their amounts that are exported overseas
		I know the private recycling companies operating in Vanuatu
	I can conduct a recycling survey	
7. Public Awareness	Message	I understand why and what messages I need to make the public aware of for SWM
	Tools	I know the tools to use for public awareness, such as media, campaigns, billboards, leaflets, newsletters, etc.
	Implementation	I can develop Action Plan for awareness /3R program
		I can develop awareness material for the SWM awareness/3R program
		I have conducted to plan school education programs for SWM
		I have planned and implemented community awareness programs
	I have dealt with public complaints related to SWM	
8. Individual Skills	Attitude	My Work attitude is good and suitable to the task
	Leadership	I can take leadership in management of SWM
	Knowledge and skills	I have strong knowledge and experience on SWM
	Awareness	I want to learn more about SWM
	Communication	I can communicate with management, peers and subordinates using reports, meetings, emails and presentations

While individual assessment is made separately, for reference the totaled evaluation marks of the Counterparts are summarized in the following graphs, in Figure 8.



(a) Evaluation by SWM Category



(b) Evaluation by Sub-category

Figure 8 Graphical Presentation of Total Self-assessment Marks

Considering SWM categories, the Counterparts highly evaluated their individual skills, which is an indication that there is a good base to build upon. On the other hand, the counterparts are not confident of their ability in the landfill sector as well as to deal with public awareness.

Concerning the later they rely to a great deal on Wan Smol Bag (NGO) for awareness raising activities.

In the case of the SWM sub-categories, the counterparts have little confidence in their abilities to deal with EIAs and water quality issues. On the plus side, the counterparts consider that they have high management skills to allocate duties as well as a desire to learn more about SWM (individual skills - awareness).

C-3. Conclusions and Recommendations

3.1 Conclusions and Recommendations

The following Table 27 evaluates the input of the JICA Expert Team (JET) and Counterpart during this assignment period by Activity.

Table 27 Evaluation of JET Input by Activity

Output	Albert	Roger	Carol	Amos	Trinison	Touasi	Berry	Andrew	Prosper	Anacel	Tom
Activity											
Contents											
OUTPUT 1: WASTE DISPOSAL AMOUNTS IN THE URBAN AND PERI-URBAN AREA ARE REDUCED THROUGH MINIMIZATION MECHANISMS											
1.1.1 Undertake waste characterization studies (Port Vila)											
The Counterparts prepared and made the presentation. JET reviewed the presentation and provided advice.		⊙	⊙	○			⊙				
1.1.2 Undertake waste characterization studies (Luganville)											
LMC counterparts implemented the study. JET participated on the first day.				○				○	○	○	
1.1.3 Undertake waste characterization studies (Lenakel)											
N/A											
1.2 Explore the use of organic waste for composting in partnership with Agriculture Department/ Organic Farming groups and Ministry of Health (Port Vila and Luganville)											
In Port Vila, counterparts prepared the plan, coordinated with the stakeholders, launched awareness campaign and implemented the pilot project. The Counterparts also prepared the Evaluation Report. JET provided advice, financial support, monitoring and evaluation assistance. In Luganville, counterparts introduced the compost bins at the Market. JET provided technical comments after the bins had been set up.		⊙	○	○			○	○	○	○	
1.3.1 Review and finalization of National Waste Management Strategy (NWMS)											
N/A											
1.3.2 Development of National Solid Waste Minimization Strategy (NSWMS)											
The Counterparts held a workshop under the direction of the Project Director to discuss the draft policy paper. JET provided advice, and participated.	⊙	○			○	○					○
1.3.3 Review, evaluation and updating of waste management plan of Port Vila Municipality (2008).											
N/A											
1.4 Establish and implement collection system for cans and plastic bottles (Port Vila)											
N/A											
1.5 Establish and implement collection system for cans and plastic bottles (Luganville)											
LMC counterparts expanded the aluminum cans collection and recycling.								○	○	○	

Output		Albert	Roger	Carol	Amos	Trinison	Touasi	Berry	Andrew	Prosper	Anacel	Tom
Activity												
Contents												
<u>OUTPUT 2: EXISTING WASTE DISPOSAL SITES (BOUFFA AND LUGANVILLE) ARE IMPROVED</u>												
2.1 Conduct Feasibility Study (FS) on establishment of weighbridge system for Bouffa landfill.												
JET provided suggestions to proceed with the F/S.			○	○								
2.2 Establish weighbridge system for Bouffa landfill												
N/A.												
2.3 Develop and update a centralized data management system at Bouffa landfill with a weighbridge system												
N/A												
2-4 Amendments to the collection contractors contracts												
Counterparts and JET designed a template to collect and report on daily operation at Bouffa landfill, which can be used until the weighbridge is installed.		○		⊙								
2.5 Develop closure plan for Luganville disposal site												
LMC counterparts have introduced many improvements to the existing landfill and are studying sites for new landfill. PVMC counterpart provided advice on improving existing landfill operation. JET accompanied PVMC counterpart to Luganville.				○								
<u>OUTPUT 3: CAPACITIES FOR WASTE MANAGEMENT AT THE NATIONAL AND LOCAL GOVERNMENT LEVEL ARE ENHANCED</u>												
3.1 Conduct in-country training on waste characterization												
During this fiscal year training by PVMC was done for Lenakel officials. JET was not involved.		⊙	○	○								⊙
3.2 Undertake in-country training on landfill management/ operations												
N/A												
3.3 Conduct training for waste collection operators/ handlers												
N/A												
Notes: (1) N/A refers to activities not implemented during this assignment period (2) ⊙ Refers to counterparts who provided major role, ○ refers to those who provided supporting role (3) Yellow highlighted names are PVMC C/Ps, Green are LMC C/Ps, No highlight is Lenakel C/P. Mr. Albert is Project Director, and DEPC Director												

3.2 Lessons Learnt

There are some lessons that may be learnt from the implementation of the Project in Vanuatu. These include the following:

- (1) The PVMC counterparts showed significant project ownership when they explained to their higher officials and colleagues in PVMC that the Market Waste Compost Pilot Project (MWCPP) was PVMC's project and not JICA's and requested, and received their important cooperation.
- (2) Both PVMC and LMC developed models of public-private partnership to successfully promote 3Rs in their respective municipalities. Under the PVMC model, PVMC, the public entity partner was responsible to segregate and transport the market green waste to the Vanuatu Direct farm. Vanuatu Direct, the private partner was responsible to compost the green waste and use it in the farm as well as distribute to neighboring farms. LMC's model was to construct a composting facility at the market. Private companies there provided the funds and workmanship to construct the facility.

Both models are different from the common model so far observed in Fiji of composting the market waste at the landfill and then selling the produced compost to interested farmers. In the Fiji model, the public entity is responsible for all phases of segregation, transport and composting. The private sector role in Fiji is limited to providing some revenue through purchase of the produced compost. These different models are lessons that can be shared on regional level between the PICs.

- (3) LMC and NZ-VSA developed and implemented a very important scheme of collecting recyclable waste materials and returning them to the overseas manufacturers. In order to do that they directly contacted the international and local firms manufacturing, transporting and importing the new printer toner cartridges to Vanuatu and reached an agreement with them to get their cooperation, free of charges to return the expired cartridges back to the manufacturers for recycling and disposal. The cooperation of the local trading company and the international maritime company is very important for returning these recyclable waste materials that cannot be recycled in the PICs.
- (4) In Vanuatu the J-PRISM activities covers three municipalities; Port Vila, Luganville and Lenakel. There are differences in the approaches and conditions of each municipality regarding SWM. J-PRISM experts are focused on Port Vila, the largest of the three municipalities in terms of population, and JOCVs in Port Vila are helping with environment education. While for Luganville, NZ-VSA has stationed two long term volunteers there overseeing all aspects of SWM. NZ-VSA has initiated a similar approach in Lenakel, which started in February 2013.

The cooperation of these three municipalities has allowed the respective counterparts to share their experiences and lessons learnt through regular communications, exchanging

data, visits and attendance of the JCC meetings. Furthermore these three municipalities, the only municipalities in Vanuatu, together have a platform provided by the J-PRISM project to address the national government on SWM issues. Counterparts from PVMC and LMC, together with Lenakel shared information and experience through regular communication, visits and holding of the 3rd JCC meeting in Luganville.

- (5) There were two examples of effective cost sharing between the Vanuatu side and JICA.

The 3rd JCC meeting was held in Luganville, based on a recommendation from the Counterpart team and agreement of JICA and the Vanuatu Government. This was a new suggestion and there was no budget allocated for it by both sides. However both sides discussed on the cost sharing and in a short time agreed on how to cover the costs of air fares for twelve persons to travel to Luganville, renting the venue in Luganville, covering land transport costs in Luganville and lunch.

The second example was implementing the Market Waste Compost Pilot Project. PVM provided the costs of fuel for the daily transport of green waste to Vanuatu Direct farm, bins for placing at the market and plastic bags for distribution to the vendors there. The Project employed one monitoring staff, covered the costs of public awareness activities and launching program as well as safety gear for the collection workers. Cost sharing by the Vanuatu side and JICA was successfully applied to the MWCPP and convening of the 3rd JCC meeting.

3.3 Recommendations

There is some room for improving the project activities. Relevant recommendations to achieve that are described hereafter.

- (1) Increasing Human Resources

In both PVMC and LMC in 2014 there are many project activities and the counterparts will be quite busy. It is recommended that as many personnel involved in SWM in both municipalities, as well as staff of DEPC identified as counterparts at the start of the project become more involved in the Project.

- (2) Project Management

During this year there has been notable input from the Project Director, Manager and Coordinator. A good number of counterparts participated in the counterpart meetings and some of the project activities. J-PRISM has also hired a Project Assistant (PA) to

coordinate the activities in the absence of the Experts. We recommend that the Counterparts cooperate with the Project appointed PA and take measures to ensure that there is no negative effect with the departure of the Project Coordinator for studies abroad.

(3) Documentation and Reporting

The Counterparts are paying good attention to preparing reports on the Project activities. PVMC Counterpart has prepared an evaluation report on MWCPP and there are waste audit reports for LMC. However there are still pending reports. These include the waste audits of PVMC, and the use of the operational logs in Bouffa to develop monthly reports. It is recommended that the Counterparts document and share the project activities.

(4) Utilization of JICA resources

There have been complaints that the J-PRISM experts were not available in Vanuatu for over one year and that their assignment periods are short. However the Project is fortunate to have other JICA resources at its disposal such as the JOCVs, the Project Office in Samoa and JICA Vanuatu Branch office. It is recommended that the Vanuatu side take the lead in calling regular meetings and inviting these resource persons to attend, and involving them in the Project activities to the fullest.

(5) J-PRISM Office

The J-PRISM experts are presently sharing office space in DEPC. However, since other departments officers have also started to work at the same building as DEPC in recent months, there has been some increased pressure on the space allocation available to DEPC. Furthermore the PVMC is the implementing agency for SWM. It is recommended therefore that the experts be provided with office space inside PVMC to relieve the pressure on DEPC and be close to the daily SWM operations.

D Samoa

D-1. Assignment Implementation Brief

1.1 Project Members and Assignment Period

The JICA Expert Team was composed of four members as shown in Table 28.

Table 28 JICA Expert Team

Name		
1	Mahmoud RIAD	Team Leader/ SWM Expert E (PNG, Vanuatu, Samoa)
2	Hiroshi ABE	SWM Expert A1 (Solomon)/ Landfill Improvement (PNG, Solomon)
3	Akihiro OSADA	SWM Expert A2 (Solomon)
4	Takatoshi ARAI	SWM Expert E2 (Vanuatu)

Mr. Mahmoud RIAD was assigned to Samoa as indicated in Table 29.

Table 29 JET Assignment in Samoa

	2013				2014	
	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
Assignment in Samoa	(13) ■					(15) ■
Assignment in Japan			(12) □			
Note: Figures in parenthesis are numbers of days						

The following policies shall be applied to the implementation of the JICA Expert Team Assignment activities in all the four PIC target countries.

The counterparts who directly participated in the Project activities during this assignment period are listed in Table 30.

Table 30 List of Counterparts - Samoa

Name	Organization	Title	Comment
Faleafaga Toni Tipamaa	MNRE	Asst. CEO	Project Director
Setoa Apo	MNRE	Principal Waste Management Officer	
Fautina Leota	MNRE	Principal Chemical and Hazardous Waste Officer	Limited participation
Seumanu Mikaele	MNRE	Senior Landfill Officer	
Faatamailiamo Meredith	MNRE	Senior Waste Planning and Policy Officer	
Pesio Tutagalevo	MNRE	Contract Officer	
Falaniko Tino	MNRE	Landfill Officer	Limited participation

1.2 Summary of Assignment Results

This Assignment period coincided with the 3rd FY of the Project; (April 2013 to March 2014).

The most significant activities during this year and to which there was contribution from the JET team are as follows:

(1) Launching of the Pilot Project for Waste Minimization

The activities associated with the pilot project cover the whole spectrum of planning (activity 1-3), aligning the stakeholders (1-4), conducting public awareness (1-5), actual implementation (1-6) and pilot project review (1-7).

Although the Counterparts successfully launched the pilot project in November 2013 based on the MOU signed by the stakeholders, the lack of a written plan to guide the activities and explain the project objectives as well as the need for further public awareness and review of the pilot project were all activities that lagged behind. The Counterparts are now putting more input into these activities.

(2) Analysis of the weighbridge data (Activity 2-5)

The weighbridge commenced operation in October 2012. However the weighbridge computer was configured to store digital data for the date, vehicle number, waste generator or generation area, waste category, flat rate according to waste generator, type of payment (charge or cash), and arrival time. This configuration was based on MNRE's decision at the

time of weighbridge installation to charge the waste generators fixed rates which were not directly connected to the weight of the waste they were hauling into the disposal site. Accordingly the data related to the weight or the waste (weight of vehicle hauling the waste, and empty weight of the same vehicle) was not automatically stored into the weighbridge computer. It is being recorded manually by the weighbridge operators.

As a result the manually recorded data was then input into the computer in order to analyze the waste arrivals at the disposal site. And using Excel, simple spreadsheets were developed to generate data on the waste amounts by categories arriving at the site on a daily base, the number of trips, and etc. A format for monthly reporting was also developed. The Counterparts will use these excel sheets for the time being until the weighbridge computer system is modified to enable storing of the weights of the full truck and empty truck and the net waste weight.

(3) Support to the Mid-term Review Team

The Mid-term Review Team visited Samoa on two occasions in August and September, 2013 and held a number of interviews and meetings with the counterparts as well as visited the facilities. The JET Expert supported the MTR from time to time at meetings and facilities visits.

1.3 Daily Activities

Over a total period of 41 days, RIAD’s daily activities are shown in Table 31.

Table 31 Main Activities during the Assignment Periods in Samoa

No.	Date	Activity
First Assignment in Samoa		
1	2013/9/10	Arrival Apia
2	2013/9/11	<ul style="list-style-type: none"> ● Meeting at JICA Samoa office with representative, midterm review (MTR) team and project office ● Meeting with MNRE C/Ps and midterm review mission
3	2013/9/12	<ul style="list-style-type: none"> ● Meeting with C/Ps at Tafaigata landfill
4	2013/9/13	<ul style="list-style-type: none"> ● Meeting with MTR Team and C/Ps at Tafaigata landfill
5	2013/9/14	<ul style="list-style-type: none"> ● Documents and data review
6	2013/9/15	<ul style="list-style-type: none"> ● Documents and data review
7	2013/9/16	<ul style="list-style-type: none"> ● Visit to waste disposal area with Mr. Mikaele, C/P

No.	Date	Activity
		<ul style="list-style-type: none"> ● Discussion with Ms. Faatamaliiamio on surveys and weighbridge data
8	2013/9/17	<ul style="list-style-type: none"> ● Attended inspection visit by JICA Hq. officials for landfill and recycling plant ● Attended JPRISM steering committee meeting at SPREP
9	2013/9/18	<ul style="list-style-type: none"> ● Meeting at JICA office with midterm review team
10	2013/9/19	<ul style="list-style-type: none"> ● Visit to Savaai
11	2013/9/20	<ul style="list-style-type: none"> ● Meeting with C/Ps and Mr. Faafetai, Assistant Chief Advisor ● Reporting to Mr. Amano, Chief Advisor
12	2013/9/21	<ul style="list-style-type: none"> ● Documents and data review
13	2013/9/22	<ul style="list-style-type: none"> ● Departure Apia
Second Assignment in Samoa		
1	2014/1/26	<ul style="list-style-type: none"> ● Arrival Apia
2	2014/1/27	<ul style="list-style-type: none"> ● Discussion with Ms. Faatamaliiamio, C/P on surveys and weighbridge data ● Discussion with Mr. Mikaele, C/P on the pilot project and landfill activities ● Meeting with Mr. Faafetai, Assistant Chief Advisor
3	2014/1/28	<ul style="list-style-type: none"> ● Meeting with Mr. Setoa, C/P to discuss the general progress of the project and this assignment schedule
4	2014/1/29	<ul style="list-style-type: none"> ● Working with Ms. Faatamaliiamio, C/P on weighbridge data
5	2014/1/30	<ul style="list-style-type: none"> ● Inspected the landfilling operation at Tafaigata
6	2014/1/31	<ul style="list-style-type: none"> ● Discussion with Ms. Faatamaliiamio on the data analysis and waste flows
7	2014/2/1	<ul style="list-style-type: none"> ● Observed pilot project activities together with Mr. Mikaele and Ms. Faatamaliiamio, C/Ps.
8	2014/2/2	<ul style="list-style-type: none"> ● Documents and data review
9	2014/2/3	<ul style="list-style-type: none"> ● Discussion with Mr. Faafetai, Assistant Chief Advisor ● Meeting with Counterpart team, Mr. Faafetai, Assistant Chief Advisor and Ms. Shindo, Project Coordinator/ Capacity Development
10	2014/2/4	<ul style="list-style-type: none"> ● Working with Ms. Faatamaliiamio, C/P on weighbridge data
11	2014/2/5	<ul style="list-style-type: none"> ● Working on Assignment Completion Report ● Working with Ms. Faatamaliiamio, C/P on weighbridge data
12	2014/2/6	<ul style="list-style-type: none"> ● Working on Assignment Completion Report ● Working with Ms. Faatamaliiamio, C/P on weighbridge data

No.	Date	Activity
		● Working with Mr. Mikaele, C/P on the pilot project report
13	2014/2/7	● Meeting with the Counterparts ● Reporting to the Project Office
14	2014/2/8	● Documents and data review
15	2014/2/9	● Departure Apia

During the assignment in Japan, Riad was engaged in documents and data review and analysis.

1.4 Implementation Methodology

During the assignment periods in Samoa, Riad worked under the following guidelines.

- (1) Working in the same office with the C/Ps most of the time
- (2) Site visits and meetings with stakeholders were principally conducted together with a C/P
- (3) Regular discussions with the C/Ps on an individual as well as collective basis
- (4) Minimizing interruptions to the C/Ps' daily works while maximizing utilization of the limited assignment periods
- (5) Maintaining personal records of activities and discussions
- (6) Reporting to the Project Office on a regular basis
- (7) Maintaining the J-PRISM principle of developing C/Ps' capacities through their direct implementation of the Project activities.
- (8) Trying to understand the cultural and work environment
- (9) Providing realistic and suitable suggestions, advice and guidance to the C/Ps
- (10) Being patient and keeping an open mind

D-2. Details of the Assignment Implementation

2.1 Project Outputs and Activities

2.1.1 Plan of Operation

The Plan of Operation (PO) was amended based on recommendations put forward by the MTR Team in September 2013 and accepted by the Samoan C/Ps in February 2014.

The PO is summarized as follows.

	Overall Goal (Same for all PICs)	Objectively Verifiable Indicator
	Sustainable management of solid waste is enhanced.	1. To be discussed
↑	Project Purpose	Objectively Verifiable Indicator
	Human and institutional capacity base for sustainable solid waste management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010 – 2015) (RS2010)	[Samoa] 1. 2 Experts (Trainers) in the fields of landfill management and data collection/ analysis are listed in the SPREP inventory 2. Amount of waste disposal is decreased by 5-10%

Project Outputs and Associated Activities - Samoa

Outputs and Activities	Objectively Verifiable Indicator
Output 1: Waste Minimization Measures and Practices are introduced and implemented at the urban areas	
1-1 Conduct Solid Waste Characterization Study	1-1 Four (4) waste survey reports are produced
1-2 Conduct Time and Motion Study	1-2 Four (4) communities and nine (9) businesses participated in waste segregation/ minimization
1-3 Prepare and finalize project plan for waste minimization	1-3 Amounts of recyclable wastes collected
1-4 Develop and setup Public-Private Partnership with Pacific Recycler Company – collection and return of	1-4 Four (4) public consultation/ hearing meeting/ workshops for waste minimization regulations/ strategy

<p>certain waste</p> <p>1-5 Conduct consultation and public awareness to promote segregation at source and collection of approved waste under PPP</p> <p>1-6 Implement Pilot Project – segregation and collection of recyclable waste items under PPP</p> <p>1-7 Review the Pilot Project</p> <p>1-8 Develop a Waste Minimization Strategy</p> <p>1-9 Develop Draft Regulation for Container Deposit Levies to support the recovery and return of identified waste under the pilot project</p> <p>1-10 Review regulation on Biodegradable shopping bags</p>	
<p>Output 2: Tafaigata is operated as a regional waste disposal facility with improvements at Vaiaata in place</p>	
<p>2-1 Produce a Tafaigata Draft Master Landuse and Development plan</p> <p>2-2 Introduce measures to control waste picking</p> <p>2-3 Enforce waste segregation for the incoming commercial waste</p> <p>2-4 Install signs at different zones and waste disposal facilities at Tafaigata</p> <p>2-5 Install an electronic waste recording system at Tafaigata and provide training for staff on maintenance and operation</p> <p>2-6 Plan and make improvements to the leachate treatment facilities at Vaiaata landfill</p> <p>2-7 Monitor and enforce conditions for existing waste facilities at Tafaigata</p> <p>2-8 Conduct leachate monitoring at Tafaigata and Vaiaata</p>	<p>2-1 Tafaigata land use and development plan produced</p> <p>2-2 Incoming waste data are recorded and periodically reported (monthly) using the weighbridge system at Tafaigata</p> <p>2-3 Improved quality of leachate at Vaiaata landfill</p> <p>2-4 Management of waste pickers</p>

Output 3: Experiences and lessons learnt are shared in both national and international levels	
3.1 Produce quarterly Newsletter to share collected results and achievements	3-1 Newsletters are produced twice a year and at least one relevant document is produced
3.2 Accept overseas missions and attachments of PIC counterparts	3-2 Four (4) overseas missions of PIC counterparts and national stakeholders are hosted
3.3 Participate and share project progresses and lessons learnt at regional and international workshops	3-3 Number of regional and international workshops participated to present Samoa's experiences

2.1.2 Progress of the Plan of Operations Activities

The status of each of the activities and the progress during this assignment period is described hereafter.

Output 1: Waste Minimization Measures and Practices are introduced and implemented at the urban areas	
1-1 Conduct Solid Waste Characterization Study	
<p>In 2011 the solid waste characterization study was implemented in Vaitele (Zone B-2) and the report has been prepared. In 2013 a study was made for waste composition in zones A and B1. The study results were released but there is no report.</p> <p>In 2013, under this assignment, no solid waste characterization study was implemented.</p>	
1-2 Conduct Time and Motion Study	
<p>The time and motion survey was implemented in 2013 in zones A (1 trip) and B1 (3 trips). Four (4) trucks were surveyed. The survey data has been analyzed but the report has not yet been prepared.</p>	
1-3 Prepare and finalize project plan for waste minimization	
<p>In October 2013, with the support of the Project Office the project plan was prepared in a MOU format for signing by MNRE, the recycling company and the collection company.</p> <p>A document describing the pilot project in more detail, has been prepared (Attachment D-1)</p>	
1-4 Develop and setup Public-Private Partnership with Pacific Recycler Company - collection and return of certain waste	
<p>The public-private partnership was set-up together with MNRE, Pacific Recycler Company and Jaffa' Services. The responsibilities of each were detailed in an MOU which was signed</p>	

by representatives of the parties in November 2013.
1-5 Conduct consultation and public awareness to promote segregation at source and collection of approved waste under PPP
In September and October 2013 public awareness on radio and television were conducted to introduce the pilot project. The counterparts also held one meeting with Mayors and Chiefs of Zone A.
1-6 Implement Pilot Project - segregation and collection of recyclable waste items under PPP
The pilot project commenced operation in Zone A in November 2013. Presently metals and bulky wastes are discharged by residents next to the waste platforms on Saturdays in the morning. Special white bags for discharge of the recyclables were issued to the residents.
1-7 Review the Pilot Project
An inspection of the Pilot Project was made by the Counterparts in February 2014. The amounts of discharged recyclable wastes were observed to be low. It was recommended to (1) increase public awareness on the pilot project; (2) put a sign on the collection truck to inform residents that this is a recycling collection truck, and (3) consider reducing the weekly trips to fortnightly trips. A more detailed review based on data analysis and a meeting of the stakeholders shall be implemented in 2014. The Project Meeting called by the Project Office since the beginning of the January to review the progress and discuss important issues for consideration is yet to be conducted.
1-8 Develop a Waste Minimization Strategy
This activity is scheduled for the last year of the project, in 2015.
1-9 Develop Draft Regulation for Container Deposit Levies to support the recover and return of identified waste under the Pilot project
In 2013 the Project Office sent two MNRE Officers (Principal Waste Officer & Legal Officer) to learn from existing systems in other PICs. Samples of regulations and supporting documents to support their work were also given to them. The C/Ps may start this activity later this year.
1-10 Review Regulation of Biodegradable shopping bags
A review has been conducted by the Ministry and some recommendations have been presented to the Ministry Lawyer to make appropriate amendments. In 2013 the draft regulation has been prepared and is presently going through the ratification process.
Output 2: Tafaigata is operated as a regional waste disposal facility with improvements at

Vaiaata in place
2-1 Produce a Tafaigata Draft Master Landuse and Development Plan
A draft master land use and development plan was prepared in 2012, but it has not yet been officially endorsed. There was no further activity in 2013.
2-2 Introduce measures to control waste picking
In 2010 MNRE decided that a maximum of 20 waste pickers can operate in the site under the control of MNRE. At that time more than 50 waste pickers were active at the site. Meetings were held with the scavengers and IDs were issued to the permitted waste pickers. Attendance books were maintained and safety gears were issued to the waste pickers. For the first couple of years sometimes problems erupted when more than the permitted waste pickers were working at the site. However in 2013 there were no reported problems. The waste pickers also assist in maintaining the site by cutting grass and clearing vegetation.
2-3 Enforce waste segregation for the incoming commercial waste
Trucks are randomly inspected at the weighbridge to ensure that the waste coming from businesses is not mixed with residential wastes.
2-4 Install signs at different zones and waste disposal facilities at Tafaigata
Signs were placed in different zones at Tafaigata in 2012. However there appears to be no activities where the signs are located and some signs are already covered by plants.
2-5 Install an electronic waste recording system at Tafaigata and provide training for staff on maintenance and operation
The weighbridge was installed in October 2012 and training was provided by the weighbridge manufacturer and also for selected counterparts in Fiji. The data is being analyzed on a monthly basis and from this year a monthly report will be issued by the counterparts. Further information on the data analysis is shown in Attachment D-2.
2-6 Plan and make improvements to the leachate treatment facilities at Vaiaata landfill
In 2013, with assistance from the Project Office a conceptual plan with some detailed drawing plans and a budget proposal were submitted to the Project Office as requested for funding support. Also for Vaiaata, in September 2013 the counterparts did some work to improve the facilities there.
2-7 Monitor and enforce conditions for existing waste facilities at Tafaigata
Presently at Tafaigata, in addition to the disposal of solid waste there are facilities for management of health care waste, sewage and recycling bins. The counterparts monitor these facilities periodically to ensure that they are being operated properly. This activity is

<p>continuing. It was suggested at the counterpart meeting to develop some guidelines for monitoring these facilities.</p>
<p>2-8 Conduct Leachate Monitoring at Tafaigata and Vaaiata</p>
<p>At Tafaigata the C/Ps are continuing to take leachate samples from the leachate pond, wetlands and the 2 boreholes. The samples are sent to another department within MNRE for analysis. However there are no reports issued on the leachate analysis results. The C/Ps decided to follow-up with the department conducting the analysis and develop the monthly reports for review on the leachate quality. For Vaaiata, the first leachate samples were collected in January 2014 and analysis is ongoing.</p>
<p>Output 3: Experiences and lessons learnt are shared in both national and international levels</p>
<p>3-1 Produce Quarterly Newsletter to share collected results and achievements</p>
<p>The first newsletter was issued in December 2013. The C/Ps circulated this by emails but did not print any editions due to lack of budget. The C/Ps intend to issue two newsletters annually with the next newsletter to be issued in April. The C/Ps will also investigate the budget required for printing some editions and try and secure it.</p>
<p>3-2 Accept overseas missions and attachments of PIC counterparts</p>
<p>The counterparts hosted a number of visits to Tafaigata by: Groups from Japan, PNG Project Counterparts, Counterparts from Vanuatu and Nauru and the World Bank (IFC), since the Project started.</p> <p>In 2014 the counterparts intend to update the materials they are using for explanation and make use of the experiences already gained with other missions to improve the visit contents and explanations.</p>
<p>3-3 Participate and share project progresses and lessons learnt at regional and international workshops</p>
<p>Presently counterparts participate in workshops when invited. In 2014 the counterparts shall take the initiative by proposing to J-PRISM and SPREP a number of workshop themes in which the counterparts may share their experiences with others. Themes may include (1) Tafaigata landfill system, (2) Public-private participation in the pilot project, (3) Weighbridge data management and (4) Occupational Health Safety.</p>

2.2 Mid-term Review Team Recommendations

The Mid-term Review Team (MTRT) formed by JICA visited Samoa during August - September 2013. The team members conducted site visits, interviews with the counterparts and reviewed the project documents and data.

2.2.1 Evaluation of the Level of Achievement for the Project Outputs

The MTR report determined the levels of achievement for each of the three outputs as shown in Table 32.

Table 32 Mid-term Review evaluation of Outputs

Output	Level of Achievement	Description
Output 1: Waste minimization measures and practices are introduced and implemented at the urban areas	C	<i>Delays of some activities have started to affect the achievement of this Output. It requires substantial effort to achieve this Output within the project period</i>
Output 2: Tafaigata is operated as a regional waste disposal facility with improvements at Vaiaata in place	B	<i>Although some activities have been slightly delayed, it will most likely recover its delay without any difficulties. At this moment, any progress has yet been reflected on the changes of the indicators.</i>
Output 3: Experiences and lessons learnt are shared across the region	B/C	
Source: Mid-term Review Report, September 2013		

The report has been circulated to the Counterparts and its contents will not be described further here.

2.2.2 MTR Recommendations to the Project and Countermeasures

The recommendations outlined in the MTR report and directed “to the Project (Implementing Agency and JICA Experts)” have been discussed with the Counterparts. The Counterparts have accepted the recommendations and described the countermeasures they will take for each recommendation as shown in Table 33.

Table 33 MTR Team Recommendations and Counterparts' Countermeasures

No.	MTR Team Recommendation to the Project	Countermeasures
1	Project Manager to take ownership and manage the project team to recover big delays of activities by holding C/P meetings to proceed and monitor project activities	The Project Manager reportedly called for a meeting with the project team and set out measures to improve the project implementation. The Counterparts have decided to hold monthly meetings to monitor the project activities.
2	To speed up waste segregation and minimization activities by collaboration with private recycling companies and waste collection contractor, Ministry of Agriculture and stakeholders	The Counterparts will monitor the pilot project more seriously and consider expanding the pilot project area by April 2014. The Counterparts will discuss with the Ministry of Agriculture and “Women in Business” on composting of the market waste at Tafaigata landfill.
3	Make sure to develop report on incoming waste data periodically	The Counterparts agreed on the monthly format for reporting on the weighbridge data. They are also trying to improve the data storage system at the weighbridge to facilitate developing the reports.
4	To prepare programs for overseas and local visitors for Tafaigata Landfill	The Counterparts are considering preparing their program and submitting to SPREP / Project Office to sponsor the visitors to the site. The Counterparts intend to update the explanation documents that are used during the visits. The Counterparts will request some assistance to purchase safety gear for the visitors.
5	Make sure to publish newsletter twice a year	The Counterparts issued the first newsletter and circulated it digitally in December 2013. No printouts were made. They intend to prepare the next newsletter in March 2014.
Source: Recommendations from the MTR team report, and the countermeasures were discussed in the Counterpart meeting held on 3 rd February, 2014.		

2.2.3 Amendments Suggested to the PDM

The MTR Team suggested a number of amendments to the PDM/ PO especially for the Objectively Verifiable Indicators. Quantitative values were suggested for the indicators as much as possible. The amendments have been discussed with the Counterparts (in the counterpart meeting, 3rd, February 2014) and have been accepted by them.

The amended PDM and PO are provided in Attachment D-3.

2.3 Arrangements for the 3rd JCC Meeting

Originally it was planned to hold the 3rd JCC meeting in February 2014. However with the sad passing away of the Project Director in December 2013, the post remains vacant. The Project Office and the Counterparts accordingly decided to postpone the meeting for a couple of months.

In the meantime major items that are expected to be covered in the 3rd JCC meeting have been discussed with the Counterparts and are included in this report. These items include:

- (1) Countermeasures for the MTR recommendations
- (2) Amendments to the PDM and PO
- (3) Status of the Project Activities

2.4 Individual Capacity Assessment

The Counterparts were provided with two forms; Form 1 for filling in their duties and expectations from the J-PRISM project, and Form 2 for them to evaluate their own capacities in the respective SWM categories and sub-categories.

It is interesting to note the Counterparts expectations from the J-PRISM Project. Some of these expectations are as follows:

- Ability to develop SW minimization strategy and related strategies
- Ability to develop Waste Strategies, Regulations and Policies
- Ability to develop relevant regulations
- Ability to conduct survey and research
- Ability to plan, design and facilitate construction of new landfills
- Need to understand more on SWM in the Pacific Island countries to improve overall understanding on SWM in developing countries

The SWM categories and sub-categories items (Form 2) are shown in Table 34.

Table 34 Individual Capacity Assessment Items

Main Category	Sub-category	Check points in terms of capacity
1. Policy	Solid waste	I understand the definition of solid waste and the waste categories
	SWM planning	I clearly understand the policies associated with SWM
	Relevant laws/Regulations	I know the existing laws on SWM and their contents
	Environmental Impact Assessment	I understand the procedures for EIA clearly based on the State regulation of EIA
2. Administration	Finances	I know overall balance of annual revenue and expenditure of SWM (cost of collection, fuel, maintenance cost, and dumpsite management) and their breakdown).
	Collection fees	I understand the basis for setting the collection fees (how to set fee collection; fee amount, method to collect)
	Landfill tipping fees	I understand the basis for setting the tipping fees(how to set tipping fee, fee amount, method to collect)
	Organizational structure	I know the government and local government agencies related to SWM and their responsibilities
	Allocation of duties	I understand the task/responsibility of my organization related to SWM.
		I understand my task/ responsibility in SWM
3. Existing Conditions and Operational Analysis	Surveys	I have experience to conduct waste audit survey for residential waste
		I have experience to conduct waste audit survey for commercial waste
		I have experience to conduct incoming waste survey at dumpsite
		I can conduct survey to understand collection amount
		I have experience to conduct Time and Motion study for collection service
		I have experience to conduct public awareness survey
	Data analysis and reporting	I can analyze the survey data to evaluate the SWM operations and prepare the plan
4. Collection	Collection service coverage	I understand current collection area and its population covered by collection service
	Service plan	I can plan the collection service (method, collection points, types of dustbins, frequency, truck types, awareness program)
	Contract out	I understand clearly the contents of contracts of the collection service
	Supervision of collection contractors	I can assign the supervisors the tasks related to collection supervision
		I can monitor the supervisors field work and reports
5. Final Disposal	Landfill design	I understand the principles of the landfill design
		I know the required landfill facilities
		I can design the landfill
	Disposal method	I know the incoming waste amount at the dump site (amount by waste categories, truck numbers, arrival times, etc.)
		I can plan the operation and maintenance plan of the

Main Category	Sub-category	Check points in terms of capacity
		dumpsite
		I can monitor and improve landfill operation and maintenance
		I can develop closure plan of the current dumpsite
	Leachate	I understand what is leachate and its problems at the dumpsite
	Water quality	I can monitor leachate and groundwater qualities at the dumpsite such as COD, pH etc.
	Management of waste pickers	I know how to manage waste pickers (number of waste pickers, what they collect, those that live at the site, etc.)
	EIA	I know the contents related to conducting an EIA for a new landfill
6. 3Rs	Definition	I understand the difference between Reduce, Reuse and Recycle (Recover)
		I understand the 4 th R, Return, which is pertinent to the Pacific Island Countries
	Recycling in Samoa	I know the types of recyclable waste materials in Samoa
		I know which waste materials are recycled inside Samoa
		I know the waste materials and their amounts that are exported overseas
		I know the private recycling companies operating in Samoa
	I can conduct a recycling survey	
7. Public Awareness	Message	I understand why and what messages I need to make the public aware of for SWM
	Tools	I know the tools to use for public awareness, such as media, campaigns, billboards, leaflets, newsletters, etc.
	Implementation	I can develop Action Plan for awareness /3R program
		I can develop awareness material for the SWM awareness/3R program
		I have conducted to plan school education programs for SWM
		I have planned and implemented community awareness programs
		I have dealt with public complaints related to SWM
8. Individual Skills	Attitude	My Work attitude is good and suitable to the task
	Leadership	I can take leadership in management of SWM
	Knowledge and skills	I have strong knowledge and experience on SWM
	Awareness	I want to learn more about SWM
	Communication	I can communicate with management, peers and subordinates using reports, meetings, emails and presentations

While individual assessment is made separately, for reference the totaled evaluation marks of the Counterparts are summarized in the following graphs, in Figure 9.

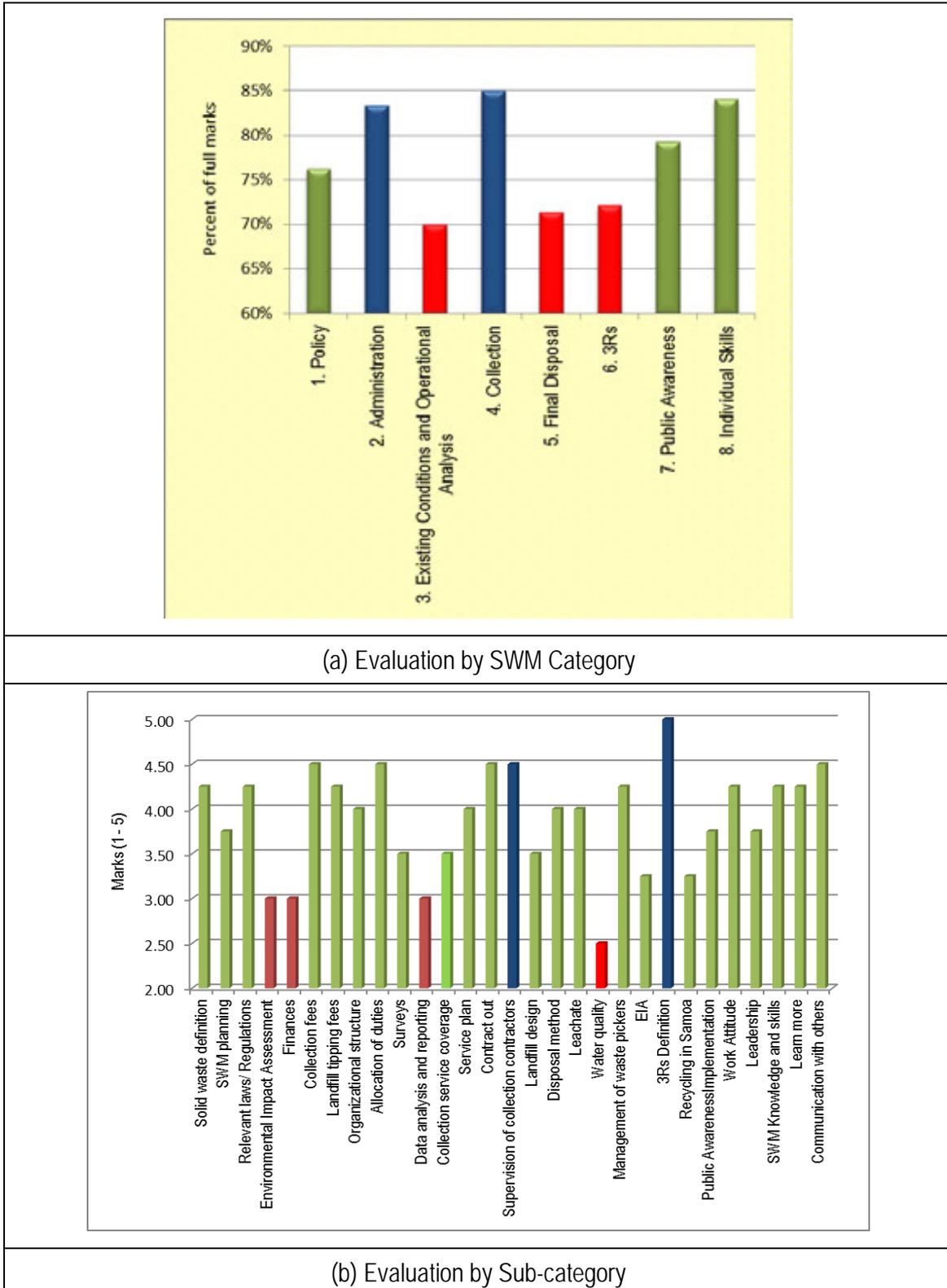


Figure 9 Graphical Presentation of Total Self-assessment Marks

Considering SWM categories, overall the Counterparts rated themselves highly with the lowest evaluation just below 70% of the total marks. Collectively, the Counterparts have highly

evaluated their capabilities in the sectors of solid waste collection, individual skills and administration. On the other hand, comparatively lower evaluations were in the categories of existing conditions and operational analysis, final disposal and 3Rs.

In the case of the SWM sub-categories, all the Counterparts gave themselves the highest marks for “understanding the definition of 3Rs” and “supervision of collection contractors”. The lowest collection mark was for “water quality” monitoring works associated with the landfill operations.

D-3. Conclusions and Recommendations

3.1 Evaluation of the Achievement during the Assignment Period

The following Table 35 evaluates the input of the SWM Expert E and Counterpart by Activity.

Table 35 Evaluation of SWM Expert E Input by Activity

Output		Setoa	Mikaele	Meredith	Pseio	Niko
Activity						
Contents						
Output 1: Waste Minimization Measures and Practices are introduced and implemented at the urban areas						
1-1 Conduct Solid Waste Characterization Study						
N/A						
1-2 Conduct Time and Motion Study						
Counterparts to analyze the data using Excel spreadsheet, with the support of SWM Expert E. Once the analysis is completed the Counterpart can generate the report.						
1-3 Prepare and finalize project plan for waste minimization						
Counterparts prepared the project documents with the support of SWM Expert E.						
1-4 Develop and setup Public-Private Partnership with Pacific Recycler Company – collection and return of certain waste						
Counterparts, with Project Office support developed MOU (MNRE, Pacific Recyclers, and Jaffa Collection company)						
1-5 Conduct consultation and public awareness to promote segregation at source and collection of approved waste under PPP						
Counterparts held meetings with related mayors and chiefs (<i>JET did not participate in this activity</i>)						
1-6 Implement Pilot Project – segregation and collection of recyclable waste items under PPP						
The C/Ps started implementation in October 2013 (<i>JET did not participate at that time</i>)						
1-7 Review the Pilot Project						
An inspection visit was done by the Counterparts and SWM Expert E.						
1-8 Develop a Waste Minimization Strategy						
N/A						
1-9 Develop Draft Regulation for Container Deposit Levies to support the recover and return of identified waste under the Pilot project						
N/A						
1-10 Review Regulation of Biodegradable shopping bags						
N/A						
Output 2: Tafaigata is operated as a regional waste disposal facility with improvements at Vaiaata in place						
2-1 Produce a Tafaigata Draft Master Landuse and Development Plan						
N/A						

Output		Setoa	Mikaele	Meredith	Pseio	Niko
Activity						
Contents						
2-2 Introduce measures to control waste picking						
N/A.						
2-3 Enforce waste segregation for the incoming commercial waste						
N/A						
2-4 Install signs at different zones and waste disposal facilities at Tafaigata						
N/A						
2-5 Install an electronic waste recording system at Tafaigata and provide training for staff on maintenance and operation						
Counterparts worked closely with the SWM Expert E to analyze the weighbridge data and develop the monthly report format.			⊙			
2-6 Plan and make improvements to the leachate treatment facilities at Vaiaata landfill						
Some improvement was implemented		⊙	⊙			
2-7 Monitor and enforce conditions for existing waste facilities at Tafaigata						
N/A						
2-8 Conduct Leachate Monitoring at Tafaigata and Vaaiata						
Sampling and testing by C/Ps (<i>JET did not participate at that time</i>)			⊙			
Output 3: Experiences and lessons learnt are shared in both national and international levels						
3-1 Produce Quarterly Newsletter to share collected results and achievements						
The Counterparts prepared the first Newsletter with some advice from the SWM Expert E.			⊙			
3-2 Accept overseas missions and attachments of PIC counterparts						
N/A						
3-3 Participate and share project progresses and lessons learnt at regional and international workshops						
N/A						
Notes: (1) N/A refers to activities not implemented during this assignment period (2) ⊙ Refers to counterparts who provided major role, ○ refers to those who provided supporting role						

3.2 Lessons Learnt

There are some lessons that may be learnt from the implementation of the Project. These include the following:

- (1) The Samoa project team with the assistance of the Project developed a public-private participation model for implementing a waste minimization pilot project the separation, collection and recycling of cans and scrap metals. MNRE, the counterpart agency signed a Memorandum of Understanding (MOU) with the private firms for collection of the

recyclable waste materials and for processing and exporting of these materials. Each of the three parties had their responsibilities and roles defined in the MOU. The contents of the MOU were shared with the mayors and general public in the pilot project area. While the MOU is not a legally binding document, it helped to provide public support for the pilot project and public appreciation of the role of each of the three entities signing the MOU. The benefit of having such an MOU was understood.

- (2) About 4 years ago there were about 50 waste pickers engaged in waste picking activities in Tafaaigata landfill. They were uncontrolled and represented problems to the landfill operations as well as the many quarrels between the waste pickers themselves. In 2011 the Counterparts effectively brought the waste pickers under their control through discussions, decreasing the number of waste pickers allowed to work in the landfill to between 25 to 30 persons, registering them and introducing rules for them to work. This method is an important lesson for other PICs to learn from.
- (3) The Counterparts have effectively included their training in Japan, in their activities in Samoa. An important example is the Time & Motion survey the counterparts implemented after returning to Samoa. They used the exact method that they studied during their training. While this showed the Counterparts understanding of their training in Japan, there was one problem. The method applied in Japan may have been too detailed for the Samoan waste conditions. Accordingly the counterparts may have collected too much information which is not useful to the Samoan conditions. It is important in the future, during the training in Japan for the trainers to make more efforts to adapt the training to the conditions in developing countries.
- (4) Majority of the MNRE staff responsible for the SWM in Samoa are located in an office in the landfill. This office was built by aid from JICA. The office is supplied with electricity and water (from rain harvesting) and has internet access. From this office the counterparts have direct information related to the waste collection trucks coming to the landfill and the disposal operation conditions. Rather than locating all of the SWM staff in the main office of MNRE in the city, conditions of having some of them at the landfill office, providing a suitable landfill office and locating the JICA expert there as well, are all very important to manage the waste operations effectively.
- (5) There are delays in the project activities in Samoa and these are related to lack of strong leadership and communication within the counterpart team. Both strong leadership and effective communication within the counterpart team is very important. The counterparts have learnt the importance of both and are working on means to improve them.

3.3 Recommendations

While the SWM Expert E has worked for a relatively short time with the Counterparts in Samoa and may not have gained a complete understanding of the situation, the following recommendations may be helpful to move the Project forward at a more steady pace.

- (1) Our Counterparts at the SWM Unit need to assume prompt ownership of the Project.

The Counterparts need to lead the Project and identify the issues and bottlenecks that are creating delays. A budget plan to support the Project activities needs to be drafted by the Counterparts and discussed with MNRE officials as well as the Project Office.

- (2) The Waste Minimization Pilot Project has grabbed the attention of the citizens of Samoa as well as many others. The Counterparts need to directly lead and monitor the Pilot Project activities to ensure its continued success.

In this regard the Counterparts should rotate inspection of the pilot project activities amongst themselves, periodically discuss with the other project stakeholders, and most importantly maintain a dialogue with the residents and other concerns in the project area. The Counterparts need to hold the Review Meeting and develop the gradual expansion of the pilot project to other areas. Brief reports on the pilot project should be maintained.

- (3) It is absolutely necessary to improve the internal communication within the SWM Unit in order to function more effectively.

The Counterparts need to schedule regular meetings to review the project activities progress, call meetings with the Project Office to discuss the activities and issues, and keep their leadership within MNRE informed of the Project.

- (4) The weighbridge data should be entered and utilized in a more efficient manner.

The weighbridge data may be utilized to evaluate the collection work, measure the effectiveness of the pilot project, and prepare the waste flows, amongst others. The Counterparts need to ensure that the weighbridge itself is properly operated and that the operators are responsible and well trained.

- (5) The Technical Committee should be re-activated on the initiative of the Counterparts.

The Counterparts will face technical and financial challenges as the Project progresses. The Technical Committee is an ideal forum to discuss and resolve these challenges.

Attachment

A Papua New Guinea

Attachment A-1 Baruni Rehabilitation Project Design Drawings and Bill of Quantities

Attachment A-2 Waste Pickers Population in Baruni

Attachment A-3 Operation and Maintenance Manual Contents

Attachment A-4 Water Sampling and Analysis

Attachment A-5 Time and Motion Survey Results

Attachment A-6 Workshop for Collection Contractors

Attachment A-7 Selected 3Rs Logo

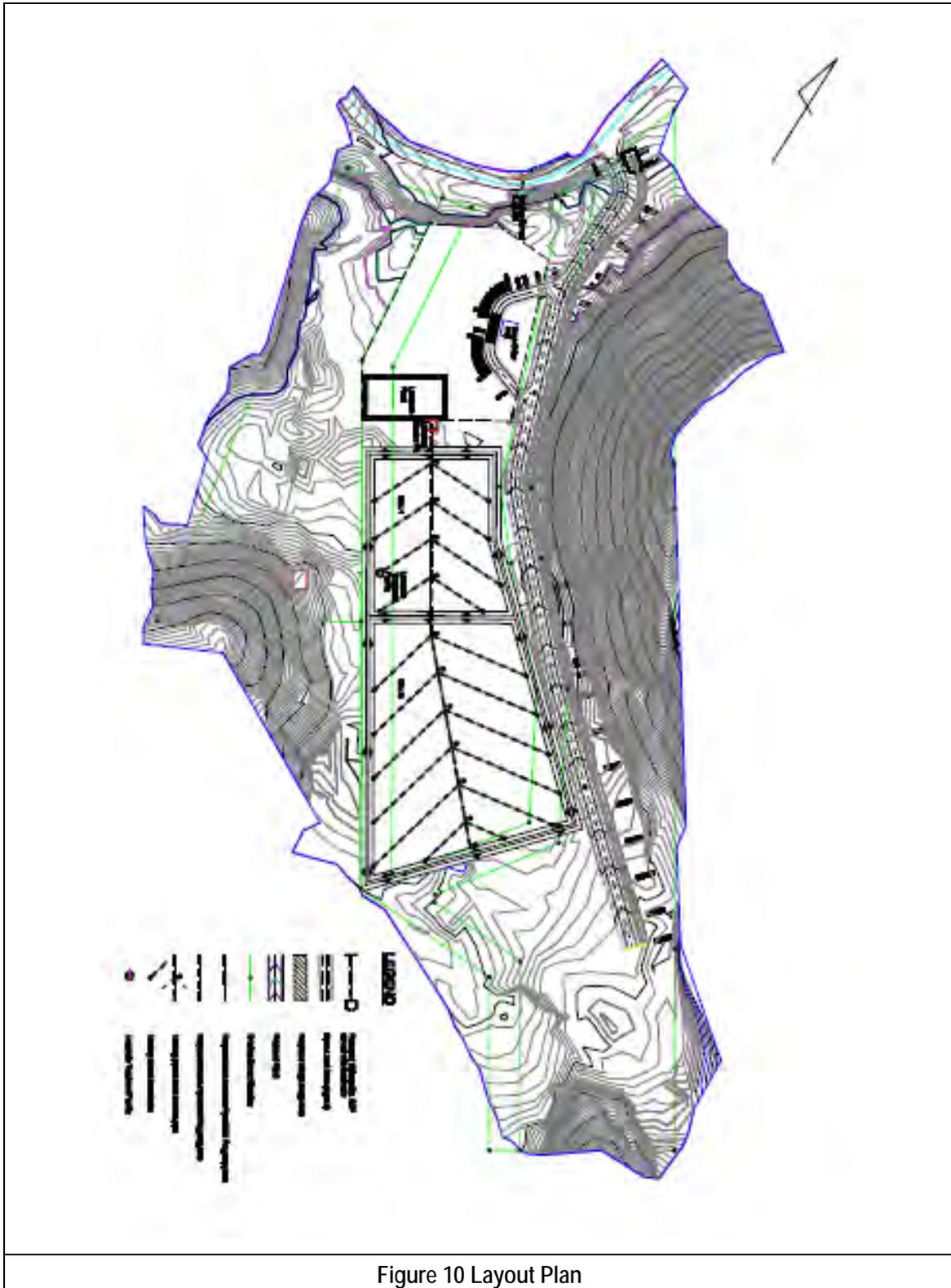
Attachment A-8 SWM Plan for Port Moresby – Draft Table of Contents

Attachment A-9 Amended PDM

Attachment A-10 Proceedings of the 3rd JCC Meeting

Attachment A-1 Baruni Rehabilitation Project Design Drawings and Bill of
Quantities

(Prepared by Mr. James Ricky, NCDC Project Engineer)



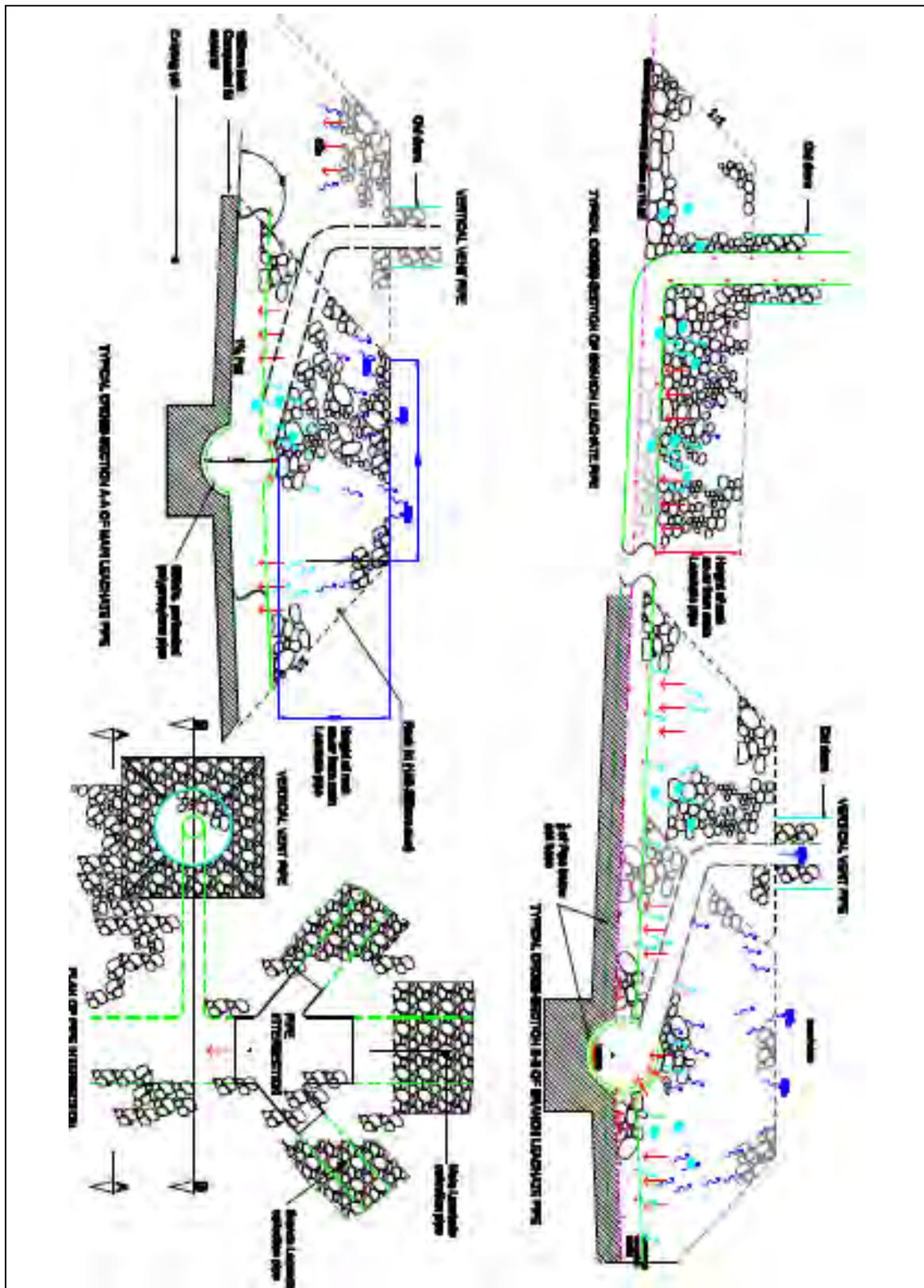


Figure 11 Typical Cross Sections – Leachate Collection Pipes

The BOQ and costs estimates are as shown in the following table. (as of 5th February, 2014).

1 LANDFILL ACCESS ROAD					
1.1	General Mobilisation	Each	1	150,000.00	150,000.00
1.2	Road Alignment Setting out for Main Road and Weigh Bridge Access	Each	1	80,000.00	80,000.00
1.3	Supply, Excavate and lay new 900mm dia. class x R/C storm water pipes across Road.	m	10	4,956.40	49,564.00
1.4	Construct stone pitched headwalls with apron to NCDC standard. (refer to the Drawing for the locations)	Each	2	85,500.00	171,000.00
1.5	Excavate to depth of 500mm and place and compact @ 200mm layers of (diorite/scalps mix) infill material to 20% CBR.	Each	1,630.00	280.7	457,541.00
1.6	Supply, place, grade and compact (200mm compacted thickness) new Roadbase "B" as subbase (CBR 45)	m ³	652.00	328.8	214,377.60
1.7	Supply, place, grade and compact (100mm compacted thickness) new Roadbase "A" as Base course (CBR 80) for the road network.	m ³	326.00	380.5	124,043.00
Sub-Total					1,246,525.60
2 WEIGH BRIDGE ACCESS					
2.1	Excavate to depth of 500mm and place and compact @ 200mm layers of (diorite/scalps mix) infill material to 20% CBR.	Each	345.00	280.7	96,841.50
2.2	Excavate to a depth of 200mm and dispose of soil. Supply, place, grade and compact (200mm compacted thickness) new Roadbase "B" as subbase (CBR 45)	m ³	138.00	328.8	45,374.40
2.3	Supply, place, grade and compact (100mm compacted thickness) new Roadbase "A" as Base course (CBR 80) for the road network.	m ³	69.00	380.5	26,254.50
Sub-Total					168,470.40
3 DRAINAGE WORKS					

3.1	Supply and construct new Type 7 Open Lined Drain.	m	650.0	950	617,500.00
3.2	Supply and construct new Type 5 Open Lined Drain.	m	540.0	750	405,000.00
Sub-Total					1,022,500.00
4	CELL UNITS 1 & 2				
4.1	Construct Dyke Embankments	m ³	13,000.00	25	325,000.00
4.2	Import, supply and lay new 600mm dia. Polypropylene leachate collection pipes (300m).	Each	28	22550	631,400.00
4.3	Import, supply and lay new 300mm dia. Polypropylene leachate collection pipes (1106m).	Each	105	8,500.00	892,500.00
4.4	Supply and lay new 300mm dia. class x PVC vent pipes.	Each	30	1,785.20	53,556.00
4.5	Supply Rock piles to Junction boxes and leachate pipes.	m ³	302.00	215	64,930.00
4.6	Excavate and compact base of cell unit blocks	Each	4,835.00	105	507,675.00
4.7	Supply and lay 200mm layer of Clay material.	m ³	4,835.00	65	314,275.00
Sub-Total					2,475,061.00
5	JUNCTION PITS				
5.1	Supply and lay F72 wire mesh	m ²	40.00	350	14,000.00
5.2	Supply and Place N16 reinforcing	6m/Length	120.00	94	11,280.00
5.3	Supply and Place Bricks	Each	2,800.00	15	42,000.00
5.4	Cement wet mix (20MPa)	m ³	20.00	1100	22,000.00
Sub-Total					89,280.00
6	LEACHATE POND				
6.1	Excavate to designed level to cut and dispose soil material.	m ³	1,352.0	35	47,320.00
6.2	Supply and lay water proof cover to protect leachate seepage.	m ²	594.0	65	38,610.00
6.3	Supply road base as fill material to compact 150mm depth for concrete foundation.	m ³	90.0	380	34,200.00

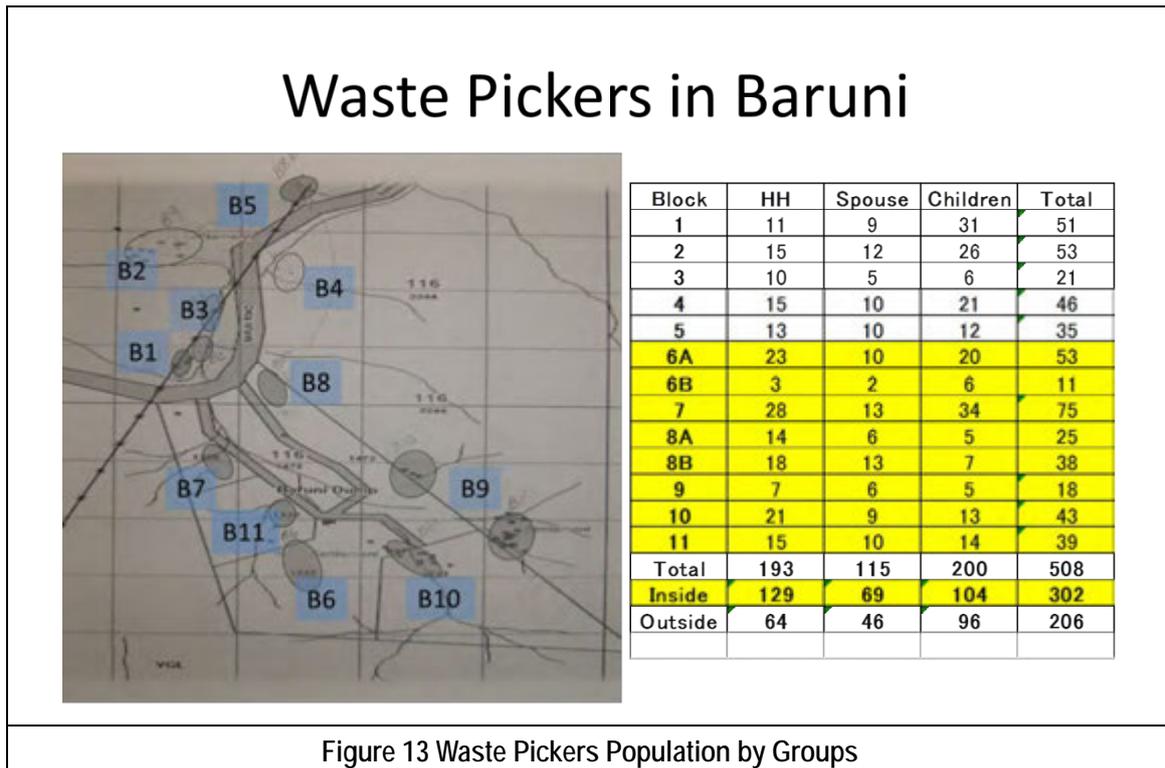
*Improvement of Solid Waste Management – A & E
Papua New Guinea, Solomon, Vanuatu and Samoa*

6.4	Supply and lay reinforcing rods for concrete.	m	300.0	94	28,200.00
6.5	Supply Mesh wire	m ²	594.0	35	20,790.00
6.6	Supply and lay concrete.	m ³	18	700	12,600.00
Sub-Total					181,720.00
7	ADMINISTRATION AREA				
7.1	Clear existing rubbish material and excavate to required level (85m)	m ³	10,700.00	65	695,500.00
7.2	Supply and place soil material	m ³	1,238.00	150	185,700.00
7.3	Prepare, level and compact	m ³	1,238.00	85	105,230.00
Sub-Total					986,430.00
8	MISCELLANEOUS				
8.1	Outdoor lighting	Item	1	150,000.00	150,000.00
8.2	Water /Sewerage connection	Item	1	110,000.00	110,000.00
8.3	Fencing Leachate Pond perimeter	m	1760	165.00	290,400.00
8.4	Gate (6m width)	Item	1	10,000.00	10,000.00
8.5	Weigh Bridge (JICA)	Item	1	JICA	-
8.6	Office Space	Item	1	200,000.00	200,000.00
Sub-Total					760,400.00
9	Contingency sum (Provisional)		(10%)		693,039
10	Plus 10% VAT				693,039
<i>Sub-total Capital Works</i>					8,316,464

Attachment A-2 Waste Pickers Population in Baruni

The Counterparts implemented a survey in 2013 in order to identify the number of waste pickers working in Baruni, and those actually living on or in the immediate vicinity of the site. The waste pickers' population was further identified according to the block (or group) they belonged to.

A total of 508 waste pickers are active at Baruni and 302 of them are living in the site.



Attachment A-3 Operation and Maintenance Manual Contents

Operation (draft) of landfill site

Contents

1. Outline of Landfill site
2. Basic consideration of landfill operation
3. Working Day and Operation Hour
4. Provision of Personnel, Equipment and Material
5. Preparation of working area
6. Waste disposal and covering soil
7. Operation and Maintenance of facilities and equipment
8. Environmental control
9. Other controls

1

1. Outline of landfill site



2. Basic consideration of Landfill Operation

1. Working Days and Hours of Operation

- a. Working days and operation hours shall be set to facilitate management and control and considering service requirements of the public.
- b. Work in night time shall be minimized for safety, effective work and control.

2. To improve the sanitary landfill in a stepwise approach

- a. Provision of a barrier between the environment and the waste, in order to; (1) minimize contact between solid waste and environment, (2) prevent access to the waste by vectors and rodents and (3) dispose of waste within a well-defined space.
- b. Management and control of waste receiving, site arrangement and landfill work (minimizing working area and conducting daily cover)
- c. Minimizing littering of waste and other pollutants, control and treatment of leachate and landfill gas.
- d. Control of completed landfill site and returning to acceptable land use.

3. Work items of the landfill site

- Preparation of working area and additional working area
- Control and maintenance of manpower, facilities and equipment
- Waste disposal and covering soil
- On-site haul if necessary
- Operation of facilities and equipment and their maintenance
- Environmental control
- Other works

3

3. Working Day and Operation Hour

	Present	Option
Working day	Every Day	Monday to Saturday (Sunday: Holiday)
Waste receiving	24 hours	7:00 - 16:00 (Night time 18:00 - 6:00)
Landfill work	Preparation Filling work 6:00 - 16:00 Covering soil Clean-up	Preparation 6:00 – 7:00 Filling work 7:00 – 12:00 Lunch break 12:00 – 13:00 Filling work 13:00 -16:00 Covering soil & clean up 16:00 – 18:00
Working shift	Day Shift	Morning shift Afternoon shift Night shift (Security) (Holiday)

4

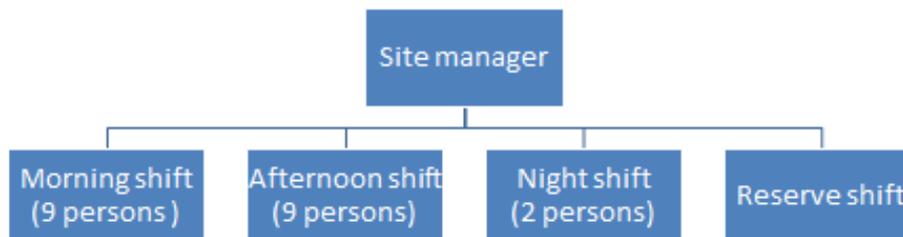
4. Provision of Personnel, Equipment & Material

(In case of new shift)

1. Personnel	Reception	Landfill area	Equipment (Operator)	Security
Morning shift	3	3	3	
Afternoon shift	3	3	3	
Night shift				2
Holiday				2
2. Equipment	Bull dozer	Excavator	Dump truck	Other
Daytime	1 unit	1 unit	1 unit	
Night time	-	-	-	
3. Material	Covering soil	Fuel & Oil	Water	
	75 m ³	Liter	m ³	

5

4-1 Landfill Site Management



6

4-2 Vehicle control and recording

Example of recording sheet

1. Vehicle Number 2. Vehicle type 3. Driver 4 Arrival time 5. Collection area 6. Weight/Volume 7 Type of waste

Daily Vehicle record									
				Date	Month	Year	Page		
				Date					
No.	Vehicle Number	type of vehicle	Driver	Arrival time	Collection area	Estimated volume	Estimated weight	Type of waste	Remark
		Start time		6:00					
1									
2									
3									
4									
5									
6									
7									
8									

7

5. Preparation of working area and additional working area



Khartoum Site

- (1) Working area
- (2) Stock pile of covering soil
- (3) Additional working area
- (4) Operation road



Bhari site

- (1) Working area
- (2) Stock pile of covering soil

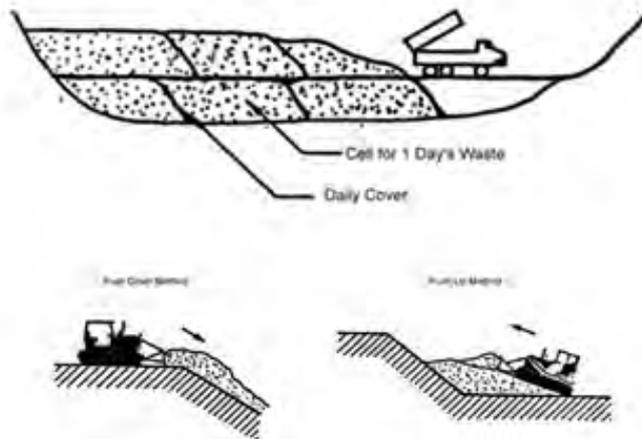
8

Filling area



6. Waste disposal and covering soil

6-1 Cell method and pushing up

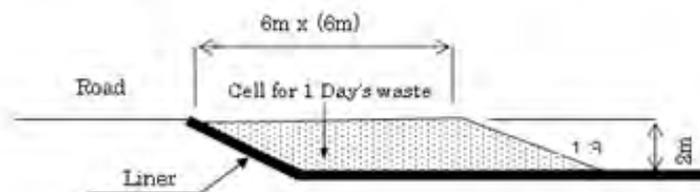


6-2 Cell & working area for a month

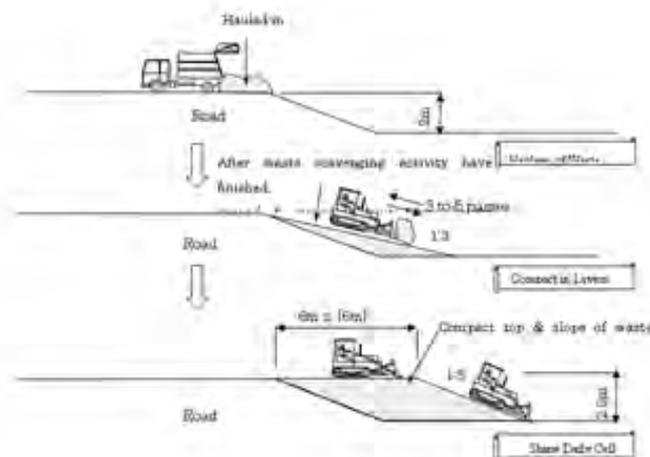
Example for Cell Size Calculation for one day:

- The waste amount hauled to the site shall be around 400 t/d.
- The waste shall be compacted and compacted density shall be around 0.8 t/m^3 .
- The waste depth shall be kept at a maximum 2.0 – 3.0 m.
- Accordingly the cell area = $400 \text{ t/d} / (0.8 \text{ t/m}^3 \times 2.0 \text{ m}) = 250 \text{ m}^2$, with dimensions of 20 m x 12.5 m

For one month: $(20 \text{ m} \times 3 \text{ times}) \times (12.5 \text{ m} \times 10 \text{ day} / 2 \text{ layers})$
 $= 60 \text{ m} \times 62.5 \text{ m}$



6-3 Spreading and compaction



6-4 Covering soil

Daily covering soil: Thickness (0.3 m) x Working area (250 m²) = 75 m³

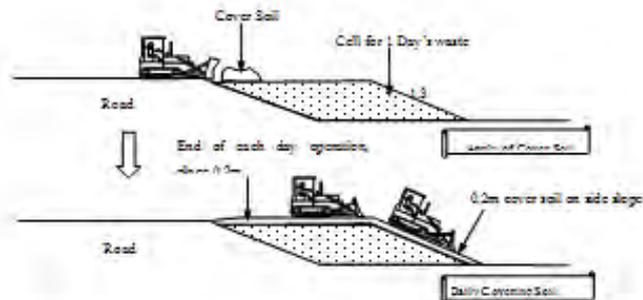


Figure 6.7 Operation Procedure of daily covering soil

7. Operation and maintenance of facilities and equipment

1. Road maintenance
 - Access road
 - Operation road
2. Surrounding fence, embankment and plant
3. Management office
 - Building, Lighting, generator, water tank
4. Heavy equipment
 - Operation by operator, Operation record, Maintenance record
 - Daily maintenance (by operator) : Check of fuel, oil and water
 - Monthly check and yearly check and maintenance

8. Environmental Control

- Prevention of fire and burning is most important to control landfill site in dry area.
- Not so many complain and environmental problems related to Khartoum landfill site.
- Issues
 - to improve scenery of landfill site (planting)
 - to minimize dust and litter caused by waste haul at access road

15

9. Other control and management activities (To be considered)

1. Control of, and cooperation with waste pickers
2. Safety control
3. To prepare future land use plan

16

Attachment A-4 Water Sampling and Analysis

(Reported by Mr. Walter Aukleya, Officer, WMD, NCDC and Counterpart)

LOCATIONS/SITES SAMPLED



Site 1



Site 3



Site 2



The samples were taken twice on January 23rd and on February 13th, 2014, at the same three locations as indicated in the figure.

The samples were analyzed at the National Agricultural Research Institute (NARI), based on the American Public Health Association (APHA). The results of the six samples (three sampling locations x two sampling dates) are shown in the following table.

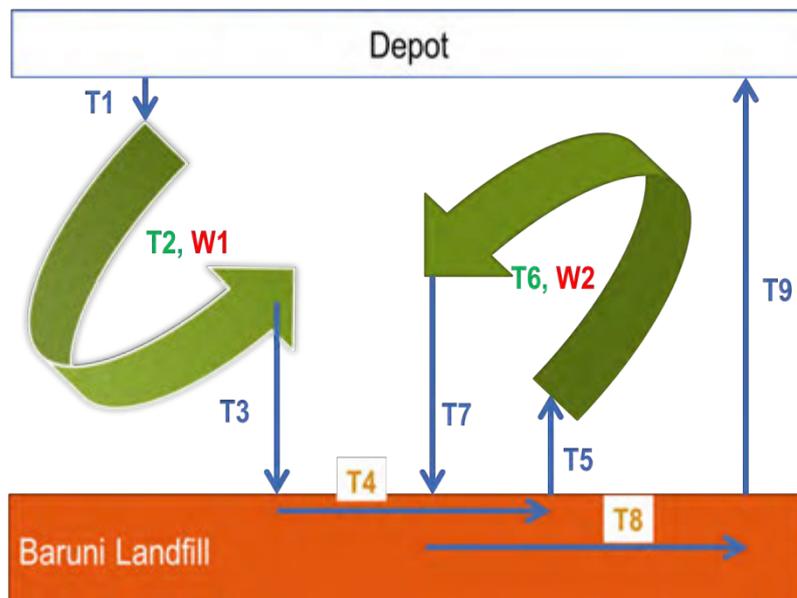
SN	Analysis Item	Unit	Sample 1 - Up- stream		Sample 2 - Mid stream		Sample 3 - Down Stream	
			January 23rd, '14 sample	February 13th, '14 sample	January 23rd, '14 sample	February 13th, '14 sample	January 23rd, '14 sample	February 13th, '14 sample
1	Temperature	degree	26.8	26.4	26.6	26.5	27.0	26.7
2	COD	mg/L	145.2	135.0	134.7	69.0	275.0	75
3	Turbidity	mg/L	9.85	0.91	3.82	0.51	3.03	0.45
4	Color	Hazen units	30	30	>30	10	10	10
5	Total Disolved Solids	mg/L	3,256	2,024	651	475	1,118	1018
6	Suspended Solids	mg/L	49	8	93	25	33	8
7	BOD	mg/L	64.9	45	64.9	23	91.8	23
8	Disolved Oxygen	mg/L	6.8	6.37	4.05	3.77	5.51	5.88
9	Conductivity	usm	4,360	3,620	962	974	1,751	1564
10	PH	-	7.2	7.0	7.0	7.7	7.2	7.3
11	Chloride	mg/L	43.4	862.3	64.2	134.0	32.1	253.8

Attachment A-5 Time and Motion Survey Results

The following slides were prepared by Mr. Ronnie Ranu and Ms. Vivianne Morofa, Officers, WMD, NCDC and Counterparts with JET assistance.

Objectives	Outputs
1. To Improve the collection and disposal services in Port Moresby	1. Determine whether working hours are effectively made use of
2. To Determine how efficiently collection vehicles are being used	2. Vehicle capacity utilization
3. To Determine how effectively the collection crew use their time	3. Types of storage bin study
4. To confirm whether collection route is appropriately designed	4. Route Study
5. To confirm whether collection time is appropriately scheduled	5. Road condition study
6. To check whether suitable storage bins are used	6. Crew behavior study
7. To study the behaviour of the crew.	7. User cooperation study
	8. Accessibility Study

• Analysis of 5 T&M trips



Indicator	Equation		Meaning
1) Total Shift Efficiency (Min/ton)	Total shift time/ Total waste weight collected	(T1 to T9) / (W1 + W2)	Lower means better collection efficiency
2) % Shift time spent in collection (%)	Time spent in collection / Total shift time	(T2 + T6) / (T1 to T9)	Low value means traffic problems or distance to depot and dumpsite are too far
3) Trip loading ration (ratio)	Waste weight 1 st collection/ Waste weight 2 nd collection	(W2) / (W1)	If it is low means there is no balance between both trips, and truck capacity not properly used
4) Average waste per stop (Kg/stop)	Weight of waste / Number of stops		Too high means some burden on collection crews

		NC1 SAC 789	NC2 SAC 790	NC3 SAC 787	WC1 BDR 548	WC2 BDZ 571
1) Haul efficiency						
1.1) Total Shift Efficiency	min/ton	71.4	55.8	50.4	152.2	60.2
1.2) Collection Time Efficiency	min/ton	33.0	35.6	35.7	87.9	31.7
a. First trip time efficiency	min/ton	36.9	39.0	28.6	101.1	26.6
b. Second trip time efficiency	min/ton	37.6	26.9	46.7	57.1	40.7
2) % Shift Time spent in collection	%	46%	64%	71%	58%	53%
3) Trip loading ratio	2nd/1st	0.45	0.40	0.65	0.45	0.56
4) Ave waste per stop	kg/stop	79.6	34.0	49.0	19.2	54.7
4.1) First trip	kg/stop	71.7	28.4	56.7	18.8	50.4
4.2) Second trip	kg/stop	87.5	39.7	41.4	19.7	59.0
5) Running speed						
5.1) Total shift ave. speed	km/h	8.3	9.6	7.5	9.7	0.0
5.2) Collection ave. speed	km/h	2.7	5.5	5.8	8.6	0.0
a. First trip ave. speed	km/h	3.8	8.7	4.4	11.2	0.0
b. Second trip ave. speed	km/h	1.5	2.3	7.3	6.1	0.0
6) Total working time/ shift	Minutes	483	469	536	615	394
	Hour	8hr 3min	7hr 49min	8hr 56min	10hr 15min	6hr 34min
7) Total weight collected		6.76	8.4	10.64	4.04	6.54

Attachment A-6 Workshop for Collection Contractors

1) Meeting date and location: 25th February, 2014, Lamana Hotel

2) Agenda followed at the Workshop:

TIME	ACTIVITY	FACILITATOR
13:00 – 14:00	Presentation on Waste Collection Conditions (1) Overall Aim and Objectives of the Workshop (2) General Waste Collection Conditions (3) Time & Motion Results Questions & Answers	John Navara R. Ranu / Vivianne M
14:00 – 14:15	Coffee and Tea Break	
14:15 – 15:00	Group discussion	Ronnie Ranu Vivianne Morofa Faafetai
15:00 – 15:30	Summation and Recommendations	Ronnie Ranu Vivianne Morofa Faafetai
15:30 – 16:00	Presentation of Summation and Closing	Faafetai Janet Haua

3) Workshop Objectives

The workshop had the following objectives:

- Introduction of J-PRISM Activities
- Understanding some waste methodologies to assess waste collection efficiency.
- Understanding the Issues Affecting the Quality of Collection Service

4) Workshop Outcomes

The workshop aimed to realize four outcomes as described hereafter.

- Collection Efficiency Analysis (Time & Motion Study findings)
- Identified Issues Affecting Collection Service Quality in the City
- Improved understanding and awareness of Contractors on important waste management aspects

- Improved understanding of NCDC and Stakeholders on issues needing improvement for appropriate actions

5) Explanation of the present collection conditions

At the start, Mr. John Navara, Senior Waste Officer in WMD explained the present waste collections in the city. He outlined the three collection zones in NCDC, identified the contractors responsible in each zone, and the zones respective collection schedules.

Using Figure A-6-1, Mr. Navara identified the responsibilities of both the waste generators as well as the collection service providers.

6) Identifying Group Discussion Topics

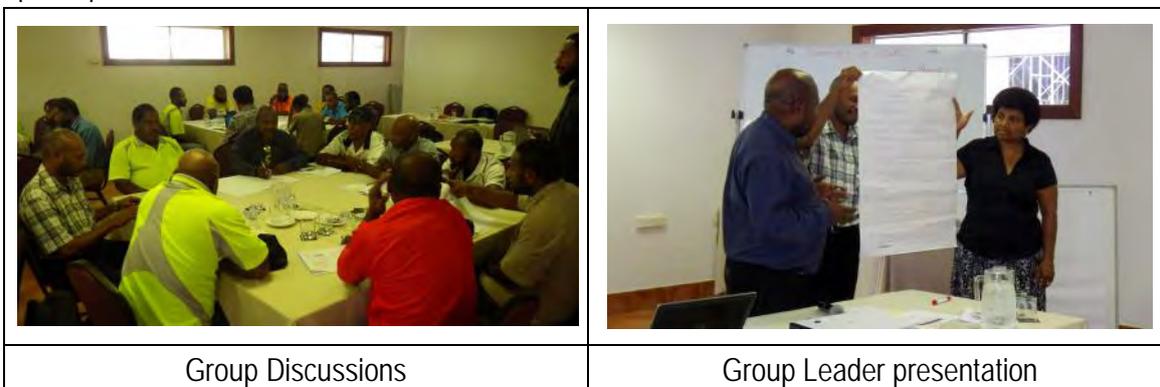
Ms. Vivianne Morofa and Mr. Ronnie Ranu, WMD Officers then explained the Time & Motion survey and the issues that were identified based on the survey results.

The participants were then divided into three groups of 7-9 persons per group. Each group selected a group leader and was facilitated by Ms. Morofa, Mr. Ranu and Mr. Faafetai respectively.

Topics discussed in each group were as follows:

1. Money – lack of funding/budget limitation/financial resource
2. Materials – bins/trash; bags/data
3. Machinery – trucks/transfer stations
4. Manpower –lack of qualified personnel/
5. Management – organization/ monitoring/ unclear TORs
6. Motivation – lack of collaboration / cooperation

Each Group discussed for about 30 minutes, and then prepared a summation of their discussions. The respective Group leaders were then requested to present their discussion findings to all the participants.



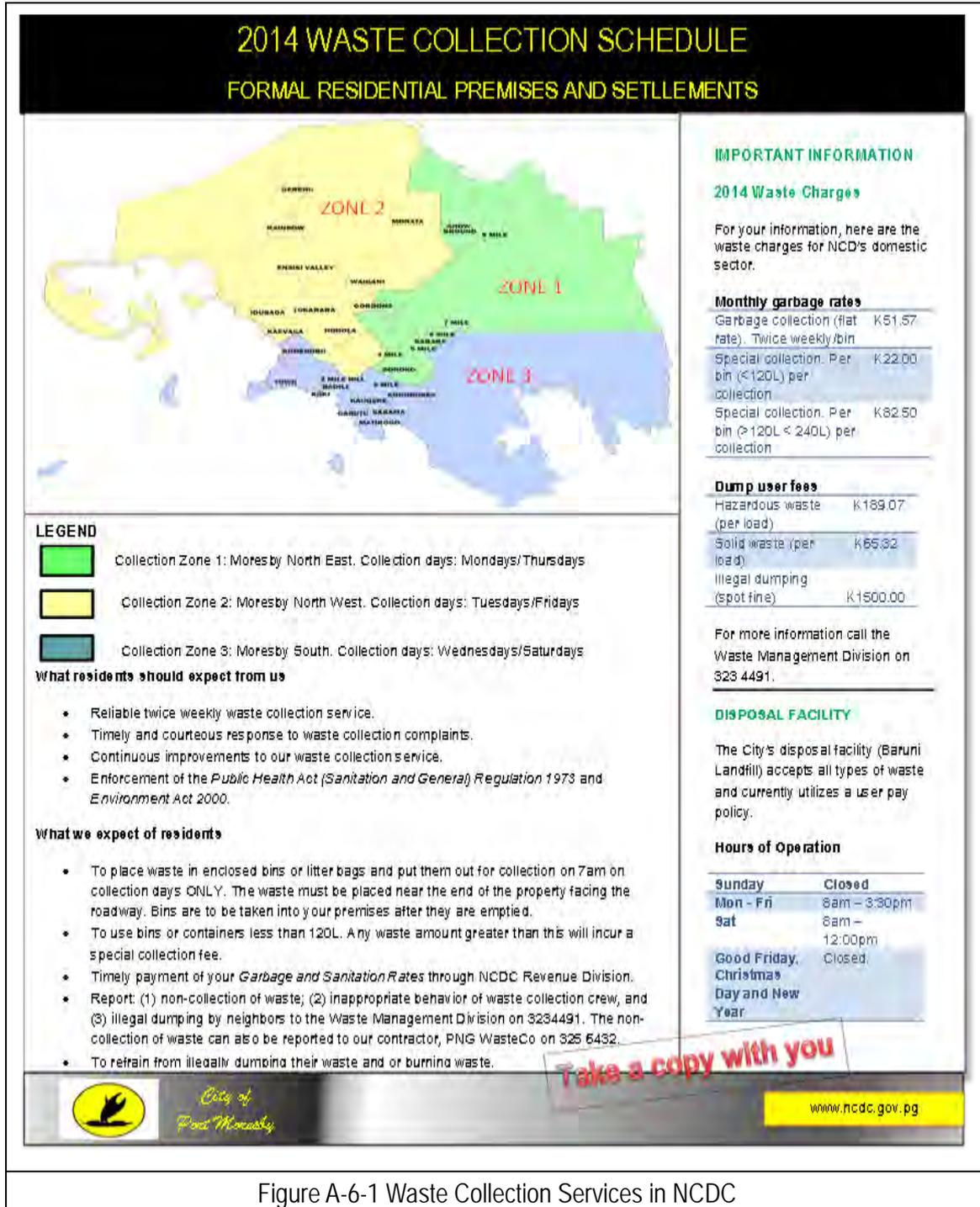


Figure A-6-1 Waste Collection Services in NCDC

7) Summary of Group Discussions

After each Group leader presented the respective group's findings, Mr. Faafetai presented a summation of the discussions as follows:

MONEY

- Frequent payment delays to the contractors affects the quality of the services they deliver

- Budget allocated to the collection services does not take into consideration the increasing urbanization and population raise in NCDC.
- Increase in costs should be met with increased contract amounts
- Maintenance costs are too high.

MATERIALS

- Proper bins, which are uniform in the city need to be put into service
- Data System providing accurate information on SWM conditions needs to be set-up
- Updated list of Clients (Schools, etc.) is needed to accurately understand the required efforts in waste collection
- Skip bins are most suitable for the settlements.
- Large compactors, such as those recently introduced from India are not suitable for the city's narrow roads.

MACHINARIES

- The Indian made compactors require a lot of repair works, but the Indian mechanic now in NCDC would be leaving soon and there is concern that it would be difficult to repair the trucks without that skilled mechanic.
- Regular breakdown of trucks
- Spare parts problem
- Transfer System should be considered for settlements
- Roads poor conditions and difficult access

MANPOWER

- Lack of personal to drive trucks
- Lack of skilled mechanics for maintenance works
- Lack of skilled data collection and analysis staff in NCDC
- Low wages do not help to attract higher quality staff

MOTIVATION

- Lack of awareness to inform the public
- Public cooperation is low; e.g. ignorant of discharge time, using unsuitable containers for discharging waste, expecting waste collection crews to clean under their bins, etc.
- In some areas there is no fixed schedule of collection which affects the citizens
- Incentives from NCDC to the collection crews would be helpful
- Drivers and collection crew salaries/ wages are too low
- Lack of respect for waste contractors (low job)

MANAGEMENT

- Trucks arriving at the dump site are finding it difficult to identify locations there to dispose of their wastes

- Political effect to contractors
- Payment not on time affecting performance
- Communication breakdowns often occur between Contractors and NCDC
- Unclear scope of work in tender and contract documents
- Reporting system is lacking
- Sharing of information is lacking
- Timely release of findings is needed
- Security problem at the Baruni dumpsite has become a severe problem. Contractors reported that their drivers have been forced by waste pickers to transport their collected recyclables to recycling companies. Windows have been broken when drivers refused.
- NCDC needs to make more efforts to confirm accuracy of the complaints
- Facilities are required for collection crews to wash and rest. These facilities may be developed at depots and the disposal site
- Contractor requires NCDC to provide safety gears for collection crews.

8) List of Participants

The two collection companies of PNG Waste Co. (collecting domestic and settlement wastes) and Killerton Contractors (responsible for commercial wastes collection) sent representatives to the workshop. This included the companies' officers, drivers and crews. Participants were as follows:

1	Jerry Damoi	Project Officer, PNG WASTE CO.
2	Charlie Kolaip	Operations Officer, PNG WASTE CO.
3	Mohammed Chagdali	Executive Officer, PNG WASTE CO.
4	Joe Vita	PNG WASTE CO.
5	Kua Molo	PNG WASTE CO.
6	Francis Yongel	PNG WASTE CO.
7	Jerry Tisamu	PNG WASTE CO.
8	John Kalo	Driver, PNG WASTE CO.
9	Raymond Andrew	PNG WASTE CO.
10	Jerry Kaisa	Driver, PNG WASTE CO.
11	Francis Kawa	PNG WASTE CO.
12	Samson Savai	Driver, PNG WASTE CO.
13	Russel Kina	Operations Manager, Killerton Contractors
14	Joe Noks	Driver, Killerton Contractors
15	Wek Kops	Driver, Killerton Contractors
16	Martin Gareke	Crew, Killerton Contractors

17	Monty Lepene	Crew, Killerton Contractors
18	John Navara	Senior Waste Officer, WMD, NCDC
19	Simeon Terina	Senior Waste Officer, WMD, NCDC
20	Janet Hava	Senior Waste Officer, WMD, NCDC
21	Ronnie Ranu	Senior Waste Officer, WMD, NCDC
22	Vivianne Morofa	Waste Officer, WMD, NCDC
23	Kupil Ala	Waste Officer, WMD, NCDC
24	Paul Wisi	Waste Officer, WMD, NCDC
25	Walter Aukleya	Waste Officer, WMD, NCDC
26	Faafetai <u>S.Uitime</u>	Assistant Chief Advisor, Project Office
27	Mahmoud Riad	SWM Expert E, J-PRISM

Attachment A-7 Selected 3Rs Logo

NCDC conducted a competition amongst school students. Fifty-eight entries were submitted, from the various age groups as follows;

- Ages 7 to 9 years Seven (7) entries
- Ages 10 to 12 years Nine (9) entries
- Ages 13 to 15 years Seven (7) entries
- Ages 16 to 19 years Thirty-five (35) entries

NCDC invited various stakeholders to evaluate the entries based on the following criteria:

1. Originality: Not inspired from another source
2. Authenticity: Must be hand drawn and not from computer graphics
3. Message: 3Rs message should be clearly portrayed
4. Design & Color

The selected logos and the winning one are shown below:



Attachment A-8 SWM Plan for Port Moresby – Draft Table of Contents

Port Moresby Solid Waste Management Plan

Table of Contents

(Draft)

Chapter 1 Examination of Present SWM System

1.1 Description of Port Moresby Spatial Development

(Land use, formal and informal development, historical background of the city and its inhabitants, geographical/ physical features, etc.)

1.2 Socio-economic Conditions

(Population, economy, development plans, education, employment, etc.)

1.3 Solid Waste Management

(Amount and Composition of the Solid Waste, Collection conditions, Disposal conditions, present solid waste flows, Institutional aspects, SWM costs and revenues, Recycling situation, Public awareness on SWM, etc.)

1.4 Identification of Issues

(City development issues, Budget constraints, SWM service issues, etc.)

Chapter 2 Planning Framework

2.1 Study Area and Waste Types

(NCDC service area, surrounding villages, and Disposal site area)

2.2 Master Plan time frame

(For example from 2015 to 2035)

2.3 Socio-economic Forecasts

(Population, employment, education, land use development, etc.)

2.4 Waste Amount and Composition

(Adopt trends for the unit generation rate and waste composition changes; estimate the waste amounts and composition by city wards or zones, and annually up to the last year of the master plan, etc.)

2.5 Financial Framework

(Determine the plausible budget of the master plan by analyzing the household incomes and NCDC budgets, expected revenues from SWM, etc.)

Chapter 3 M/P Objectives and Principles

3.1 Objectives

(Determine the M/P vision and overall objectives, Identify numerical goals and set targets annually or every five years, etc.)

3.2 SWM Principles

(Develop a set of principles that will guide the plan)

Chapter 4 Examination of Planning Options

4.1 Waste Collection and Transport

(Identify a set of technical options and analyze them to select the optimum option. Options may include the following: (1) Frequencies of the service per week, (2) Introducing source separation and separate collection over parts of the city, (3) Night time collection in certain areas, (4) Fixed time and station waste discharge, (5) Large bins with arm-roll system, (6) Door-to-door collection in certain locations, (7) Specified bins or plastic bags for discharge, etc.)

4.2 Intermediate Treatment and Waste Disposal

(Options to be examined include: (1) Intermediate treatment systems suitable for NCDC waste and capabilities; (2) Comparison of these systems in terms of their cost, special requirements and ease of operations; (3) Consideration of the need to operate two disposal sites for the city or if one is enough, etc.)

4.3 Waste Recycling

(Basic consideration would be how much should NCDC become involved in the recycling activities or should it be exclusively left to the private sector.)

4.4 Institutional System

(Options that need to be considered may include: (1) Full privatization of the SWM operations with NCDC having a monitoring role only or partial participation by NCDC in certain operational aspects; (2) Should WMD remain as a division in NCDC or should it be upgraded; (3) Modifications of existing laws and regulations or issuing of a new and comprehensive SWM bill, etc.)

Chapter 5 SWM Master Plan

5.1 Institutional Plan

(Based on the selected option the human resources required for the coming 20 years and their job descriptions will be determined. Concerning the regulatory framework it will not be possible in the Master Plan study to develop the draft bill or amendments to existing laws, but the requirements will be listed here.)

5.2 Waste Collection and Transport

(Based on the selected technical system the number of trucks required, bins and other items will be estimated. Also the collection system will be clarified in order to inform the general public. Operation and maintenance costs will be estimated.)

5.3 Intermediate Treatment and Disposal

(In case an intermediate treatment facility is selected, it will be costed and its location identified. The effect of introducing the facility on the waste flow will be identified. For the disposal plan; the life time of the waste disposal site will be calculated and conceptual plans for the operation of the site will be prepared. The requirements in terms of equipment and human resources will be estimated for the 20 year span. Operation and maintenance costs will be estimated.)

5.4 Recycling

(If, based on the technical analysis in Chapter 4, NCDC is to become involved directly in the recycling activity then it may be necessary to construct a MRF someplace. Costs and location need to be considered in the plan. On the other hand, if it is decided that this activity should remain in the hands of the private sector than the plan should look at the support that NCDC can provide the private sector to enhance this activity. Operation and maintenance costs in either option will be estimated.)

5.5 Financial Plan

(The costs for the plan shall be estimated in the previous sections. Estimated costs will be on an annual base and should include both capital costs as well as O&M costs. In this section it will be necessary to develop the financial plan to meet these costs. The plan should include all sources of revenue possible, any subsidies that need to be considered for certain layers of the society, tariff list concerning businesses and residents, etc.)

5.6 Strategies for Implementation of the M/P

(These strategies are similar to the principles that have been adopted but they are more detailed.)

Chapter 6 Action Plans

(It is usually too far to consider the 20 years period. In order to start immediately detailed plans for the Master Plan's first 5-year period may be developed.)

Chapter 7 Conclusion and Recommendations
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Attachment A-9 Amended PDM

Attachment 1: Project Design Matrix (PDM) - PNG		Narrative Summary		Objectively Verifiable Indicators		Means of Verifications		Important Assumptions	
Project Title: Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries (J-PRISM)		Overall Goal		1 To be discussed		To be addressed		1. Natural disaster would not drastically affect the collaboration among PICs and SPREP.	
Target Group: C/Ps of DEC and NCDC		Project Purpose		1. Four (4) Experts (Trainers) are listed in the SPREP inventory		SPREP (Regional Inventory of skilled people)		2. Political changes of PICs would not drastically affect the collaboration among PICs and SPREP.	
Implementing Agency: NCDC		Human and institutional capacity base for sustainable Solid Waste Management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010-2015) (RS2010)		2. Landfill management/ collection services are implemented according to the SWM plan.		SWM Plan implementation			
Sustainable management of solid waste in the Pacific Region is enhanced		Priorities under RS2010							
#			Outputs						
2-1	Sustainable Financing	3RS/RS							
2-2	Waste Disposal		Output 1: Solid waste disposal facility and operation is improved.	1-1. Bauri upgrading plan is prepared and implemented 1-2. Operation and maintenance manual is prepared and implemented	1-1. Implementation Report 1-2. Monitoring Report				
2-3	Waste Collection		Output 2: Waste collection in Port Moresby is improved	2-1. Collection coverage is increased to 70% 2-2. Number of complaints are reduced by 50% 2-3. One line-and-motion study conducted by NCDC staff annually	2-1. Operation report (Amount of waste collected, average # of tips per day) 2-2. Complaints Register 2-3. Study Report				
3	Legislation								
4	Awareness/Communication/Education								
5	Capacity Building								
6	Environmental Monitoring								
7	Policy/Planning, Performance		Output 3: Capacity of planning and monitoring of Solid Waste Management in Port Moresby (National Capital District: NCDC) is increased	3-1. SWM plans adopted 3-2. Solid waste management budgets prepared and SWM expenditure is analysed for FY2015	3-1. Publication of the Plan 3-2. Budget analysis report				
8	Solid Waste Industry								
*	Monitoring system of RS2010								
		Activities		Inputs					
		Please, see PO for details.		Japanese Side		PNG side			
		Dispatch of JICA experts		Local Costs Sharing		Assignment of National PDDM and CPs		1. Counterpart personnel keep working in the field of SWM	
		Provision of equipment and materials		Provision of necessary land/facility, work space		Local Costs Sharing		2. Disasters, such as severe rain storm will not drastically affect the progress of project	
		Provision of Regional, sub-regional and in-country workshops / training		Cost Sharing for rehabilitation of Bauri landfill		Facts for EIA (NCDC)		3. Necessary budget to carry out activities is allocated from the government.	
		Local cost support						Pre-condition	

Term: 2011 – 2015 (5 years)		Indicators of Project Purpose		2011		2012		2013		2014		2015	
		1. Four (4) Experts (Trainers) are listed in the SPREP inventory											
		2. Landfill management/ collection services are implemented according to the SWM plan											
		Indicators for Outcomes											
		Person in-charge											
JCC/SC/ Eva	JCC Steering Committee Evaluation Studies												
OUTPUT 1:	Solid waste disposal facility and operation is improved		1-1 Baruni upgrading plan is prepared and implemented	Simon Teriha									
1-1	Conduct site investigation into Baruni dumpsite		1-2 Operation and maintenance manual is prepared and implemented	Kupul Walter									
1-2	Develop a work plan for the rehabilitation of the Baruni dump			Simon									
1-3	Undertake Environment Permit application process in order to obtain and Environment Permit			Reneve/ Simon									
1-4	Undertake upgrading work on the rehabilitation of the Baruni dump			James/ Simovev/ Sneka									
1-5	Develop an operation & maintenance manual for Baruni dump			Simon/ Saka/ (New supervisor)									
1-6	Establish water monitoring system and implementation			Kupul/ Walter/ Dr Frank									
1-7	Conduct training for both for landfill management staff and operators			Simovev/ James									
1-8	Monitor operations of the upgraded landfill and evaluate its efficiency			Janer/ Senec Officers									
OUTPUT 2:	Waste collection in Port Moresby is improved		2-1 Collection coverage is increased to 70%	John Navara									
2-1	Develop work plan to carry out time-and-motion study		2-2 Number of complaints are reduced by 30%	(Completed)									
2-2	Undertake time-and-motion study		2-3 One time-and-motion study conducted by NCDC itself annually	John/ Paul/ Navai									
2-3	Analyze results and generate study report			John/ Paul/ Navai									
2-4	Make amendments to the contracts for the waste collection contractors			John/ John/ Paul									
2-5	Conduct training for all contractors			Janer/ John/ Paul									
2-6	Monitor and evaluate at scheduled intervals			Janer/ Senec Officers/ Paul									
OUTPUT 3:	Capacity of planning and monitoring of Solid Waste Management in Port Moresby (National Capital District- NCDC) is increased		3-1 SWM Plan is developed and adopted	Ronnie Ranu									
3-1	Promotion of 3Rs for inclusion in plan		3-2 Solid Waste Management expenditure for SWM FY2015	(supported by Hubert/ Janet)									
3-2	Develop work plan for the waste characterization exercise			John/ Vianee/ Navai/ Paul									
3-3	Undertake waste characterization exercise			Vianee/ Reneve/ John									
3-4	Analyze results and generate report			Vianee									
3-5	Develop Solid Waste Management Plan for Port Moresby			Vianee/ Kupul									
3-6	Adoption of Waste Plan by DEC and NCDC managements			Janer/ Senec officers/ Hubert									
3-7	Implement and monitor the Waste Management Plan			Janer									
				Janer/ Senec officers									

Revised schedule (as of February 28th, 2013)

Actual schedule

Original schedule

Attachment A-10 Proceedings of the 3rd JCC Meeting

The 3rd JCC Meeting was held on February 27th, 2014 at Holiday Inn from 10:00 AM to 12:00 noon, followed by lunch.

1. Proceedings

Mr. Gunther Joku chaired the meeting. He delivered the opening address, followed by speeches by Mr. Sugiyama, JICA PNG Chief Representative and Mr. Honk Kiap, Deputy City Manager.

Mr. Joshua briefly explained the project progress, and was followed by the following presentations:

Mr Simeon Terina presented the overall project progress and status

Each of Mr. James Ricky, Mr. John Navara and Mr. Ronnie Ranu presented the progress of Outputs 1, 2 and 3 respectively.

Ms Janet Haul explained the Project finances.

2. Project Finances

Mr. Augustine Ravi, Financial Controller confirmed that 5 million Kina is available to the Project from the Government of PNG.

3. Mid-term Review (MTR) recommendations

The recommendations of MTR concerning amending the PDM and others were adopted by the Counterpart team with some modifications, and explained to the JCC meeting.

4. Changes in Personnel

Mr. Gunther Joku, in his position as Secretary, DEC is the Project Director.

Mr. Joshua Sam confirmed that in his position as Acting Manager of WMD, he is now the Project Manager. Ms. Janet Haul has assumed the post of Project Coordinator. And Mr. Simeon Terina will be the Output 1 Manager, and oversee the rehabilitation of Baruni disposal site.

The contract of Mahmoud Riad, SWM Expert E will expire in March 2014, and a tender will be announced for a new consultant contract.

5. Minutes of the Meeting

The minutes of the meeting will be prepared by Ms. Janet Haul, Project Coordinator.

B Solomon

- Attachment B-1 Honiara Waste Characterization Audit Survey Report (Honiara)
- Attachment B-2 Eco School Program Workshop Report (Honiara)
- Attachment B-3 Collection Point and Waste Segregation Pilot Project in Panatina Valley Community (Honiara)
- Attachment B-4 Letter of Transfer for Land Title in Ranadi Dumpsite
- Attachment B-5 Public Environment Report- EIA Study for Ranadi Dumpsite Rehabilitation
- Attachment B-6 Advertisement of Landfill Supervisor (Honiara)
- Attachment B-7 Advertisement of Landfill Supervisor
- Attachment B-8 Drawing of Site Office at Ranadi Dumpsite
- Attachment B-9 Ranadi Operation Plan
- Attachment B-10 Eco School Program Workshop Report (Gizo)
- Attachment B-11 Results of Zoning Survey for Waste Collection (Gizo)
- Attachment B-12 3R Stickers (Gizo)

Attachment B-1 Honiara Waste Characterization Audit Survey Report (Honiara)
The Honiara Waste Characterization Audit Survey Report, which the Counterparts conducted in 2011 with the support of JET, was launched in August 8th, 2013.



Figure 14 Newspaper article on the Launching Program

(Source: Island Sun, August 9th, 2013)

Attachment B-2 Eco School Program Workshop Report (Honiara)

Eco School Program Workshop was held on September 26th/ 27th. The Counterparts elaborated the report.



Figure 15 Newspaper article on the Eco School Program Workshop
(Source: Solomon Star, September 30th, 2013 and Island Sun, September 30th, 2013)

Table 36 Workshop Program

Time	Program	Person-in charge
Day 1, 26th Sept		
8.30-9.00	Arrival of Participants	All
9.00-9.30	Welcome and Opening Prayer	Francis Fiku
9.30-10.00	Short Remarks	Naoko Laka, JICA
	Short Remarks	Tom Nanau, Director EHD/MHMS
	Key-note Address	Don Houkura, CEO/HCC
	Introduction of Participants & Expectations	All
10.00-10.10	Presentation on relationship of Health issues and waste management (10mins) Introduction of Eco-School Program	Jimmy Hilly, George Titiulu
10.10-10.40	Presentation by Fiji Counterparts	Ms.Premila and Ms. Nafiza
10.40-10.50	Morning Tea Break	All,

Time	Program	Person-in charge
10.50-11.00	Presentation of Proposed School Action Plan template(See Annex I)	Jimmy Hilly, Jerome Enato'o,Rosemary Apa, Satoshi Kozuka
11.00-12.30	Group work Discussion and Formulation of draft School Action Plans	Facilitators- Jimmy Hilly, Jerome Enato'o,Rosemary Apa, Satoshi Kozuka Support/Comments- Ms. Premila and Ms Nafiza
12:30-13.30	Lunch	All
13.30- 14.30	Presentation of draft Action Plans by Schools -Group Work	Facilitators- Jimmy Hilly, Jerome Enato'o,Rosemary Apa, Satoshi Kozuka Support/Comments- Ms. Premila and Ms Nafiza
Day 2, Sept 27th		
8:30-9:00	Arrival of Participants Morning will be served during this time	All
9:00-9:30am	Welcome	Facilitator-Rosemary Apa
	Recap of Day 1	Facilitator-Rosemary Apa Support/Comments- Ms. Premila and Ms Nafiza
9:30-10:00	Presentation by JOCV	Satoshi Kozuka
	Briefing on Landfill (Ranadi)	John Labu
10:00-12:00	Field trip to Botanical Garden,	Satoshi Kozuka & Aiko Suzuki
	Fieldtrip to Dumpsite	John Labu
12:00-13:00	Lunch (RWSS-Conference room)	All
13:00-14:00	Lessons Learnt by Schools	Facilitators- Jimmy Hilly, Jerome Enato'o,Rosemary Apa, Satoshi Kozuka Support/Comments- Ms. Premila and Ms Nafiza
14:00-14:30	Next way forward (What is expected of Schools)	
14:30	Closing of Workshop Closing Remarks	Dr.Melchior Mataki, PS/MECDM

Table 37 Comments from workshop participants

Question	Answer
Q. Did the Presentations provide useful information?	5 (very much): 24 (92.3%) 4 : 2 (7.7%) 3 : 0 (0.0%) 2 : 0 (0.0%) 1 (not at all) : 0 (0.0%)
Q. Were the presenters clear in disseminating the information as per workshop?	5 (very much): 22(84.6%) 4 : 4 (15.4%) 3 : 0 (0.0%) 2 : 0 (0.0%) 1 (not at all) : 0 (0.0%)
Q. Is the Clean School Program Guide Book easy to follow?	5 (very much): 23 (88.5%) 4 : 3 (11.5%) 3 : 0 (0.0%) 2 : 0 (0.0%) 1 (not at all) : 0 (0.0%)
Q. Any Comments about the workshop?	<ul style="list-style-type: none"> ➤ Very clear, exciting and interesting that I have learned a lot from it. Thank you so much for your times with us as we look forward to working together with you especially as we go along. ➤ The workshop was well organized and facilitated and the inputs or support from Fiji counterparts was a plus for the workshop. I think after the workshop teachers and counterparts will have a more clear sense of direction to implement the program. In future, it is better to have the workshop held in a bigger space. I really learnt a lot from the program. ➤ This workshop keeps me an important information to know how to keep my school and home clean. It is helpful to reduce waste ➤ The workshop is very interesting. We need a lot of this programs to be introduced to us. ➤ The workshop is very interesting and fruitful. I have learned a lot and now I know what Eco-School programme is all about. ➤ The workshop is new to me and I know it will help me and my school children. ➤ The workshop was so helpful that gives us a knowledge of realizing some issue that are there in our school. Later on. We can make a change in the school. ➤ I have learned a lot of information in the Eco-School Workshop broaden my horizon. ➤ This workshop is very interesting and important to all of our schools in Solomon Islands ➤ It was a very fruitful workshop having the opportunity to learn from NTC's experience

	<ul style="list-style-type: none"> ➤ This kind of workshop program should be held in all communities in the Solomon Islands to educate people on waste management. However, it is an excellent workshop because it was for schools. You educate we teachers teaches, educate students, students educate parents and parents can educate the communities. ➤ I missed the fieldtrip which I'm sure was interesting. But the class/workshop presentations were clear, new, interesting and presented a learning experience. ➤ The workshop was well resourced with the different personnel's who made presentation ➤ It is an exciting and an enjoyable workshop which all participants including myself were all satisfied. The facilitators are so nice, friendly and the meal provided has satisfied us all. ➤ The workshop was perfectly conducted, but I for one I think days arranged should be longer. ➤ The workshop is really encouraging because it helps us teachers to be creative on how to use the 3Rs. All presentation is clear to grasp. ➤ What I'm expected was achieve, I learn a lot of things on how to manage waste, beautification and how to keep clean and healthy environment. I also learn how to reduce , reuse and recycle of all waste organic and I am sure that these things also help me a lot on teaching and the improvement of our environment for the better teaching and learning ➤ This workshop is so important and very interesting and as a participant I feel that two days isn't enough. For this new concept to be well implemented it should take at least a week or two. ➤ The workshop presentation itself is very informative and with the discussion learnt from each other especially the teachers. It gives me a challenge to make an appropriate commitment for Eco-School clean programme. ➤ Very good workshop .Invest in schools for beautiful Honiara and Solomon Islands in general.
<p>Q. Any comments about the Clean School Program?</p>	<ul style="list-style-type: none"> ➤ Very good move especially to tackle the issues of SWM in the city because we have to start with the children inorder to change the mindset while they are still young. For the clean school program in Fiji (Nadi town) thank you for your lovely presentations, colorful pictures shown in the guidebook and hope to work together again through emails especially for further information on clean school program. ➤ I think the Clean School Program is similar to Eco-School Program and I believe it can be implemented in schools in the Solomon Islands. I really learned a lot from this program during the

	<p>workshop.</p> <ul style="list-style-type: none">➤ I am fortunate to have this workshop because it keeps me idea to extend my work as maintenance master for the school. School normally need this kind of idea to continue on cleaning school.➤ Healthy living and gives us other new and different appearance➤ The Clean School Programme is really an effective program and an eye opener to me. Definitely we will apply the ideas to our school.➤ The school itself has the clean school program day, but this workshop will help improve the school clean program.➤ Clean School Program is highly needed in every school. Because that is the way to promote a healthy environment in school. Also such can widen the knowledge of teacher's in school to make changes in the school➤ Very good and very important knowledge learn and hope to implement in the school.➤ The clean school program should be implemented very soon and quickly because it is a very big need for us in the Solomon Islands.➤ It is a way forward for a cleaner Solomon islands➤ The clean school program is a very good program that each school must practice as it help schools to provide a healthy environment where there is conducive learning for students. It's a must to implement the programme in our school. Thanks for helping.➤ The clean school program was made from real experience so it is a real work program➤ As this is the first of its kind, it will be challenge to tackle this program which will need the cooperation of every stakeholders in the city of Honiara.➤ This program has highlighted the three basic areas of how to manage wastes (e.g. 3Rs). It is very challenging for me to initiate such a new program within our school, so I'm very confident and hope to implement the program and see the different outcome of it.➤ Very good program as it gives us more ideas concerning waste management. More so not teachers only but also cleaners in the schools and the community.➤ Clean School program is an activity that must be done in the school in Honiara so that schools can have a clean environment where students love to learn.➤ This program is very important and useful to continue conduct such a workshop like this, because it can help individual, schools, communities as well as our city to live in and a healthy environment for the betterment of our country.
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	<ul style="list-style-type: none">➤ Concerning the Clean School Program, I totally agree with it. It is very ideal and if well organized and implemented, it will make all schools beautiful and a nice place to learn. It is a must for the SIG to support this clean school program so it can be extended to the provinces as well as the rural communities to match up with the Solomon term the “happy isles”➤ This clean school program is an excellent program .It helps our school students and teachers to learn how to segregate waste based on 3Rs.➤ I think in order for it to be successful programme on monitoring by authorities plus awareness and capacity building must be done. In what ways can Fiji (Nadi) can JICA assist in the above.
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Attachment B-3 Collection Point and Waste Segregation Pilot Project in Panatina Valley Community (Honiara)

The Collection Point and Waste Segregation Pilot Project in Panatina Valley Community was launched in February 23rd, 2014. Before the launching program, the Counterparts elaborated a questionnaire form with support of JET, and implemented a baseline survey using the form shown below. Also, the Counterparts prepared a poster to put at each household kitchen, and leaflets as awareness materials.



Figure 16 Newspaper article on the Launching Program (Source: Solomon Star, February 25th, 2014)



Figure 17 Newspaper article on the Launching Program (Source: Island Sun, February 26th, 2014)

Draft: Pasmatina Valley community household survey

House number: _____

Occupants

Name of father _____ Occupation _____
 Name of mother _____ Occupation _____
 Telephone: Home _____ Work _____

Names of children	Age	Class
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Other Wantoks residing with you

Name(s) 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

Do you own the house? Yes _____ No _____
 Are you a caretaker? Yes _____ No _____
 Are you renting the house? Yes _____ No _____
 If renting, who owns the house?
 Name: _____ Phone: _____
 Address: _____

Dog

How many pet dog(s) do you have? _____
 If you have, did you buy licence for your pet dog(s) at HCC? Yes _____ No _____
 Are stray dogs a concern to you? Yes _____ No _____
 Do you want stray dogs trapped? Yes _____ No _____

Waste management

Do you have a rubbish bin? Yes _____ No _____
 If yes, how many waste bins do you have? 1 _____ 2 _____ 3 _____
 How do you rate the present collection system? Fair _____ satisfactory _____ Not satisfactory _____

Figure 18 Baseline survey questionnaire (1/2)

What do you recommend to improve the current waste collection system?

Do you know the 3R concept? Yes No

If yes, do you practice waste segregation at your house?

Do you practice composting? Yes No

What do you expect from the partnership project?

Figure 19 Baseline survey questionnaire (2/2)

How to make Compost

Step 1 Decide a site in your backyard and dig a hole or use an empty drum

Step 2 Spread crushed rotten coconut husk or dead leaves in the hole

Step 3 Put organic in the hole/drum

Step 4 Turn the mixture once every day

Step 5 Cover compost with Plastic sheet to keep moisture and to avoid rain

If you want to get more details, please contact us, 28294

Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries
 Environmental Health Division / Honiara City Council Contact: 28294
 NHBG Division / Ministry of Forestry Contact: 23029

Good for compost	Not good for compost
* Kitchen refuse e.g) banana peels, egg shells, coconut gratings	* Plastic bottle
* Manure e.g) Kokorako, Bats, and any other vegetarian animal.	* Empty bottle
* Grass clippings	* Noodle package
* Leaves	* Empty tin of Taiyo
	* Takeaway food box
	* Dog droppings
	* Fish or chicken born

If you want to get more details, please contact us, 28294/23029

Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries
 Environmental Health Division / Honiara City Council
 NHBG Division / Ministry of Forestry

SEPAETIM RABIS

COMPOSTING

REUSE & RECYCLE

DUMPSITE

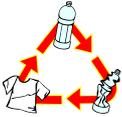
Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries

Figure 20 Posters at household kitchen as awareness Materials

Consistency in Waste collection by Contractor for the community with community understands more their Waste Collection Schedule.



Collection of only RABIS WEA HEM NO SAVE ROTEN & allowing Ologeta wea save Roten to be reuse back to the soil. (Segregation of Rubbish)



3R's is valued as so important

Improve the Waste collection Schedule for Non Organic waste through household waste segregation

Better understanding of simple way of utilizing kitchen waste back to the soil.



GOAL
Better understandim Waste collection schedule by the Residence where by only inorganic waste are collected and allowing organic to be reuse back to the soil through household waste segregation – Separate rubbish lo Source

Use Compost



Throw Rubbish no save roten inside in the bin.



PANATINA VALLEY
COMMUNITY ACTION
PLAN

Community task working committee set up

Review of existing waste collection system of the Panatina community.

Identify the feasible options for Collection method either collection station or individual bins

Information's on waste collection schedule available to the Residence

Workshop with community on demonstration on segregation of waste

Installation of notice board in parts of the community

Media coverage Targeting Children as well

Rubbish Separation

- Organic Waste Compost
- Recycle Aluminum & Valuable Metals
- Reuse Soft drink Bottles
- Empty tins, flattened and disposal at Landfill
- Dispose inorganic wastes & plastic materials

We need your "idea"!!

What can I do to help?

How do I decrease rubbish?

What to do with other wastes?

- ✓ Flatten empty tins such as "taiyo" and store in container for collection & disposal at dump site.
- ✓ Waste Collection schedule of household waste" will be implemented by the Waste contractors and contractor is well informed.
- ✓ Generating action workshop for the Community Waste Collection Schedule
- ✓ Provide to the residence, Simple demonstration to learn how to separate organic and non Organic waste at household level.



Figure 21 Leaflet as awareness Materials

Attachment B-4 Letter of Transfer for Land Title in Ranadi Dumpsite

The letter to transfer of land title in Randi dumpsite to Honiara City Council was issued by the Commissioner of the Land.

SOLMON ISLANDS
The Land and Titles Act
(Cap. 93)

LANDS RT Form 1

FARMS NUMBER
122-1-200
122-1-201
122-1-202

GRANT OF A FIRST TERM ESTATE

Please read the notes on back page before you write on this Form

Grantor: The Commissioner of Lands.

Full name, address and occupation of Grantor: *Commissioner of Lands, Honiara*

1. The Grantor has received from the Grantee the sum of \$100,000.00 being the purchase price for this Grant and the sum of \$25,000.00 being the first payment of rent.

2. The Grantor GRANTS to the Grantee an estate in parcel 122-1-200, 122-1-201 & 122-1-202 for the period of 25 years from the date of this Grant.

3. The Grantee shall pay to the Grantor the yearly sum of \$10,000.00. The rent is to be paid on 1st January each year without demand and can be changed according to section 175(3) of the Act.

4. The Grantee is bound by the notices written in the 1st Schedule and by the provisions of the Act except where those provisions are changed in the 2nd Schedule.

5. The Grant includes the rights and easements written in the 3rd Schedule.

6. The Grantee holds the interest as (either) joint owners (or) tenants in common in the following shares:

7. The annual rental value of this estate is estimated as \$10,000.00.

Cross out 6 if Grantee is an individual, a company or a registered cooperative. Other Grantees read Note 2.

Cross this out unless the rent is to be paid.

Amount in words and numbers.

LANDS RT Form 2 Page 1 (General)

1ST SCHEDULE

- The Grantee shall not subdivide these in part with possession of or allow any sub-lease of this estate or any piece of it or transfer or charge the estate without the written consent of the Grantor.
- The Grantee shall not do or allow to be done on the land anything which may be or become a nuisance or annoyance to or interfere with the peace and comfort of the owners or occupiers of neighbouring land.
- The Grantee shall not save or interfere with or allow to be saved or interfered with any electricity, telephone or water pole, line, pipe or other installation over, under or on the land unless he gets the written consent of the Grantor. The Grantee shall allow his duly authorized person access to inspect, repair, renew or replace such poles, lines pipes or other installations.
- The land shall be used for rubbish dump site to serve the area within the boundaries of the land and for any other purpose which the Commissioner of Lands may allow in writing. The land shall not be used for any other purpose without the written consent of the Commissioner of Lands.
- The Grantee shall keep all buildings now on the land, any addition to them and any new buildings and all walls, fences, drains and other structures and works on the land in good repair to the satisfaction of the Grantor.
- The Grantee shall on receiving written notice from the Grantor of his own expense provide such drainage and sewerage connections from the buildings on the land within such reasonable time as may be specified by the Grantor.
- The Grantee shall be responsible for all rates taxes duties or other payments imposed on the land or any building on it or upon the owner or occupier of such land or buildings.
- The Grantor has the right, on giving one month's notice in writing to the Grantee, to take back such parts of the land as may be needed for roads or other public purposes. On getting such written notice the Grantee shall do all things necessary to allow the Grantor to take back such parts of the land. If any of such land taken back by the Grantor is developed the Grantee shall pay the Grantee compensation for any such land taken back by the Grantor. The Grantor shall not pay compensation if any such land taken back by the Grantor is not developed.

LANDS RT Form 2 - Page 3

2ND SCHEDULE

Parcel	Share	Particulars	Percentage	Annual Rental Value
122-1-200	1/3		33 1/3%	\$3,333.33
122-1-201	1/3		33 1/3%	\$3,333.33
122-1-202	1/3		33 1/3%	\$3,333.33

3RD SCHEDULE

Dated at _____ this _____ day of _____ 20__.

SIGNED by the Grantor }
in the presence of }

(Signature of Witness)
Name and address of witness:

LANDS RT Form 2 Page 4

Decided by the Grantor }
in the presence of }
Signature of witness: _____
Name & address of witness: _____

Full name, Place and date. I CERTIFY that _____ appeared before me at _____ on the _____ of _____ 20__ and I am satisfied about his/her/their identity as/they being identified to me by _____ (or) being well known to me and that he/she/they freely and voluntarily signed and appeared fully to understand this instrument.

Stamp of office or title Signature of Authorized Officer.

NOTES

- ALTERATION.** Do not rub anything out or write over any words. If you wish a mistake or want to change anything draw one line through it (so you can still read it) and write or type clearly above it the new words. Then everybody who signs the Grant must sign again at the side near the new words.
- JOINT OWNERS OR OWNERS IN COMMON.** Where the Grantee is two or more people they must decide if they want to be joint owners or owners in common. Owners in common have a definite share each. Joint owners do not have a certain share each and if one dies the others take his interest. All trustees are joint owners. Cross out the words you do not need in paragraph 6 on page one. Owners in common must write clearly the share each is to have - e.g. "equal shares" or "two-third share to (name) and one-third share to (name)".
- SIGNATURE BY COMPANIES.** Cross out "Signed by the Grantee" and "Signature of Witness" and put in their place the usual words for a company. No verification certificate is needed for a company.
- AUTHORIZED OFFICERS.** Include all Magistrates, Lands Officers and JPs. The full list is at page 3780 and 3781 in Vol. VI of the Law.

Registered at the Land Registry at _____ km. this _____ of _____ 20__.

Registrar of Titles

Figure 22 Letter of Transfer for Land Title in Ranadi Dumpsite

Attachment B-5 Pubic Environment Report- EIA Study for Ranadi Dumpsite Rehabilitation

On February 3rd, 2014, the development of consent in the areas of Ranadi dumpsite was issued by Environment and Conservation Division, Ministry of Environment, Climate Change and Disaster Management, which includes the approval of Public Environment Report- EIA Study for Randi Dumpsite.

Form 5

**SECTIONS 22(3)(a) and 24(3)(a)
DEVELOPMENT CONSENT**

Pursuant to an application for development dated 29th OCTOBER, 2013, this DEVELOPMENT CONSENT is issued to HONIARA CITY COUNCIL to undertake the approved prescribed development in terms of section 22 of the Environment Act.

The approved prescribed development is WASTE DUMP REHABILITATION and is located at RANADI, in Choiseul Province (Honiara City).

The following conditions shall **APPLY** in addition to the conditions prescribed in these Regulations and in the Act:

1. This Development Consent is valid until such time as the abovementioned approved prescribed development is completed.
2. The holder of this Development Consent shall not undertake or cause to be undertaken any other development other than that.
3. This Development Consent is non-transferable.
4. The holder of this Development Consent, its agent, servants or officers shall permit the Director or Inspectors unhindered entry to any premises or location in which the prescribed development is situated and shall provide any assistance as the Director or Inspector may require.
5. The Director may at any time, vary or remove any conditions or restriction to this consent by notice in writing served on the holder of this consent.
6. The development proponent shall pay the prescribed consent fee on being granted the development consent.
7. The holder shall conduct the approved operations under the development consent only within the area of land specified herein.
8. The holder shall conduct the approved operations under the consent in a manner that complies with the conditions of this consent, the Environmental Management Plan, the Act and subsidiary legislation made under the Act.

Issued at HONIARA this 3rd day of FEBRUARY 2014

Seal 

Joe Horokou
Director
Environment and Conservation Division

Figure 23 Consent of development for Ranadi dumpsite rehabilitation

Attachment B-6 Advertisement of Landfill Supervisor (Honiara)

As a part of landfill rehabilitation and operation improvement, a landfill supervisor was advertised, who is planned to be assigned under the Public Works Division, Honiara City Council. The advertisement of landfill supervisor was issued in February 18th, 2014.



Figure 24 Advertisement of landfill supervisor

(Source: Solomon Star, February 18th, 2014)

Attachment B-7 Advertisement of Landfill Supervisor

The scrap metal cleanup trial at Ranadi dumpsite was implemented in December, 2013 – January, 2014. The contract paper is shown in the Figure below:

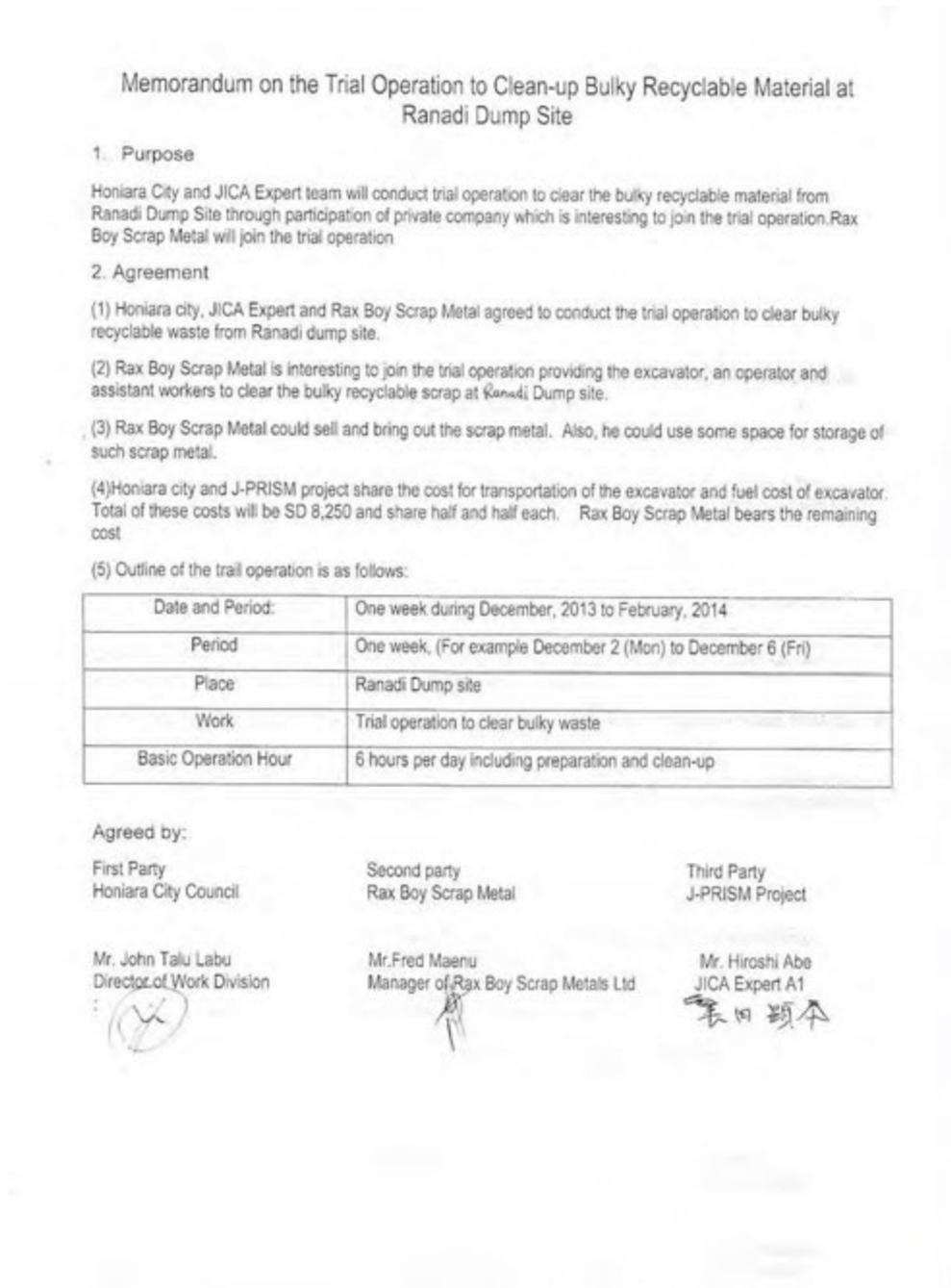


Figure 25 Contract of scrap metal cleanup trial at Ranadi dumpsite

Attachment B-8 Drawing of Site Office at Ranadi Dumpsite

The Counterparts prepared the drawing of site office at Ranadi dumpsite. The Counterparts also prepared the application of Grass Root Grant by Japanese Embassy for funding of the site office, with the support of JET. The drawings are shown below:

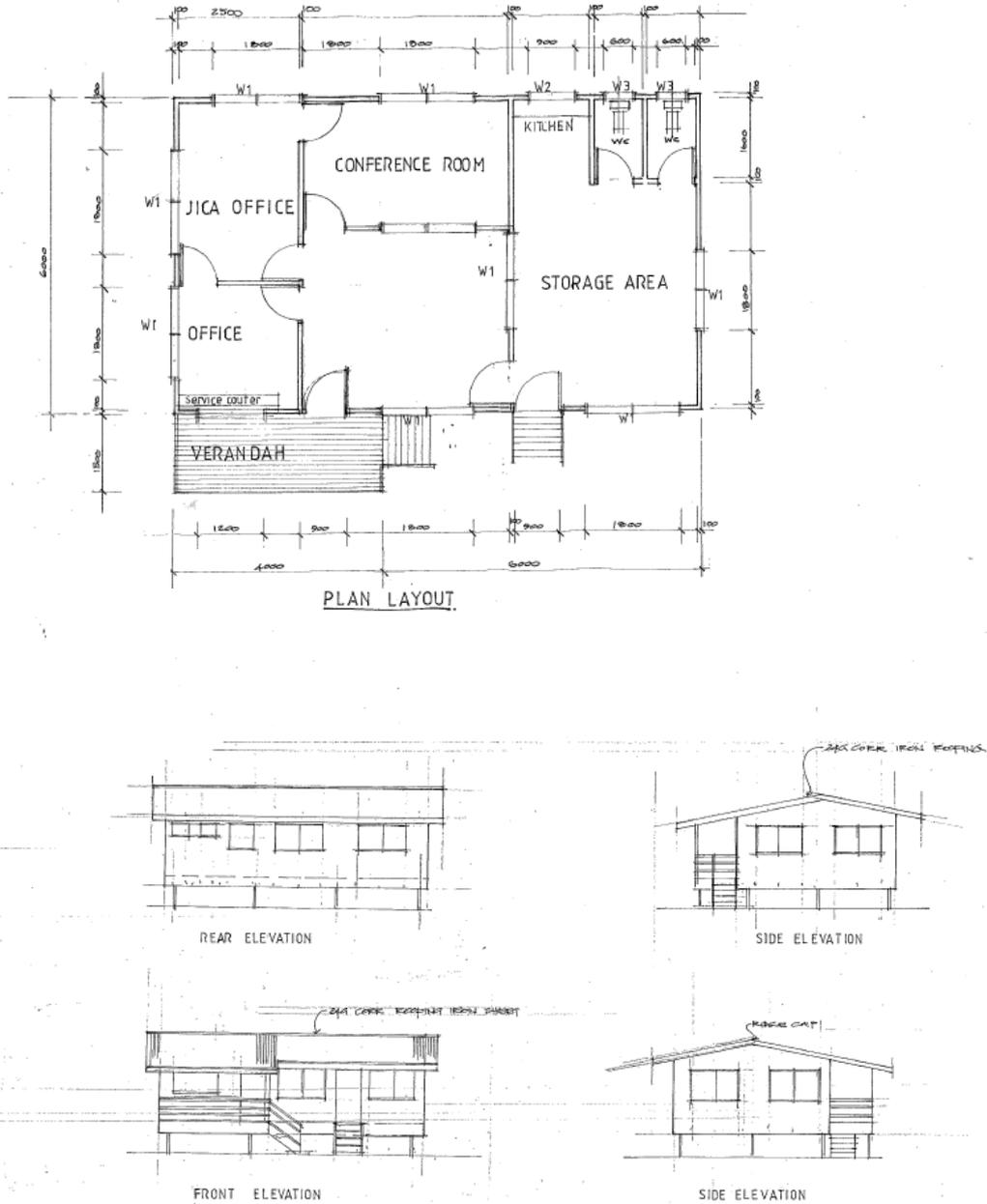


Figure 26 Drawing of Site Office at Ranadi Dumpsite (1/2)

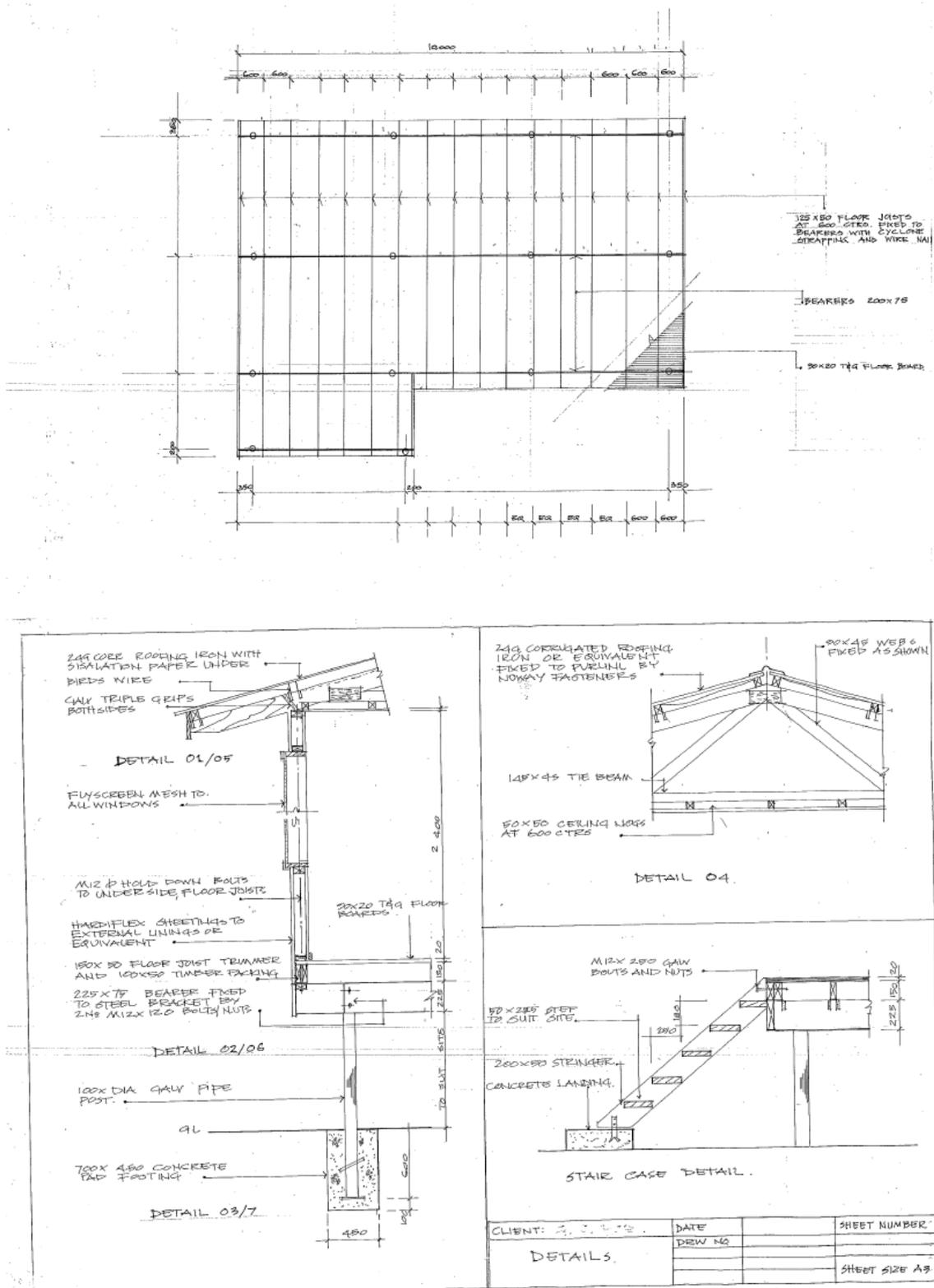


Figure 27 Drawing of Site Office at Ranadi Dumpsite (2/2)

Attachment B-9 Ranadi Operation Plan

The discussion on an operation plan at Ranadi dumpsite was done among Counterparts with the technical support of JET. The operation plan was shown as follows:

Ranadi Dump Site



What is the Progress now?

1. Operation No improvement
2. Rehabilitation Demonstration Failed
3. What was changed
 - a. Operation road added but:
 - b. Boom Gate constructed:
4. Operation No Improvement,
 No change and
 No Plan

stacked car **Dumping** Prepared dumping area



New car come, and cannot
enter then start dumping at
the road

Location of Dumping Area and Entrance Space



Staff of Landfill site

	Landfill unit	Facility & Machine	Waste picker
Samoa Taafiagata LF	Landfill manager (1), Officer (1), Weighbridge operator (1) , security (1) Contract out (2 Machine, 2 Operator & 2 Assistant)	Gate & Fence, Office , Weighbridge Leachate pond, Monitoring well	About 20 Under control
Vanuatu Bouffa LF	Landfill manager (1), Weighbridge operator (1) , security (1) Machine Operator (2), Assistant worker (2)	Gate & Fence, Office Leachate pond Excavator, Bulldozer	about 20 Under control
Fiji Vunato LF	Landfill manager (1), Officer (1) Weighbridge operator (1) Machine Operator (2), Assistant worker (2)	Fence & gate, Office, Weighbridge Compost yard Excavator, Bulldozer	About 30 Under control

Rotation of dumping area

(Sunday will be closed)

	9:00 – 10:00 13:00 - 14:00	10:00 – 11:00 14:00 – 15:00	11:00 – 12:00 15:00 – 16:00
Truck dumping	Area 1	Area 2	Area 3
Dozer (Equipment)	Area 3 Clearing & Preparation	Area 1 Clearing & Preparation	Area 2 Clearing & Preparation
Truck Inspector Equipment Assistant	Area 1 Area 3	Area 2 Area 1	Area 3 Area 2
Waste Picker	Area 1	Area 2	Area 3

Work to improve Operation

1. Equipment Rental for general earth work
Bulldozer(or Wheel loader) and Excavator
2. Road improvement
Gravel pavement 100 m
3. Boom Gate Two entrance (Installed)
4. Control Office 6 m x 10 m (or 4m x 10m)

Site Office

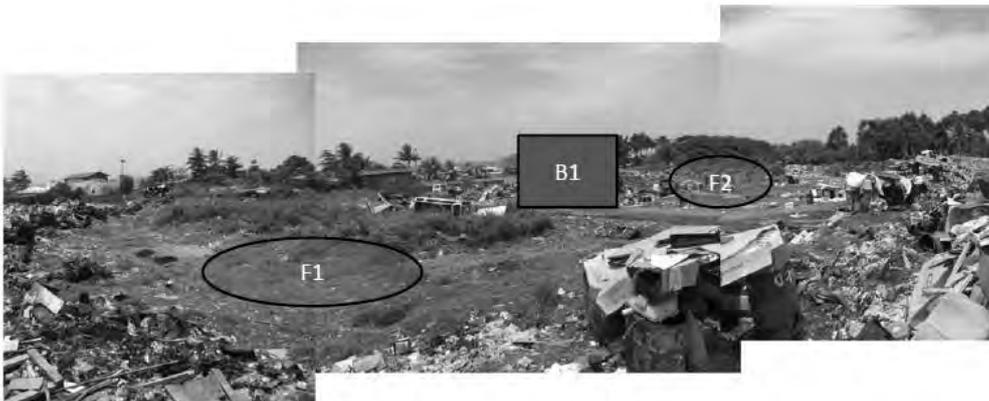


Base Concept



Alternative concept

Entrance side space



B1: Site office

Ranadi Landfill Site
(Center of the site)



Trial Operation for 1 week
Scrap metal cleaning by Private company
Example, F1 area

Estimated Cost
(1) Fuel 100 l/day x 5day x
\$ 12.5 = \$ 6,250
(2) Transportation
2 times x \$ 1,000 = \$ 2,000
Total \$ 8,250



Attachment B-10 Eco School Program Workshop Report (Gizo)

Eco School workshop was held in Gizo on October 18th, 2013. The Counterparts elaborated a report.

Table 38 Workshop program

Time	Contents	Person in Charge
9:00	Arrival of Participants	All
9:00-9:10	Welcome and Opening Prayer	Derald Michael
9:10-9:20	Short Remarks	Mr.Akihiro Osada
9:20-9:30	Key-note Address	Senior Education Officer, Freedom Tozaka
9:30-9:45	Group Photo	All
10:10-10:15	Short Remarks	Chief Environment Officer, Rosemary Apa
10:15-10:20	Introduction of Participants	All
10:20-10:22	Explain about purpose of this workshop	Dobson Aseri
10:22-10:34	Presentation: What is the waste management including health issues around us	Kouhei Yamato
10:35-10:55	Presentation: Eco-School Program in Fiji	Honiara Team-Wendy Beti
10:55-11:15	Q& A	Margaret/Dobson
10:15-11:30	Presentation of Action Plan Template	Margaret/Dobson
11:30-11:40	Morning Tea Break	
11:40	Activity: Group Action Plan	Margaret/Dobson/Kouhei
	Presentation of Action Plan	All groups
	Way Forward	Margaret
	Presentation of Certificates	Fred/Rosemary/Margaret
13:50-14:00pm	Closing Remarks	Fred Naphtalai
14:00pm	Lunch	All

Table 39 Comments from workshop participants

Question	Answer
Q. Did the Presentations provide useful information?	5 (very much): 10 (100%) 4 : 0 (0.0%) 3 : 0 (0.0%) 2 : 0 (0.0%) 1 (not at all) : 0 (0.0%)
Q. Were the presenters clear in disseminating the information as per workshop?	5 (very much): 10 (100%) 4 : 0 (0.0%) 3 : 0 (0.0%) 2 : 0 (0.0%) 1 (not at all) : 0 (0.0%)
Q. Do you understand the aim and outline of the Eco-School Program/Clean School Program in Fiji?	5(very much): 9 (90%) 4 : 1 (10%) 3 : 0(0.0%) 2 : 0 (0.0%) 1 :0 (0.0%)
Q. Do you want to start/cooperate the practices at school?	5(very much): 10 (100 %) 4 : 0 (0.0%) 3 : 0(0.0%) 2 : 0 (0.0%) 1 :0 (0.0%)
Q. What are the lessons learnt from the workshop?	<ul style="list-style-type: none"> ✚ Aims and objectives of Eco-School Program , how to set up an Action Plan for my school's Eco-School Program, Benefits of Eco-school program, eco-school program is not expensive ✚ I learn how to manage waste in terms of how to dispose rubbish and the use of the 3Rs ✚ I learned that this Eco-School Program taught and remind me how to be a responsible person for a single rubbish lying around the place and also to have a good attitude for waste rubbish ✚ This workshop gives me a lot of ideas on how rubbish should be disposed and also the importance of healthy environment ✚ I learned a lot on how to make my school environment the best place of learning for children ✚ I've learn how to tackle solid waste management to help control the disposal of rubbish everywhere in the country. How we can reduce, reuse and recycle waste for use to our own environmental benefits for healthy living without any costs ✚ I learned that this eco-school program needs little money to implement with the ideas of 3Rs and learned that the school should start very little ✚ I learnt a lot about clean school programme and we mustn't rely on much money budget because the Eco-School Programme encourages us teachers to use the wastes. 3Rs is important so that student can understand use of wastes. ✚ I learn a lot in this workshop how to have a healthy environment for student and teacher and how to prevent the problem of rubbish management in school or community. Learned the separation of rubbish we produce daily. ✚ This workshop really point out the real management of

	<p>waste. It also gives us the different types of waste and how to manage it for e.g. by 3Rs.</p>
<p>Q. Any other comments on the workshop?</p>	<ul style="list-style-type: none"> ✚ Eco-School Program gives us how to manage and look after the school environment so that we can have a very healthy environment and friendly school. ✚ Eco-School program is the program that can solve the cleanliness of our country Solomon. So we must start now so that in 5 years' time, we see the outcome of it. Team of this program must go to each school to educate teacher or student together. ✚ It really help us a lot with the student if we implement in our schools ✚ Eco-School Program is a very good idea if we can assist each other to implement it in our school. It will not be easy but we will try our very best if we love our Children and the world we live in ✚ Eco-School Program is a very important program for Solomon Islands Citizens. It helps us to look after our own school and its surroundings to live in a clean and healthy environment for the betterment of our future development of Solomon Islands. ✚ Eco-School Program really showed a healthy environment learning for children, teachers and community as a whole ✚ Eco-School Program must continue on with the program in order to educate teachers and students , parents and communities in order for the betterment of our country (Solomon Islands) ✚ Excellent ✚ The eco-school program is a very important program which needs to be implemented in our schools and Gizo town as a whole ✚ A very useful programme, not only for a clean school environment but also it creates an opportunity for children to learn about composts and the different types of waste materials. In other worlds, children put into practice what they learn in agriculture and science theories.

Attachment B-11 Results of Zoning Survey for Waste Collection (Gizo)

Counterparts implemented zoning survey for waste collection with the support of JOCV and JET.

The results are shown as follows:

Table 40 Results of Zoning Survey for Waste Collection

Gizo Town :

Zone	Number of households	Population
1: Jah Mountain	52	320
2: District - Water Pump	57	312
3: Banana valley - Western End of District	85	479
4: Gizo Top Hill	111	699
5: TC – Malakerava 2	96	503
6: Malakerava 1 – BP area	145	835
Total	546	3148

Zone 1

District	Number of households	Population
1: Paradise Ridge	13	92
2: Paradise Valley	2	13
3: Wing Sun Area	7	45
4: Far West Jah	12	74
5: Lower North Jah	18	96
Total	52	320

Zone 2

District	Number of households	Population
1: Central District	16	91
2: Upper District	12	75
3: Western District	16	88
4: Water Pump	13	58
Total	57	312

Zone 3

District	Number of households	Population
1: Lower West of Gizo Top Hill	13	65
2: Banana Valley	66	377
3: Western End of Jah		
4: Eastern End of District	6	37
Total	85	479

Zone 4

District	Number of households	Population
1: Central Top Hill	14	80
2: Northern Top Hill	41	266
3: Upper East of Top Hill	32	203
4: Upper South of Top Hill	16	91
5: Upper West of Top Hill	8	59
Total	111	699

Zone 5

District	Number of households	Population
1: Lower TC	24	146
2: Upper TC	39	188
3: Medical Quarters	18	88
4: Lower South of Top Hill	11	59
5: Lower East of Top Hill	4	22
Total	96	503

Zone 6

District	Number of households	Population
1: Premier's Ridge to Naqua	21	109
2: Malakerava - 1	10	44
3: Hospital Quarters	12	58
4: Police Quarters	7	39
5: GPS staff Quarters	15	84
6: J.F. Kennedy Residence	6	32
7: GCHS staff Quarters	13	71
8: SIEA Quarters	4	22
9: China Town	22	120
10: Recona	6	59
11: SSEC, Anglican, CFC area Residence	12	84
12: Industrial Areas of Gizo	17	113
Total	145	835

Attachment B-12 3R Stickers (Gizo)

Counterparts elaborated 3R stickers for vehicles as awareness materials, with the advice of JOCV and JET. 3R stickers were distributed and attached to vehicles in Gizo. The design is shown below:



Figure 28 Design of 3R Stickers for Vehicles

C Vanuatu

Attachment C-1 Market Waste Audit Results Explanation to Councilors

Attachment C-2 Photographs of Compost Bins installed at Luganville Market

Attachment C-3 Waste Minimization Policy Workshop Proceedings

Attachment C-4 Data Collection at Bouffa Landfill

Attachment C-5 Report on PVMC Counterpart Visit to Luganville

Attachment C-6 Proceedings of the 3rd JCC Meeting

Attachment C-1 Market Waste Audit Results Explanation to Councilors

A-1-1 Background

On Sept. 6th, 2013 the Counterparts organized a presentation meeting with the following two objectives:

- Inform all Counterpart members as well as stakeholders on the progress of JFY 2012 J-PRISM Project activities in Vanuatu.
- Discuss and endorse the J-PRISM Plan of Pilot Project for Market organic Waste for Composting from October 2013.

A-1-2 Participants

A list of the participants invited is shown below:

No.	Name	Organisation
1	Andrew MARK	PVMC
2	Tom JACK	PVMC
3	Goerge W.SIRI	PVMC
4	Mersy JOHN	MoH, Environmental Health
5	Nelly HAM	MoH, Principal E H Officer
6	David MALAKAY	MoH, Environmental Health
7	Paul. H. AVOCK ©	PVMC
8	Zachariah CARLY ©	PVMC
9	Reuben Rex AROMALOV	PVMC Market Manager
10	Harry NAKO	PVMC - ©
11	Brian ROBERT	Wan Smol Bag
12	Grea DILL-DASCDI	Wan Smol Bag
13	Jenny TASALE	PVMC ©
14	John SALONG	MoLENR, First PA
15	Pakoa FRED	PVMC ©
16	Sumptoh ULRICH	PVMC, Deputy Mayor
17	Willie P SARTEAROTO	PVMC ©
18	Noel LANGO	PVMC ©
19	Andrina KL THOMAS	Live & Learn Vanuatu
20	Raymond. MISSACK	Live & Learn Vanuatu
21	Mandes K TANGARAS	PVMC
22	Glenda SHING	Daily Post
23	Marie-Noelle KALTAK	VBTC
24	Charlie NAMANKA	DSPPAC, PMO
25	Albert WILLIAMS	DECP
26	Reuben OLUL	PVMC, Lord Mayor
27	Conellia Willie	Rainbow Garden
28	Roger Tary	PVMC
29	Amos Mathias	PVMC
30	Utako Jinno	PVMC
31	Carol Rovo	DECP
32	Yoko Asano	JICA Vanuatu Office
33	Antonny TARI	Finance, Finance Manager
34	Rosalie YAUIKO	Finance, Principa Accountant
35	Ian Kalsuak	SHEFA Province Areacouncil Dev off
36	Malian ANDREW	SHEFA Province Areacouncil Dev off

A-1-3 Presentations

The Counterparts made two presentations;

- (1) Presentation of Survey results
- (2) Present Waste situation Analysis for PVMC

Selected slides of the presentations are attached here.

SOLID WASTE SURVEY RESULTS FOR PORT VILA MUNICIPALITY 2013



INTRODUCTION

- The National Waste Management strategy 2011 which provides the general framework of waste management in Vanuatu emphasizes the need to conduct regular waste audits to collect update waste information for appropriate actions, as well as to monitor the challenging nature of solid waste generation in Vanuatu.
- Waste management is an important element of environmental protection. Proper characterization of municipal solid waste is fundamental for the planning of municipal waste management services. This is the first comprehensive waste characterization survey for Port Vila Municipality.
- The household waste characterization was conducted in November 2011, business waste was conducted from February 28 to 05 March 2013, and the market waste survey was conducted from May 28 to 03 June 2013.
- Contractors of the surveys include four (4) DFL students from USP for household waste survey, six (6) youths from PVYC for business waste survey and four (4) youths from PVYC for the market waste survey.
- A total of 50 households, 12 businesses and 2 markets governed by PVMC were surveyed altogether.
- This report presents the findings of three studies funded by the Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries known as J-FRISM Project. The project is coordinated by the Department of Environmental Protection and Conservation and Port Vila Municipality.
- The importance of this study is to have an update waste data to provide information and basis for future waste management planning, and actions for Port Vila Municipality.

OBJECTIVES

- To determine the generation amount off household, business and market waste from source and also the composition of each of them.
- To determine the type of facilities required (recycling services, sizes of rubbish trucks for collection services, sizes of wheelie bins and other waste equipments) to improve waste services in Vanuatu
- To seek approval for a number of forward planning initiatives that should be instigated in the coming year with priority given to:
 1. Waste separation at source
 2. Establish collection system for recyclables and non-recyclables
 3. Organic composting for household and market organic wastes

STUDY AREA

SURVEY TYPE	No. Surveyed	AREAS TARGETED	COMMENT
HOUSEHOLD	50	<i>High</i> – Tasiriki, Nambatu and Ellouk <i>Middle</i> – Sokapo, Anaburu and Fresh Wota II <i>Low</i> – Tagabe, Sea-side and Fresh Water I	Fifteen houses, five from each suburb were randomly selected to participate for both medium and high socio economic areas. Twenty houses, five from each first two suburb and ten from the last suburb area were randomly selected to participate.
BUSINESS	12	<i>Hotels and Restaurant</i> – Sunset Bungalow, Cheng Tims, Chez Nelly, Anaburu Lodge and Hibiscus Motel <i>Wholesale and Retail Shops</i> – Au Bon Marche Down Town, Chew Store, Drug Store and Malekula-Vila East Store <i>Commercial Offices and Institutions</i> – Air Vanuatu, ANZ Bank and Environment/Energy Department	
MARKET	2	Central Market and Fresh Water Market	

METHODOLOGY

- All three surveys were carried out in accordance with the standard procedures set under the WHO Solid Waste Generation and Characterization Guideline.
 - Families involved during the household survey were randomly selected along the Port Vila Municipality's solid waste collection routes. Trash bags were labeled and given to the selected families to store their generated rubbish and these bags were collected, assessed and analyzed on a daily basis for seven consecutive days.
 - The business waste survey was also done similarly to the household survey for seven consecutive days.
-
- For the questionnaire survey, survey sheets had been distributed to businesses before the collection of waste started. When the plastic bags were distributed during the preparation period of waste characterization study, survey sheets for the questionnaire were also handed to all target households and businesses.
 - Surveyor explained contents of questionnaire and requested households, owners or managers of target households and businesses to fill in their answers to the questionnaire. The survey sheets were retrieved from target businesses on the final day for the household and business waste characterization study. The market waste questionnaire were done every second day by surveyors.

RESULTS

• DAILY GENERATION RATES

TYPE	CATEGORY	TOTAL DAILY GENERATION RATE	MEAN DAILY GENERATION RATE [kg]
		(kg/person/day)	
Household	Low	0.39	0.43
	Middle	0.35	
	High	0.62	
		(kg/business/day)	
Business	Hotels and Restaurants	13.9	13.73
	Wholesales and Retails	17.1	
	Commercial Offices and Institutions	10.2	
		(kg/market/day)	
Market	Central	11,075	5,795
	Fresh Water	515	

COMPOSITION OF GENERATED WASTES

TYPE	WASTE CATEGORY	COMPOSITION			AVERAGE COMPOSITION
		LOW	MEDIUM	HIGH	
HOUSEHOLD	Vegetable/Putrescible	58.64	56.45	69.41	61.5
	Miscellaneous (Diapers/sanitary pads etc)	4.75	13.65	9.65	9.35
	Glass Ceramic	15.72	4.78	2.95	7.82
	Paper	8.15	7.22	3.04	6.14
	Plastics	4.2	6.83	4.76	5.26
	Metals	3.11	4.19	3.96	3.75
	PET Bottles	2.4	2.79	2.64	2.61
	Textiles	0.88	1.4	2.04	1.44
	Bones	1.22	1.79	0.82	1.28
	Aluminum cans	0.92	0.9	0.72	0.85
	TOTAL	100	100		100

TYPE	WASTE CATEGORY	PERCENTAGE COMPOSITION (%)		
		Hotels and restaurants	Whole sale/Retail Shops	Commercial Offices/Institutions
BUSINESS	Papers	7.82	5.95	36.58
	Grass/leaves/wood	21.86	4.81	2.59
	Food	47.88	17.80	25.65
	Cardboards	4.88	50.75	6.52
	Other combustible waste	0.59	0.67	0.53
	Textiles	0.23	0.29	1.34
	Hard plastic	1.65	2.16	4.60
	Soft Plastic	9.56	10.10	7.48
	Leather/rubbers	0.16	1.37	0.67
	Aluminum cans	1.08	0.81	1.20
	Ferrous metals	1.04	0.75	2.92
	Non-ferrous metals	0.08	0.00	0.00
	Glass/ceramics	3.17	0.77	1.49
	Electronic waste	0.08	1.75	4.22
	Perilous (hazardous) wastes	0.18	0.59	0.67
	Assorted	0.24	1.43	3.55
	<i>Total</i>		<i>100</i>	<i>100</i>

MARKET COMPOSITION

WASTE CATEGORY	PERCENTAGE COMPOSITION		
	CENTRAL MARKET	FRESH WATER MARKET	AVERAGE
Grass/leaves/wood	41.6	66.23	53.92
Fruits	19.49	16.40	17.95
Coconut husks	37.79	14.58	26.19
Papers (news paper, magazine)	0.06	0.17	0.12
Food (cooked)	0.25	0.53	0.39
Cardboards	0.27	0.61	0.44
Other combustible waste (nappies, cottons etc)	0.22	0.12	0.17
Textiles	0	0.07	0.04
Hard plastic (PET bottles, other plastics)	0.04	0.05	0.05
Soft plastic (film plastics, polystyrene, etc)	0.16	1.14	0.15
Aluminum cans	0.03	0.02	0.03
Ferrous metals (steels, irons)	0.07	0.07	0.07
Total	100	100	100

AWARENESS

TOPIC	PROPORTION OF RESPONSES					
	HOUSEHOLD		BUSINESS		MARKET	
	A	NA	A	NA	A	NA
3 Rs (Reduce, Reuse, Recycle)	5	95	15	60	8	92
Composting	10	90	30	45	5	95
Waste separation at source	0	100	20	80	5	95
Collection schedule	15	85	55	20	40	55

Key: A – Aware and NA – Not aware



THANK YOU!



SOLID WASTE MANAGEMENT IN PORT VILA TOWN



PRESENTED BY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND CONSERVATION

INTRODUCTION

- Waste is defined as any unwanted material intentionally thrown away for disposal. However, certain wastes may eventually become resources valuable to others once they are removed from the waste stream. Waste products arise from our ways of life and they are generated at every stage of process of production and development. The knowledge of the sources and types of waste in an area is required in order to design and operate appropriate solid waste management systems.
- The National Waste Management Strategy 2011 – 2015 provides the framework for waste management in Vanuatu. It emphasizes the need to conduct regular waste audits to collection and update waste information for appropriate actions, as well as to monitor the challenging nature of solid waste generation in Vanuatu
- Vanuatu Government is fortunate to have assistance from the government of Japan through the Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries (J-PRISM). J-PRISM project in Vanuatu is targeted to only three municipalities; Port Vila, Luganville and Lenakel. 2013 is the third year for J-PRISM project in Vanuatu.

RATIONAL

- There has been some concerns over the availability of information on the quantity and composition of the solid waste streams generated in Port Vila town. This has contributed to the failure of the municipality to put in place appropriate actions to address and manage associated problems. The quantity and composition of the waste streams allows for the government to identify problems within the existing waste management problems and determine waste reduction tools and initiatives for feasible recovery and recycling systems.

CURRENT SITUATION

TOTAL GOVERNED BY PORT VILA MUNICIPALITY		TOTAL SURVEYED
POPULATION	44,039	640
HOUSEHOLDS	9,097	50
BUSINESS		12
MARKET	2	2

COLLECTION FLEET

MODEL	TYPE	REGISTRATION NUMBER	TONNAGE
Toyota Dyna	Compactor	4VE241	4.5
Kia	Open dump truck	12801	2
Kia	Open dump truck	12802	2
Kia	Open dump truck	13104	2
Kia	Open dump truck	12862	2
Hyundai HD 120	Compactor	1VE 035	7
Hyundai HD 120	Compactor	1VE 036	7

SOME COMMON ISSUES ON PORT VILAS WASTE MANAGEMENT

- **COLLECTION**- *PVMC already has a collection system in place. There is need to revise and update current schedule.*
- **AWARENESS AND EDUCATION** – *There is urgent need to implement Awareness and education for 3Rs (Reduce, Reuse, Recycle) by PVMC.*
- **FEE**- *Need to consider current waste management fee to ensure waste management for Port Vila town is improved.*
- **BY-LAWS** – *A number of by-laws has been gazetted relating to the municipality’s waste management activities. These include; open burning, public littering and proposed draft pre-paid bag. However, enforcement needs to be strengthened by the council to ensure people comply with these by-laws.*
- **INCENTIVES** – *PVMC may need to consider incentives to market mamas, shops during awareness for the use of plastic bags*

RECOMMENDATIONS

1. Proposed pre-paid bag system

TYPE		GARBAGE FEE/SEMESTER (VT)	
Household		7,500	
Hotels	Big	225,000	
	Small	22,500	
Banks		11,250	
Business Houses		7,500	
Yellow Bag		40L size bag	80L size bag
		80VT X 4 = 320VT/Month x 6 = 1,920VT/Semester	100VT X 4 = 400VT/Month x 6 = 2,400VT/Semester

2. Establish Pilot Project



B. Stakeholders

Stakeholder	Role in Project
1. PVMC / DEPC	<ul style="list-style-type: none"> Project plan and implementation Separate collection and transport
2. Market Authority; Central and Freswota	<ul style="list-style-type: none"> Determination of Discharge points Monitoring of waste discharge
3. Market Mamas	<ul style="list-style-type: none"> Separate green waste and discharge in correct place
4. Wan Smol Bag	<ul style="list-style-type: none"> Awareness to Market Mamas
5. Rainbow Garden	<ul style="list-style-type: none"> Receive the green waste Composting and application of compost

Attachment C-2 Photographs of Compost Bins installed at Luganville Market



Hauling in and installation of compost bins



Visit to the facility in August 2013

Attachment C-3 Waste Minimization Policy Workshop Proceedings

A-3-1 Objectives and Outcomes of the Workshop

In 2011 the National Waste Management Strategy (NWMS) was developed in Vanuatu. NWMS is up for review this year. It is the intention of DEPC to develop the Solid Waste Minimization Policy and include this in the NWMS during the review. J-PRISM supports the development of NWMS under Activity 1-3-2 of the PO.

With this background, the workshop was held with the following objectives:

1. Share a common understanding of solid waste management conditions in Vanuatu
2. Introduce the “National Waste Management Strategy”
3. Obtain feedback on the draft “National Waste Reduction/Recycling policy”

The expected outcomes of the workshop were as follows:

1. To reflect the discussions in the workshop and forthcoming workshops in the final waste reduction policy
2. Develop future workshop themes for broader series of stakeholder consultations

A-3-2 Agenda of the Workshop

The agenda of the workshop was as follows:

1	08:30 – 09:00	Registration	Melinda/ Riad
2	09:00 – 09:10	J-PRISM Welcome / Agenda confirmation	Makoto Tsukiji
3	09:10 – 10:20	(1) Welcome (2) Workshop objectives (3) Brief on National Solid Waste Management Strategy (4) Waste Minimization Policy draft	DEPC Director Malcolm Dalesa
4	10:20 – 10:30	Tea & Coffee break	
5	10:30 – 11:30	Discussion topics: 1) Public awareness on waste minimization 2) Capacity development and private sector 3) Financing and beneficiary to pay Facilitators shall be: Group A – Makoto Tsukiji Group B – Malcolm Dalesa Group C – Mahmoud Riad	Participants to be divided into three groups for group discussions on specified topics
6	11:30 – 12:00	Summation and Recommendations	DEPC Director

Lunch and Refreshments

A-3-3 Group discussions

After presentations were made explaining the workshop objectives and expected outputs, the present SWM conditions, the contents of the NWMS and the Draft Waste Minimization Policy, the participants were divided into three groups.

Each group was tasked with the addressing the three topics of; 1- Public awareness on waste minimization, 2- Capacity development and the private sector, and 3- SWM financing and Beneficiary-to-pay.

The topics were selected after studying both the NWMS and the Draft Waste Minimization Policy and identifying the key themes in both documents.

For each topic, the participants addressed questions as shown below.

1- Public Awareness on Waste Minimization
(1) What are the waste minimization messages to the public? (2) How should we raise public awareness on waste minimization? (3) Who is in the best position to implement public awareness?
2- Capacity development and the private sector
(1) What roles can the private sector play in waste minimization? (2) How can we increase the capacity of government officials on waste minimization? (3) Do we have enough government officials to do the job?
3- SWM Financing and Beneficiary to Pay
(1) What are the cost items related to solid waste management and waste minimization? (2) What is the best way to pay for the collection and landfill services? (3) How can we pay for the recycling costs?

A-3-4. Summation of the Discussions

The summary of the discussions are described below for each of the three topics.

1- Public Awareness on Waste Minimization
<ul style="list-style-type: none"> • Develop annual plan of awareness • Allocation of budget (utilize all resources effectively and efficiently) • Conduct door to door awareness visits • Awareness should run in parallel with legislation • Utilize volunteers • First define waste, then outline waste types and finally focus on the 3Rs • Media includes Radio, TV, flyers, internet, SMS, education curriculum, theater groups, music and DVDs

<ul style="list-style-type: none"> • Traditional leaders and Churches can lead in this effort • Councils should ask NGOs to support this to expand the message • All people should be responsible for PA • Littering should be included as one message • Promotion of home composting • Use of re-usable bags for shopping to minimize plastic bag use • Survey to determine sources, behaviour of generators which will guide awareness campaign • Government (DEPC) to set the framework/guidelines • Business house (product stewardship)
<p>2- Capacity development and the private sector</p>
<ul style="list-style-type: none"> • Councils are busy and private sector should do more in recycling. • Private concerns can separate waste at source • Private collection companies should be hired directly by councils and their work regulated • Private companies can also be involved in public awareness • Councils and DEPC; human resources are insufficient • Workshops for private collection companies are necessary and their registration as well • PPP - Tax free, allocation of land for recycling, storage space, etc. • Training provided in-country using local expertise from private sector, municipalities • Capacity and needs assessment to identify targeted training needs e.g. Regulatory orientated • Policy will drive government's needs for increasing capacity e.g. Budget increase • Legislation to require private sector to have staff with waste management knowledge • Private sector to work with government to develop policy for waste reduction • Develop waste management guidelines/ standards to facilitate waste audits • Consider responsibility for life cycle of product • Provide waste management infrastructure, e.g. Transport, disposal receptacles, treatment
<p>3- SWM Financing and Beneficiary to Pay</p>
<ul style="list-style-type: none"> • Waste management fees should be separated from the property tax • Political will is needed to introduce beneficiary to pay system such as pre-paid bag • Public awareness campaign before introducing the pre-paid bag system is necessary • People will be encouraged to separate wastes and separated wastes will not be put in yellow bag and will be collected separately by council. Can be revenue also • All cost of SWM is included in the bag • SWM account should be separate, and all related SWM revenues, such as tipping fees

should go into that account

- SWM revenues may include CDL system, tipping fees, spot fines, a portion of the property tax and the pre-paid bag system
- Present tipping fees are (Vt. 1,000, 2,500, 5,000, and 8,500) based on vehicle size.
- Collection; 7,500VT per semester/ 15,000VT p.a. Average residents will pay approximately VT40/day
- Issue: kava bar waste and how best to collect fees for managing their wastes
- Levy on ships/shipping agents e.g. to address kava wastes
- Volume based pre-paid system
- Landfill weighbridge fees (weight based)
- Dedicated waste management accounts (Finance)
- Levy/fee on plastic shopping bag use

A-3-5 List of Participants

No.	Name	Organization/Department/Office
1	Albert Williams	DEPC
2	Makoto Tsukiji	J-PRISM
3	Roger A Tary	PVMC
4	Amos Mathias	PVMC
5	Touasi Tiwok	DEPC
6	Trinison Tari	DEPC
7	Brian Roberts	Wan Smol Bag
8	Joe Pakoa	Trades and Industry
9	Bretain Tambe	Biosecurity
10	Flaviana Rory	Chamber of Commerce (VCCI)
11	Glen Takau	Ports and Harbour
12	Pakoa Rarua	Public Health
13	Bethuel Solomoni	Strategic Planning and Management
14	Anthony Garae	Energy
15	Jean-Christophe Enoch	Pacific Petroleum
16	Tom Nalau	Lenakel Municipality
17	Elizabeth Brown	VSA-Lenakel Municipality

No.	Name	Organization/Department/Office
18	Mark Vurobaravu	Agriculture
19	Malcolm Dalesa	Meteorological
20	Mayuka Kozawa	JOCV -DEPC
21	Jeffrey Parton	Wan Smal Bag
22	Melinda Lessa	J-PRISM PA
23	Mahmoud Riad	J-PRISM

Attachment C-4 Data Collection at Bouffa Landfill

A-4-1 Daily Operation Log

Bouffa Sanitary Landfill Daily Log									
1) Date		Day		Weather					
2) Operating hours	Start						Finish		
3) Waste arriving	Total truck loads						PVMC truck loads		
4) Staff	Present								
	Absent								
5) Heavy Equipment	Operating		Breakdown			Under repair			
6) Waste pickers	Number								
7) Location of waste placing									
8) Development works at site	Road	Embankment	Vents	Pipes	Drains				
9) Leachate amount in pond	Overflow	Full	3/4	1/2	1/4	Empty			
10) Materials required at site	Material	PVC pipe	Gravel						
	Quantity								
11) Expenditures	Purpose								
	Amount								
12) Visitors to the site									
13) Exceptional occurrences at the site									
14) Additional comments									

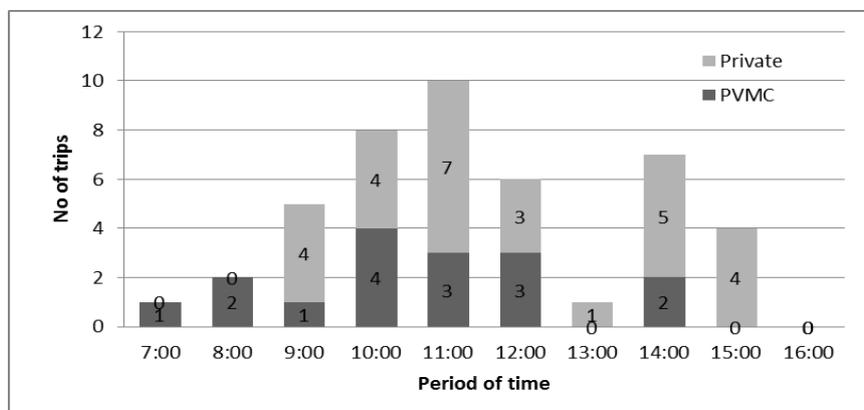
A-4-2 Waste Incoming Vehicle Survey

The sanitary landfill staff was requested to record all incoming vehicles hauling waste for two days in January (16th and 17th), using more detailed forms showing vehicle type and time of arrivals.

On average 44 truck trips arrived to the landfill, of which 16 trips were done by PVMC vehicles and the remaining 28 trips were by businesses or private waste collectors. In terms of waste haulage shares, PVMC's share was 46%, which means that there is a large dependence on private collection operators in PVMC. Peak arrivals were between 10 AM and 12 noon.

Average Number of Trips by Truck Type and Operator

Items	Compactor (2t)	Dump truck (2t)	Flatbed truck (1.5t)	Pick-up vehicle (0.5t)	Trailer (1t)	Total
No. of trips per day						
PVMC	3	0	13	0	0	16
Private	0	9	2	14	3	28
Total	3	9	15	14	3	44
Estimated amount of coming waste (ton/day)						
PVMC	6	0	20	0	0	26
Private	0	18	3	7	3	31
Total	6	18	23	7	3	57



Truck arrivals by Time

Attachment C-5 Report on PVMC Counterpart Visit to Luganville

ASSESSMENT OF LUGANVILLE LANDFILL SITE

Thursday 23 May 2013

Background

Luganville landfill site was an old existing site that had been in use ever since the birth of the Luganville Municipal Council. The landfill site was an old quarry site that had been developed during the Second World War by the American military force. Luganville Municipality was responsible for the management of the dump site.

Landfill Area

Total land area approximately 12 hectors

- Roughly 60 to 65 % of land area had been covered with solid waste.



This picture shows the current situation of the dump site.

- Due to lack of heavy equipments (Bulldozer/Excavator) from Luganville Municipality thus result to have the land being covered up by 60 to 65% of solid waste.

Present situation

The present condition/situation of the disposal site was visually identified as open dump site which indicates:

- No treatments of waste in terms of spreading/leveling and proper compaction of solid waste
- No soil cover applications
- Uncontrolled open burning
- No leachate control/collection
- No drainage
- Open to scavenging

Good management practice

Luganville Municipality had already introduced disposal fee charges so eventually in the coming future it will help sustain financial management and operations of the landfill.



Notice board clearly states business operating hours & disposal rates

- Existence of gate house and gate attendant to control in coming vehicles to disposal site.
- Access road from main road to dumping site was also in good conditions.

Proposed recommendation to improve current situation

Despite the current situation of Luganville disposal site, rehabilitation of the existing site would be an option while the new landfill site selection was still in the preliminary stage. For some reasons budget will always be an obstacle to implement the process of rehabilitation, therefore the process of rehabilitation can be done in different stages (step by step method).

1. Rehabilitation plan (design) of existing site and necessary budget.
2. Operational procedures.
 - a) Acquire bulldozer / track loader.
 - b) Pushing, leveling and compacting of solid waste.
 - c) Install some gas vent pipes.(accelerate decomposition of waste)
 - d) Apply cover soil and compact.(All this process should be done according to rehabilitation plan)
3. Maintenances and new operating procedures
 - a) Allocate or provide space for different types of waste like general waste (from household), market waste, bulky waste and metals.
 - b) In coming waste should be directed to the designated area then spread, leveled and compacted each day or stock piled for items like metals and any other recyclable items.
 - c) Applications of cover soil should be done once every two (2) weeks or twice in a month.
 - d) Drainage to prevent surface water into disposal site.

All measures should be followed and it is a continuous operation that will help improve and maintain the disposal site under sanitary conditions. Certainly it will also help extend the life span of the landfill, while the new landfill site selection is still in process.

*By: MATHIAS Amos
Bouffa Landfill supervisor
Port-Vila Municipality*

Attachment C-6 Proceedings of the 3rd JCC Meeting (Draft)

MINUTES OF MEETING

3rd JOINT COORDINATING COMMITTEE (JCC) MEETING

on

JAPANESE TECHNICAL COOPERATION PROJECT FOR

PROMOTION OF REGIONAL INITIATIVE ON

SOLID WASTE MANAGEMENT IN PACIFIC ISLAND

COUNTRIES (J-PRISM)

Vanuatu

.....
Mr. Albert Williams

Director

**Department of Environmental
Protection and Conservation.**

Vanuatu

.....
Mr. Makoto Tsukiji

Project Coordinator

J-PRISM Project Office

Apia, Samoa

.....
Mr. Tsutomu Moriya

Resident Representative

JICA Vanuatu OFFICE

Vanuatu

.....
Mr. Ronald Sandy

Town Clerk

PVMC, Vanuatu

.....
Mr. Peter Satika

Town Clerk

LMC, Vanuatu

**MINUTES OF MEETING OF
THE THIRD VANUATUJ-PRISM JOINT COORDINATING
COMMITTEE (JCC)**

Date: 17th February, 2014

Time: 09:30 – 16:00

Venue: Luganville

Meeting Documents:

Annex 1: Meeting Agenda

Annex 2: List of Participants

Annex 3: Summary of the Group Discussions

Annex 4: Recommendations of the Mid-Term Review team

Annex 5: Progress of the Project shown on the Plan of Operations

Annex 6: Proceedings of the Workshop held on the Draft Waste Minimization Policy in Port Vila on February 19th, 2014

A. OFFICIAL OPENING OF THE MEETING.

i) Mr. Peter Sakita, Town Clerk, LMC welcomed all the participants on behalf of LMC and expressed his sincere hopes that the Project will continue to contribute to solving the pressing issues of SWM in Vanuatu.

ii) Mr. Albert Williams, Director of Department of Environmental Protection and Conservation (DEPC) and Chairman welcomed the participating members of the committee from different agencies to the third JCC Meeting for J-PRISM in Vanuatu. He thanked the LMC for hosting the meeting and everyone for accepting the invitation to attend.

iii) The Chairman then invited Mr. Andrew Ala of LMC to lead the meeting with a word of prayer.

B. ADOPTION OF THE MEETING AGENDA

The Chairman brought to the attention of the meeting the meeting agenda and requested it to be formally adopted. The agenda and the list of participants are shown in **Annex 1** and **Annex 2** respectively.

C. KEYNOTE ADDRESSES OF THE MEETING

i) The Chairman, firstly thanked Mr. Peter Sakita, Luganville Municipal Council Town Clerk for his welcoming remarks and acknowledged the presence of the different counterparts and stakeholders; representatives from the three Municipalities, JICA and J-PRISM, the government, VSA and other organizations).

The Director then began his introduction to the meeting by stating that so far at the national level there is no legislation with respect to Waste Management, except for the Municipal bylaws, despite some being mentioned in the Public Health Act. The Director hoped that the Waste Management Bill would be finalized and debated in the March 2014 Parliamentary Session as it was endorsed back in 2012 by the Council of Ministers but was not listed for last year's session (2013). However the Pollution Control Bill was passed in last year's (2013) Parliamentary session but is yet to be gazetted.

The Chairman expressed his gratitude to the Japanese Government through JICA who have been the only instrumental partner in the area of Waste Management in Vanuatu. He also extended his gratitude to VSA who have been very supportive through technical assistance in Luganville, Santo and now Lenakel, Tanna. The JICA support through J-PRISM is a 5 year project and three years have passed with some continuing supports made to the various councils including Lenakel, Luganville and provinces such as Penama and Malampa. He ended his address by stating that "political will" is very important to support SWM and thus acknowledged the presence of the Luganville Town Clerk, who attended the meeting in full and the Lord Mayor, and the President of Sanma Province and others who took time to visit the conference venue and welcome the participants.

He then invited Ms. Asano, JICA Vanuatu Project Formulation Advisor to deliver a brief opening statement on the Project on behalf of JICA Vanuatu.

ii) Ms. Asano thanked the chairman and welcomed the participants and at the same time, passed her appreciation to Luganville team for the preparation of the meeting. She expressed her pleasure to be observing this event. She noted that the issues surrounding waste management were complicated and difficult to change within a short period of time. She said that the recent launching of Wan Smol Bag's new environmental play gave us some depressive feeling on the one hand, but on the other hand made us aware that people were continuously working hard to tackle these issues, which was very encouraging.

Ms. Asano expressed her hopes that the meeting would not only be for the project, but also serve as a forum on waste management where all the participants can heart fully exchange opinions and have meaningful discussions.

She strongly hoped the Project would be progress on waste management in Vanuatu.

iii) Mr. Williams thanked Ms. Asano for her remarks, and requested representatives from each of the three municipalities to provide a brief presentation on the progress of the Project.

D. PROGRESS REPORT OF THE PROJECT ACTIVITIES

Mr. Andrew Ala, Mr. Roger Tary and Mr. Tom Nalau presented various aspects of the project activities and SWM conditions in general in their respective municipalities.

E. FIELD VISITS

LMC then arranged field visits to the compost facility at the Market and the Luganville landfill in order to introduce the participants to the progress made in the sector.

F. GROUP DISCUSSIONS

In the afternoon session, the Chairman invited Ms. Mary O'Reilly, NZ-VSA to facilitate the Group Discussions. The Group discussions covered a broad range of issues related to SWM in Vanuatu and the discussions are summarized in **Annex 3**.

G. JCC SESSION

Upon conclusion of the Group discussions, the remaining portion of the meeting was dedicated to reporting on the J-PRISM activities and the Mid-Term Review team recommendations.

The Chairman invited Mr. Tsukiji to facilitate this session.

G-1 JICA Mid-Term Review team

Mr. Tsukiji first outlined the findings of the Mid-Term Review team.

JICA dispatched a Mid-Term Review team (MTR) to Vanuatu in September 2013 to review and evaluate the project activities since its commencement in February 2011. The counterpart team and other officials of Vanuatu cooperated with the mission through replies to pre-visit questionnaires, meetings and interviews and conducting site visits.

The MTR team evaluated that there were delays in the project outputs, but that overcoming these delays was possible. From a scale of A (best) to D (delay cannot be overcome) the three project outputs were evaluated as follows; "B/C" for Output 1, "N/A" for Output 2 and "B" for Output 3.

The MTR team further proposed a number of recommendations to each of the Project Team, JICA Vanuatu office and headquarters, and to the Government of Vanuatu. The recommendations are outlined in **Annex 4**.

The Project Team discussed and adopted the recommendations of the MTR team. Specific actions related to some of the recommendations were as follows:

Recommendations to the Project (Implementing Agency and JICA experts)	Countermeasures
1) Revision of the current PDM and PO	Recommended revisions have been accepted as reported later in these minutes
2) To review and apply necessary and/or additional inputs to recover the Project delay	There has been an increase in Project staffing through the appointment by PVMC of a Waste Management Officer for the Market House, two officers in LMC for environment and waste management and a Project Assistant by J-PRISM Expert Team.
3) To collaborate with and learn from the waste management advisor of LMC (VSA volunteer) with regard to how she proceeds with her activities.	The holding of the JCC meeting in Luganville was the first step to strengthen coordination amongst the two municipalities and benefit from their respective experiences.
4) Maximize the advantages of being a regional project, by sharing 3Rs promotion ideas and materials with other member countries.	The counterparts produced a number of reports on their activities which are available to the Project Office to disseminate to other regional countries.
5) To make clear distinction between C/Ps and supporting members	Agreed.
6) To involve decision making level officers and leaders to the Project	Both PVMC and LMC Town Clerks were invited to the 3 rd JCC meeting which was chaired by the Director of DEPC.

G-2 PO Activities progress review for year 2013

Mr. Roger Tary (PVMC), Mr. Andrew Ala (LMC) and Mr. Tom Nalau (Lenakel) briefly explained the progress of the Project activities in Year 2013 (April to March) as follows. Progress of the Project shown on the Plan of Operations is provided in **Annex 5**.

OUTPUT 1: WASTE DISPOSAL AMOUNTS IN THE URBAN AND PERI-URBAN AREA ARE REDUCED THROUGH MINIMIZATION MECHANISMS

1.1.1 Undertake waste characterization studies (Port Vila)

A market waste study was implemented. The waste audit results were announced in a presentation made by the Counterparts to the PVMC Councilors in September 2013. The report has not yet been compiled.

1.1.2 Undertake waste characterization studies (Luganville)

A solid waste audit was implemented in September and the report was prepared. Counterparts from PVMC participated in the survey.

1.1.3 Undertake waste characterization studies (Lenakel)

This activity has not yet been implemented.

1.2 Explore the use of organic waste for composting in partnership with Agriculture Department/ Organic Farming groups and Ministry of Health (Port Vila and Luganville)

A Market Waste Compost pilot project was implemented in Port Vila from November 2013, for two months at the Main Market and Freswota Market. This pilot project brought together a number of stakeholders; PVMC, DEPC, End-user (Vanuatu Direct), Wan Smol Bag, and etc. The implementation covered public awareness, source separation, separate collection and composting of the green wastes. Under this pilot project it was possible to divert 3 tons of market waste on average daily from the landfill to composting.

In Luganville, a large scale compost bin was built at the Market House in May 2013 to take all organic waste (apart from baskets and coconut husks). In January this year an agreement was made with the Vanuatu Agricultural College to take the excess organic waste, it will be used to make compost and as a food source for the piggery on site. Both activities enable LMC to divert about 1 ton of market waste weekly from the landfill to composting.

1.3.1 Review and finalization of National Waste Management Strategy (NWMS)

During this year there was no further progress in this activity.

1.3.2 Development of National Solid Waste Minimization Strategy (NSWMS)

A workshop was held on February 19th, 2014 to discuss the draft policy paper prepared. The proceedings of the Workshop are described in **Annex 6**. The policy is expected to be developed by the end of this year.

1.3.3 Review, evaluation and updating of waste management plan of Port Vila Municipality (2008)

During this year there was no further progress in this activity.

1.4 Establish and implement collection system for cans and plastic bottles (Port Vila)

Planning for the pilot project started this year and implementation is expected in 2014. The Counterparts shall consider the demand for the plastic bottles and consider on how to include these recyclable materials in the system to be established.

1.5 Establish and implement collection system for cans and plastic bottles (Luganville)

The existing aluminum can collection programme has now been advertised, expanded and made more efficient. Thirty (30) restaurants, bars, cafes, resorts and shops now have cages that are collected every two months by Recycle Corp, the money is given directly to Rotary to pay for materials to make more cages. A new design of cage has been built and will be trialed at Unity Park next month for public use.

OUTPUT 2: EXISTING WASTE DISPOSAL SITES (BOUFFA AND LUGANVILLE) ARE IMPROVED

2.1 Conduct Feasibility Study (FS) on establishment of weighbridge system for Bouffa landfill

Little progress has been made on this activity.

2.2 Establish weighbridge system for Bouffa landfill

This activity can start only after the weighbridge is installed.

2.3 Develop and update a centralized data management system at Bouffa landfill with a weighbridge system

This activity can start only after the weighbridge is installed.

2.4 Develop the operational/ management master plan for Bouffa Landfill to incorporate data management

Daily operational logs have been developed to commence the collection and analysis of the present operation. The analysis of the collected data will support the development of the master plan in 2014.

2.5 Develop closure plan for Luganville disposal site

Mr. Amos Mathias, PVMC counterpart well trained and experienced in sanitary landfill traveled to Luganville to visit the disposal site there and discuss with the LMC counterpart on the landfill closure requirements.

OUTPUT 3: CAPACITIES FOR WASTE MANAGEMENT AT THE NATIONAL AND LOCAL GOVERNMENT LEVEL ARE ENHANCED

3.1 Conduct in-country training on waste characterization

During this fiscal year training was done for Lenakel officials.

3.2 Undertake in-country training on landfill management/ operations

No training in-country training was conducted during this fiscal year.

3.3 Conduct training for waste collection operators/ handlers

This activity is planned to start in 2014.

G-3 Endorsement of Amended PDM

Mr. Roger Tary, together with Mahmoud Riad (SWM Expert E) then explained the amended PDM as recommended by the Mid-Term Review Mission mostly for the Indicators and their Means of Verification. Amendments for the indicators are summarized below as follows.

Item	Original Objectively Verifiable Indicators	Amended Objectively Verifiable Indicators
Overall Goal	Sustainable management of solid waste in the Pacific Region is enhanced.	
	1. to be discussed	1-1. 60% of the registered experts (trainers) on the SPREP list will participate as trainers at least one workshop and/or training in region and/or in-country should there be an opportunity for them to do so. 1-2. Amounts of waste disposal at Port Vila & Luganville landfills are decreased by at least 7% respectively.
Project Purpose	Human and institutional capacity base for sustainable Solid Waste Management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010 – 2015) (RS2010)	
	1. # of experts (Trainers) in the field of landfill management listed in the SPREP inventory 2. Amount of waste disposal at Bouffa landfill is decreased by XX% 3. Capacity of landfill management is enhanced.	1. Three experts are listed in the SPREP inventory. 2. Bouffa and Luganville landfill are managed as planned in the Annual Operation Plans 3. One or more provinces implement their respective action plans to promote minimizations and composting in respective

Item	Original Objectively Verifiable Indicators	Amended Objectively Verifiable Indicators
		provinces.
Output 1	1.1 Amount of organic waste generated from households and market is reduced by 5% (Port Vila) 1.2 NWMS is established 1.3 Collection system for cans is established	1.1 Amount of organic waste generated from market is reduced by 20% (Port Vila) 1.2 Same 1.3 Same
Output 2		No amendments recommended
Output 3	3.1 # of trainings conducted with each local authority Port Vila, Luganville & Lenakel 3.2 # of participants trained on waste characterization, landfill management/operation/waste collection operators in each local authority Port Vila, Luganville & Lenakel	3.1 More than one provincial officer recognizes the importance of waste minimization and SWM 3.2 Manual for developing Solid Waste Management master plans at province level is prepared

H. ANY OTHER BUSINESS

Some changes to the Counterpart team have been reported. Mr. Trinison Tari, Senior Environment Officer, DEPC will replace Ms. Carol Rovo who has departed on a study leave as of February 2014. Ms. Rovo's efforts in coordinating the project activities were recognized by the Chair and participants.

Three new counterparts will be joining the Project:

Mr. Berry George, Market Waste Officer, PVMC

Ms. Gina Tary, Waste Management Officer, LMC

Mr. Ray Eddie, Environmental Officer, LMC

From the J-PRISM side, Ms. Melinda Lessa has been appointed as the Project Assistant. And lastly, J-PRISM SWM Expert E and E2, Mahmoud Riad and Takatoshi Arai will be concluding their assignment in March 2014. JICA will tender for SWM Expert who will be assigned in the new fiscal year 2014.

I. CLOSING OF THE MEETING

Mr. Peter Sakita, LMC Town Clerk, at the conclusion of the meeting thanked all the participants who traveled from Port Vila and Lenakel to attend as well as the participants from the various organizations in Luganville.

Mr. Roger Tary, Project Manager, then thanked everyone for their inputs and contributions to the discussions held during the meeting. He thanked LMC for hosting the meeting and the Project Team for the implementation of activities and the progress already made. He also thanked JICA and the government of Japan for its continuing financial support to this project. He wished everyone and the project a success.

He declared the meeting officially closed.

ANNEX 1: MEETING AGENDA

08:20	Arrival of participants from Port Vila	
08:45 – 09:20	Registration	Mr, Andrew Ala, Facilitator
09:20 – 09:40	Opening of the Meeting by the Chairman Confirmation of the Agenda	Mr. Albert Williams
09:40 – 09:50	JICA Vanuatu Office Welcome remarks	Ms. Yoko Asano
09:50 – 11:00	J-PRISM Progress Report	Mr. Andrew Ala/ Mr. Roger Tary/ Mr. Tom Nalau
11:15 – 11:30	Tea/ Coffee break	
11:30 – 12:30	Field Visits (Luganville Waste Disposal Site, Composting at market, aluminum can cages/toner cartridges, etc.)	Mr. Andrew Ala
12:30 – 13:30	Lunch	Hosted by Government of Vanuatu
13:30 – 14:30	Groups discussions Three topics were discussed: Topic A – Pre-paid Bag System Topic B – Composting and Recycling Topic C – Collection and Landfill	Ms. Mary O'Reilly Participants were divided into three groups. Each Group summarized the discussions of the respective Group to share with all the participants.
Closing of the Stakeholder Session		
14:30 – 15:30	1. MTRM Recommendations	Mr. Makoto Tsukiji
	2. PO Activities progress review for year 2013	Mr. Roger Tary/ Mahmoud Riad
	3. Endorsement of amended PDM/PO	Mr. Roger Tary/ Mahmoud Riad
	4. Other project related discussion	All
15:30 – 16:00	Summation and Meeting closing	Director Albert Williams Luganville Town Clerk
16:00 – 16:30	Tea/ Coffee break and networking	
16:30	To the Airport	Participants returning to Port Vila

ANNEX 2: LIST OF PARTICIPANTS

1	Albert Williams	Director, DEPC (Project Director)
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2	Peter Sakita	Town Clerk, Luganville Municipal Council
3	Yoko Asano	Project Formulation Advisor, JICA
4	Makoto Tsukiji	Project Coordinator, J-PRISM
5	Andrew Ala	Luganville Municipal
6	Gina Tari	Luganville Municipal
7	Ray Eddie	Luganville Municipal
8	Cr Pedro Lapisae	Luganville Municipal
9	Sean Toland	VSA, Luganville Municipal
10	Prosper Buletare	Sanma Province
11	Anacleth Philip	Sanma Province
12	Zachariah Daniel	Sanma Province
13	Mary O'Reilly	VSA, Sanma Province
14	Scott Kaltavara	Department of Biosecurity
15	Nellie Charley	NCYC
16	Ian Bannie	Department of Tourism
17	Kieth Jacob	Health Dept
18	Roger Tary	PVMC (Project Manager)
19	Amos Mathias	PVMC
20	Utako Jinno	JOCV, PVMC
21	Mayuka Kozawa	JOCV, DEPC
22	Tom Nalau	Lenakel Municipal
23	Elizabeth Brown	VSA, Lenakel Municipal
24	Brian Roberts	WSB/NCYC
25	Noella Rori	Wan Smol Bag/NCYC
26	Harrisson Selmen	Daily Post
27	Walter Matthew	The Daily Post
28	Melinda Lessa	DEPC
29	Mahmoud Riad	SWM Expert E, J-PRISM

ANNEX 3: SUMMARY OF THE GROUP DISCUSSIONS

The participants were divided into three groups. Three topics were addressed by each group, namely; Topic A – Pre-paid Bag System, Topic B – Composting and Recycling, and Topic C – Collection and Landfill. Mr. Prosper Buletare, Mr. Mary O'Reilly and Mr. Sean Toland facilitated the group discussions.

Each Group discussed for about 40 minutes. The facilitators then presented each group's discussions to the participants.

The results of the discussions are summarized below.

A. Pre-Paid Bag System

- Consultation is required before introduction
- Public must be well informed
- Consequences of introducing this initiative must be well considered
- Public awareness will be the key to success
- An efficient collection system must go hand in hand with this new initiative
- Good legislation is required to support this
- Distribute free bags for a short time before the residents have to start paying to encourage participation
- Political support will be essential to its success
- This is the fairest way to charge for waste
- This will encourage composting so need to provide support to enable more composting

B. Collection and Landfill

- Waste collection schedule is required
- Vehicles must be regularly maintained
- Heavy machinery is necessary and also must be maintained
- Waste on the collection truck should be covered when it is on its way to landfill to stop litter flying on to the roads
- Multiple vehicles are necessary to ensure consistent service is provided when break downs occur
- Financial records are essential
- Biosecurity, hospital waste and expired stock from business houses are waste streams which need to be treated separately
- Site guidelines should be developed
- Good waste minimization practice will extend the life of the landfill
- Need to make residents aware of the ways they can reduce their waste so that when the pre-paid bag is in place they will not need to pay for a lot of bags.
- Improved quality of the roads would prevent the collection trucks getting damaged so often and also a better road naming process would make collection schedules a lot easier

- Privatizing the Collection system (some or all) should be considered
- A standardized collection container would make the collection system more efficient and also safer for the waste truck staff.

C. Composting and Recycling

- Many residents don't know anything about how to compost; education and awareness is a priority
- Some residents do not have enough space on their property to compost
- Many households currently feed their animals their food waste
- Need to design, build and sell a compost bin for small/ limited spaces and also a standard compost bin, - possible small business opportunity here
- Plastic bags and plastic bottles are a common waste stream which needs to be addressed
- Need to reduce plastic bags either through a plastic bag levy or through providing alternative options, paper bags, reusable cloth bags, eco bags, etc.
- Awareness of our systems needs to be provided to those in the outer islands so that when they visit the urban centers they know what behaviors are expected of them
- Port Vila and Luganville should combine resources to implement a feasibility study on cardboard recycling opportunities for Vanuatu.

ANNEX 4: RECOMMENDATIONS OF THE MID TERM REVIEW

To the Project (Implementing Agency and JICA experts)

- 1) Revision of the current PDM and PO
- 2) To review and apply necessary and/or additional inputs to recover the Project delay
- 3) To collaborate with and learn from the waste management advisor of LMC (VSA volunteer) with regard to how she proceeds with her activities.
- 4) Maximize the advantages of being a regional project, by sharing 3Rs promotion ideas and materials with other member countries (in particular the Solomon Islands which shares a similar cultural background and language).
- 5) To make clear distinction between C/Ps and supporting members: C/Ps are the direct target to receive technical transfer, and they are the ones taking tasks and responsibility of project activities. Therefore, JOCV volunteers shall not be listed as C/Ps but as supporting members of the Project, and, it is possible to include the VSA volunteers in LMC as supporting members of the Project.
- 6) To involve decision making level officers and leaders to the Project

To JICA Overseas Office/JICA headquarter

- 1) To prevent change of Japan's input affect the progress of the Project negatively, JICA shall find solutions and/or alternatives as soon as possible.
- 2) Longer attachment of JICA experts to provide more guidance and technical advises.
- 3) To consider attaching a project assistant who works under both DEPC and EHD of PVMC to ensure the continuity of the Project while JICA experts are not in the country.

To the Government of Vanuatu and PVMC

- 1) Allocation of more PVMC staff-members as project C/Ps: Currently, apart from the Project Manager, only two staff from the Landfill operation are recognized as C/Ps from PVMC. Waste Management is a cross-cutting issue and as the main counterpart organization of the Project, it is essential to involve all sectors of PVMC, such as, Sanitation (collection), Green space (cleaning), Corporate Services (Market House), Finance, Planner, Training & Development, and Public Works Dept. Additionally, there is a need to fill the vacancy for a SWM officer in Environmental Health.
- 2) To share Project information with the Ministry of Education: It is advisable that the Ministry of Education be included as an agency for information sharing regarding 3Rs, composting and waste separation towards the possibility of 3Rs inclusion in future curriculums.

Modification of PDM/PO (including the suggestion of indicators for the Overall Goal at national level)

It is highly recommended that a revision of the PDM be done immediately. This should enhance the logical correlation between activities – outputs – project purposes, and to set appropriate verifiable indicators (for details please refer to attachment 4. Suggestions for revising the PDM).

ANNEX 5: PROGRESS OF THE PROJECT SHOWN ON THE PLAN OF OPERATIONS

	Output and Associated Activities	2011-12	2012-13	2013-14
	Scheduled Progress			
	Actual Progress			
OUTPUT 1 Waste disposal amounts in the urban and peri-urban areas are reduced through minimization mechanisms				
1-1-1	Undertake waste characterization studies (Port Vila)	■	■	
		■	■ ■	
1-1-2	Undertake waste characterization studies (Luganville)		■	■
		■		■
1-1-3	Undertake waste characterization studies (Lenakel)			■
1-2	Explore the use of organic waste for composting in partnership with Agriculture Department/ Organic Farming groups and Ministry of Health (Port Vila and Luganville)		■ ■	
				■ ■ ■
1-3-1	Review and finalization of National Waste Management Strategy (NWMS)	■		
		■		
1-3-2	Development of National Solid Waste Minimization Strategy (NSWMS)			
				■
1-3-3	Review, evaluation and updating of waste management plan of Port Vila Municipality (2008 year)			
1-4	Establish and implement collection system for cans and plastic bottles (Port Vila)	■		
		■		■
1-5	Establish and implement collection system for			

	Output and Associated Activities	2011-12	2012-13	2013-14
	Scheduled Progress			
	Actual Progress			
	cans and plastic bottles (Luganville)			
OUTPUT 2 Existing waste disposal sites (Bouffa and Luganville) are improved				
2-1	Conduct Feasibility Study (FS) on establishment of weighbridge system for Bouffa landfill			
2-2	Establish weighbridge system for Bouffa landfill			
2-3	Develop and update a centralized data management system at Bouffa landfill with a weighbridge system			
2-4	Develop the operational/ management master plan for Bouffa landfill to incorporate data management			
2-5	Develop closure plan for Luganville disposal site			
OUTPUT 3 Capacities for waste management at the national and local government level are enhanced				
3-1	Conduct in-country training on waste characterization			
3-2	Undertake in-country training on landfill management/ operations			
3-3	Conduct training for waste collection operators/ handlers			

D Samoa

Attachment D-1 Pilot Project Plan for Waste Minimization

Attachment D-2 Weighbridge Data Analysis

Attachment D-3 Revised PDM/ PO

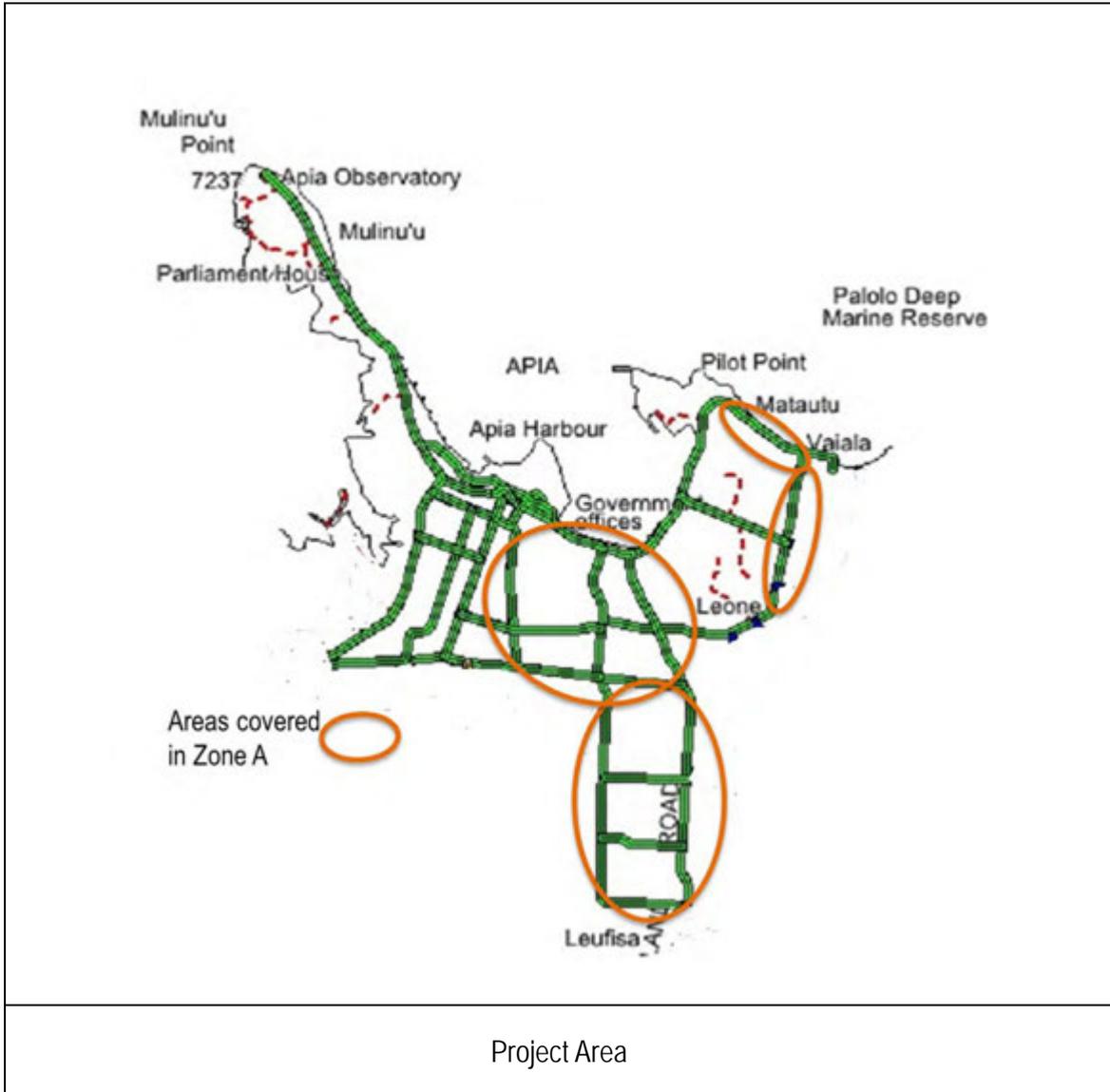
Attachment D-1 Pilot Project for Waste Minimization

Seumanu Mikaele Teofilo
6th February, 2014

Pilot Project for Waste Minimization

Project Brief

1	Project Objective	To gradually introduce source separation of recyclable materials in the waste and their separate collection. To examine the public private partnership in waste minimization
2	Project Area	Zone A
3	Households number	120 families
4	Businesses	2 Hotels and 3 Super Market
5	Stakeholders in the Project and their roles	1) MNRE – Project planning, monitor and coordination 2) Jaffa's Sanitary System – Collect and transport to recycling company 3) Pacific Recycle Company – Receive the recyclables, segregate and then weigh them then recycle
6	Starting day	02 November 2013
7	Project period	01 November 2014
8	Recyclable materials targeted	Any kind of recyclable materials (steel, copper, iron, aluminum, plastic bottles, tin cans, bulky wastes)
9	Project Components	1) MOU between participants 2) Public awareness to residents and mayors/ Chiefs 3) Distribute white sacks to residents to put recyclables. Collect the sack and leave an empty one. 4) Collection every 2 nd and 4 th Saturday in the month (originally planned weekly but amounts of recyclables were small so in February changed) 5) Keep record of collected materials amounts 6) Project review meeting/ communication once a month



Seumanu Mikaele Teofilo
6th February, 2014

**FIRST REPORT FOR COLLECTION OF RECYCLE WASTE FOR WASTE MINIMIZATION
PILOT PROJECT FOR THE URBAN AREA ONLY IN ZONE A**

Introduction:

The collection of recycle waste for waste minimization pilot project was started on the 2nd of November 2013. Only few families were aware for the first collection, because all of other bulky and recycle waste was collected on the Waste Bazaar day 31st October 2013 on the same area.

The second collection was on the 9th November 2013. More than 60 families were aware on the pilot project collection. I was followed the truck during the collection. The weather was too bad, heavy rain, but we are trying to cover all the areas. A list of participating 120 participating families has been prepared.

The collection was carry on every Saturdays and during Christmas and New Year's Holiday, until last week 1st February 2014. But we are looking to spread out the collection to cover the whole Zone A area by March 2014. The bulky waste collection for every three months, was on the last day of January 2014. Also the recycle company is responsible to collect recycle cage from two hotels and three super markets.

Attachment:

Please find pictures for your information of waste minimization pilot project collection







Steel cages used at supermarkets

PACIFIC RECYCLE WEIGHING DOCKET

Waste Minimization Pilot Project

Date: Nov 2013 – Jan 2014

No	Material Description	Weigh (kg)	Price/ Kg
1	Steel	2,875	
2	Steel	350	
3	7 Fridges		
4	7 W / Machines		

Attachment D-2 Weighbridge Data Analysis

All vehicles transporting waste into the disposal site pass over the weighbridge. The date, time of arrival, vehicle license number, customer or waste generator or waste generation location, and type of waste are automatically input into the weighbridge computer. Values for flat fares are installed in the computer program and charges are made by the truck load. Charges are not made based on the weight of waste being hauled in.

The weight of the vehicle carrying the waste and its empty waste are measures and recorded manually by the weighbridge operator. These figures cannot be stored into the weighbridge computer program.

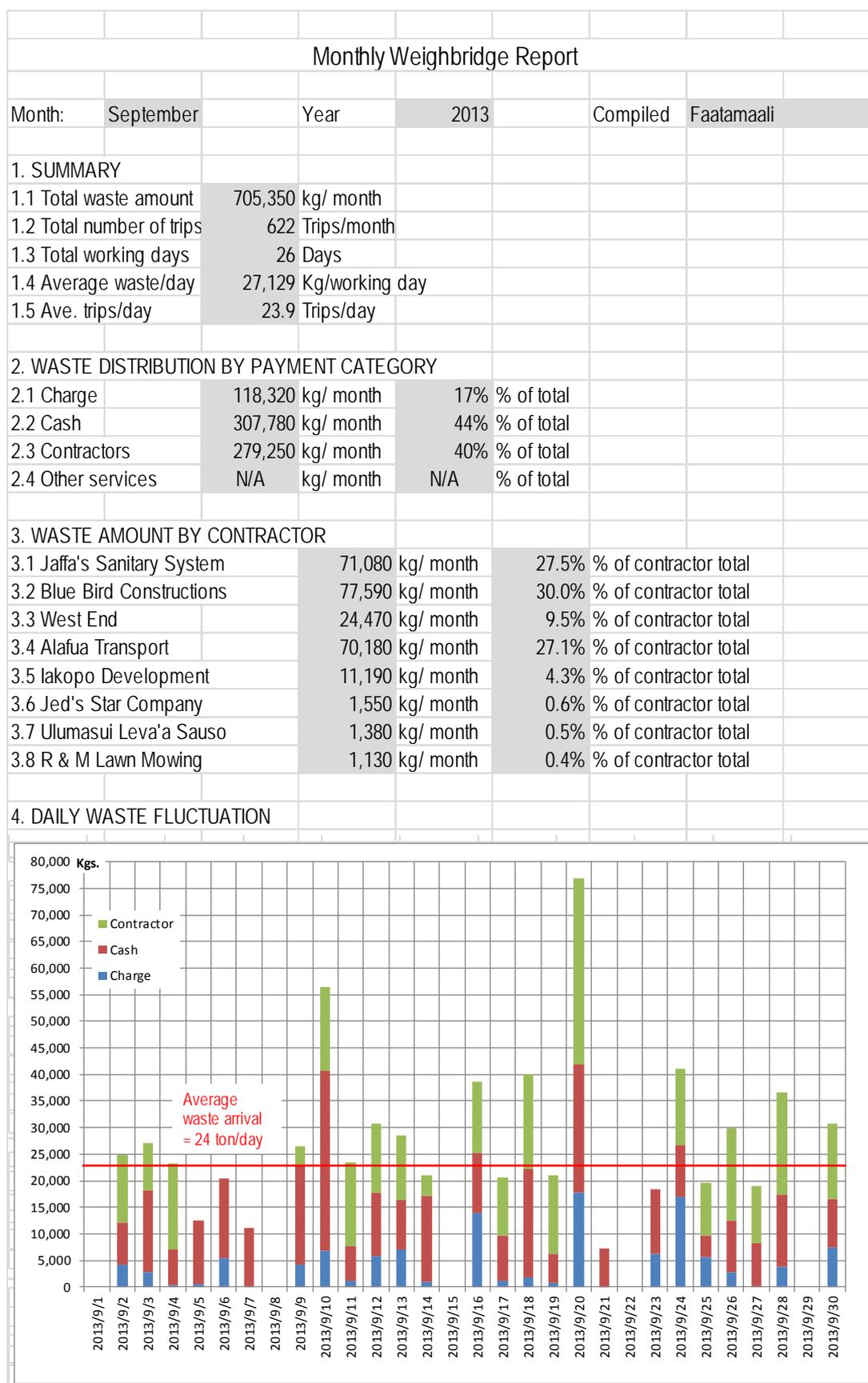
The Counterparts input all the data from the weighbridge into Excel sheets manually. The waste categories that are used are:

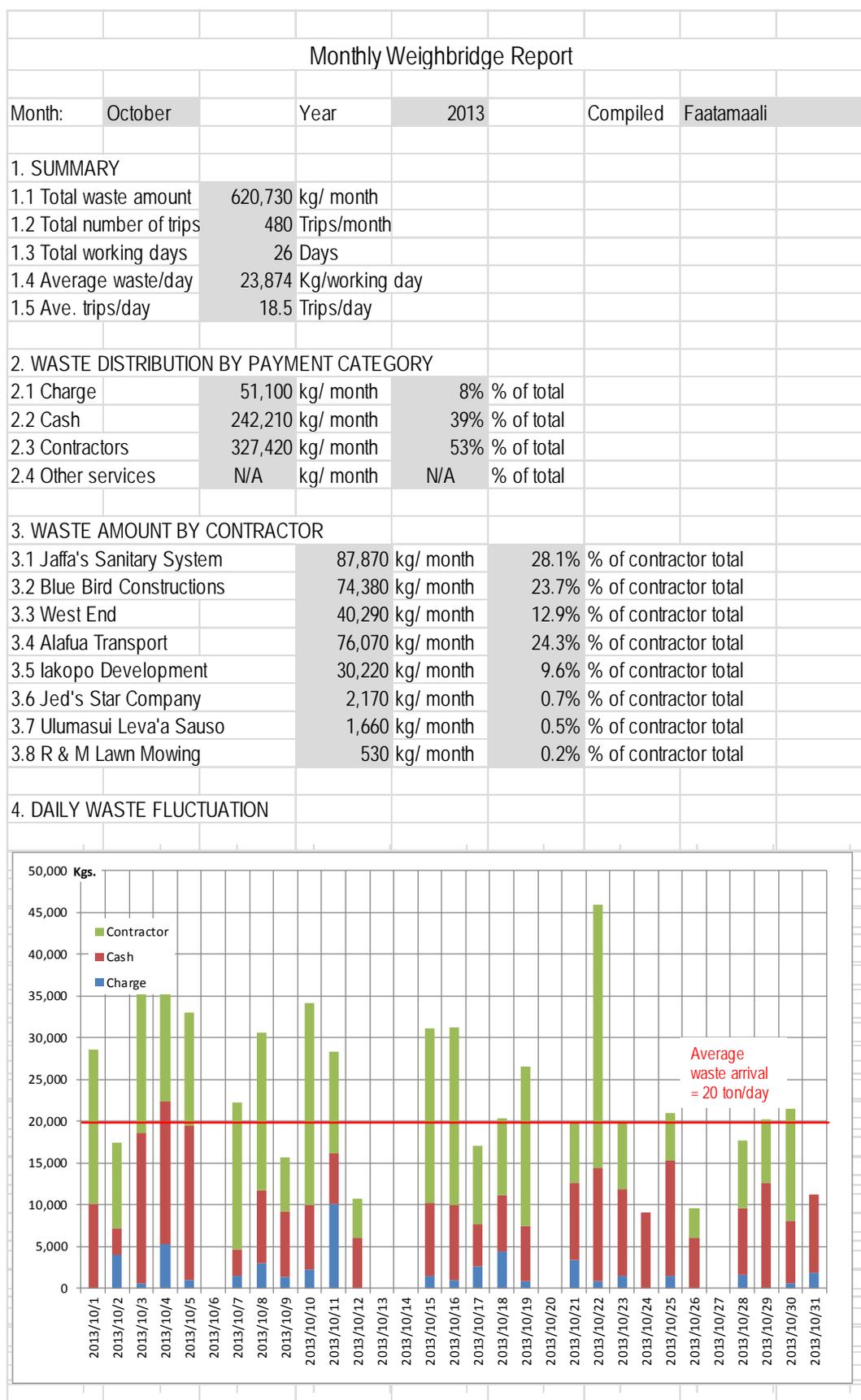
- (1) Charge Category: This category applies to companies only. These companies bring in the waste they generate in their business activities. The companies have agreements with the Accounts Division of MNRE to pay for disposal fees monthly and are therefore invoiced.
- (2) Cash Category: This category applies to companies or individuals transport their wastes, either domestic or business wastes, to the landfill and pay the tipping fees at the weighbridge.
- (3) Contractor Category: This category applies to the collection contractors hired by MNRE to collect and transport the waste from different areas of Samoa (Upolu and the two small islands of Apolima and Manono).

The Counterparts and SWM Expert E have developed the Excel sheets to analyze the input data and produce monthly reports.

Samples of the monthly reports are attached here.

Monthly Weighbridge Report				
Month:	August	Year	2013	Compiled Faatamaali
1. SUMMARY				
1.1 Total waste amount	558,223 kg/ month			
1.2 Total number of trips	630 Trips/month			
1.3 Total working days	26 Days			
1.4 Average waste/day	21,470 Kg/working day			
1.5 Ave. trips/day	24.2 Trips/day			
2. WASTE DISTRIBUTION BY PAYMENT CATEGORY				
2.1 Charge	122,367 kg/ month	22%	% of total	
2.2 Cash	171,182 kg/ month	31%	% of total	
2.3 Contractors	264,674 kg/ month	47%	% of total	
2.4 Other services	N/A kg/ month	N/A	% of total	
3. WASTE AMOUNT BY CONTRACTOR				
3.1 Jaffa's Sanitary System	48,710 kg/ month	20.2%	% of contractor total	
3.2 Blue Bird Constructions	53,120 kg/ month	22.0%	% of contractor total	
3.3 West End	42,870 kg/ month	17.7%	% of contractor total	
3.4 Alafua Transport	52,880 kg/ month	21.9%	% of contractor total	
3.5 Iakopo Development	39,680 kg/ month	16.4%	% of contractor total	
3.6 Jed's Star Company	1,944 kg/ month	0.8%	% of contractor total	
3.7 Ulumasui Leva'a Sauso	810 kg/ month	0.3%	% of contractor total	
3.8 R & M Lawn Mowing	1,670 kg/ month	0.7%	% of contractor total	
4. DAILY WASTE FLUCTUATION				
<p>The chart displays daily waste arrivals categorized by payment type: Contractor (green), Cash (red), and Charge (blue). A red horizontal line marks the average waste arrival at 18,000 Kgs. (18 tons) per day. The data shows significant daily fluctuations, with several days exceeding the average, notably on 2013/8/5 and 2013/8/14.</p>				





Attachment D-3 Revised PDM

Project Design Matrix (PDM) - Samoa		PDM: Versio	
<p>Project Title: Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries (J-PRISM)</p> <p>Target Group: C/Ps of Ministry of Natural Resources and Environment</p> <p>Implementing Agency: Ministry of Natural Resources and Environment</p>		<p>Recommended at Mid-Term Review as of Sep. 11, 21</p> <p>Project Period: Feb. 2011, for 5 yr</p> <p>Date Issued: 17 Apr. 21</p>	
Narrative Summary		Important Assumptions	
<p>Overall Goal</p> <p>Sustainable management of solid waste is enhanced.</p>		<p>To be added</p>	
<p>Project Purpose</p> <p>Human and institutional capacity base for sustainable Solid Waste Management in the Pacific Region is strengthened through implementation of the Pacific Regional Solid Waste Management Strategy (2010-2015) (RS2010)</p>		<p>1. Natural disaster would not drastically affect the collaboration among PICs and SPRE</p> <p>2. Political changes of PICs would not drastically affect the collaboration among PICs & SPRE.</p>	
Objectively Verifiable Indicators		Means of Verifications	
<p>1. To be discussed</p> <p>1. # of experts (Trainers) in the field of solid waste management listed in the SPREP Inventory</p> <p>2. Amount of waste disposal is decreased by XX %</p> <p>3. Regional training program on solid waste management conducted by Samoa is established.</p>		<p>SPREP (Regional Inventory of Skilled people)</p> <p>Project records, MIRE's records</p>	
Outputs			
1	<p>Sustainable Financing</p>		
2-1	<p>3Rs/4Rs</p> <p>Output 1: Waste Minimization measures and practices are introduced and implemented at the urban areas.</p>	<p>1-1. No. of Waste Survey Reports Produced</p> <p>1-2. # of communities and businesses participated in waste segregation/minimization</p> <p>1-3. Amounts of recyclable waste collected</p> <p>1-4. No. of public consultation/working meeting/workshop for waste minimization regulations/strategy</p>	<p>Project records, MIRE's records</p>
2-2	<p>Waste Disposal</p> <p>Output 2: Talagata is operated as a regional waste disposal facility with improvements at Valaata in place</p>	<p>2-1. Talagata Landuse and Development Plan produced</p> <p>2-2. Incoming waste data are recorded and periodically reported using the weighbridge system at Talagata</p> <p>2-3. Improved quality of leachate at Valaata landfill</p> <p>2-4. Management of waste picker</p>	<p>Project records, MIRE's records</p>
2-3	<p>Waste Collection</p>		
3	<p>Legislation</p>		
4	<p>Awareness/Communication/ Education</p>		
5	<p>Capacity Building</p> <p>Output 3: Experiences and lessons learnt are shared across the region in both national and international level.</p>	<p>3-1. Number of workshops produced and disseminated</p> <p>Newsletters are produced twice a year and atleast one relevant documents is produced</p> <p>3-2. Number of overseas missions of PIC counterparts and national stakeholders are hosted</p> <p>3-3. Number of regional and international workshops participated to present Samoa's experiences</p>	<p>Project report</p>
6	<p>Environmental Monitoring</p>		
7	<p>Policy Planning, Performance</p>		
8	<p>Solid Waste Industry</p>		
.	<p>Monitoring system of RS2010</p>		
Activities		Inputs	
<p>Please see PO for details.</p>		<p>Samoa side</p> <p>Japanese Side</p> <ul style="list-style-type: none"> * Dispatch of JICA experts * Provision of equipment and materials (Weighbridge, Talagata, leachate facility— Savaii Island) * Provision of Regional, sub-regional and in-country workshops / training * Local cost support 	
		<p>1. Counterpart personnel keep working in the field of SWM.</p> <p>2. Cooperation of community people of the target area is obtained</p> <p>3. Disasters, such as severe rain storm will not drastically affect the progress of project activities.</p> <p>4. Necessary budget to carry out activities is allocated from the government.</p>	
		<p>Pre-condition</p>	
<p>* MIRE—Ministry of Natural Resources and the Environment</p>			