

**5TH 3R FORUM IN ASIA AND THE PACIFIC,
SURABAYA INDONESIA,
THURSDAY 27 FEBRUARY 2014**

**VANUATU'S MULTI LAYER PARTNERSHIP FOR
SUSTAINABLE COMPOSTING**

PVMC Market Waste Compost Pilot Project

**PREPARED BY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND
CONSERVATION**



PRESENTATION OUTLINE

I. BACKGROUND

II. RATIONALE OF IMPROVING THE WASTE
MANAGEMENT OF THE PORT VILA MUNICIPAL
COUNCIL

III. MARKET COMPOSTING PROJECT

IV. LESSONS LEARNED



I. BACKGROUND

- VANUATU IS A SMALL OCEANIA ISLAND IN THE SOUTH PACIFIC
- COVERING A TOTAL LAND MASS OF 12,500KM²
- TOTAL POPULATION OF 300,000
- AN ARCHPELAGO OF 83 ISLANDS
- 6 PROVINCES AND 2 MUNICIPALITIES
- PORT VILA MUNICIPAL COUNCIL IS LOCATED ON EFATE THE THIRD LARGEST ISLAND IN THE VANUATU GROUP
- POPULATION OF 44,000 WITH THE EXISTENCE OF TWO MARKETS
- VANUATU'S National Waste Management Strategy 2011 – 2015 provides the framework for waste management in Vanuatu.



I. BACKGROUND CONTINUED

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	4VE.241	4.5
Kia	Open dump truck	12801	2
Kia	Open dump truck	12802	2
Kia	Open dump truck	13104	2
Kia	Open dump truck	13962	2
Hyundai HD 120	Compactor	1VE.035	7
Hyundai HD 120	Compactor	1VE.036	7

I. BACKGROUND CONTINUED

Type	Unit Generation Rate
Household	0.43 (kg/person/d)
Business	13.7 (kg/business/d)
Market	5.8 (ton/market)

Source: Port Vila Municipal Council (2013)

I. BACKGROUND CONTINUED

TYPE	WASTE CATEGORY	COMPOSITION (%)			AVERAGE COMPOSITION
		LOW	MEDIUM	HIGH	
HOUSEHOLD	Vegetable/ <u>Putrescible</u>	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

Source: Port Vila Municipal Council (2011)

I. BACKGROUND CONTINUED

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
Total	100	100	100	

Source: Port Vila Municipal Council (2013)

II. RATIONALE OF IMPROVING THE WASTE MANAGEMENT OF THE PORT VILA MUNICIPAL COUNCIL

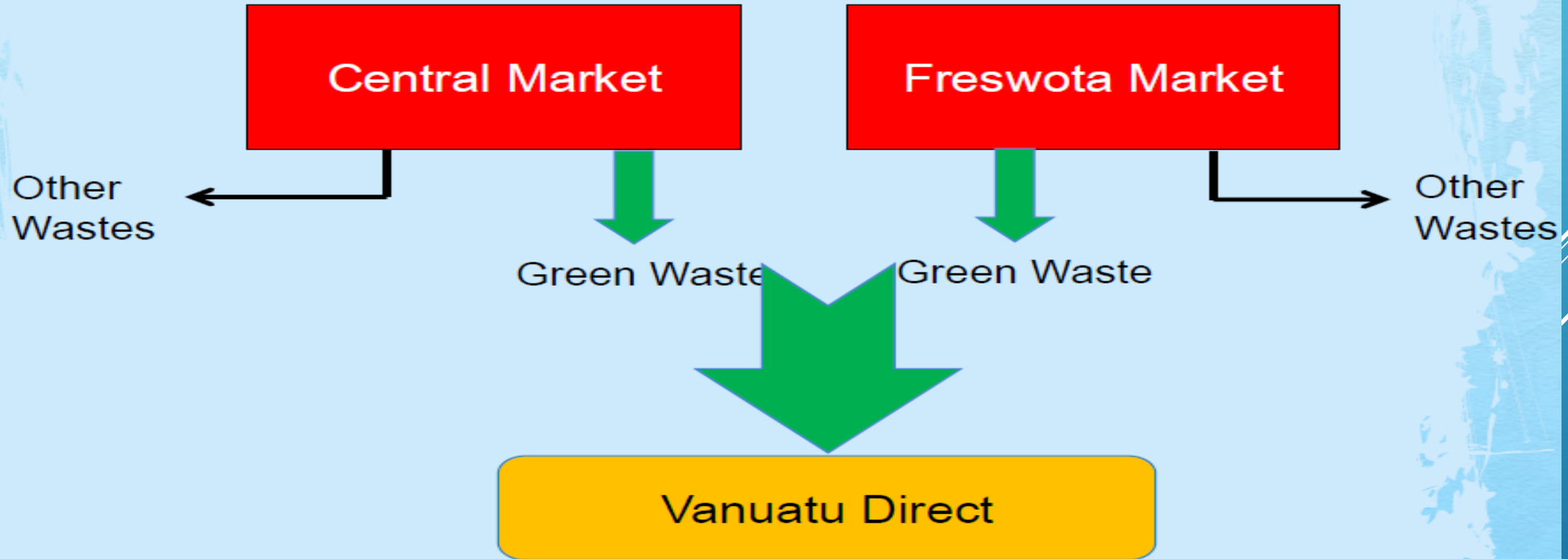
The rationale of improving the existing waste management system:

- ▶ The increasing threat to the water source, the increase in population increases the pressure on the landfill.
- ▶ To test the designed methodology used at these two sites Central and Freswota Markets whether the designed activities are workable and obtain lessons and learn from the practice.
- ▶ To reduce the amount of Greens and Organic Waste Generated from the Markets reaching the Landfill.
- ▶ To improve hygiene through sound solid waste management techniques.

III. MARKET COMPOSTING PROJECT

Market Waste Composting

A. Project Flow





Drum cans for storage of the separated organic waste
Capacity of the drum cans is not enough considering the generation amount of organic waste



Designated place for storage of the separated organic waste
PVMC provided the venders with black plastic bags for the separation



Collection workers of PVM segregate other wastes (plastic, metal etc.) during loading work at the designated place



Loading organic waste to the collection vehicle. Capacity of the collection vehicle is not sufficient.



Unloading work at green garden owned by Vanuatu Direct



Organic wastes at the Green Garden. The organic waste will be composted by Vanuatu Direct

SIMPLE OUTPUTS

BEFORE PILOT PROJECT

Market Waste



Landfill

3.1 t/d
(100%)

AFTER PILOT PROJECT

Market Waste



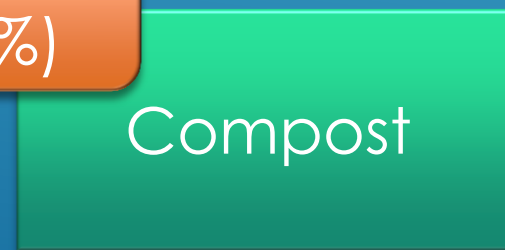
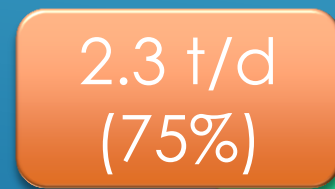
2.3 t/d
(75%)

Compost



Landfill

0.8 t/d
(15%)



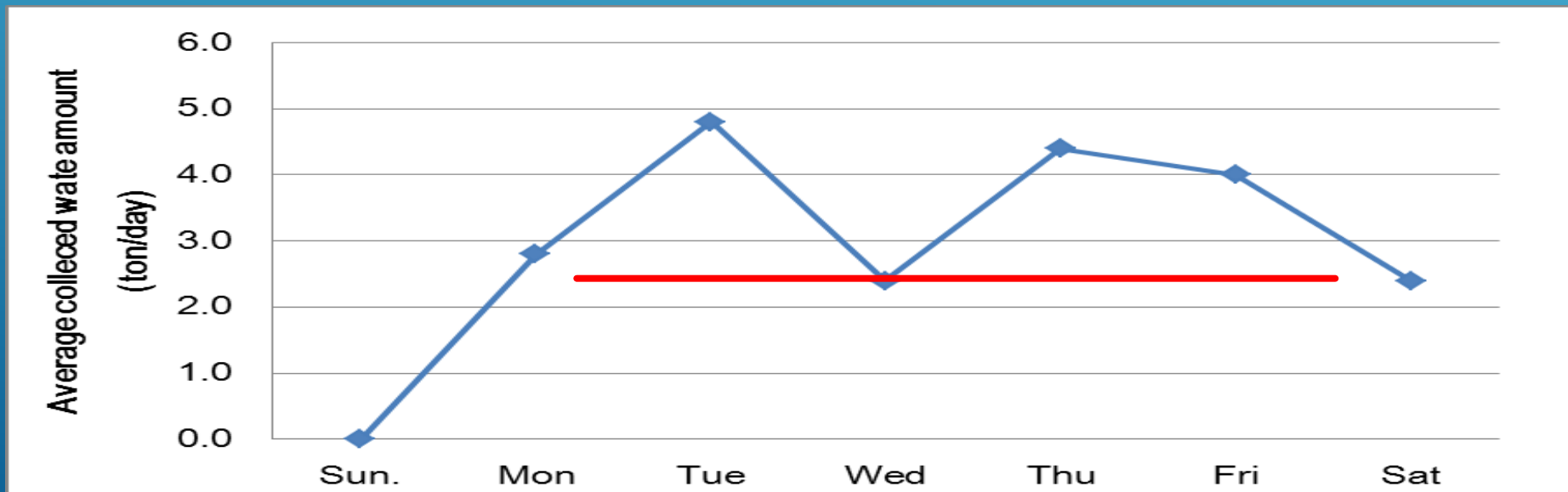
IV. LESSONS LEARNED

- IT IS IMPORTANT TO NOTE THAT AT THE END OF THE PILOT PROJECT PERIOD NOVEMBER 2013, PVMC DECIDED TO CONTINUE THE PROJECT AS ONE OF THE ITS REGULAR SOLID WASTE MANAGEMENT ACTIVITIES THE COUNCIL IMPLEMENTS WITHIN THE CITY
- IMPROVED HYGIENE AND SANITATION OF THE MARKET AREA – THIS WAS EVIDENT FROM THE CLEANNESS THAT HAS DEVELOPED FROM THIS INITIATIVE.
- IT IS ALSO IMPORTANT TO STRESS THAT THE MULTI-LAYER PARTNERSHIPS THAT HAVE BEEN CREATED ARE FOSTERED FROM THE COMMON GOAL AND THEN NEED TO BE MORE SUCCESSFUL FOR THE PROMOTION OF 3R IN VANUATU.

IV. LESSONS LEARNED

(1) SEPARATED ORGANIC WASTE AMOUNT

- PVCM collected and transported average 23 ton per day of organic wastes generated from the Main Market to Vanuatu Direct for 37 days .
- The highest days for the collected waste amounts were Tuesdays and Thursdays



Source: Port Vila Municipal Council (2013)

IV. LESSONS LEARNED

2) CLEANLINESS AT THE MARKET AREA
BEFORE THE PILOT PROJECT BEGAN, THERE HAD BEEN ACCUMULATED GREEN
WASTES AT MARKET AREAS. THERE WERE COMPLAINTS ON A LOT OF FLIES AND BAD
SMELL CAUSED BY THE WASTES AT THE MAIN MARKET.

BEFORE PILOT PROJECT



AFTER PILOT PROJECT

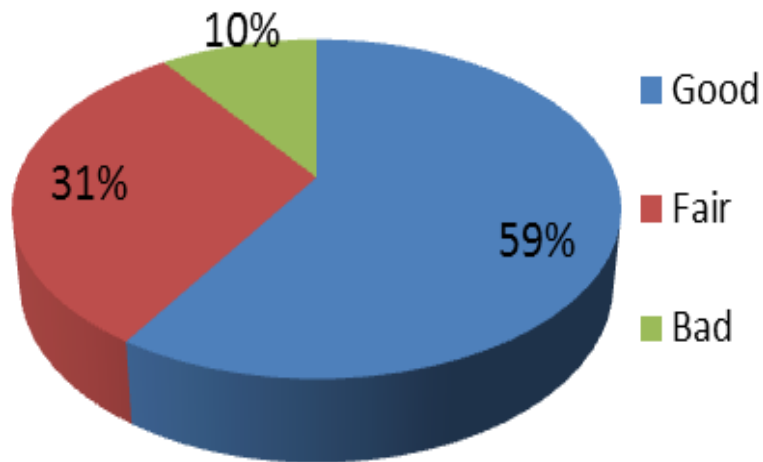


Source: Port Vila Municipal Council (2013)

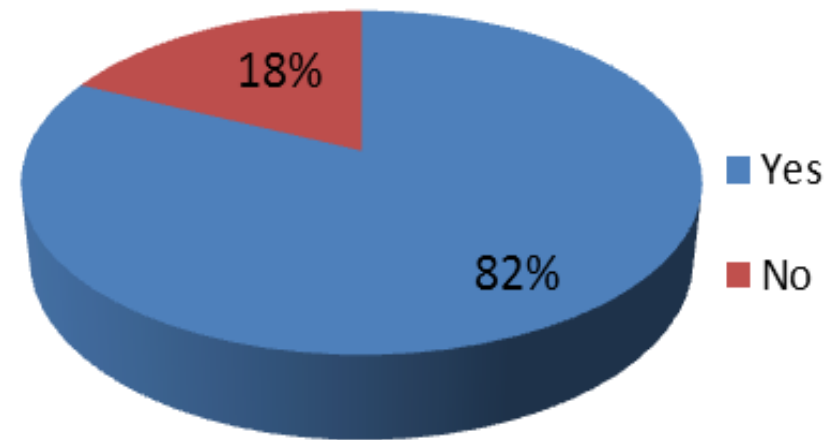
IV. LESSONS LEARNED

- ▶ **HYGIENE AND SANITATION OF THE AREA HAS BEEN GREATLY IMPROVED. A SURVEY THAT ASSISTED THE STAKEHOLDERS TO UNDERSTAND THEIR ROLES IN MAINTAINING THIS PROCESS FOR 3R MANAGEMENT IN VANUATU.**

What is your impression for the market overall cleanliness condition (for visitors)



Have the market cleanliness conditions changed due to the pilot project (for vendors)



Source: Port Vila Municipal Council (2013)

IV. LESSONS LEARNED

- ▶ Current Landfill Operation Cost
 - 650 Vatu/ton
- ▶ Annual Diverted Waste (Market Waste)
 - 830 ton
- ▶ Annual Saving in Landfill Cost
 - About 540,000 Vatu (5,400USD)

1) FOCUS ON NEEDS OF THE MARKET (CLEANLINESS AT THE MARKETS)

The major objectives of the pilot project are “3R” and “reduction of green waste through composting”, however, it takes a long time of continuous awareness rising activities for market staff and mamas to understand these objectives. To make the pilot project more beneficial to them, PVMC decided to collect the solid wastes and the green wastes every day.

2) CLOSE COOPERATION WITH MARKET STAFFS

Market staffs are PVMC officers, who belong to a different division from the Environmental Health Division of the Counterparts. The market staffs were very cooperative to the pilot project and they conducted announcements by public-address system, instructing mamas and filling in the record sheet etc.

3) IMPROVEMENT OF COOPERATIVE APPROACH WITH DIFFERENT ORGANIZATIONS (VD, WSB, JOCV)

On the pilot project, C/Ps involved the related organizations such as WSB, NGO, for awareness rising, Vanuatu Direct, Private Sector, for composting and JOCV for monitoring.

4) OBTAINING UNDERSTANDING FROM DECISION MAKERS

At the commencement of the pilot project, C/P issued a letter to the related staffs and executive officers of PVMC to share the purpose and the mission of SWM including the pilot project. In addition, C/P continuously explained the outcome and necessity of the pilot project to the executive officers. In consequence, the executives understood the importance and employed a new staff as Waste Management Officer for the Market House.

5) EFFECTIVE DESIGN OF THE PROJECT WITH USE OF THE PREVIOUS ACTIVITIES OF JPRISM

The project was designed from the data which were obtained from previous activities, such as Solid Waste Surveys in February and May 2013, as well as stake holder interviews made by counterparts.

TANGKYU TUMAS

