SOLID WASTE SURVEY RESULTS

FOR

PORT VILA MUNICIPALITY

2013

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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-PRISM 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	*High* – Tasiriki, Nambatu and Ellouk *Middle* – Sokapo, Anaburu and Fresh Wota II *Low* – 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	*Hotels and Restaurant* – Sunset Bungalow, Cheng Tims, Chez Nelly, Anaburu Lodge and Hibiscus Motel *Wholesale and Retail Shops*- Au Bon Marche Down Town, Chew Store, Drug Store and Malekula-Vila East Store *Commercial Offices and Institutions* – 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

- <u>DAILY GENERATION RATES</u>

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
HOUSEHOLD		LOW	MEDIUM	HIGH	
	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 (%)		
BUSINESS		**Hotels and restaurants**	**Whole sale/Retail Shops**	**Commercial Offices/Institutions**
	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*

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!