CleanPacific ROUNDTABLE

Collaborating for a cleaner, safer Pacific environment

25 SPREP PROE

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Pacific Islands Forum Secretariat (PIFS) Conference Room, Suva
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"Tracking Improvements in Waste Management in Lautoka, Fiji"

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Outline of the Presentation

1. Background
2. Data Management
3. Means of Monitoring
4. Pre-conditions for Tracking Improvements in SWM
5. SWM monitoring system at LCC
6. Significance of Tracking Improvements in SWM
7. Summary

1.0 Background

We all implement certain Solid Waste Management Activities?

1.Campaigns and awareness

2.Waste collection Services

3.Landfill management

4.3R Promotion(composting, Eco bag, recycling, CSP..)?

5.Enforcement

6.SWM Projects

7.CDL

8.Environment monitoring (air & water Quality)...and many more……!!!!!!

- *SWM activities need to be monitored, hence need **DATA**.*
- *Evident-based information derived from routine data collection assist in improving and sustaining SWM initiatives in Pacific. Activites when "measured" helps provide more informed decisions.*

2.0 Data Management

What is Data Management (in SWM)?

An act of measuring, collecting, analysing and reporting of data, in a form that can be easily visualised or understood so such piece of information can become useful for tracking and planning for improvements in SWM

3.0 Means of Monitoring

1. Survey (eg Public Opinion Survey)
2. Direct Observations (eg. Inspections, visits, monitoring forms, photos etc)
3. Register (eg records of complaints, recycling, compost sales etc)
4. Computerised system of records (eg weighbridge records, cashier records)
5. Test results eg water sample analysis
6. Suggestion box, Facebook or email feedbacks
7. Machinery Repair and fuel records

4.0 Monitoring Pre- Conditions

- Primary purpose of data collection?
- Monitoring indicators to be SMART?
- Data already available and what needs to be collected to compare?
- Which methodology of data collection to utilise?
- Target level (Institutional & citizen, organisational or Individual)?
- Template to ensure data collected is consistent and comparable within and with other jurisdictions?
- Resources required for data collection?
- Barriers to data collection?
- Target timeframe?
- Who and how to analyse data? ……..etc

5. SWM Tracking System at LCC?

Notice Board

OHS (accidents/injuries)	nil	nil	2.00	nil	1.00
Market organic waste composted (tons)	312	31.20	24.14	21.64	22.00
Compost sold (tons)	12	0.85	0.20	0.56	0.28
Revenue generated from compost sales ($)	3600	255.00	60.00	168.00	84.00
Composter sold and set up/promoted	25	1.00	0.00	1.00	0.00
Home Composter Monitoring	50	5.00	0.00	0.00	4.00
me from Customers - invoice/cash ($)	450,000	55,298.97	47,485.80	47,374.13	64,569.95
Free disposal and savings of disposal fee ($)	150,000	22,440.79	23,312.76	19,277.34	26,207.66
Total Income from disposal site ($)	600,000	78,739.76	70,798.56	66,601.47	90,777.61
Waste Disposal within city	17,400	1,534.35	1,759.47	2,416.69	2,229.71
Waste Disposal outside city	12,600	1,597.71	1,144.81	1,522.24	1,729.08
Total amount of waste disposal managed at Vunato Landfill site (tones)	30,000	3,132.06	2,904.28	3,938.93	3,958.79
Waste Amount recycled from Disposal site (tones)	360	8.60	17.50	8.52	3.24
LCC Garbage disposal	6,400	682.70	629.20	527.84	588.66
Garbage collection costs ($)	200,000	16,210.66	21,654.00	26,461.40	20,448.56
Heavy machinery costs ($)	160,000	9,378.85	5,836.30	12,989.23	10,362.53
Other dump costs($)	160,000	9,656.35	16,126.16	7,535.10	6,291.67
Total Dump costs($)					
Dump Fire costs ($)					
Number of awareness and promotion activities conducted					
Number of capacity building trainings attended					
Eco bags sold					
Building Plans Processed	600	46.00	17.00	51.00	19.00

Tracking indicators

HC Monitoring

CSP Monitoring

Recycling data

Weighbridge data

Register & files

Computer records

5. SWM Tracking System at LCC?

Data Type	Source	Eg. of use of Data
Final Disposal Amount	Weighbridge Data (tipping records)	Waste Flow, estimate landfilling unit cost, estimate lifespan, trends, disposal rate etc
Waste collection	Weighbridge data (amount) Waste collection costs Time utilised for collection	Track trends in waste amount collected, Target reduction in costs, To improve collection systems, collection coverage, type of vehicle use, staff behaviour change. Estimate unit cost of collection.
Improper Disposal	direct observations, complaints register	Waste Flow, initiatives to prevent improper disposal, legislations

5. SWM Tracking System at LCC?

Data	Source	Use of Data
SWM Revenue	Compost sales, recyclable sales, tipping fee, savings in tipping fee, eco bag sales	Cost Benefit Analysis to justify more investment for SWM
Total Revenue	SWM revenue, rates, licenses, market fees, parking meter fees etc	• Allocation of resources • Estimate portion of budget used for SWM activities eg 20% in LCC • Cost Benefit Analysis
SWM Expenditure	Records (staff pay, machinery costs, landfill cost, awareness, clean up campaigns etc)	
Amount of Organic Waste Composted	Records of market waste composted, composters promoted	Contribute to total recycling rate, evaluate success rate




5. SWM Tracking System at LCC?

Data	Source	Use of Data
Awareness coverage	Records of awareness conducted	Estimate population targeted in terms of awareness
Enforcement eg Litter Notices, legal proceedings	Register	Identify effectiveness, challenges and target improvements
Recycling Amounts	Register, weighbridge records, recycler	Identify challenges and target improvements




5. SWM Tracking System at LCC?

Data	Source	Use of Data
Participation rate in recycling by model community	Community leader	Assess participation rate
Use of recycle drop off centre	Register	Assess effectiveness of drop off centre
CSP Monitoring 	Monitoring records, observation, photos, etc	Identify good lessons and target improvements
Home Compost Monitoring 	Records, observation, photos, interviews	Identify good lessons and target improvements
Eco bag sales	register	Assess demand

6. Significance of Tracking Improvements in the Waste Management

- Understand and grasp existing situations and conduct SWOT Analysis.
- Compare progress Vs competing or similar organisations







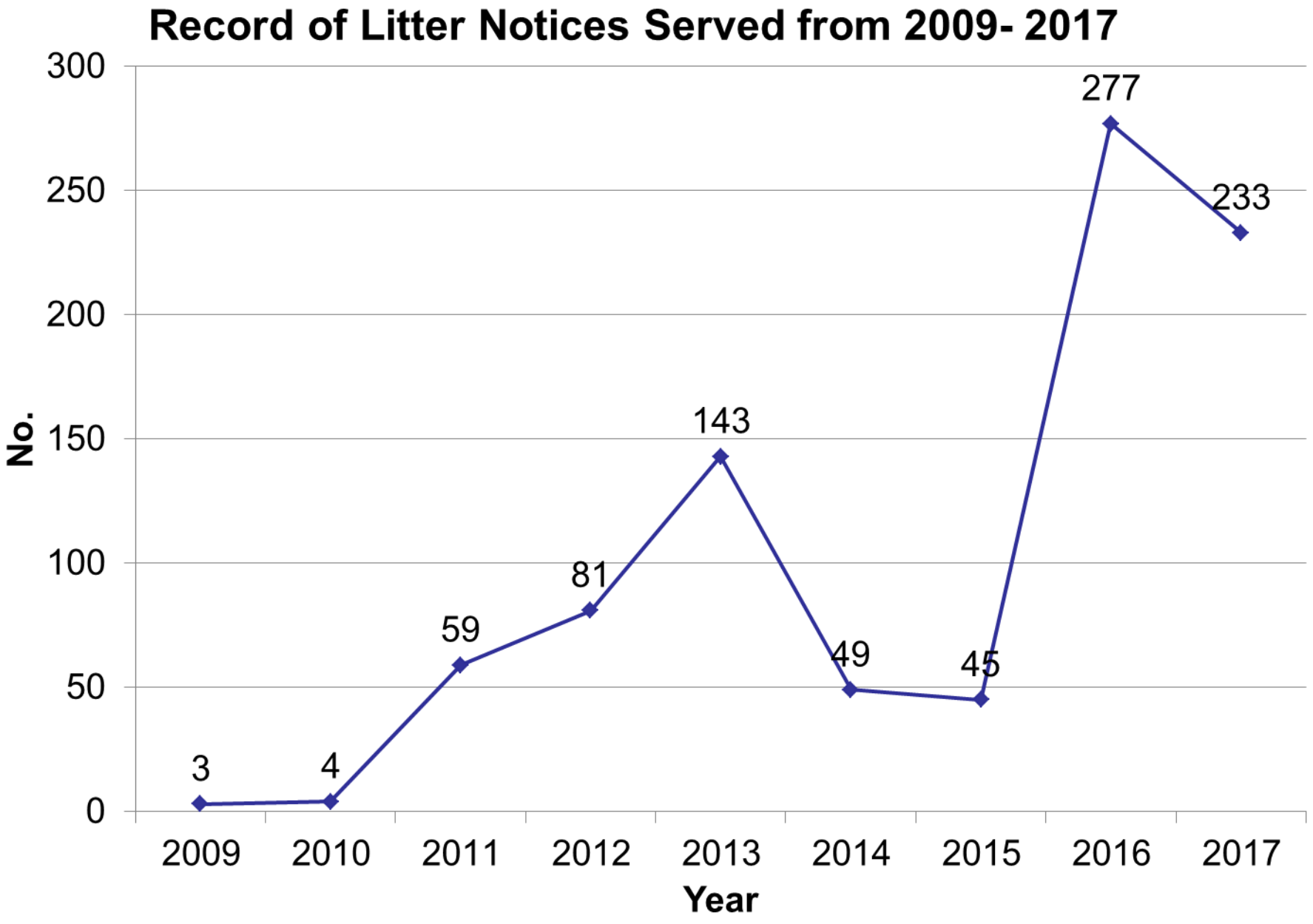


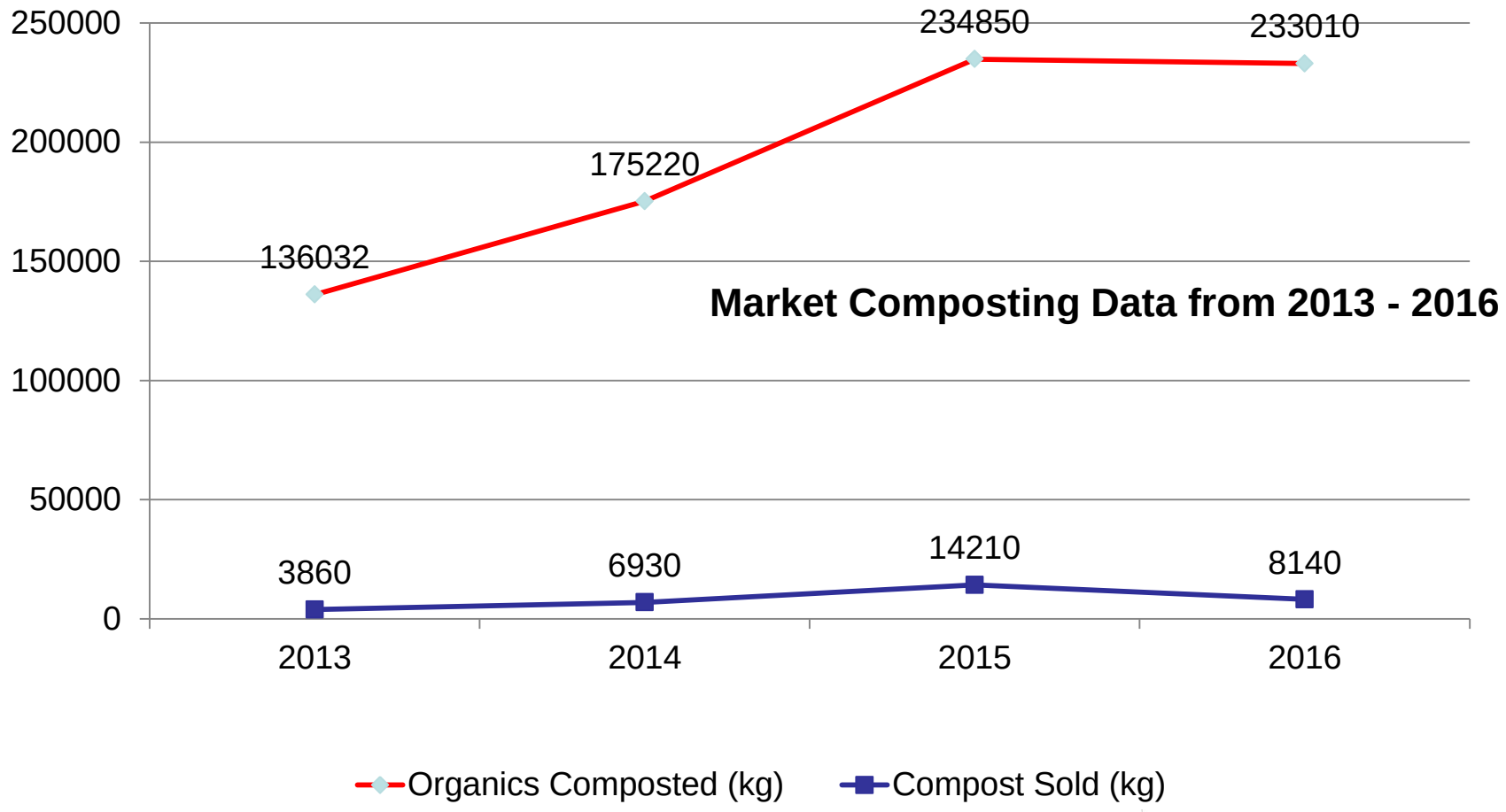
6. Significance of Tracking Improvements in the Waste Management

- Support proposals for funding/grants *eg organic waste composting rate to generation and procurement of shredder*
- Evaluate whether Project or initiative is success or effective. Also to evaluate whether similar activity can be replicated or expanded eg achievement of Plan of Operation (PO) targets or extending garbage collection services.
- Data is useful to influence cooperation and partnership eg Community or stakeholder support.

6. Significance of Tracking Improvements in the Waste Management

- Purchase new waste management equipment's eg records of maintenance costs or hire cost of heavy machinery Vs new machine
- Useful tool as evidence to keep management and political leaders informed of issues and good practices and influence all in making informed decision for improvements in SWM problems. Eg data of waste haulage cost to Naboro, tipping records and maintenance costs etc transfer station in Fiji


Record of Litter Notices Served from 2009- 2017
300
250
200
150
100
50
0
No.
3
4
59
81
143
49
45
277
233
2009
2010
2011
2012
2013
2014
2015
2016
2017
Year



Data from 2011 - 2016	
total compost sold (tons)	46.88
value ($)	14,118.00

7. Summary

- Use of evident based data and monitoring makes whole process of SWM more meaningful and help make informed decisions.
- Standard reporting template for monitoring indicators need to be developed for national and regional level.
- Wise to share monitoring findings via media, forums, meetings etc especially **"Data"** that can bring about positive change.
- ***Monitoring is indispensable for SWM Planning and improvements***

Ever Green, Ever Clean,
Lautoka City

Thanks for Your Attention !!!

Examples of Good SWM Practices implemented by Lautoka City Council

Separate collection of recyclables

Communal Recyclable Drop Off Centre

Recyclable collection at Koroipita

Paper Recycling at LCC

Recyclables delivered to LCC by Koroipita

Good Examples

Mould

Citizen Engagement

Drum Compost Bin

Add Browns/Wood Chips

Final Outlook

Market Waste Composting

Unloading of separated Organics

Noni (Kura) waste for composting

Unload in composting cell

Cover with dry organics and tarpaulin

Market Waste Composting

Compost heaps

Sieving

Packing

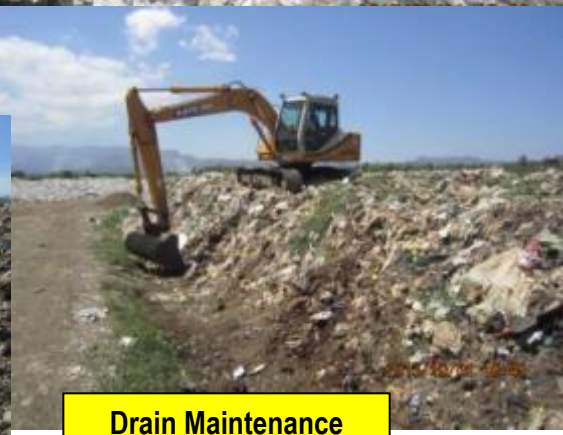
Selling from Recycling Centre

Vunato Disposal Site Operation

Waste Pickers

Periphery banks

Secondary Access Access



Drain Maintenance

Litter free Canals to sea

Secondary Access and cell under rehabilitation

Disposal Site

Clean Schools Program (Awareness)

Clean Schools Program- Composting Division

Lautoka Eco Bag Pilot Project

Lautoka Eco Bag

Made from 100% off-cut fabrics

"SAY NO TO PLASTICS"

made in

KOROIPITA FIJI

In partnership with Lautoka City Council

Output

Sold 600 bags since Oct 2015