



# GRENADA SOLID WASTE MANAGEMENT AUTHORITY

NATIONAL EXPERIENCE ON WASTE STATISTICS

# Organisational Background:

- Established by an Act of Parliament - Act no. 11 of 1995 Entitled Grenada Solid Waste Management Authority Act. An act to establish a Solid Waste Management Authority charged with the duty of developing the solid waste management facilities and improving the coverage and effectiveness of solid waste storage, collection and disposal facilities.
- Supporting Legislation
  - 1973 Litter Abatement Act Addresses pollution control and abatement of litter
  - Environmental Levy Act 1997.
  - Waste management Act. 2001
  - 2002 The Physical Planning and Development Control Act, No 25

# WASTE COLLECTION

- **Areas Collected:**

- **Towns:** Collection twice per day
- **Suburbs:** Daily collection including Sundays and public holiday
- **Rural areas:** Twice per week no collection on Sundays

- **Collection methods**

- Collection contractors are use to do curbside and communal bins pick-up.

- **Collection Coverage**

- 98% coverage

# STATISTICS

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# WASTE COMPARISON DATA BETWEEN 1990 AND 2018:

Year	Population	Total Waste generated per year (Tonnes)	Total amount of waste generated per day (tonnes)	Waste amount per inhabitant per day (kg/per/day)
2018	108,000	44,508	121.9	1.13
1990	96,000	29,784	81.6	0.85
		33%	Increase over 28 years	
		1.17%	Ave. increase per annum	
		13%	Population increase over 28 years	
		0.45%	Ave. increase rate per annum	

# WASTE COMPARISON DATA LAST 5 YEARS:

YEAR	RECORDED VOLUMES (Tonnes)	% Increase	Discrepancy factor +	Approx. current volume
2014	36702		10%	40372
2015	35432	-3%	10%	38975
2016	39789	12.3%	10%	43768
2017	42868	7.7%	10%	47155
2018	44508	3.8%	12%	49849

- Reasons for discrepancies will be presented in later slide

# WASTE COLLECTION VOLUMES

- Total waste collected in 2018 = 44,508 tonnes
  - 21,345 tonnes – household/domestic
  - 23,163 tonnes – Street cleaning, commercial and industrial

# WASTE VOLUME BY ZONES

## 2018 Domestic waste collection data

Write a description for your map.

Zone 5 - C'cou & PM- 2250 Tonnes/year

### Legend

- Perseverance Landfill
- Tonnes/year
- Town of St. George's
- Zone 1A- St George South
- Zone 1B- St. George's North
- Zone 2
- Zone 3
- Zone 4



## 2018 Domestic Waste collection

Zones	Tonne per annum
TOSG	1598
Zone 1A	5435
Zone 1B	3036
Zone 2	3408
Zone 3	4435
Zone 4	3434
<b>Total</b>	<b>21345</b>

Google Earth

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 Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
 Image © 2019 Maxar Technologies



6 mi



# WASTE STREAM CHARACTERISATIONS

## WASTE CHARACTERISATION PERCENTAGES

Type of waste	2018	2009	2002	1990
Organic Waste	28.7%	27.1%	41.7%	NA
Site cleaning waste		21.3%	0.6%	NA
Plastics	13.7%	16.4%	13.6%	NA
Paper and Cardboard	13.9%	13.6%	24.1%	NA
Construction & Demolition waste	2.7%	11.6%	1.3%	NA
Glass	7.9%	3.1%	7.7%	NA
Metals	6.5%	2.4%	6.9%	NA
Textiles	5.9%	2.3%	4.1%	NA
Used tires	0.0%	0.9%	NA	NA
Household bulky waste	0.2%	0.7%	NA	NA
Street sweepings	8.1%	0.6%	NA	NA
Other Hazardous	6.0%	NA	NA	NA
Special Care waste	6.4%	NA	NA	NA
	100.0%	100.0%	100.0%	0.0%

The background features abstract, overlapping green geometric shapes in various shades of green, ranging from light to dark, creating a modern and dynamic look. The shapes are primarily located on the right side of the page, with some extending towards the left.

# SOLID WASTE MANAGEMENT OVERVIEW

GRENADA SOLID WASTE MANAGEMENT AUTHORITY

# Waste Management Overview in Grenada

- The Waste Management acts formed GSWMA and governs its operation.
- Environmental levy is the major funding mechanism
- Waste contractors collect co-mingled waste, transport to dumpsite and disposed.
- GSWMA is responsible to manage the service and Ministry of Health provide the policy and carry out enforcement.
- GSWMA will be moving more into “Integrated solid waste management”; emphasis on reduce, reuse, recycle, waste to energy and lastly landfill.

# Waste Management

- **Revenue sources–**

- Environmental Levy Act no. 5 (1997) – 80%
- Other (private and government related services – 20%

Environmental levies	Percentage of total revenue
Customs and Excise	75%
Household	15%
Marine	8%
Stay Over	2%

# Recycling

- Materials recycled:
  - Bulky Metals (bailed by solid waste equipment, recycler pays for cubes and find his own market...number of bail or tons of material bail)
  - Bottles reused; waste pickers collect and return breweries bottle, Clarkes Court and other rum bottles
  - Copper wires, aluminum, stainless, scrap iron (softer material) motors area collected by pickers for export.



# SOLID WASTE MANAGEMENT CHALLENGES, SOME OF WHICH AFFECTS DATA COLLECTION

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# Illegal dumping issues

- Waste haulers short-cutting (individuals are paid to transport to landfill but never gets there)
- Persons may have left useful items in an area and this becomes a dumpsite as other waste are accumulated there
- Common dumpsites include abandon property, behind bridge and sea wall, byways.....
- Ministry of health directly responsible for dealing with illegal dumpsite (enforcers)
- Ministry of health usually order offenders caught to clean-up.
- These illegal dumpsites create a home for disease caring vector

# Issues of reporting data to the UNSD/UNEP

- Limited human resource capacity with heavy work loads.
  - May require specialize staff to manage, data collection system; collect, analyze and communicate data.
- Discrepancies in data collected:
  - Manual mistakes and omissions
  - Weigh bridge break down or malfunction - sometimes causing reliance on averages.
  - Delivering of waste outside of working hours - resulting in no record or reliance on averages



# DATA VALIDATION

Is the attached data compiled for international sources coherent with national data?

NO, in many cases it is not;

- GSWMA is the sole authorised waste manager in Grenada and therefore the only entity recording waste collection data.
- Occasionally consultants will assist GSWMA in carrying out waste audits.
- However, some statistics have been grossly misrepresented by various credible international agencies (see next slide for details)
- Overall the local data is relatively good but could have a negative discrepancy of between 5 to 15 percentage.

# DATA VALIDATION

## ANNEX J (continued)

MSW Generation by Country – Current Data and Projections for 2025

Country	Income Level	Region	Current Available Data		
			Total Urban Population	MSW Generation Per Capita (kg/capita/day)	Total MSW Generation (tonnes/day)
Finland	HIC	OECD	3,301,950	2.13	7,030
France	HIC	OECD	47,192,398	1.92	90,493
Gabon	UMI	AFR	1,144,675	0.45	521
Gambia	LI	AFR	822,588	0.53	438
Georgia	LMI	ECA	2,316,296	1.69	3,904
Germany	HIC	OECD	60,530,216	2.11	127,816
Ghana	LI	AFR	11,680,134	0.09	1,000
Greece	HIC	OECD	6,755,967	2.00	13,499
Grenada	UMI	LCR	31,324	2.71	85
Guatemala	LMI	LCR	5,237,139	2.00	10,466
Guyana	LMI	LCR	215,946	5.33	1,151
Haiti	LI	LCR	3,227,249	1.00	3,233
Honduras	LMI	LCR	2,832,769	1.45	4,110
Hong Kong, China	HIC	EAP	6,977,700	1.99	13,890
Hungary	HIC	OECD	6,717,604	1.92	12,904
Iceland	HIC	OECD	280,148	1.56	438
India	LMI	SAR	321,623,271	0.34	109,589
Indonesia	LMI	EAP	117,456,698	0.52	61,644
Iran, Islamic Rep.	LMI	MENA	46,219,250	0.16	7,197
Ireland	HIC	OECD	2,589,698	3.58	9,260
Israel	HIC	MENA	5,179,120	2.12	10,959
Italy	HIC	OECD	30,000,000	2.22	66,600
Jamaica	UMI	LCR	2,900,000	2.22	6,462
Japan	HIC	OECD	125,000,000	1.10	137,500
Kenya	UMI	AFR	33,000,000	0.25	8,250
Latvia	HIC	OECD	2,300,000	1.70	3,910
Lebanon	LMI	MENA	4,500,000	0.70	3,150
Lesotho	UMI	AFR	2,300,000	0.25	575
Lithuania	HIC	OECD	3,000,000	1.70	5,100
Luxembourg	HIC	OECD	550,000	2.00	1,100
Madagascar	UMI	AFR	22,000,000	0.25	5,500
Malawi	UMI	AFR	18,000,000	0.25	4,500
Malaysia	HIC	EAP	220,000,000	0.70	154,000
Maldives	HIC	EAP	340,000	1.70	578
Mali	UMI	AFR	18,000,000	0.25	4,500
Mexico	HIC	AMR	110,000,000	1.70	187,000
Moldova	HIC	EUR	4,000,000	1.70	6,800
Morocco	LMI	MENA	33,000,000	0.25	8,250
Mozambique	UMI	AFR	22,000,000	0.25	5,500
Myanmar	LMI	EAP	53,000,000	0.25	13,250
Netherlands	HIC	OECD	16,000,000	2.00	32,000
New Zealand	HIC	OECD	4,500,000	1.70	7,650
Nigeria	UMI	AFR	180,000,000	0.25	45,000
North Macedonia	LMI	EUR	2,100,000	1.70	3,570
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Poland	HIC	OECD	38,000,000	1.70	64,600
Portugal	HIC	OECD	11,000,000	1.70	18,700
Romania	HIC	OECD	21,000,000	1.70	35,700
Russia	HIC	OECD	143,000,000	1.70	243,100
Rwanda	UMI	AFR	11,000,000	0.25	2,750
Saudi Arabia	HIC	MENA	32,000,000	0.25	8,000
Senegal	UMI	AFR	15,000,000	0.25	3,750
Singapore	HIC	EAP	5,500,000	1.70	9,350
Slovakia	HIC	OECD	5,500,000	1.70	9,350
Slovenia	HIC	OECD	2,100,000	1.70	3,570
South Africa	UMI	AFR	55,000,000	0.25	13,750
South Korea	HIC	EAP	50,000,000	1.70	85,000
Spain	HIC	OECD	45,000,000	1.70	76,500
Sweden	HIC	OECD	9,500,000	1.70	16,150
Switzerland	HIC	OECD	8,500,000	1.70	14,450
Taiwan	HIC	EAP	23,000,000	1.70	39,100
Tanzania	UMI	AFR	55,000,000	0.25	13,750
Togo	UMI	AFR	7,500,000	0.25	1,875
Turkey	HIC	OECD	75,000,000	1.70	127,500
Uganda	UMI	AFR	33,000,000	0.25	8,250
Ukraine	HIC	OECD	47,000,000	1.70	79,900
United Kingdom	HIC	OECD	63,000,000	1.70	107,100
United States	HIC	OECD	310,000,000	1.70	527,000
Uruguay	HIC	AMR	3,500,000	1.70	5,950
Uzbekistan	LMI	EUR	28,000,000	0.25	7,000
Venezuela	HIC	AMR	28,000,000	1.70	47,600
Vietnam	LMI	EAP	80,000,000	0.25	20,000
Yemen	LMI	MENA	28,000,000	0.25	7,000
Zambia	UMI	AFR	11,000,000	0.25	2,750
Zimbabwe	UMI	AFR	11,000,000	0.25	2,750

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- World bank report; WHAT A WASTE, a global review of Solid Waste Management, 2012, Annex J, pg 81 - Grenada 2.71 kg/capita/day - waste generation. The highest we have ever been is 1.1 kg/capita/day
- Error was created by using the urban population of 31,324 instead of our general population which would have been approximately 105,000
- Many other reports reference the World bank's Report.

THANK YOU FOR YOUR TIME

GRENADA SOLID WASTE  
MANAGEMENT  
AUTHORITY

- ▶ NATIONAL EXPERIENCE ON WASTE STATISTICS