



CLIMATE AND CLEAN AIR COALITION  
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

# Penang State

City Assessment Presentation

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collaboration with the Penang State Government

# Penang State and City Overview

- Penang State = Penang Island Municipal Council (MPPP) and Seberang Perai Municipal Council (MPSP)
- Tropical climate with monsoons April – September
- Current population (2010 Census):
  - MPPP 741,300
  - MPSP 868,500



## Solid Waste Sector Information

No.	Item	MPPP	MPSP	Unit
1	Quantity of waste generated annually	288,377	528,275	Tonnes/year (2012)
2	Quantity of waste generated daily	790	1447	Tonnes/ day (2012)
3	Quantity of waste generated per capita	1.07	1.47	Kg/capita/day
4	Total number of households in the city	189,829	195,829	Households
5	Percentage of municipal budget used for solid waste sector	26	43	Percent
<i>Waste Composition* (Source: Derived from Satang Report 2003 )</i>				
i	Organic	43	63	percent
ii	Paper	28	5	percent
iii	Plastic	15	17	percent
iv	Metal	5	4	percent
v	Glass	0	0	percent
vi	Other	6	11	percent

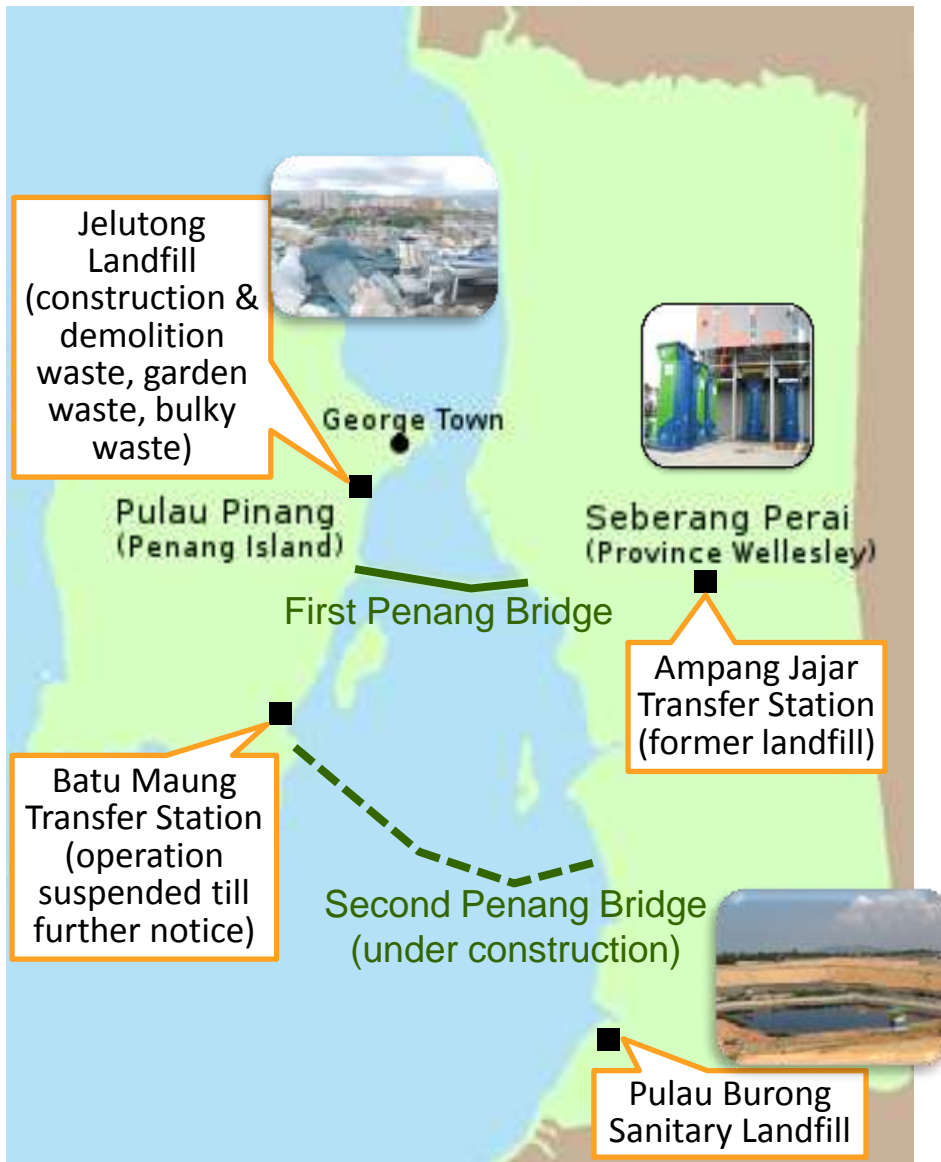
# Overall Waste Generation & Recycling

Year	Waste Disposed at Landfill Per Year (metric tons)			Recycling Per Year (metric tons)			Total Waste Generation Per Year (metric Tons) C=(A+B)	Recycling Rate (%) B/C
	MPPP	MPSP	Total A	MPPP	MPSP	Total B		
<b>2005</b>	280,489	416,254	696,743	57,178	96,032	153,210	849,953	18.03%
<b>2006</b>	295,498	463,750	759,248	82,210	119,964	202,174	961,422	21.03%
<b>2007</b>	216,490	490,729	707,219	80,351	125,504	205,855	913,074	22.55%
<b>2008</b>	218,440	472,005	690,445	33,775	124,121	157,896	848,341	18.61%
<b>2009</b>	216,456	428,563	645,019	61,307	132,039	193,346	838,365	23.06%
<b>2010</b>	213,591	426,152	639,743	63,756	129,804	193,560	833,304	23.23%
<b>2011</b>	209,701	401,663	611,364	72,341	144,682	217,023	828,387	26.20%
<b>2012</b>	205,972	370,989	576,961	82,405	157,286	239,691	816,652	29.35%

Source:

Penang Island Municipal Council (MPPP), 2013  
Seberang Perai Municipal Council (MPSP), 2013

# Overview of MSWM system



- MSW from Penang Island  
(Before the bridge construction)  
Transported to Batu Maung TS → barged to Pulau Burong Landfill  
(During the bridge construction)  
Transported to Ampang Jajar TS via the First Penang Bridge → compacted → transported to Burong Landfill
- MSW from North/Central Seberang Perai  
Transported to Ampang Jajar TS → compacted → transported to Pulau Burong Landfill
- MSW from South Seberang Perai  
Directly transported to Pulau Burong Landfill

# Administration of MSW

1. Penang Island Municipal Council (MPPP)
  - Urban Services Public Health and Licensing Department
    - Provides SWM services from collection to transfer and disposal
  - Engineering Department
    - Maintains all MPPP vehicles including waste collection trucks
    - Manages the Jelutong Landfill and the Batu Maung Transfer Station
  - Landscaping Section of Development Planning Department
    - Accounts for garden waste from roadside trimmings of trees and maintenance of the landscape areas under its jurisdiction
2. Seberang Perai Municipal Council (MPSP)
  - Urban Services Department
    - In-charge of planning and managing SWM
  - Engineering Department
    - Maintains and repairs MPSP's assets including waste collection vehicles
  - Urban Planning and Land Scaping Department
    - Accounts for garden waste from roadside trimming of trees and maintenance of the landscape areas under its jurisdiction

**Strategy  
1:**

**Waste  
Separation at  
Source**

**Strategy  
2:**

**Waste  
Diversion  
from the  
landfill**

**Strategy  
3:**

**Incentivising  
the System**

**Strategy  
4:**

**Capacity  
Building &  
Awareness  
Programmes**

**Strategy  
5:**

**Looking  
Ahead**

# Samples of Implemented Projects & Activities

## Waste Minimisation and Diversion from the landfill

- Promote **waste minimisation programmes** & **waste diversion** from the landfill
- Develop a better managed solid waste management system through the **upgrading the existing landfill** at Pulau Burong to a Level IV Sanitary Landfill with leachate treatment.
- Set up **buy-back centres, material recovery facilities** or **resource recovery centres** to divert waste away from the landfill.
- Collect used **PCs & peripherals** under the Dell-Sunshine-Penang Island Municipal Council Programme, JICA **Household e-waste** collection programme
- Collect **used cooking oil** from eateries, restaurants, food complexes.
- Collect **food and organic waste** for composting and processing into **bio-liquid fertilizer**.
- Green waste static fermentation using the Groundswell process for **top soil production**
- Implemented the “100 steps to cleanliness” project using **3R illuminated bins** along major streets
- Established “**smoke-free**” zones for Penang.
- **Banned** the giving of free plastic shopping bags in Supermarkets / Hypermarkets to reduce the carbon footprint –**No Free Plastic Bag Law**
- **Banned** the use of **Styrofoam food containers**.
- Enforced the **closed house system** for pig-farming activities.
- Collection of used **roadside banners** to be turned into shopping bags.
- **Green awards** for practioners – Greens School, Green Office, Green Citizen, Green industry etc.
- Promote more **Zero Waste** communities



# BAGAN AJAM WET MARKET WASTE COMPOSTING PLANT



# Penang's Organic Waste Policy - Suggestions for Improvement

## OBJECTIVES

1

- To divert the amount of organic waste (putrescibles) from the Pulau Burong Sanitary Landfill and moving towards a total ban in the long term.

2

- To reduce the costs of collection, transfer and treatment of organic waste for the local authorities by treating organic waste at source.

3

- To incentivise organic waste treatment by private and community efforts through costs savings by local authorities.

4

- To emulate nature and return all organic outputs to food production, parks and gardens and energy production thereby completing the nutrient cycle to ensure a sustainable food supply and security.

# Proposed Pilot Projects

1. Building Zero Waste Communities –Sg Nibong Tzu Chi Environment Education Center (TCEEC)
2. Food Waste, Bulk Waste & Green Waste Recovery at Ampang Jajar Transfer Station for MPSP using the Groundswell Process
3. Zero discharge system for pig farming area with conversion of pig waste into bio-gas, compost or algae cultivation.
4. Food to Food - Sustainable Organic Waste Management to Agriculture Training Centre, Seberang Perai using the Groundswell Process
5. Identifying more other activities and projects for strategies and approaches for the implementation of the Penang's Organic Waste Policy

Thank you

Questions are welcomed...