

# FOOD WASTE IN MALAYSIA : CHALLENGES AND INITIATIVES

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Overview

Solid Waste Management in Malaysia





### FEDERALIZATION OF SOLID WASTE AND PUBLIC CLEANSING MANAGEMENT

## • PURPOSE

- To standardize the level of Solid Waste Management and Public Cleansing across all Local Authorities
- To create an economically and environmentally sound Solid Waste Management Industry
- To give financial assistance to less able state
- RESULTS
  - 7 States adopted Act 672
  - □ 7 states managed by State Government or Local Authority



| <u>Responsibility</u> | Act 672 States                 | Non-Act 672 States |
|-----------------------|--------------------------------|--------------------|
| Implementation        | GoM                            | Local Authorities  |
| Cost                  | GoM with contribution from PBT | Local Authorities  |

Overview

Solid Waste Management in Malaysia



# PRIVATIZATION OF SWM THROUGH THE APPOINTMENT OF CONCESSIONAIRES

| CONCESSIONAIRES      | ZONE                        | STATE                                   |
|----------------------|-----------------------------|---|
| Alam Flora Sdn. Bhd. | Central &<br>East<br>Region | W.P Kuala Lumpur<br>& Putrajaya, Pahang |
| Environment Idaman   | North<br>Region             | Kedah & Perlis                          |
| SWM Environment      | South<br>Region             | Negeri Sembilan,<br>Melaka & Johor      |

# COMPARISON BETWEEN STATE ADOPTING THE ACT 672 & STATE NOT ADOPTING 672



Data of Waste Generation in Malaysia



# **WASTE GENERATION IN MALAYSIA**





# **RECYCLING RATE IN MALAYSIA**



Statistics of food waste in Malaysia

Õ 44.5% of domestic waste is food waste

2.2



person generates 1.17kg of waste/day

# FOOD WASTE STATISTIC

37,500 tonnes of domestic waste/day.

16,687.5 tonnes/day is food waste

Malaysians tends to buy food rather than cook them.

4,005 tonnes waste benefit 2.97M people for 3 days meal

0

Ø

¼ of food is wasted

during processing,

preparation or

aftermeal

# 12,683 TONNES

76%

Unavoidable food waste

Avoidable waste

24%

45% of 1.17 kg is

food waste =

0.52 kg

4,005 TONNES



4,005 tonnes of avoidable food waste to the industry





 Households
 Wet & night market
 Food courts/restaurants
 Hotels

Food&beverages

- Shopping malls
- Hypermarkerts

Institutions

Schools

Fast food/chain shops





# (source : Jereme, I.A., 2016)



FOOD WASTE MANAGEMENT DEVELOPMENT PLAN FOR INDUSTRY, COMMERCIAL AND INSTITUTION SECTOR (2016-2026)

# FRAMEWORK OF FOOD WASTE MANAGEMENT IN MALAYSIA

OUTLINE OF FOOD WASTE MANAGEMENT DEVELOPMENT PLAN FOR INDUSTRY, COMMERCIAL AND INSTITUTION SECTOR (2016-2026)



3.2

FOOD WASTE MANAGEMENT DEVELOPMENT PLAN FOR INDUSTRY, COMMERCIAL AND INSTITUTION SECTOR (2016-2026)



# ANAEROBIC DIGESTER (AD)

# Campus University Food Court & Eatery

LOCATION: UPM & UM

To create green campus





Can use for 18-Watt led for about 72h

- estimated 5.0 6.8 tonnes/day of MSW generated in UPM.
- 30 -33% of MSW is organic  $\bullet$ fraction
- 715 kWh of electricity may  $\bullet$ be generated

LOCATION : Food court and eatery as - Port Dickson, Putrajaya, Melaka



SimbionteA

biogas production : 80m3/day

electricity generation : >5kW/h (for full module)



food waste disposal system : >500kg/day

 $\mathbb{X}$ feed flow rate : 150 - 300 L/h

# **Commercial Area**

an Kuasa: 21kW

+ system

gas production process







anaeroic digester process



- divert from landfill
- **ZERO** wastes
- reduce the Receiving Wastes Capasity of MSW, Rejected Waste and General Waste to only 3-5% for easy handling
- reduce transportation cost 95% ◆
- reduce the use of garbagae trucks 95%
- reduce the use of RORO 95%
- by product burnt ash can be sold used as ferilizer and construction industry

# **Residential Area**

LOCATION : Jitra, Kulim, Pulau Tuba





### PULAU TUBA, LANGKAWI





1 m3 of biogas can cook for approximately



1 m3 of biogas can generate 6 kWh of electricity (60 bulb of 100w in !hour)



1kg of food waste will generate 0.1 m3 of biogas.



In 1 hour, 2 m3 of biogas being generated which equivalent to 48 m3/day



3.3

# FOOD WASTE MANAGEMENT DEVELOPMENT PLAN FOR INDUSTRY, COMMERCIAL AND INSTITUTION SECTOR (2016-2026)



FOOD WASTE MANAGEMENT DEVELOPMENT PLAN FOR INDUSTRY, COMMERCIAL AND INSTITUTION SECTOR (2016-2026)

# FOOD WASTE REDUCTION STUDY AT SELECTED RAMADHAN BAZAAR 2019

- INTRODUCTION
- Ramadhan Bazaar is known as one of the source to generate high food waste on various related factors such as food wastage, weather etc.
   A trial study has been conducted at
- A trial study has been conducted at Bazaar Ramadhan Kg Baharu, Kuala Lumpur in 2017 and 2018.

# **OBJECTIVES**

- Review the potential of food waste generation at a Ramadhan bazaar.
- Applying a culture of waste reduction among traders.
- Ensure that the food surplus can benefit to others rather than being sent to the landfill.

# RESULT AND DISCUSSION

### ULT depl ID b SSION d univ

Food surplus can be avoided from being depleted and utilized by asnaf, less fortunate, disadvantaged university students and mosques

Traders are beginning to realize the need to plan the menu and the amount of cooking to be overpriced everyday as it involves the value of money and energy. Slowly the food surplus is diminishing

# Standard Operating Procedures Select a Ramadan bazaar Collaboration with NGOs for volunteer assistance Inform the PBT for support Get a list of asnaf and poor families Briefed the volunteers to communicate with the merchants Engagement with traders Accept food from traders Weigh and record Send food to the needy

There are traders who take advantage of this program in Ramadhan by separating some food packs so that they can be handed over to those who are capable.



# OVERALL FOOD SURPLUS COLLECTED



A total of 17,175.62 kg or 17.2 tonnes of food and beverage surplus was successfully collected over a two-week program

A total of 8,861 kg

of food surplus was

two-week program.

successfully

collected over a

8,861 kg of this

food surplus can

benefit 17,722

people for one

meal breaking fast.



3.5

FOOD WASTE MANAGEMENT DEVELOPMENT PLAN FOR INDUSTRY, COMMERCIAL AND INSTITUTION SECTOR (2016-2026)



WAY FORWARD

4.1



# **THANK YOU**