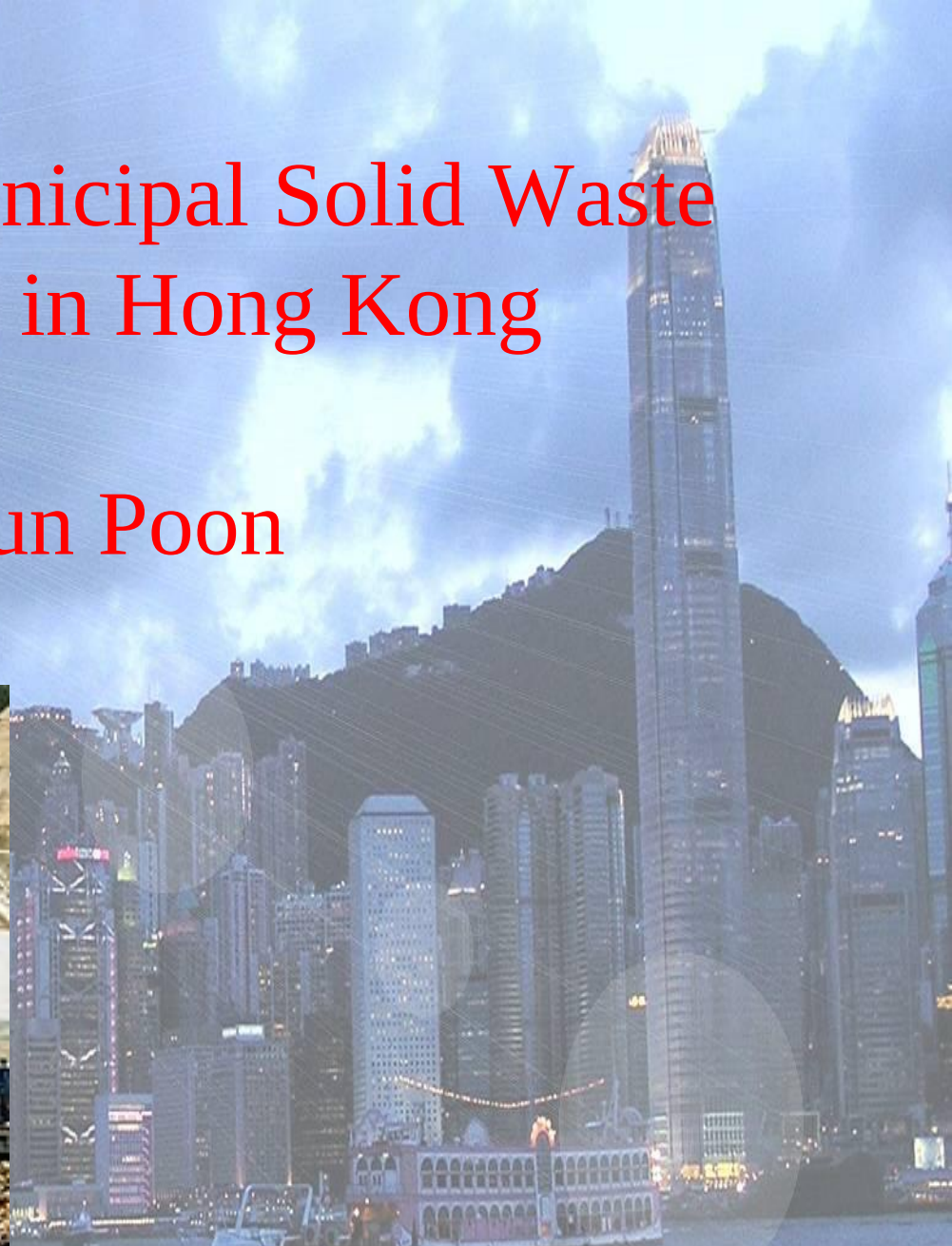


# Challenges of Municipal Solid Waste Management in Hong Kong

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# Waste Management Hierarchy

1. Avoid/Minimise waste  
generation

2. Reuse/Recycle the material

3. Treatment/transformation

4. Proper disposal of waste

AVOID/MINIMISE

REUSE/RECYCLE

TREATMENT/  
TRANSFORMATION

DISPOSAL

# Challenges

1. **Avoid/Minimise waste generation**

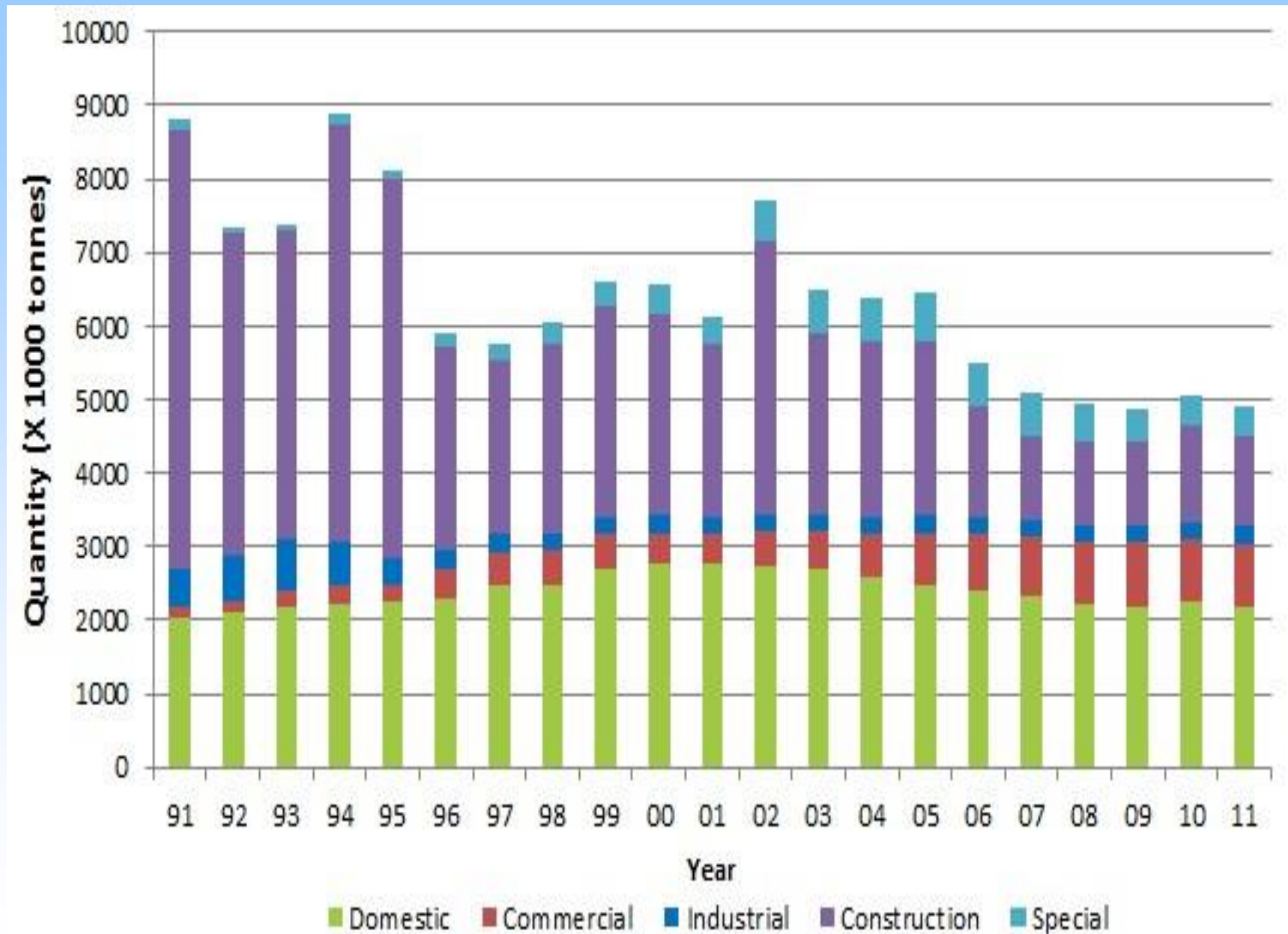
2. **Reuse/Recycle the material**

3. **Treatment/transformation**

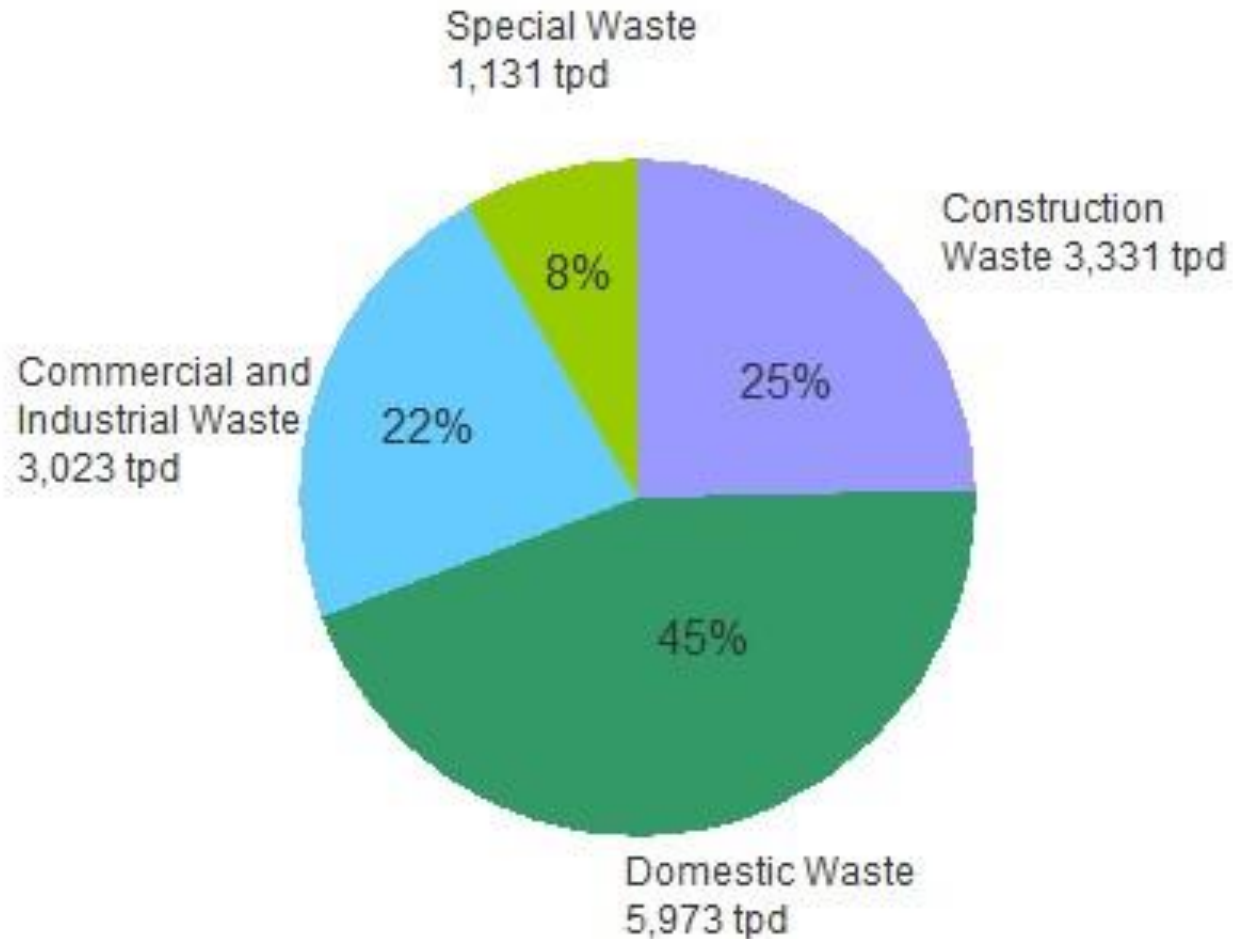
4. **Proper disposal of waste**



# Quantities of Solid Waste Disposed of at Landfills in 1991-2011



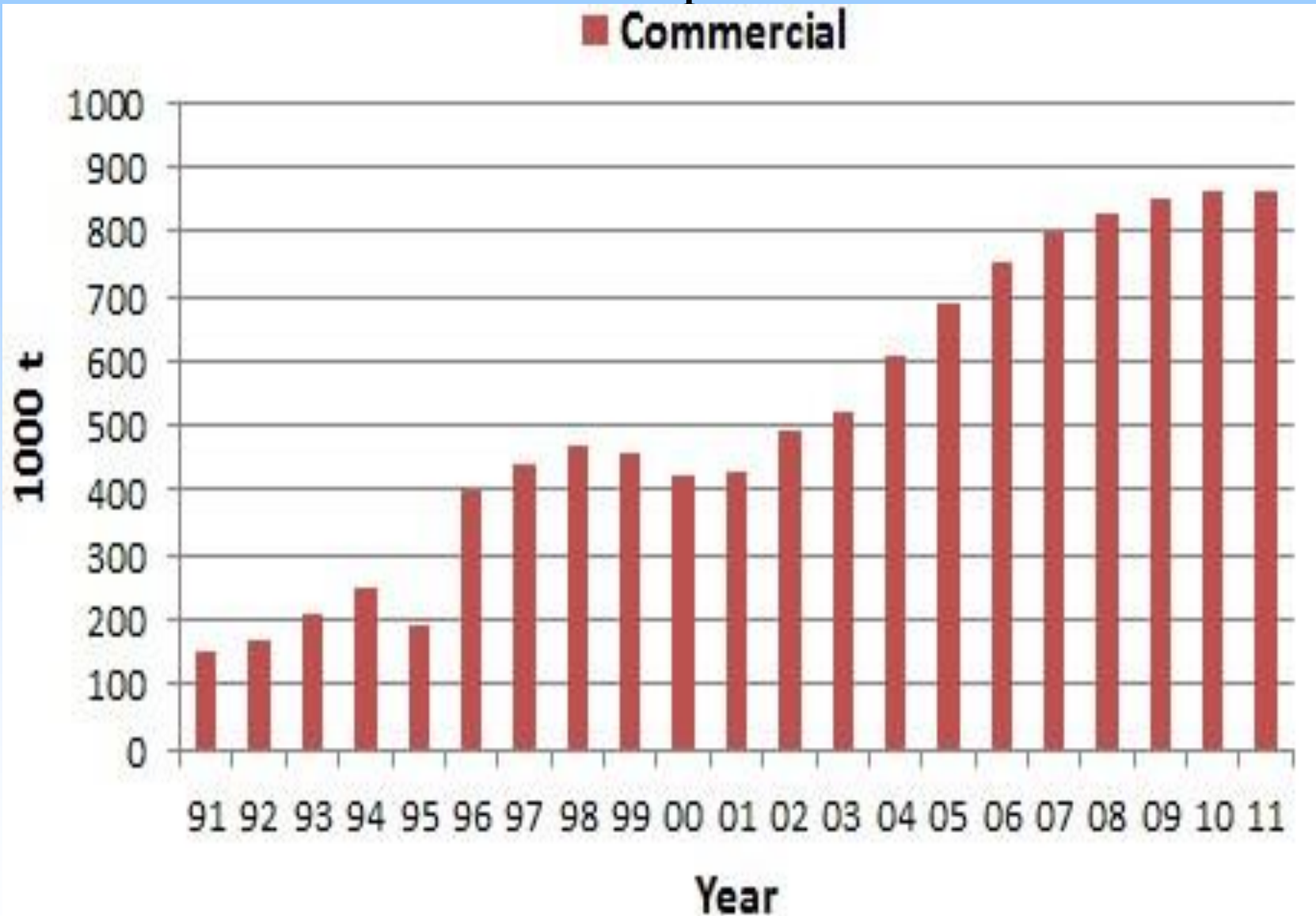
# Types of Solid Waste Disposed of at Landfills in 2011



Total : 13,458 tonnes per day

Note : Figures may not add up to total due to rounding off.

# Commercial waste disposed of at landfills



Data from EPD

**FIGURE 2** Daily domestic waste generation rates per capita compared



**Plate 2.8      Composition of municipal solid waste in 2011**

| Composition                                            | Average daily quantity (tpd) and percentage by weight |                  |                  |                               |                       |
|--------------------------------------------------------|-------------------------------------------------------|------------------|------------------|-------------------------------|-----------------------|
|                                                        | Domestic waste                                        | Commercial waste | Industrial waste | Commercial & industrial waste | Municipal solid waste |
|                                                        | (a)                                                   | (b)              | (c)              | (d)=(b)+(c)                   | (e)=(a)+(d)           |
| <b>Glass</b>                                           | 189<br>(3.2%)                                         | 78<br>(3.3%)     | 10<br>(1.5%)     | 88<br>(2.9%)                  | 278<br>(3.1%)         |
| <b>Metals</b>                                          | 129<br>(2.2%)                                         | 36<br>(1.5%)     | 17<br>(2.6%)     | 53<br>(1.7%)                  | 182<br>(2.0%)         |
| <b>Paper</b>                                           | 1,259<br>(21.1%)                                      | 569<br>(24.1%)   | 103<br>(15.5%)   | 672<br>(22.2%)                | 1,931<br>(21.5%)      |
| <b>Plastics</b>                                        | 1,107<br>(18.5%)                                      | 464<br>(19.7%)   | 123<br>(18.5%)   | 587<br>(19.4%)                | 1,694<br>(18.8%)      |
| <b>Putrescibles</b>                                    | 2,868<br>(48.0%)                                      | 1,014<br>(43.0%) | 113<br>(17.0%)   | 1,126<br>(37.3%)              | 3,994<br>(44.4%)      |
| <b>Textiles</b>                                        | 141<br>(2.4%)                                         | 56<br>(2.4%)     | 20<br>(3.0%)     | 76<br>(2.5%)                  | 217<br>(2.4%)         |
| <b>Wood/Rattan</b>                                     | 91<br>(1.5%)                                          | 40<br>(1.7%)     | 187<br>(28.2%)   | 227<br>(7.5%)                 | 318<br>(3.5%)         |
| <b>Household hazardous wastes (HHWs)<sup>(1)</sup></b> | 64<br>(1.1%)                                          | 14<br>(0.6%)     | 5<br>(0.7%)      | 19<br>(0.6%)                  | 83<br>(0.9%)          |
| <b>Others<sup>(2)</sup></b>                            | 122<br>(2.0%)                                         | 90<br>(3.8%)     | 86<br>(13.0%)    | 176<br>(5.8%)                 | 298<br>(3.3%)         |
| <b>Sub-total</b>                                       | 5,973<br>(100%)                                       | 2,360<br>(100%)  | 663<br>(100%)    | 3,023<br>(100%)               | 8,996<br>(100%)       |

Remark: Figures denote quantities and percentages by wet weight.

Notes:

- (1) Household hazardous wastes (HHWs) include paints, pesticides, fuels, cylinders, batteries, electrical appliances, computer products, mercury-containing fluorescent lamps and medicines, etc.
- (2) Other waste includes bulky items and other miscellaneous materials.

Source : EB

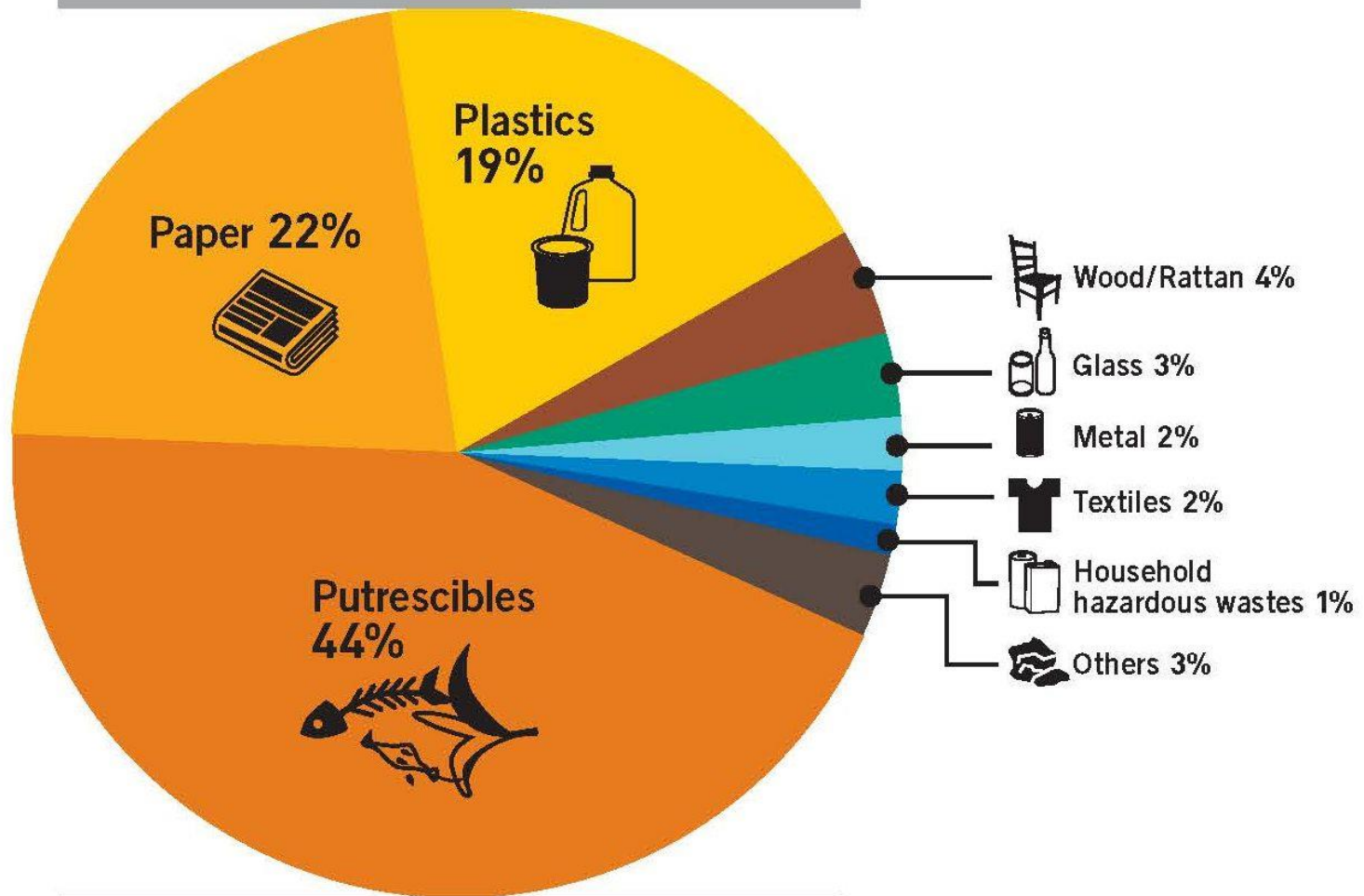


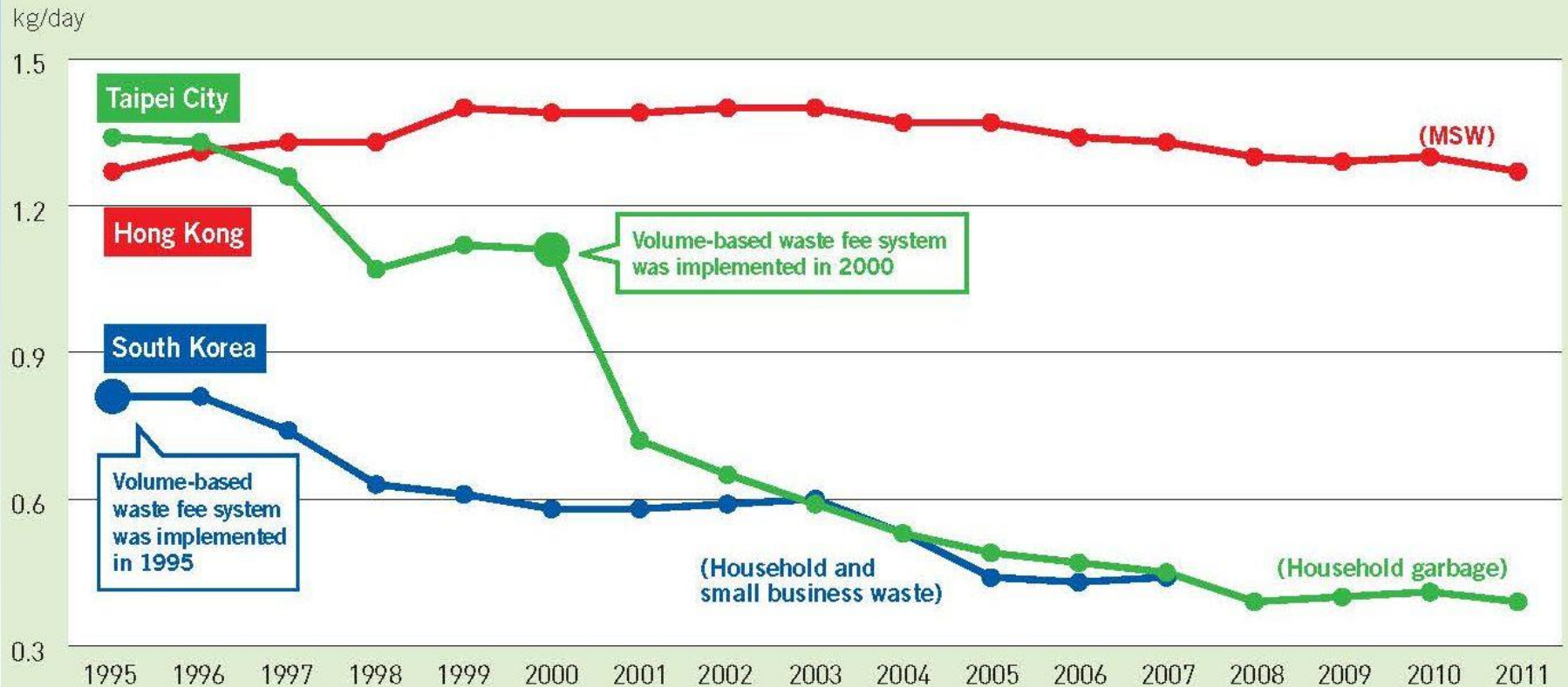
**FIGURE 1**

**Composition of MSW in Hong Kong, 2011**

Note: The average daily MSW disposal quantity was 9,000 tonnes in 2011.



**FIGURE 4** Waste disposal rates in Hong Kong, Taipei City and South Korea (per capita)



# **Charging for Waste Disposal**

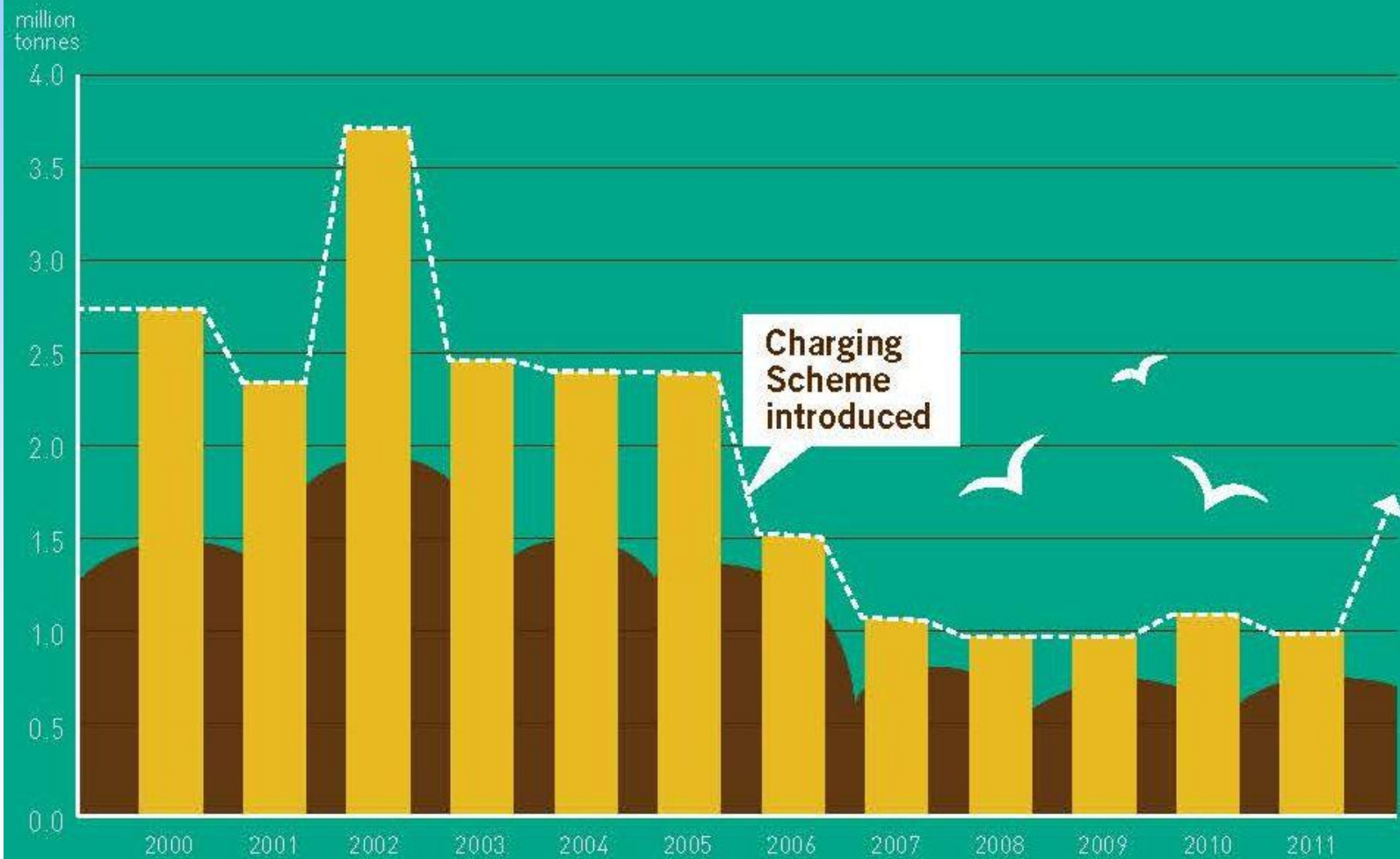
Charging scheme implemented  
for C&D waste since 2006

Currently no charge for MSW

2005 Policy Framework Target : 2009

2013 Blueprint : 2016/17

**FIGURE 10** Reduction in construction waste in Hong Kong



# Challenges

## Reduce and Minimize

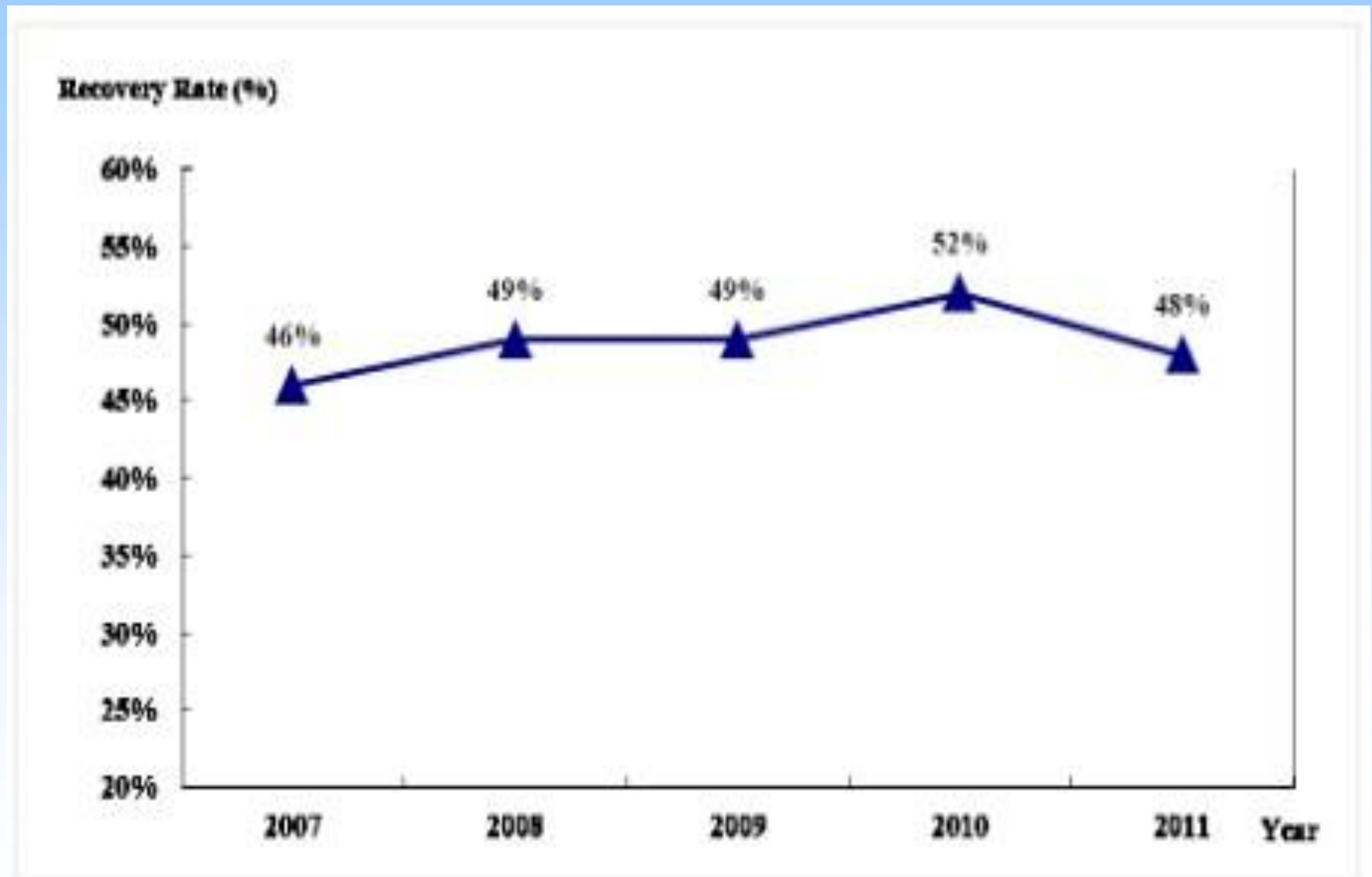
Effective implementation of waste charging  
PRS scheme

# Challenges

1. Avoid/Minimise waste generation
2. Reuse/Recycle the material
3. Treatment/transformation
4. Proper disposal of waste



## Municipal solid waste recovery rates in 2007 - 2011



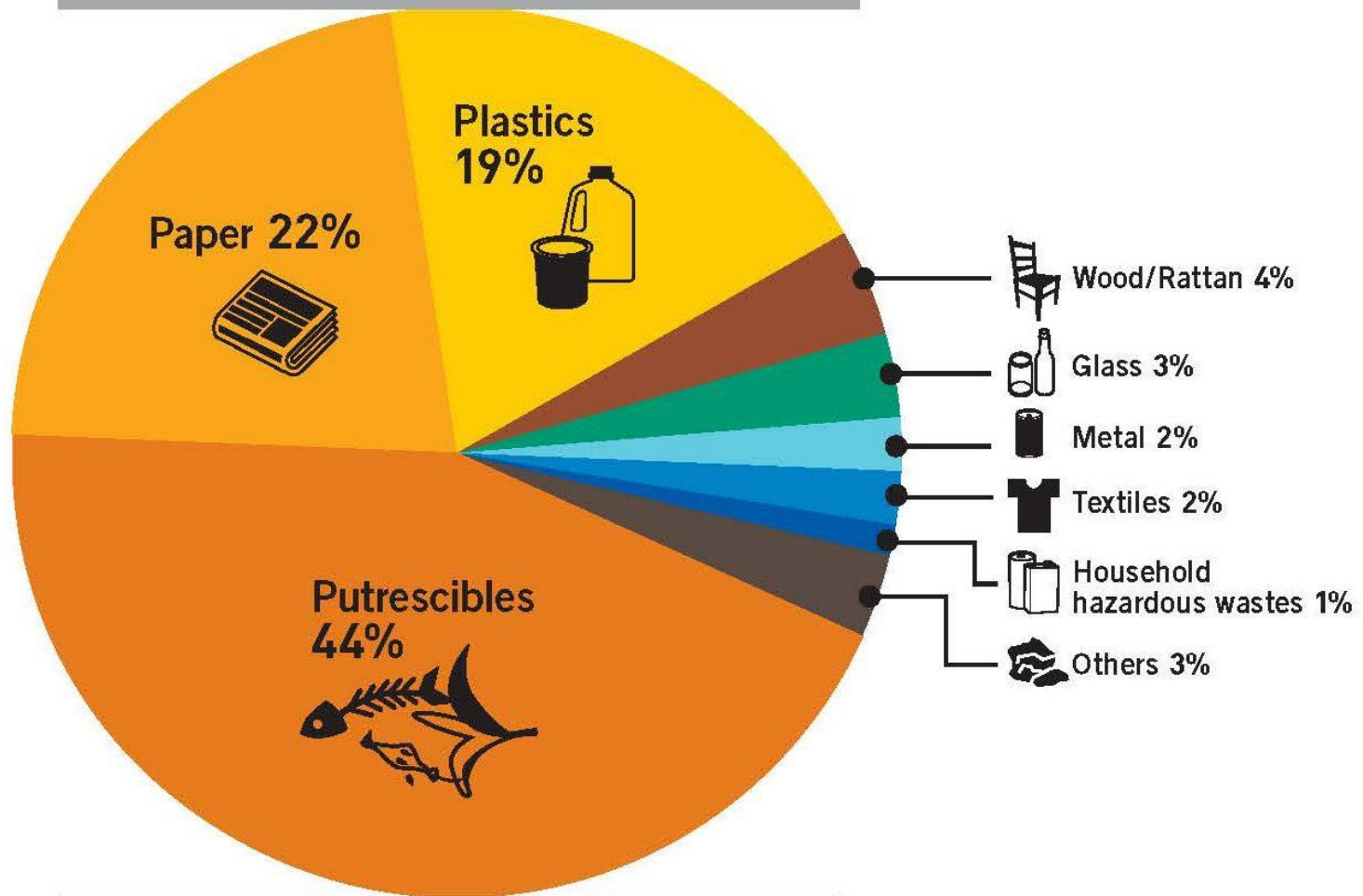


**FIGURE 1**

**Composition of MSW in Hong Kong, 2011**

Note: The average daily MSW disposal quantity was 9,000 tonnes in 2011.

# Recovered recyclable materials by type in 2011

| Material type                       | Quantity of recovered recyclable materials (thousand tonnes) |                         |                                                  |
|-------------------------------------|--------------------------------------------------------------|-------------------------|--------------------------------------------------|
|                                     | Exported for recycling<br>(a)                                | Recycled locally<br>(b) | Total recovered for recycling<br>(c) = (a) + (b) |
| Paper                               | 1,278.4                                                      | 0                       | 1,278.4                                          |
| Plastics                            | 839.3                                                        | 3.9                     | 843.2                                            |
| Ferrous metals                      | 667.3                                                        | 0                       | 667.3                                            |
| Non-ferrous metals                  | 105.5                                                        | 9.6                     | 115.1                                            |
| Glass                               | 0.2                                                          | 4.6 <sup>(1)</sup>      | 4.8                                              |
| Rubber tyres                        | 0                                                            | 14.8 <sup>(2)</sup>     | 14.8                                             |
| Textiles                            | 10.8                                                         | 0                       | 10.8                                             |
| Wood                                | 17.6                                                         | 0.1                     | 17.7                                             |
| Food waste                          | 0                                                            | 0.6 <sup>(3)</sup>      | 0.6                                              |
| Electrical and electronic equipment | 56.1                                                         | 10.6                    | 66.7                                             |
| <b>Total</b>                        | <b>2,975.1</b>                                               | <b>443</b>              | <b>3,019.3</b>                                   |

**Notes:**

- (1) The quantity does not include glass beverage bottles recovered through deposit-and-refund system operated by local beverage manufacturers.
- (2) The quantity includes retreading and recycling of vehicle tyres and retreading of aircraft tyres in Hong Kong.
- (3) The quantity refers to food waste recycled at EPD's pilot composting facility at Kwun Tong Bay. There is also limited food waste recycling practised by industrial operators and a number of residential and commercial establishments that use small plant of capacities ranging from 5 kg per day to 200 kg per day.

# Recovery Rates of Common Recyclable Materials in 2011 (source EPD)

## Current

|                    |      |
|--------------------|------|
| Paper              | 64 % |
| Ferrous Metals     | 93%  |
| Non-Ferrous metals | 90%  |
| Plastics           | 58%  |
| Glass              | 4%   |
| Wood               | 13%  |
| Textiles           | 12%  |

## Future

- Food waste ?????

# How to increase waste recycling rate : 48% → 55% ???

1. Food waste : OWTF (500t from C&I sources)
2. Other food waste (domestic) sources ?????
3. Glass → 70%
4. Paper and Plastics (Packaging wastes)

# Tools

- Education (Foodwise)
- Waste charges
- Product Responsibility Scheme (PRS)
- Green procurement

A Policy Framework for the Management  
of Municipal Solid Waste (2005-2014)



# HONG KONG BLUEPRINT FOR SUSTAINABLE USE OF RESOURCES 2013 – 2022

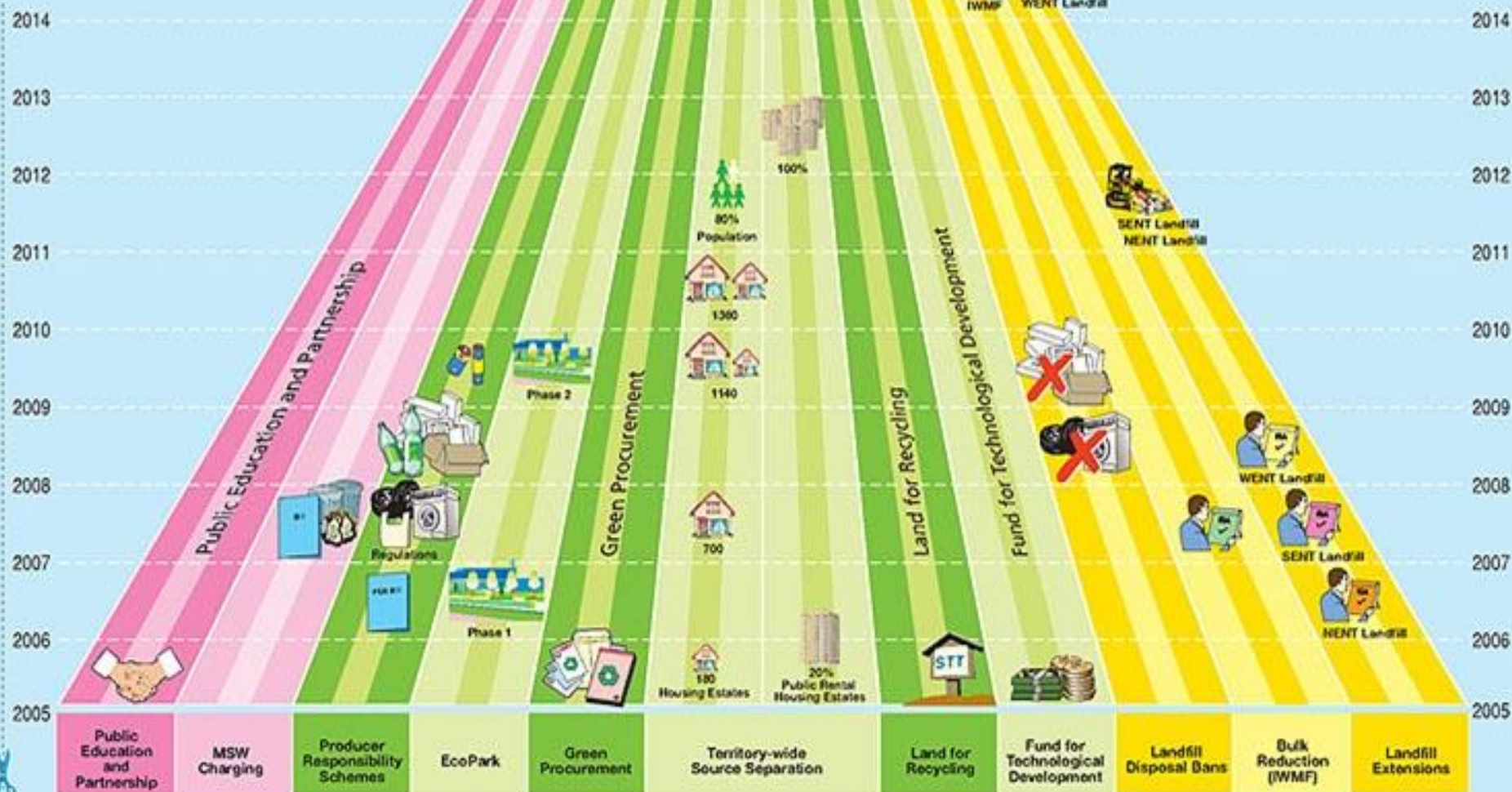
Environment Bureau



# A Policy Framework for the Management of Municipal Solid Waste (2005-2014)



MSW - Municipal Solid Waste  
 PER SR - Product Eco-responsibility Bill  
 IWMF - Integrated Waste Management Facilities  
 EIA - Environmental Impact Assessment  
 STT - Short term tenancy



# PRS

## 2005 Policy Framework Targets

| Products                                                                                                                    | Target Date |
|-----------------------------------------------------------------------------------------------------------------------------|-------------|
|  Electrical and Electronic Equipment (EEE) | 2007        |
|  Vehicle tyres                             | 2007        |
|  Plastic shopping bags                     | 2007        |
|  Packaging materials                      | 2008        |
|  Beverage containers                      | 2008        |
|  Rechargeable batteries                  | 2009        |

# PRS for Waste Reduction

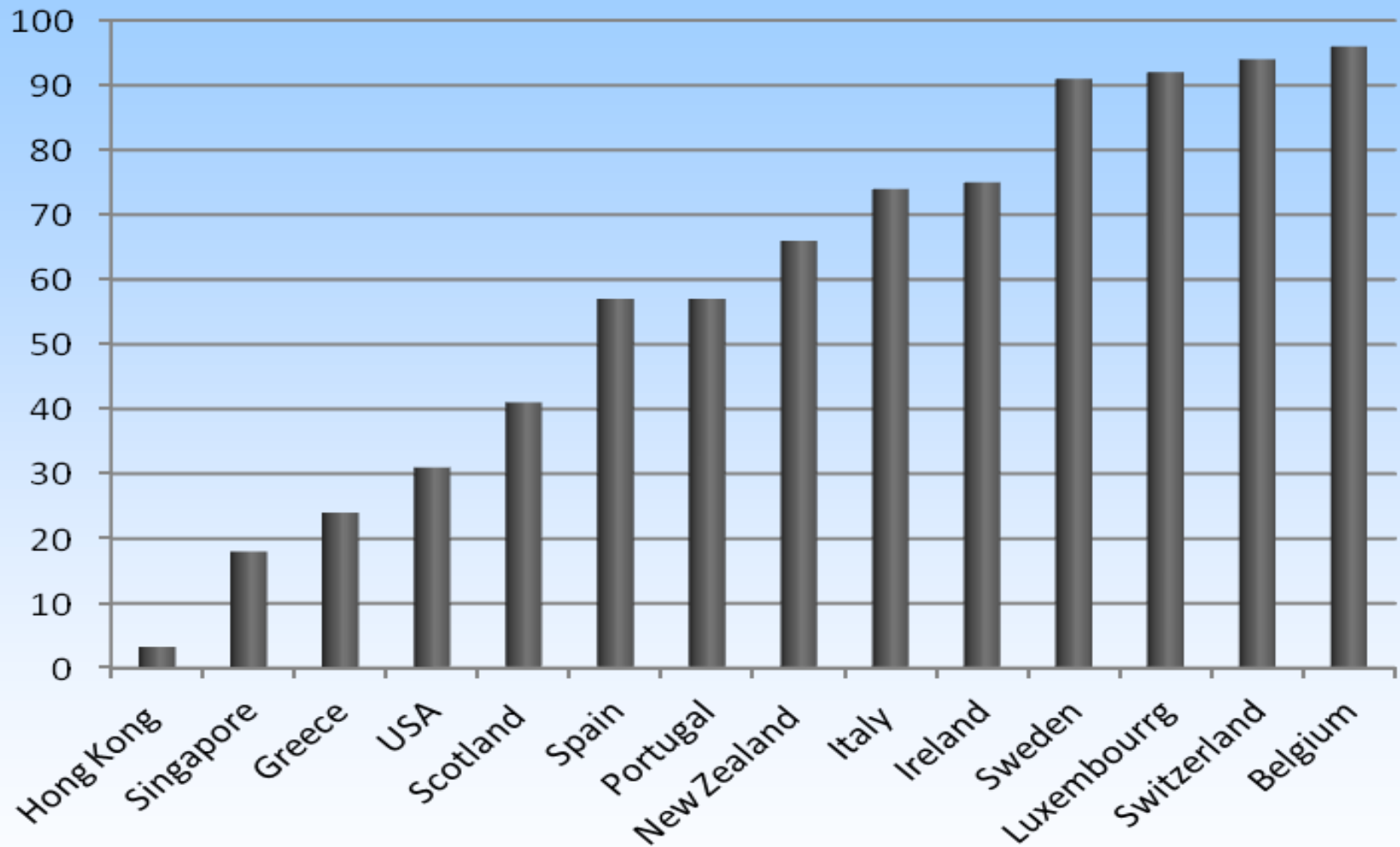
Plastic Shopping Bag Levy Since July 2009



# PRS for Waste Recycling

- Mandatory : Under consultation : glass bottles
- Voluntary schemes on
  - rechargeable batteries
  - WEEE
  - Fluorescent lamp
- Without mandatory scheme, effectiveness is limited.

## % glass recovered



Source : Donnelly et al

# Challenges

## Recycling

Effective implementation of waste charging

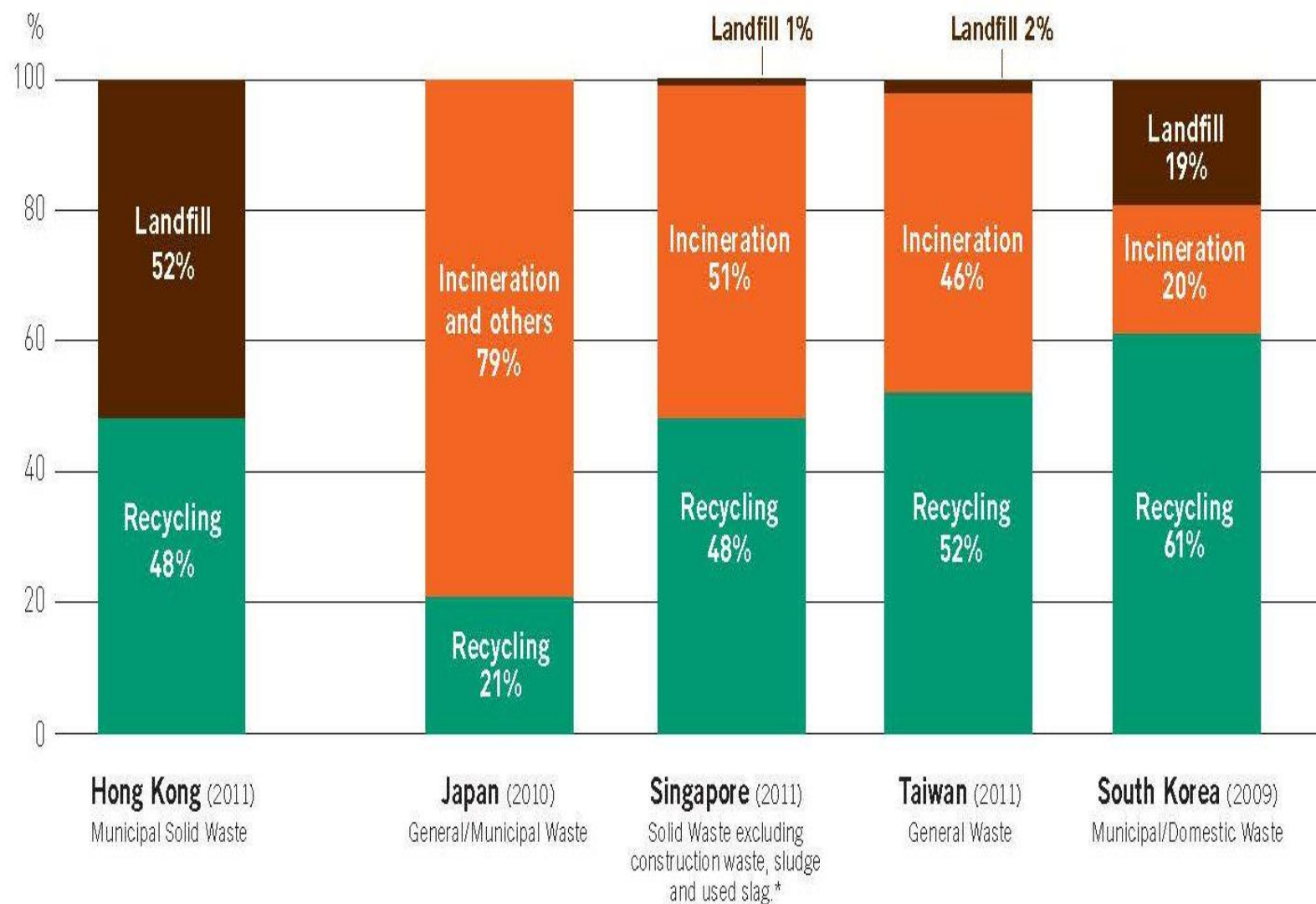
PRS scheme

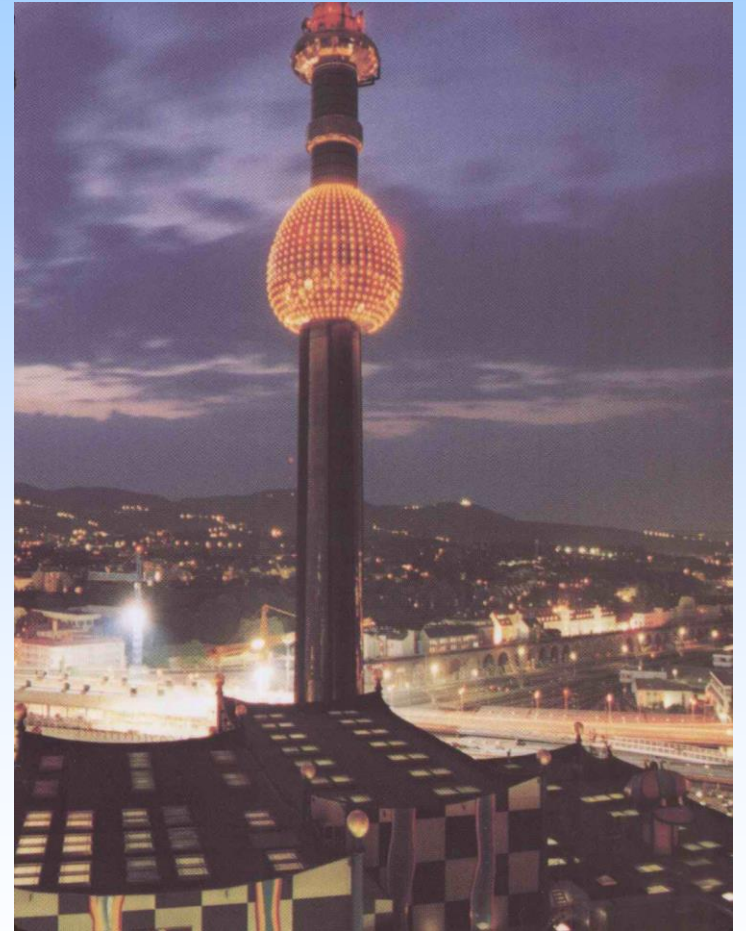
Green procurement

# Challenges

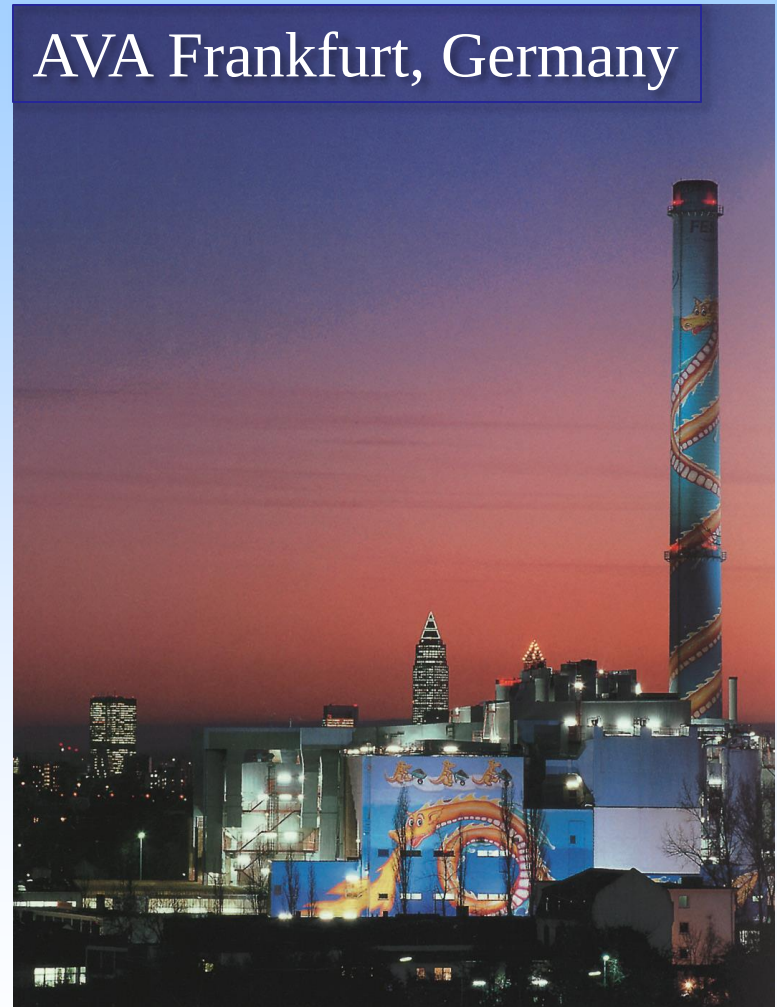
1. Avoid/Minimise waste generation
2. Reuse/Recycle the material
3. Treatment/transformation
4. Proper final disposal



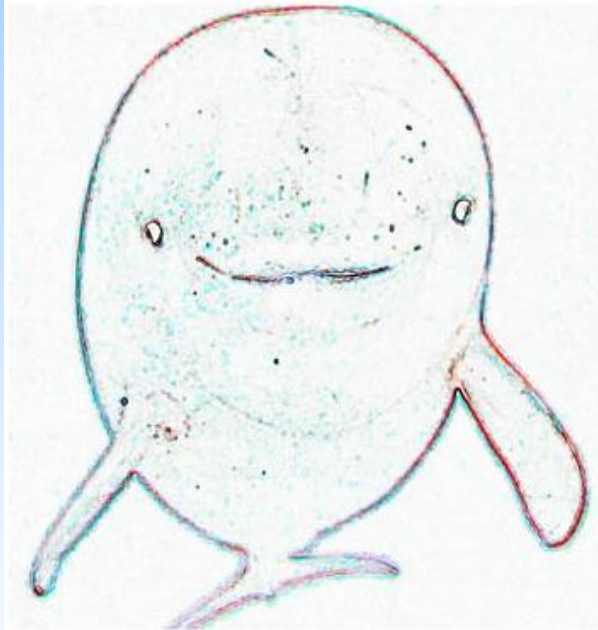
**FIGURE 6** Comparison of waste management structure with other Asia areas



# Overseas Incinerators



# HK legislators say no to mega incinerator plan (April 2012)



**\$130億 超級垃圾焚化爐 反對**  
**\$13 Billion Mega-Incinerator NO WAY!**

# Challenges

## Waste to Energy (WTE) Plants

Choice of technology

Treatment and disposal of ash

Siting (NIMBY)

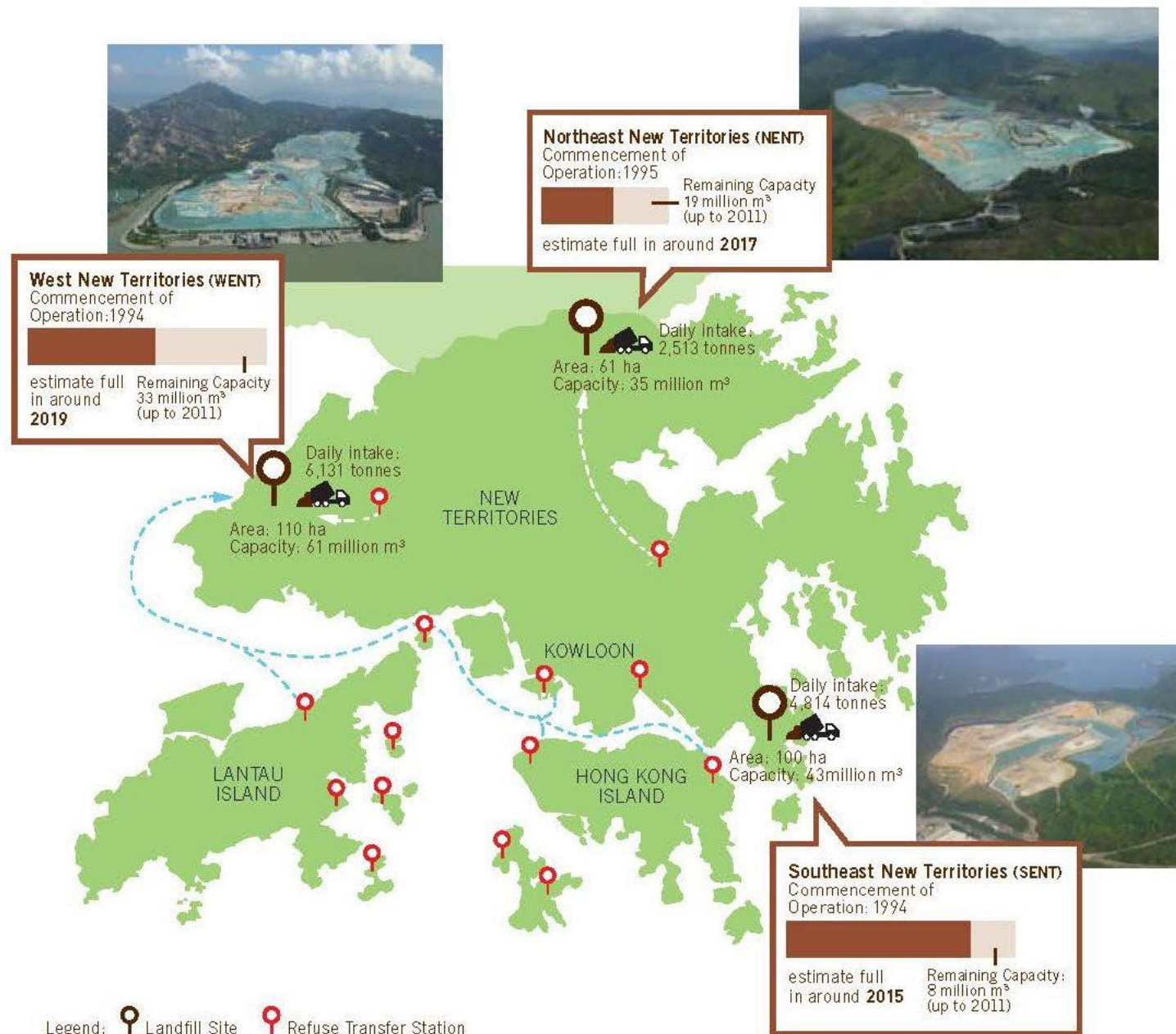
# Challenges

1. Avoid/Minimise waste generation
2. Reuse/Recycle the material
3. Treatment/transformation
4. Proper final disposal



**FIGURE 3** Geographical distribution and utilization of landfills in Hong Kong

Source : EB



# Challenges

## Landfilling

Landfill extension

Siting

(odor, nuisance)

# HONG KONG BLUEPRINT FOR SUSTAINABLE USE OF RESOURCES 2013 – 2022

Environment Bureau

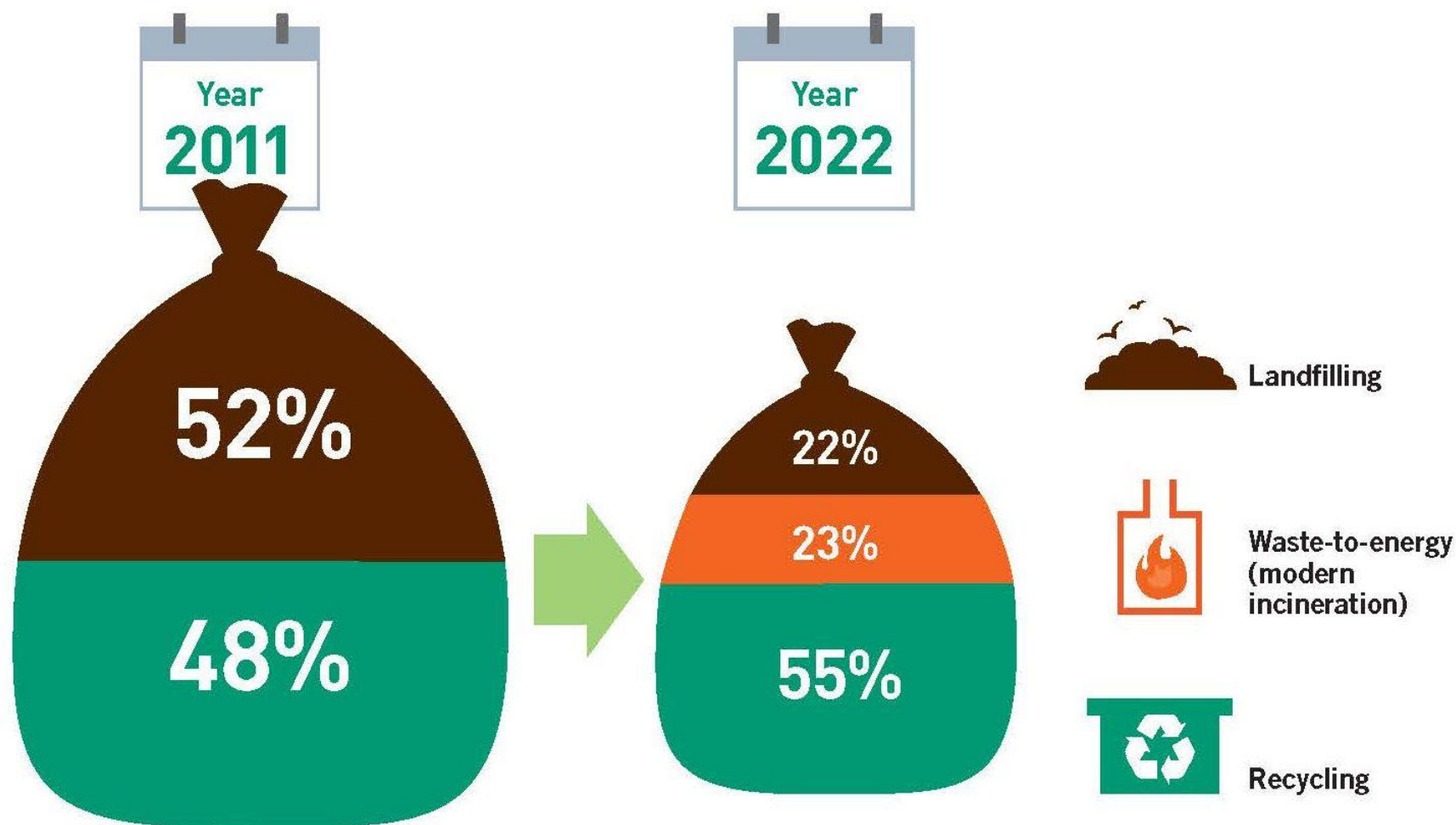


May 2013

**FIGURE 11** MSW Disposal Rate Reduction Targets

**FIGURE 15** Evolution of Hong Kong's Waste Management Structure

Source : EB



A panoramic view of the Hong Kong skyline at dusk. The sky is a deep blue with scattered white clouds. The city's lights are beginning to glow, and the Victoria Harbour is visible in the foreground. The background features the dark, silhouetted hills of Hong Kong.

# Thank you

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