



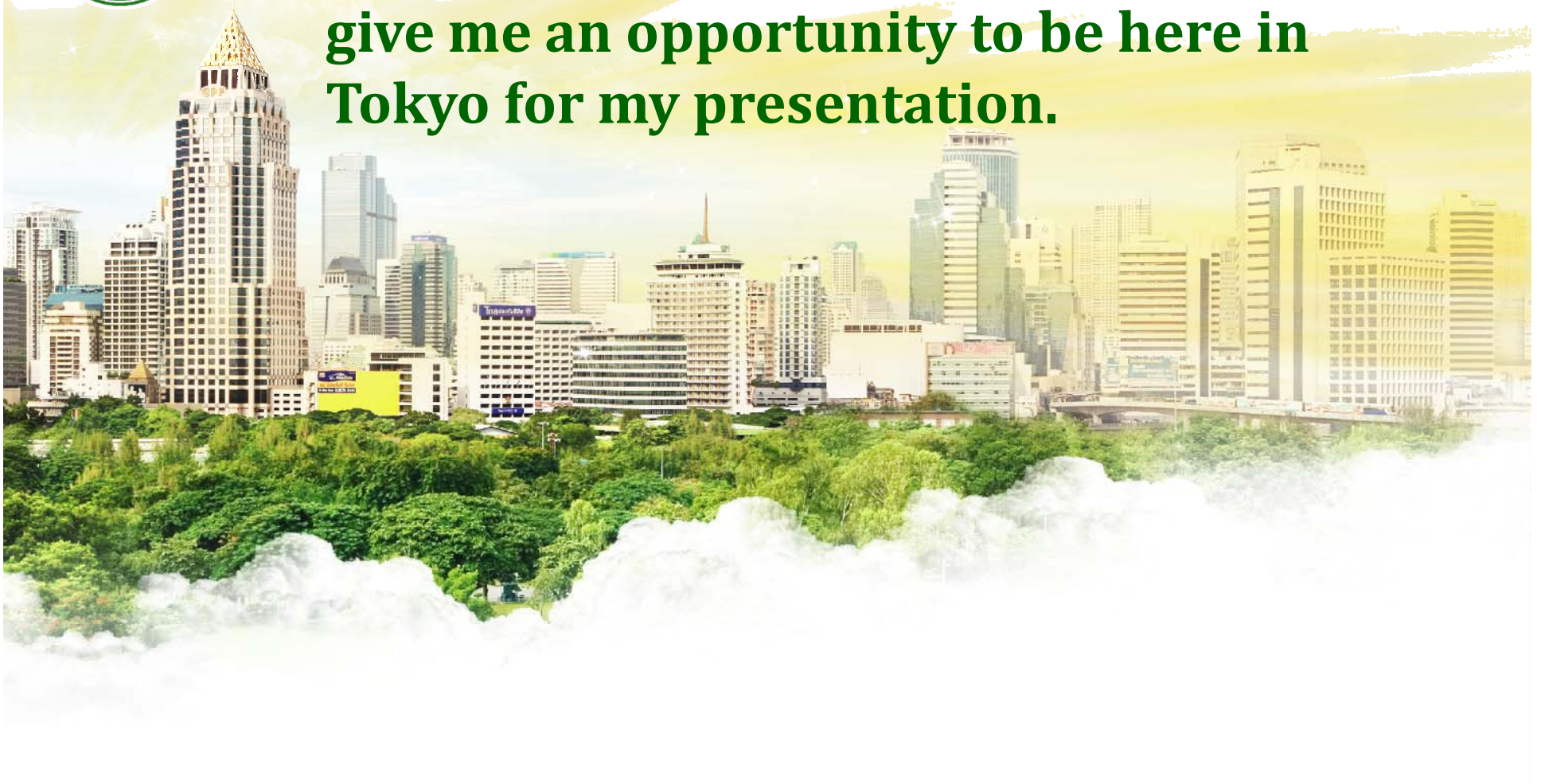
Solid Waste Management for Bangkok Metropolitan Areas



**Department of Environment
Bangkok Metropolitan Administration
Bangkok, Thailand**



**First of all, I would like to thank you
Tokyo Metropolitan Governor (TMG) to
give me an opportunity to be here in
Tokyo for my presentation.**





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Solid Waste Management for Bangkok Metropolitan Areas



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Department of Environment
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Bangkok, Thailand

Boundary and Responsibilities Areas for Bangkok Metropolitan Administration (BMA)

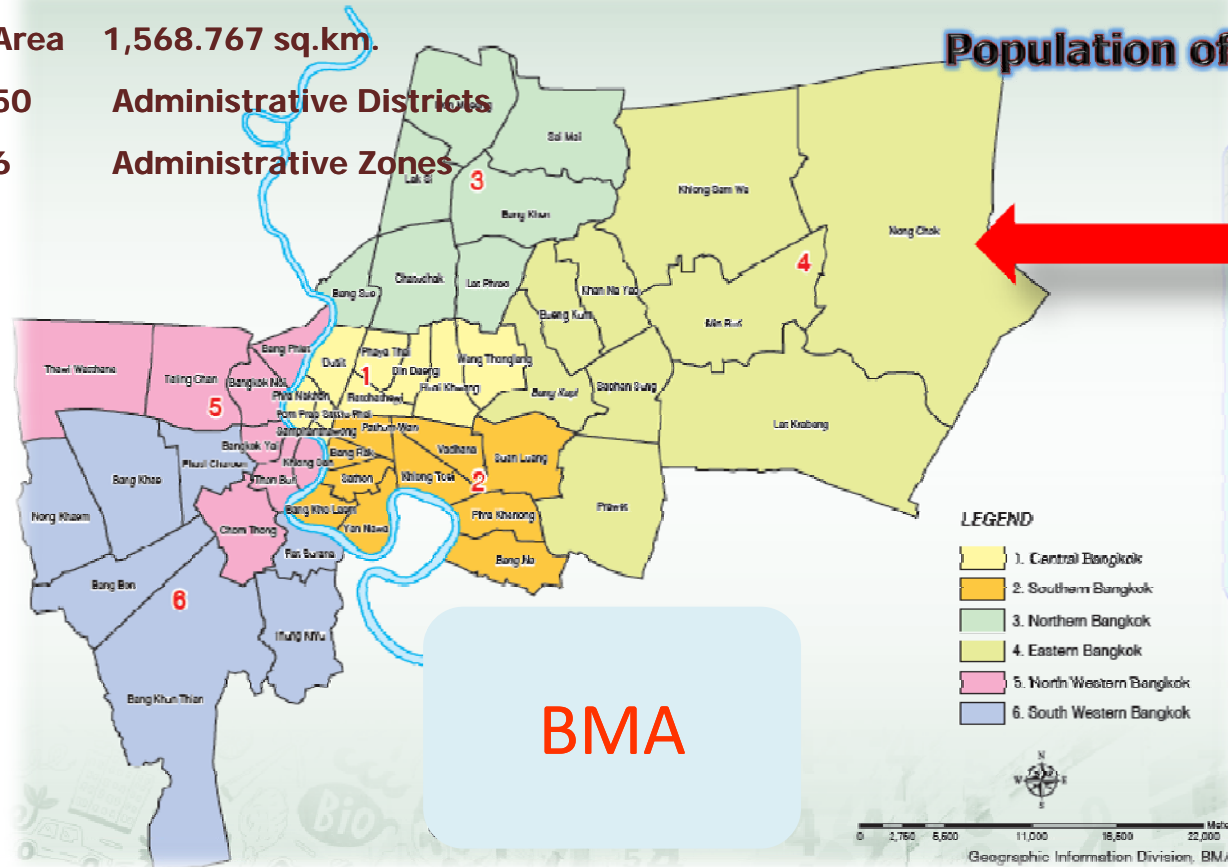


Area 1,568.767 sq.km.

50 Administrative Districts

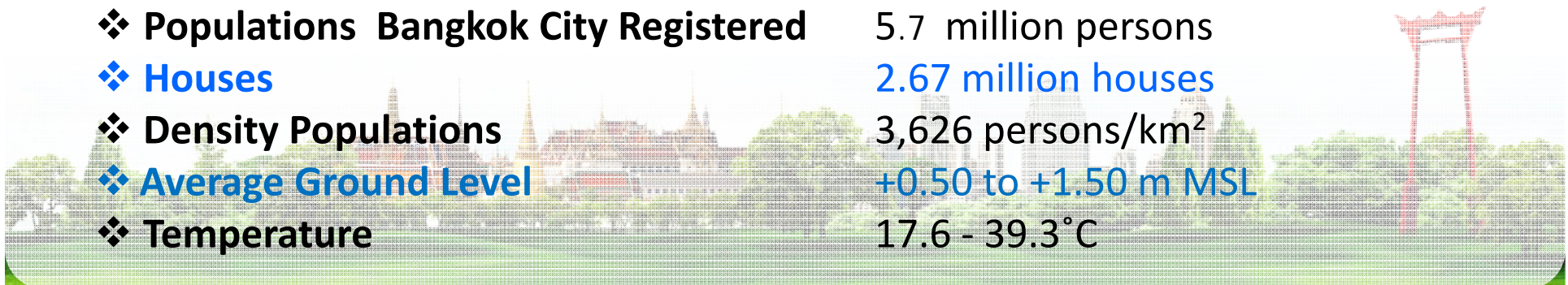
6 Administrative Zones

Population of Thailand is about 66 millions



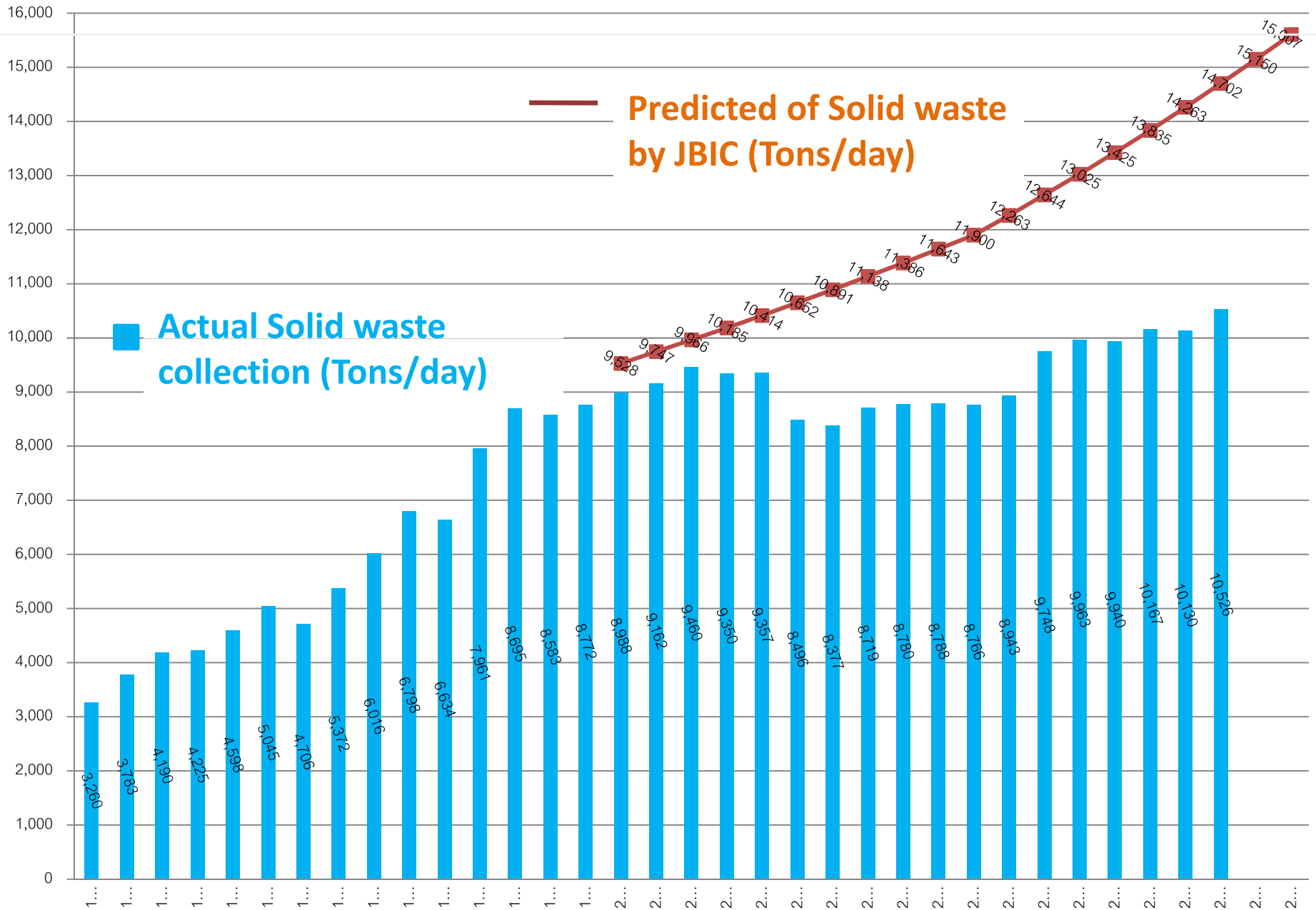
- ❖ Populations Bangkok City Registered
- ❖ Houses
- ❖ Density Populations
- ❖ Average Ground Level
- ❖ Temperature

5.7 million persons
2.67 million houses
3,626 persons/km²
+0.50 to +1.50 m MSL
17.6 - 39.3°C



Percentage (%) Increasing of Waste for Bangkok Metropolitan Areas

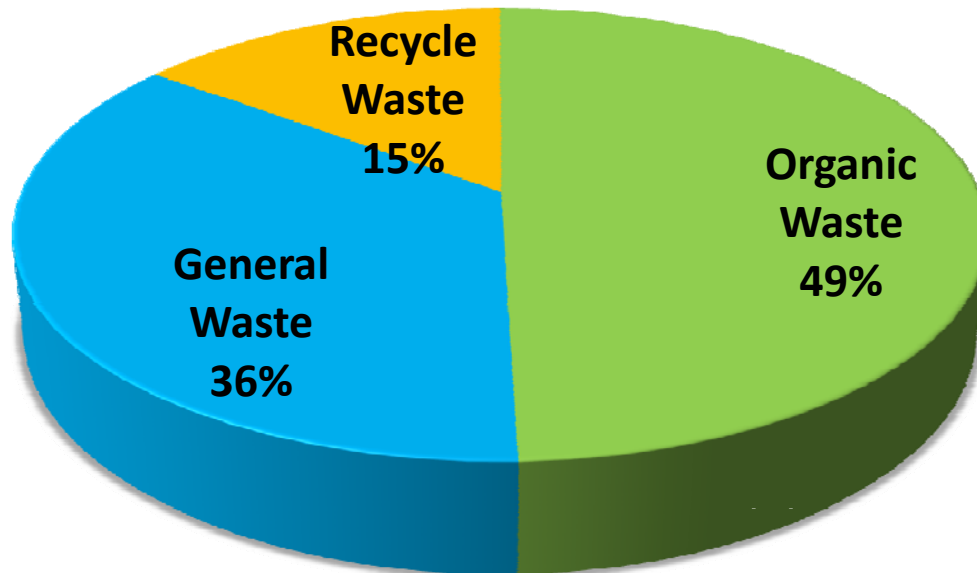
Tons/day





Compositions of Solid Waste System for Bangkok Metropolitan Areas

Compositions of Solid Waste



Organic Wastes	49.51 %
- Food waste	42.48 %
- Woods and leaf	7.03 %

General Waste	35.73 %
- Paper	8.95 %
- Plastic	17.93 %
- Feather and rubber	1.98 %
- Rag and textile	4.58 %
- Rock and ceramic	0.58 %
- Bone and shell	1.71%

Recycle Waste	14.76 %
- Recyclable paper	2.99 %
- Recyclable Plastic	4.94 %
- Foam	1.45 %
- Glasses	3.78 %
- Metal	1.60 %

Components of Solid Waste System



Landfills, Composting,
and/or Incinerations

Waste
Generations

Disposal

Waste Separation
at Source and
Containers

Transport to
Transfer
Station

Collections

Reduce Reuse
Recycle
(3R)



BMA's Solid Waste Management Concept "Waste as a Resource"

BMA's Framework for Solid Waste Management

" Increase the Eco-friendly of Solid Waste Management System from waste collection, transfer waste, disposal waste to land fills, compositing, and/or incinerations along with using waste convert to energy recovery boilers with cleanliness methods and modern technologies"





BMA's Visions

- **Utilize waste as a resource**
- **Encourage 3R concept by promote Public and Private Industries Participations**
- **Use and develop further Eco-Friendly Technologies**





Strategies for Solid Waste Management (SWM) Plans for Bangkok Metropolitan

Strategy 1

Increase the efficiency of solid waste and hazardous waste management

Strategy 2

Set up discipline for public participation on SWM

Strategy 3

Integrate SWM system

Strategy 4

Increase the capability and building more knowledge on SWM for BMA

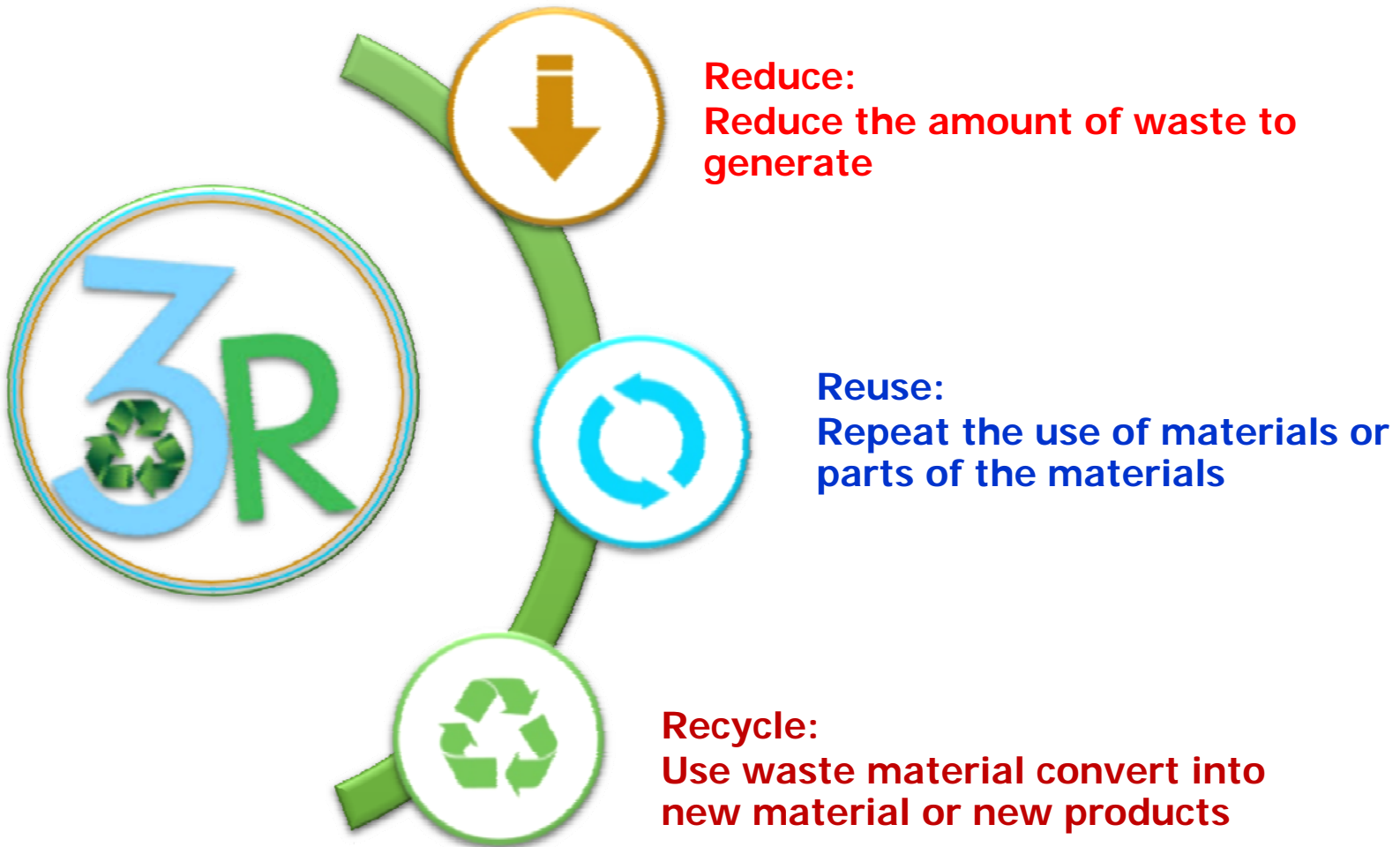
Strategy 5

Research and develop new technology for SWM



Waste Management in Bangkok

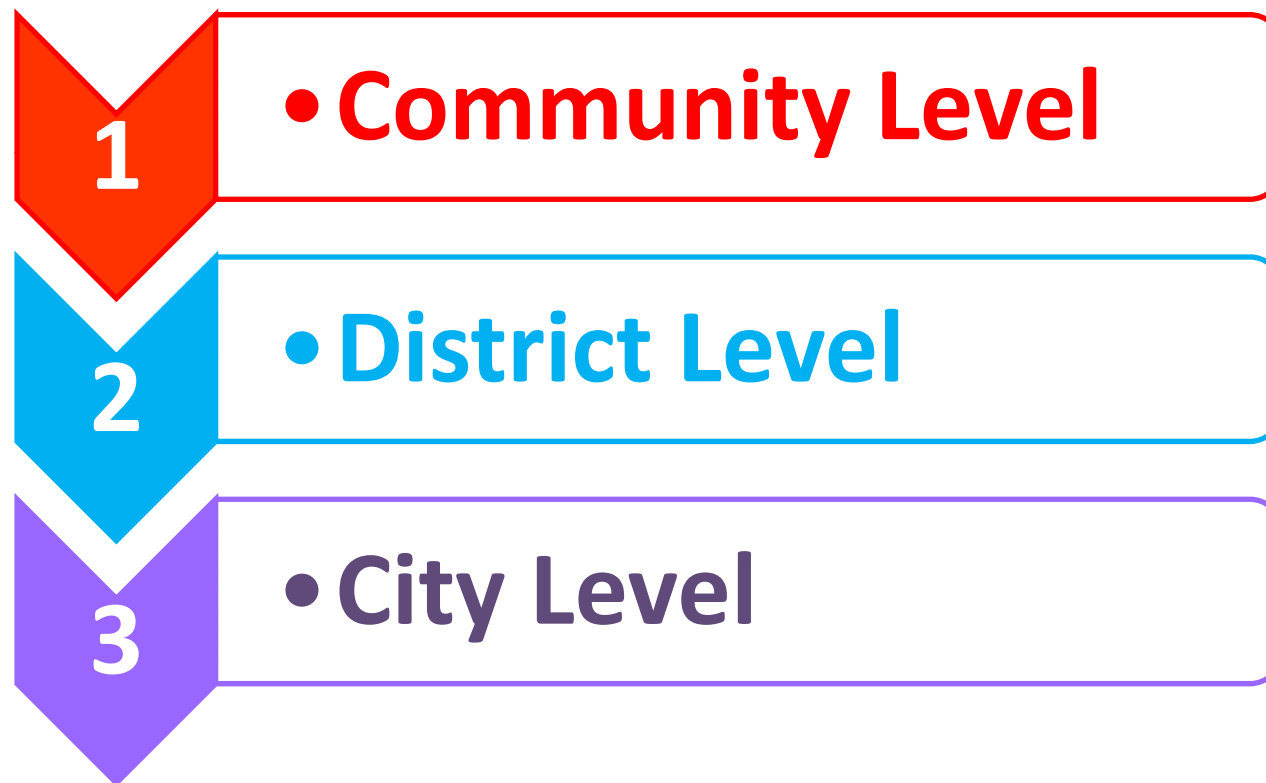
Reduce-Reuse-Recycle (3R)





Waste Minimization Levels

There are 3 levels of waste minimization in Bangkok





Waste minimization: 1. Community Level

Developing Good Waste Management for Communities

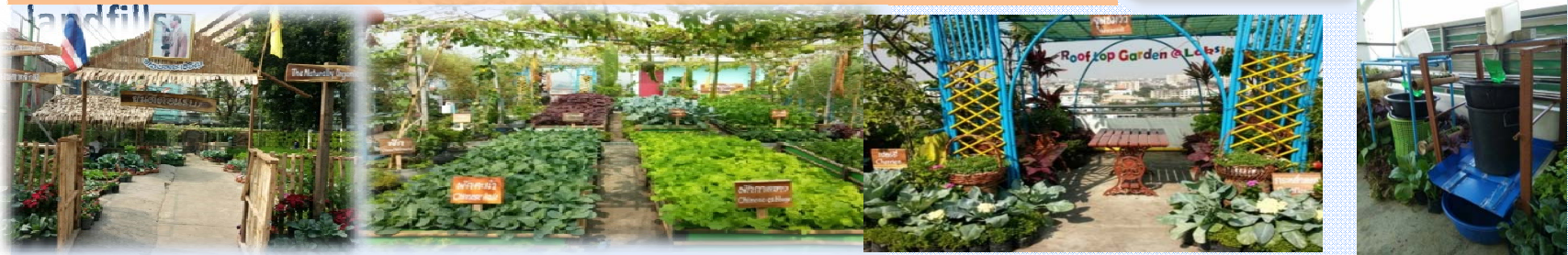




Waste minimization: 2. District Level

Developing Waste Management System for District Offices

The functional of district offices are to reduce solid waste, collect yard waste, separate waste , and recyclable of organic waste. Some of these waste can transform and recycle to create many new products such as furniture, toys, plastic containers. The other unusable wastes will transfer to sanitary landfill and/or secure



The Roof Top Vegetable Garden on District Building Reuse shop





Waste minimization: 3. City Level

Goals and Objectives of City Level:

To encourage the environmentally friendly network with private and public sectors

To establish community and district level for the appropriate waste management systems

To set up the future plan of solid waste management for city of Bangkok such as increase the number of incinerators



Waste minimization : 3. City Level

The City Level is also involving with social media to encourage and promote the public to reduce solid waste quantity along with using the appropriate separation systems.



Provide and manage public contest for recycle materials

- Develop the used materials to the useful material
- Transfer the useful materials to the new products
- Develop the new recycle products for small business investment





Waste Collection by Various Types of Materials

Daily Appointment Time

General waste ⇨ collection is operated around 8:00 p.m - 5:30 a.m everyday



Types of waste collections

- Food waste ⇨ Daily or every other day is based on location
- Recyclable waste ⇨ Every Sunday
- Hazardous waste ⇨ 1st and 15th of the month



Food waste



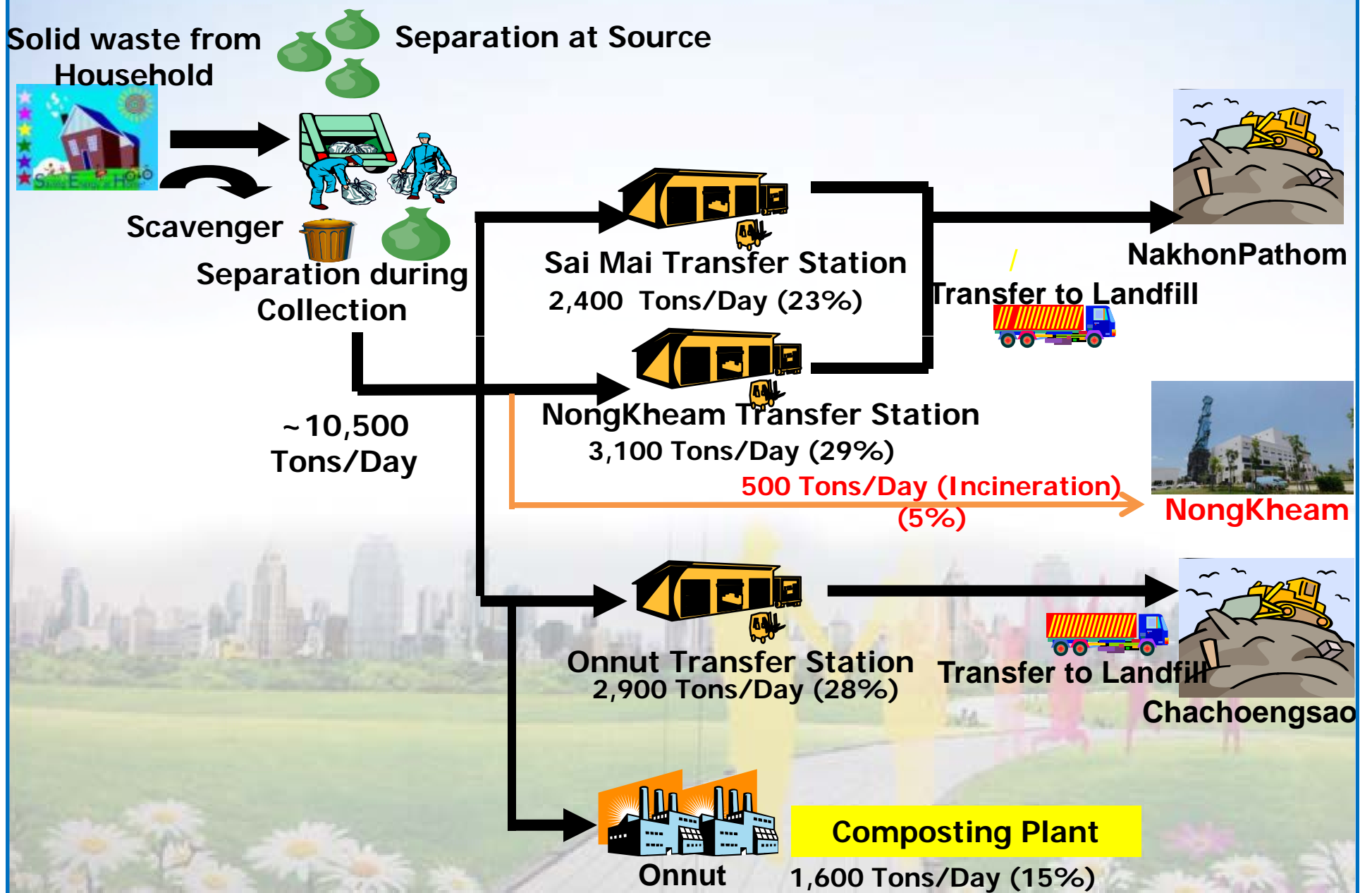
Recyclable waste



Hazardous waste



Solid Waste Disposal for Bangkok Metropolis





Solid Waste Management Initiatives

- To promote waste reduction and separation at the location of sources
- To improve fuel efficiency for waste collections and transportation systems
- To transform organic waste to energy usages
- To construct new waste-to-energy incineration facility
- To construct new waste segregation plant from solid waste household collections
- To install environmentally friendly landfill systems





Future and Present Developing Plans for **BMA's Solid Waste Management**

1. Increase composting plants
2. Increase incineration plants to process more general waste
3. Increase efficiency of waste reduction and separation by using Mechanical Biological Treatment (MBT)
4. Improve fuel efficiency for waste collection and transportation system by using bio-diesel
5. Increase solid waste segregation plants



Thank you to all of you for your attention and participation for my presentation



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