



# **Short Lived Climate Pollutants (SLCP) avoidance and reduction approaches in municipal solid waste (MSW) management**

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**Janya Sang-Arun**

**Senior policy researcher**

**Sustainable Consumption and Production Group**

**Institute for Global Environmental Strategies (IGES)**

## What is the major SLCP from MSW management?

- **Methane – greenhouse gas**
  - Degradation of organic matter under anaerobic condition (no oxygen) → open dumping, landfill
  - Incomplete combustion of waste and fossil fuels
- **Black carbon – black smoke**
  - Incomplete combustion (low heat) of waste under open burning and some types of incineration
  - Incomplete combustion of fossil fuels

## How to avoid and reduce methane emission?

### **1) Avoided open dumping and landfill of organic waste**

1.1) Use for animal feed

1.2) Composting and use for soil amendment

1.3) Producing biogas for energy use

1.4) Pre-treatment before landfilling – mechanical biological treatment (MBT)

1.5) Incineration with advanced and well controlled incinerators

1.6) Others

### **2) Captured landfill gas for energy use or flaring**

## How to avoid and reduce black carbon emissions?

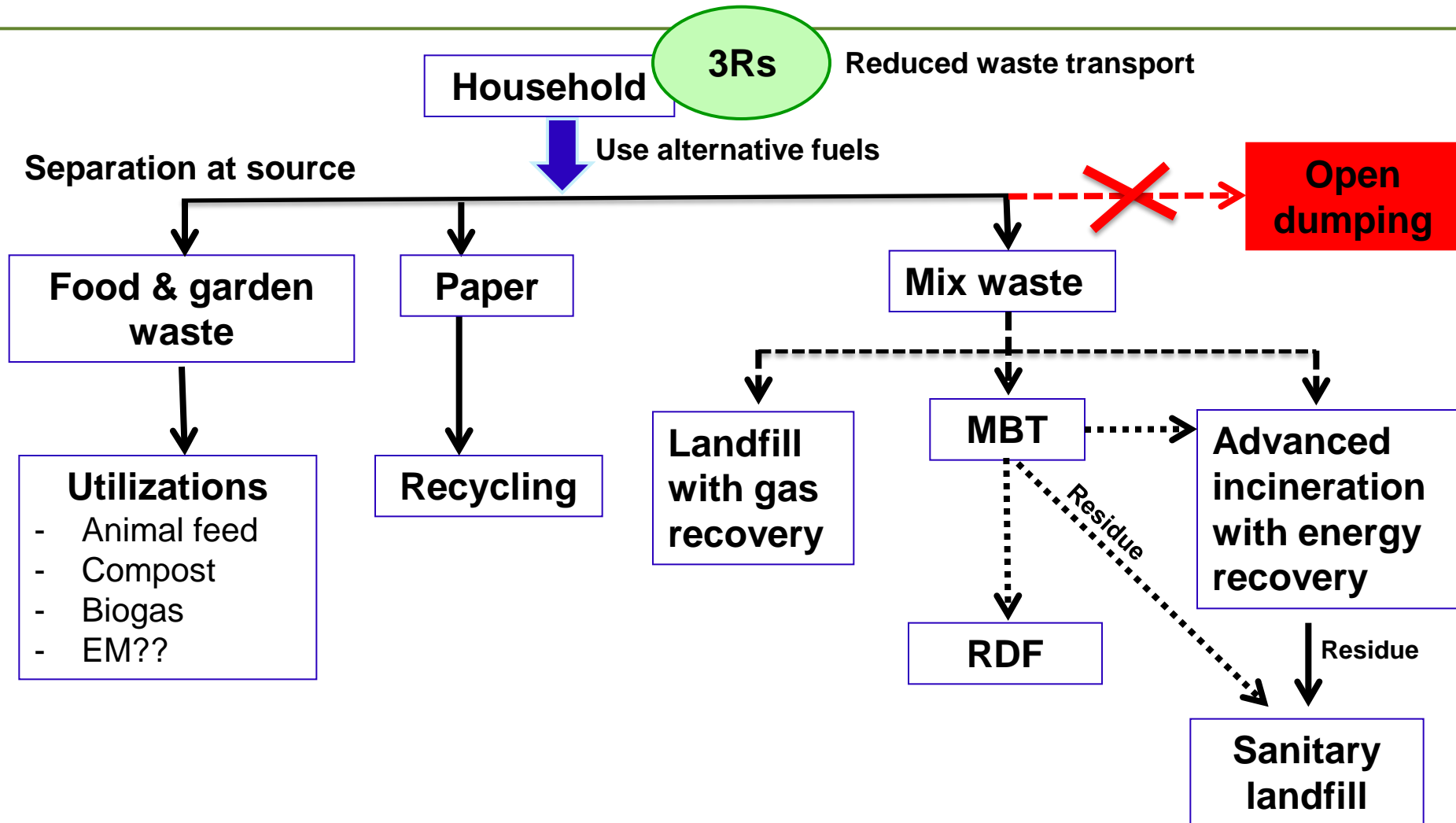
### 1) Avoided open burning of waste

- 1.1) Prohibit/Stop open burning
- 1.2) Separation of recycle materials before disposal to dumpsite that has open burning

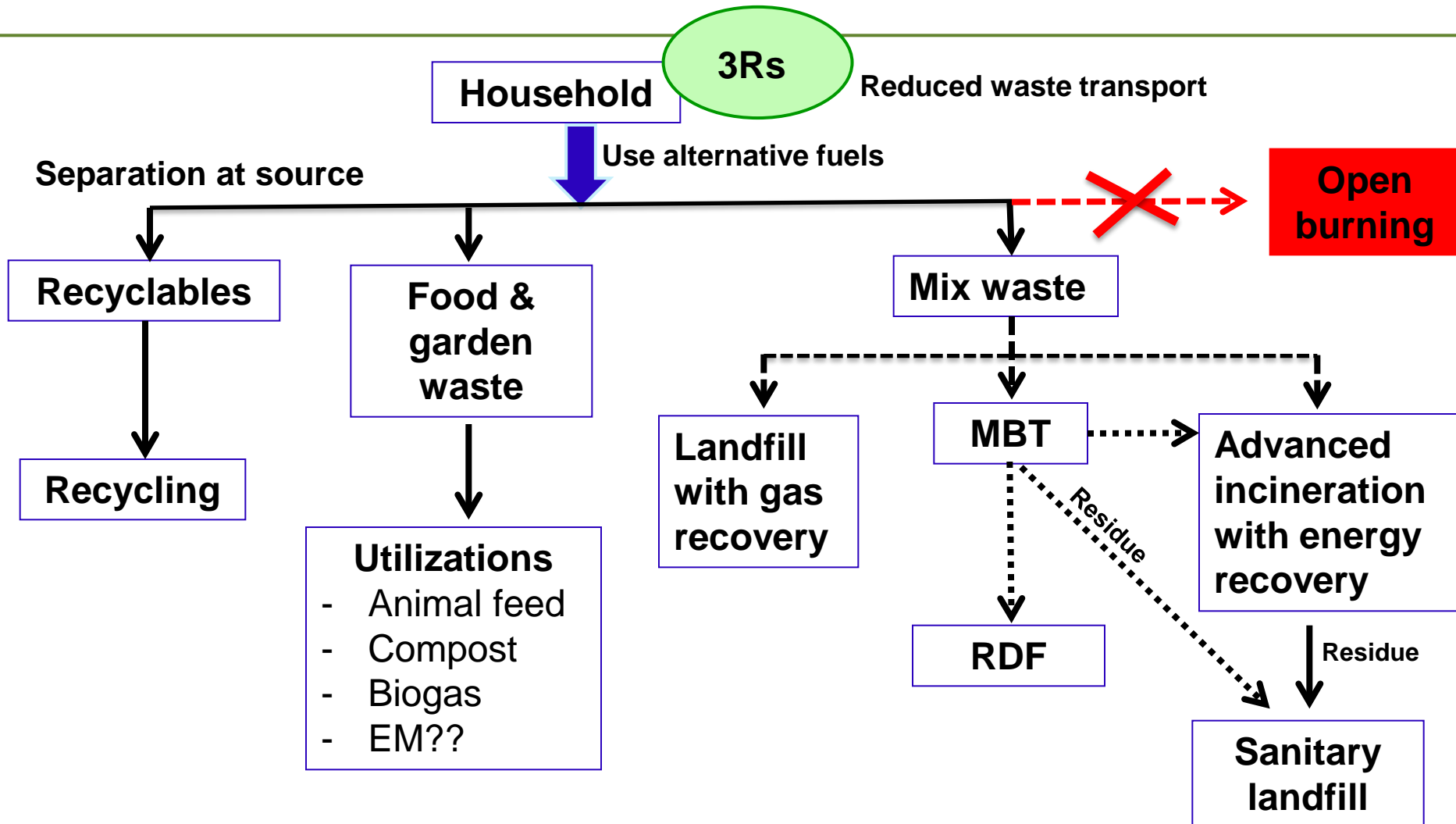
### 2) Reduced waste transportation by heavy fuels

- 2.1) Reducing waste generation (reduce, reuse)
- 2.2) Enhancing residents to treat their own waste – household composting, etc.
- 2.3) Changing type of fossil fuels use (e.g. diesel → NGV)

# An example of waste management flow for SLCP avoidance and reduction when conventional practice is landfill or open dumping



# An example of waste management flow for SLCP avoidance and reduction when conventional practice is **open burning**



## Examples of methane avoidance and reduction practices in Asian countries

- Use of organic waste for animal feed



# Composting





- **Anaerobic digestion**



- Mechanical Biological Treatment**



**Homogenizing  
and forming the  
pile**



**Passive  
composting for 9  
months**



**Compost like product**



**Plastic**

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- Landfill gas recovery for electricity generation

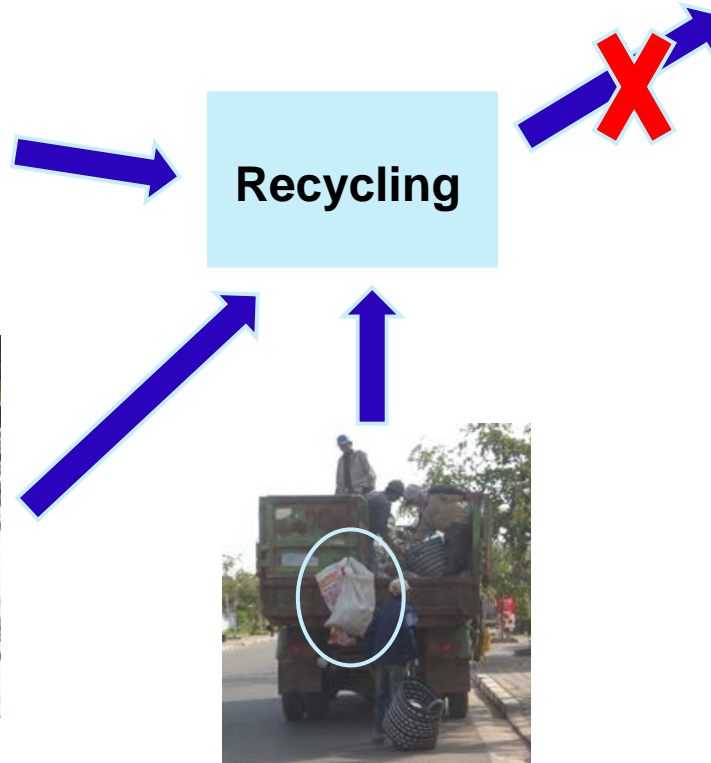
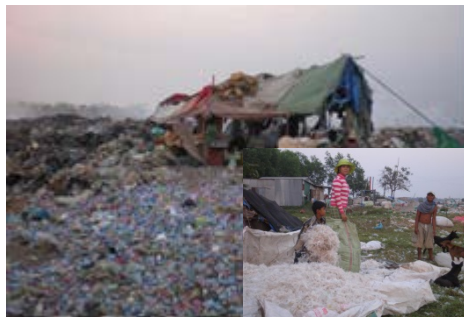


- **Incineration with advanced technology that well equipped with air pollution control**
  - Japan



## Examples of black carbon avoidance and reduction practices in Asian countries

- Separation of recyclable materials for recycling – reducing waste to open burning site



- **Change of fossil fuel use : change from diesel to NGV**



**Phitsanulok, Thailand**



# Conclusion

- **There are many SLCP avoidance and reduction practices in Asia.**
- **Remaining questions are:**
  - How we can sustain & scale-up these practices?
  - How we can improve the management & operation?
  - How to select the most appropriate technologies for our cities?
  - How we can systematically account our efforts on SLCP avoidance and reduction?
  - Etc.

We can work together to find solution for these challenges under the **CCAC-MSWI.**