

19 March 2015  
ACT Government

# Municipal Waste Policy in Japan



Shusaku Yamaya, Professor  
Toyo University Japan

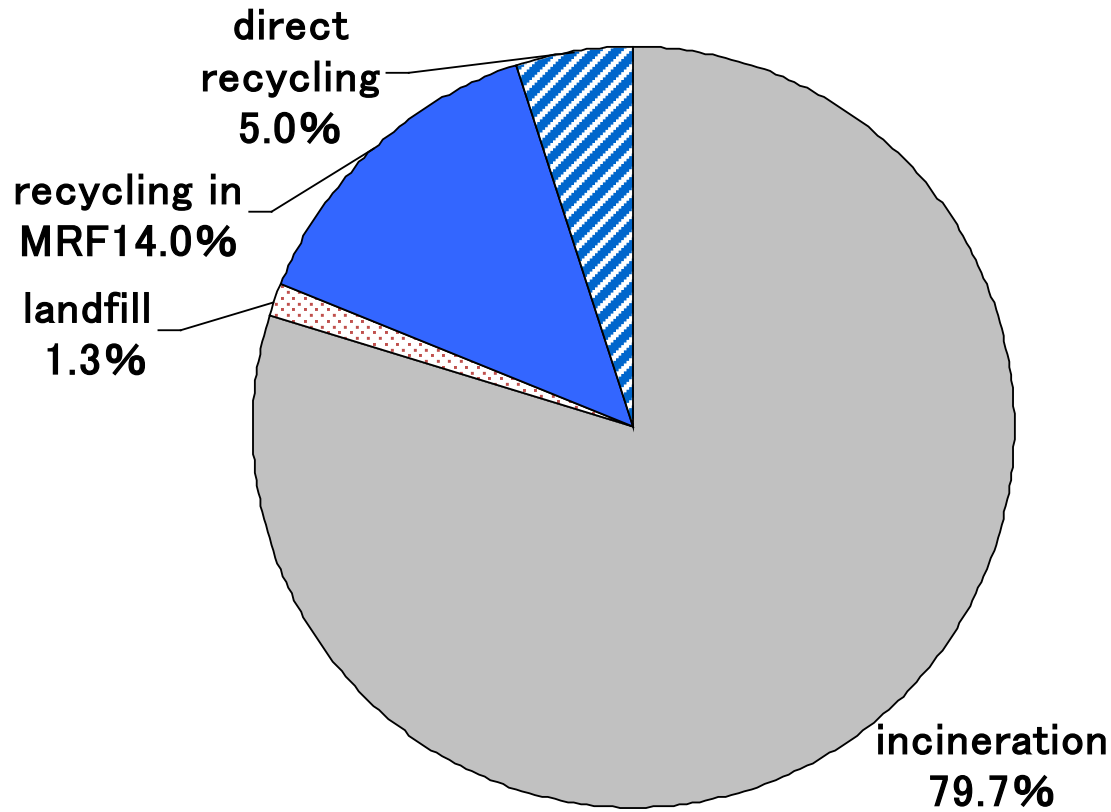
# 1. MSW in Japan

- Definition for MSW in Japan
- Features of Waste Management in Japan
  - Many Incinerators
  - Strained Landfill Capacity
  - Many Trash Items for Source Separation
  - Small MSW Volume (g/capita/day)
  - Low Recycling Rates

# Definition for MSW in Japan

- MSW: Waste excepting Industrial Wastes
- Industrial Wastes include C & D Waste
  - Japanese municipalities do not deal with C & D
  - Australian municipalities do deal with C & D

# MSW Treatment in Japan 2013



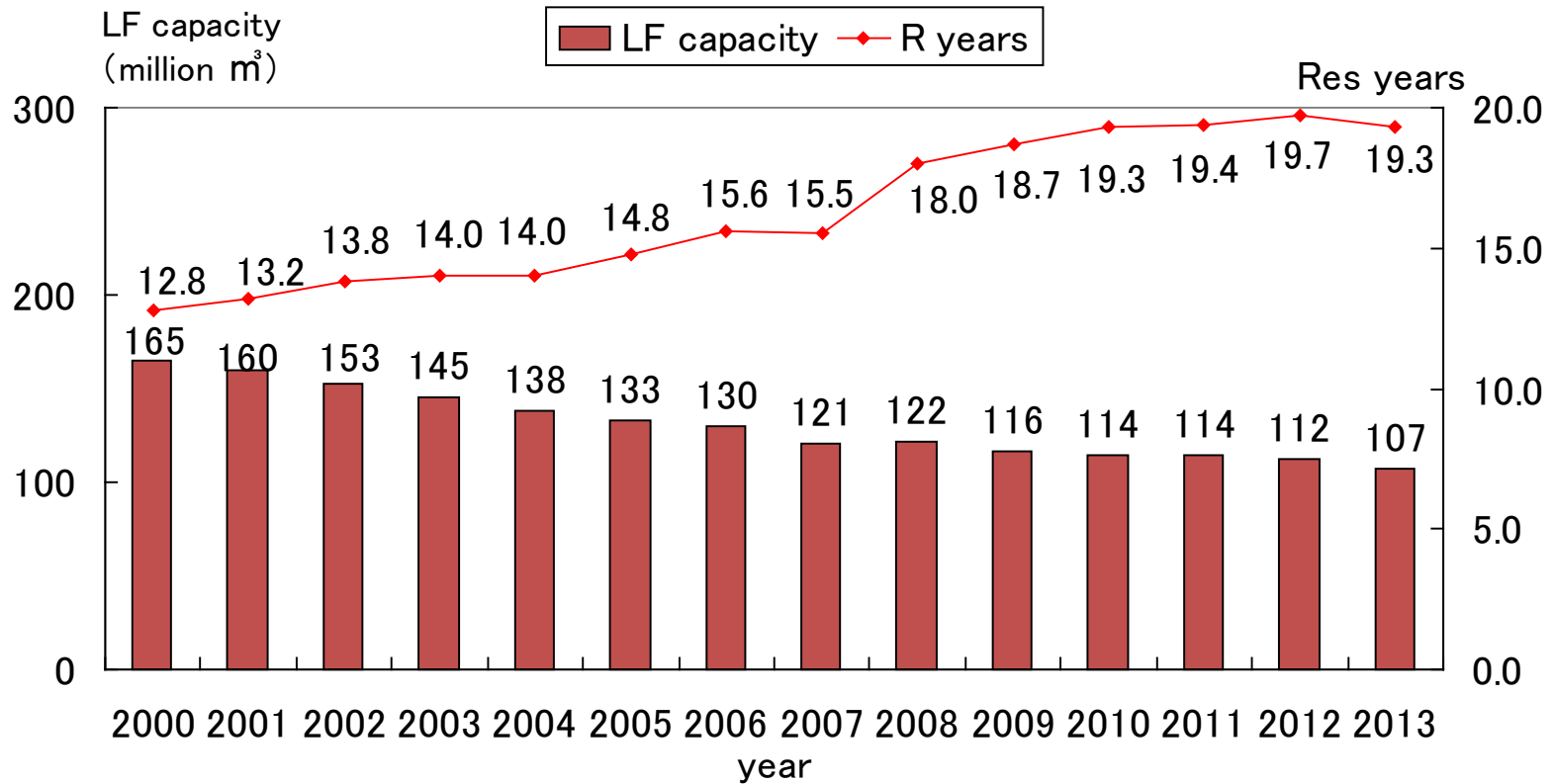
# Sites of Incinerators in Japan

<u>Year</u>	<u>Sites</u>
1998	1,769
■ Anti-Dioxin Regulation was strengthened	
2003	1,396
2013	1,173

# Waste Incinerator in Tokyo



# MSW Landfill Capacity and Residual Years in JPN



# Landfill Site: Normal Case





# Landfill Site: Abnormal Case

many kites seek for kitchen food



# Many Trash Items for Source Separation

<Standard Case>

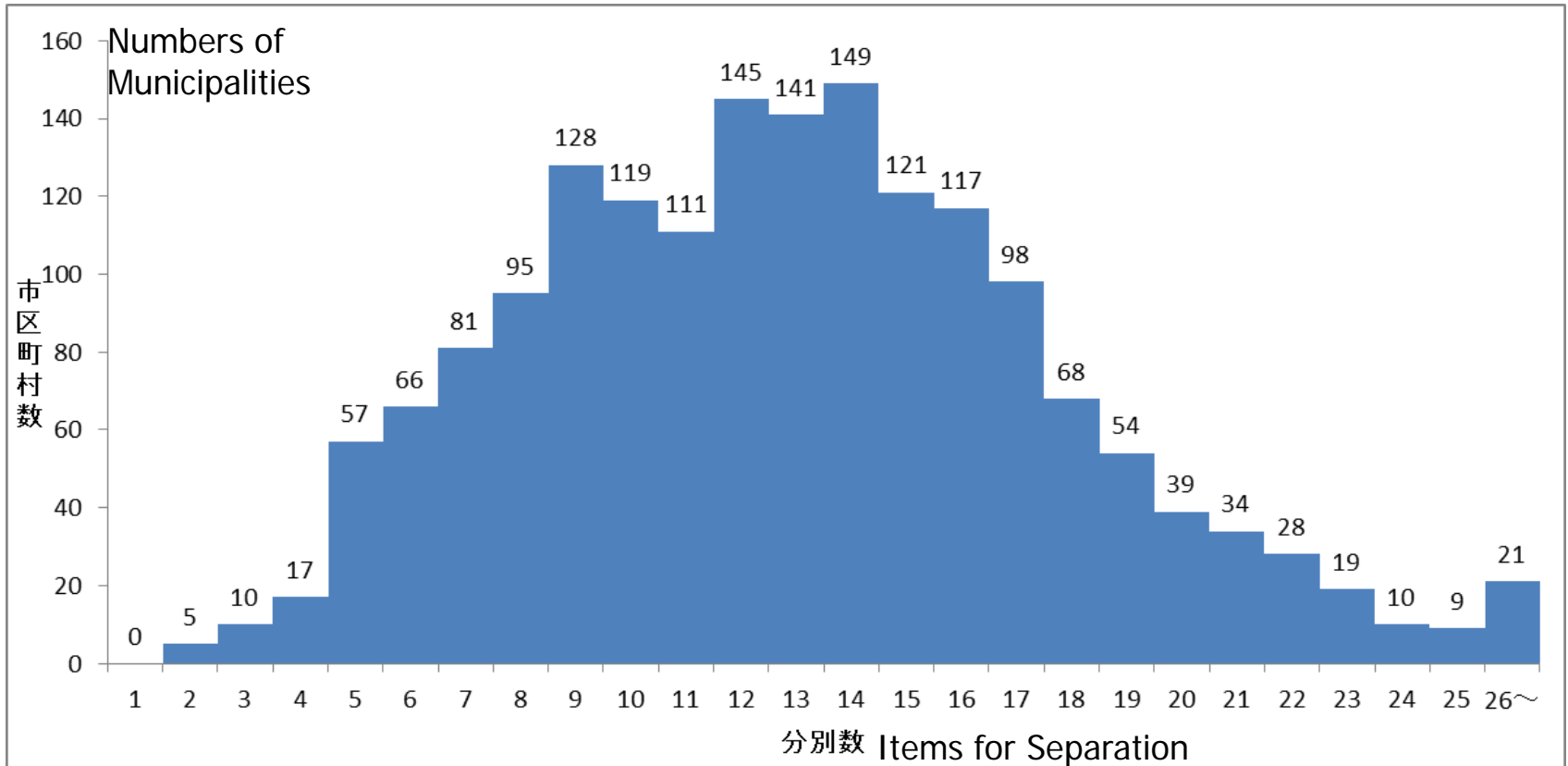
## Garbage Items

- Burnable Garbage
- Non-Burnable Garbage
- Large Trash
- Harmful Garbage

## Recyclable Items

- Used Paper
- Cloth
- Glass Bottles
- Cans
- Spray Cans
- Metals
- PET Bottles
- Other Plastics

# Trash Items for Source Separation in Japanese municipalities



# Refuse Collection: Collective System





# Refuse Collection: Door-to-Door System



# Refuse Collection Vehicle in Tokyo



# Collection of recyclables in Tokyo





# Collection of recyclables: glass bottles & cans

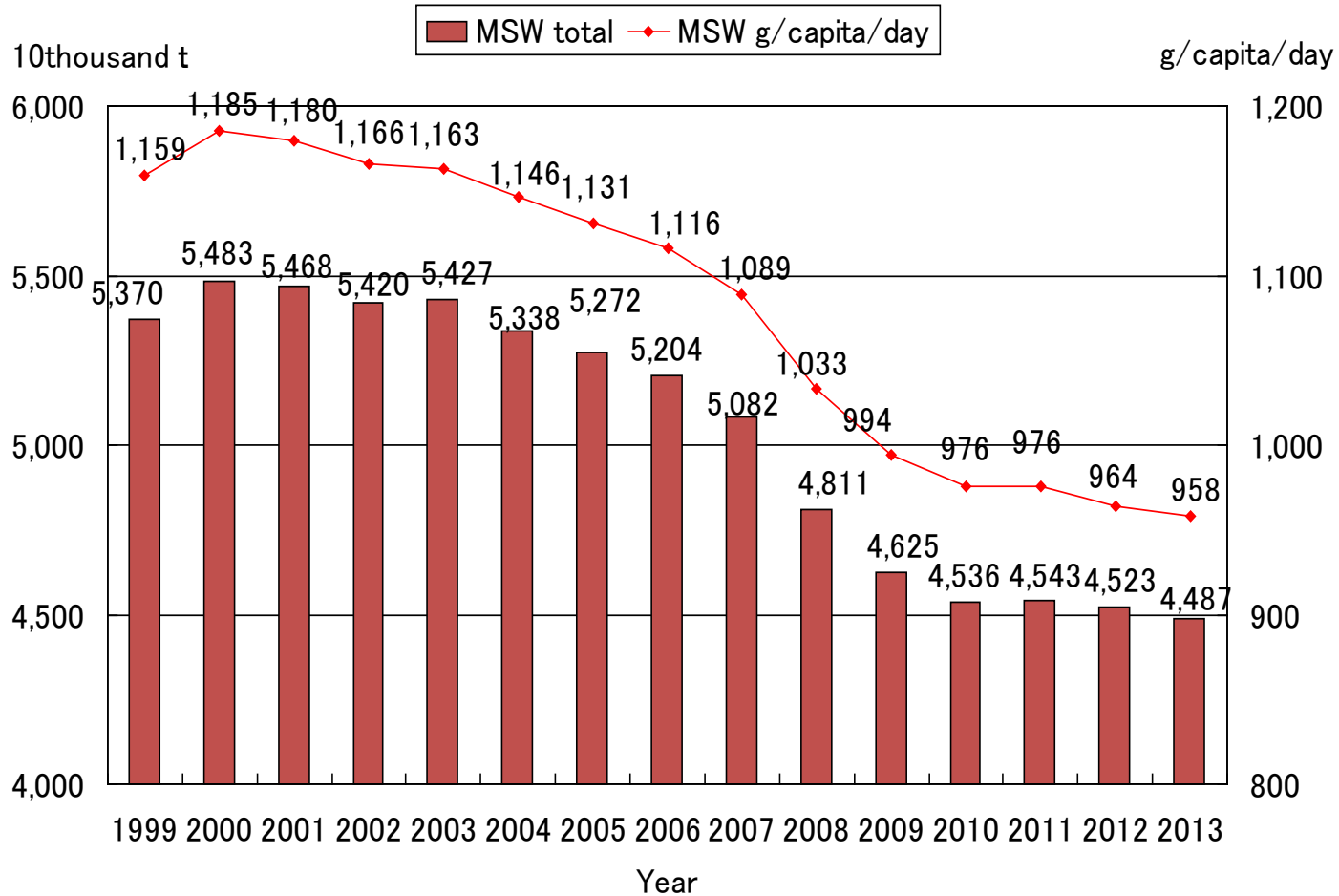




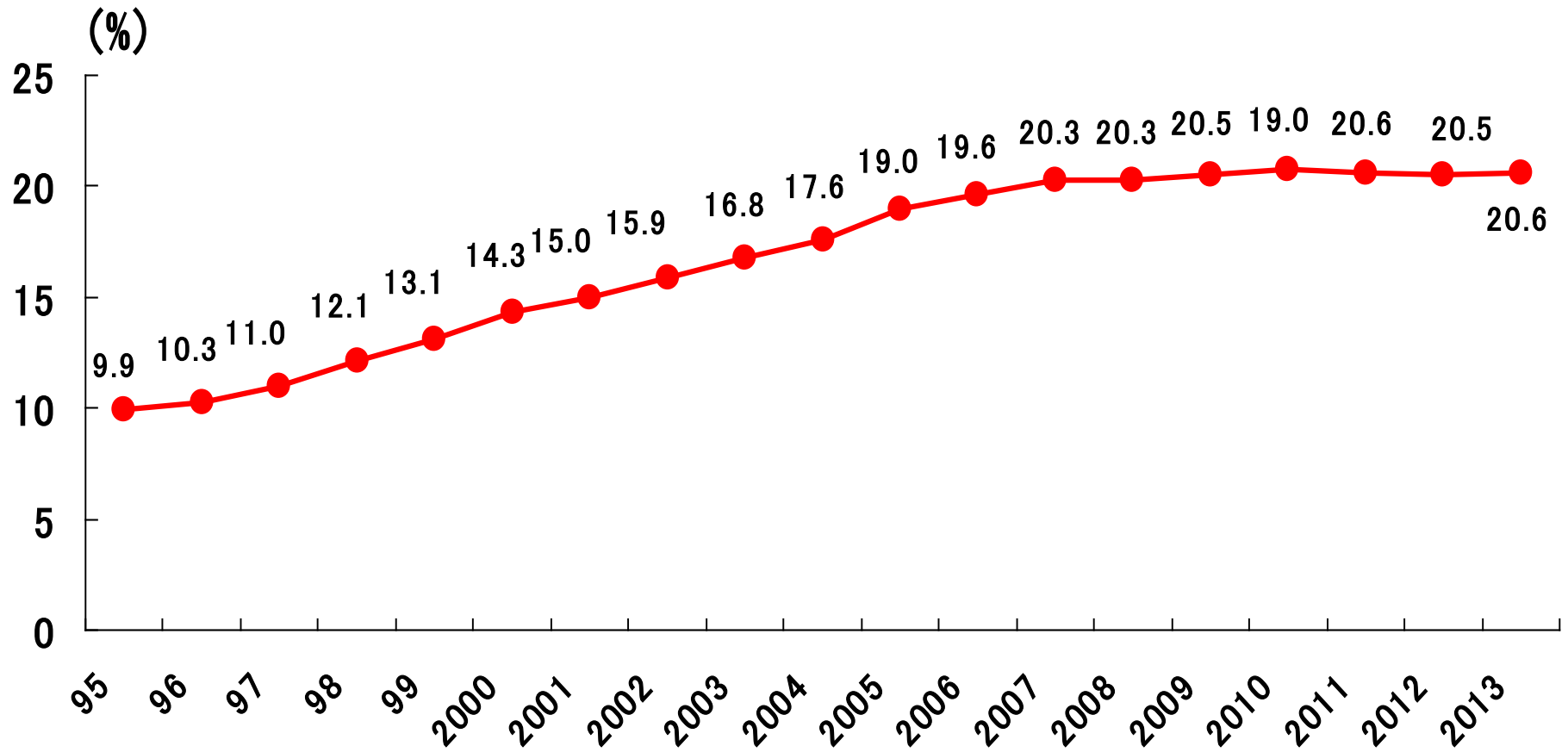
# Sorting Line for Recyclable Plastics



# Small Volume of MSW in Japan



# Low Recycling Rates in Japan



## 2. Waste Reduction Policy

### Main MSW Problems in Japan

- ① Growing Environmental Impact
- ② Strained Landfill Capacity
- ③ High Waste Disposal Cost

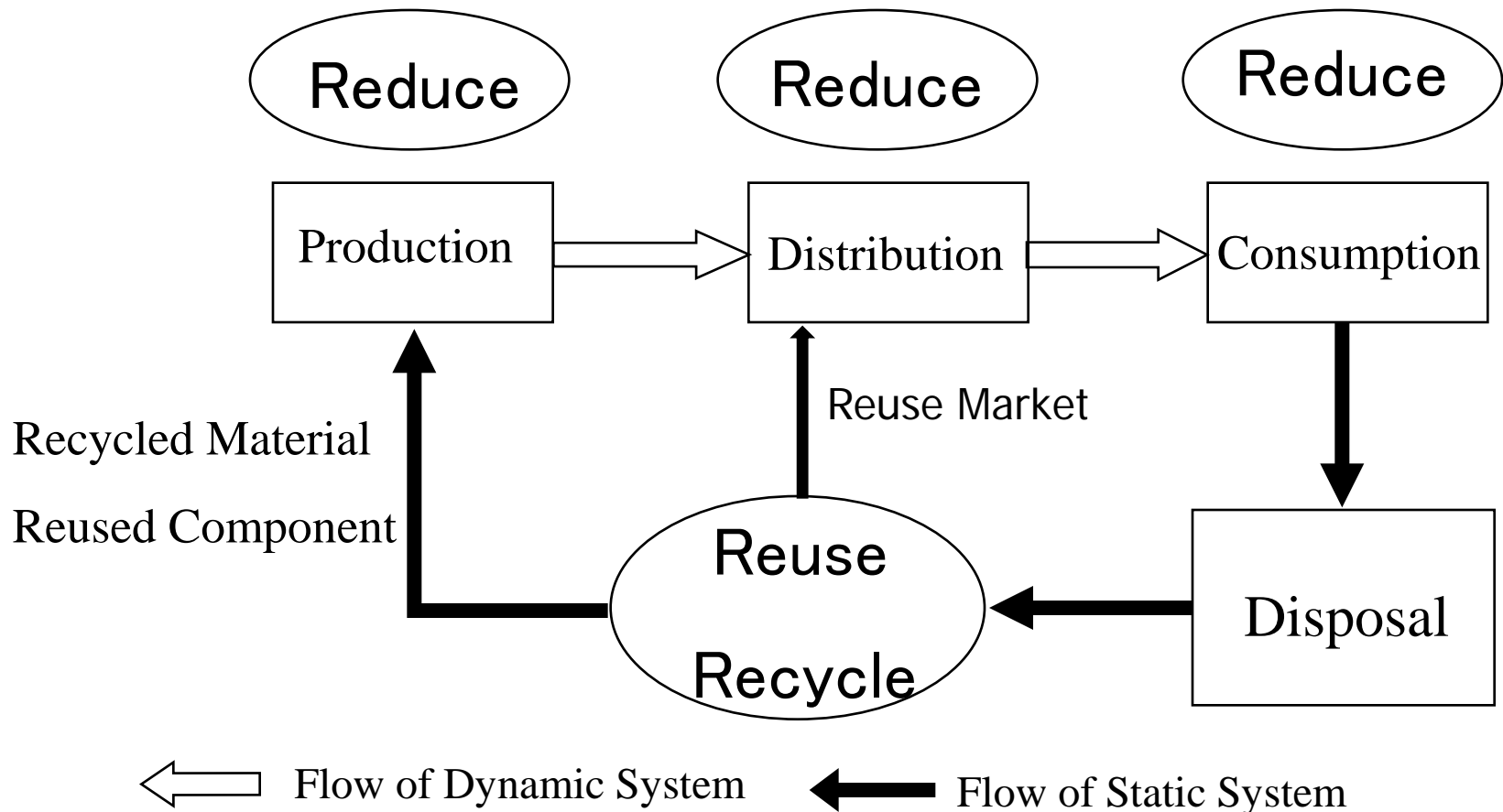


Waste Reduction

# Hierarchy of Waste Management

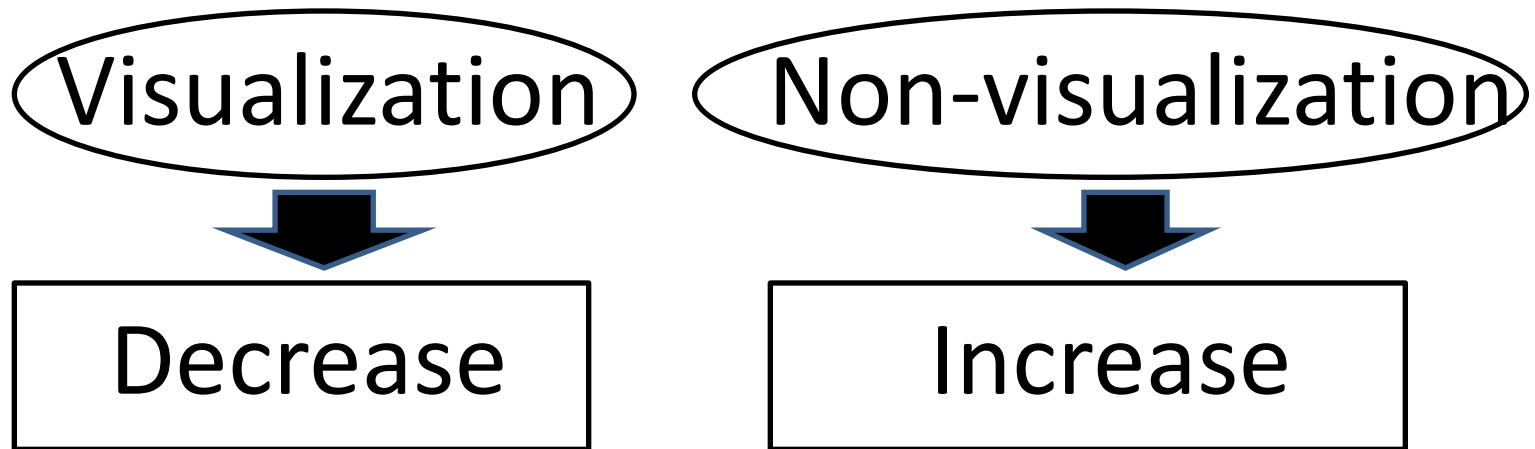
- ① Reduce (Source Reduction)
- ② Reuse (Reusing)
- ③ Recycle (Material Recycling)
- ④ Thermal Recovery
- ⑤ Disposal

# 3 R are important for construction of System Flow of Closed-Loop Society



# 3. Visualization for MSW Reduction

< Relation between Visualization and MSW Reduction >

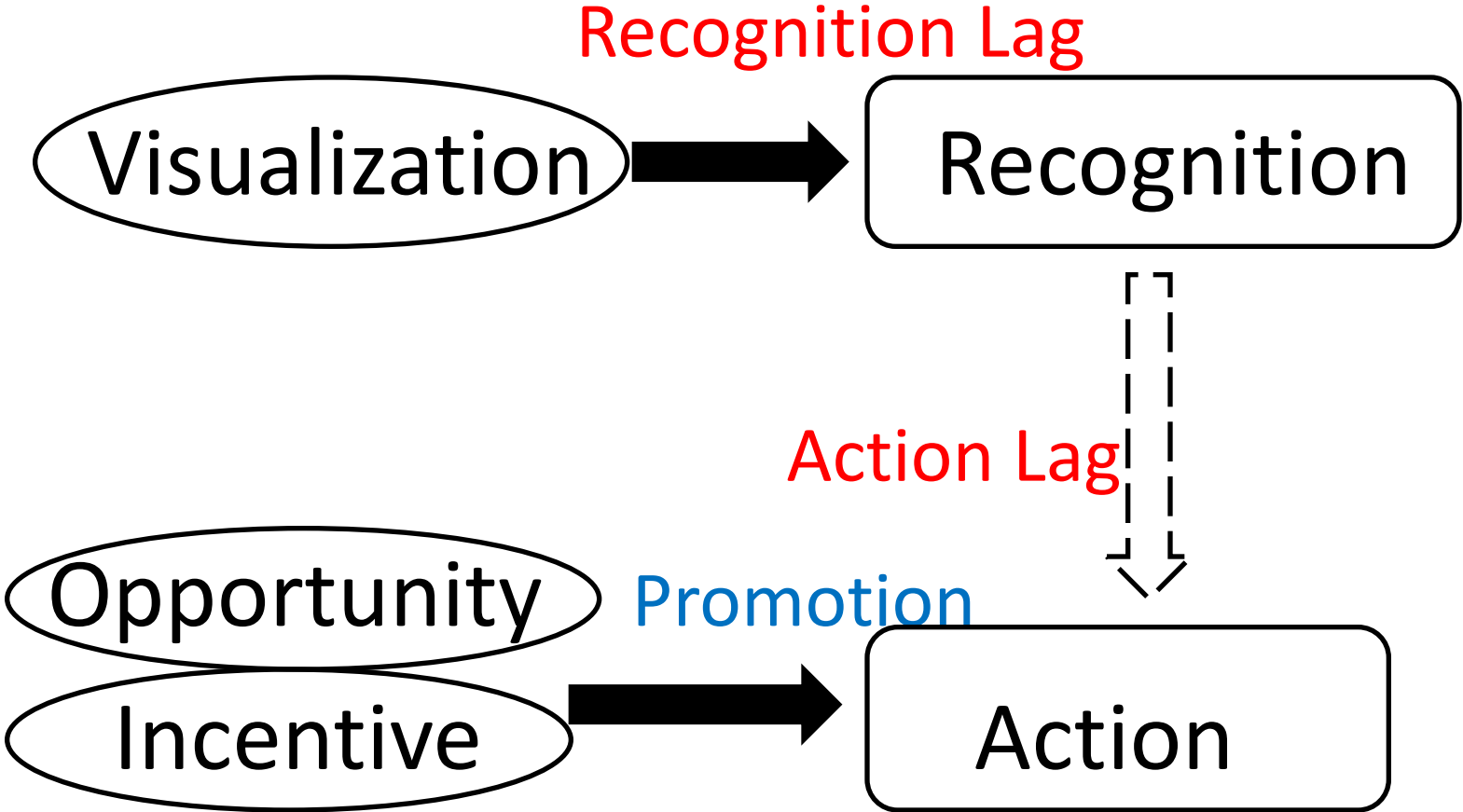


# What are not visualized ?

- garbage itself
- Information on the waste
  - Environmental impact
  - Costs for Administration and Citizen
  - Recyclability of garbage



# The Process Citizens Act for Waste Reduction



# Visualization of Garbage Itself

## ■ Introduction of Transparent Garbage Bag

< Effect >

Improvement of Source Separation

Several Percent of Garbage Reduction

## ■ Introduction of Door-to-Door Collection System

< Effect >

Improvement of Source Separation

Several Percent of Garbage Reduction

# Provision of Opportunity for Waste Reduction

## ■ Education and Enlightenment

◎ Provision of Original Cloth Bags

◎ Provision of Kitchen Garbage Draining Goods

◎ Provision of Paper Bags for “Mixed Paper”  
Collection

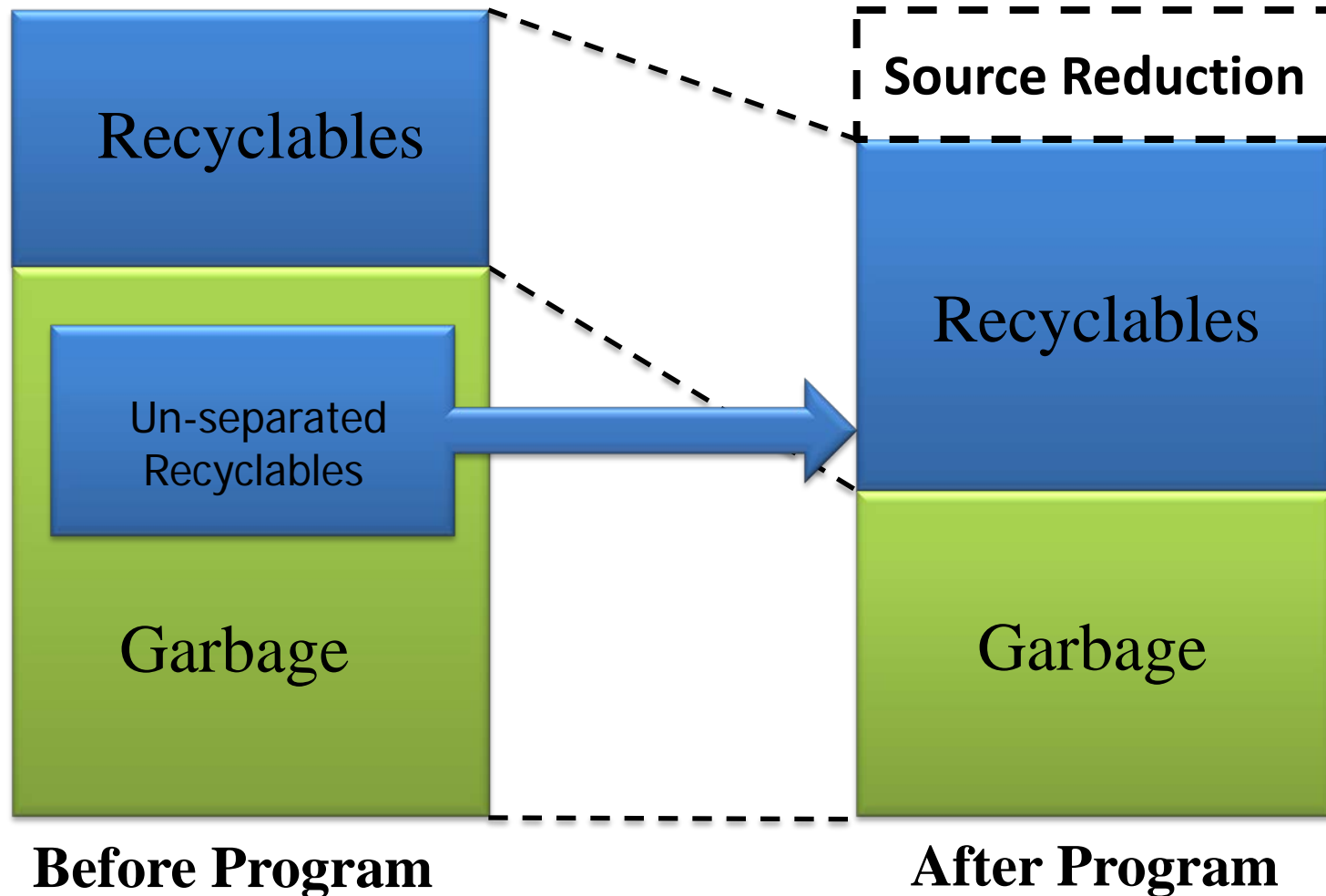
▪ Mixed Paper account for 40% of Used Paper  
in Burnable Garbage

# Economic Incentives for Waste Reduction

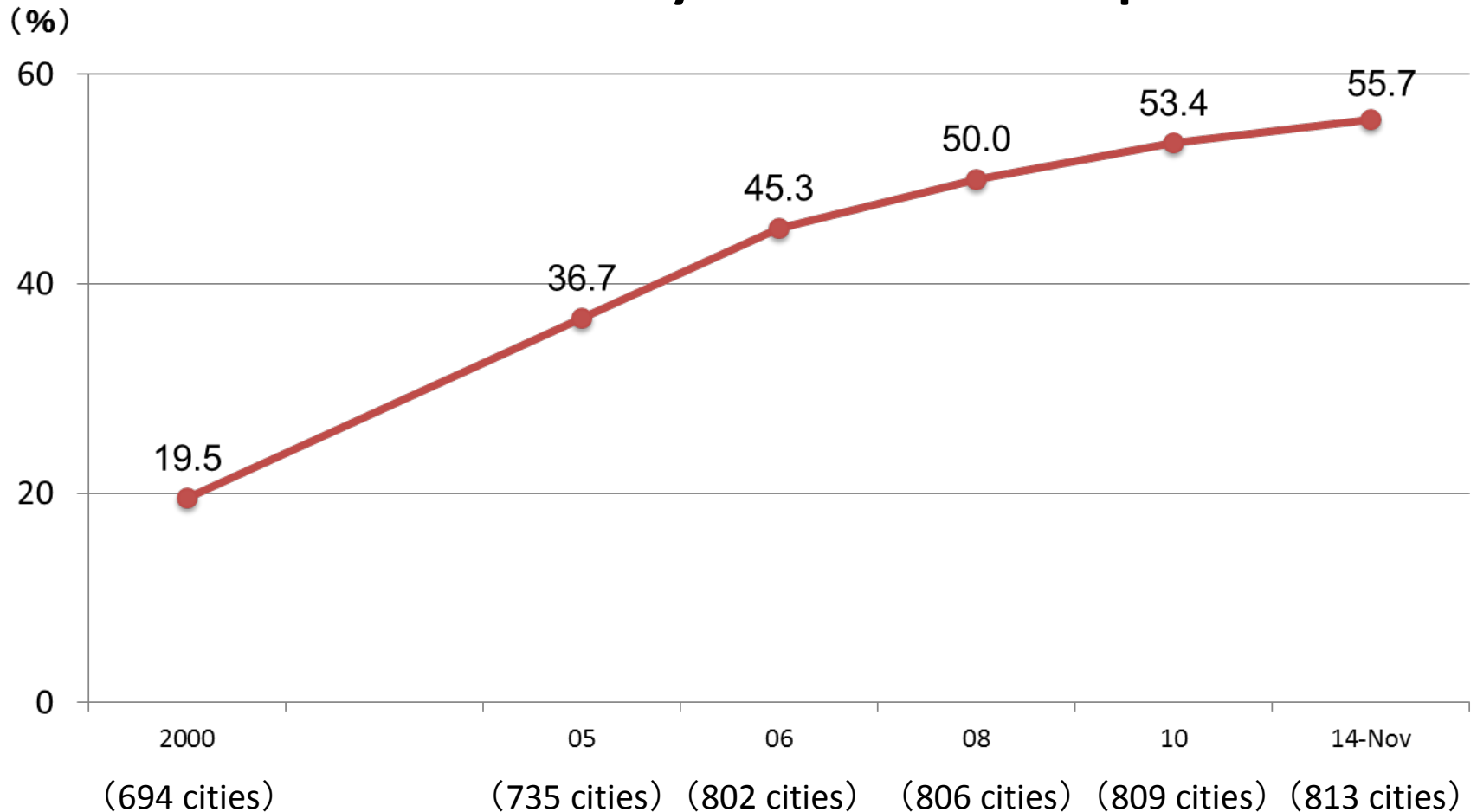
- © subsidy for buying composting appliances
- © subsidy for used paper collection activities  
by citizen's groups
- © Paid Collection System

# 4. Paid Collection System

The Best Visualization and Incentive Program

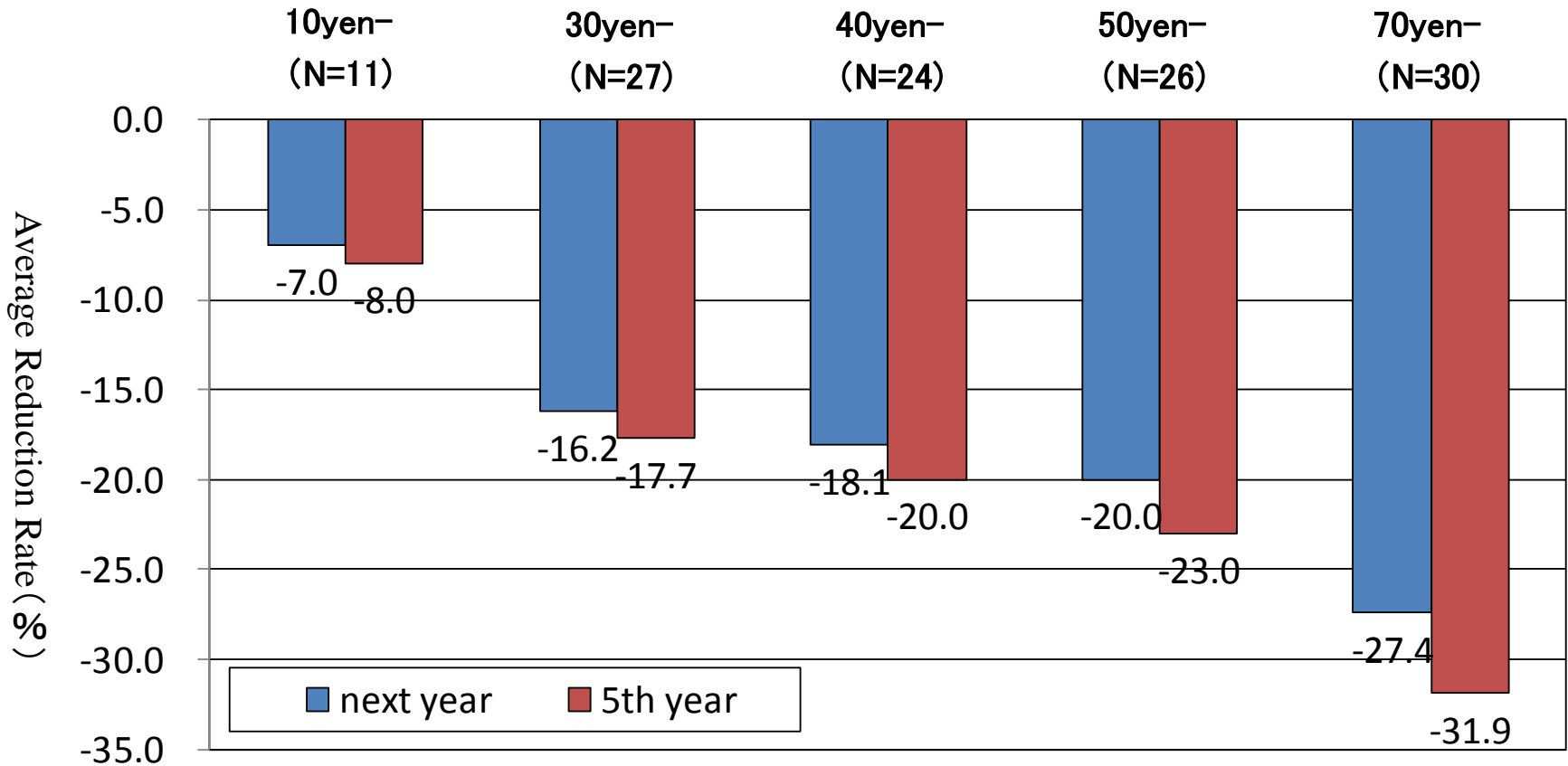


# Implementation Rate of Paid Collection by Cities in Japan



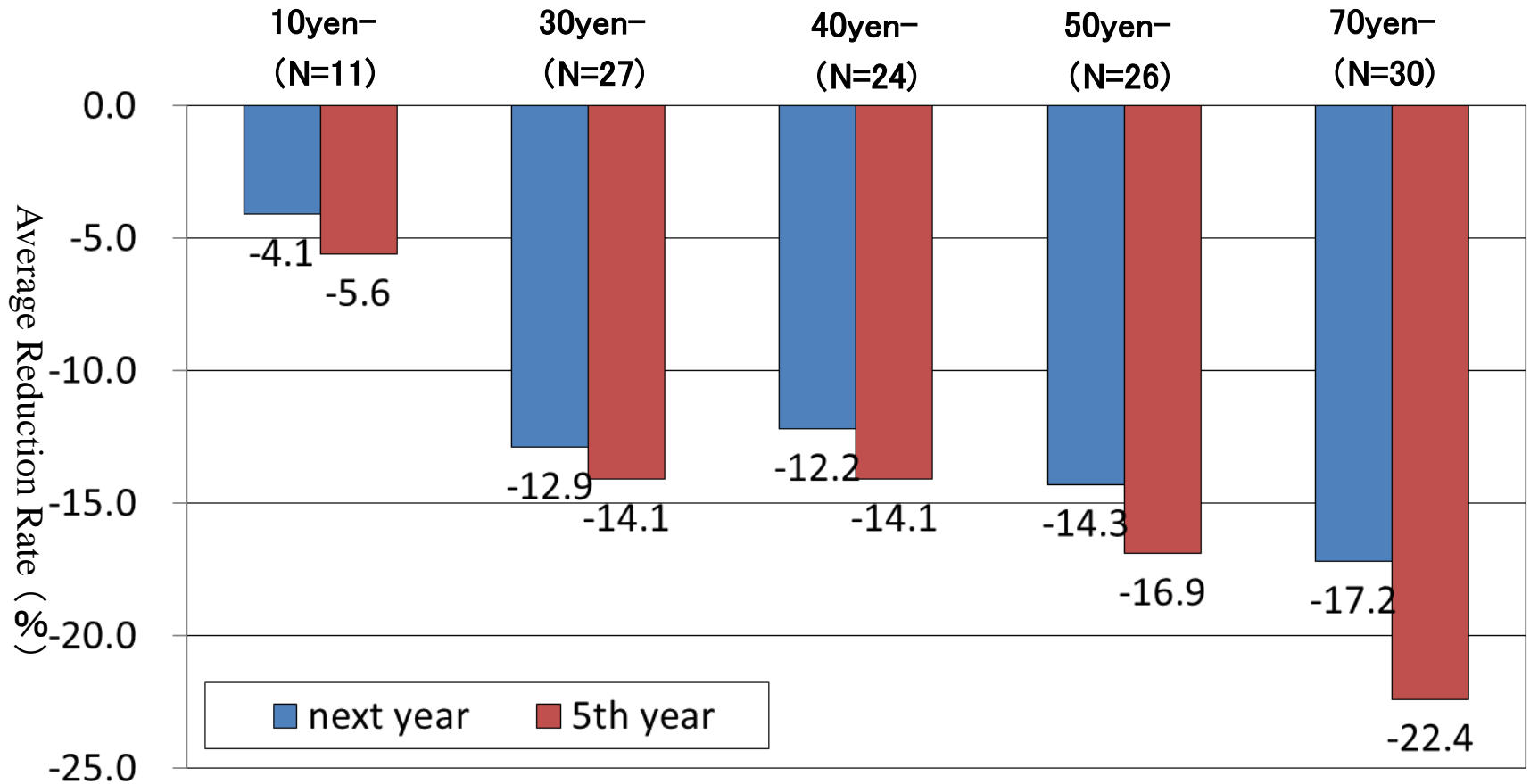
# Fee Level and Effect on Disposal Waste Reduction

Disposal Waste = Burnable + Unburnable + Large



# Fee Level and Effect on Household Waste Reduction

Household Waste=Disposal Waste + Recyclables





# Effect of Paid Collection System in Japan

1. Good reduction effect achieved both on disposal waste and on household waste
2. Reduction effects become better as fee level increase
3. Rebound trend has not been observed and reduction trend continues

## 5. Reconfirm the Importance of 3R

- Trend of MSW Reduction has continued,
- Consciousness of 3R has taken root in Japan

But,

Promotion for More 3R is 'Must'



Make the Most Use of Visualization Measures

- Zero Waste Strategy is useful for the Visualization of Municipal Waste Reduction Goal