

Solid Waste Management: Laws, Policies, Institutional Structure and Financial Mechanism

Technical Deep Dive on Solid Waste Management

September 24th, 2018

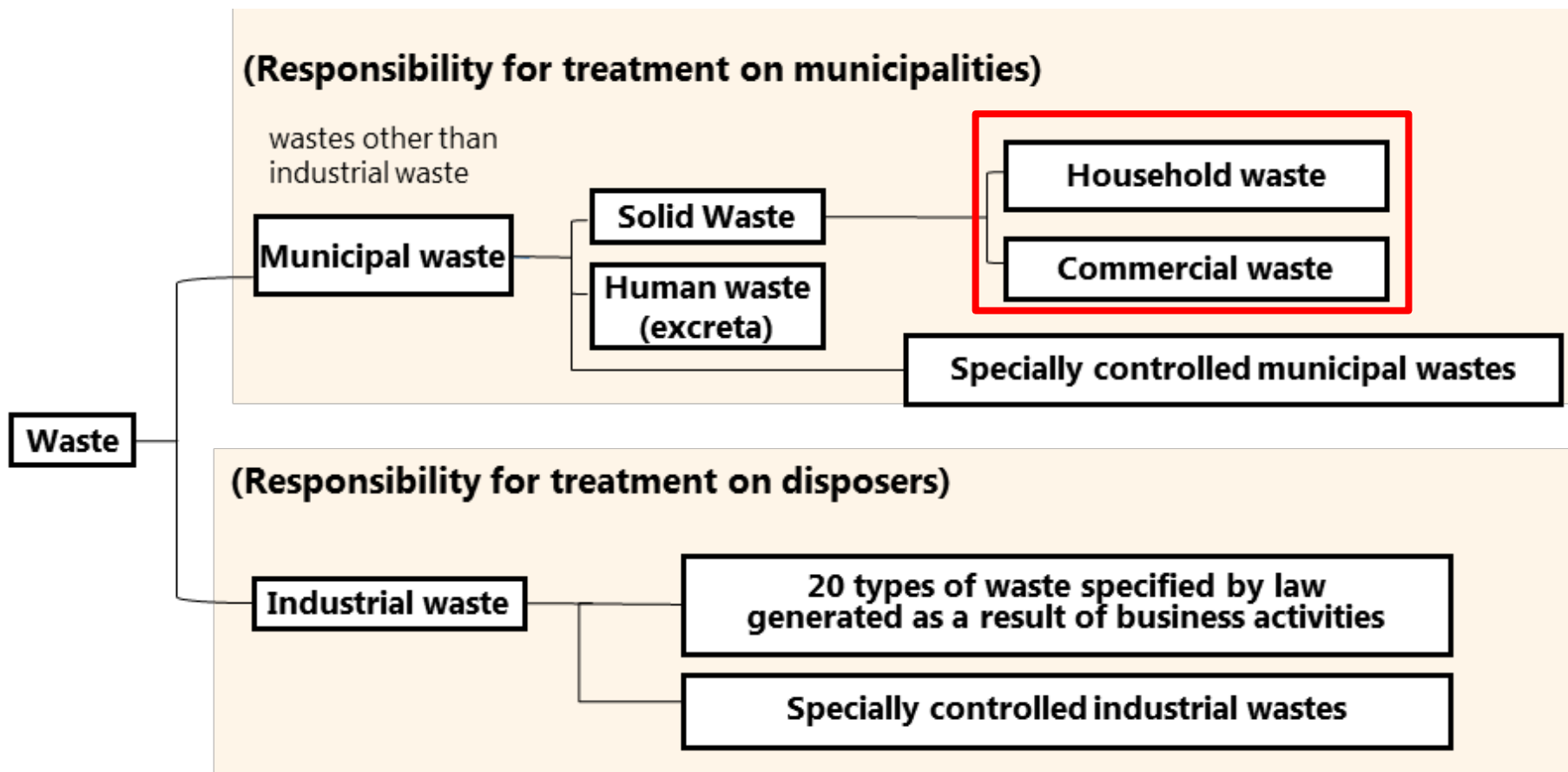
Shiko Hayashi

Programme Director, Kitakyushu Urban Centre,
IGES

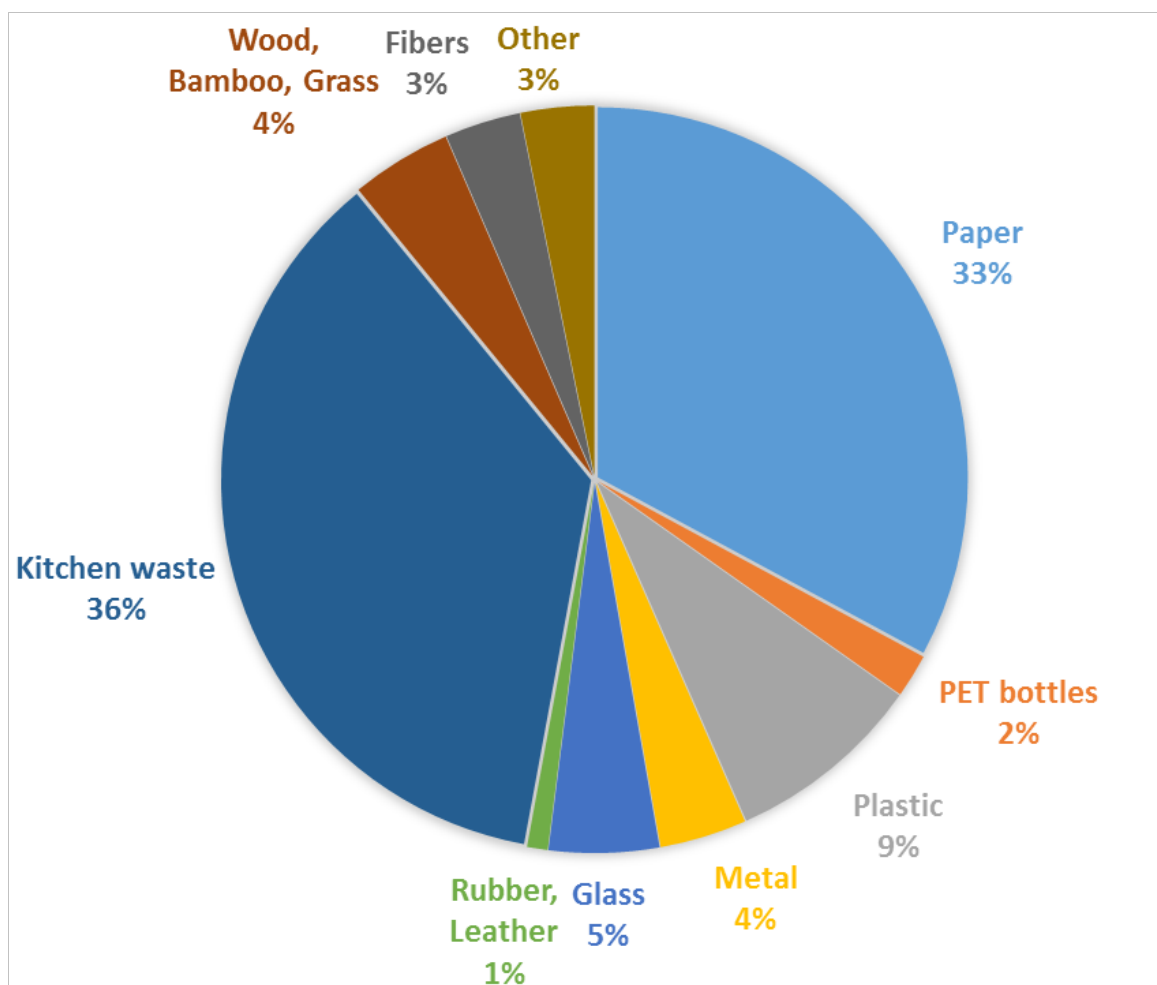


IGES
Institute for Global
Environmental Strategies

Waste Classifications in Japan



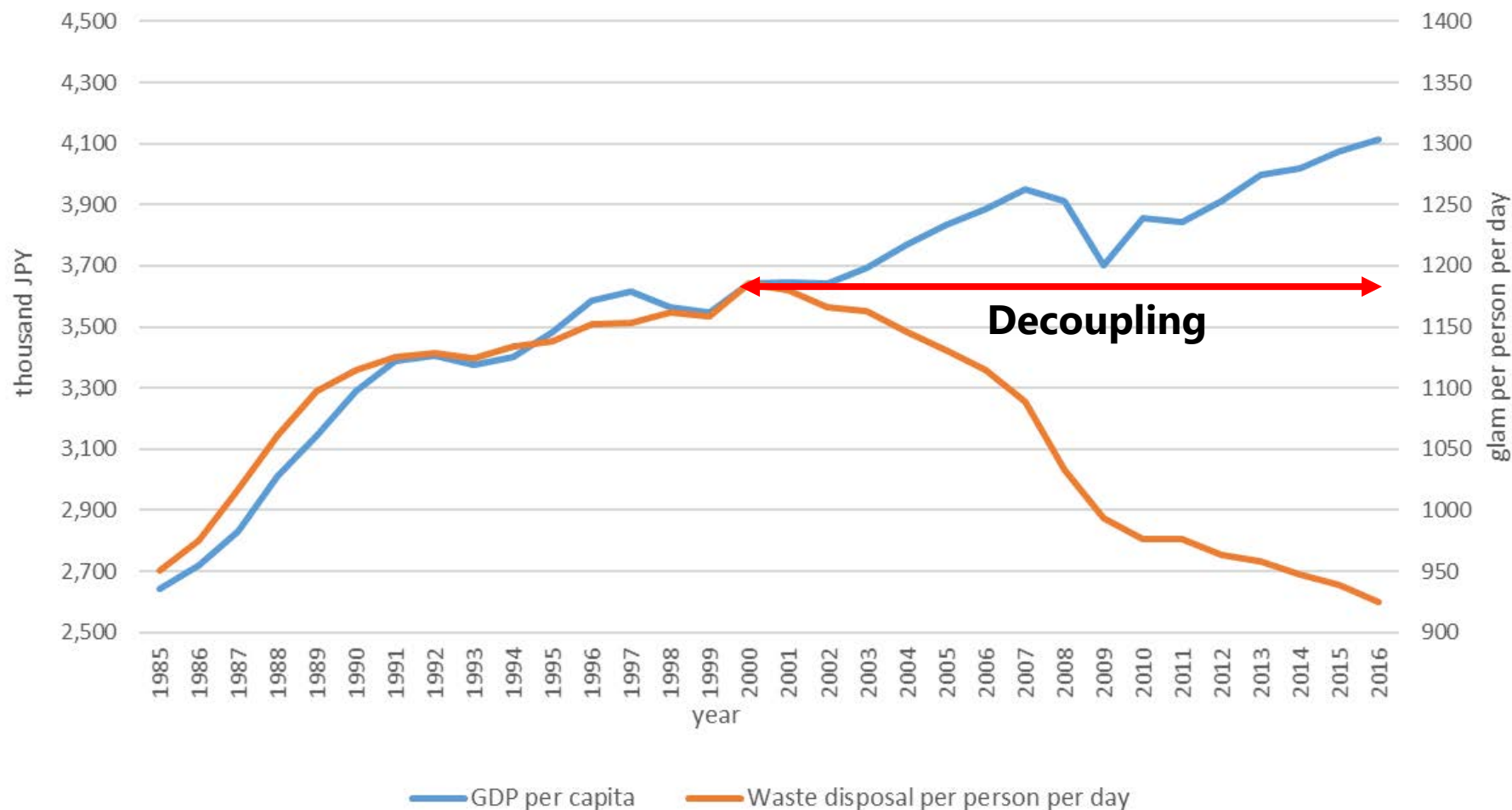
Waste Composition of Municipal Waste in Japan (FY2015)



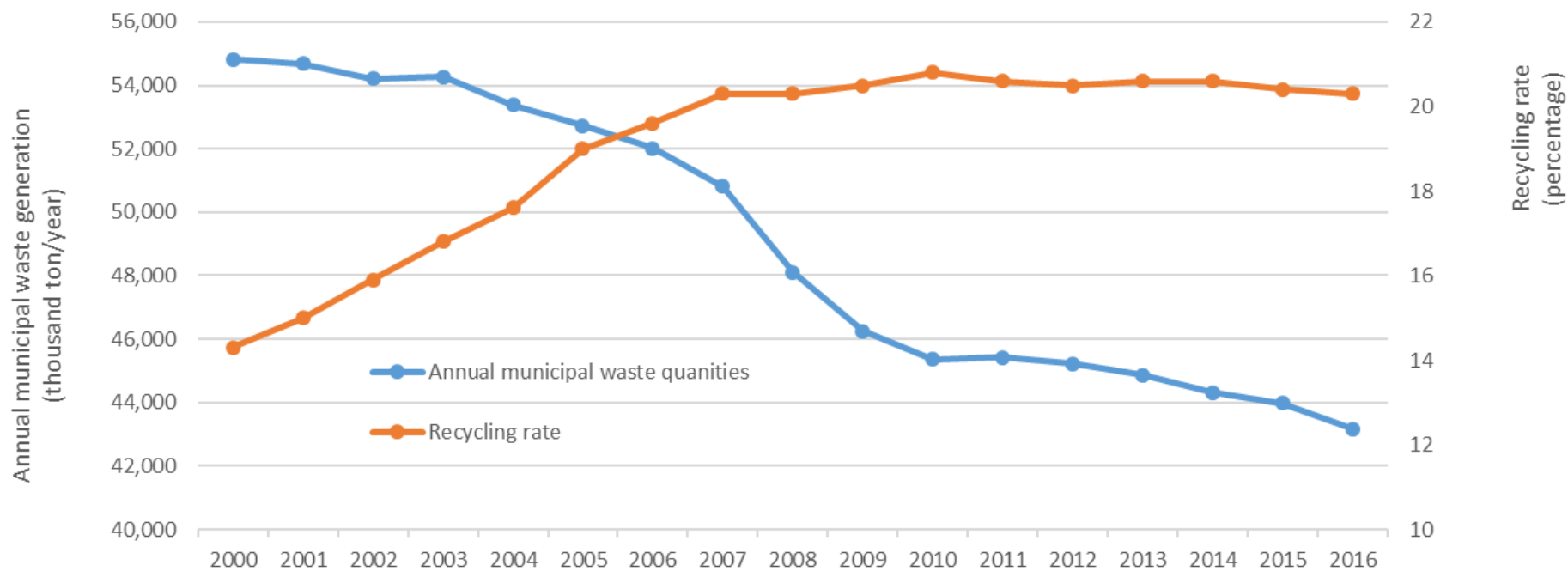
Data source:

http://www.env.go.jp/recycle/yoki/c_2_research/research_11.html

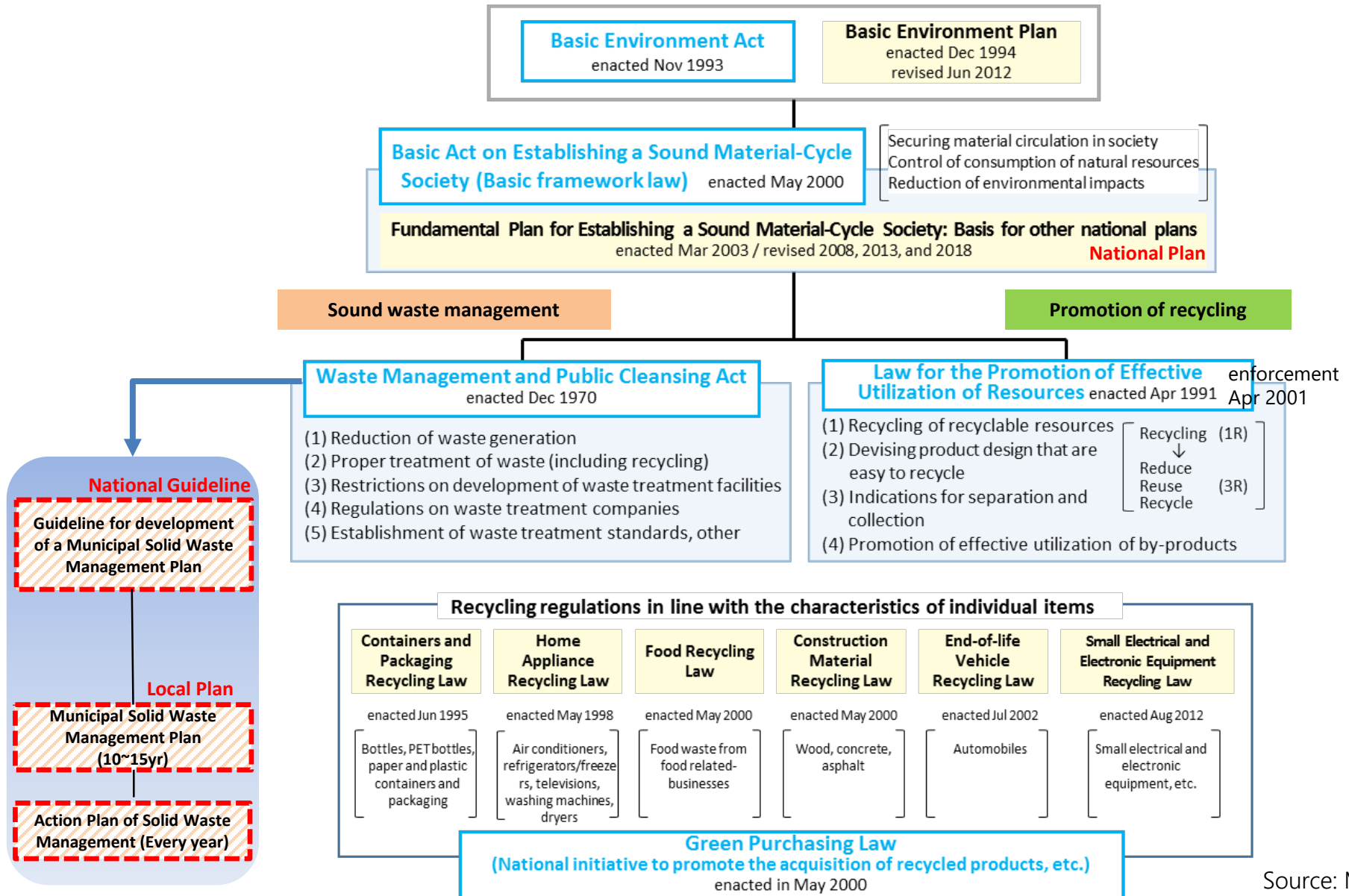
Transition of waste generation and GDP



Transition of waste generation and recycling rate

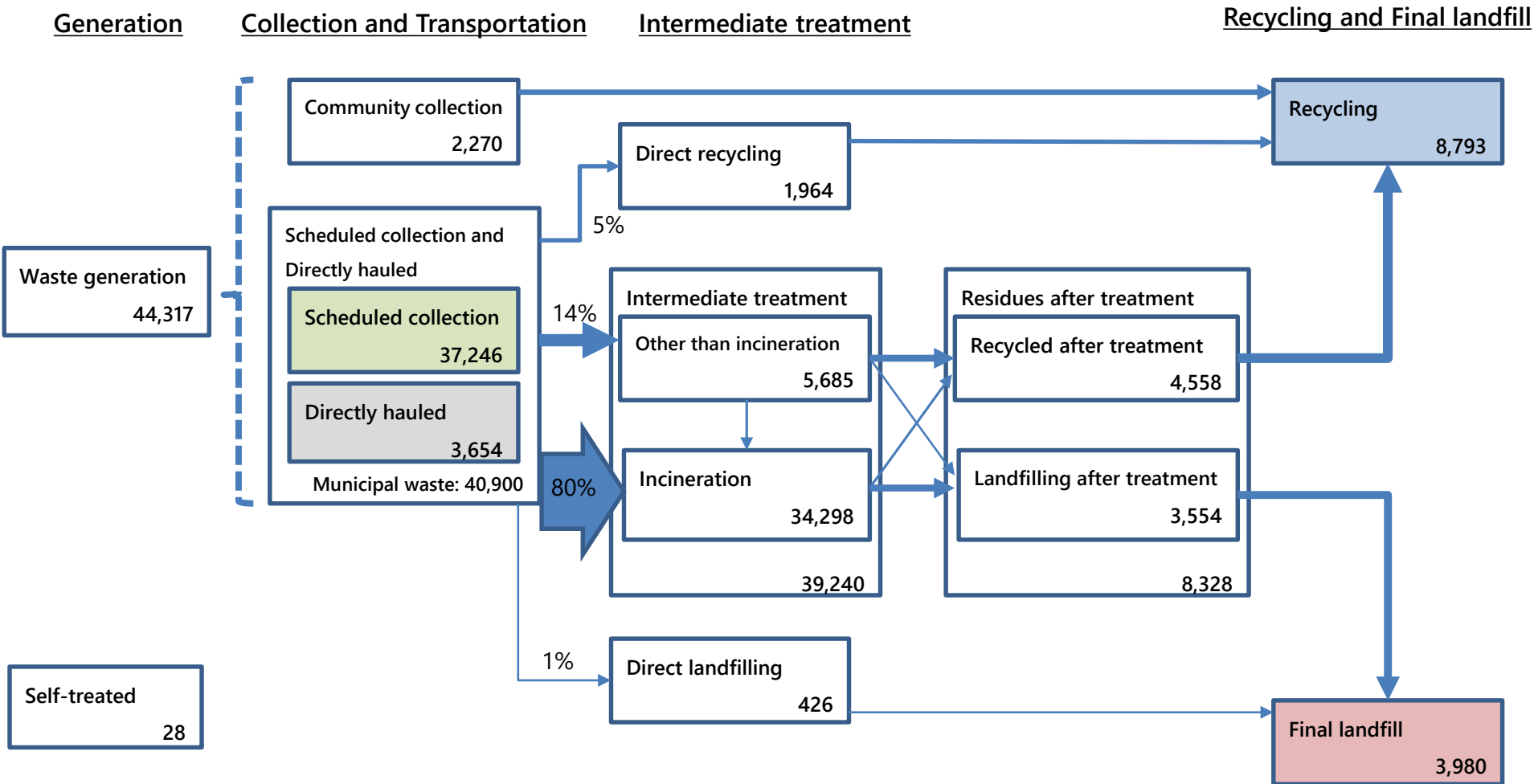


Legal framework of waste management and recycling



Municipal Waste Flow in Japan (FY2016)

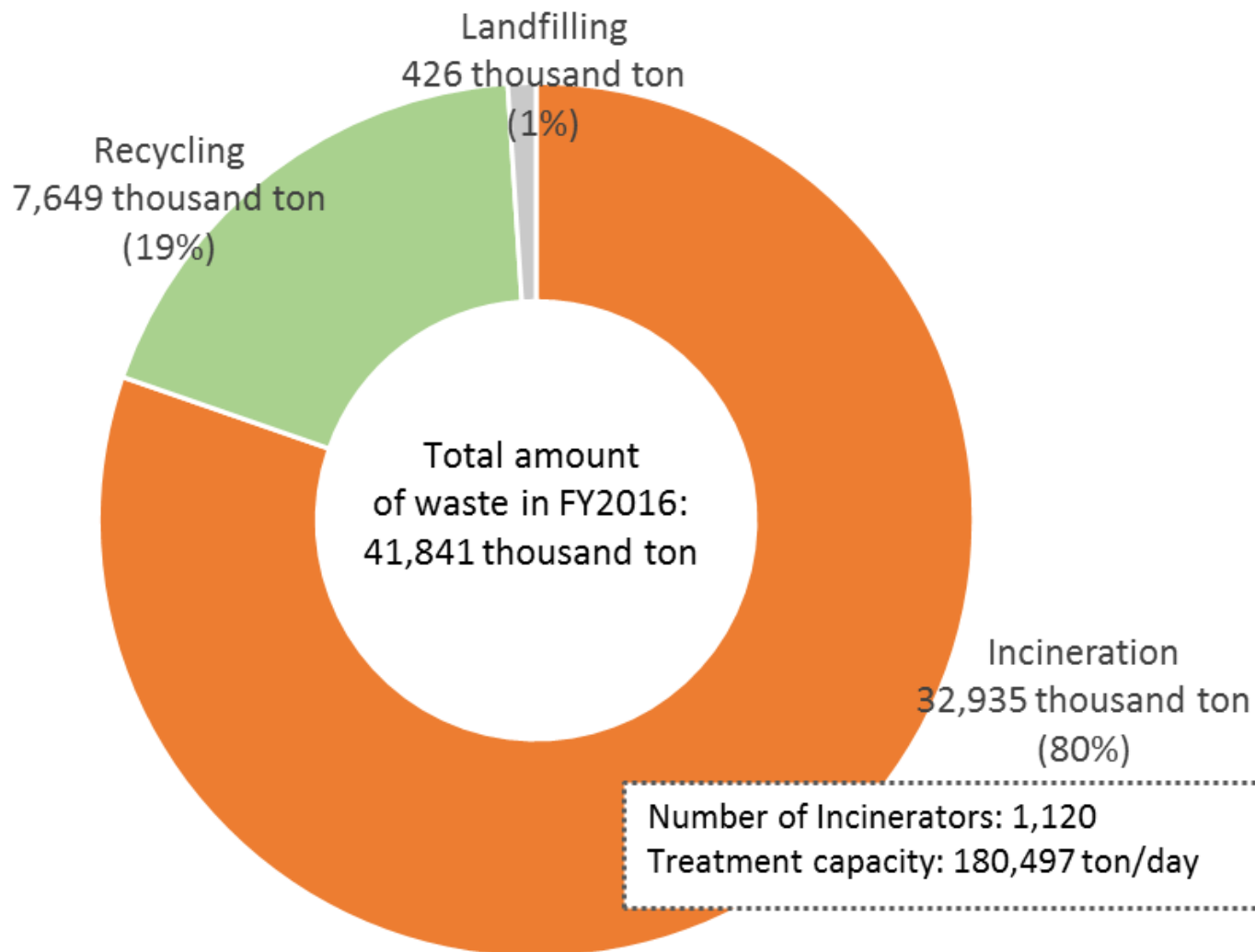
Unit: thousand ton/year



Other than incineration:
 large article treatment (30.7%), composting (3.0%), feedstock making (0.1%), anaerobic digestion (1.0%), waste to fuels processing (11.6%), others (53.5%)

Data source: MOE (2018)

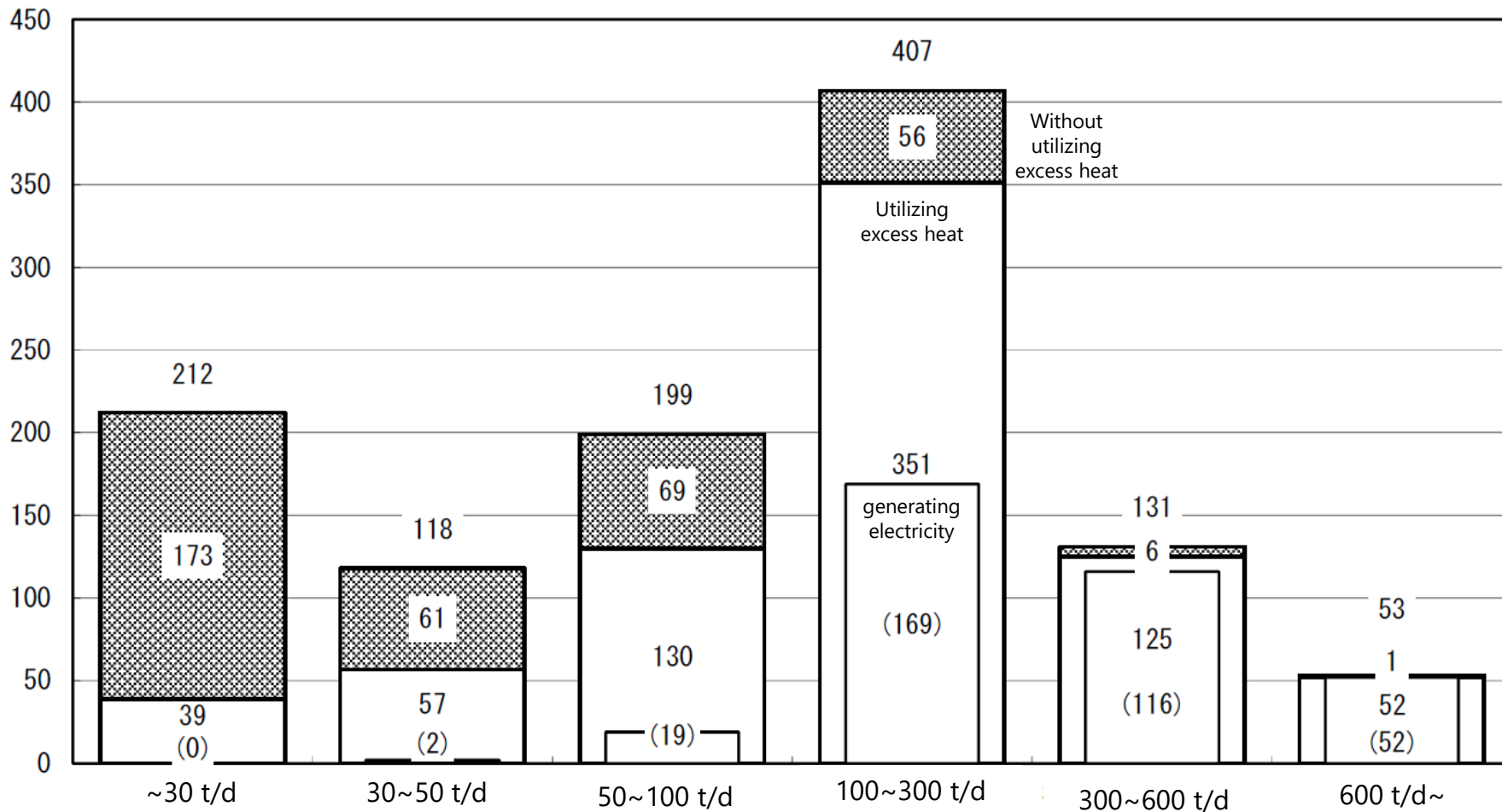
Breakdown of Treatment and Recycling in Japan (FY2016)



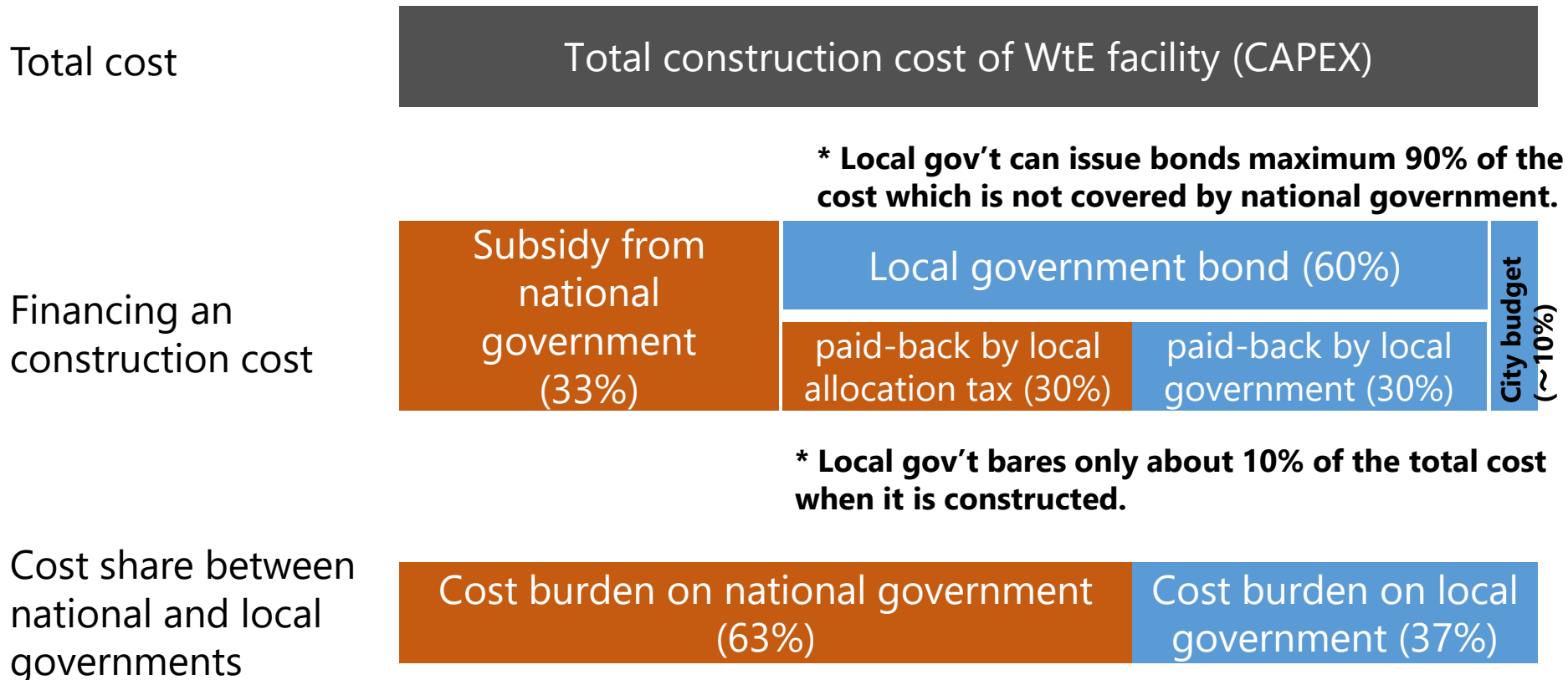
Incineration facilities and energy recovery (FY2016)

Number of facilities

Average electricity generated at WtE facilities: **260 kWh/ton**



Cost burdens on national and local governments for a construction of WtE facility in Japan (an example)



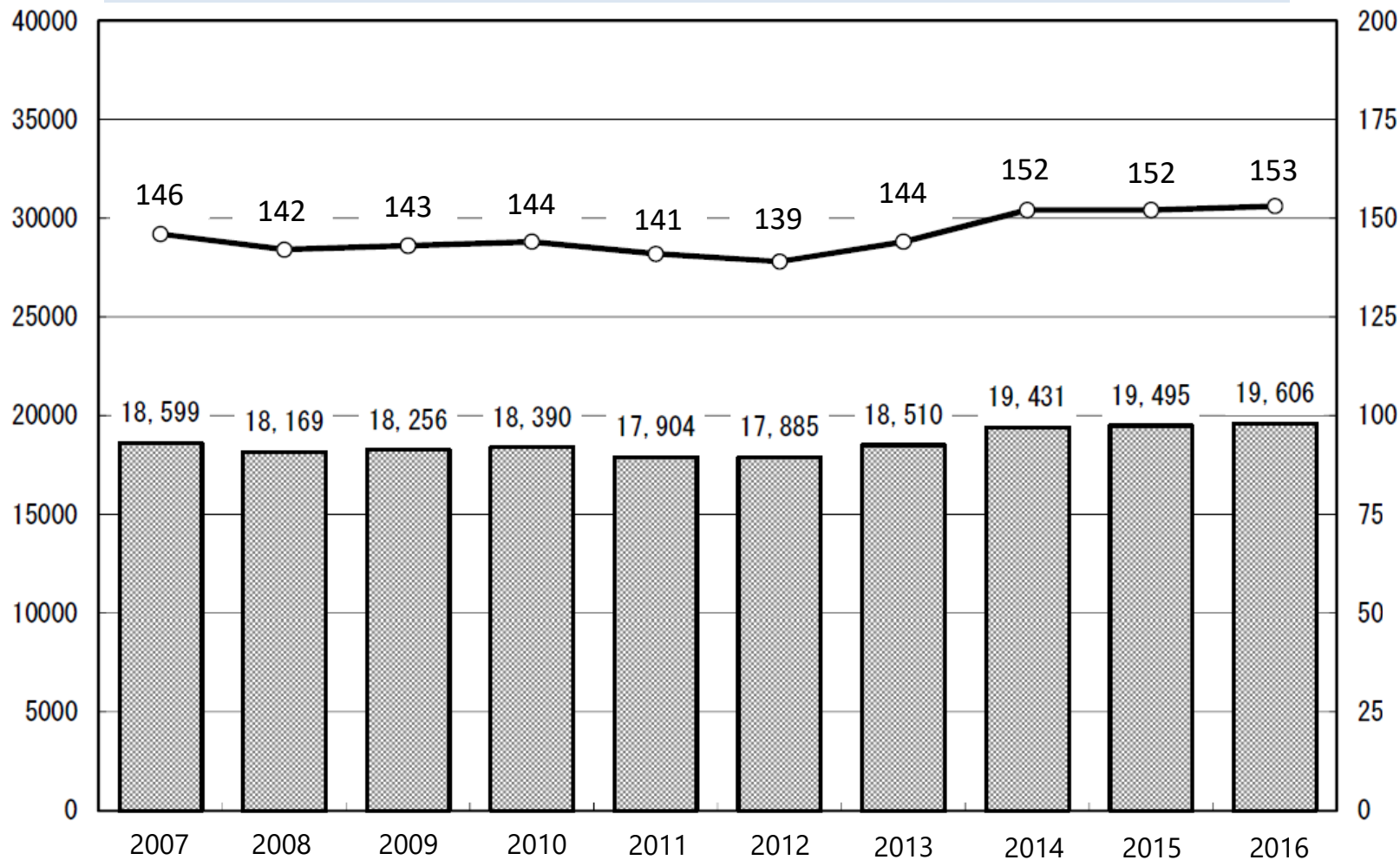
Costs of waste management

- include costs of construction, operation and maintenance (incl. labour costs)
- include costs of collection & transportation, intermediate treatment, and final disposal

assume
1USD=100JPY

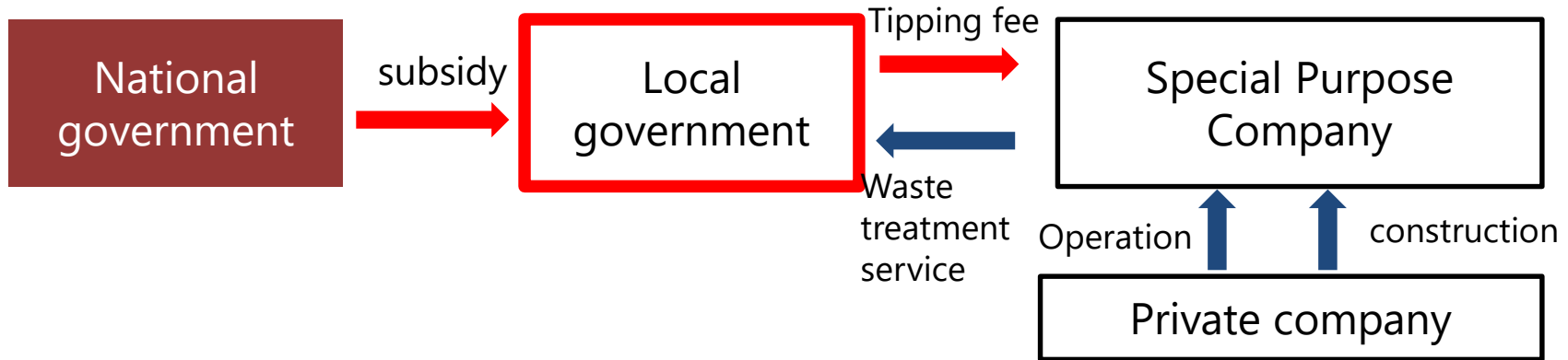
(USD/person·year)

(m USD/year)

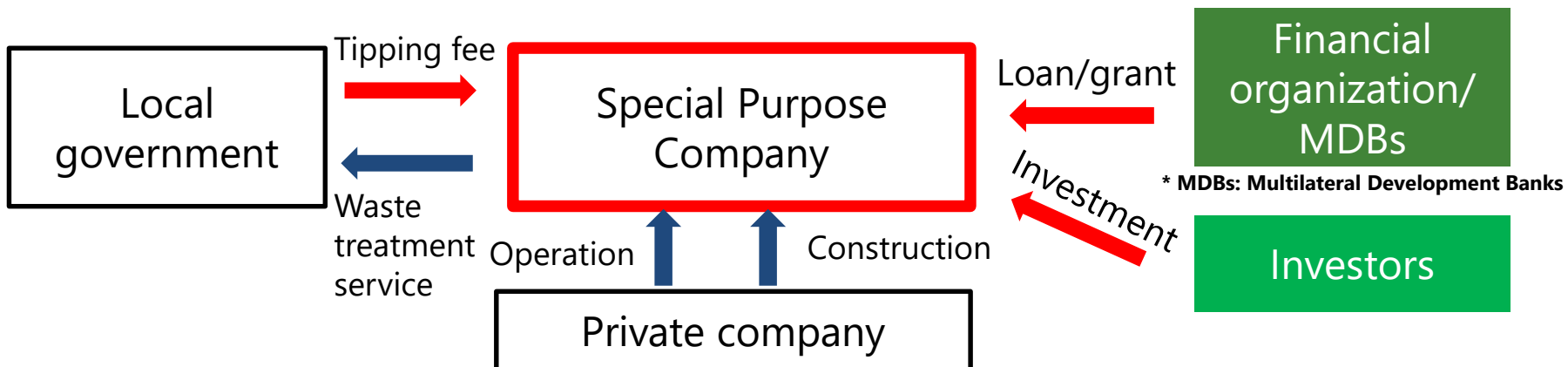


Financing Scheme of MSW Treatment Facility

Publicly financed facility (Japan)

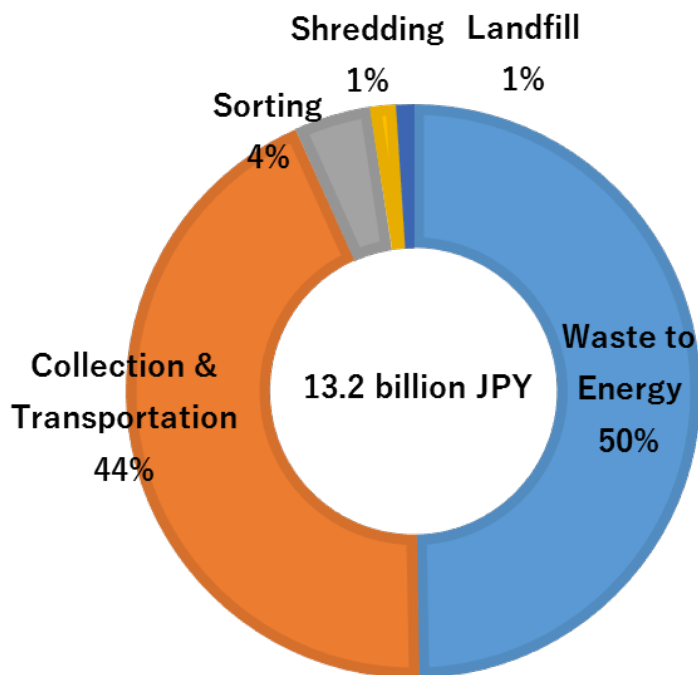


Public Private Partnership: Project finance (other countries)

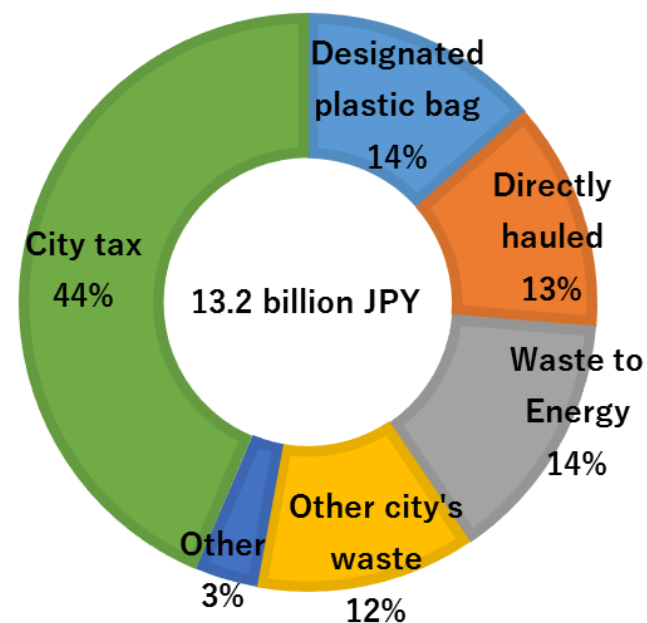


How to Finance Municipal Waste Management Costs (Example of the City of Kitakyushu in FY2015)

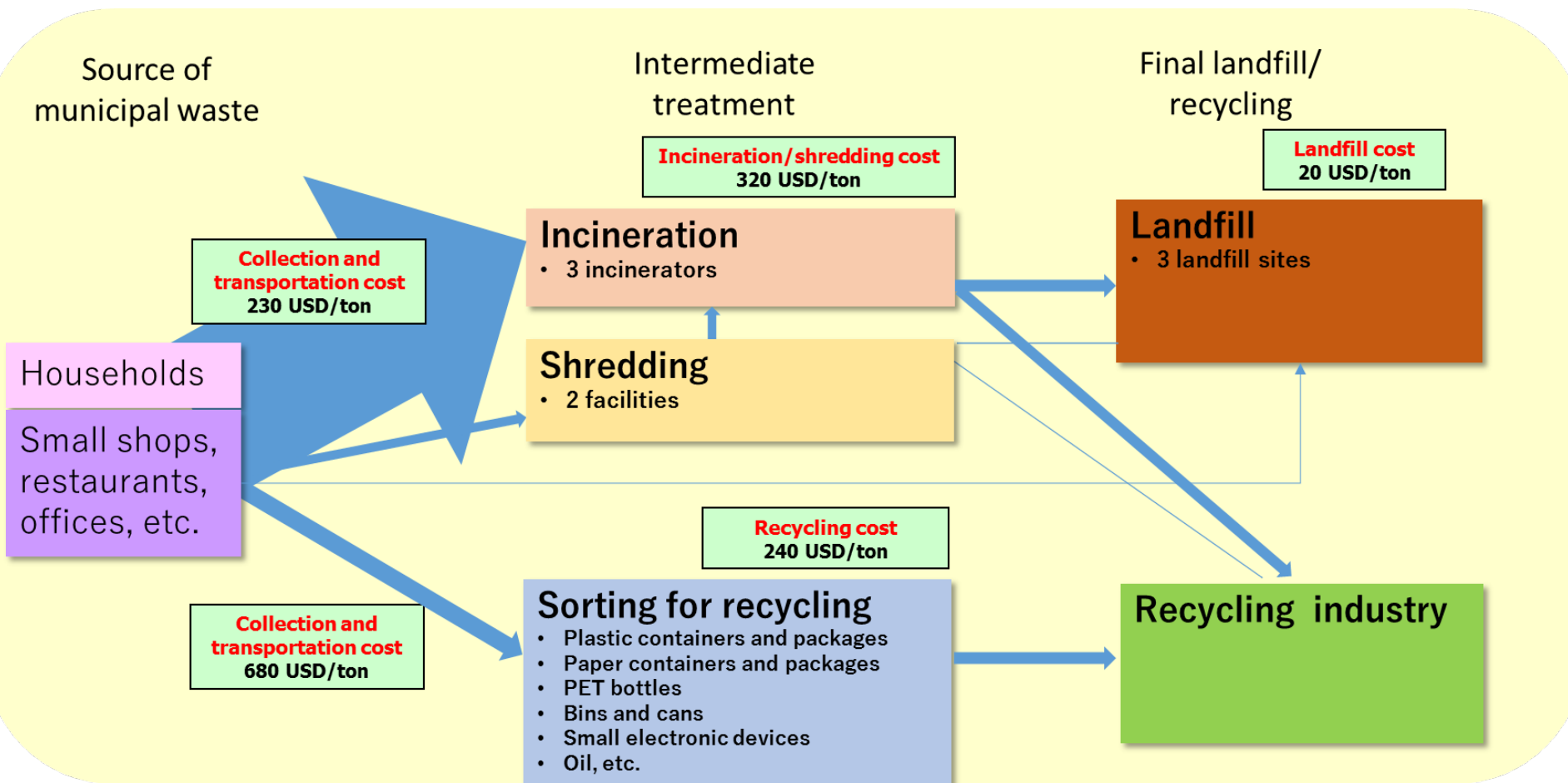
Cost



Finance



Average Costs of Municipal Waste Management (Example of Nagoya City)



Relationship Between National and Municipal Governments on Municipal Waste Management in Japan

Local governments

National government

1. Survey on the state of MSW management

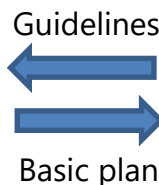
- Data collection and submission of the waste-related data



- Collecting data from local governments and summarizing as a database

2. Basic plan on MSW management

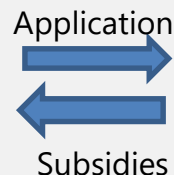
- Development of a basic plan on MSW management



- Provision of the guidelines for a basic plan on MSW management

3. Implementation of the basic plan

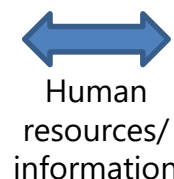
- Development of waste treatment facilities



- Provision of subsidies on a development of waste treatment facilities (1/3 of construction costs and 1/2 if high efficiency WtE facility)

4. Mutual understanding of the state of both governments

- Collect and submit opinions of local governments through Japan Waste Management Association and etc.



- Exchange human resources between national and local governments

Indicators for Monitoring WM Performance

Category	Objective to be measured	Indicator	Unit
Establishing recycling-based society	Waste generation	Waste generation per person · day	kg/person · day
	Recycling rate	Recycling rate from waste	% (ton/ton)
	Thermal recycle	Energy recovery from waste	MJ/ton
	Final Disposal	Proportion of waste sent to landfill-site	% (ton/ton)
Prevention of global warming	GHGs emission	GHGs emission per a person a day associated with waste disposal	kg/person · day
Public service	Residents' satisfaction for waste treatment	Degree of Satisfaction of residents	—
Economy	Cost-effectiveness	Annual waste treatment cost per a person	JPN yen /person · year
		Cost of recycling	JPN yen/ton
		Cost of thermal recycling	JPN yen/MJ
		Cost associated with waste reduction service	JPN yen/ton

Thank you.

*For more information, please go to
"Japan Case Study of Municipal Solid Waste Management: A
Roadmap for Reform for Policy Makers "
or contact to hayashi@iges.or.jp*