

# Solid Waste Management Systems of City of Kitakyushu

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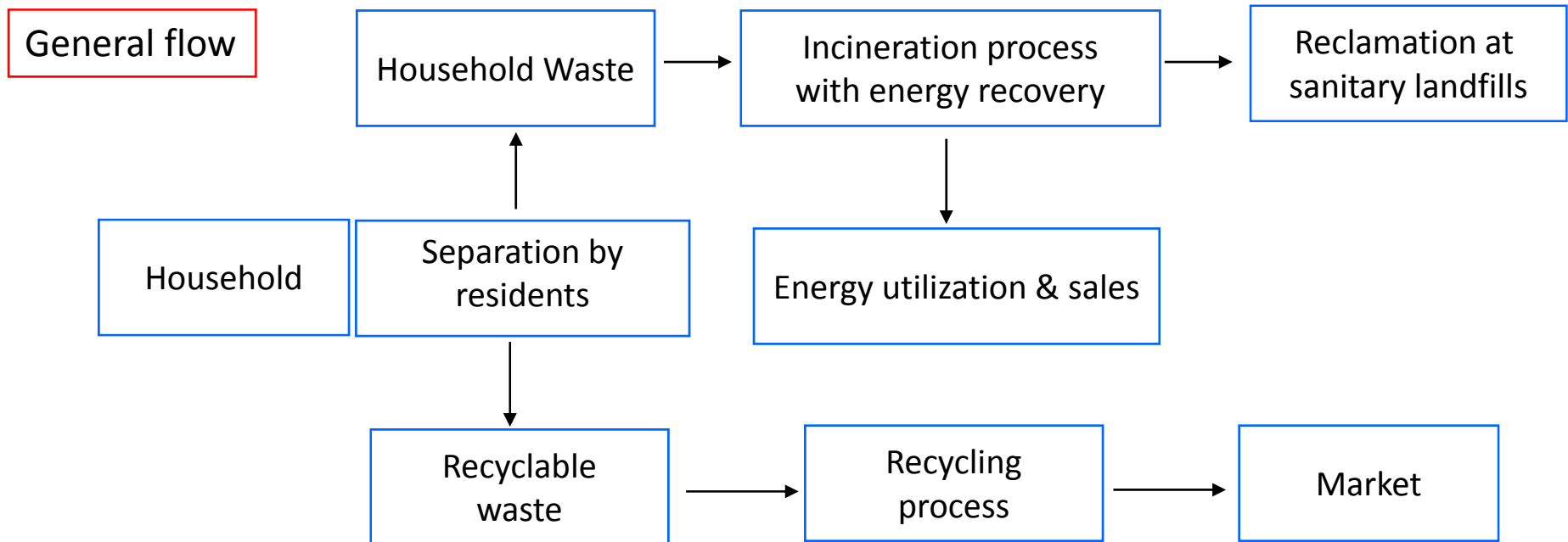
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# About City of Kitakyushu



# Management Systems of Household Waste and Recyclable Waste



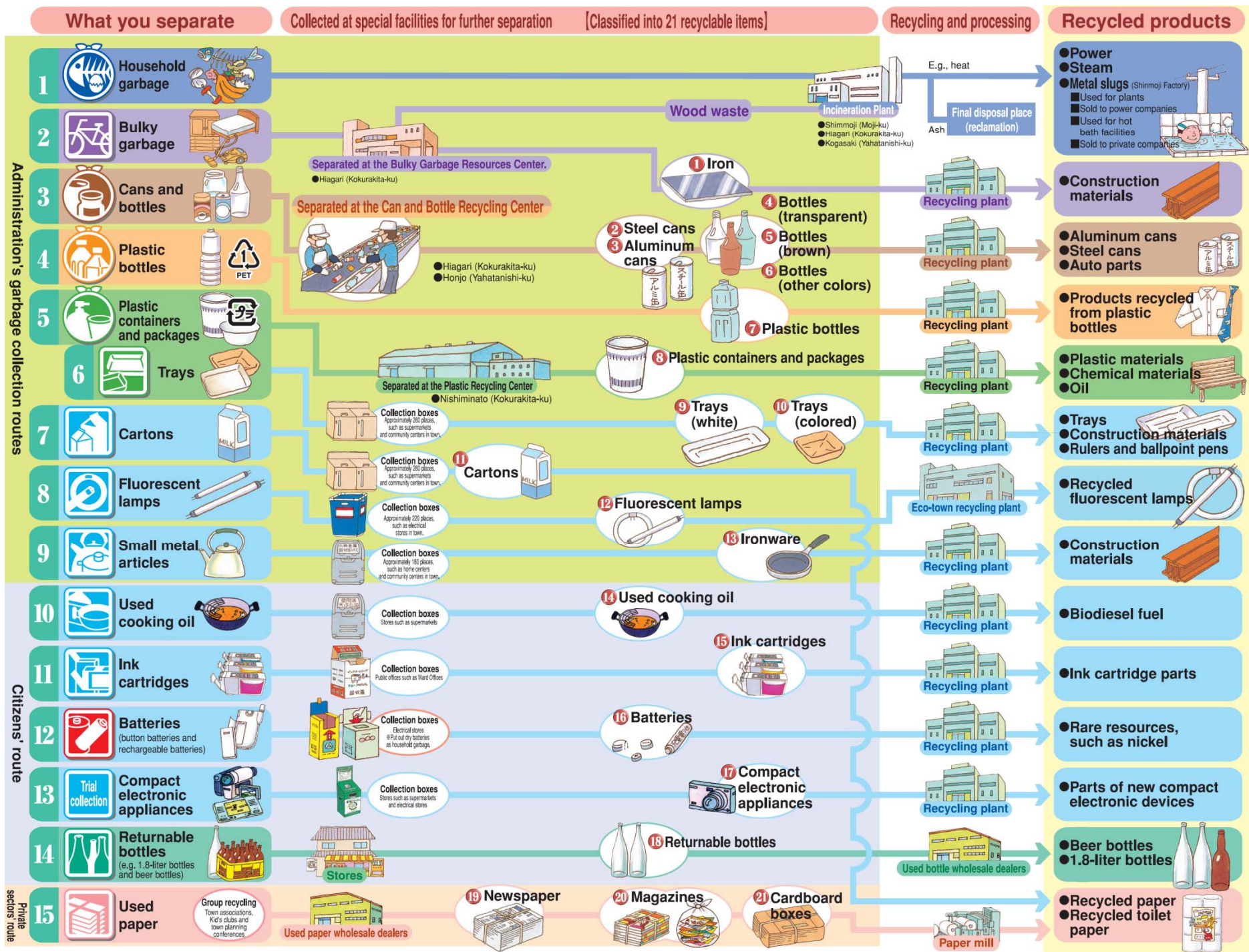
Prepaid garbage bags (1 US\$ = 100 JPY)

Household waste	Recyclable waste		
	Cans & glass bottles	PET bottles	Waste plastic packaging
30 liter: 33 ¢	25 liter: 12 ¢	25 liter: 12 ¢	25 liter: 12 ¢
45 liter: 50 ¢			45 liter: 20 ¢

Free collection boxes for recyclable waste other than written in left









# Treatment Flow of Household Waste

## Collection & transportation



## Incineration



There are 3 incineration plants in the City of Kitakyushu.

Total Capacity : 2,130t/day

Total amount of incineration in FY2012 : 351,151t

Total amount of electric power generation in FY2012 : 214,100MWh

Exhaust gas and drainage are treated properly not to pollute the environment.

## Landfill

Area : 573,000m<sup>2</sup>, Capacity : 7,150,000m<sup>3</sup>

Types of landfill: Sanitary landfill equips water impermeable sheet

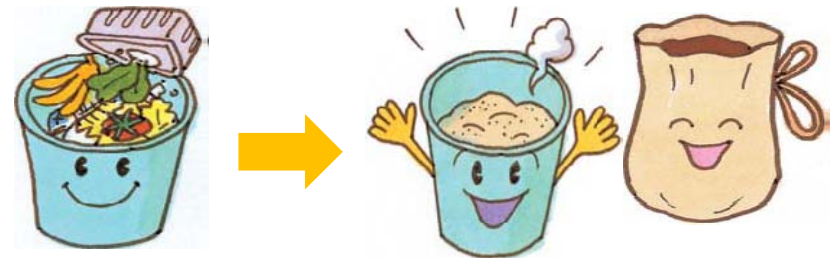


Scenery of the site of former landfill

# Household and Community-based Waste Management

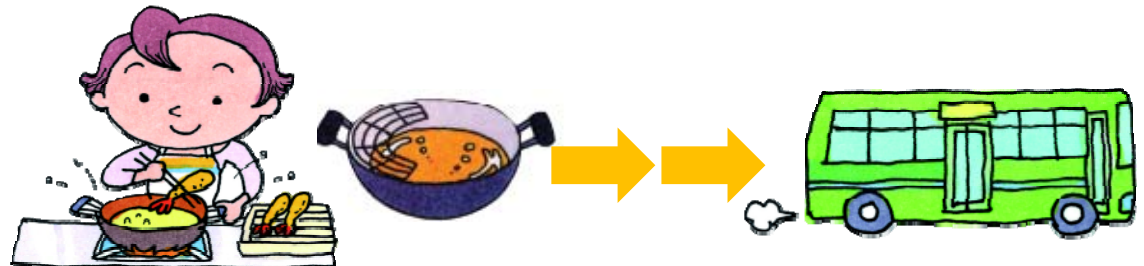
1. Recycling of used paper

2. Composting of kitchen garbage



3. Recycling of pruned branches and mowed grass

4. Recycling of used cooking oil

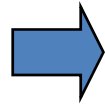


# A Scene of Household and Community-based Waste Management

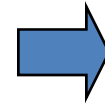
## 1. Recycling of used paper



Collection by citizens



Transportation to business



Pretreatment for recycling

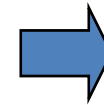
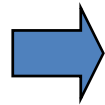


Making paper from used paper

## 2. Composting of kitchen garbage



A scene from the information session



Utilizing as fertilizer

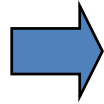


# A Scene of Household and Community-based Waste Management

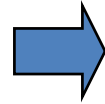
## 3. Recycling of pruned branches and mowed grass



Collection by citizens



Handing to business



Recycling process (crushing)

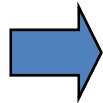


Use as spread under the livestock

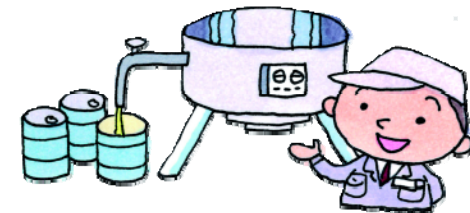
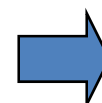
## 4. Recycling of used cooking oil



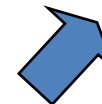
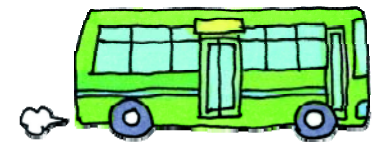
After using cooking oil



Bringing it to a collection box



Refinement it to diesel fuel, etc.



Use as fuel

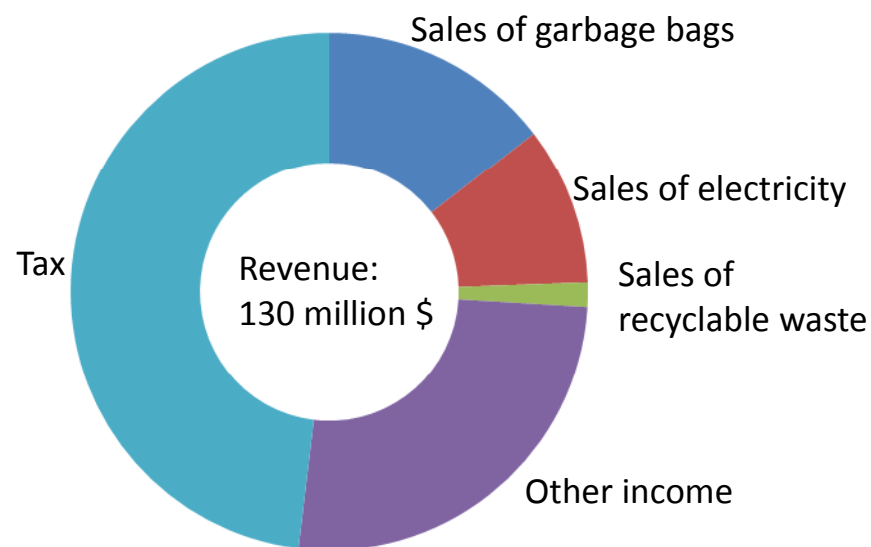
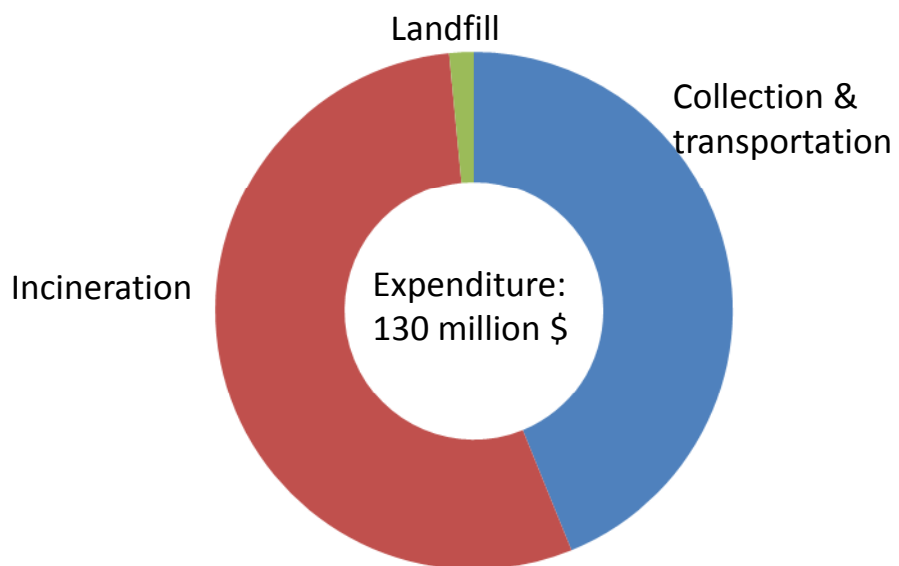
## Amount of Treatment & Treatment Cost of Household Waste and Recyclable Waste

Amount of household waste and recyclable waste being treated (unit: ton)

Fiscal year	Non-recyclable waste	Recyclable waste					
	Household waste	Cans & glass bottles	PET bottles	Waste plastic packaging	Cartons	Fluorescent lamps	Small metal articles
2012	351,902	8,704	2,169	7,451	308	94	113
2003	514,276	15,713		-	263	55	-

Expenditure and Revenue concerning waste treatment (unit: million \$, 1 US\$ = 100 JPY)

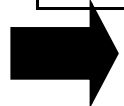
Fiscal year	Expenditure				Revenue					
	Collection & transportation	Incineration	Landfill	Total	Sales of garbage bags	Sales of electricity	Sales of recyclable waste	Other income	Tax	Total
2012	57	71	2	130	19	13	2	33	63	130
2003	84	74	3	161	10	16	2	25	108	161



# Policies and Incentives to Promote Adequate Waste Management

Policies and Incentives	Effect
Introduction of paid garbage bags	Ensuring the fairness
	To be an opportunity to reconsider their own lifestyle
	Reduction of the amount of the waste discharged → Reduction of the waste treatment cost
	Securing proper profitability to fulfill waste treatment
To set the price of prepaid garbage bags for recyclable waste lower than that of prepaid garbage bags for household waste	Promoting proper separation of the waste (Expense for prepaid garbage bags of each household lessens by separating the waste properly.)
	Preventing recyclable waste from going through the treatment process for non-recyclable waste
	Avoidance of unnecessary incineration and landfill → Reduction of the waste treatment cost, Reduction in CO <sub>2</sub> emission
Sales of recyclable waste	Profit on Sale of recyclable waste is utilized as financial resources for waste treatment.
Sales of electricity which is generated in incinerating waste	Profit on Sale of electricity is utilized as financial resources for waste treatment.
To promote the policy of entrusting collection and transportation services to a private entity	Reduction of the cost concerning collection and transportation of the waste
	Increasing the opportunity for being employed and possibility for sales growth
Environmental Education and publicity activities for citizens	Increasing public awareness for waste reduction, waste separation, and sanitation

Letter in red: effect for citizens      Letter in blue: effect for city of Kitakyushu



We are striving to create a sanitary environment and sustainable society through various efforts.



# Issues

Challenges the City of Kitakyushu is facing are:

Achievement of further proper separation of the waste

Achievement of further reduction of the cost for waste treatment

Promoting collaboration with citizens, NPOs, businesses, and local government

Key considerations when applying our process to other municipalities:

Whether citizens accept the construction of incineration facility

Whether recycling business materializes in view of recycling technology, cost effectiveness, and so on

Whether the system of selling electricity exists

# Summary

Solid Waste Management Systems of the City of Kitakyushu was introduced.

The city of Kitakyushu is highly concerned with international cooperation/business especially concerning environmental issues and water supply technology.

We have already accepted many trainees and interns from various countries.

If you have any questions, please feel free to contact us!

E-mail: [takashi\\_ikeda02@city.kitakyushu.lg.jp](mailto:takashi_ikeda02@city.kitakyushu.lg.jp)

Thank you for your attention!