

(2) Information Materials

①City of Kitakyushu Environment Bureau Planning Section

Municipal Waste Management in the City of Kitakyushu

City of Kitakyushu Environment Bureau
Planning Section
Atsushi Ohta

- What's Waste? (Waste disposed by the municipality)
- Waste Management Administration of Kitakyushu City
 - From a disposal-oriented process to an environmentally-sound process (Waste disposed by Kitakyushu City)
 - Overview of the waste disposal facilities in Kitakyushu City
 - Sorting and recycling situation
 - Situation after the collection system review in July 2006

Waste management and public cleansing law

➢ Definitions

"Waste" refers to refuse, bulky refuse, ashes, sludge, excreta, waste oil, waste acid and alkali, carcasses and other filthy and unnecessary matter, which are in solid or liquid state.

Waste management and public cleansing law

➢ Municipal solid waste

Waste other than industrial waste
→ Local Government

➢ Industrial waste

Ashes, sludge, waste oil, waste acid, waste alkali, waste plastics and others (total 20 items) among all the wastes left as a result of business activity
→ Businesses

Examples of the Industrial Waste



Sludge



Waste oil



Waste plastics



Slag



Rubble



Soot and dusts

出典 環境省「日本の産業廃棄物 平成17年版」

Waste management and public cleansing law

➢ Responsibility

Municipalities

Proper management of those municipal solid waste
Promote citizen's voluntary activity to reduce municipal solid waste

Citizens

Cooperate with the central and local governments
Waste reduction (restricting waste discharge, using recycled articles, Recycling and re-use of waste, Sorting waste)

National Government

Collect information, promotion of waste management technology, give the necessary technical and financial assistance

The Recycling-based Society



Law System



Waste Management Administration of Kitakyushu City

Transition of the View of Kitakyushu City Regarding Waste Management

1 Disposal-oriented process (Before 1993)

→ Dispose the discarded waste promptly and safely

One-way structure where the citizens discard the waste and the city disposes it (Increasing convenience in everyday life)

- ★ Increase in the waste volume
- ★ Diversification of waste materials (e.g. Plastics)
- ★ Increase in disposable products

2 To a recycling-oriented process (Since 1993)

→ Initiation of the sorted collection (cans and bottles), etc.

3 To an environmentally-sound process (Since 2000)

→ Reducing, reusing, recycling, and green purchasing

Basic Plan Concerning the Disposal of Non-Industrial Waste

in Kitakyushu City

- Period of establishment: February 2001
- Basic philosophy: From a "Recycling-Oriented Process" to an "Environmentally-Sound Process"
- Increase in the recycling rate From 13% to 25%
 - Development of comprehensive policies including the purchase and use of recycled products (Green Purchasing) based on Reducing, Reusing, and Recycling of waste.
- Target period: Until 2010 (for 10 years)

Municipal waste management program in Kitakyushu

- 1 Construction of the circulative system
- 2 Countermeasure for general waste from business activities
- 3 Wide-range cooperation for solid waste disposal
- 4 Securing of dispose of properly
- 5 Promotion of solid waste disposal efficiency and increase in the level of service
- 6 Enrichment of environment education
- 7 Enhancement of keep-the-city-beautiful movement
- 8 Creation of a recycling society model

Efforts of Sorted Collection, etc.

➢ Efforts of Sorted collection since 1993

→ Considering the effective use of resources in the waste and waste reduction

- ★ Sorted collection of cans and bottles (July 1993)
- ★ Charging for bulky waste collection (April 1994)
- ★ Sorted collection of PET bottles (November 1997)
- ★ Designated bag system for non-industrial waste (July 1998)
- ★ Collection of cartons and white trays at designated sites (July 2000)
- ★ Collection of fluorescent tubes at designated sites (July 2002)
- ★ Collection of colored trays at designated sites (July 2002)
- ★ Revision of the domestic waste collection system (July 2006)
- ★ Sorted collection of plastic containers/packaging (July 2006)
- ★ Collection of small metal objects (pots, kettles, etc) at designated sites (July 2006)

Waste Disposed by Kitakyushu City

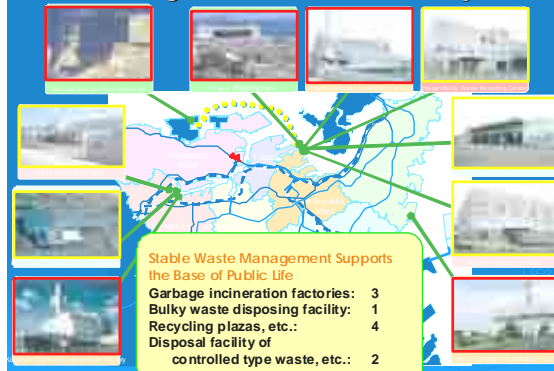
- Domestic waste (twice a week) (50 yen charge/45 liter bag)
 - Food waste, paper waste, plastics, etc.
- Recyclable materials (once a week) (12 yen charge/25 liter bag)
 - Cans, bottles, PET bottles, plastic containers/packaging
- Bulky waste (once a month) (300 yen - 1000 yen charge)
 - Furniture, beddings, etc.
- Cartons, food trays, fluorescent tubes, small metal objects
(Collection boxes placed at certain locations such as supermarkets in the city)
- Self-collected waste (100 yen charge/10 kg)
 - Waste that the companies and collection transport companies bring into the city

(700 yen/100 kg before October 2004)

Destination of Resources and Garbage



Waste Management Facilities in Kitakyushu



Flow of Domestic Waste Disposal

- Collection and transportation ~ Incineration disposal ~ Final disposal -

Municipal waste disposal

Item	Amount (t)	Amount (t)	Amount (t)	Amount (t)
General waste	1,000	1,000	1,000	1,000
Recyclable waste	1,000	1,000	1,000	1,000
Special waste	1,000	1,000	1,000	1,000
Construction waste	1,000	1,000	1,000	1,000
Flammable waste	1,000	1,000	1,000	1,000
Corrosive waste	1,000	1,000	1,000	1,000
Toxic waste	1,000	1,000	1,000	1,000
Infectious waste	1,000	1,000	1,000	1,000
Medical waste	1,000	1,000	1,000	1,000
Animal waste	1,000	1,000	1,000	1,000
Plant waste	1,000	1,000	1,000	1,000
Food waste	1,000	1,000	1,000	1,000
Textile waste	1,000	1,000	1,000	1,000
Other waste	1,000	1,000	1,000	1,000



Waste-collection point (Gomi Station)



Incineration Plants

~ Electric Power Generation in 3 Incineration Plants ~



Amount of Waste Incinerated:
623,100 t/Y (2,010 t/d)

Utilizing Excess Heat for Electric
Power Generation: 244million kWh / Y

by Power Generation:
¥2,183million = 18.2 million US\$

Basic Sorting and Recycling Visions of Our City

- 1 Understandability for the people
 - Will not increase too much the types of waste that the people need to sort
- 2 Establishment of recycling technology and demand for recycled products
 - Materials do not recycle unless there is a recycling route
- 3 Efficiency including the cost
 - Optimize the use of the collection route and public collection route
 - When more kinds of waste need to be sorted by the people, the collection cost would increase

◆Sorted Collection of Recyclable Materials 1

→ Waste collection in the paid designated bag – once a week

(Materials brought by the citizens in the designated bag to the recycling material station will be collected)

- 1 Cans and bottles
- 2 PET bottles
- 3 Plastic containers/packaging

Plastic Containers/Packaging



This symbol is the marker. Those are the plastic containers and packaging that become waste when the contents in them are used up.



* Those not the object of sorting as "plastic containers and packaging"
?Plastic goods other than containers or packaging
Examples: Plastic goods such as video tape, toy, wash bowl, etc.

◆Sorted Collection of Recyclable Materials 2

→ Things collected in special collection boxes placed at different locations such as certain supermarkets in the city.

- 1 Cartons and trays
- 2 Fluorescent tubes
- 3 Metal objects (pots, kettles, etc)

Collection box of food tray
at supermarket



Recycling Box for
Fluorescent Lamp



Recycling Florescent Lamp



Recycled Materials of
Fluorescent Lamp

Collection box of Small metal articles



Local Efforts for Recycling Domestic Garbage

- Waste paper
(Subsidizing 7yen/kg for the collection by the local volunteer organizations (depending on collection methods). The organizations also collect waste cloth and reused bottles.)
- Composting of food waste
(Composting domestic food waste and utilize manure at schools or parks to grow flowers, etc.)
- Pruned branches/mowed grass
(Partially collected by the neighborhood associations to be composted after being used in factories as spread under the livestock)
- Waste food oil
(Partially collected by the neighborhood associations and used as fuel for the waste collection vehicles after refinement.)

Promotion of Waste Reduction & Recycle



Promotion of Waste Reduction & Recycle ~Composting project by community~



Promotion of Waste Reduction & Recycle ~Composting project by School~



Pruned branch recycling process



Food oil waste recycling process



July 2006 Revision of the domestic waste collection system

- Over 13,000 people participated in the early-morning training concerning waste collection
- Cooperation of total of 100,000 citizens in 10 days
- Significant decrease in domestic waste
- New designated bags are firmly established from the beginning of the revision

Reduction in waste volume

Record from July to December 2006

Collected volume of domestic wastes

From July to December 2006	From July to December 2003
93,484 ton	126,815 ton

Approximately 33,300 ton Reduction by 26%



Reducing is...

To reduce waste generation

Examples:

- Using "my bags"
 - Bring your own bag to supermarkets, etc.
 - Don't receive plastic shopping bags.
- Promoting simple packaging
 - Decline the use of wrapping paper, book covers, etc.
- Utilization of returnable containers
 - Bottled beer, sake, soy sauce, milk, etc.
- Buy things that last for a long-time and do not buy excessively
- If it's not needed, don't receive it even if it's free

Promotion of the City-Wide No Plastic Shopping Bag Movement

Kanpass (derived from Kankyo(environmental)

Passport) sticker project

Since December 2006

The key word is "Mottainai"

Let's bring our own bags and reduce plastic shopping bags!

Goal: 20% reduction of plastic shopping bags

This much plastic shopping bags are used annually.

	Japan	Kitakyushu
Plastic shopping bags	30 billion	0.3 billion
Crude oil equivalent (200 liter drums)	2.8 million	28 thousand

Kanpass sticker for No Plastic Shopping Bag Movement

On Kanpass Sticker Campaign!

This sign is the marker.

If you say no for a plastic shopping bag at the cash desk of a retailer participating in the movement, you can get a point seal, that is, Kanpass sticker.

20 pieces of the sticker work as ¥50-reduction at any participating retailer.

Easy procedure!

1. Say no for a plastic shopping bag. After you say "no", you can get a point seal.

2. If you get 20 point seals, they are sticker for Kanpass sticker.

3. Apply sticker to the back side of a plastic shopping bag. The sticker is a Kanpass sticker.

4. During 20 stickers, you can get a Kanpass sticker. After you get 20 stickers, you can get a Kanpass sticker.

"My bag" using the furoshiki (Traditional Japanese cloth)

As an instant bag



As a waist pouch



As a basket



②Environment Museum

The 3Rs: A Public Environmental Education Program

Environment Museum
Miyoko Morofuji

City of Kitakyushu
Environment
Museum

Open : April, 2002
Visitors : 100,000/year



Learning

Information

Activities

3R Environmental Education Strategies

- Age appropriate programming
- Teacher orientation
- Hands-on activities including workshops, games and crafts
- Activities included in all programs
- Aim to raise public awareness of the importance of a 3R education - leading to individual and collective action

■Eco-Communication is the goal

Let's "catch on" to environmental information with our own 'hands'.

Let's tune our 'antennas' to environmental issues!



■Environment Museum Characters 3R Mirai Hotaru

Reduce - "Due"
Reuse - "Yuu"
Recycle - "Sai"



■3R Kindergarten Education Program

The importance of the 3Rs is taught through story telling.

Story time Theater: "Gomilla is coming."

Fingerplay activities: "ReeReeRee - Recycle. Garbage is ... transformed!"



■3R Kindergarten Activity Program

Stained Glass Art

Children make stained glass art using snack packaging.



■ 3R Kindergarten Activity Program

Children meet Yuu (Reuse)

"Let's reuse things so we don't make more garbage."



■ 3R Elementary Education Program

Students learn about the garbage in our rivers and think about what they and their families can do about it.



■ 3R Elementary Education Program

Story time theatre: Students hear personal stories about creating things without making more garbage. (For upper level elementary students – grades 5, 6)



■ 3R Elementary Education Program

Teaching the 3Rs through Bingo (For middle and upper level elementary students – grades 3 to 6)
“Have you heard of ‘My Goods’?”



■ 3R Activity Program

Mirai Hotaru Bingo

Let's look at our daily lives!
In this game, students make a hole in their card if an action applies to them.
Is your lifestyle good for the environment?
Environmentally friendly kids win!



■ 3R Elementary Education Program

City of Kitakyushu Garbage Classifying Game
“Who can correctly classify the garbage?”
Help your families do it at home!



■ 3R Elementary Education Program

Students learn what they can do about the 3 Rs.



■ 3R Activity Program

“Garbage is a resource”
♪ Teaching recycling through songs



■ 3R Activity Program

“Making accessories with shells”
Before throwing garbage out, think about what you could make with it, such as turning shells into (fashion) accessories.



■ 3R Activity Program

Teaching about the 3Rs through conversation with an Environmental Education Supporter.



■ 3R Activity Program

Visitors to the museum have fun participating in activities.
"That looks interesting . . . can you teach us?"



■ 3R Activity Program

Candy wrappers turn into butterflies.



■ 3R Activity Program

Learning about recycling by playing Eco-Label Bingo.
Players hear 'Ping-Pong' when they answer correctly!



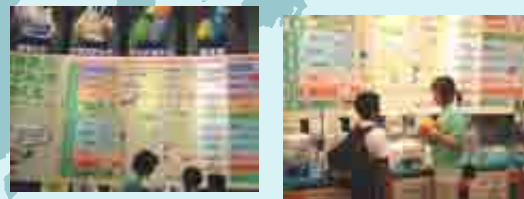
■ 3R Activity Program

Students learn to think about the 3Rs in relation to the size of the earth.



■ 3R Activity Program

"Garbage and Recyclables."
Where do they go?
"How many PET bottles would it take to make the oung woman's clothing?"



■ 3R Activity Program

Encouraging people to care about recycling.
Which Eco-Goods would you like to try?



■ 3R Activity Program

Introducing Raw Garbage Recycling.
See it. Touch it. Smell it.



3R Outreach Program

- Kindergarten
- Elementary School
- Junior High School
- Senior High School
- Community Center
- Various City Departments
- Overseas – International effort

■ 3R Elementary Education Program

3R Education in cooperation with Elementary School Teachers
 “Today we’re going to work with Ms. Moro to develop a recycling plan!”



■ 3R Elementary Education Program

Let’s play fun games together!
 “What does ‘recycle’ mean?”



■ 3R High School Education Program

Hands-on garbage classification activities



■ 3R High School Education Program

Thinking about shopping bags and their relation to environmental issues



■ Popular with children even in Thailand

Story Time Theatre: “Gomilla is coming.”



■ 3R Public education Program

Teaching to reduce and reuse using a ‘furoshiki’ (Traditional Japanese carrying cloth) Regular Program (Eco Life Plaza)



■ 3R Public Education Program

Zero Garbage ! My ‘furoshiki’ bag



■ 3R Public Education Program
Families learning to reduce garbage
“I can recycle with my mom!”



■ 3R Public Education Program
In the past, everyone used a ‘*furoshiki*’.
Rediscovering Japanese culture.

