The 2nd Kitakyushu City Fundamental Plan for Establishing a Sound Material-Cycle Society

Summary Overview

Kitakyushu City Environment Mascot Characters
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August 2021

SUSTAINABLE DEVELOPMENT GOALS

City of Kitakyushu

Plan Summary

1 Purpose of Establishing the Plan

In 2011, the "Kitakyushu City Fundamental Plan for Establishing a Sound Material-Cycle Society" was put in motion. It detailed efforts to realize a "Material-cycle Society" that was also "low-carbon" and "in harmony with nature", and advanced pioneering public waste management initiatives for promoting a "sustainable urban model".

Meanwhile, our world's living environment and related needs for environmental policy continue to shift dramatically. In recent years, new challenges have presented themselves such as a growing awareness of food loss, food waste, and plastic waste issues, the large amount of waste created from frequent natural disasters, and the advent of the novel coronavirus, which has led to changes in daily lifestyles worldwide. Each of these new issues require focused, targeted responses.

This plan has been formulated to take these societal shifts into account and will be implemented in Kitakyushu as an Eco-Model City to renew efforts to achieve SDGs and realize a decarbonized society.

2 Roles of the Plan

This plan fulfills the mandate of Article 6 of The Waste Management and Public Cleansing Act (referred to below as "The Waste Management Act") which requires municipalities to formulate a "General Waste Management Plan". It also fulfills the requirements of Article 13 of the Food Loss and Waste Reduction Promotion Act, serving as the corresponding "Municipal Program for Promotion of Food Loss and Waste Reduction".

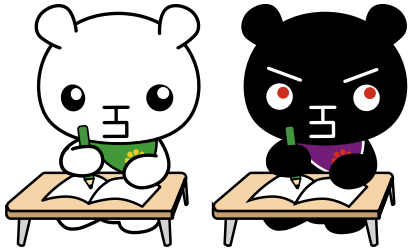
This Plan is also considered a "Division Plan" of the Kitakyushu City Basic Environmental Plan in accordance with the Kitakyushu City Basic Environmental Ordinance.

3 Duration of the Plan

The plan will be in effect for 10 years, from the 2021 fiscal year until the end of the 2030 fiscal year.

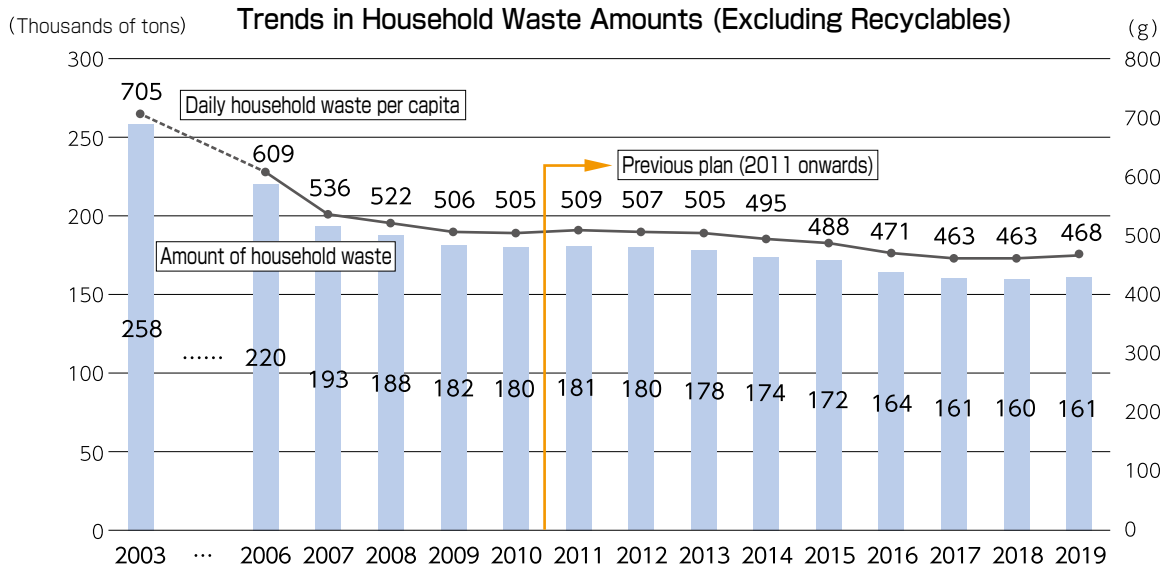
4 Targets of the Plan

In addition to the city's responsibilities for managing "general waste" as outlined in the Waste Management Act, Kitakyushu City, which has a distinct status as an industrial center as well as a focal point of recycling through its Eco-Town Project and other initiatives, will also target all waste including "industrial waste" for this plan.



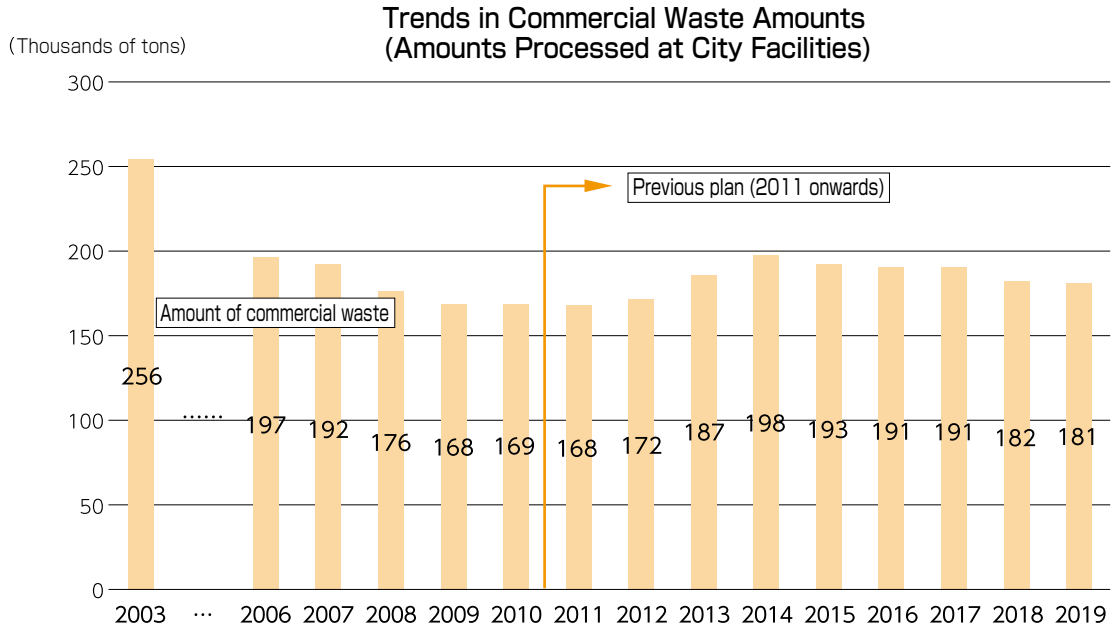
Household Waste

Through initiatives such as promoting the "3Rs" to citizens, the amount of household waste has been gradually reduced overall as well as on a per-capita basis.



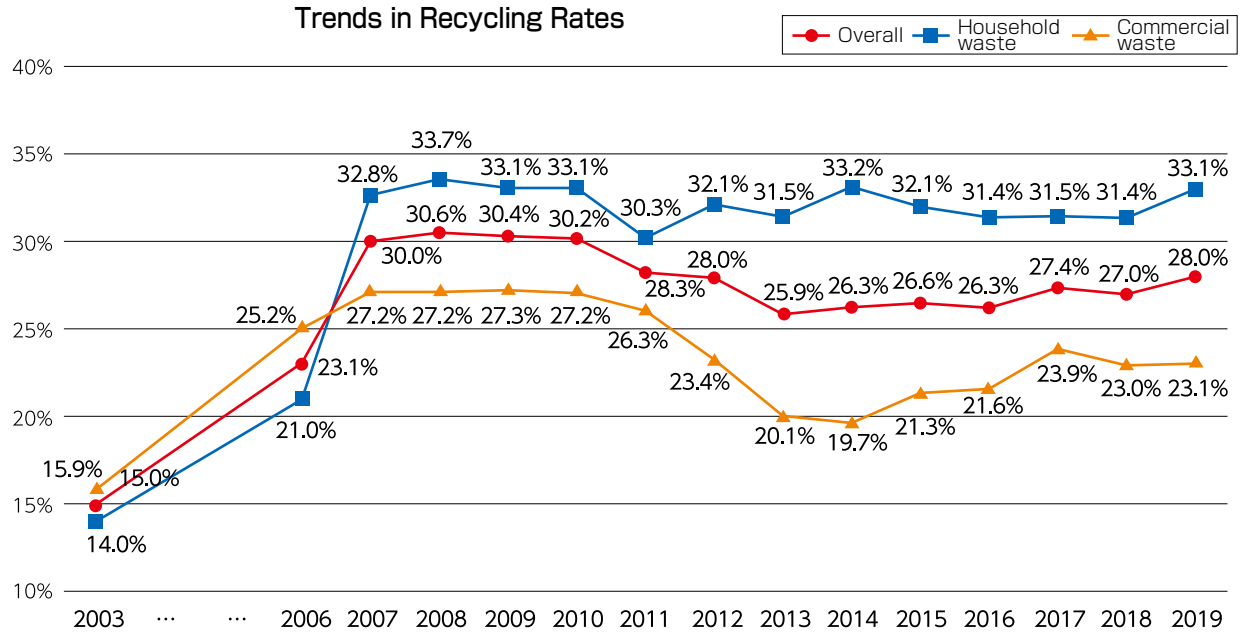
Commercial Waste

Commercial waste increased between the 2012 and 2014 fiscal years, but measures such as enhanced screening of deliveries to incinerator facilities for waste that violates disposal rules have resulted in lower numbers in recent years.



Recycling Rates

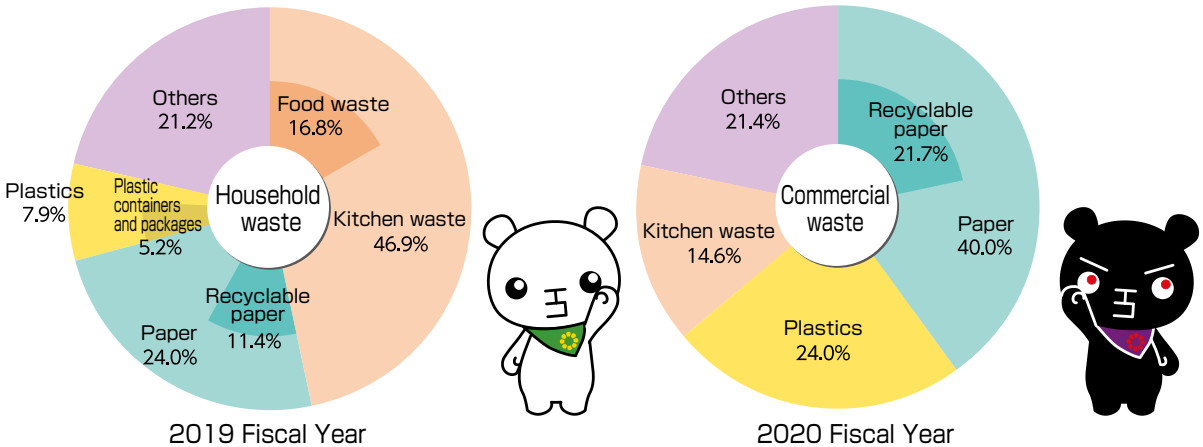
While rates of recycling in recent years have been on the rise, factors such as the reduction in newspaper circulation leading to less paper waste and lighter packaging materials have resulted in an overall drop below that of 30.4% in 2009, the year preceding implementation of the plan.



Composition of Waste

Surveys of household waste revealed that kitchen waste (food scraps), paper products, and plastics made up approximately 79% of the total, and then approximately 21% being clothing and various goods including metals and wood products.

Surveys of commercial waste revealed paper waste as the largest component at 40%, with plastics and other materials typically processed as industrial waste making up part of the remainder.



2019 Fiscal Year
Household Waste Composition Survey Results

2020 Fiscal Year
Commercial Waste Composition Survey Results

* The commercial waste composition survey is based on the amount of commercial waste brought into city incinerator facilities, which does not account for moisture compressed out of the waste during collection and transportation. This suggests the representation of waste such as kitchen waste in this data is disproportionately low.

Progress in the Previous Plan

Achieving the plan's goals for recycling rates has been difficult partly due to paperless initiatives and the lightening of containers such as PET bottles reducing the overall weight of recycled materials. Objectives for other criteria have been met ahead of schedule.

Item (Plan Objective)	2019 Fiscal Year (Results)	2020 Fiscal Year (Objectives)	Achievement Status (Forecast)
Daily amount of household waste per capita	468g	470 g or less	○
Recycling rate (general waste)	28.0%	35% or more	×
CO_2 emissions caused by general waste processing	88 thousand tons	100 thousand tons or less	○
Promotion of proper disposal of industrial waste and overall reduction of final disposal amount	203 thousand tons (2018 results)	Overall reduction of final disposal amount (2009: 296 thousand tons)	○
Wastewater processing rate	99.6%	99.5% or more	○

Waste Processing Issues

Household Waste

◎The composition survey revealed that almost half of household waste was kitchen waste (food scraps), while the remainder still included recyclable materials such as paper, plastic containers and packages, small metal objects, and small electronics.

◎Further measures need to be taken in response to these issues such as reducing overall amounts of disposed waste and providing citizens with easy-to-understand waste separation methods.

Commercial Waste

◎Waste composition surveys showed that there was waste paper and wood material waste, recyclable materials which have been prohibited from being brought into incinerator facilities, and like food waste, face a shortage of drop-off points for recycling. Furthermore, plastic waste, which should be processed as industrial waste, was found which violates garbage disposal rules.

Environmental Education and Learning

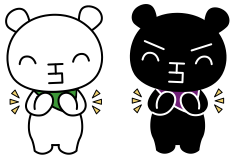
◎In order to build a sustainable society, it is important to reach out to citizens through various opportunities to educate them about environmental issues. These activities should begin at an early age through the education system and continued into adulthood to form an impression on the public.

Responses to Global Issues and Changes in Society

◎The management of plastic waste and reduction of food loss and waste have become global issues. These and others have become urgent tasks in the fight against climate change, and also require action in order to realize a decarbonized society.

◎Furthermore, the spread of the novel coronavirus demonstrates the need for continued safe and stable waste processing activities even in emergency situations.

Organization of the Plan



Basic Philosophy

The major stakeholders in the region, including citizens, businesses, local groups, NPOs and the city government shall aim to realize a "sustainable urban model" with a vision for realizing a decarbonized society. They will achieve this through active and cooperative efforts related to the "3Rs" and proper waste management for the achievement of Sustainable Development Goals.

Approaches for the Plan

1 Establish an ideal "Regional Circular and Ecological Sphere" through promotion of the "3Rs"

To reduce human impact on the environment and ensure future generations can make use of the Earth's limited natural resources, more than ever it is critical to promote the "3Rs", prioritizing reduce and reuse efforts while recycling as much as possible through waste sorting and other measures.

Furthermore, as a manufacturing town, Kitakyushu will introduce a new concept of "local consumption and local circulation" where the region's resources can be renewed and reused internally. These efforts towards realizing a sound material-cycle society will further reduce environmental burdens and pave the way towards establishing an ideal "Regional Circular and Ecological Sphere".

2 Further develop the environmental impact all citizens have towards the formation of a sound material-cycle society

To solve serious environmental problems occurring on a worldwide scale, all members of society, including citizens, regional groups and NPOs, businesses, and governments must share their knowledge and work together so they can take decisive action to establish a sustainable society.

The plan aims to further develop the environmental impact all citizens have towards the formation of a sound material-cycle society through the promotion of environmental education and learning opportunities such as ESD (Education for Sustainable Development).

3 Contribute to the realization of a decarbonized society and a society in harmony with nature

The problem of garbage and waste is an issue everyone must deal with in their daily lives and is connected to global issues such as the depletion of natural resources and climate change. This requires an integrated approach to addressing this problem that considers socio-economic trends.

To that end, the plan will further promote material-cycle initiatives and takes action to contribute to the realization of a decarbonized society and a society in harmony with nature.

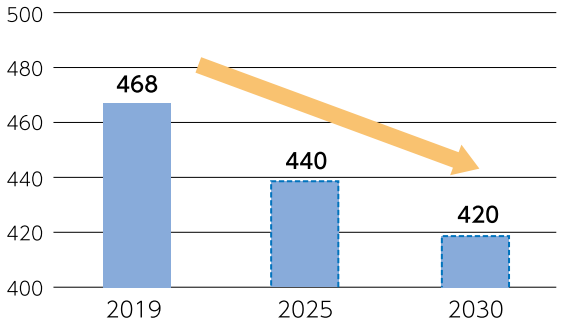
4 Create environmental industries for "local consumption and local circulation" and promote international environmental cooperation and business

The plan aims to create environmental industries for "local consumption and local circulation" and promote international environmental cooperation and business. To achieve this, the city will make use of the waste processing and recycling technologies and human resources fostered through ongoing initiatives. The city will also make use of the network established among Asian cities through international environmental cooperation efforts.

Objectives of the Plan

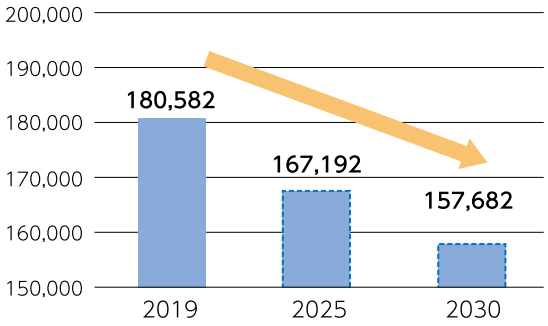
Daily amount of household waste per capita

420 g or less in the 2030 fiscal year



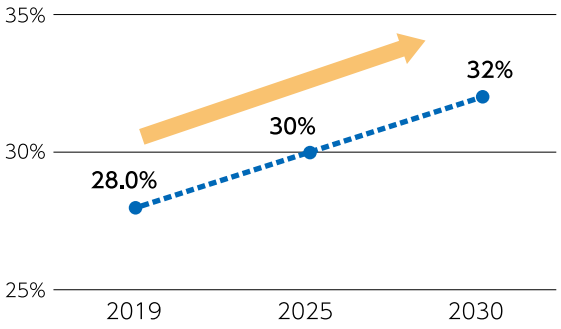
Commercial waste amounts (amounts processed at city facilities)

157,682 tons or less in the 2030 fiscal year



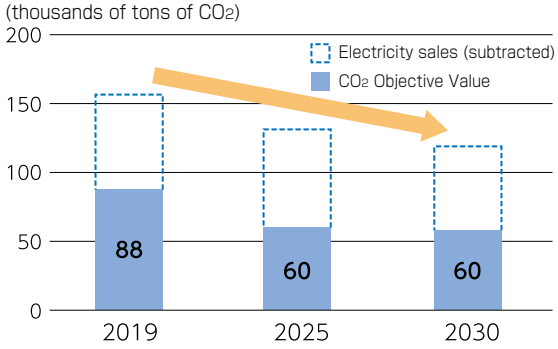
Recycling rate (general waste)

32% or more in the 2030 fiscal year (within that, a recycling rate of 36% or more for households)



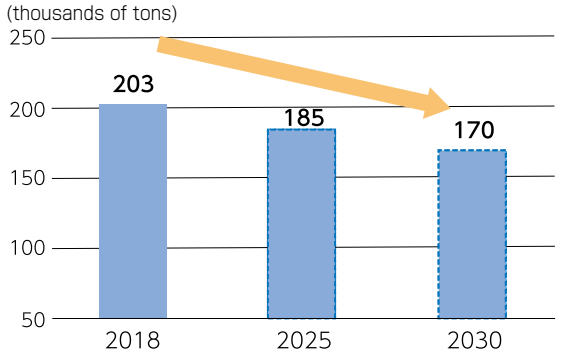
CO_2 emissions caused by general waste processing

60 thousand tons or less in the 2030 fiscal year (emissions after taking into account reductions through sales of generated electricity)



Overall processed amount of industrial waste

170 thousand tons or less in the 2030 fiscal year



The following points detail the reasoning used for setting the goals to achieve with the plan.

- Plastic product recycling programs are being implemented and plastic container and package separation cooperation rates are reaching 60% or more
- Household and commercial food loss and waste is expected to be halved from 2000 levels by the 2030 fiscal year

Main Direction of Initiatives

1 Establish an ideal "Regional Circular and Ecological Sphere" through promotion of the "3Rs"

Promoting the "3Rs" for household waste

◎ The plan will implement easy-to-understand and effective publicity to further promote recycling of plastic containers and packages, cans, glass bottles, and PET bottles.
◎ To promote reduction and recycling of food scraps (kitchen waste), the plan will promote three good habits for household kitchens: "use everything", "eat everything", and "remove moisture from waste". The city will organize workshops on topics such as composting and low-waste cooking.
◎ To promote recycling of paper waste and used clothing, the plan will support neighborhood activities such as local community group collection.
◎ The plan promotes the establishment and operation of collection boxes at community centers and shops for waste such as paper packaging, small metal waste, fluorescent tubes, and personal electronics.
◎ The plan also provides flexible consideration for the introduction of new waste sorting categories in line with society's needs.

Workshop on using composters for food waste

Battery collection box (for used dry cell batteries, electronic cigarettes, etc.) [Commenced in April 2021]

Promoting the "3Rs" for commercial waste

◎ The plan includes visits to businesses and workshops for coordinating processing methods and identifying recyclable materials so that easy-to-understand guidelines are readily available. The city will also strengthen guidance measures for businesses who are disposing of waste incorrectly.
◎ Efforts will be made to expand recycling overall through initiatives such as providing information on agencies that collect sensitive paper waste materials and studies for increasing the number of food waste recycling points.
◎ To prevent incorrect disposal of recyclables to waste processing facilities, the city will enhance inspections of waste deliveries and guidance provided to violators.

Leaflet for office paper waste collection points

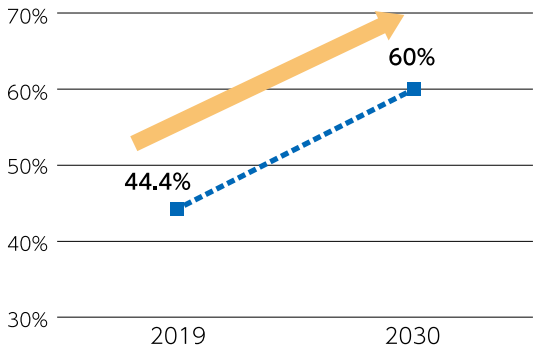
Inspection of waste deliveries

Plastic waste measures

◎ The "Kitakyushu City Plastics Smart Promotion Project" will promote initiatives such as incorporating biomass plastics into household garbage bags and other products, supporting research into plastics technologies, and holding large-scale beach cleanups.

◎ Kitakyushu City's own activities include:
·Promotion of an Asian regional plastic waste response project
·Studies for pioneering new methods of sorting and recycling plastic product waste
·Engaging businesses to promote internal waste collection efforts
The city further these efforts by taking advantage of its unique characteristics and strengths.

Awareness Poster



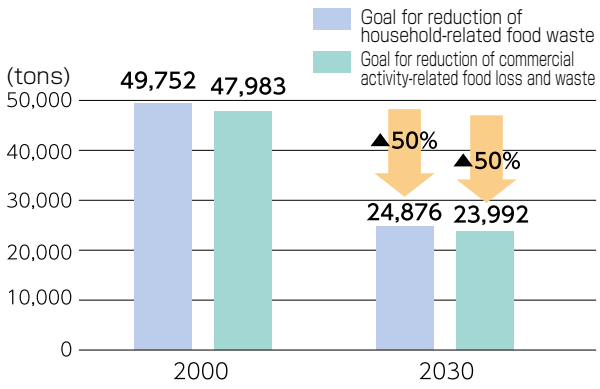
Our goal is to reach a plastic container and package separation cooperation rate of 60% or more.

Food loss and waste reduction measures (Plan for Promotion of Food Loss and Waste Reduction)

◎ Reduction of household-related food waste
The city will collaborate with citizen groups and NPOs as part of the "No Leftovers Declaration" campaign to reduce food waste, including raising awareness among elementary and preschool-age children and encouraging use of food waste ledgers.

◎ Reduction of commercial activity-related food loss and waste
The plan will spread and raise awareness of the Food Loss and Waste Reduction Promotion Act and the Food Recycling Act and promote the active development of initiatives by retailers, restaurants, and other food service businesses to engage both businesses and users (citizens) to work together to reduce food loss and waste.

Flier promoting the
"No Leftovers Declaration"



The future of waste processing facilities / Wider regional cooperation for waste processing

◎With **future incinerator construction** in mind, the plan will provide for **studies on developing efficient facility sizing and plant design** with a focus on government policies and social trends such as reductions in waste generation.
◎In terms of **the city's landfill**, the existing site will be upgraded to extend its operational lifetime, and work will continue on **transitioning operations to the "Hibikinada-Higashi Controlled Landfill Site"**.
◎**Acceptance of general waste from the wider region** will proceed within the framework of Phase 2 of the "Kitakyushu Metropolitan Area Cooperative Central Area Vision".

Disaster waste processing / Promoting correct disposal and establishing safe and secure processes

◎In response to large-scale disasters occurring frequently in recent years, efforts will be made to **establish facilities that can process the substantial amounts waste generated in natural disasters** as well as the ability to secure large-scale temporary facilities as necessary.
◎In order to respond appropriately to changes in lifestyles and to the composition of waste in light of the **novel coronavirus pandemic**, the city will raise awareness about garbage disposal rules and **maintain safe working environments for waste processors**.

Promotion of reduction and proper disposal of industrial waste

◎Industrial waste processors will be engaged as an "industry co-existing with the community". The city will also provide guidance and awareness-raising among waste creators and processors to **promote the reduction of the amounts of industrial waste generated and disposed of along with appropriate disposal measures**.

2 Further develop the environmental impact all citizens have towards the formation of a sound material-cycle society

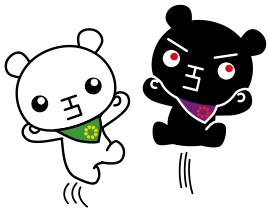
Promotion of environmental education and learning

◎By making use of opportunities for environmental learning and study such as "Eco Life Stage" and the "Kitakyushu City World Environmental Capital Examination" and learning facilities like the Environment Museum, the city can promote **environmental education for citizens of any age or background**.
◎**Age-appropriate environmental education** will also be promoted. Environment mascots "Teitan" and "Black Teitan" provide learning opportunities for city nursery schools and preschools, and hands-on learning events will be held for elementary school students. Other initiatives include publishing of educational materials focusing on SDGs and dispatch of experts and educators for lessons at various institutions.
◎In light of the worldwide movement towards **"Education for Sustainable Development" (ESD)**, citizens, NPOs, schools, businesses, and the government will work together to promote ESD following the "Kitakyushu ESD Action Plan".

Adjust lifestyles with the environment in mind / Promote environmental activities among the local community, NPOs, and businesses

◎**PR and other information-sharing** using various forms of easy-to-understand media will **better inform citizens about the effects of their "3Rs" efforts**, such as trends in amounts of waste, garbage processing costs, the recycling process, and examples of
◎Proactive environmental initiatives by local groups, NPOs, and businesses, such as local community group collection for waste paper and used clothing, community beautification activities, and food loss and waste reduction efforts by restaurants will be supported and promoted.


Environment Museum



3 Contribute to the realization of a decarbonized society and a society in harmony with nature

Waste processing that contributes to a decarbonized society

◎ Reduction and recycling of waste alongside plastic generation control and collection efforts will be furthered to **reduce CO_2 emissions generated from the waste management and recycling sector**.

◎ Minimize the impact of waste processing on the environment by updating waste processing facilities with **highly-efficient generators and energy-saving equipment**, and by **improving energy efficiency of waste collection and transportation**.

◎ **Contribute to reducing greenhouse gas emissions from power generation** by effectively using heat energy produced by waste incinerators to generate electricity and by selling that electricity to power companies.

Promote coexistence with nature

◎ By promoting efforts such as the **collection of waste food oil, composting of food scraps** for use as fertilizer to make produce that can be used and sold at local markets, and **chipping of tree cuttings**, private businesses and local authorities can work together to build a sphere of circulation.

◎ Carefully manage city green spaces and trim wild bamboo forests and make use of these natural local resources as **biomass resources for the region**.

4 Create environmental industries for "local consumption and local circulation" and promote international environmental cooperation and business

Creating, developing, and supporting the environment industry by focusing on recycling

◎ **Promote environment-focused business by supporting existing Eco-Town businesses and furthering the creation and advancement of the recycling industry** through technical support and infrastructure organization.

◎ Aim to **enhance the presence and competitiveness of the Eco-Town** by identifying its positioning and role within the recycling industry as part of a circular economy through activities of bodies such as the Kitakyushu City Environmental Industries Committee.

Promote international environmental cooperation and business

◎ Make use of **Kitakyushu City's network with other Asian cities** and experiences, technology, and know-how related to overcoming pollution to respond to the needs of cities and strive to **resolve global environmental issues such as decarbonization and marine plastic pollution**.

◎ Promote support of eco-friendly urban planning and exports of package-type infrastructure to **contribute to green growth in Asia and the stimulus of local businesses**.

Davao City in the Philippines

Kitakyushu City established a memorandum of understanding related to green sister city cooperation as indirect support for securing an order for the construction of a waste-to-energy plant

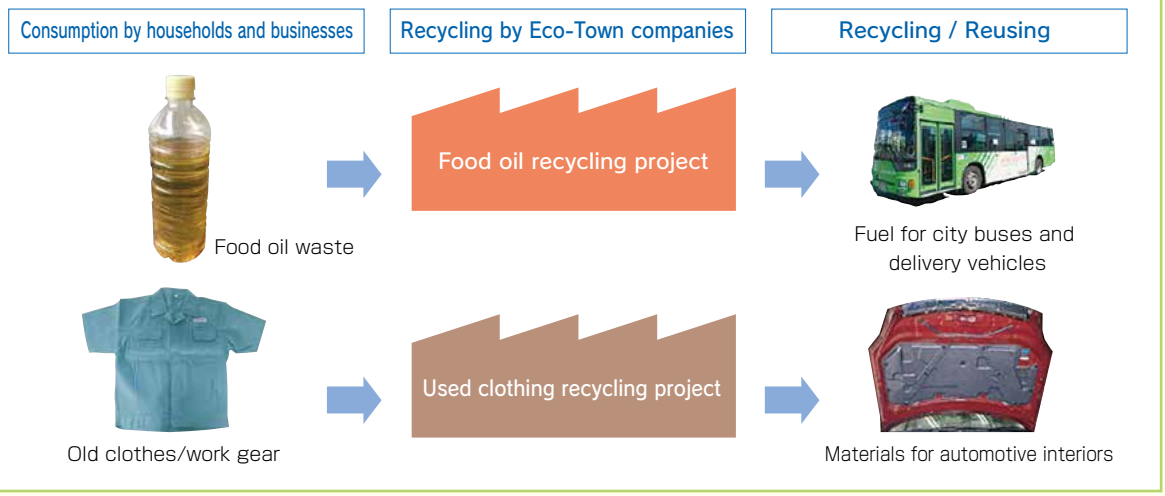
"Local consumption and local circulation": A new concept

Kitakyushu City has been harnessing its long-running strength as a "town of manufacturers" and promoting the "Kitakyushu Eco-Town Project" to establish a sound material-cycle society. These efforts led to **Kitakyushu City realizing the largest recycling operation in Japan**.

Through the Eco-Town Project, materials and products used within the city are recycled by local recycling companies to provide new materials and things for the city's manufacturers and for people to use in their everyday lives.

This plan will promote **a new concept of "local consumption and local circulation", a term used to describe the resource circulation loop described above that makes use of the characteristics and strengths of Kitakyushu City**. The aim is to **build a virtuous cycle of environment and economy and a sound material-cycle society** which will further **reduce the burden of human activity on the environment**.

Examples of Local Consumption and Local Circulation in Kitakyushu City



*Local consumption and local circulation will also be promoted through recycling of products such as small electronics, rechargeable batteries, fluorescent tubes, paper products, food waste, cellular phones, office machines and other goods in accordance with related laws (automobiles, home appliances, packaging materials, and mixed construction waste), as well as experimental research at advanced laboratories.

Implementation of the Plan

◎ This plan will be promoted to spread and raise awareness of its common goals and vision among citizens, businesses, regional organizations and NPOs, and the local government.

◎ The progress and results of this plan will be reviewed and assessed to formulate measures for its continual improvement.

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