

# Plastic waste management in the City of Kitakyushu

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# 1. Beach litter

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(1) Plastic containers washed onto the beach



(2) Litter collected during beach cleanup



## 2. Characteristics of plastic

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### 1 Early history

During the second half of the 19<sup>th</sup> century in the USA, the material used for producing was ivory such as billiard balls, piano keys, etc.,. The concern for wildlife brought about the need to invent a substitute material.

### 2 Advantages

It is light, easily produced, cheap, and durable.

It is used in a wide range of industries, such as medical ware, daily necessities, automobiles, aircraft, etc.

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# 3 Disadvantages of plastic

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## **1 It takes too long to decompose in a natural environment.**

In the cities, light plastic that was thrown away can get blown into the rivers and the sea → a cross border problem

Although it becomes smaller with deterioration, it never fully degrades and absorbs harmful materials very easily.

## **2 It releases carbon dioxide into the air when being burned, due to oil content.**

To avoid global warming, it is needed to reduce dependence on products made of fossil fuel.

## 4 Previous measures towards plastic waste in Kitakhushu

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Starting Date	Key measures towards plastic volume reduction and recycling
Nov 1997	Introduction of PET bottles sorting
Jul 2000	Introduction of plastic tray collection sites (Supermarkets, City Centers, etc.) ※White trays(Starting year 2000), colored trays(Starting year 2002)
Jul 2006	Introduction of plastic packages sorting
Jun 2018	Canceling of free distribution of plastic bags in collaboration with supermarkets and city organizations.
2019	Kitakyushu Plastic Smart Campaign Project launch

## 5 - 1 Present condition of plastic treatment in Kitakyushu

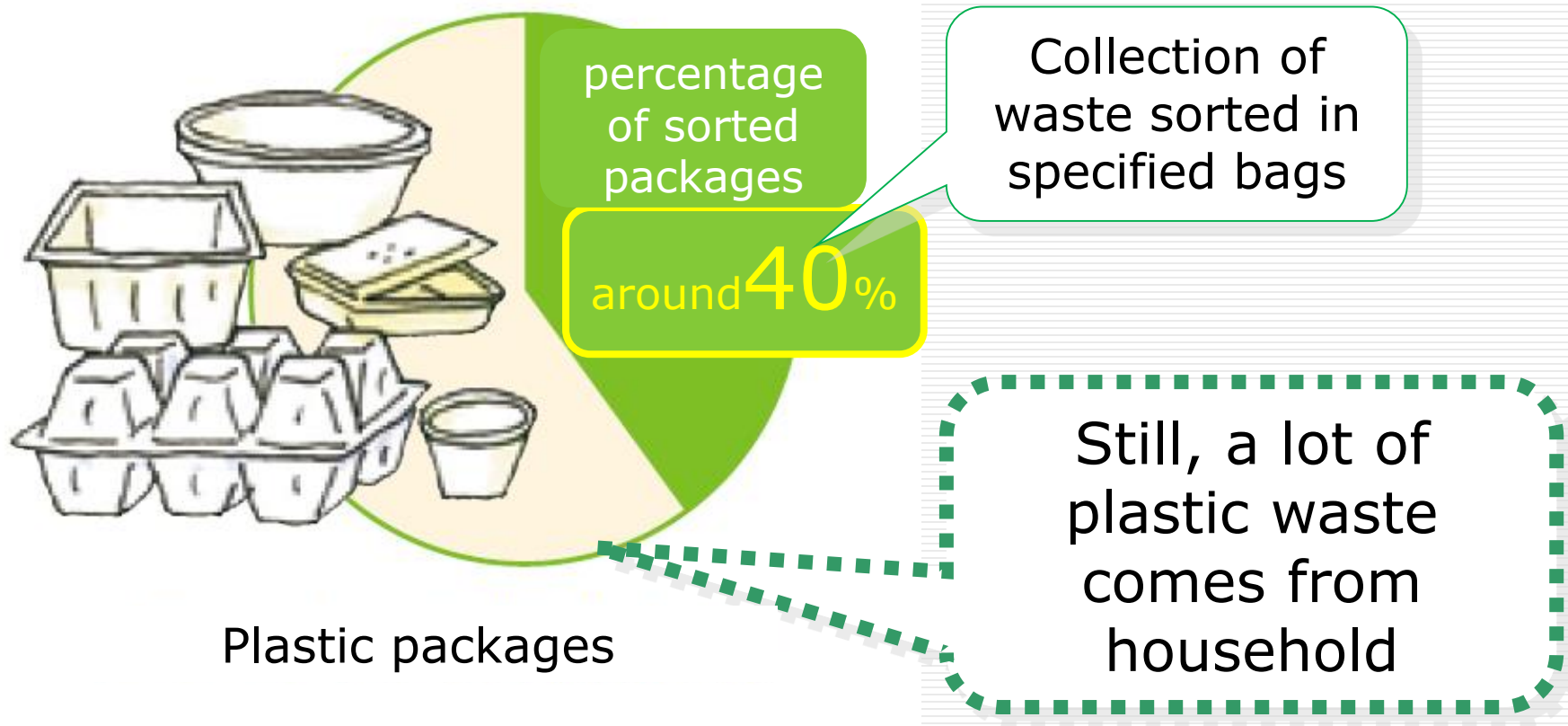
### ●Total volume of plastic used in past years

Type	2016	2017	2018	Collecting methods
Plastic packages	7,154 ton	7,062 ton	7,059 ton	Collecting stations
PET bottles	2,315 ton	2,337 ton	2,421 ton	Collecting stations
Trays (estimated)	98 ton	96 ton	81 ton	Collection points

※Partly includes irrelevant items due to estimations concluded before sorting

## 5 - 2 Present condition of plastic treatment in Kitakyushu

●Current topic: raising the percentage of properly sorted plastic packages





## 5 - 3 Present condition of plastic treatment in Kitakyushu

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- Examples of plastic packages in household throwaway waste (taken from the results of research on household solid waste composition)



Non-PET plastic bottles



Cups, containers and bags



Soft plastic (food packages, etc.)



# 6 Supermarket bags measures in Kitakyushu

● Taking joint efforts towards reducing plastic bags quantity and food waste in the city of Kitakyushu

## 《 Participants 》

- (1) Retail stores: AEON CO., LTD., FCO-OP, SUNLIVE, Nishitetsu Store Inc., HALLODAY CO., Ltd., MaxValu, MARUKYOU co., Ltd
- (2) City organizations: Kitakyushu Environmental Hygiene Confederation, Kitakyushu Women's Conference on Consumption Problems
- (3) City administration: City of Kitakyushu

## 《 Development 》

June 1<sup>st</sup>, 2018: Cancelling the free distribution of plastic bags (total store participants number: 81)

## 《 Result 》

Within a year reduced: plastic bags by 21,43 million/ CO<sub>2</sub> amount by approx. 1,286 ton.

Plastic bags rejection ratio has risen rapidly from 38% ⇒ 75%

# 7 - 1 Future measures



## Resource Circulation Strategy for Plastics (outline)

### Background

May 31, 2019

1. The low rate of recycled plastic utilization and pollution of the marine environment with materials such as plastic are global problems.
2. Japan implements reasonable measures and 3R philosophy within its borders, as well as contributes cross-nationally. On the other hand, the volume of waste produced in Japan is second in the world per person, and import regulations in Asian countries etc. remain topics for discussion.

Strategy key points		General principle: [3R +Renewable]		[Milestones]		
Reduce	Reduce single-use of plastic (for ex., place a fee on plastic bags) <b>Promote the use and development of substitute materials for oil-based plastic</b>		<Reduce> ① By 2030 limit single-use plastic emission by 25%			
Recycle	Easy to understand and effective sorting and recycling of plastic resources <b>Thoroughly collect fishing gear and other in the shore area</b> Cost minimization through cooperation and full optimization & maximization of resources' paid use ratio <b>Build a system of in-border resource circulation following the embargo measures in Asia</b> Fairness in forms of innovation promotion & stable recycling system		<Reuse, Recycle> ② By 2025 have a credible overall design for reusing and recycling ③ By 2030 recycle and reuse 60% of packages ④ By 2035 effectively use 100% of all plastic by reuse/recycle/etc.			
Recycled materials & bioplastic	Improve usage potential (support of technological innovation and infrastructural development) Aim for demand increase (governmental procurement (Green procurement)), measures for use stimulation, and more. <b>Using information about chemical substances for resources usage</b> <b>Use bioplastic in bags for combustible waste</b> <b>Roadmap for bioplastic implementation; introduce together with its system management</b>		<Recycled materials, Bioplastic> ⑤ By 2030 double the recycling industry ⑥ By 2030 produce approx. 2 million tons of bioplastic			
Treatment of marine plastic	Aiming for not generating the pollution in marine waters with plastic (Marine Plastic Zero Emission) - eradication of illegal dumping and littering & conscious disposal - <b>coastline litter collection and disposal</b> - get a full understanding of marine litter situation (higher level of monitoring techniques) - <b>measures for minimization of microplastic pollution in the sea (by 2020 achieve a complete reduction of things such as microbeads from scrub products)</b> - support development of innovations in alternative resources					
International expansion	Support effective measures in developing countries (international cooperation and business development through on-demand package export of Japanese technologies, software and hardware infrastructure) Construction of global-scale monitoring and research network (research on marine plastic allocation routes, influence on wildlife, etc.; standardization of monitoring techniques and more)					
Basic maintenance	Social system establishment (supply chains construction & software and hardware recycle infrastructure maintenance) <b>Technological development (renewable resources as an alternative for plastic, progressive recycling technologies, innovations in consumers' lifestyle)</b> Survey & Research (situation with microplastic, influence, a situation with waste disposal, waste treatment) Cooperation ("Plastic Smart" development, continued and coordinated handling under the same flag) <b>Encouragement of allied industries with resource circulation</b> Information basis (ESG investment, ethical consumerism) <b>Overseas expansion basis</b>					



- **Not only resolving the environmental and resource problems of Asia-Pacific region and the whole world, but also job creation and economical growth => contribution to sustainable progress**
- **Encouragement of highly needed investment and innovation (technology, consumers' lifestyle) in pursuit of milestones through national cooperation in every area and on every level**

# 7 - 2 Future measures

## ● Kitakyushu Plastic Smart Campaign Project

City's 4 goals	Measures
Emission reduction	<ul style="list-style-type: none"><li>• Production of bioplastic waste bags</li><li>• Public education in emission reduction, etc.</li></ul>
Reuse•Recycle	<ul style="list-style-type: none"><li>• Support of technological development in plastics</li><li>• Carrying out Plastic Recycle Bus Tours</li></ul>
Thorough Collection	<ul style="list-style-type: none"><li>• Carrying out big-scale beach clean-ups and city beautification projects.</li></ul>
Setting an Example	<ul style="list-style-type: none"><li>• Work through municipal personnels</li></ul>



Implementation of plastic-related measures on every level

# Production of bioplastic waste bags

- By bringing bioplastic(※) in 10% of all raw materials such as household waste bags, we will not only lower environmental burden caused by incineration, but also reduce the amount of petroleum-based plastics.

## ※Bioplastic

- Made of biomass material from plants and other sources
- When introduced, it will reduce CO<sub>2</sub> emission caused by burning.

## ■ Implementation period:

Volunteering bags ⇒ 2019(estimate)

City waste bags ⇒ 2021(estimate)

■ CO<sub>2</sub>reduction: approx. 460t/year(expect.)



# Public education in emission reduction, etc.

- We plan on creating films, posters, leaflets and other content that will explain about small changes each person can make such as using personal water bottles, consistent plastic package sorting, as well as explain the plastic problem in the modern world, and promote those via various meetings.



## 使い捨てプラスチックの使用削減と適正処理に向けた取り組み

更新日：2019年8月27日

シェア 0

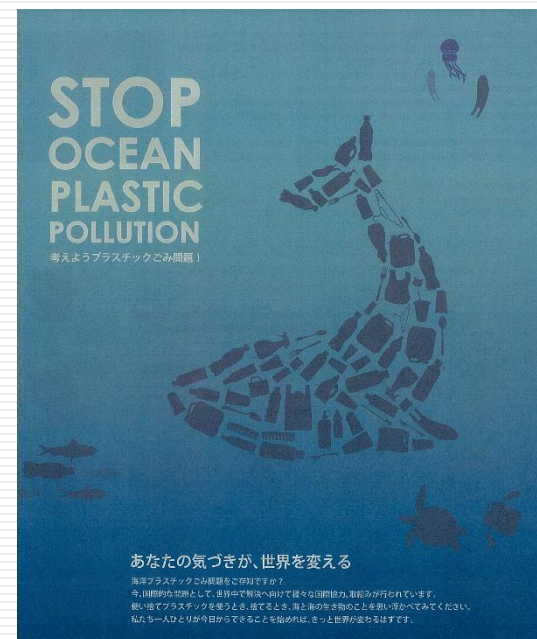
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### 使い捨てプラスチックがなぜ問題になっているの

City homepage

私たちの生活にはプラスチック製品が欠かせないものとなっています。丈夫、軽い、安価、加工しやすいなどの優れた特徴を持ち、食品や飲料などの容器包装、日用品や電化製品から医療の現場まで、あらゆる場面にプラスチック製品が使用されています。

これらの製品が不要になったあとに、ポイ捨てなどで不用意に捨てられたものが、いずれ海へと流



# Support of technological development in plastics

- Within framework of the city's "Environmental future technology development assistance", we plan to newly grant subsidies to research institutions, city's enterprises, etc., that work in the key fields of "plastic-related" problems and work on technology development in such branches as its Reuse and Recycle, the use of bioplastic and others.

"Key fields" means next 5 key fields:

- 1) Rare metals; resource recycling.
- 2) New energy sources, energy conservation, introduction and spreading of misused energy such as factories' waste heat.
- 3) Introduction and spread of hydrogen energy.
- 4) Application of biomass.

## **5) Plastic-related spheres**

※Theme(5) is the most important, so it will be more prioritized during the judgment and selection process.



Selected plastic-related themes (as of 2019), total of 5 points (4 new themes, 1 continued theme)



# Carrying out Plastic Recycle Bus Tours

- Carrying out bus tours with facilities excursions for elementary school pupils to show them the production chain of recycling plastic packages from the sorting process to recycled goods will fuel their interest and provide awareness of waste reduction.



Sorting process



After sorting is finished

# Carrying out big-scale beach clean-ups and city beautification projects.

- Carrying out big-scale beach clean-ups with participators from citizens forming volunteer groups, and prevent plastic being washed onto the beach. Clean landscape and gathered waste presented via panel exhibition will help to raise awareness of the plastic waste problem.



# Initiative by municipal personnel

- Promote using personal water bottles, control usage of PET bottles in meetings, develop habits of sorting used plastic in everyday life – with all these measures municipal personnel should set the example of moving towards the future with no plastic waste.

## Measures

- ◎ Encouraging the use of bags, personal water bottles & cups**
- ◎ Refrain from using disposable PET bottles in meetings, etc.**
- ◎ Call for a reasonable treatment of garbage and reconsider throwing away garbage after events, etc.**
- ◎ Develop consistent waste sorting habits and reject disposal of used household plastic.**