The current situation of the microplastics problem and countermeasures

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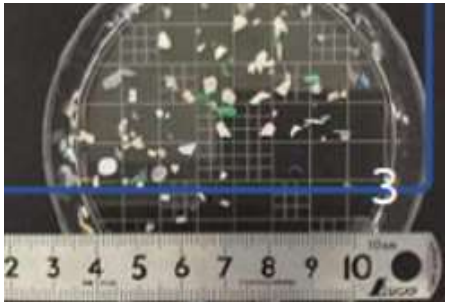
Table of Contents

1. Impacts of plastic pollution, outflow volume and emission factors

- Impact on the human body; Impact on the environment (water, land, atmosphere); Socio-economic impact (from UNEP/PP/INC.1/7)
- There are concerns about the impact of not only large plastics, but also additives and microplastics (MP, plastics smaller than 5 mm) on the ecosystem.
- Nere have been several studies on the amount of plastic leaking into
- the environment, and one of the challenges is to develop common methods and evaluations.

1.Near Jakarta, Indonesia

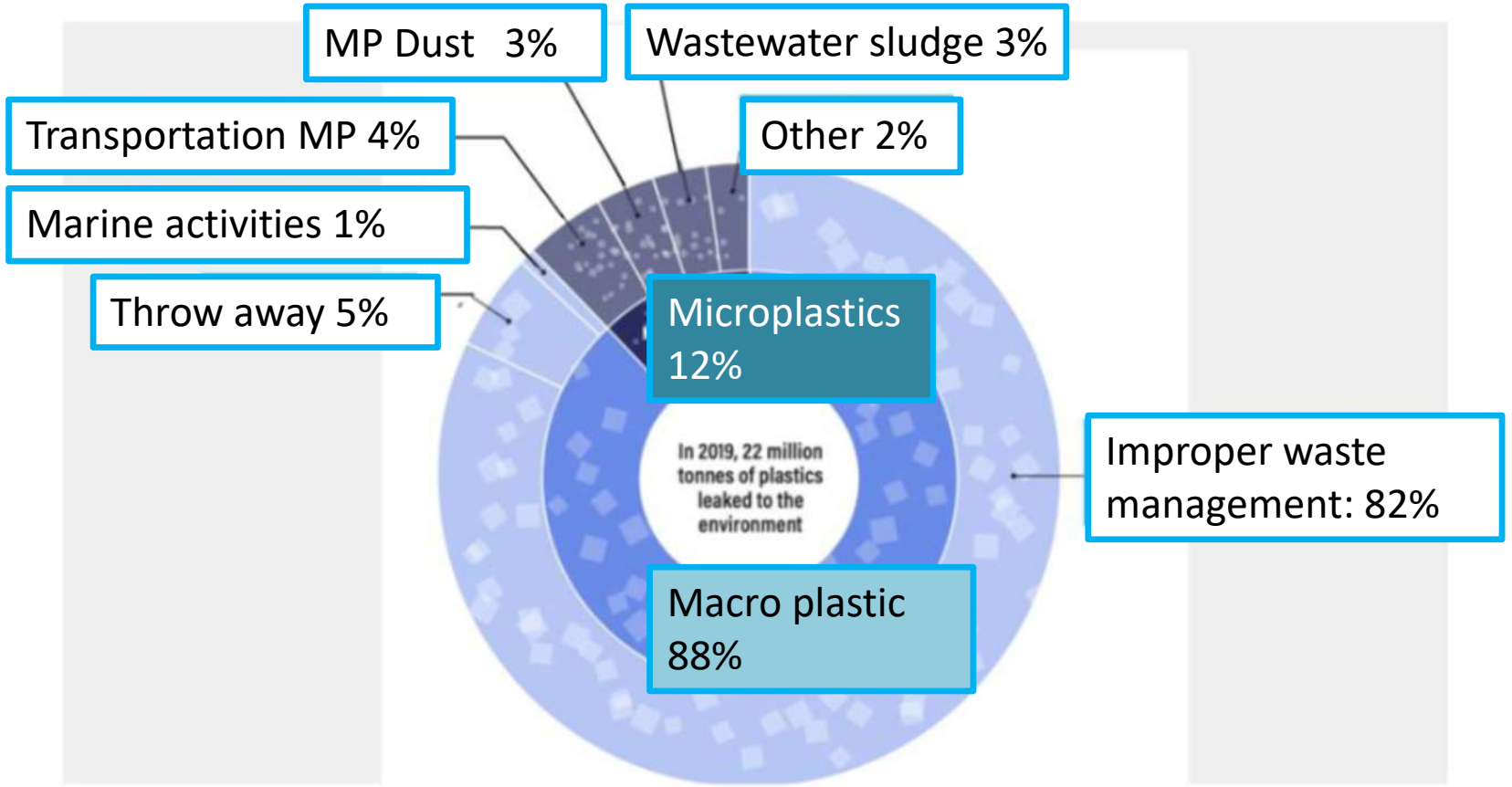
2. Tsushima City,Nagasaki



3. Microscopic plastic pieces (Ministry of the Environment)

1. Impacts of plastic pollution, outflow volume and emission factors

The OECD has estimated the amount of plastics leaking into the environment worldwide (2019) to be approximately 22 million tons, integrating multiple models. MP accounts for 10% of this (approximately 2.7 million tons). Source: OECD (2022) Global Plastics Outlook



1. Impacts of plastic pollution, outflow volume and emission factors

The United Nations Environment Programme (UNEP) has calculated the total amount of emissions into the environment worldwide (based on 2015) for each stage of the life cycle and estimated it to be about 8.28 million tons. MP accounts for just under 40% of this (about 3.01 million tons).

UNEP(2018) “Mapping of global plastics value chain and plastics losses to the environment”

Sources of Emissions	Amount (1,000 tons)	Percentage (%)
Total plastic waste	8,270	100%
Total amount of macro plastics released	5,270	63.7%
Improper waste management	3,870	46.8%
Throw away	800	9.7%
Fishing gear origin	600	7.3%
Total amount of microplastics released	3,000	36.3%
Cosmetics and personal care products	10	0.1%
Tire wear	1,410	17.0%
Marine Painting	50	0.6%
Textile washing	260	3.1%
Road markings	590	7.1%
City Dust	650	7.9%
Pellet production	30	0.4%

1. Impacts of plastic pollution, outflow volume and emission factors

MP includes both small plastic waste from the start and larger plastic waste that is crushed and broken down.

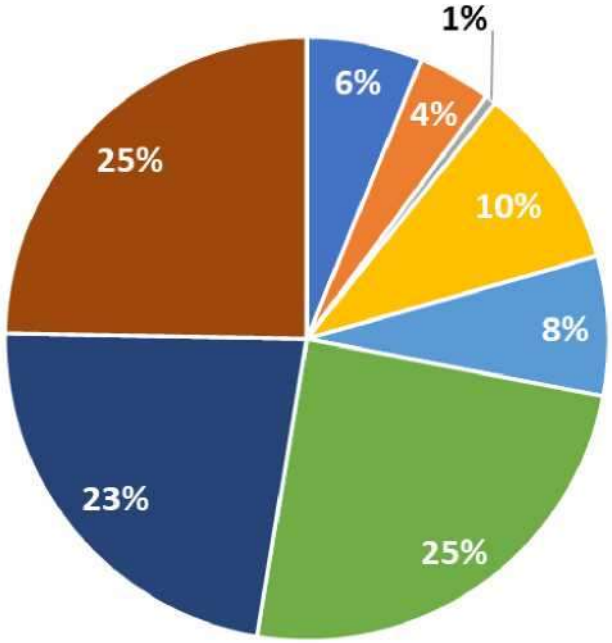
➔Measures to deal with large plastic waste can also be used to deal with MP.

2.Amount of plastic outflow to environment and emission countries/regions

Amount of plastics discharged into the environment and countries/regions where they are discharged

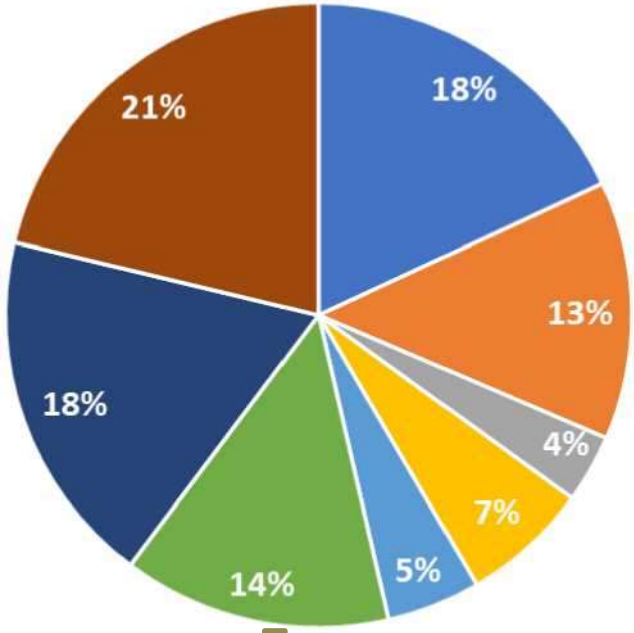
- For both macroplastics and microplastics, developing Asian countries are the main emitters (about 40-50%).
- For macroplastics, the next largest emitters are the Middle East and Africa (25%). Developed countries contribute about 10%.
- For microplastics, the next largest emitters are the OECD Americas (18%), the Middle East and Africa (14%), and OECD Europe (13%).

Macro plastics Leaks – Regional Distribution



Year 2019

Microplastics Leaks – Proportion by Region



America, Canada, India, etc. (OECD Americas)
EU, Switzerland, UK, etc.(OECD Europe)
Japan, Korea, Australia, NZ (OECD Oceania)
Brazil, Caribbean countries, etc. (Non-OECD Americas)
Russia, non-EU Eastern European countries, etc.
Middle East, African countries, etc.
China
Other Asia

Source：OECD Global Plastic Outlook (2022) Figure 2.10

3. International organizations' efforts on plastic pollution

Year	Month	Organization	overview
2015	6	UNEP	Economic losses from plastic waste in the ocean are estimated $13 billion per year.
		G 7	Leaders of the Elmau Summit discuss microplastics issue in their declaration.
	7	UN	The 2030 Agenda for Sustainable Development (SDGs) was adopted. Number 14: "Protect the oceans and their abundance" (one of the indicators is the concentration of plastic)
2016	1	WEF	**Estimates suggest that the amount of plastic in the ocean will exceed the amount of fish by 2050**
2018	6	Japan	Amendment to the Coastal Debris Disposal Promotion Act enacted
2019	5	Basel Convention COP14	Agreement reached to add dirty plastic waste to the Basel Convention as a regulated item from January 2021
	5	Japan	Plastic resource circulation strategy; Action plan to combat marine plastic litter
	6	G20	Sharing the Osaka Blue Ocean Vision: Eliminate additional marine plastic pollution by 2050
2021	6	Japan	The Act on Promotion of Resource Recycling of Plastics was enacted.
2022	2	UNEP	In order to end plastic pollution, a resolution was passed to establish an Intergovernmental Negotiating Committee (INC) to draft an international instrument (treaty).
	11	INC	The first INC meeting was held. A total of five meetings are planned to be held by the end of 2024, with the aim of completing the work.
2023	4	G7	Ending plastic pollution, with the ambition of zero additional plastic pollution by 2040

(In addition to the above, various studies, reports, and policies have been announced by various countries and regions. For example, ECHA (European Chemical Agency) published a draft regulation of intentionally added microplastics in 2019, and after evaluation by expert advisory bodies and public comments, published a final opinion in March 2021. The EC (European Commission) published the proposed regulation in August 2022. 4

4.Treaty Negotiations on Plastic Pollution

The first meeting of the Intergovernmental Negotiating Committee (INC1) was held in Punta del Este, Uruguay from November 28 to December 2, 2022. More than 2,300 people (including private sector and NGOs) from approximately 160 countries participated, indicating the high level of international momentum toward a treaty involving many countries.

A chairman (a former Peruvian foreign minister) was elected and negotiations formally began.
Japan's Vice-Minister for Global Environmental Affairs of the Ministry of the Environment has been nominated as a candidate to represent the Asia-Pacific region, and is working hard to compile representative statements from the region and involve other countries in the region.

・ Statements from each country and region have revealed the direction of the treaty's formulation and future issues.

4.Treaty Negotiations on Plastic Pollution

(Generally consistent)

- The purpose of the treaty should be to protect human health, biodiversity, and the environment.
- **Global common goals need to be set.**
- **Mechanisms for formulating, reporting, and evaluating national action plans, and transparency of each country's efforts are important.**
- It is important to address the entire life cycle of plastics, from production to disposal. It is important to accumulate and share scientific knowledge.

(Future Issues)

- Should efforts at the plastic manufacturing stage be regulated globally or left to each country?
- The nature and scale of support in terms of capabilities, technology, and funds (in particular, developing countries are arguing that developed countries should take on more responsibility)

5.Treaty Negotiations on Plastic Pollution

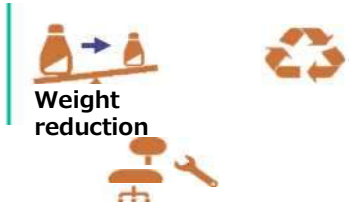
Domestic measures

- In May 2019, the **"Action Plan for Marine Plastic Litter Countermeasures"** was formulated, **the basic policy was revised based on the Coastal Debris Disposal Promotion Act**, and the **"Plastic Resource Circulation Strategy"** was formulated.
- The Act on **Promotion of Resource Recycling Related to Plastics will come into effect** in April 2022.

Life Cycle Approach

3R (Reduce, Reuse, Recycle) + Renewable

Environmentally friendly product design



Weight reduction

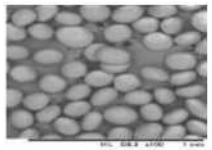
Thorough collection and proper disposal of plastic waste

Use of easily recyclable materials

Easy disassembly and separation

Waste plastic recycling equipment

Innovation



Examples of biodegradable plastics: Development of cellulose-based microbeads

Voluntary efforts by stakeholders

Local government initiatives, citizen participation in picking up litter, etc.
・Plastic Smart
・Local Blue Ocean Vision Project

Accumulation of scientific knowledge

・Plastic waste monitoring
・Ocean outflow estimation (inventory)
・Consideration of the impact on biological ecosystems, etc.

5.Treaty Negotiations on Plastic Pollution

International Response

- Established the Marine Initiative to realize the Osaka Blue Ocean Vision, and announced **support for capacity building and infrastructure development**, including the training of waste management personnel in developing countries (targeting 10,000 by 2025).
- **Support for the formulation of national action plans**, mainly for ASEAN countries
- **Strengthening marine litter monitoring capacity**, including the introduction of harmonized methods, and **collecting scientific knowledge** on marine litter distribution, etc.
- Building cooperative relationships through bilateral **policy dialogue**, including at ministerial level
- Established the Regional Knowledge Center on Marine Plastic Litter under the **East Asia-ASEAN Economic Research Center**
- **Cooperation with relevant international treaties** such as the Basel Convention, the Rotterdam Convention, and the Stockholm Convention

6. Japanese government policy on preventing marine leakage of MP and development of alternative materials

- **Law on the Promotion of the Disposal of Coastal Drift Debris, etc. Related to the Conservation of Beautiful Coastal Scenery and Environment and Marine Environment for the Protection of Beautiful and Rich Nature (Amended in 2018)**
  (Article 11-2) Businesses must **strive to reduce the use of microplastics in products discharged into rivers and other public waters or oceans** after normal use, so as to reduce the outflow of microplastics into oceans, and must also strive to reduce the discharge of waste plastics.
- **Basic Policy Based on the Coastal Drift Debris Disposal Promotion Act (May 31, 2019)**
  Business operators must endeavor to limit the use of microplastics in products that are discharged into rivers and other public waters or oceans after normal use, such as by **thoroughly reducing the microbeads contained in rinse-off scrub products**, so as to prevent the outflow of microplastics into ocean areas.
- **Plastic Resource Circulation Strategy (May 31, 2019)**
  We will curb the outflow of microplastics into the ocean, for example by **thoroughly reducing the amount of microbeads contained in wash-off scrub products by 2020.** We will also thoroughly prevent pellets from scattering and leaking throughout the entire supply chain, including the manufacturing and distribution processes of plastic raw materials and products.

6. Japanese government policy on preventing marine leakage of MP and development of alternative materials

- **Action Plan for Marine Plastic Litter Countermeasures (May 31, 2019)**
  - Promote voluntary efforts by the industry to thoroughly reduce the amount of microbeads contained in wash-off scrub products and **thoroughly prevent pellets from scattering and leaking during the process from the production and distribution of plastic raw materials to the production of plastic products**.
  - Promote innovation to combat marine plastic litter through public-private collaboration, such as **promoting the development of materials that have little impact even if they are discharged into the ocean, such as marine biodegradable plastics and cellulose materials, and promoting their use mainly in applications that are likely to be discharged into the ocean**.
- **Act on Promotion of Resource Circulation Related to Plastics (established in 2021)**
- Take measures to **promote plastic resource circulation and other efforts (3R + Renewable) by all parties involved in everything from product design to the treatment of plastic waste**. Including microplastics.

7.International organizations' views on the health effects of microplastics

○WHO (World Health Organization)

Although the ingestion of microplastics through drinking water poses a small health risk to humans, further research is needed.

※WHO (2019) "Microplastics in drinking water "https://www.who.int/publications/i/ite7.m/9789241516198
Information on exposure from air, drinking water, food, and beverages is limited. Data on the characteristics and quantification of each medium are needed, and the sources of information need to be better understood.
※WHO (2022) "Dietary and inhalation exposure to nano- and microplastic particles and potential implications for human health" https://www.who.int/publications/i/item/9789240054608

○FAO (Food and Agriculture Organization of the United Nations)

Currently, the amount of chemicals ingested through microplastics from seafood is less than 0.1% of the amount ingested in total food, and it cannot be said to threaten food safety, but sufficient knowledge is not available.

※FAO (2017) "Microplastics in fisheries and aquaculture Status of knowledge on their occurrence and implications for aquatic organisms and food safety" https://www.fao.org/3/i7677e/i7677e.pdf

○GESAMP (Joint Group of Experts on Scientific Aspects of Marine Environmental Conservation)

There is little evidence to suggest that currently observed environmental concentrations of microplastics pose a significant increase in human health risks.

*GESAMP (2016) "Sources, fate and effects of microplastics in the marine environment (Part 2): A global assessment"
*GESAMP(2020) "GESAMP, Proceeding of the GESAMP international workshop on assessing the risksassociated with plastics and microplastics in the marine environment"
http://www.gesamp.org/publications/gesamp-international-workshop-on-assessing-the-risks-associated-with-plastics-and-microplastics-in-the-marine-environment

8.Issues with plastic recycling in Japan

1. **Limits on exporting waste plastic**

Due to the ban on waste plastic imports by countries, it is difficult to export it overseas. There is an urgent need to establish a system for recycling domestically.

2. **Limits on material and chemical recycling**

Material recycling, which is one type of recycling, involves recycling waste plastic into other resin products or remaking PET bottles from PET bottles. However, it is necessary to remove dirt and foreign matter from the waste plastic, which is considered difficult in terms of cost and quality.Chemical recycling involves recycling waste plastic after chemically reacting it to convert its composition into oil or gas. This method has also not been widely used due to issues such as cost.

3. **Limits on heat recovery**

Heat recovery, also known as "thermal recycling," is a processing method that uses the heat generated by burning waste rather than simply incinerating it. This method of incineration is not sustainable and emits CO2, so it is a method that should be reduced in order to achieve the SDGs. Globally, heat recovery is generally not included in the recycling category, and if we look at Japan's recycling rate by global standards, it is about 25%, as mentioned above.

9.Japan and the world's measures to reduce plastic

Disposable plastics are being regulated around the world. These include plastic shopping bags, food containers, straws, cutlery, etc. Restrictions are implemented by charging fees, taxing, and banning use.

African countries promote "plastic-free“ More than half of the countries on the African continent have already introduced plastic restrictions. Kenya, Rwanda, and other countries have stipulated severe penalties for the use of plastic bags.

The background to this is the mountains of garbage that have been illegally dumped in various places.
These countries do not have high-performance waste disposal facilities, so they have promoted the option of "reduce".
African countries are now said to be advanced regions in the move away from plastic.

Many countries have already implemented plastic bag restrictions
Many countries, both developed and developing, have already implemented plastic bag restrictions.

10.European plastic strategy

Each EU country is working on regulating disposable plastics, but in January 2018, the EU adopted the European Plastics Strategy, which calls for all plastic containers and packaging used in the EU to be reusable or recyclable by 2030 and for the reduction of disposable plastic products. At the same time, the EU has confirmed that it will take the lead in promoting international plastic waste reduction by working outside the EU.

At the Charlevoix Summit, the G7 adopted the Ocean Plastics Charter. Japan and the United States did not sign it. Free water stations increase in the United States and Europe, and start in Japan. At the G7 Summit held in Canada in June 2018, the issue of marine plastics was discussed and the Ocean Plastics Charter was adopted.
Canada and European countries approved it, but the United States and Japan did not sign it.

Free water stations increase in the United States and Europe, and start in Japan. In order to reduce plastic bottle waste, the number of "free water stations" is increasing in Europe, the United States, China, Taiwan, and other places. An app that makes it easy to search for free water refill spots has also been released. In Japan, we can expect to see more initiatives like "Refill Japan," which is being promoted by the international environmental NGO "FoE Japan" to encourage people to bring their own water bottles and create water refill spots.

11. Japan formulates "Plastic resource circulation strategy"

In May 2019, the Ministry of the Environment compiled a Plastic Resource Circulation Strategy. Guidelines were set out, such as limiting the cumulative discharge of disposable plastics by 25% by 2030, reusing and recycling 60% of containers and packaging by 2030, and doubling recycling by 2030.

As a first step toward achieving this goal, a nationwide charge for plastic bags will begin on July 1, 2020. It is important to use the charge for plastic bags, which are a part of our daily lives, as a catalyst to change our lifestyles so that we do not rely on disposable plastics.

The "Osaka Blue Ocean Vision" is adopted at the G20 Osaka Summit
In June 2019, the G20 Osaka Summit was held, where the issue of marine plastic waste was discussed. The "Osaka Blue Ocean Vision" was adopted, which introduces a goal of reducing new pollution by marine plastic waste to zero by 2050.
The most effective measure we can take is "Reduce"
6 things we can do We need to take action as soon as possible to prevent further plastic waste from polluting the ocean. The waste that pollutes the ocean is originally discharged on land, such as household and industrial waste, so our waste disposal measures are important.
There are three R's for reducing waste.
Reduce: reduce waste, do not produce waste
Reuse: use repeatedly
Recycle: reuse as a resource

12.Reduce plastic

Among these, the thing we can do right away and have a high priority is "Reduce"

- producing as little waste as possible.
- It is important not to buy things that will become waste,
- and to choose things that can be used for a long time.

Also, a significant proportion of plastic waste is disposable containers and packaging materials such as plastic bags. Therefore, by taking concrete measures such as bringing your own bottles and bags, we can reduce the total amount of such waste as much as possible, and contribute to reducing microplastics. What we can do to reduce microplastics

1. Bring your own bags and bottles Let's be thorough in not buying or accepting "disposable" items as much as possible. If many consumers adopt a lifestyle of using their own bags and bottles, the number of stores selling by weight and water refilling points will increase, and waste reduction will progress throughout society.
2. Throw away garbage properly and reliably Litter that is thrown away, especially light garbage such as plastic bags, can easily be blown away and carried to the sea. Please dispose of garbage properly according to the rules.
3. Choose products with as little packaging as possible When purchasing food, daily necessities, miscellaneous goods, etc., choose products with simple packaging that do not produce waste. Also, refuse excess packaging when paying.

12.Reduce plastic

4. Don't buy plastic products Even if they are not disposable, plastic products will eventually become garbage. When purchasing toys, tableware, stationery, storage furniture, and other products, choose products made from other easily decomposable materials such as wood, paper, and metal rather than plastic products.
5. Don't buy clothes made from materials that are not environmentally friendly Clothes such as fleece made from synthetic fibers release microplastic fibers when washed. It is important to choose clothes made from sustainable materials.
6. Use things carefully In order to reduce waste, it is also important to reuse the things you have. Let's remember and practice the old-fashioned lifestyle of "mottainai" (not to waste) by repairing things to make them last longer, remaking clothes, and giving away unwanted items to people who need them for a fee or free of charge.

Initiatives of this committee

Micro-Plastic and Waste Countermeasure Committee

This committee works to reduce plastic waste entering the Yellow Sea from land and river estuaries. It researches microplastic pollution, develops mitigation strategies, and fosters international cooperation on marine waste management.

（1）Monitoring and analysis of microplastic pollution in costal areas
（2）Proposing and enforcing microplastic related regulations
（3）International collaboration on microplastic reduction technologies
（4）Development and application of waste reduction technologies
（5）Strengthening partnership among local government industries, and communities
（6）Resigning public awareness about marine waste prevention