



UNITED NATIONS
UNIVERSITY

UNU-IAS

Institute for the Advanced Study
of Sustainability

GEOC Newsletter No.11

March 2019



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Special Edition on Problem of Plastic Waste

What happens to the plastic you throw away?

In our everyday lives, we are surrounded by many kinds of plastic products such as plastic shopping bags, plastic bottles, styrofoam, plastic cups and cutlery, artificial grass and so on.

Plastics are lightweight, long-lasting and can be easily modified into any shape. Since the 1950s, the production of plastics has outpaced that of almost every other material. Much of the plastic produced for packaging is designed to be thrown away after only one use.

Recently use of plastics has gathered much attention as a serious global issue; and governments, private companies and local communities have instituted bans and taxes to curb their use.

In this edition of the GEOC newsletter, we explore this global issue and discuss actions that can be taken to improve the situation.



Bo Eide/Creative Commons

Facts about Plastic Waste

Plastics are made from petroleum (crude oil) and they are lightweight, hygienic, strong and easy to shape. The materials are long-lasting as they do not rust or corrode.

The amount of plastic produced in the world

The world produces more than 400 million tons of plastic every year¹, a figure which has been continuously increasing. 400 million tons of plastic are the equivalent of 1.3 million jumbo jets, which weigh around 300 tons each.

Global plastic production by industrial sector and disposal of all plastic waste

The breakdown of global plastic production by industrial sector is 36% for Packaging, 16% for Building and construction, 14% for Textiles, 10% for Consumer products, 7% for Transportation, 4% for Electronics, and 1% for Industrial machinery².

The widest use of plastic is plastic packaging, which is single-use material designed for immediate disposal for wrapping food or goods.

As shown in Figure 1, 79% of all plastic waste ever produced now sits in landfills, dumps, or elsewhere in the environment, while about 12% has been incinerated and only 9% has been recycled.³

Impact of plastic waste on our environment

Plastic bags and styrofoam containers can take up to thousands of years to decompose, contaminating soil and water, and pose significant ingestion, choking and entanglement hazards to wildlife on land and in the ocean.⁴

Most plastics in the ocean break up into very small particles by degradation, fragmentation, ultraviolet radiation, and waves and turn into 'microplastic' (plastic debris less than five millimeters long).

Studies say that chemical contaminants which were initially contained in plastics or newly attached to 'microplastics' can affect the ecosystem through the food chain. This has been a topic of concern and research has been conducted by the Ministry of the Environment, Japan and other organizations.⁵

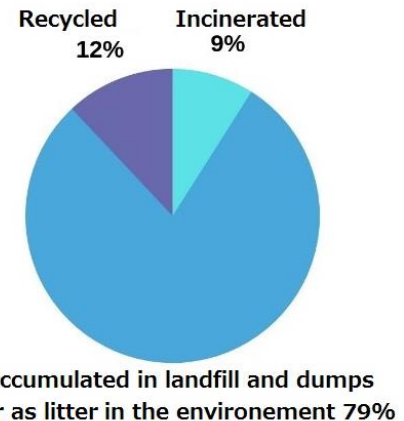


Figure 1: This chart was created based on data from UNEP. Single-use plastics: A Roadmap for Sustainability, 2018, page 6.



1 OECD. Improving Markets for Recycled Plastics. 2018, p.4

https://read.oecd-ilibrary.org/environment/improving-markets-for-recycled-plastics_9789264301016-en#page1

2 UNEP. Single-use plastics: A Roadmap for Sustainability. 2018., p.4

https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y

3 UNEP. Single-use plastics: A Roadmap for Sustainability. 2018, p.7

https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y

4 UNEP. Single-use plastics: A Roadmap for Sustainability. 2018, p. 12

https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y

5 環境省.プラスチックを取り巻く国内外の状況.2018年, <http://www.env.go.jp/council/03recycle/y0312-01/y031201-2x.pdf>

Waste Management in Japan

As shown in Figure 2, the ratio of methods used for waste treatment in Japan is 71% for incineration with energy recovery, 19% is for recycling and composting, 6% is for incineration without energy recovery, and 1% is for landfills¹. Advanced incineration technology and the large number of incineration facilities account for the high percentage of incineration in Japan. The reason why such technologies and facilities have developed in Japan is considered to be a result of the pressure to reduce the volume of waste sent to landfill given limited land mass².

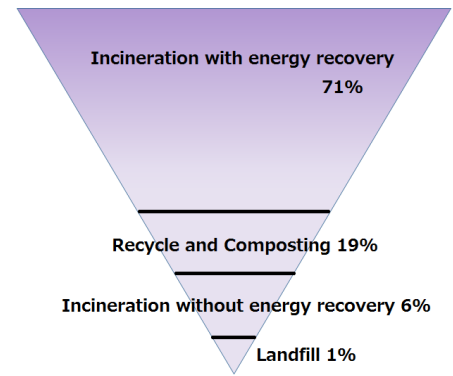


Figure 2 : Composite based on OECD data. Environment at a Glance 2015.

Thermal Recycling and the issues surrounding it

“Incineration with energy recovery” accounts for 71% in Japan, but what does that mean? This refers to so-called Thermal Recycling, which recovers the heat and steam produced in the process of incineration and uses it for generating electricity, heat, and hot water. Thermal Recycling has the advantage to recovering energy instead of just incinerating waste. On the other hand, it has been pointed out that there is a high possibility that recyclable items are also being incinerated in this process.²

Plastic waste management in Japan

After the USA, Japan is the second largest generator of plastic packaging waste on a per-capita basis³. As Figure 3 shows, 57% of plastic waste (including household and industrial wastes) proceeds to Heat Recovery that consists of waste power generation, RPF: Refuse derived paper and plastics densified fuel and heat utilization. 25% is recycled (material and chemical recycle) and 18% is unutilized (incinerated or landfilled).⁴

70% of Japan's entire recycled waste is exported overseas as recycled material. Japan has exported it mainly to China, but due to China's import ban on plastic waste, Japan and other countries are being forced to rethink their options.



70% of Japan's recycled waste is exported.

A recent MOEJ survey sheds light on some of the issues facing people working in waste disposal and treatment facilities:

“We used to sell plastic waste but now we have to pay to dispose.”

“Recyclable items are now incinerated because we cannot export anymore”⁵

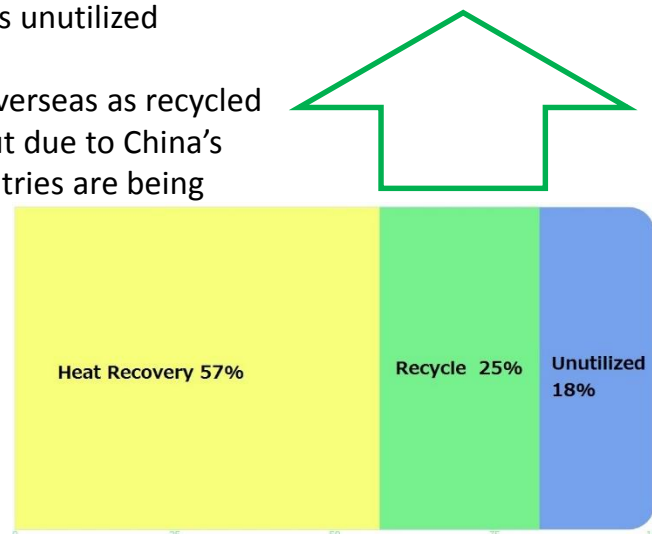


Figure 3 : This chart was modified based on data from the Ministry of the Environment, Japan「プラスチックを取り巻く国内外の状況」

1 OECD. Environment at a Glance. 2015, p.50 <http://www.oecd.org/env/environment-at-a-glance-19964064.htm>

2 国立環境研究所「知ってほしい、リサイクルとごみのこと」 <https://www.nies.go.jp/taiwa/jqjm1000000c2yf8.html>

3 UNEP. Single-use plastics: A Roadmap for Sustainability. 2018., p.5

https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y

4 環境省. プラスチックを取り巻く国内外の状況. 2018年, <http://www.env.go.jp/council/03recycle/y0312-01/y031201-2x.pdf>

5 環境省.「平成 30 年度外国政府による廃棄物の輸入規制等に係る影響等に関する調査結果」

<https://www.env.go.jp/press/files/jp/110124.pdf>

Seminar: Solutions to the Problem of Plastic Waste



Event Summary

- Date: 25 January 2019
- Venue: UNU
- Organizer: UNU-IAS, GEOC

Programme

Opening Remark: Mr. Tsunao Watanabe (UNU-IAS Senior Programme Coordinator)

Keynote Speech: Mr. Tetsuji Ida (Kyodo News Senior Staff Reporter, Science News Desk, Environment, Energy and Development)

Report 1: Mr. Jun Harukawa (Miyakojima Sea Environmental Network)

Report 2: Mr. Yasushi Nakazato (Director of Environment Management Bureau, Ministry of the Environment, Japan)

Report 3: Mr. Yoshiharu Hayamizu, UNU-IAS Visiting Senior Research Fellow/Advisor to Ministry of the Environment, Japan

Panel Discussion: “Actions for solving problem of plastic waste through partnership”

Moderator: Ms. Tomoko Hoshino, Global Environmental Outreach

On 25 January, UNU-IAS and GEOC jointly organized a seminar to discuss solutions to the problem of plastic waste. The event aimed to raise awareness, share scientific insights, and discuss concrete action to be taken through multi-stakeholder partnerships.



In his keynote presentation, Tetsuji Ida of Kyodo News gave a comprehensive overview of the problem of plastic waste. He highlighted the inter-relationship between poverty and the environment in the developing countries and pointed out that both issues have been getting worse. He also raised concerns that, although the issues of plastic waste have been a problem since the 1990s, mass-production and mass-consumption lifestyles have not been changed. He also pointed out the issue that in Japan a massive amount of plastic waste is burned in a method called “thermal recycling.” To achieve the SDGs and Paris Agreement, he emphasized a need to transform our lifestyles as well as policies. To do so, he urged the adoption of a combined approach using economic incentives and regulation.

The next speaker, Jun Harukawa of the Miyakojima Sea Environmental Network, addressed the current state of Miyako Island beaches and its cleanup initiatives. He reported that the volume of the waste on the beaches are exceeding the capacity of the incinerator on the island. He also raised concerns that dangerous wastes, including syringes and high-pressure gas containers, are being left on the beaches as they cannot be disposed by volunteers.

Yasushi Nakazato from the Ministry of the Environment of Japan (MOEJ), then introduced the ministry’s research projects to gather scientific evidence on the impacts of plastic pollution on ecosystems as well as to make future projections. He also encouraged participants to join the Plastic Smart Campaign, a platform led by the ministry to facilitate voluntary actions by a wide range of stakeholders.

Finally, Yoshiharu Hayamizu, UNU-IAS/MOEJ, shared information from the latest global discussions of the UNEP Expert Group meeting. He emphasized that the meeting reached consensus on a need for a global collaborative effort to combat plastic pollution as well as strengthened scientific knowledge of the issue. He also reported that the meeting discussed the global framework to combat plastic pollution.

In a panel discussion, the speakers and participants actively discussed concrete measures to prevent plastic pollution. Viewpoints exchanged among the speakers and the participants included a need for a mechanism to engage people who are currently unaware or uninterested in the issue, a need for economic incentives to engage the private sector, the importance of starting innovative initiatives at the local level, sharing information on the present state of plastic pollution, and managing waste on land.

For related files and further information on the symposium, please visit UNU-IAS website.

<https://ias.unu.edu/en/news/news/seminar-plastic-waste-2019.html>

Initiatives and Campaigns to reduce plastic waste

Plastics Smart

The Plastics Smart Campaign is led by the Ministry of the Environment of Japan to encourage individuals, companies, governments and other organizations to engage in solving global-scale environmental pollution caused by plastic waste.

The Plastics Smart Forum is a platform set up to promote dialogue and interaction among companies and other organizations concerned about marine plastic waste. It supports the expansion of activities by strengthening partnerships for the purpose of eliminating marine plastic waste.

<http://plastics-smart.env.go.jp/en/> (Plastics Smart for Sustainable Oceans)



Beat Plastic Pollution

Beat Plastic Pollution is a campaign that was launched namely by the United Nations Environment Programme (UNEP) and United Nations Information Centre in Tokyo (UNIC Tokyo) to call for action to combat the issue of plastic waste. Beat Plastic Pollution-related events provide opportunities for everyone to join in and take action.

<https://www.unic.or.jp> (UNIC Tokyo)

In June 2017, the Ocean Conference 2017 was held in New York and marine pollution was addressed as one of the highlights of the discussion. In relation to this, campaigns and events to raise awareness about ocean pollution have been actively promoted inside and outside Japan.



2030年に向けて
世界が合意した
「持続可能な開発目標」です

Sustainable Development Goals and the Problem of Plastic Waste

Sustainable Development Goal 12: Responsible Consumption and Production and Goal 14: Life Below Water are particularly relevant for reducing plastic waste. Sustainable Development Goals are interlinked, and the involvement of all stakeholders and strengthening partnerships are essential.



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