MCW NEWSLETTER
JSMCWM SINCE 1990
No.91 This Newsletter is a biannual e- publication. December 2018
JAPAN SOCIETY OF MATERIAL CYCLES AND WASTE MANAGEMENT

Contents

Cultivation of the young generation to tackle environmental issues

I am Toshiaki YOSHIOKA (Tohoku University), who took office as the 15th President of the Japan Society of Material Cycles and Waste Management.

Although it is recognized that waste is an important resource, specific activities to supplement this have not been fully implemented until now. We must take the lead in addressing efforts to firmly establish a society in which waste can really become a resource and then we have to make a strategy to realize it. Proper treatment, recycling of waste materials, and reduction of resources input require the development of high, ideal and realistic systems and technologies. It is necessary to create a circulation system of resources with new concepts. One of the concepts may be creating a system that encompasses both the "artery" industries, the industries which produce products, and the "vein" industries, which implement collection and treatment of waste from artery industries —such as the vein system, Japan's new recycling industrial system called 'rare metal recovery complex (RMRC)', and the artery system of the materials reproduction promoted by RMRC—without being based on the premise of waste. I believe that a society in which those who implement the ability to recycle materials produced by themselves and can be self-reliant, is desirable.

If many young researchers, engineers, business persons, administrators and citizens are not participating in academic activities, our JSMCWM itself will shrink and will not be sustainable. It is important for many young people to be engaged in the field of material cycle and waste management (MCWM), and to increase the momentum of their participation in these fields. I believe that people who are not aware of or willing to participate in these fields should join the MCWM with the mindset that it can create a positive change.

Recently, a lot of disasters have been occurring frequently all over the country. Through the framework of D.Waste-net, a disaster waste treatment network of Japan, experts with a lot of practical experience have been part of the disaster management field as administrative support and on-site support with the form of their affiliated institutions. Some of the roles of our society are to organize and review not only temporary staffing but also various information to strengthen the preparation in ordinary time. Unfortunately, due to the influence of climate change, we must respond to many types of disasters. Also, it is important to make a life style that does not produce waste through 3Rs even if a disaster occurs. To discuss about all these is also one of important missions of our society.

JSWCWM has also focused on international efforts and is composed of many wonderful members. We will strengthen our accumulated skills and further have the responsibility to make these skills available to the world. Evaluation of the international academic journal that we have jointly published with "Korean Society of Waste Management" has been rising over the past few years, and efforts to further raise it are necessary. Some international conferences such as 3RINCs are also leading together in other countries, and we are also making relationships with major international organizations.

Especially recently, the plastic waste issues, which originated in marine garbage, have become a big problem worldwide. In order to confront this problem with both environmental management and 3Rs, it is

impossible to find a solution unless a lot of stakeholders, such as citizens, governments, industries, and academia, form plans to tackle these issues.

Expectations for JSMCWM, consisting of a variety of members, will become greater and greater so we must always try to fulfill these.

(Toshiaki Yoshioka)

The fourth Fundamental Plan for Establishing a Sound Material-Cycle Society

1. Background

Today, conservations of the environment are significantly important because these are the key to the survival of human beings. Unsustainable mass-production and mass-consumption patterns lead to a mass-disposal society, which inhibits environmental conservation and sound material cycles. It is also deeply connected to climate change, as such society is triggering greenhouse gas emission, causing the depletion of natural resources, destructing the ecosystems due to large-scale extraction of resources.

In Japan, they have formulated the Fundamental Plan for Establishing a Sound Material-Cycle Society based on the Basic Act for Establishing a Sound Material-Cycle Society (enacted in 2000). The fundamental plan of Japan has set a mid- to long-term direction to establish a sound material-cycle society, where natural resource consumption is reduced and environmental loads are minimized as much as possible.

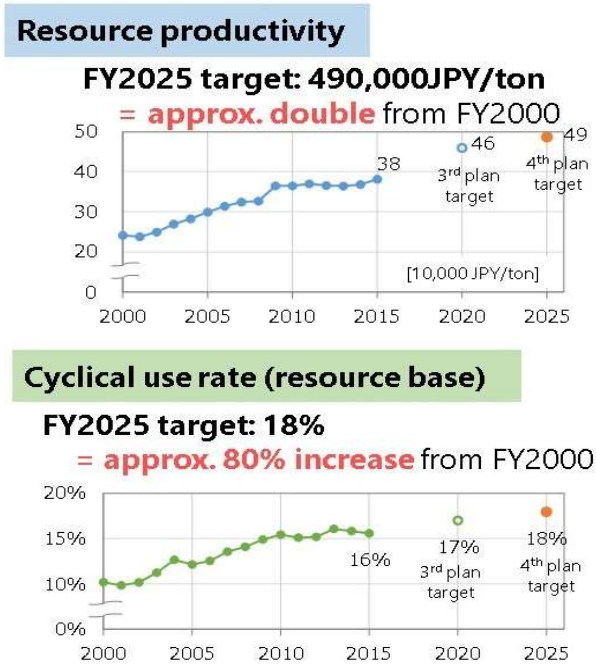
Continuous efforts made by respective stakeholders to realize such a society have achieved significant improvements of the major indicators which were designed to monitor the achievements. The indicator of resource productivity[1] has risen by 58% since fiscal year 2000 (FY2000), producing 380,000 JPY/ton in FY2015. The cyclical use rate at resource base[2] has also improved by 60%, and the final disposal amount showed a significant drop by 74% during the same period. These changes owe to the decrease in natural resource inputs in Japan, due primarily to a decrease in large-scale public works and changes in the industrial structure, as well as an increase in the amount of cyclical use thanks to the recycling acts.

These indicators, however have been leveling-off recently, partly due to the stagnant economy and the impact of the Great East Japan Earthquake. Restoration of the environment and reconstruction from radioactive contamination released by the nuclear accident have been a continuing challenge for Japan. Frequent occurrence of large-scale disasters requires resilient disaster waste management systems. Changes in people's perspectives from material wealth to spiritual wealth influence business strategies, reflecting new consumption and production patterns.

2. The Fourth Fundamental Plan

The fourth fundamental plan, which is the latest approved by the Cabinet on June 19th 2018, was formulated under such socioeconomic circumstances and indicates comprehensive measures to be implemented by FY2025.

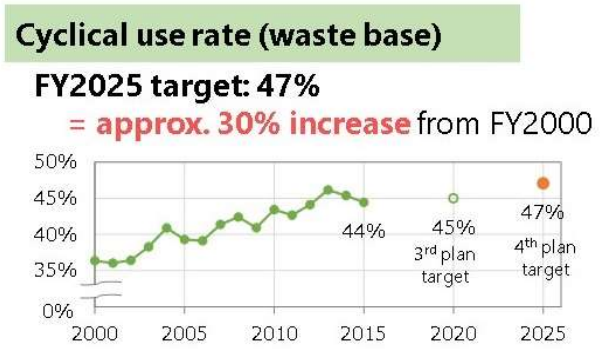
New, ambitious targets in FY2025 for the four representative indicators were set out in the fourth plan: (i) roughly doubling the resource productivity (490,000 JPY/ton); (ii) 80% increase in cyclical use rate at resource base (18%); (iii) 30% increase in cyclical use rate at waste base[3] (47%); and (iv) 77% reduction in final disposal amount (13 million tons), compared to the base year of FY2000.

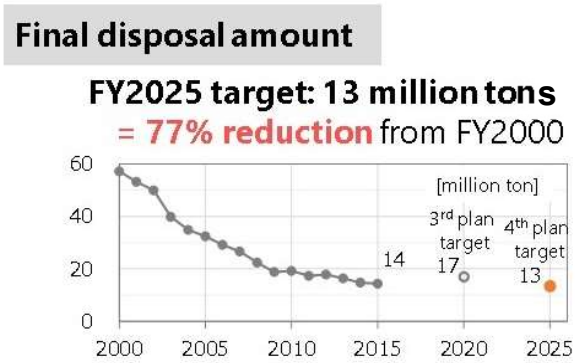


[1] Resource productivity = GDP/direct material input. The indicator was first adopted in a national-level plan in Japan.

[2] Cyclical use rate at resource base = Amount of cyclical use/(amount of cyclical use + direct material input)

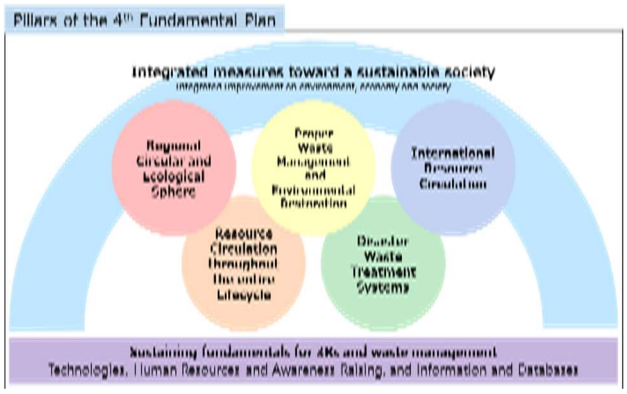
[3] Cyclical use rate at waste base = Amount of cyclical use/amount of waste generation





The plan also defines the seven pillars as a priority for Japan, and the vision, indicators and planned measures are set out for each pillar below:

(1) Integrated Measures towards a Sustainable Society;
(2) Regional Circular and Ecological Sphere (Regional CES);
(3) Resource Circulation throughout the Entire Lifecycle;
(4) Proper Waste Management and Environmental Restoration;
(5) Disaster Waste Management Systems;
(6) International Resource Circulation; and
(7) Sustaining Fundamentals for 3Rs (reduce, reuse and recycle) and Waste Management.



Integrated Measures toward a Sustainable Society is an overarching pillar to realize integrated improvements in the environment, the economy and society, aiming to create a society where everyone can use natural resources in a sustainable manner, with environmental loads restrained to within the Earth's capacity, and a safe and healthy life secured in conjunction with a rich ecosystem. Targets toward FY2025 in this pillar include (i) doubling the market size of business related to a sound material-cycle society; and (ii) halving food loss from households.

Regional CES represents a self-reliant and decentralized society, making use of regional resources, and complementing and supporting one another according to unique characteristics of each region. With effective use of renewable, stock and circulative resources, it will improve local resource efficiency and vitalize local economies in an integrated manner. The pillar sets the FY2025 targets of per capita daily waste generation at household and municipal levels as 440 g/capita/day and 850 g/capita/day, respectively.

Resource Circulation throughout the Entire Lifecycle has the vision of "providing necessary products and services to persons in need, when necessary, and in the necessary amounts", which is the concept of the fourth industrial revolution. Planned measures include (i) strengthening upstream measures such as expanded use of recycled materials, design for the environment and 3D modeling; (ii) development of a plastic strategy; and (iii) a national campaign to reduce food loss.

Proper Waste Management and Environmental Restoration aims to create a society with appropriate waste treatment systems and technologies. Such a society will also restore local environments through resolving marine litter issues, removing obstacles due to illegal dumping, and properly demolishing abandoned houses. Among the indicators to monitor the performance of this pillar, cases of illegal dumping have been significantly reduced from over 1,000 cases in FY2000 to 133 in FY2016.

Disaster Waste Management Systems explores more resilient, multi-layered waste management systems at municipal, regional, and nationwide levels. The plan sets the targets of 100% for development of disaster waste management plans in prefectures and 60% for municipalities to enable swift and proper disaster waste treatment in the event of disasters. Only 57% of prefectures and 24% of municipalities had developed plans by the end of FY2016, which required strengthened measures towards FY2025.

International Resource Circulation aspires for a resource efficient society, where a safe and healthy life as well as a rich ecosystem are secured through appropriate international resource circulation systems and the international contribution of the resource circulation industry in Japan. High quality environmental infrastructure, such as waste-to-energy facilities, is expected to be expanded from Japan to developing nations, together with Japan's experience and know-how in legislative frameworks and 3R systems.

Sustaining Fundamentals for 3Rs serve as a foundation for other pillars through the development of information, technologies and human resources. The cutting-edge AI/IoT technologies are to play a significant role in improving resource efficiency and addressing labor shortage in Japan. The plan promotes innovation in technology development including biomass plastics and biodegradable plastics. In encouraging 3R actions by individuals, the young generation is targeted by a "Re-Style" public awareness campaign linked to pop culture.

3. New features and next steps of the plan

What is new in the fourth Fundamental Plan compared with the previous ones? Several new features can be highlighted.

First, the latest plan introduces a substantial amount of new indicators and organizes them into respective pillars for Japan's priority. In addition to the four representative indicators, each pillar has a set of material flow indicators and management indicators, enabling more systematic monitoring and evaluation of performance. In defining some indicators, the plan gives consideration to international comparability with the indicators in the Sustainable Development Goals (SDGs).

Regional CES is another characteristic of the fourth plan. As a microcosm of integrated improvements on the environment, the economy and society, regional CES presents a solution-oriented approach to SDGs achievements at the local level.

Progress against the targets and planned measures set out in the fourth plan will be reviewed every two years by the Central Environmental Council and reported to the Cabinet. Based on the results of the progress review, the government will consider further advancement of measures to establish a sound material-cycle society.

(Junko Nishikawa)

Introduction of the Disaster Waste Management Guideline in Asia and the Pacific

1. Background of the Disaster Waste Management Guideline in Asia and the Pacific

Disasters are becoming more frequent and intense around the world in recent years. In particular, the quantity and level of disasters in Asia and the Pacific are intensifying.

After the Great East Japan Earthquake in 2011, severe natural disasters, including storms, floods, landslides, damaging snow falls, and volcanic eruptions, hit Japan. The disaster waste generated, which is the waste of damaged buildings, household goods, and other materials, had to be managed in a rapid and environmentally sound manner as the management of disaster waste is crucial for quick and effective restoration and reconstruction of social infrastructure after disasters. Through these incidents, Japan has accumulated experience in effective disaster waste management at national and local levels in the past decade.

Japan has also actively participated in and spoken at international meetings to share its experience of and information about disaster waste management. Such opportunities include the World Conference on Disaster Reduction held in Sendai City, Miyagi Prefecture in 2015, a series of meetings organized by the UN Environment-International Environmental Technology Center (IETC), and the G7 Alliance Workshop.

With the aim to further mainstream disaster waste management and contribute to developing resilience in Asia and the Pacific region, where preparation for intensifying disasters is in urgent need, the Ministry of the Environment, Japan has started an initiative to develop the Disaster Waste Management Guideline for Asia and the Pacific (hereafter ***"DWM Guideline"***) since 2016.

Commissioned by the Ministry of the Environment, the Society of Material Cycles and Waste Management (JSMCWM) has initiated the organization of information for the DWM Guideline in 2016 with the editorial team mainly led by Dr. Misuzu ASARI of Kyoto University. In 2017, the first draft of the DWM Guideline was finalized, which will play a role in elaborating on the essential basics of disaster waste

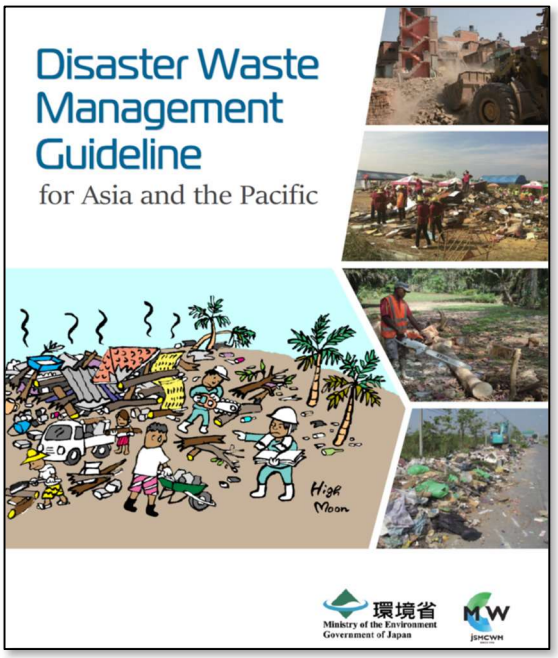
management. This year, the editing team is undertaking the task of compiling the disaster waste management technologies which are applicable in Asia and the Pacific region. This adequate information will be summarized and included as the technologies to be introduced by the DWM Guideline.

2. Overview of the DWM Guideline

The DWM Guideline emphasizes the importance of advanced preparation for disasters, including contingency planning, as well as understanding waste management capacity at ordinary times and integrating it with a disaster waste management system. The guideline also presents in the Appendix the cases of major disasters that have occurred in Japan introducing associated disaster waste management. Furthermore, the front cover has a unique illustration by Mr. High Moon.

The main text of the DWM Guideline is currently waiting for final confirmation to be published. If interested, please do not hesitate to contact Dr. Asari (mezase530@gmail.com).

In developing the draft DWM Guideline, the editing team exchanged views with the specialists, officials, and researchers of relevant countries, local authorities and international organizations to reflect the regional characteristics of Asia and the Pacific into the DWM Guideline. The team also carried out several activities to promote the DWM Guideline in the relevant countries. The upcoming articles will report on these workshops and activities under this initiative.



https://www.env.go.jp/press/files/jp/110165.pdf

Promotion of the Disaster Waste Management Guideline for Asia and the Pacific at Clean Pacific Roundtable 2018 in Fiji

As introduced in the previous article, JSMCWM is currently developing the Disaster Waste Management Guideline for Asia and the Pacific (hereafter "DWM Guideline") commissioned by the Japanese Ministry of the Environment. This report presents our first activity to promote the DWM Guideline in Fiji and other Pacific countries.

1. Clean Pacific Roundtable 2018

On August 20th and 22th, 2018, Clean Pacific Roundtable (CPRT) 2018 was held in Suva, the capital city of Fiji, to drive progress towards the Clean Pacific 2025 vision of a cleaner Pacific environment. The roundtable was hosted by the Secretariat of the Pacific Regional Environment Programme (SPREP), an intergovernmental organization in the region, with the support of JICA and other partners. More than one hundred and seventy participants gathered from the Pacific region, including the representatives of the Pacific island government waste management and pollution control focal points, national and sub-national government staffs, and other key stakeholders.

2. Parallel Session on Planning and Responding to Disaster Waste

At a parallel session on August 20th, the topic of "planning and responding to disaster waste" was addressed, among other environmental issues. Under the chairmanship of Dr. Kunitoshi SAKURAI, Professor Emeritus of Okinawa University, three presentations were made on the experiences and overviews of ongoing projects in the Pacific region and Japan.

Dr. Shinichi SAKAI of Kyoto University introduced the background of Japan since the Great East Japan Earthquake in 2011, highlighting how the networking of specialists has developed to address disaster waste management and the legislative framework on disaster management, and how waste management has been integrated both at national and local levels. Dr. Misuzu ASARI of Kyoto University and Mr. Makoto TSUKUJI of JSMCWM, as representatives of the editing team of the DWM Guideline, then introduced an overview of the guideline. They emphasized the importance of preparing for disaster waste management, including the clarification of waste management capacity under normal conditions, development of contingency plans,

and prior coordination of disaster management and waste management regarding both policies and relevant stakeholders. They invited the participants to attend a workshop on preparing a draft plan based on the format presented in the DWM guideline that took place in October, 2018.

During the subsequent panel discussion as well as a question and answer session, the representatives from Samoa, Tonga, and the Lautoka City of Fiji presented their policies and experiences of dealing with disaster waste due to floods. The challenges shared included the limited capacity of the landfill to correspond to the high volume of disaster waste, lack of coordination and resources including skilled personnel, machinery, and financial support, insufficient recycling of green waste, and a lack of integrated disaster waste management planning. The discussions were consistently active and suggestive.

3. The way forward for the improvement of DWM guideline

Given the varied situations presented depending on each country or community, the DWM Guideline evolved in Japan may need to reflect the natural and social characteristics to fit different regions/countries/communities best. To this end, it appeared indispensable to collect views and feedback not only on disaster waste but also on general waste management to incorporate them in the guideline as necessary. Active communication during the upcoming workshops and other opportunities is anticipated.

(Mayumi Tamiya)

The 18th SWAPI will be held in January, 2019

The 18th Expert Meeting on Solid Waste Management in Asia and the Pacific Islands (SWAPI) will be held at Surugadai Memorial Hall, Chuo University from January 16th to 18th, 2019.

The SWAPI Meeting has been held every year since 2005, supported by the Environment Research and Technology Development Fund of the Ministry of the Environment of Japan to formulate a network between experts to facilitate proper waste management and 3R in Asia and the Pacific Island regions.

Disaster Waste Management in Asia and the Pacific Island Regions, Management of Plastic Waste, Waste to Energy (WtE) Bidding Process and others are being discussed this year.

We would greatly appreciate your active participation at this meeting.

The 5th 3RINCs will be held in Thailand

We are very pleased to announce that the 5th 3R International Scientific Conference on Material Cycles and Waste Management will be held as an open academic platform from February 27th to March 1st, 2019 in Bangkok, Thailand.

Waste management is a great challenge worldwide, particularly in the Asia-Pacific's megacities, which are currently experiencing substantial economic growth. From the perspective of the social structures and background of waste generation, it is our mission to promote proper waste management and spread the concept of the 3R principle 'Reduce, Reuse, and Recycle' in our societies. It has become a common goal for the international community to minimize both raw material consumption and establish a society with a minimal environmental load by minimizing waste generation and encouraging cyclic use and proper waste treatment and disposal. The basic concept of 3R is to establish a Sound Material-Cycle Society and at the same time aim to preserve resources and control hazardous substances.

The 3R concept is closely associated with entire communities. It will affect various aspects of society, such as the direction of industry, patterns of consumption, use of resources and energy, and our relationship with the environment. It will also require the establishment of much more effective policy systems. We should respect the need for this concept to

become deeply rooted in our society and should promote technologies, social systems, and policy research to back up and establish better 3R principles and waste management systems.

The aim of 3R International is to provide, and serve as a platform for, academic activities that promote a 3R society. A wide range of academic fields, including physics, chemistry, engineering, medicine, policy science, economy, and law, need to serve as keystones that support 3R development. It is essential that we strengthen mutual ties and have interdisciplinary discussions across these areas.

We are calling for scientifically and academically based presentations from all stakeholders in the management of material cycles and waste management, including product designers, operators, suppliers, environmental authorities, and academics internationally, but especially in Asia and the Pacific Islands. For more information, please visit the homepage of 3RINCs.
http://www.3rincs.org/

You can get the latest flyer here.
http://www.3rincs.org/wp-content/uploads/2018/08/3RINCs2019.pdf

Upcoming Events

18th Expert Meeting on Solid Waste Management in Asia and Pacific Islands (SWAPI)

Date: January 16-18, 2019

Venue: Chuo University Surugadai Memorial Hall

5th 3R International Scientific Conference on Material Cycles and Waste Management

Date: February 27-March 1, 2019

Venue: Pullman Bangkok King Power, Thailand

http://www.3rincs.org/wp-content/uploads/2018/08/3RINCs2019.pdf

Current Members of JSMCWM

Current Members of JSMCWM as of March 31st, 2018	
Regular Member	1,971
Fellow	45
Senior	44
Honorary Member	2
Student	160
Public Institution	89
Supporting Company	114
Supporting Individual	1
Regular Association Citizen	4
Individual Citizen	11
Total	2,441

NEWSLETTER No.91, December, 2018
Published by: Toshiaki YOSHIOKA, President, Japan Society of Material Cycles and Waste Management
Edited by: Prof. Dr. Shin-ichi SAKAI, Chairman, International Relations Committee
Edited and design by:
Prof. Dr. Hiroki HASHIZUME
Dr. Masamitsu TAKAHASHI
Mr. Junji ANAI
Asst. Prof. Dr. Shogo KUMAGAI and
Translation & proofreading: Vanessa RAMIREZ
Buzen-ya Bldg. Shiba 5-1-9, Minato-Ku,Tokyo 108-0014, Japan
Phone: (+81) 3-3769-5099
Fax: (+81) 3-3769-1492
http://jsmcwm.or.jp/international/
e-mail: international@jsmcwm.or.jp

Readers can find the latest issue of the NEWSLETTER and recent back issues at the JSMCWM webpage noted above.