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NEWSLETTER

No.53

This Newsletter is published four times a year, e-publication only.

July 2005

THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts

This year JSWME experienced two sad and unexpected events: the passing of former President Prof. Nobutoshi Tanaka in March and that of Deputy President Mr. Tadao Fujimoto in April. Prof. Kazuo Yamamoto, from the Environmental Science Center of the University of Tokyo, assumed the post of President for the rest of the 8th administrative term in May. The following is an abstract of his inaugural address.

“When the former president assumed the post, he stated ‘Carrying forward the progress to date, I would also like to consider a drastic change of direction for JSWME’. I can imagine how deeply he regretted to have to leave his aspiration halfway through.



New President,
Prof. Kasuo Yamamoto

As their successor, I sincerely express my gratefulness to their great contribution to the development of JSWME. I am determined to make every effort to materialize the policies adopted by President Tanaka during the remainder of his term.

His policy is, specifically speaking, to review the functions and roles of six committees and restructure them in consideration of the improved service to the members and the contribution to society, and to develop medium- and long-term goals.

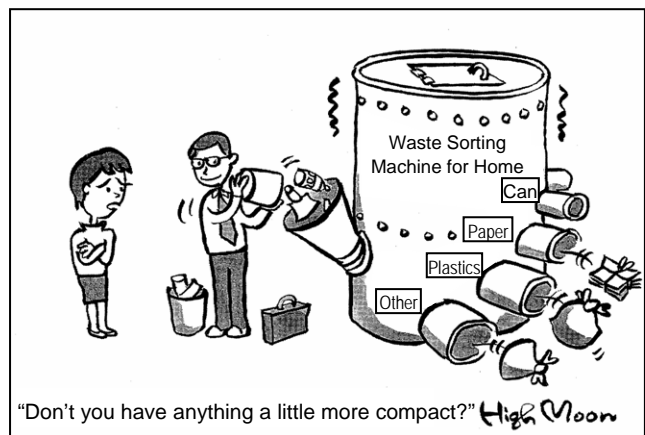
For the purpose of promoting international cooperation in solid waste management, a strategy meeting has been set up within JSWME where an action plan was already proposed. I will coordinate the strategy meeting and the international relations committee, and enhance the networking among waste management experts in Asia and the Pacific. Such events as the Asia-Pacific expert meeting scheduled for this autumn will be the first step. (Continued)”

The annual research conference of JSWME is planned to be held over three days from October 31 to November 2

in Sendai City, the center of the Tohoku region of Japan. As the new president stated in his address, JSWME together with other organizations including the Japan International Cooperation Agency and the Japan Bank for International Cooperation is going to organize the meeting of waste management experts from Asia and the Pacific in parallel with the Sendai conference.

From April 28 to 30, the Ministerial Conference on the 3R Initiative was held, where ministers and other high officials of 20 countries, including the G8, and representatives of four international organizations gathered together, providing the top-news in this issue. In the series of Overseas Development Assistance projects, a project for the improvement of solid waste management in Phnom Penh, the capital city of Cambodia, is introduced. The Research Conference of the Korea Solid Waste Engineering Society was held on May 12-13 in Andong City, Korea. Signing an interchange agreement, the two societies have mutually participated in the research conferences. This issue reports on the participation of JSWME in the international session held there.

(Hideo Azuma)



Comments by High Moon: “The rule of separation at source is becoming more and more meticulous.”

Illustrated by Prof. Hiroshi Takatsuki (Taka-tsuki literally means “High Moon”).

**Ministerial Conference on the 3R Initiative
was Successfully Held
to Share the Spirit of *Mottai Nai* all over the World**

The principle of reducing waste, reusing and recycling resources and products is often called the "3Rs." The 3R Initiative aims to promote the "3Rs" globally so as to build a sound-material-cycle society through the effective use of resources and materials. It was proposed by Japan's Prime Minister, Junichiro Koizumi and was agreed upon at the G8 Sea Island Summit in June 2004 as a new G8 initiative.

A ministerial conference was held with the participation of 20 countries (Brazil, Canada, China, France, Germany, Indonesia, Italy, Japan, Malaysia, Mexico, the Philippines, the Republic of Korea, Russia, Singapore, South Africa, Thailand, the United Kingdom, the United States, Vietnam and the European Commission) and four international organizations (UNEP, OECD, the Secretariat of the Basel Convention, and the League of Arab States) from April 28 to 30, 2005 in Tokyo in order to officially launch the 3R Initiative.

The Conference, which was chaired by Ms. Yuriko Koike, Minister of the Environment of Japan, took up five issues: (1) national policies to implement the 3Rs, (2) the reduction of barriers to the international flow of goods and materials, (3) cooperation between developed and developing countries, (4) encouragement of cooperation among various stakeholders and (5) the promotion of science and technology suitable for the 3Rs. Participants reiterated their commitment to Agenda 21 and the importance of the fulfilment of the Johannesburg Plan of Implementation of the World Summit on Sustainable Development.

The outcome of the Ministerial Conference is expressed in the form of the Chair's Summary and the 3R Portfolio, a compilation of measures taken by participating countries and organizations to promote the 3Rs. They can be found on the web page of Japan's Ministry of the



Ministerial Conference on the 3R Initiative

Environment,
<http://www.env.go.jp/earth/3r/en/index.html>.

The participants shared their views on many issues throughout the Conference. For instance, they agreed that it is important to create partnerships utilizing the strengths of all stakeholders, namely central and local governments, the private sector, academia, NGOs, and consumers, to promote the 3Rs and waste management. It was pointed out that understanding the lifecycle of products is required for taking a systematic approach for improving the environment. The LCA approach and material flow analysis can be used for benchmarking the performance review of industries, thereby improving the product quality and encouraging and promoting the 3Rs in the process. Establishment of regional 3R research networks, clean technology centers, technology exhibitions, and best practices database development were considered important for the promotion of cleaner technologies. Such efforts should be further strengthened for market creation.

The issue of the reduction of barriers to the international flow of goods and materials seemed to be a matter of hot debate among participants, particularly between some developed countries and developing countries. It was observed that the international flow of (i) goods and materials for recycling and remanufacturing and (ii) recycled and remanufactured products may contribute to the efficient use of resources as well as the prevention of environmental pollution, if proper mechanisms are in place.

Some participants pointed out that 1) there are barriers to the international flow of goods and materials for recycling and remanufacturing, and recycled and remanufactured products, such as higher tariff rates and non-tariff barriers for those products, and 2) markets need to be opened for goods and materials so they do not become waste and that this is an opportunity that can be fostered by the 3R Initiative. At the same time, it was also noted that 1) the first priority for many countries should be placed on the minimization of wastes within the country in which the wastes are generated, and 2) the transboundary movement of wastes may take place only when safe and appropriate use and environmentally sound management are possible in the receiving country.

The importing of recyclable goods or materials can cause environmental impacts when the receiving country lacks sufficient waste management capabilities. In this regard, support was voiced for the development of technical capacity as well as suitable recycling or disposal facilities in developing countries, promoting a regional approach and cooperation, as appropriate. Participants pointed out a need for enhancing the capacity of

developing countries to promote the 3Rs and sound waste management, including the formulation of stronger domestic regulations. Participants emphasized the need to strengthen international cooperation for improved monitoring of transboundary movements of recyclables and wastes and their environmentally-sound management. It was agreed that close collaboration is necessary among enforcement agencies, such as port authorities, customs and government environmental authorities to deter any illegal trafficking of wastes. In this regard, participants welcomed the development of a network in Asia to prevent the illegal trade of wastes, which is promoted by the Ministry of the Environment of Japan.

Those outcomes will be reported at the G8 Gleneagles Summit to be held in July 2005 in the UK, and will be revisited at a Senior Officials' Meeting which Japan proposed to host as a follow-up to the Ministerial Conference within its fiscal 2005 (by April 2006). All stakeholders on the issue are expected to take substantive actions to promote the 3Rs and they will be shared at the Senior Officials' Meeting.

(by Hiroki Hashizume)

**Japan's ODA on Solid Waste Management:
The Study on SWM in the Municipality of
Phnom Penh, Cambodia**

1. Background

The Municipality of Phnom Penh (MPP) is the capital of Cambodia, having an estimated population of 1.2 million in 2003 and an area of 374 km². Since 1994 due to the extremely limited capability for municipal solid waste management (MSWM), the MPP has entrusted its MSWM service to private contractors with franchise agreements, which allows a monopoly service. However, the service provider has changed six times, mainly due to financial difficulty. As of 2003, the waste collection service was provided by a private company and the

disposal site, which is located in the rapidly urbanizing neighbourhood of Stung Mean Chey (SMCDS), was operated by Phnom Penh Waste Management Authority (PPWM) under MPP.

Waste collection has generally been improved. However, many areas of the city are still without adequate collection services and the waste left in the city has led to a deterioration of the urban environment.

The SMCDS, which is the only disposal site in the MPP, has been operated as an unregulated landfill since 1965. Because the municipality land plot is very limited and waste has piled up, operation of the landfill is getting more and more difficult.

Based on a request by the government of Cambodia, a development study was carried out by JICA from February 2003 to March 2005.

2. The Study

The study was carried out from February 2003 and completed in March 2005.

2.1 Objectives

- To formulate a master plan (M/P) for SWM in Phnom Penh with a target year of 2015
- To conduct a feasibility study for the priority projects
- To transfer technology to the counterpart

2.2 Problems of the Current SWM

Based on the various surveys conducted, the study identified the problems of the current SWM in the MPP to be as follows:

- Unserved and insufficiently serviced areas
- Open dumping at the SMCDS
- Garbage heaps and littered waste in the city
- Weak capacity of PPWM for SWM

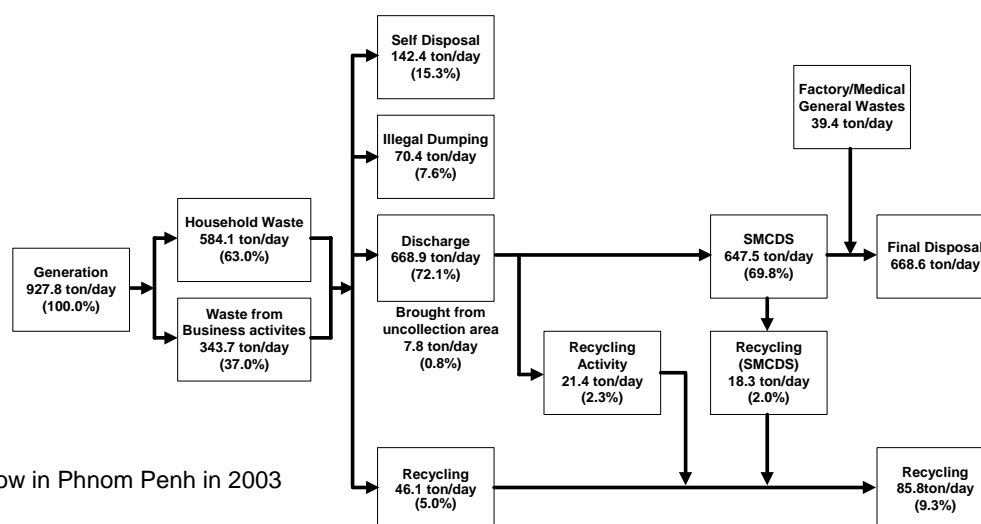


Figure: Waste Flow in Phnom Penh in 2003

2.3 Planning Framework for the M/P

(1) Future Population and Waste Generation Amount

Table 1: Future population and waste generation forecast

| Year | 2007 | 2012 | 2015 |
|-------------------------------|-------|-------|-------|
| Population ¹ | 1.37 | 1.58 | 1.70 |
| Waste generation ² | 1,159 | 1,512 | 1,739 |

1: million, 2: tons/day

(2) Public and Private Partnership

From an economical point of view, it is difficult for the private company to provide collection services to the unserved and/or insufficiently serviced areas where the low income residents generally live. However, every citizen has an equal right to receive public services. Therefore, the M/P proposed that the MPP should provide collection services to those areas that the private company cannot cover by obtaining grant assistance from a foreign country.

To establish a SWM system, the division of roles and responsibilities between the public and private sectors is proposed to be as follows:

Table 2: Area-wise roles and responsibilities

| | 4 Urban Khans | 3 Rural Khans |
|------------------------|---------------|---------------|
| Monitoring & Control | MPP/DOE | |
| Collection & Transport | Private | PPWM/Private |
| Treatment & Recycling | Private | PPWM/Private |
| Final disposal | PPWM | |
| Public area cleansing | Private | PPWM/Private |
| Service fee collection | Private | PPWM/Private |

DOE: Department of Environment MPP

2.3 Master Plan for SWM

The fundamental goal of the M/P for SWM is: *“To establish a sustainable SWM system in MPP by the target year 2015”*.

In order to achieve the goal of the M/P step by step, phased targets are set and strategies to achieve them are prepared (the details are shown in the report, which can be downloaded on the JICA Home Page <http://lvzopac.jica.go.jp/library/indexeng.html>).

3. Priority Projects

The following three projects are selected to be implemented in the 1st phase as urgent improvements.

- **Dang Kor Disposal Site Development Project**
A new disposal site will be constructed in Dang Kor district.

- **Waste Collection Expansion Project**
The waste collection service will be expanded to the unserved area by PPWM
- **SMCDS Closure Project**
The present disposal site will be closed appropriately after the new disposal site is opened.

4. Pilot Projects

JICA conducted the following pilot projects (PP) in order to strengthen PPWM’s waste management capability, verify the practicability of the M/P, execute the operational plan and verify its practicability, demonstrate improvement measures to the authorities and residents concerned with SWM, raise public awareness of SWM and promote public cooperation, and obtain basic data to plan and design the F/S study.

- Improvement of the SMC Disposal Site
- Improvement of the Waste Collection System
- Public Awareness Campaign
- Development and Promotion of the Municipal Solid Waste Compost Market
- Development of the Data Management System for SWM



Before the project



After the project

Picture: Access road improved in the SMCDS (Collection vehicles can approach the dumping site by an all-weather access road constructed in the pilot projects.)



Before the project



After the project

Picture: Waste pile was eliminated through PP of public awareness campaign (A waste pile was eliminated due to a public awareness campaign.)

5. Conclusion and Recommendations

The study concluded that if the M/P is realized, the waste flow in 2015 will be as follows:

Table 3: Waste flow in 2004 and 2015 (unit: tons/day)

| | 2004 | 2015 |
|---------------------------------|------|-------|
| Waste generation amount | 978 | 1,739 |
| Illegal dumping | 68 | 0 |
| Collection amount | 717 | 1,598 |
| Amount treated at compost plant | 5.3 | 33.3 |
| Final disposal amount | 693 | 1,461 |
| Recycling amount | 93 | 242 |

The study gives recommendations for implementation of the M/P.

- (1) To eliminate unserved and insufficiently serviced areas
- (2) To establish proper final disposal
- (3) To implement the priority projects
- (4) To acquire the land for the facilities needed to implement the M/P

(Junji Anai)

Report on the Research Conference of the Korea Solid Waste Engineering Society

On May 12-13, 2005, the Korea Solid Wastes Engineering Society held the 2005 Spring Research Conference at Andong National University in Andong City, Kyonsanbuk-do, in southeastern Korea. Professor Matsufuji, the chairman of the international relations committee of JSWME, and many from Fukuoka University, Hokkaido University, the National Institute for Environmental Sciences and other institutes took part.

Andong City is three hours away from Seoul by express bus, having a population of 180,000 people. Here, the culture of the aristocratic class called “yangban” has been well preserved, and there remain some villages where descendants still live in their traditional homes. Hahoe Village is one of them and is particularly

famous for being paid a visit by Queen Elizabeth II in 1999.

In the 8th Korea-Japan International Session, the Korea-Japan Special Symposium and a poster session were held.

The theme of the special symposium was “The Trend of Technology and Research Development in Inorganic Waste Recycling”. There were three presenters from Korea and two from Japan, Professor Ukita of Yamaguchi University and Mr. Obana of Taiheiyo Cement Corporation. Prof. Ukita presented fly ash recycling, Mr. Obana introduced the usage of waste in the cement industry, and the Korean presentations were on the recycling of fly ash, demolition wood waste, and waste concrete. The papers of the presentations were published in English, but the oral presentations were made in the native language or English, with the summaries interpreted into Korean and/or Japanese. Questions and answers were also allowed in the native language followed by interpretations into Korean or Japanese. Such an arrangement was made considering that presentations, questions and answers only in English might discourage people from participating.

In the poster session, 28 papers in total were presented, 17 from the Japanese side and 11 from the Korean side, which is more than usual. They attracted many participants, who listened to the presenters’ direct explanation and actively exchanged opinions.

Prior to the international session, we visited the wastewater treatment plant, waste final disposal site, and demolition waste recycling plant in Andong City. The demolition waste recycling plant automatically crushes, sorts, and washes debris such as stone and concrete, and its management was impressive.

Professor Matsufuji and I exchanged opinions with those from the Korea Solid Wastes Engineering Society including the president, vice president in charge of international affairs, one of its board members in charge



JSWME took part in KSWME Research Conference

of administration, and vice chairman of its international committee. We asked for their cooperation in the expert meeting for the networking of solid waste experts in Asia and the Pacific scheduled for this autumn, and they agreed.

(Akio Suzuki)

**Journal of the Japan Society of Waste
Management Experts, Vol. 16, No.3 (May 2005)**

Recent issues of the Journal of JSWME contain the following articles. The articles are written in Japanese with the abstract in English.

Paper

Development of an Advanced Municipal Solid Waste Furnace Feeding Model and its Application

Daisuke Itoh, Masaki Takaoka, Daisuke Nakatsuka, Yoshitada Kakuta, Nobuo Takeda, Takeshi Fujiwara and Kazuyuki Oshita

Current Key Elements of a Waste Management Plans in China

Shaobo Lu, Yoshitaka Nitta and Isamu Yokota

Development of Fire Retarding Substances Processing Technology by Using Molten Slag – Fundamental Research on Combustion Phenomena -

Nobuki Uda, Hiroshi Sagawa, Takeshi Matsuda, Satoshi Takiguchi and Shukuji Asakura

Later Stage Release of Heavy metals from Municipal Solid Waste Incinerator Fly Ash Stabilized with Chelating Agent

Hirofumi Sakanakura, Nobutoshi Tanaka and Toshihiko Matsuto

Effect of Pyrolysis Temperature on Amounts and Calorific Values of Gasification and Melting Process Residues as Estimated with a Pyrolysis Reaction Model

Shuji Himeno, Hirotsugu Numata, Toshiya Komatsu and Shoichi Fujita

Concerns on Solid Waste Management Facilities and Determining Factors Regarding Resident Opposition

Toshihiko Matsuto, Benno Rehardyan, Yuta Fujimoto and Nobutoshi Tanaka

**Waste Management Research
Vol. 16, No.3 (May 2005)**

Preface

The Direction of measures for Climate Protection

Naohito Asano

Condolences

In Memory of Professor Nobutoshi Tanaka

Toshihiko Matsuto

Special Issues: Current Status of R&D Technologies and Survey Research for Reclamation of Existing Landfill Sites

Circumstances surrounding Reclamation Project of Existing Landfill Sites

Yasuhiko Kobayashi

Development of a Comprehensive Technological System to Reclaim Landfills

Sotaro Higuchi

Landfill Site Reclamation Technology and its Economic Evaluation

Morihiro Osada and Hideaki Fujiyoshi

Case Examples of Reclamation and/or Life Extension Projects for Landfill Sites in Japan

Yutaka Sasai

Landfill Reclamation in North America and Europe

Yuzo Inoue and Burent Inanc

Report

Internalization of Externality in the EPR Framework – A Tax Law Perspective -

Tsunako Matsumoto

Current Members of JSWME as of May 31, 2005
(The figures in parenthesis indicate the difference from March 31, 2004)

| | | |
|---------------------|-------|-------|
| Regular Members | 3,353 | (-48) |
| Students | 279 | (4) |
| Non-Japanese Member | 90 | (5) |
| Public Institutions | 110 | (1) |
| Supporting Members | 173 | (-2) |
| Individuals of NPOs | 3 | (0) |
| Total | 4,008 | (-40) |

NEWS LETTER NO.53, July, 2005

Published by Prof. Kazuo Yamamoto, President,
The Japan Society of Waste Management Experts

Edited by Prof. Yasushi Matsufuji, Chairman,
International Relations Committee

Buzen-ya Bldg. Shiba 5-1-9, Minato-Ku,
Tokyo 108-0014, Japan

Phone: (+81) 3-3769-5099

Fax: (+81) 3-3769-1492

<http://www.jswme.gr.jp/>

e-mail. international@jswme.gr.jp

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