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JAPAN SOCIETY OF MATERIAL CYCLES AND WASTE MANAGEMENT

New Year Greeting 2009

Let me start by wishing all of you good luck and happiness in the New Year.

I would like to thank all of the members for their support in the establishment of the Japan Society of Material Cycles and Waste Management (the new name of JSWME) on 1st of December 2008 and hope the coming year will be a good one for the society.



This year marks the 20th anniversary of JSWME. In these 20 years, the society expanded its activities to contribute further to solving the problems of waste, conducting academic research and studies, technology development, design of institutional framework, cooperation with citizens and international cooperation. We have been forward in our thinking and approach to such themes as “Resources” or “Material Cycle”. The 20th anniversary serves as a turning point to re-name our society to properly represent our activities. Nevertheless, we shall continue to explore more fields of activities and invite more people to be involved.

The world’s limited mineral resources should be included in the “material cycle” otherwise we cannot expect to build a sustainable future. It is necessary to re-use man-made materials, although the amount depends on the economy at the time. Organic resources, the boons of the sun, have to be used wisely and controlled by considering the natural material cycle. Controversy between food and energy should be solved by use of bio-mass energy from the waste. We must conserve these fossil resources, refrain from excess use and minimize waste.

Although we are expanding our major activity to the field of material cycles, waste has been our starting point and we cannot achieve our mission without dealing with it. Given our limited resources for energy, we should not

be taken by the illusion that our social system can operate on zero waste.

The real world is dynamic and something unexpected can always happen. We cannot predict exactly when and where, but we know major earthquakes and floods will strike, and they will undoubtedly be accompanied by large amounts of rubble and waste. The immediate and appropriate treatment and disposal of those wastes is essential for recovery. We must consider urban design and make preparations. A good example of this is the Osaka Bay Phoenix project which incorporated waste generated by the Great Hanshin-Awaji earthquake. In this case, the development of a large-area landfill was the key to recovery for the national government.

Although there are things we must change, there are also things we should not change. The principal activity of our society is to offer academic, social and international contributions toward appropriate treatment and disposal of waste, and we will not stray from these activities.

The international activity of the society is going to be developed, firstly by collaborating with the Korea Society of Waste Management Experts to produce a quarterly publication of the Journal of Material Cycles and Waste Management (the name of the journal has already adopted the new name of the society!). Secondly, the journal was officially registered at Web of Science as an international academic journal. I hope members—especially our younger members—will actively submit their articles and papers to the journal.

Lastly, I will do my best as president of the society to work with all the members to add to the development of the Japan Society of Material Cycles and Waste Management. Thank you very much.

(Kazuo Yamamoto)

New JICA is Born

Until recently, projects of Japan’s Official Development Assistance (ODA) were administered by separate government organizations, the Ministry of Foreign

Development of the Recycling Industry in the Philippines

Affairs, JICA (Japan International Cooperation Agency) and JBIC (Japan Bank for International Cooperation).

However, beginning Oct. 1 2008, Overseas Economic Cooperation Operations, a part of JBIC providing Japanese ODA loans (i.e. yen loans) and the grant aid dispersed by the Foreign Ministry has been merged with the cooperation agency into one organization, 'New JICA.'

This agency, with some 10.3 billion US dollars of available financial resources, is reputedly the world's largest bilateral development organization working in around 150 countries, its core professional staff reinforced at any one time by several thousand experts and consultants and both young and senior volunteers working on hundreds of projects.

Uniquely, and for the first time, one Japanese agency is now able to provide technical assistance, Japanese ODA loans and grant aid 'all under one roof'. JICA President Mrs. Sadako Ogata, who heads the expanded organization said, "This decision marks a major historical turning point, not only for JICA, but also for Japan's ODA."

Going forward, Mrs. Ogata said, New JICA will work on the principle of the three SSSs -speed up, scale up and spread out: 1. speeding up the overall aid process from project identification to implementation; 2. scaling up pilot projects into highly effective programs; and 3. spreading out our current activities meaning closer cooperation with agencies such as the World Bank and ensuring that projects produce effective results such as job creation.

In the Mission Statement of New JICA, four missions are raised: addressing the global agenda, reducing poverty through equitable growth, improving governance and achieving human security. Waste management is one of the areas covered by the mission.

Concerning waste management operations, the Global Environment Department is in charge of general sectoral issues, while regional departments are in charge of the overall coordination of projects.

Source: JICA, "News from the Field." October 1, 2008. <http://www.jica.go.jp/english/news/field/2008/081001.html> (accessed December 17, 2008)

(Taisuke Watanabe)

Introduction

In fiscal 2006 and 2007, we conducted a JICA Study in the Philippines on recycling industry development. The objectives of the study were to (1) assist the Government of the Philippines to formulate a "master plan and action plan for development of [the] recycling industry" in accordance with regulation, i.e. the Ecological Solid Waste Management Act (RA 9003), (2) conduct case studies in Metro Manila and Metro Cebu to examine applicability of the master plan and action plan, and (3) provide capacity development of the counterpart (Board of Investments, Department of Trade and Industry) through implementation of the study.

State of Recycling in the Philippines

A household survey conducted in the study revealed that more than one-third of recyclable materials in the Philippines are put in waste bins for municipal waste collection. Recyclable materials are collected by door-to-door collectors, municipal collection workers, and waste pickers at landfills and sold to junkshops. Furthermore, waste composition surveys clearly show great potential to recover resources from solid wastes, but its use is still limited in domestic industries due to improper segregation and unstable supply of recyclables, limited technological and financial capacity, and fragmented information networks for optimizing the material flow.

Master Plan

The study identified critical issues on development of the recycling industry in the Philippines and formulated a master plan with input from relevant industries. Major issues and corresponding policies are summarized in the table below.

Issue	Policy
Proper distribution of information on domestic recyclable materials and recycling industries among all the relevant players and stakeholders	<ul style="list-style-type: none"> - Formulation and enforcement of recycling guidelines for specific recycling players - Establishment of a nation-wide recycling information system
Establishment of locally based recycling systems that rely on proper segregation at the source and strong, sustainable links from source to end receiver	<ul style="list-style-type: none"> - Development of guidelines to make provincial/local recycling plans - Policy support to make and implement local recycling plans

Issue	Policy
Introduction of financial and non-financial policy incentives and other activities that promote the development of recycling industries	- Development of non-economic incentives in relation to recycling (green purchasing, environmental labelling, guidelines for selecting recycled products)

Case Studies

Case studies on three types of material collection (recyclables, cell phones, and plastics) were carried out in the study. A summary of the objective, activities, and outcome of each study is given below.

Recyclables

Objective	To analyse the impact and result of proper segregation practices among the target parties through awareness raising activities
Major Stakeholders	- Generators and collectors of waste in two communities - Two office buildings - One school - One shopping mall food court
Major Activities	- Information and education campaign (posters, handbook, training) - Installation of recyclable collection bins for waste segregation - Development of a recyclables collection plan for office buildings
Outcome	- Higher volume of collection and increased value of collected recyclables - Integration of recyclables collection into school activities - Improvement of classroom environment - New recycling system for drinking straws at the food court - Improvement of safety conditions for waste collectors

Cell Phones

Objective	To (1) increase public awareness on proper disposal of cell phone waste and (2) assess the feasibility of developing cell phone waste collection in shops or at drop-off points
Major Stakeholders	- Cell phones users - Three shopping malls which have cell phone shops - Cell phone manufactures and network service providers
Major Activities	- Establishment of a technical working group, including cellular phone manufacturers, network service providers, shopping malls, and an e-waste collector/recycler - Installation of collection bins for used cell phones and accessories at the three shopping malls
Outcome	- Feasibility of cell phone waste collection through drop-off points in commercial areas was demonstrated - Development of information and

	communication materials and a blueprint for collection bin locations
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Plastics

Objective	To test the viability of recycling guidelines ¹ and prepare information and education materials to promote awareness on plastic recycling.
Major Stakeholders	- Waste generators and collectors in six communities and two schools - Local governments (Quezon City, Caloocan City) - Philippine Plastic Industry Association - Plastic recycler
Major Activities	- Information and education campaign (flyer distribution, orientation meeting with individual collectors of recyclables, tour of plastic recycling plants, radio spots) - Introduction of reward system (25 trash bags made from recycled plastic material for every 25 kg of discarded plastics collected) - Collection of used plastic bags and polystyrene
Outcome	About 1.5 tons of plastics were diverted from waste over three months



Waste Segregation Bin at a School



A Sample of Collected Plastics

Project Update

The private sector has continued the collection of discarded cell phones even after the case study was completed. Plastic recycling has also been continued through cooperation with the stakeholders. In addition, Caloocan City is expanding its segregation of certain recyclables as a citywide project covering 188 barangays². The city is targeting 50 percent of the barangays for segregated collection that already includes plastic bags starting July 1, 2008 as part of its waste diversion efforts.

For more information, please access the online JICA

¹ The guidelines were prepared during the study for proper segregation and collection of plastics, paper, glass bottles, metals and electronic waste.

² A barangay is the smallest administrative (community) unit of the Philippines.

Library and search their catalog for “the Study on Recycling Industry Development in the Philippines” at <http://lvzopac.jica.go.jp/library/indexeng.html>.

(Kaoru Oka)

Report on the International Symposium

The international symposium was held on the first day of the 19th JSWME conference on November 19, 2008, from 3 to 5 PM. The symposium was attended by approximately 90 audience members, with Mr. Katsuya Kawamoto (National Institute for Environmental Studies) acting as the symposium coordinator. The theme “Treatment of Waste Plastics, Paper & Technology of RPF (RDF)” was selected, and four presentations were given by Japanese and Korean members followed by a lively discussion session.

Mr. Byung-Hoon Kim (Ministry of Environment, Korea) discussed the status of solid waste management in his presentation on the “Status and Outlook of Solid Recovered Fuel in Korea”.

Mr. Tamotsu Ide (Osaka Pref. Industrial Waste Association, IDEX Company, Ltd., Japan) gave a presentation titled “Context of RPF business considered from the disposer’s viewpoint in Japan”, which covered waste separation, a comparison of RPF and RDF, and the future of PPF.

Mr. Kyoon-Duk Yoon (Korea Testing Laboratory) gave a presentation titled “Technical Development for Manufacturing Solid Fuel and Increasing Energy Recovery from Combustible Solid Waste in Korea” in which he discussed the definition of RDF, the use of waste-derived energy in Korea and related R&D topics.

Finally, Mr. Koya Takeda (Kawasaki Plant Systems, Ltd., Japan) made a presentation titled “Recent Operational Performance of the Omuta-Arao RDF Production Plant and the Omuta Recycle Power Plant” on an RDF power generation project in which he spoke about Omuta Eco-town, RDF production and a recycling power generation plant.

Also, a poster session was held that featured 43 presentations—34 from Korea and 9 from Japan. The winners of the best poster awards were Mr. Byung-Kyu Woo (Changwon National University), Hun-Young Lee (The University of Seoul), and Komslip Wangyao (National Institute for Environmental Studies).

On the second day of the conference, participants from

Korea visited a number of facilities in Kyoto: a fuel production plant that uses waste cooking oil, a gasification and methanol synthesis test facility, and a biogas technology research plant.

(Akio Suzuki)

We can create the future of JSWME

As many of you know, JSWME has a committee of young researchers, called *Wakate-no-kai*. The only qualification to belong to this group, however, is that you feel young. For those who are unfamiliar with the group’s recent activities, they include an annual meeting, a publication by the group’s members and a summer retreat.

The summer retreat is seen by many of our young researchers as the most important activity of the year. This year, members gathered at the Kyoto seminar house on October 10th and 11th to open discussion—and maybe a few beers—in an open, relaxed atmosphere. Discussion was focused on four main themes: increasing membership, research activities, international exchange and securing funds. It was largely agreed that we should offer certain advantages to those who join the young researcher group, such as a discount on the annual fee or offering financial support for seminars and conferences hosted by the group of young researchers. Furthermore, we hope to increase a strong core of proactive members.

One research idea discussed was the publication of a textbook for children who are interested in the environment and waste. While there are plenty of textbooks aimed at professionals and other adults, few experts have published children’s books on the subject. *Wakate-no-kai* is interested in taking up this project by preparing an illustrated book written from a child’s point of view. Another popular idea was the translation of a well-known textbook in English about waste management into Japanese.

We also hope to expand our horizons through more opportunities to develop ties with foreign researchers. The annual JSWME meeting in 2008 was the first step in international exchange between young researchers of Korea and Japan, and we hope this event will continue to grow in future years.

Over the next year, JSWME will become a society of independent administrative entities, and a new *wakate-no-kai* executive committee is now going to initiate new activity. Young researchers will indeed be

central to creating the future of waste management. “Change!! Yes We Can!!”

(Osamu Hirata, , Tomonori Ishigaki, .)

The 5th Expert Meeting on SWM in Asia and Pacific Islands (SWAPI) held in Incheon, Korea

The 5th Expert Meeting on Solid Waste Management in Asia and Pacific Islands was held in conjunction with the 25th Anniversary conference of KSWM (Korea Society of Waste Management) at the new Songdo Convension Center in Incheon on November 12 and 13, 2008. A diverse group of experts from 8 countries, including 11 participants from Japan, gathered at the international symposium along with approximately 100 guests.

The expert meeting began on the morning of the first day with opening remarks by Prof. Masaru Tanaka, Chairman of the International Advisory Board of SWAPI (Society of Solid Waste Management Experts in Asia & Pacific Islands) and Prof. Soo-Koo Lee, President of KSWM.

Participants discussed the activities of SWAPI on the topics of reliable data, hazardous waste and waste biomass. As a result of discussion, participants also resolved to focus research activities on four other topics: waste to energy, greenhouse gasses & CDM, landfill, and appropriate technology.

Furthermore, a discussion on publication activities was held in which Prof. Masaru Tanaka proposed a solid waste management publication. This was followed by an explanation by Prof. Shinichi Sakai, Vice-President of JSWME, on the approach to write a special country-based issue of the JSWME journal in English with a standardized table of contents.

In the afternoon of 12th, there was a technical tour that included a trip to Sudokwon Landfill Site Management Corp., National Institute of Environmental Research and Songdo Recycling and Waste Disposal Center of Incheon Metropolitan City.

The international symposium on the 13th featured an open ceremony, plenary keynote speeches and 10 presentations divided into three sessions:

- 3R and Waste Management Policy
- Greenhouse Gas Reduction and Waste to Energy
- Technical Research and Development of Waste Treatment and Recycling.

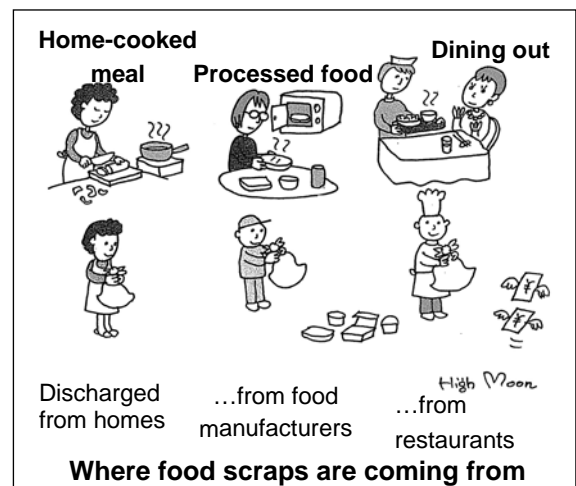
This was followed by seven poster presentations, including five from Japan.

After the conclusion of the poster session, participants moved to the banquet room to attend a commemorative reception for the 25th anniversary of KSWM. There, Prof. Yasushi Matsufuji, Vice-President of JSWME, delivered a congratulatory address on behalf of the JSWME and presented Prof. Soo-Koo Lee, President of KSWM with a commemorative item.

The 6th SWAPI meeting will be held in September 2009 in Nagoya Japan at the annual JSMCWM conference.



(Akio Suzuki and Haruo Matsumura)



Author's comments: Food scraps coming from people's homes are on the decline.

Preface

The greatest waste of human being is green housegas

Ryoichi Yamamoto

Special Plastic Shopping Bag Waste Reduction

Plastic Shopping Bag Waste from the Quantity Quality Viewpoints: Present Status and Vision

Misuzu Asari, Naomi Sato, Shin-ichi Sakai, Kazuo Nalamura and Takashi Gunjima

2006 Amendment to the Containers and Packagin Recycling Act and Actions to Prevent the Use of Plastic Bags

Yoshihide Hirao

Reduction of Plastic Bags Leading the Way toward Eco-oriented Lifestyles

Ryoishi Fujitani

A Project to Reduce Plastic Shopping Bags: A Case Study by Consumer Co-operative Kobe

Takeshi Miyaji

Citizen-oriented Measures for the Reduction of Plastic Shopping Bags

Yachiyo Nakai

Review

Analytical Methods for the Monitoring of Asbestos Waste Treatments

Takashi Yamamoto and Akiko Kida

Paper

Mechanism of Formation and Decomposition of Insoluble Chlorine Compounds in Municipal Solid Waste Bottom Ash

Tomonori Takemoto, Jiro Etoh, Tomohiro Naruoka and Takayuki Shimaoka

Converting Automobile Shredder Residue into Densified Refure-driven Fuel

Fumio Osada and Kazuyo Nagai

Basic Characteristic of Composite Material Made from Post-consumer PET Bottles and Scallop Shells

Takashi Hirose, Tooru Kikuchi, Yukihiro Yokosawa, Hidemitsu Uchisawa, Masanori Kushibiki and Tetsushi Naraoka

Study on using Capillary Barriers to Control the

Amount of Water that Permeates Landfills

Atsushi Sakamoto, Masato Suzuki, Makoto Nishigaki, Mitsuru Komatsu, Jun Imai, Yasushi Satoh and Suehiko Yokota

Comparison of Domestic and Bilateral Recycling of Post-consumer PET Bottles

Jun Nakatani, Minoru Fujii, Aya Yoshida, Atsushi Terazono, Yuichi Moriguchi and Masahiko Hirao

Preparation Microporous Carbons from Falcata and their Application in Removing Trichloroethylene

Masaharu Yoshinaka, Tomoko Fukuhara, Takahiro Hasegawa, Satoshi Iwasaki and Ikuo Abe

Note

Dynamic Behavior of Quinone Biomarker in Leachate from a Final Landfill Site for Municipal Solid Waste

Masafumi Fujita, Kentaro Imai, Koji Tsuji and Yasushi Sakamoto

Current Members of JSMCWM as of November 30, 2008
(The figures in parenthesis indicate the difference from October, 2008)

Regular Members	2,939	(14)
Students	280	(8)
Non-Japanese Member	82	(5)
Public Institutions	99	(-1)
Supporting Members	136	(1)
Individuals of NPOs	7	(2)
Total	3,543	(26)

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