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NEWSLETTER

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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

–New Year Greetings –
JSWME President, Prof. Kazuo Yamamoto

I wish a happy new year to all the readers of the JSWME Newsletter. I expect JSWME to show new progress this year.

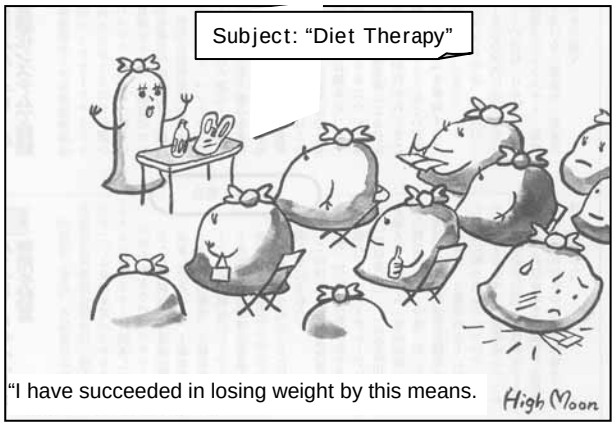
In the new fiscal year starting in April 2006, the present six committees will be consolidated into the following committees:

- Planning and Operation Committee
- Acadmic Research Committee
- International Relations Committee
- Editorial Committee

The International Relations Committee will turn out to be a more strengthened and functionalized committee considering the significance of the international activities of JSWME such as the networking of solid waste management experts in Asia and the Pacific.

The "waste issue" will also be at a turning point. For example, the conception and definition of industiral solid waste, introduced during the time of industrial pollution a few decades ago, needs a radical review as the Basic Law of Pollution Control was totally replaced by the Basic Environment Law now that it is the era for the formation of a material-cycle society.

Finally, I express my commitment to the development of JSWME and its members during the rest of my term as President.



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

Holding of Expert Meeting on SWM in Asia and Pacific Islands
-Adoption of *MOTTAINAI* Declaration -

The Expert Meeting on Solid Waste Management in Asia and Pacific Islands, sponsored by JSWME and four others, was held from October 28 to 29 at the Institute for International Cooperation, JICA. The experts, who participated from ten countries including China, Korea, Indonesia, and the Philippines, discussed the present situation and issues of SWM and the necessity of collaborative activities to promote the 3Rs. As a result of the meeting, the participants agreed on "The Declaration towards Experts Networking in the Region -*MOTTAINAI* Declaration-", in which a SWM experts network would be established for promotion of the 3Rs and the appropriate disposal of solid waste in respect of the *MOTTAINAI* spirit. (*MOTTAINAI* means "it is a shame to waste something without using it to its full potential".)

(Hideo Azuma)

-The *MOTTAINAI* Declaration-
"Towards Expert Networking in Asia and Pacific Islands"

1. The Asia and Pacific Islands region faces utmost challenges with the management of increasing solid waste generation and therefore the urgent need to upgrade current solid waste management and services. Transboundary trade of recyclable resources is expanding rapidly. A proper response to these issues is needed for a sustainable society in the region. Now solid waste management entails promotion of the 3Rs (Reduce, Reuse, Recycle) as well as proper disposal. The *Mottainai* spirit should be the key driving force for implementing the 3Rs.

We, the participants of "the Expert Meeting on Solid Waste Management in Asia and Pacific Islands," have exchanged views and discussed the need and importance of sharing experiences on solid waste management in the region.

2. We have unanimously reached the following

understanding that a) solid waste management should be properly addressed not only at the municipal/national level, but also at the regional level, b) sharing experiences is essential to improve solid waste management in a sustainable and scientific manner, and c) the need for networking solid waste management experts has been rapidly growing in the region.

3. With an understanding of its strategic importance, we unanimously concluded that we should work to set up a network of experts on solid waste management in Asia and Pacific Islands which would facilitate an exchange of views and experiences among solid waste management experts.

4. The following activities and/or agenda of a network of experts on solid waste management in Asia and Pacific Islands would be considered:

- Exchange of information on issues of solid waste management and good practices
- Compiling of an information source on related experts and organizations
- Exchange of information on definitions, statistics and ways of measurement
- Setting up of a regional solid waste database/compilation of solid waste data
- Promotion of research and development
- Creating opportunities for the presentation of research results and information exchange
- Promotion of capacity building
- Promotion of technology transfer

5. We hereby welcome the contribution and support from the Japan Society of Waste Management Experts (JSWME) to step forward in establishing a network of experts on solid waste management in Asia and Pacific Islands and follow up this expert meeting.

Participants
The Expert Meeting on Solid Waste Management in Asia and Pacific Islands
Tokyo, Japan

Participants of the Expert Meeting

Japan's ODA on SWM :
The Study on SWM for the Kathmandu Valley, Nepal

Solid waste management (SWM) in the Kathmandu Valley faces great challenges not only in relation to the management system but also in gaining public awareness and participation of the people. In order to improve the situation, His Majesty's Government of Nepal and the Government of Japan have launched a joint study entitled "The Study on Solid Waste Management for the Kathmandu Valley (hereinafter referred to as "the Study")" with the technical assistance of the Japan International Cooperation Agency (JICA). The Study commenced in January 2004 and ran for a total of 20 months until August 2005. The Study covered the jurisdiction of the five municipalities in the Kathmandu Valley. The target solid waste of the Study was mainly municipal solid waste. The objectives of the Study were:

1. To formulate Action Plans (A/Ps) on SWM for the five municipalities in the Kathmandu Valley, namely Kathmandu Metropolitan City (KMC), Lalitpur Sub-Metropolitan City (LSMC), Bhaktapur Municipality (BKM), Madhyapur Thimi Municipality (MTM), and Kirtipur Municipality (KRM), and
2. To pursue technology transfer regarding SWM for the Nepalese counterpart (C/P) personnel of the five municipalities and the Solid Waste Management and Resource Mobilization Center (SWMRMC).

The Study adopted the acronym "CKV" which stands for *"Clean Kathmandu Valley"* and also put up a slogan, *"Sapha Sahar Hamro Rahar"* in Nepalese, which means *"A Clean City is Our Desire"*.

In the course of the Study, the following five broadly divided pilot projects were designed and implemented:

a. Improvement of Collection and Transportation
b. Promotion of Waste Minimization
c. Improvement of Final Disposal Planning and Operation
d. Promotion of Public Awareness and Behavior Change Communication/Education
e. Development of Operation and Management Capacities

An Umbrella Concept on SWM in the Kathmandu Valley was established to show a basic direction for the five municipalities and SWMRMC. An overall facility plan, in which transfer stations, waste processing facilities and landfill sites are included, was developed under the Umbrella Concept. Facilities were proposed to be developed in two zones, namely Zone A of KMC, LSMC and KRM, and Zone B of BKM and MTM.

Based on the Umbrella Concept and lessons learned from the implementation of the pilot projects, the A/Ps with the target year of 2015, consisting of a vision, approaches, strategies and necessary activities, were developed by the five municipalities and SWMRMC. The solid waste management ratios* were adopted as objectively verifiable indicators and necessary activities were proposed with the respective implementation plans in order to achieve the targets. From the respective A/Ps, the activities were also broken down into Annual Work Plans with responsible staff assignment and necessary budgets.

Since the Study is a 'Capacity Development Type Study', the Study opted to prioritize capacity development activities with human resource development programs developed based on a Training Needs Analysis. The target group of capacity development was mainly staff of the five municipalities and SWMRMC. Such activities were implemented through 1) the formulation of A/Ps on SWM, 2) the implementation of a series of pilot projects, and 3) various public relations/participation activities.

Through the Study, a high valuation can be set on the fact that all those concerned could stand up and work together under the Umbrella Concept. For technical aspects, the most developed part of the Nepalese counterparts was the theoretical and practical experience for sanitary landfills together with the semi-aerobic system (Fukuoka Method), effective transferring, various waste minimization activities, etc. By and large, capacity development on SWM of the relevant staff of the five municipalities and SWMRMC has emerged through all of the activities under the Study, and is recognized as still progressing.

* The management ratio is the ratio of "the quantity of waste" that is managed by waste generators or municipalities in appropriate ways such as source reduction, recycling, appropriate collection, treatment and disposal after it has been generated from the sources to "the total quantity of generated waste".

(Toshiyuki UJIIE)

Photo: Sisdol landfill improved as a semi-aerobic system under the pilot project of the Study

Brief Note on SWM in Japan

- Evaluation Project of the Performance of Good Small Incinerators -

1. Background and Objectives of the Project

Incineration has been considered to be an important treatment method for waste volume reduction and detoxification in Japan where it is difficult to secure land for final disposal, and small incinerators were widely used at such places as business establishments and schools. The dioxin emissions from incinerators, however, became a public concern a decade ago, resulting in a social consensus to restrain any sort of incineration. Small incinerators were particularly criticized and the government ordered the control of their use at schools and hospitals. The market of small incinerators seriously shrank.

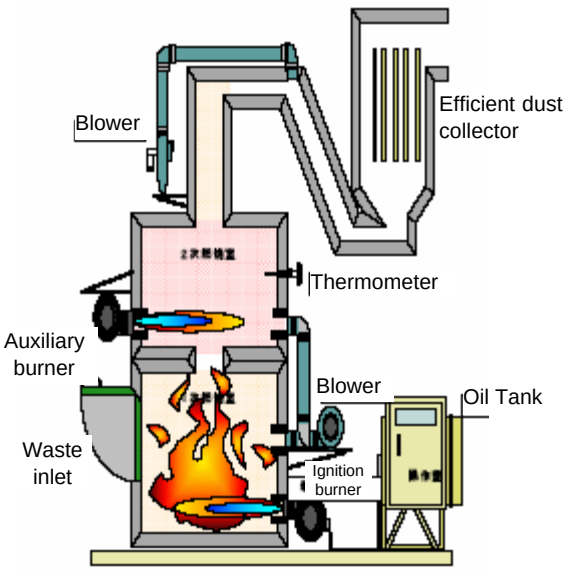
In fact, there were not many small incinerators with adequate anti-dioxin equipment. One of the reasons for this was that no appropriate standards for function evaluation were available for small incinerators. Without clear technical requirements of the incinerators' performance, the manufacturers were not motivated toward technical development; and without criteria to objectively determine the good performance of small incinerators, the users hesitated to purchase or use them.

Subsequently, the "Law Concerning Special Measures against Dioxins" was issued and the "Structural Standards under the Waste Management and Public Cleansing Law were strengthened. In response, small incinerators were improved and anti-dioxin technology was developed to sufficiently reduce the level of dioxin emissions from them. Nevertheless, both good small incinerators and bad ones still existed and there was a strong need to work out an evaluation standard to easily distinguish them.

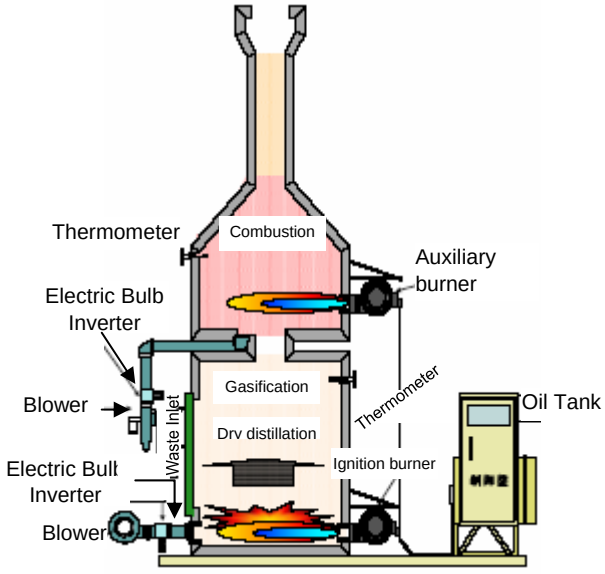
In light of this, the Japan Society of Industrial Machinery Manufacturers set up a "committee for the function evaluation of good small incinerators" in FY2002, established a performance evaluation standard, and started to objectively evaluate the good performance of small incinerators. The outline of this project is as below. As of the end of FY2004, 11 models (all of them are gasification type) were evaluated and proclaimed to the public as "good small incinerators".

2. Evaluation Process

The application of the incinerator manufacturers is evaluated from such aspects as incineration theory, design principles, structure, operation and maintenance, and economics taking account of the waste types and



<Direct incineration/sequential feeding type>



<Gasification/butch system>

combustion method of the incinerators and a verification experiment is also carried out. In the evaluation, additional standards voluntarily developed based on the legal standards are applied.

1) Classification of Small Incinerators

By types of waste to be incinerated: *general waste, mixture of general waste and plastic waste, or specific waste such as plastics, oil, carcasses and paper diapers.*

By combustion method: *direct incineration or gasification; sequential feeding system or batch system*

2) Emission Standards (based on the Air Pollution Control Law and the Law Concerning Special Measures against Dioxins)

Dust:	< 0.15 g/m^{3}N
Hydrogen Chlorides:	< 700 mg/m^{3}N
Dioxin in effluent:	< 5 ng-TEQ/m^{3}N
Dioxin in dust and bottom ash:	< 3 ng-TEQ/g

3) Structure, operation and maintenance standards (based on the Waste Management Law)

- The inside of the incineration facility should not have contact with ambient air except at the air inlet or at the end of the stack.

- The burning temperature should be kept not lower than 800°C at a constant waste feeding rate.

- Equipment such as a thermometer of combustion gas and an auxiliary burner should be installed.

4) Stable Combustion (Automatic Incineration Control)

Small incinerators are required to retain stable combustion without resident specialists who have expertise in incineration. Therefore, the structure, operation and maintenance, and combustion control method of the incinerators are assessed in detail. Meanwhile, automatic combustion control technology for small incinerators has been developed, and small incinerators have started to be equipped with a sophisticated automatic control whereby the air supply and the load of the auxiliary burners are adjusted to the incineration temperature and furnace pressure.

Further inquiries about the small incinerators evaluation system are welcomed at the Japan Society of Industrial Machinery Manufacturers.
(http://www.jsim.or.jp/; E-mail: s-sakai@jsim.or.jp).

Shingo Sakai

The 16th Annual Conference of JSWME, Sendai, and the International Session

The 16th annual conference of JSWME was held from October 31 to November 2, at the Sendai International Center in Sendai City, Miyagi Prefecture. Located in the northeastern part of the main island of Japan, Sendai City is accessible from Tokyo by the bullet train within two hours. On the first day of the conference, the international session was held by the JSWME international relations committee, including the

Japan-Korea symposium and the poster presentation.

a. Japan-Korea Symposium

The theme of the Japan-Korea symposium was "*Toward Sustainable Society by Promoting 3R Initiatives*", with panelists such as Mr. Hiroaki Takiguchi of the Ministry of Environment of Japan, Prof. Masaru Tanaka of Okayama University, Mr. Il-Ho Park of the Ministry of Environment of Korea and Dr. Sung-Keun Bae of Chanwong University. The coordinator of the symposium was Ms. Ryoko Sugiyama of the JSWME international relations committee.

Mr. Takiguchi introduced the Japan's strategy for the establishment of a material-cycle society, with introducing waste management and recycling promotion policies, legal frameworks, cooperative actions with other countries, and measures to promote the 3R Initiative.

Dr. Tanaka presented the past and future trend of natural resources consumption and pointed out the necessity of the sustainable society and actions required.

Mr. Il-Ho Park introduced the Korea's strategy for the recycling-based society; the directions of the 3R policy and its scenario in particular.

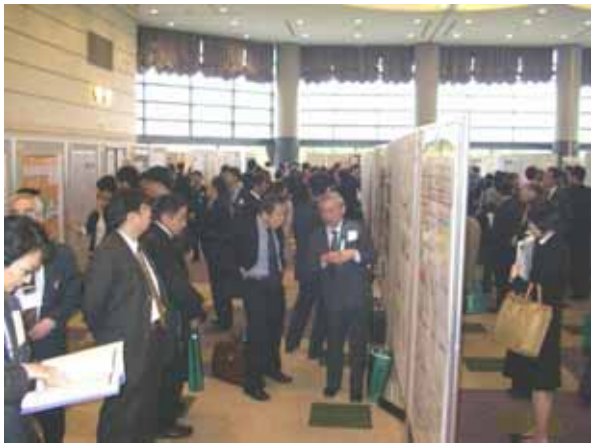
Dr. Bae presented the concept of the Korean Eco Industrial Park, waste recycling in the park, its economics, advantages and disadvantages, and issues to be overcome.

Further, Dr. Tanaka, who chaired the Expert Meeting on Solid Waste Management in Asia and Pacific Islands on 28-29 October, just before the symposium, introduced the *Mottainai* Declaration adopted at the Meeting, to which Dr. Dong from Vietnam, one of the participants of the Meeting, added some comments. More than 100 attendants at the present Japan-Korea symposium lively exchanged their opinions.

Korea-Japan Symposium

b. English Poster Presentation

The English poster presentation was held on the second floor of the Sendai International Center around the lunch time. The Japanese posters and the English ones were categorized by the topics and displayed regardless the language. There were 34 English posters, of which 18 from Korea and 16 from Japan including 13 posters presented by foreign students studying in Japan: this poster presentation serves for a good opportunity for them to present their research.



Poster Presentation

The themes of papers were: biological treatment including the methane fermentation of kitchen waste (2 posters), incineration (7 posters), recycling (4 posters), landfill (4 posters), melted slag (2 posters), waste management and planning (3 posters) and others (8 posters). The posters were reviewed by the participants and "Surface oxidation of adsorbent prepared from MSWI (municipal solid waste incinerator) fly ash" by Choon-Hee Shim *et al.*, of Kangwon National University and two others won the award.

(Akio Suzuki, Takashi Miyagawa and Hideo Azuma)

Journal of the Japan Society of Waste Management Experts, Vol. 16, No.5 (September 2005)

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

Paper

Factors of CO2 Emissions from the Utilization of Municipal Solid Waste as Alternative Fuel and Raw Materials in Cement Production

Susumu Sano, Akira Kato, Tomoyuki Iino, Nobuo Kasiwazaki, Toshihiko Matsuto and Nobutoshi Tanaka

Thermal Degradation of Mixtures of Acrylonitrile-butadiene-styrene Terpolymer and Polyamide in Soybean Oil
Kunihiko Uemoto, Atsushi Sugita, Shigeru Tasaka and Satoru Aikawa

Comparison of Batch and Continuous Hydrogen Fermentation of a Mixed Substrate by Microflora
Takashi Kawano, Katsushi Wada, Yu-You Li and Tatsuya Noike

A Study on the Range of Ash Composition Suitable for High Quality Slag in Terms of Slag Strength and Leaching Characteristic of Pb and the Mechanism of Pb Leaching from Slag
Shuji Himeno, Makiko Watanabe, Koji Kushida, Toshiya Komatsu and Shoichi Fujita

Two-phase Methane Fermentation Characteristics of Garbage Using an Aerobic Solubilization Process –Evaluation of the Aerobic Solubilization Process–
Masaru Sakamoto, Masaharu Suzuki, Yu-You Li and Tatsuya Noike

Value Measurement of Municipal Solid Waste in a Hopper Using the Stereo Image Processing Technique
Daisuke Itoh, Masaki Takaoka, Daisuke Nakatsuka, Yoshitada Kakuta, Nobuo Takeda, Takeshi Fujiwara and Kazuki Oshita

New Fuel Produced from Waste Polystyrene and Applied to a HCCI System
Joon Dugk Gong and Yoshinobu Yoshihara

Hydrothermal Solidification of Municipal Solid Waste Incinerator Bottom Ash and its Control Mechanism of Leaching of Pb
Toshinori Usui and Makoto Sato

Evaluation of Organic Recycling Systems –The Rainbow Plan Case–
Takasei Kusube, Tomoyuki Hosono, Kazuhiro Ueta and Masaaki Naito

Accelerating Rate of Vaporization of Heavy Metals due to Co-combustion of Waste Plastics in Ash Melting Furnace
Isamu Kawakami, Yoshitaka Tamai and Shin-ichi Kurozu

Waste Management Research
Vol. 16, No.5 (September 2005)

Preface

Garbage Separation is the Key to Achieving our Environmental Capital City
Ryuichi Eguchi

Special Issues: Current Situation of Plastic Waste Recycling

Plastic Waste Issues from the Viewpoint of a Sound Material-cycle Society
Yuichi Moriguchi

Recycling of Plastic Containers and Packaging in the City of Sapporo
Seiichi Takahashi and Ichiro Ota

Present State of Plastic Recycling in Japan
Yoshinori Nishiya and Motoyoshi Toshima

NEDO technology Strategy Map –Introduction of Waste Plastics from the 3R-Perspective-
Koji Nishida

Current Members of JSWME as of December 28, 2005
(The figures in parenthesis indicate the difference from September 30, 2005)

Regular Members	3,419	(10)
Students	327	(15)
Non-Japanese Member	102	(1)
Public Institutions	111	(0)
Supporting Members	176	(0)
Individuals of NPOs	4	(0)
Total	4,139	(26)

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