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# NEWSLETTER

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July 2009

**THE JAPAN SOCIETY OF MATERIAL CYCLE AND WASTE MANAGEMENT**

## Dear Waste Management Experts

This Newsletter is a window to reflect and share international information on waste management for both members of the JSMCWM and non-members.

We welcome your posting of information for this Newsletter. Postings could be about a specific technology, introduction of a legal system, management issues, response to articles in the Newsletter, or an announcement of an international event. As waste and related business moves beyond the border, information worth sharing increases.

Now the International Committee mainly works on the collection of the news and articles to plan the Newsletter. Also we appreciate interactive communication. Your information may stimulate subscribers and encourage other responses.

Please feel free to send your posting to [international@jswme.gr.jp](mailto:international@jswme.gr.jp) and the International Committee will review it.

Lastly, I would like to thank all of our subscribers for your support and interest in the Newsletter.

(Taisuke Watanabe)

## UNEP Global Mercury Partnership Contributes to Mercury Waste Management

Rising concern with mercury-related health risks prompted the United Nations Environment Programme (UNEP) to begin a negotiation process for a legally binding instrument for mercury governance as well as to initiate a mercury partnership among governments and stakeholders (a voluntary program of industry, government and academia to advance technical collaboration in areas where the environmental release of

mercury is present due to coal burning and other activities). Work is presently being done in six areas, including waste management.

From Japan, Professor Masaru Tanaka of Tottori University of Environmental Studies is serving as a leader of mercury waste management, mainly through information exchange between countries and stakeholders carrying out projects with the aim to minimize, and where possible eliminate, the unintentional release of mercury into the air, water and soil, in accordance with the lifecycle management approach.

Japan's contributions in this area have been technologies to control mercury discharge from incinerators, separated collection of discarded, mercury-containing products, and particularly, the development of guidance on the best available techniques and best environmental practices that can be applied in countries that depend on open dumping (i.e. landfill disposal without the use of a cover soil) which is accompanied by the controlled burning of wastes. The aim is to prepare the guidance this fiscal year with the objective of providing insight to an Intergovernmental Negotiation Committee which will meet next year to work out the treaty.

To reduce the release of mercury to the environment requires a lifecycle approach that puts emphasis on the recovery and management of mercury from the production stage to discharge, such as when waste is incinerated during intermediary and final disposal. The Global Mercury Partnership is working toward this through collaboration and exchange of information, such as by holding joint assemblies of sector-specific partnerships, where efforts can be made to resolve lifecycle issues both in the upstream (production) and downstream (disposal) sectors.

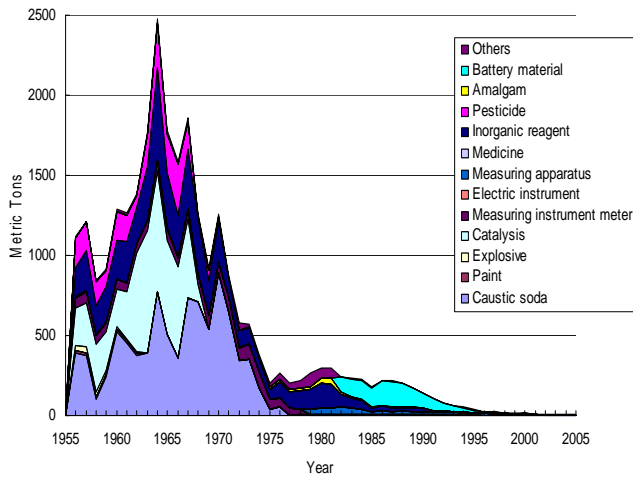


Figure: The shift in Japan of mercury demand according to application  
 Sources: Statistical Yearbook on Resources, and Statistical Report on Demand of Nonferrous Metals (Research and Statistics Department, Minister's Secretariat, International Trade and Industry)

According to the UNEP, the worldwide annual demand (2005) for mercury is between 2,670 and 4,160 metric tons, of which between 970 and 1,810 tons is contained in products such as dry-cell batteries, lamps, amalgam dental treatments, measurement and control systems, and electric/electronic devices, as well as in traditional crafts, cosmetics, and medical applications. In the case of Japan, the year 1964 saw nearly 2,500 tons of mercury used in products and various manufacturing processes, but the voluntary switch to mercury-free processes and reduced-use products due to the experience of Minamata mercury poisoning, through cost-cutting measures and other advances, mercury use had declined to approximately 10 tons by 2005. In terms of waste management, Japan has implemented a recovery system for items like fluorescent bulbs and batteries, and also recovers mercury from mineral slag.

It is critical that Japan contribute its know-how in this area toward partnership activities and in negotiating the upcoming international treaty on mercury.

(Keiko Segawa)

## Coal Ash Countermeasures in Asia

### 1. Introduction

The amount of coal ash produced in East Asian

countries, that Japan also wants to strengthen ties with, is increasing. Productions of the countries shown in Table 1 alone account for one third of the world total, and can no longer be ignored when considering global resource cycles. Not only countries such as Japan and the Philippines that have limited coal production, but even China, the worlds largest, is now importing coal, and in each place coal ash of various properties is produced.

### 2. What is coal ash?

It is a residue produced when coal is burnt, and its type varies according to the way it is burnt: stoker, pulverized combustion, or fluidized bed method; and also by where it is collected: fly, cinder, or bottom ash. In all countries though, fly ash is largest by volume.

### 3. Summary of coal ash production by country

In Japan, the proportion of coal as a primary energy source is higher than nuclear power (15%) at 22%, most of which is imported. Also in the last ten years there has been a 1.6 fold increase in production, which has been over 10 million tons every year since 2005. Over 90% of this, however, is put to good use.

Most power stations are of the 700 MW class and are generally located in coastal areas. Coal ash is used in various fields, but most is used as a substitute for clay in cement and for construction purposes.

Table1: Coal ash production by country

	Coal/Total energy(%)	Coal production (Mton)	Imported coal (Mton)	Ash production (Mton)	Ash utilization (%)
<b>Japan</b>	<b>28.2</b>	<b>1.3</b>	<b>158.8</b>	<b>9.9</b>	<b>85.0</b>
<b>S Korea</b>	<b>23.3</b>	<b>4.4</b>	<b>69.8</b>	<b>5.3</b>	<b>77.0</b>
<b>China</b>	<b>71.2</b>	<b>1502.4</b>	<b>-7.3</b>	<b>157.3</b>	<b>68.0</b>
<b>Vietnam</b>	<b>24.3</b>	<b>13</b>	<b>-4.2</b>	<b>4.1</b>	<b>10.0</b>
<b>Thailand</b>	<b>8.9</b>	<b>5.2</b>	<b>4.5</b>	<b>4.2</b>	<b>15.0</b>
<b>Philippine</b>	<b>17.1</b>	<b>2.4</b>	<b>5.9</b>	<b>0.8</b>	<b>10.0</b>
<b>Indonesia</b>	<b>8.3</b>	<b>103.4</b>	<b>-29.3</b>	<b>1.7</b>	<b>0.0</b>

The energy situation in Korea is similar to Japan's, though nuclear power is the main source and coal is next. Korea now only produces 4% of its own coal, which is

anthracite, the remainder is imported bituminous coal. In 2003, 5.5 million tons of coal ash was emitted, with 77% of this used in construction. In 2007, 600,000 tons came from Japan, all of which was used in cement factories as a substitute for raw clay material.

In China, coal accounts for 70% of primary energy supply and is the world's largest producer of coal ash. As of the year 2000, its production had reached 160 million tons. Shanxi, Shandong, and Inner Mongolia are the main coal producers, some of which is exported to Japan. The main producers of coal ash by volume are: Shandong, Héběi, and Guangdong; with most of the ash being used within those provinces. As of 1996 about 60% was used mainly in construction. There are however, around 37,000 electric companies, mostly with small scale facilities, the number of which is not even know. Photo 1 shows the Huángpù power station in Guangzhou city.

Photo1: the Huángpù power station in Guangzhou city



Photo2: Maemoh power station



Vietnam has a plentiful anthracite mine in its north, and some which is exported to Japan. Coal makes up about 10% of Vietnam's primary energy supply, with four main power stations, and about 1.2 million tons of coal ash is emitted. About 10% is used in construction.

In Thailand coal provides 9% of energy supplies, it has a power station in the north using lignite, and emits 3 million tons of coal ash every year. Photo 2 shows the Maemoh power station in the north.

No statistics could be acquired for the Philippines later than 1992, but it produces coal accounting for 10% of its energy needs and it emits 800,000 tons of coal ash yearly.

Indonesia's coalfields have experienced a lot of development in recent years, with much of the coal being exported to Japan. In 2002 there were 9 large scale power stations emitting 1.66 million tons of coal ash, but most of this is not used.

#### 4. Conclusions

Each country, with diversification of future energy supply in mind, has plans for coastal power stations using imported coal, meaning coal ash emissions will only increase. However, environmental groups will be watching carefully, and will not accept construction without comprehensive environmental measures. In these countries besides Japan and Korea, studies into how coal ash is used have only just begun, so nothing is known of how it is used other than as an additive in concrete. This needs to be grasped quickly with the help of all those concerned.

(Takao Tanosaki)

**News from the Korea Society of Waste Management**

The spring conference of the Korea Society of Waste Management was held in Daegu City, at the Daegu EXCO convention center from the 14-16 of May.

Daegu is about 1 hour from Pusan on the high speed KTX train, is the fourth most populous city in Korea, and was also a venue city of the 2002 FIFA world cup.

Leading up to this conference H1N1 influenza that originated in Mexico was spreading worldwide, with four reported cases in Japan. Even though this caused some cancellations, 14 people were able to participate from Japan, including Chairman Prof. Yamamoto, Deputy Chairman and International Committee Chairman Prof. Matsufuji, and others from the National Research Institute, and Fukuoka and Kyushu universities.

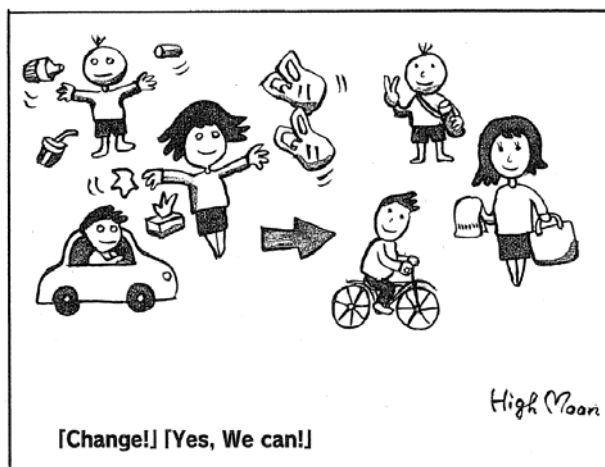
The Korea-Japan Special Symposium and Poster Session were held as part of the 13<sup>th</sup> Korea-Japan Joint International Session on May 14.

The theme of the Special Symposium was: Biomass Town and Waste to Energy, and after speeches by the Japanese and Korean committee chairmen, there were speeches by Dr. Tomonori Ishigaki of Ryugoku University, Dr. Kiyohiko Nakasaki of Shizuoka University, and by Dr. Byung-Chul Choi of the Korean Environmental Ministry, and Dr. Seung-Seok SEO of SK Consulting. Dr. Ishigaki presented Mr. Nakamura's paper, Kyoto City Biomass Utilization Initiatives, and Dr. Nakasaki presented the Production of Ethanol from Biomass Resources in Japan. From Korea Mr. Byung presented the Promotion of Comprehensive Master Plan for Waste to Energy, and Mr. Seung, Woody Biomass to Energy Technology.

In the Poster Session there were a total of 19 dissertations presented, 11 from Japan and 8 from Korea. On May 15, an exchange of opinions was held between the Korean Society of Waste Management chairman, the International Committee chairman and others, and from the Japanese Society of Waste Management the deputy chairman Dr. Matsufuji, who is also chairman of the International Committee, and others. Consensus was reached upon explaining the following points: this year's Japan Society of Waste Management Experts' research presentation meeting is to be held jointly with the Society of Solid Waste Management Experts in Asia and Pacific Islands (SWAPI), the Poster Session is to be held in a hybrid style with two minute introductory speeches, and the symposium is to be held as normal with two

speakers from Korea, so it will be announced at a later date.

( Akio Suzuki )



Author: Yes! We can change our lifestyle.

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**Vol. 20, No.3 (May, 2009)**

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***Biodegradation of High-Molecular-Weight Lignin in Sulfate Reducing Conditions with a Cellulose Cosubstrate***

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***Heat Exchanger Tube Corrosion in RDF Combustion Boiler***

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***Effect of Temperature on Moisture Adsorption and Desorption Characteristics of Charcoal from Waste Wood***

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***Effects of Components and Operating Conditions on Fused Phosphate Fertilizer Producing Using Sewage Sludge Incineration Ash***

Yoshihiro Iwai, Tetsuji Jozuka, Takashi Komatsu, Tadashi Takagi, Fumio Mishina, Takeshi Kobayashi, Takashi Kameya and Yuichi Miyake

Current Members of JSMCWM as of April 30, 2009 (The figures in parenthesis indicate the difference from April, 2008)		
Regular Members	2,708	(-77)
Students	224	(-2)
Non-Japanese Member	79	(0)
Public Institutions	95	(-2)
Supporting Members	127	(-2)
Individuals of NPOs	7	(-1)
Total	3,547	(-84)

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Planned by: Taisuke Watanabe  
Edited by: Tsunako Matsumoto, Yuko Aoki  
Translation and Design: Kokusai Kogyo co. ltd.

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](mailto:international@jswme.gr.jp)

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