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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

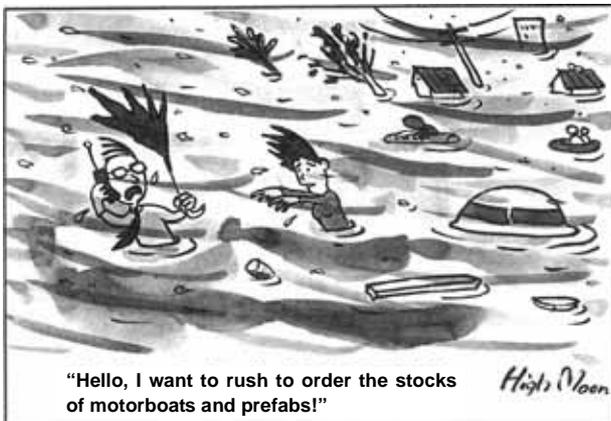
Dear Waste Management Experts

Plastic waste is a difficult problem to resolve for most municipalities. Though 3R policy requires its utmost utilization, many plastics are difficult for material recycling because of contamination. In this newsletter, the recently changed plastics disposal policy in Tokyo Metropolitan Government is reviewed in "Waste to Energy series".

As Japan's ODA on Solid Waste management series, we introduce the JICA study for "Solid Waste Management Plan for Ulaanbaatar City". The capital city of Mongolia that draws nearly 40% of the population has another SWM problem.

According to the cooperation agreement between JSWME and KSWM (Korea Society of Waste Management), which was renewed last November after ten years of the first agreement, JSWME members participated in the KSWM's Spring Research Conference in Busan during May 2-4. Korea-Japan Symposium in the theme of "Utilization of Biomass and Waste for Clean Energy Recovery" was held as well as poster presentations.

The annual research conference of JSWME is going to be held during November 19-21, 2007 in Tsukuba City. Thanks to a new transportation system which opened last April, the "Tsukuba Express" connects Akihabara Stn. and Tsukuba Stn. in 45 minutes. A call for papers is on the line.



Comments by High Moon:
Could we want him to invest for protecting global warming at the least.

Prior to the JSWME annual conference, the 3rd Asia-Pacific Islands Expert Meeting on SWM (SWAPI) is planned for November 7-9, in Okayama. SWM experts from more than ten countries/regions will be expected to participate. The details will be announced on the IGES and JSWME websites soon.

(Hideo Azuma)

Japan's ODA on Solid Waste Management:

JICA development Study for "Solid Waste Management Plan for Ulaanbaatar City in Mongolia"

1 Introduction

In November 2004, the development study of "Solid Waste Management Plan for Ulaanbaatar City in Mongolia" was inaugurated for ODA operations funded by JICA (Japan International Cooperation Agency).

A master plan for solid waste management was formulated with counterpart government organizations, such as the Ulaanbaatar City Office Waste Management Section and the Ministry of Environment. The report produced from this study would act as underlying data to attract assistance from donor countries in the future.



The study was concluded in March 2007, but the following output were realized in a short period of time:

- 1) The location for a new disposal site was determined during the study.
- 2) Ordinances were specified for a special conservation area for the planned site.
- 3) The Solid Waste Management Department staff numbers were increased and competency level were lifted.
- 4)

Revisions were made to the fee and the system for solid waste collection. 5) A cash fund for waste-pickers was established

This article will explain the process in which the above achievements, especially for a cash fund for waste-pickers, were attained, together with an explanation of the waste problems in Ulaanbaatar City.

2 Waste Problems in Ulaanbaatar City

Mongolia is in the eastern portion of central Asia, with a national land area of 1,560,000 km² (four times the size of Japan) landlocked between the borders of China and Russia, with a population of approximately 2.6 million. The mention of Mongolia for many people conjures up images of Chinghis Khan and nomads riding on horses. However, in the capital city of Ulaanbaatar, where nearly 40% of the population – about 900,000 people – make their living, there has been a shift towards a consumer lifestyle amidst the transition to a market economy, and with it, an increase in the amount of waste produced and the exacerbation of solid waste problems.

The city of Ulaanbaatar today can be divided into two areas due to a series of events during its formation. One is an apartment area, a sector based on a city plan with infrastructure developments such as roads, sewage system, water supply and hot-water heating. In contrast, the surrounding ger area settled by local nomadic people is decidedly disorganized. Nonetheless, this so-called “surrounding area” is home to one half of the Ulaanbaatar population.



Although the apartment area achieves nearly 100% waste collection rate, the ger area provides for less than half of its residents. This has caused the incidence of illegal dumping for which a solution was urgently in demand.

One might ask then how, despite a 100% collection rate during the previous Socialist era, the current state of affairs came to be. One plausible factor is that, as the government sought efficiency under capitalist reform, privatization of public services meant that fees paid by the residents were the only means to carry out

collection services.

For the waste collection fee to function properly under these conditions, amongst people who are able to pay but do not and those financially unable to pay, it is necessary to introduce a cross-subsidy system, where those with the monetary ability shoulder some of the burden for those who are unable. To introduce this scheme requires reforms in the fee collection method, where a publican is currently designated to collect the fee.

In addition, there were still apartments equipped with garbage chutes, which would invite the outbreak of fires and detrimental pest populations, giving rise to gravely unsanitary conditions.



Also, the open dump of the disposal sites, which means no cover soil used, has not only a negative effect on the adjacent surroundings, but causes frequent outbreak of fires. These conflagrations spread to dwellings in the nearby ger area during the study.

Furthermore, a landfill site, where 90% of waste from Ulaanbaatar is disposed, is expected to reach capacity limitations in 2008.

3 Establishing a cash fund for waste-pickers

There are around 300 waste-pickers in Ulaanbaatar, people who make their living by retrieving valuable resources from the landfill site. However, these activities hinder sanitary landfill operations where it is necessary to compact the garbage and immediately cover it with top soil. Plans to introduce a recycling facility with a separation site will allow waste-pickers to engage in such work. As a step in that direction, we sought to engage in organizing this group now.

Firstly, representatives of waste pickers were recruited and divided into groups. Following this, the 10 representatives were called to weekly meetings so that both sides could frankly discuss problems they have and, step-by-step, build a relationship on trust.

During these discussions, one of the representatives proposed the creation of a waste-picker cash fund. This group toils in waste daily in order to procure a small amount of income, but any interruption to their cash income due to illness or injury leaves them unable to

even provide food for their families. Given these stringent circumstances, the members motioned to help each other in times of trouble by establishing a fund pooling their daily earnings. The waste-picker fund was then established with unanimous agreement.

There are a number of NGOs in developing countries that have set up similar relief projects, but such a progressive example as this - where waste-pickers have voluntarily created a fund on their own for mutual assistance - is rare, and it is anticipated to be developed as a model of mutual alliance in the future.

4 In Conclusion

For developing countries, behind the primary objective to secure development projects is the undeniable fact that they must elicit support, including financial aid, from foreign countries. If all goes as planned, solid waste collection trucks and landfill equipment will be given as aid in late 2008, and construction will begin on the new disposal site determined during the study. Nonetheless, while using these facilities and equipment, it is the people of Ulaanbaatar who must wrestle with the daily generation of waste. They must proceed not only to collect and eliminate garbage from their living space, but also promote the 3Rs by limiting the amount of waste generated and returning waste to be recycled. We expect they will continue along this road towards improvement.

• Reference

- 1) Kokusai Kogyo Co., Ltd.: Final Report for the Study on Solid Waste Management for Ulaanbaatar City in Mongolia, Japan International Cooperation Agency. (Ichiro KONO)

Waste to Energy in Tokyo
~ Thermal Recycling of Plastics ~

The socio-economic activity of mass production, mass consumption and mass disposal has brought about cramped conditions at final disposal sites and illegal dumping. To overcome this situation, the aim is to appropriately implement the 3Rs to form a society based on a sound-material cycle. In Japan, there have been a series of opportunities to prepare recycling-related laws and palpable 3R activities are moving ahead. Nonetheless, although recycling is carried out according to the container recycling law for plastics, a number of items present difficulties in reuse and recycling efforts.

The “bubble economy” of Japan in the 1980s brought with it a striking increase in the volume of waste generated, reaching 4.9 million tons/year within the 23 wards of Tokyo. This led Tokyo to advance the pressing need for reduction and recycling. Meanwhile, as part of the local administrative reforms, sanitation

services provided by the Tokyo Bureau of Sanitation were transferred to the 23 special wards in the year 2000. Much of the disposable plastic contained in Tokyo municipal waste comes from commercial areas. These plastics are often mixed with foreign materials and often unwashed, yet the small volume of commercial waste has inhibited recycling applications which has led to the majority of this waste to end up in landfills.

Table: Applications for the reuse and recycling of waste plastics

Plastic	Description of Reuse and Recycling
Mixed plastics	<ul style="list-style-type: none"> • Coke alternative for ironworks blast furnaces • Production material for coke furnaces • Compound gas production for chemical industry materials through gasification
Clean plastics	<ul style="list-style-type: none"> • Fuel for cement production • Solid fuel (RPF)
Dirty plastics	<ul style="list-style-type: none"> • Used as fuel to generate electricity at power plants with waste processing facilities

Since 1974, municipal waste in Tokyo has been divided into two collection categories of “combustible waste” and “incombustible waste (unsuitable for incineration)”. This is due to the fact that plastics which have a high heat value cause damage to incinerators and also release harmful gases such as hydrogen chloride. In fiscal 2005, the percentage of plastics that composed incombustible waste (unsuitable for incineration) reached 57%. Plastics and metals are put through a compacting process, and after the metals are retrieved, the waste is sent to the landfill.

However, current waste incinerators (a total of 21 facilities) have all been adapted for high heat values and engineered to eliminate harmful gasses so that emissions of dioxin has been greatly reduced below the emission standard of 0.1ng/m³, so there is no longer evidence that plastics are unsuitable for incineration. Also, as all of the incinerators generate electricity and heat supply, the total electric power output has risen to 274MW.

It was amidst this situation that, in June 2003, Japan’s capital inquired with the Tokyo Waste Management Council for policy direction concerning the “control of waste plastic generation/recycle promotion”. Their response came in May of the following year, stating the position, “It is not sufficient to merely curb waste plastic generation since materials that have not been cleaned or those that contain compound materials prove difficult to recycle, which results in their consumption of limited disposal space. Waste generation should be hindered by promoting such steps as strengthening extended producer responsibility and placing a fee on waste pick-up services, plus the scrupulous recycling of plastic

items,” and, “Waste plastic is a valuable resource which makes it ‘unsuitable for landfill.’” Namely, it was concluded that, “as plans continue for further reinforcement of the material cycle and helping to curb the amount of waste generated, reducing the environmental burden and economic aspects indicate that plastics which are difficult to segregate, unwashed food containers and the like should be used for thermal recycling (thermal utilization).”

This response was accepted and the special ward chairman confirmed, in October of 2004, that, “From the standpoint of extending the lifespan of final disposal sites and effective use of resources, waste plastics that are rarely recycled will no longer be buried in landfills, but salvaged to generate thermal energy.” At present, the special wards and the Clean Association of Tokyo²³ are making preparations for full-fledged implementation in the period of fiscal 2008.

If all facilities undertake thermal recycling, electric power would increase at an annual rate of 199 million kWh and cut the landfill amount by approximately 490 million m³ per year. It is estimated that plastic incineration would increase greenhouse gases by approximately 166 thousand tons per year, however, this is offset by the curtailment of final disposal release of methane gas and reductions by the electric companies, so that the increase is estimated to halt at 7 thousand tons.

(Yoshio Funato)

Korea Society of Waste Management Participation Report

The spring technology assembly for the 2007 Korea Society of Waste Management was held at the Busan Exhibition & Convention Center in South Korea in the city of Busan (Pusan) from May 2-4, 2007. The 2007 Environmental Societies Joint Conference of related environmental fields was held by the Korean Society of Environmental Engineers and Korean Society of Atmospheric Environment, including participants from Japan from the Japan Society on Water Environment and the Japan Society of Atmospheric Environment.

In attendance were Vice-Chairman Furuichi from the Japan Society of Waste Management and International Committee Chairman Matsufuji, both of whom also participated in the Korea-Japan Special Symposium presentations and poster session. A number of participants presented at the poster session, including those from Fukuoka University, Hokkaido University, and the National Institute for Environmental Studies.

The theme of the Korea-Japan Special Symposium was the “Utilization of Biomass and Waste for Clean Energy Recovery”, and we heard 6

presentations, 3 each from Japan and Korea.

The presentations from Korea were Seok-Jae Kang (Environment Management Co.) who presented the “Current Situation of Environmental Energy Utilization and its Perspective in Korea”, followed by Kyung-Seun Yoo (Kwangwoon University) speaking on “Process Development of Renewable Energy Recovery from the Thermal Conversion of Municipal Solid Wastes in Korea” and finally Sae-Eun Oh (Hanbat National University) who introduced the “Anaerobic Treatment of Wastewater with High Strength Sulfate Using Two-phase UASB Reactor”.

From Japan, Professor Masaru Tanaka of Okayama University spoke on “Technical Considerations for Biomass Recycling in Japan”, Professor Furuichi presented “Biorecycle Systems in Japan and Europe”, and Associate Professor Ishii gave a presentation on “Recent Biomass Recycling Technologies in Japan and Europe”.

A poster session was held at the 2007 Joint Conference, and the expansive facility made for an impressive event. There were 28 presentations from the field of solid waste, composed of 11 Japanese displays and 17 from Korea. Japan is no stranger to hosting joint projects of sectional meetings between related fields, but this one was remarkably intriguing.

Experts on either side exchanged views during the course of the conference, and in addition, decided that the theme for the international symposium to be held at the Japan Society of Waste Management Experts in November of this year will be “Hazardous Waste Material Flow & Risk Management”. Furthermore, a planning meeting was held for the 3rd Networking Meeting of Experts on Solid Waste Management in Asia and the Pacific Islands.

(Akio Suzuki)

Journal of the Japan Society of Waste Management Experts, Vol. 18, No.3 (May 2007)

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

Paper

Leaching of Heavy Metals from Fly Ash Generated from Gasification and Melting Furnace for Municipal Solid Wastes by Organic Acids

Chie Saito, Haruki Okada, Monica Joy Titus, Toshiaki Yoshioka and Tadaaki Mizoguchi

Adsorption Characteristics of Gaseous Polychlorinatedbiphenyls(PCBs) in the Presence of Organic Solvent onto Activated Carbon

Takeshi Nishimura, Makoto Takabe, Atsushi Ohara and

Masaaki Hosomi

Experimental Study on the Behavior of Lead during Melt Processing in a Low Oxygen Atmosphere

Seiichi Abe, Fumiaki Kanbayashi, Makoto Satoh, Youji Yoshioka and Nobuo Takeda

Average Lifespan Estimation for Electrical and Electronic Products Based on Quantification Analysis of Relationship with Product Characteristics

Masahiro Oguchi, Takashi Kameya, Tomohiro Tasaki, Noboru Tanikawa and Kohei Urano

Prediction Model for Number of Waste Products Being Abandoned: One Study on Color TVs Discarded after Analog Broadcasting was Terminated

Hiroyuki Yamada, Ichiro Daigo, Yasunari Matsuno and Yoshihira Adachi

Effect of Carbonizing Conditions on the Specific Surface Area of Charcoal Made from Waste Wood

Toshihiro Kitamura, Hisamitsu Oshima, Toshio Sato and Yuji Ishitobi

Utilization of Charcoal from Waste Wood as an Adsorbent Material for Water Treatment

Hisamitsu Oshima, Toshihiro Kitamura, Toshio Sato, Yuji Ishitobi and Kazuhide Nagano

**Waste Management Research
Vol. 18, No.3 (May, 2007)**

Preface

Toward the Realization of the Recycling-based Society through Cooperation and Collaboration

Yuko Sakita

Special Issues: Biomass to Energy

“Biomass Nippon Strategy” and Promotion of Biomass –Accelerating of Promotion of Biomass and Boosting the Production of Domestic Biofuel-

Hiroyuki Suematsu

Promotion of Biomass Energy to Curb Greenhouse Gases Emissions

Takeshi Sekiya

Creation of New Resource passage and Biomass Energy Use

Motoi Nasu

Biomass as New and Renewable Energy

Takumi Shigemori

The Challenge of Zero Emission through Effective Use of Food Waste

Ryozo Mitsuishi

The Waste-to-Energy Trend in Europe

Toru Furuichi, Noboru Tanikawa and Kazuei Ishii

Research Report

Present Status of the Local Government Authorization System for Recycled Materials and Related Issues

Kenraro Miyawaki, Masahiro Osako and Fumiaki Sakanakura

Current Members of JSWME as of May 31, 2007 (The figures in parenthesis indicate the difference from March 31, 2007)		
Regular Members	3,092	(-78)
Students	290	(24)
Non-Japanese Member	25	(-61)
Public Institutions	105	(-1)
Supporting Members	149	(-2)
Individuals of NPOs	5	(1)
Total	3,666	(-117)

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