



NEWSLETTER

No. 10

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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts

First of all, let us welcome the new president of JSWME, Dr. Masataka Hanashima, professor of Civil Engineering, Fukuoka Univ., elected this April to succeed prof. M. Hiraoka. At the same time, prof. Kunitoshi Sakurai of Tokyo Univ. was appointed as the chairman of the International Relations Committee, succeeding Dr. S. Gotoh. Under the new leadership, the NEWSLETTER will continue to strive to be an indispensable information crossroads for Waste Management Experts in and out of Japan.

Next, as previously announced, this issue reports on Tokyo's new rule on garbage bags. And, to conclude the series on Japan's waste management cooperation projects with developing countries, two examples of a new approach to waste management development studies are introduced. (Hiroki Hashizume)

Greetings from New President Prof. Hanashima

Dear Readers:

Japan Society of Waste Management Experts (JSWME) has grown to be a large group due to former Presidents, Messrs. Hirayama and Hiraoka's great contributions in laying the foundations of the Society. The Society, at present, has around 3,000 members though it was initially expected there would probably be no more than 700 or so.

With growing public concern regarding global environmental issues and waste problems, and the increasing role of citizens in waste minimization such as that seen in connection with the German Package Law, the issues that JSWME will have to tackle will include the following:

1. To incorporate the Society

It will soon be decided if the Society will be incorporated under the guidance of the Ministry of Health and Welfare. Efforts will be made to increase the number of members.

2. Establishment and strengthening of regional branches of the Society



*Prof. Masataka Hanashima
New President*

Branches will be established in the Kansai, Hokkaido and Kyushu regions. It is necessary to make members more active in other regions as well.

3. Training of young researchers

There are many members in their forties and fifties who graduated from university in the 1960's and early 1970's, a time when there were serious pollution problems all over Japan. However, now there are not many researchers in their twenties and thirties. University professors and managers of relevant research institutes should be more active in training young researchers, and providing them with more opportunities to work as researchers.

4. Collaboration with other research institutes

There are many solid waste issues that would benefit from joint study with other relevant research institutes. New discoveries and better research results could be brought about through such efforts. For examples, JSWME together with the Resources and Environment Research Society (an organization guided by the Ministry of International Trade and Industry), held a joint research presentation meeting in Kyushu in June 1994.

5. Standardization of testing and experimental methods in the solid waste field

Standardizing testing and experimental methods are an important and urgent task for the Society. Completion of standardization would help the Society and its members.

There are many other issues that JSWME has to handle. With the members' support, I will work for the further development of the Society.

TMG Adopts a New Rule for Discharging Refuse

The Tokyo Metropolitan Government (TMG) has changed the rule for discharging domestic and commercial solid wastes, a move which encourages the use of semi-transparent plastic bags for refuse set-out. Solid wastes discharged in black plastic bags will no longer be collected by the Bureau of Public Cleansing (BPC).

The general TMG rule has been to require plastic or steel bins as waste containers, but plastic bags have been allowed for some households such as senior citizens and singles. However, plastic bags have recently grown more dominant among general households.

This new rule aims to strengthen the current collection system in Tokyo which handles three waste categories, i.e., combustible wastes, wastes unsuitable to burn and bulky wastes. The new rule is meant first to improve the safety of refuse collectors and prevent damage to treatment

facilities from the introduction of dangerous wastes, and second to reduce the waste discharge rate by encouraging citizen recycling activities.

The discharge rate of solid wastes in TMG has increased by 5% a year from 1985 to 1989 and reached 4.9 million tons in 1989 in the ward areas (about 8.2 million people). For this reasons, TMG started a special campaign in 1989 aimed at attacking this problem in cooperation with citizens and business. In 1992, TMG enacted the "Waste Management and Recycling Ordinance". The new rule is based on this ordinance. The outline of the new rules is as follows:

- Bins should be used, but plastic bags may be also used.
- Plastic bags should be:
 - a. transparent in order to see the contents,
 - b. less than or equal to 90 liters capacity,
 - c. made of polyethylene with a fixed tension strength and having 30% calcium carbonate content to protect incinerator furnaces.
- BPC will refuse to collect from offenders.

The new rule was scheduled to start last October. However, TMG was compelled to postpone the schedule because of a large number of complaints from citizens (though there was also a good deal of approval). Heated debate and public discussion unexpectedly developed in the media. The main objections to the new rule were;

- Transparent bags would violate citizen's privacy.
- It would be more recycling-oriented to utilize used bags such as shopping bags given by supermarkets.

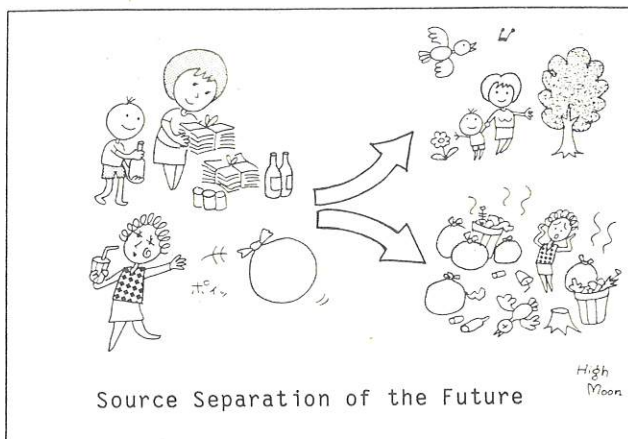


Mr. T. Azuhata, Director General of BPC interviewed by TV in front of plastic refuse bags

During the three month suspension, TMG made an effort to reach a consensus with citizens through further PR and discussions. Thus on May 19, three months after the restart, it turned out that 60% of bags were the recommended bags and 90% met the TMG rule.

Some other municipalities have already adopted similar rules and have successfully reduced the generation of wastes. However, it should be noted that TMG, the largest city in Japan, had a bitter experience on the way. There are many problems to be solved. There are many issues to be discussed in this regard. It has made us recognize again

the great interest in solid waste issues among citizens and the serious background issue of a shortage of landfill sites in Tokyo. (by Heiji Ishikawa, Hideo Azuma, BPC)



By Courtesy of Prof. Hiroshi Takatsuki, Kyoto Univ.

New Type Cooperation Projects by JICA

The Japan International Cooperation Agency (JICA), the sole government agency involved in international technical cooperation projects, is planning to start new types of study projects for better solid waste management (SWM) in developing countries. The major tool used by JICA for study projects is the "development study scheme", which is used for the formulation of master plans and the conduct of feasibility studies for development projects. In the SWM field, this scheme has so far been used only for municipal solid waste management with limited coordination with other urban services.

Recognizing the necessity of an integrated approach for a better urban living environment as well as imminent environmental problems caused by inappropriate management of hazardous industrial wastes in the developing world, JICA is going to expand the scope of its SWM studies in order to better deal with the needs of recipient countries.

JICA's Ujung Pandang Study is expected to be launched in the middle of this year covering not only the solid waste sector but also the sanitation sector within the framework of the integrated urban infrastructure development program (IUIDP). Ujung Pandang is the capital city of South-Sulawesi Province in Indonesia with a population of one million. According to Adipura, which is the evaluation system for the cleanliness of Indonesian cities, Ujung Pandang is one of the dirtiest cities in Indonesia. The very flat topography of Ujung Pandang makes urban drainage a difficult task, which definitely affects the solid waste management and sanitation systems. The City of Ujung Pandang is also well known to travelers as the gateway to the Land of Toraja where the local people maintain their traditional life style.

At the same time JICA is planning to dispatch a preparatory study team to Santiago, Chile, in order to discuss the details of its master plan study on the

management of hazardous industrial & medical wastes in the Santiago Metropolitan Area with Chilean authorities. Although the management of municipal solid waste in Santiago is satisfactory, including final disposal, there are many things to be done in the field of hazardous industrial waste management. The Chilean National Environment Center, which is now in its preparatory stage, with the cooperation of JICA, is expected to cover the field of hazardous industrial waste management as one of its important activities. Good coordination between JICA's two projects in Chile will be necessary to better serve the needs of hazardous industrial waste management in Santiago.

Although this move might not seem to be very innovative to many readers outside Japan, these two studies are expected to become a milestone in the history of Japanese international cooperation for better SWM in developing countries through the expansion of its scope.
(Kunitoshi Sakurai)

A Brief Note on Solid Waste Management in Japan (10)

- Industrial Waste -

The Waste Management and Public Cleansing Law, enacted in 1970, defines "waste" as "refuse, bulky refuse, ashes, sludge, human excreta, waste oil, waste acid and alkali, carcasses and other filthy and unnecessary matter, which are in a solid or liquid state (excluding radioactive waste and waste polluted by radioactivity)". The Ministry of Health and Welfare interprets this as; Things are regarded as waste when they become useless because a discharger cannot use them for himself or cannot sell them to others. Thus, whether something is waste or not cannot be determined objectively when generated. It should be judged comprehensively, taking the possessor's intention, its characteristics, etc. into consideration. In practice, it is understood that as long as something is bought and sold, it is not waste.

Under the law, waste is broadly categorized into two kinds; 1) industrial waste to be managed by the generating industries themselves and 2) municipal waste to be taken care of by municipalities. Some industrial waste, like scrap metals, sludge and plastics are generic, Other industrial wastes, such as paper, fiber and wood chips are industry/process specific. Because municipal waste is defined as waste other than industrial waste, some wastes of industrial origin, like cardboard boxes from commercial industry, are categorized as municipal waste. See the table.

While the total amount of municipal solid waste discharged in fiscal 1991 (April '91 - March '92) was 50.8 million tons, the amount of industrial waste was nearly 8 times that of MSW, 398 million tons.

Since July 1992, some waste has been subject to special control as hazardous waste, or "Specially Controlled Waste". Wastes designated as Specially Controlled Municipal Waste are; air conditioners, TV sets and

microwave ovens containing PCBs, fly ash from municipal waste incinerators and infectious municipal waste. Those designated as Specially Controlled Industrial Waste are; 1) flammable waste oil (ignition point ≤ 70 degree Celsius), 2) strong acids ($\text{pH} \leq 2.0$), 3) strong alkalis ($\text{pH} \geq 12.5$), 4) infectious industrial wastes, 5) PCBs, 6) waste containing PCBs, 7) dispersible asbestos, 8) fly ash and cinders containing Hg, Cd, Pb, Cr(VI) or As, 9) oil containing trichloroethylene, 10) oil containing tetrachloroethylene, 11) sludge, waste acid and waste alkali containing Hg, Cd, Pb, organic P, Cr(VI), As, cyanide, PCBs, trichloroethylene or tetrachloroethylene.

INDUSTRIAL WASTE (fiscal '91)	10 ³ t/year (%)
- sludge	167,673 (42.1)
- animal excreta (*1)	77,315 (19.4)
- demolition concrete	58,431 (14.7)
- slag	46,739 (11.7)
- waste metal	7,929 (2.0)
- soot and dust (*2)	6,926 (1.8)
- waste wood (*3)	6,810 (1.7)
- waste glass and ceramics	5,601 (1.4)
- waste plastics	4,570 (1.2)
- waste acid	3,628 (0.9)
- waste oil	3,322 (0.8)
- animal, vegetable residue (*4)	2,994 (0.8)
- cinders and ashes	1,969 (0.5)
- waste alkali	1,827 (0.5)
- waste paper (*5)	1,143 (0.3)
- treatment residues of industrial waste	849 (0.2)
- waste fibers (*6)	101 (0.0)
- waste rubber	92 (0.0)
- dead animal bodies (*1)	29 (0.0)
- imported waste (*7)	- (-)
Total discharge in fiscal 1991	397,949 (100.0)

- Note: (*1) livestock industry
 (*2) smoke and soot generating industry
 (*3) demolition lumber, wooden products, wooden furniture, pulp and imported lumber wholesale industry
 (*4) food, pharmaceuticals and spice industry
 (*5) pulp, paper, newspaper publishing, publishing and bookbinding industry
 (*6) Spinning and fiber textile industry excluding clothes and other final textile products manufacturing industry
 (*7) applied from Dec. 15, 1993

(Hiroki Hashizume)

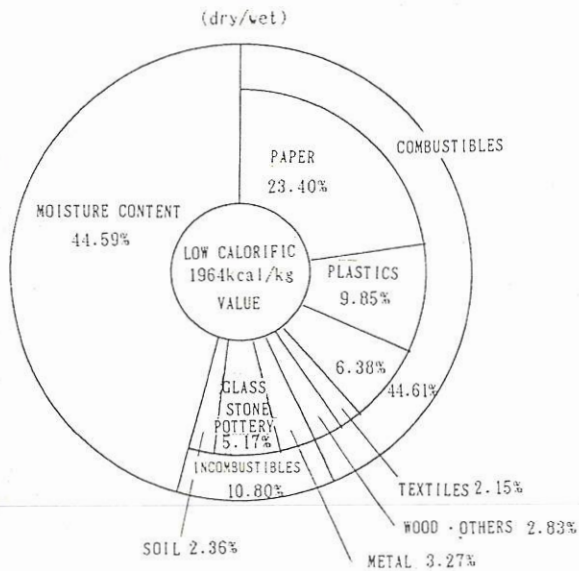
Introduction of Governmental/Semi-Governmental Organization Related to Waste Management in Japan (8)

Office for Development of Waste Reclamation Public Cleansing Project Bureau, Yokohama City

In Yokohama City, which has a population of about 3.3 million, the Public Cleansing Project Bureau is in charge of the management of municipal solid waste which consists of house and office/commercial waste. The Office

for Development of Waste Reclamation (ODWR) belongs to the Waste Disposal Facility Department in the bureau.

During the 1980s, the annual amount of municipal solid waste increased from about 1 million to 1.47 million tons. The amount of household and office/commercial waste in fiscal 1993 was 1.03 million tons and 410 thousand tons respectively. The material composition of municipal solid waste are shown in the figure below.



Material Composition of Yokohama Municipal Solid Waste (Average of 5 Incineration Plants), 1993

ODWR was first established as a Testing Centre in 1973 and was renamed and reconstituted in 1977 with the aim of resolving the many problems caused by the rapid increase in municipal waste. ODWR has a staff of 22 chemical engineers, 2 clerks and 2 drivers.

The following are recent topics of research and development.

1. Research and development of waste reuse
 - a. composting of cut branches
 - b. composting of garbage
 - c. making activated carbon from wood waste
 - d. making bricks, tiles and subsoil from incineration ash
2. Gathering of basic data on solid waste
 - a. chemical analysis and material composition testing of municipal/industrial waste
3. Monitoring of gas and liquid discharged from disposal sites* and incineration plants**
 - a. chemical analysis of exhaust gas, effluent and ash
 - *: 1 landfill site and 1 coastal reclamation area
 - ** : 5 plants
4. Environmental protection technology development
 - a. melting technology for electric precipitation ash

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The volumes contain the following technical papers.
(written in Japanese with English abstract)

Vol. 5 No.1

Applicability of Dispersion and Two-Component Model for Non-reactive Solute Transport/Mixing Unsaturated Water Flow through Solid Waste Layers by Nobutoshi Tanaka and Toshihiko Matsuto

Mutagenicity of Ash from Municipal Waste Incinerator by Hidekichi Yoshino and Kohei Urano

Effect of Air Permeability in Solid Waste Landfill Layer on the Stabilization of Leachate Quality by Sangchul Park, Tetsuya Kusuda, Takayuki Shimaoka, Yasushi Matsufuji and Masataka Hanashima

Agricultural Waste Peanut Shells, a Raw Material for the Production of Xylose and Xylooligosaccharides by K. Burno Kubota, Hiroyuki Horitsu, Kazuhiro Takamizawa, Tohru Suzuki and Keiichi Kawai

Investigation of Water Diffusivity of Dairy Cattle Solid Waste by the Horizontal Infiltration Method by Kazunori Iwabuchi and Tomoyasu Ishida

Vol.5 No.2

Extraction Conditions and the Amount of Heavy Metals Released from Municipal Waste Fly Ash by Hidehiro Kaneko and Minoru Yamaguchi

Characteristics of Continuous Analyzers for SO₂ in Flue Gas from Municipal Incinerators by Noboru Tanikawa and Kohei Urano

Energy Evaluation of RDF Production-Utilization System in Sapporo by Youngjae Kim, Toshihiko Matsuto and Nobutoshi Tanaka

Fundamental Experiments for Identifying Secondary Combustion Conditions in Municipal Solid Waste Incinerators by Tadayuki Ishimi, Hisao Yamaguchi, Satoshi Kuroishi, Kazuhiro Higashimura and Chikara Yoneda

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