

NEWSLETTER

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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

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Hazardous Waste Management in Japan

The Waste Management and Public Cleansing Law, enacted in 1970, is the primary law for the management of all kinds of solid and liquid wastes other than radioactive ones, from generation to disposal and recycling.

As we noted in the previous newsletter, the law got a major and comprehensive amendment in October 1991. While the last issue of this newsletter featured the recycling provisions of the amendment, in this issue we would like to highlight the hazardous waste provisions.

It is well known that definitions of hazardous waste differ among countries and international organizations. While the definition of hazardous waste is rather broad in the US, for example, a concept of hazardous waste has been historically quite exclusive in Japan. Before the amendment in 1991, a waste was identified and subject to special control as a hazardous waste if it, (1) contained materials considered to pose hazard to human health (mercury, cadmium, lead, organic phosphates, hexavalent chromium, arsenic, cyanides, PCBs, organic chlorides, copper, zinc and fluorides), (2) was in the category of industrial wastes, and (3) was discarded by a designated generator.

This time, a category of "Waste under Special Control (WUSC)" has been newly introduced. WUSC are designated judging not only from toxicity but also from a wide range of characteristics which may endanger human health or the living environment, such as explosivity and infectivity. A special system of sorting, storage, collection, transportation, recycling and disposal has been introduced to manage WUSC separately from other kinds of waste right from the time of generation.

Waste designated as WUSC is as follows: (1) waste containing PCBs, (2) fly ash from municipal solid waste incinerators, (3) infectious waste, (4) flammable waste oil, (5) waste acid and waste alkali having high corrosivity, (6) asbestos waste, (7) industrial waste containing mercury, cadmium and other kinds of human-toxic metals that exceed criteria established by the law.

A discharger of Industrial Waste under Special Control (IWUSC) is required to appoint an IWUSC Manager; to collect, transport and dispose of the IWUSC in accordance with standards specifically provided for the

kind of IWUSC; and to issue a manifest when they entrust treatment to others. IWUSC collectors, transporters and treatment facility operators are subject to a new permit requirement which is more stringent than the one for conventional industrial waste businesses.

Furthermore, the Japanese Diet is now debating two proposed laws in preparation for the ratification of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. One law is new legislation and the other is an amendment to the Waste Management Law. When they are enacted and ratified, export and import of hazardous waste is going to be controlled according to international rule under the Basel Convention. At the same time, the government is making a framework for controlling the international movement of hazardous waste destined for recovery operations, in accordance with general principles established by the OECD. It is also anticipated that some wastes are going to be designated as WUSC in the near future along with the expected ratification and an investigation of discharge and disposal of the Basel Convention's hazardous wastes in Japan.

In the age of global environmental concern, international control of hazardous waste is becoming extremely important. In this regard, Japan is steadily moving forward with bilateral and multilateral collaboration through the amendment of the Waste Management Law in 1991 and the coming ratification of the Basel Convention. It seems that the Japanese concept of hazardous waste is also changing to meet rapidly diversifying hazardous waste problems.

(by Yoshiroh KABURAGI, Hiroki HASHIZUME)

The 3rd Annual Conference of JSWME To Be Held Soon

The 3rd Annual conference of JSWME is to be held from 16th to 18th Nov. 1992 at "Hokutopia", Tokyo. It will consist of a symposium entitled "Solid Waste Management from Women's Viewpoints", two discussion meetings: one on SWM planning and the other on hazardous waste management, and the presentation of 157 papers in 14 fields. Number of papers has shown 31% increase compared with the 2nd Conference reflecting the growing interests in SWM in Japan.

(by Kunitoshi SAKURAI)

Japanese Municipalities on the Move (4) Introduction of A Waste Disposal Fee and Its Effects

Today waste management practices need a tremendous amount of money. In fiscal 1989 the total cost for municipal solid waste (MSW) management in Japan reached 1,260 billion yen including the labor cost and the costs for construction and maintenance of facilities. This amounts to 10,200 yen (\$80) per person per year.

Because MSW management is regarded as a fundamental administrative service in Japan, many municipalities finance the cost through municipal taxes. Therefore, the public does not have to pay any additional fee and they are inclined to regard waste management as 'cost-free'. (Offices are generally charged for waste collection, but even in this case, the fee tends to be set lower than the actual cost.) However, the Waste Disposal and Public Cleansing Law, which was amended in 1991, emphasizes that the beneficiaries of waste collection services should shoulder the cost.

Date-shi, a small city located in the north of Japan with a population of 35,000, has become well known since it introduced a new system of waste disposal fees in Sep. 1989. In Date-shi, waste must be discarded in a special 40 liter bag that can be bought for 60 yen each, or in an ordinary bag or a carton with a special sticker, also 60 yen each. Bulky waste, such as furniture or refrigerators, also must have a special 60 yen sticker. The purpose of introducing this charge system is to gain financial resources to construct new disposal facilities. Although at first the city authorities met with strong opposition from inhabitants, the city finally obtained cooperation from them. The charge system gave people an incentive to recycle and reduce waste so that Date-shi succeeded in reducing waste.

Tokyo is another example. The 23 wards in Tokyo started to charge for bulky waste collection in Sep. 1991. Although Tokyo had suffered from a rapid growth of MSW since 1985, MSW decreased by 2.1% in 1991 compared with the previous year. It is thought that charging for bulky waste collection was a factor in this reduction. However, it also had a bad side effect; an increase in illegal dumping. Large quantities of bulky waste such as refrigerators, washing machines and furniture are being dumped on the banks of the Tama and other suburban rivers. Some of the waste is left by ordinary citizens and others by retailers who accepted used appliances from their customers.

Most municipalities have been trying hard to reduce waste and they expect waste disposal fees will be one of the most effective measures. However, there are some problems. A fee system might increase the labor cost to collect bills. How to charge is another problem--An 'everybody pays the same' system may not be as

effective as 'the more you discard, the more you pay' system to encourage waste reduction.

Anyway, while the cost continues to rise, it is definitely a big issue--"How to gain financial resources to fulfill appropriate waste management?" Thus, 'who to pay' and 'how to pay' should be fully discussed.

(by Ryoko SUGIYAMA)

Industrial Community - Strengthening Efforts for the Realization of a Recycling Society

Spurred by the enactment of new laws on the management and recycling of solid waste in the middle of this year, Japanese society has been accelerating efforts for transforming itself into a resource recycling society. This article introduces resource recycling efforts that are being made by various industries.

The Home Electric Appliance Manufacturing Industry has voluntarily started product assessment in terms of easier and safer disposability and recyclability at the product planning stage. Through product assessment, the manufacturers improve product design, select appropriate types of materials, develop alternative products, and indicate types of materials (e.g., plastics) on the product label.

Electric Battery Manufacturers have been developing new types of batteries such as the air cell battery and the nickel hydrogen battery, which are expected to replace traditional dry cell batteries containing harmful materials (e.g., mercury and cadmium).

The Automobile Industry has been promoting the recycling of plastic materials used as parts of cars by indicating types of plastics in accordance with the marking method of the International Standard Organization (ISO). The industry has also just commercialized the recycling of bumpers.

The Construction Industry, spurred by a new law that requires the construction industry to recycle waste concrete block, asphalt, excavated soil, and wood, has been actively recycling construction waste by such means as construction of facilities for treatment of construction waste, and the development of new types of concrete forms to reduce the use of wood. There are some construction companies that provide solid waste management companies with loans to promote recycling.

Glass Bottle Manufacturers have decided to establish a recycling system through which the manufacturers purchase all used glass bottles that are separately collected by local governments. The industry's target is to increase the cullet utilization rate to 55 % by 1995.

Local Governments have given a higher priority to waste reduction and resource recycling. They have made efforts to institutionalize these activities, and to

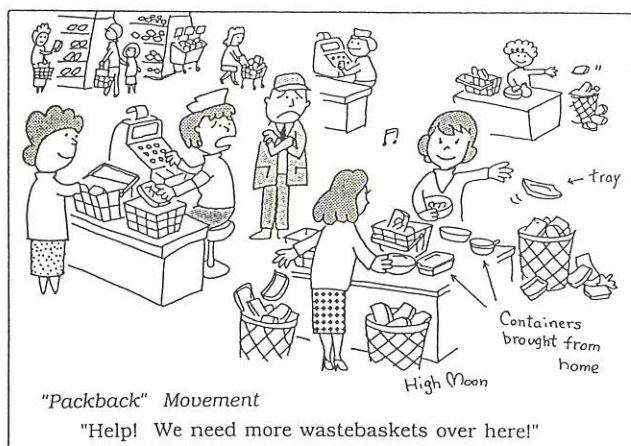
promote recycling activities in which local volunteers participate. Some local governments provide subsidies to encourage recycling.

Recycling of Paper, Steel and Aluminum Cans has been active with participation of various communities. Milk manufacturers have been trying to recycle paper milk packages in cooperation with local voluntary groups. In some areas, companies have formed neighborhood office communities to actively promote recycling of used office paper. Some supermarkets, in cooperation with manufacturers, have been trying to recover polystyrene foam trays used for holding foods.

However, a problem has occurred recently that has seriously affected the recycling of steel and paper; prices for recyclable steel have fallen sharply due to the demand decreases caused by the recent recession in the construction business. (Recycled steel is mainly used by the construction industry.) The price drops have been so great that recycling is not financially feasible. In fact, people now have to pay to dispose of iron scrap instead of being able to sell it for recycling.

In order to promote recycling, it is necessary to further the development of the recycling industry and improve the distribution industry. Such development and improvement will require concerted efforts of three parties, i.e., the government sector, the private business sector and citizens.

(by Yasushi SAKAI, Kiichiro SAKAGUCHI)



By courtesy of Prof. Hiroshi Takatsuki,
Kyoto Univ.
Taka-tsuki literally means High Moon

A Brief Note on Solid Waste Disposal in Japan (5) Recycling of Municipal Solid Waste

One of the major points of the 1991 amendment to the Waste Disposal and Public Cleansing Law concerns the promotion of waste reduction and recycling. There are about 3,200 municipalities in Japan, and some municipalities collect "valuable waste" or recyclable waste, such as paper, steel, aluminum and glass containers. The number of these municipalities has been increasing as shown in Table 1, and under the amendment, it is expected to increase even more rapidly.

There are several types of collection systems of valuable waste: collection by manufacturers and distributors through retailers; by local resource recovery dealers; by citizen groups and organizations; and by municipal governments. Some of these citizen groups are supported by municipalities. Data on the amount of valuable waste collected by municipalities and citizen groups is available.

In fiscal 1988, the amount of valuable waste collected by citizen groups with the support of municipalities was 552,000 tons and by municipal governments, 522,000 tons. (See Table 2) The total amount, 1.1 million tons, was only 2 % of all discharged general waste.

The amount (upper figures) and percentage of each valuable or reusable waste collected by citizen groups and municipalities in fiscal 1988 are also shown in Table 2. Of the waste collected by citizen groups, the largest fraction was paper (76%). Of the waste collected by municipalities, glass (46%) made up the largest fraction. Recently, the market value of the resources recovered from valuable wastes has fallen, and most municipalities now have to pay the manufacturers who use the recovered materials to haul them away.

Table 1. The Number of Municipalities Collecting Valuable Waste

Fiscal Year	1985	1986	1987	1988	1989
Municipalities	615	649	674	683	703

Table 2. Collection of Valuable Wastes in Fiscal 1988 by Citizen Groups and Municipalities

	Paper	Metals	Glass	Others	Total
Citizen Groups*	420 76	43 8	69 12	20 4	552[10 ³ t] 100[%]
Municipalities	34 7	202 39	242 46	44 8	522[10 ³ t] 100[%]
Total	454 42	245 23	311 29	64 6	1,074[10 ³ t] 100[%]

* with a support of municipalities

(by Masako OGAWA)

**Introduction of Governmental / Semi-governmental
Organizations Related to Waste Management in
Japan (3)**
The National Institute for
Environmental Studies

The National Institute for Environmental Studies, or shortly NIES, was established in March 1974 as the first governmental organization for environmental research under the Environment Agency. Since then, NIES with its increasing research staff has been committing to a wide spectrum of environmental research activities primarily in the areas of air and water pollution, their impacts on humans and biology, and development of the monitoring methodology for quantification of changes in the environmental quality. At the same time, policy-related and/or problem-oriented research programs, such as waste management problem, that require expertise not only in natural sciences but also in social and other applied sciences and engineering have been conducted in one or two Divisions.

NIES underwent, however, a considerable reorganization and expansion in July 1990 primarily to cope with the mounting public concern on global environmental issues. As a result, the Institute now has six basic research divisions, two groups or institutional categories in which several to a dozen specific research project teams are organized each, two "Centers" providing various services including research information and training programs for personnel of local governments, and the CGER (Center for Global Environmental Research).

Currently, research topics associated with (solid) waste management and recycling are approached from an economic viewpoint, for instance, in the Social & Environmental Systems Division, while research programs on the control of hazardous wastes with a particular reference to volatile chlorinated organic compounds are conducted by a research team of the Project Research Division for Regional Environment.

Output is regularly published by research staff in either NIES Technical and Annual Reports or domestic and international professional journals of recognized standing.

For further information, please contact the following:

Mr. Y. KURIHARA, Research Coordinator for
International Cooperation
National Institute for Environmental Studies
Onogawa 16-2, Tsukuba, Ibaraki 305, JAPAN
Phone: +81-298-51-6111, Fax: +81-298-51-4732

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Japan society of Waste Management Experts
Vol. 3 No. 2 (April 1992) &
Vol. 3 No. 3 (July 1992)**

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

Vol. 3 No. 2

Study on Effective Thermal Conductivity of Solid Waste Packed Bed

by Hideki YOSHIDA, Nobutoshi TANAKA and Hitoshi HOZOUNI

Dioxin Control in Existing MSW Incineration Plant

by Masakatsu HIRAOKA, Nobuo TAKEDA, Shin-ichi SAKAI, Akira KANEDA, Sadahiko OHGA, Michinobu SEGAWA, Hajime TEJIMA, Masahide NISHIGAKI and Yoshihiro HAYATA

Vol. 3 No. 3

Investigation on Characteristics of Devices for Aerobic Fermentation and Drying Process of Organic Wastes in Packed Bed

by Hiroshi SHIMIZU, Zingwu WU and Ikuo BIWASAKA

*Characterization of Mutagens in Leachate from a Municipal Solid Waste Landfill as Determined by the Ames *Salmonella* Assay*

by Sumiko KOIKAWA-MUTOH, Takashi SOMEYA, Ayako TACHIFUJI, Yasushi MATSUFUJI and Masataka HANASHIMA

A Fundamental Study on Softening of High Level Concentration of Calcium by Crystallization in a Fluidized-bed Process

by Hiroyuki HARADA, Hideo FURUTA, Izumi HIRASAWA and Shigeki NAKAJIMA

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THE JAPAN SOCIETY OF
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Edited by
DR. Sukehiro GOTO, CHAIRMAN
INTERNATIONAL RELATIONS COMMITTEE

SHIBA 5-13-11, MINATO-KU
TOKYO 108, JAPAN
TEL. + 81 3 3769 5099
FAX. + 81 3 3769 1492

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