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## Japan's New Laws on Management and Recycling of Waste

Twenty years have passed since the present Waste Disposal and Public Cleansing Law was put into effect in 1971. It was amended in 1976 to strengthen restrictions on industrial waste. However, it was no longer in tune with the times.

Recent socioeconomic changes, such as mass-consumption, an increasingly disposal oriented culture, rapid introduction of office automation, and the development of high-tech industries have caused tremendous changes in waste discharge. The quantity of waste is again increasing and composition of waste is rapidly diversifying, making appropriate waste disposal extremely difficult.

Hence, the Ministry of Health and Welfare (MHW) proposed a major amendment to the law, centering on a comprehensive policy of waste reduction and recycling, promotion of rational waste disposal and construction of waste disposal facilities. For example, a manifest system is introduced for some kinds of specifically designated explosive, hazardous and infectious industrial waste. Also, the Minister for Health and Welfare can designate some kinds of general waste as those which are difficult for municipalities throughout Japan to dispose of. Manufacturers producing items that will later become the designated waste must cooperate in municipal waste disposal.

On the other hand, the Ministry of International Trade and Industry (MITI) introduced the newly enacted Resource Recovery and Recycling Promotion Law in October 1991. For example, the law requires competent ministers to establish basic policies to promote the use of recycled resources.

The two laws are aimed at protecting the environment from inappropriate disposal of waste by promoting resource recovery and waste recycling. Manufacturers, traders and consumers are respectively required to take social responsibility for achieving the expected outcome effectively.

Some industries have responded to the introduction of the new legal requirements quickly. Manufacturers of electric appliances are making guidelines to develop new products easy to recycle by introducing a program to assess

recyclability and disposability of the products. Battery makers are establishing a system to collect waste nickel-cadmium batteries and developing new generation batteries which are mercury/cadmium free. A nickel-hydrogen battery has already been developed. The auto industry is trying to recycle waste parts by indicating the kind of materials used. The construction industry is promoting recycling of demolition waste. In many offices, waste papers are collected and recycled papers are gaining in popularity. Some super-markets and shops have also started recycling activities. These movements are believed to have been brought about by the two laws.

Owing to the amended Waste Disposal and Public Cleansing Law and the new Resource Recovery and Recycling Promotion Law, Japan is surely on the way to creating an environmentally friendly recycling oriented society, where materials, products and socioeconomic activities are evaluated not only from the standpoint of their functional and economic efficiency but also from their impact on the environment, compatibility with the environment, energy conservation, reducibility of new resource use, recyclability, etc.

## The 2nd Annual Conference of JSWME Successfully Held

The 2nd Annual Conference of JSWME was held from 28th to 30th Oct. 1991 at "Kitatopia", Tokyo, getting the participation of 1,035 members and non-members. Prof. T. Sueishi started the Conference delivering a special lecture on the promotion of recycling. The Conference consisted of two simposia: one on recycling and the other on dioxin from incineration plants, two discussion meetings: one on waste economics and the other on inorganic salts from landfills, and the presentation of 119 research papers. The 3rd Annual Conference will be held from 16th to 18th Nov. 1992 in the same place.



Dr. Masakatsu Hiraoka, Professor of Kyoto Univ. has been elected, in the General Assembly held in 12 May 1992, as the 2nd President of the Japan Society of Waste Management Experts. His term is from 1992 to 1994.

**Japanese Municipalities on the Move (3)**  
**Garbage Recycling System:**  
**The Kawaguchi Method**  
**By Miyako Matsuda (\*)**

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Chairperson, "Women's Study Group on Garbage Issues", Ministry of Health and Welfare.

Kawaguchi City, where I am living, has an area of 50 km<sup>2</sup> with a population of 440,000. It is about 30 minutes by train from Tokyo, making it a typical residential satellite city. From this city, originated a model for garbage recycling system known as the "Kawaguchi Method of Recycling."

The method consists of two complementary systems, voluntary monthly collection of waste materials such as used papers by 223 registered groups, and bimonthly recovery of used bottles and cans from curbside collection sites by the city administration.

The collection of bottles and cans is carried out by putting two boxes, one for recycling bottles and the other for recycling cans, for every 50 households on the day before collection. The common method elsewhere, in which both bottles and cans are put in plastic grocery bags, means additional work of opening these bags and sorting the contents after collection. The basis of the Kawaguchi Method is "source separation", a method where cans and bottles are sorted right at every household. By using this method, sorting labor is reduced. Furthermore, good quality, recyclable materials can be collected.

Recyclable materials such as used papers is undertaken once a month. Clothing, iron, steel and reusable bottles are also collected. Almost all community groups in Kawaguchi City participate in this program. For its part, the City subsidizes the groups at 10,000 yen per ton of collected resource.

In 1991, 11 years after the movement started, the following results have been attained. First for 1991, the annual collection of bottles, cans, papers, etc. totaled 16,000 tons which amounted to 72 million yen in recycling revenues. With disposal costs of 30,800 yen per ton, the city could realize a cost avoidance of about 600 million yen.

From 1979 to 1991, the recycling of bottles, cans and papers totaled 117,000 tons. This is equivalent to the yearly garbage disposed of by a community of 300,000 people. The recycling revenue from these resources amounted to 730 million yen, a savings of 3.3 billion yen in garbage disposal costs. With the 730 million yen recycling revenues, the city was able to build 11 community halls which residents refer to as "Community halls built out of garbage".

From the viewpoint of disease prevention and sanitation, all garbage in Japan are to be disposed of by incineration, and technological progress has been made to improve this system. However, changes in consumer lifestyles have made it nearly impossible to burn some materials. From the standpoint of resource preservation, a system of recycling bottles, cans and papers has been introduced in progressive communities as part of their policy. Kawaguchi City is one of the pioneer cities in this regard. Eleven years ago, Kawaguchi City also employed a system of disposing of all garbage by incineration. However, since the recycling system started, the city has saved 400 million yen in incineration costs.

Yet, towns with good garbage disposal systems, mostly small towns, constitute less than 10 percent of all municipalities in Japan. We are hoping that the "Kawaguchi Method" will be applied to all the local communities in Japan. The close cooperation of the citizens and the town administration is necessary to keep the movement spreading.

Fortunately, Waste Disposal and Public Cleansing Law has been revised in 1991 and a new requirement to protect the environment was added. At last a recycling society has started. This Law has put the brakes on the Japanese lifestyle of using and disposing. I hope that this will be a starting point for protecting the earth's environment.



Let's join  
recycling  
movements!

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

**Introduction of Governmental /  
Semi - governmental  
Organizations Related to Waste Management in  
Japan (2)  
THE CLEAN JAPAN CENTER**

The Clean Japan Center (CJC), a subordinate organization of the Ministry of International Trade and Industry (MITI), was established in November 1975. The main financial sources, that support CJC's activities, are subsidies from MITI and Japan KEIRIN Association in addition to financial contributions by associate member industries. Of the many activities CJC has been involved in the solid waste management field, the primary focus has been waste recycling and minimization.

CJC consists of 6 departments: Planning and General Coordination, Development, Public Relations, Research and Information, Foreign Affairs and Consulting.

The main duty of the Development Department is the demonstration plant project to examine economic and technical feasibility of recycling technologies. Some examples are the Zeolite Recovery Plant from Fly Ash, the Compost Production Plant from Organic Wastes and the Mercury Recovery Plant from dry cell batteries.

The Public Relations Department prepares various educational tools including videos, posters and brochures and publishes a bimonthly journal "Clean Japan". Another important activity is waste recycling seminars sponsored by CJC.

The Research and Information Department is involved in research projects. The research themes include waste recycling technology, strategies and systems for optimal waste management and recycling, waste management and recycling facilities and statistics on wastes.

The Foreign Affairs Department exchanges information with overseas organizations. In addition, it offers an Industrial Waste Recycling Training Course for waste recycling specialists from developing countries in cooperation with Japan International Cooperation Agency (JICA).

To meet the demands from industries as well as local governments, the Consulting Department provides consulting services. The frequent themes of consultation are specific technical problems and legal and policy affairs relating to waste management and recycling.

For further information, please contact:

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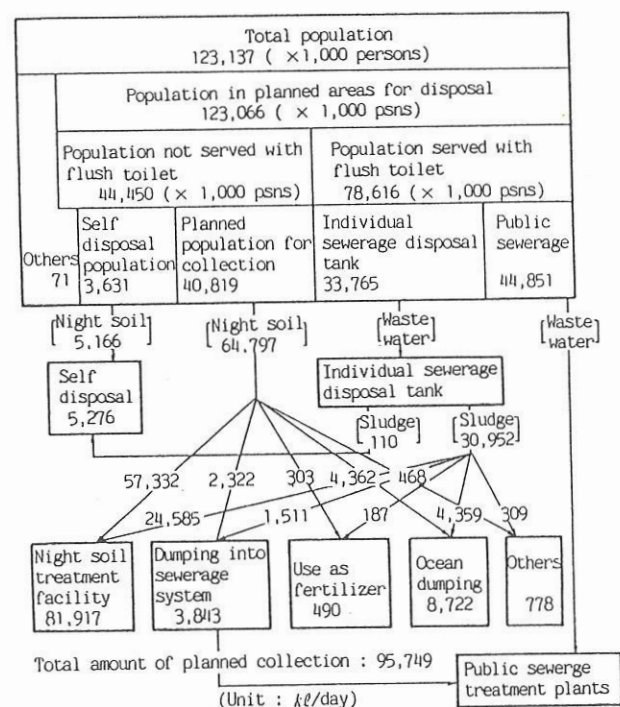
**Japan's Night Soil Treatment - a unique example of  
Japanese experience**

The Japanese practice of human excreta (or night soil) treatment has a somewhat unique history and technology. In the old days before industrialization, Japan, as an agrarian country, had been using night soil as fertilizer. After World War II, because of rapid population growth in the cities, a modern approach to night soil management was taken.

Today, night soil is treated by roughly three kinds of systems; public sewers, private or individual / community owned sewers (jokaso) and vacuum car collection-night soil treatment plants.

Public sewers are being energetically constructed every year in many municipalities. As of March 1990, 36% of Japan's population has public sewer service. However, the system is not economically feasible in many of the remaining municipalities. Therefore, night soil treatment plants, where night soil and jokaso sludge are biochemically treated, are playing a very important role.

Because of its importance, the technology of night soil treatment is well developed. Historically, anaerobic treatment where the night soil was diluted with 20 parts water was popular. These days, aerobic systems with dilution of 10 parts water or less are the most popular. Advanced systems which can remove nitrogen and phosphate without dilution water are also getting popular. Currently, systems using even membrane technology are being realized.



**Collection to Disposal Flow of Night Soil (in FY 1989)**

**A Brief Note on Solid Waste Disposal in Japan (4)  
Cost of Solid Waste Disposal**

The recent increase and change of quality of waste, as reviewed in the previous issues, has been making solid waste disposal costlier year by year, making it one of the greatest financial burdens on municipalities.

The total expenditure for municipal solid waste disposal (excluding industrial waste disposal) in fiscal 1989 was ¥1,261 billion (or \$10 billion). Of this, 24.8% was for construction and repair of facilities; 40.0% for personnel; and 35.2% for waste disposal operation and maintenance of facilities. Cost of disposal, per capita and per unit

amount of discharged waste, is shown in the accompanying table.

The total revenue for solid waste disposal in fiscal 1989 was ¥1,264 billion. "General revenue" or tax accounts for 79.1%; subsidy from the national government for construction of facilities, 3.6%; loans, 10.7%; fees and charges for collection and disposal, 4.5%.

In fiscal 1988, among some 3,600 municipalities in Japan, 25.6% charged collection fees on household waste and 64.7% collected household waste for free.

**Cost of Municipal Solid Waste Disposal in Japan**

	FY 1980	FY 1985	FY1987	FY1988	FY1989
A. Expenditure [¥billion]	798	1,009	1,086	1,154	1,261
B. Waste Discharged [thousand ton]	43,935	43,450	46,339	48,392	49,972
C. Service Population [thousand]	116,678	120,774	122,025	123,515	122,954
D. A/B [¥/ton]	18,163	23,222	23,406	23,847	25,234
E. A/C [¥/capita]	6,839	8,354	8,900	9,343	10,256

**Journal of Japan Society of  
Waste Management Experts  
Vo2. No.4 (Oct. 1991) & Vol.3 No.1(Jan.1992)**

(Ministry of Health and Welfare)

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

**Vol.2 No.4**

*Studies on Leachate Quantity and Capacity Calculation of Leachate Control Basin for Solid Waste Landfill Site*

by Shigeki Nakajima, Hideo Furuta,  
Sumika Yoshida and Hajime Hirata.

*Removal of Nitrogen and Refractory Organic Compounds in Municipal Landfill Leachate by Sequencing Batch Reactor Activated Sludge Processes*

by Masaaki Hosomi, Kazuo Matsushige,  
Yuhei Inamori and Ryuichi Sudo.

**Vol.3 No.1**

*Composition of Silver Deposit Collected from Waste Fixing Solution*

by Yozo Ishizuka and Hisao Imai

*A Study on Making the Boundary of Area-wide for Regional Waste Treatment Planning*

by Akira Koizumi, Toyono Inakazu, Kenji Ogura,  
Shiro Kawaguchi and Shigehisa Tazaki

**Move of the Office of JSWME**

The office of JSWME was moved in November 1991. The new address is in the following box. Telephone and facsimile numbers are not changed.

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