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NEWSLETTER

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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts

The JSWME NEWSLETTER has been mainly dealing with controversial issues on waste management in Japan, such as newly raised problems, current policy initiatives, recent movements among municipalities. However, there are other aspects in waste management, namely its economic and financial implications. Two articles of this NEWSLETTER give you some insight into facility construction and from haulage to disposal business of waste management in Japan.

To commemorate the tenth anniversary of JSWME, which was established in March 1990, the society is organizing various events. In the Annual Conference scheduled from Oct. 26 to 28 in Ohmiya, a Memorial Ceremony and a Memorial Symposium are planned as well as the International Session in English, as introduced in issue No. 28. We look forward to seeing you at the Conference.

(by Hiroki Hashizume)

New Trend in Solid Waste Management and Recycling Business in Japan

Introduction

In Japan generators of industrial waste are responsible for the management of the waste they generate, and local governments are responsible for all other waste (municipal waste). Each year about 400 million tons of industrial waste and 50 million tons of municipal waste are generated. Household waste make up 60 % of municipal waste, and the remaining 40 % is business waste.

Recently the cost of municipal solid waste management, including management cost of commercial waste which is directly managed by waste generators, is estimated to be around 3 trillion yen ($24 billion) per year, of which about 700 billion yen ($5.6 billion) a year is spent on construction of intermediate treatment facilities such as incineration or pulverization plants.

The cost to manage industrial waste is estimated to be of the same magnitude as that of municipal waste management (3 trillion yen/year), of which about 60 billion yen ($480 million) a year is spent to construct incineration plants.

In the early 1990s, Japan started to experience a new trend in solid waste management and recycling markets as described below.

Emerging Recycling Market

There are two laws on recycling that have been recently enacted: the Packaging Waste Recycling Law which will be fully enforced in 2000; and the Household Appliances Recycling Law (HARL) in 2001. It is estimated that packaging and containers share two thirds of municipal waste in terms of volume, and one quarter in terms of weight. The types of home electric appliances subject to HARL are refrigerators, large television sets, washing machines, and air-conditioners. It is estimated that about 20 million of these appliances are generated per year. The market to recycle such appliances is estimated to reach 100 billion yen (approximately $800 million) per year in the near future.

Privatization of Municipal Waste Management

Until the early 1990s the private market share in municipal solid waste management and recycling was small. Private business opportunities existed only in collection services and operation and maintenance services of some municipal treatment and disposal facilities. Private participation is expected to increase in the future, because the Private Finance Initiative (PFI) Law will be enacted in 1999. Private funds are expected to be mobilized for construction and operation of municipal waste disposal facilities in such a contract type as Build, Own, and Operate (BOO).

Market Expansion of Industrial Waste Management

Waste disposal standards are becoming more and more stringent due to environmental pollution; waste generators will no longer depend on cheap disposal methods, raising the costs of industrial waste management. The market of industrial waste management will be enlarged accordingly.

Recycling Market of Construction/Demolition Waste

Between 1960 and 1995 the increase in volume of building structure, after deducting the demolished structure volume, was about 3.9 billion m^3 for non-wooden structures, and 2.5 billion m^3 for wooden structures. Much of the constructed structures will be renewed or demolished in the beginning of the 21st century, and, naturally, a large amount of demolition waste will be generated. The recycling markets of used construction materials such as steel, glass, wood, cement, and stones will be expanded.

(by Shunsuke Aoyama & Kiichiro Sakaguchi)

Universities and Research Institutes Concerned with Waste Management in Japan (3)

-Research Group of Solid Waste Resources Engineering, Division of Environment Resource Engineering, Graduate School of Engineering, Hokkaido University-

Graduate School of Engineering at Hokkaido University now offers a course in solid waste research, "The Research Group of Solid Waste Resources Engineering, Division of Environment Resource Engineering", mainly as a result of the reorganization of the Department of Engineering. The Department recently began to offer this course to emphasize education and research at the graduate school level. Consequently, graduate school professors will be also teaching in colleges, instead of college professors teaching graduates, which is more common.

Until March 1997 the course was quite small in scale (1 course = 1 laboratory), but now one course consists of three to four laboratories. Our laboratories fall under the Research Group of Solid Waste Resource Engineering, which is offered in the Division of Environment Resource Engineering (composed of 4 courses). See attached figure for reference.

The Research Group evolved as follows: the solid waste disposal engineering field (formerly the laboratory for public cleansing engineering) and the solid waste management engineering field (newly established) were formed from the sanitary engineering course, while the resource recovery engineering field is a new name for resource development engineering course. In short, studies on resources and solid waste were combined resulting in the coinage "Solid Waste Resource", a concept that matches the cradle to grave product life cycle assessment (LCA) and circulatory society ideologies.

Research Groups that share common objectives and methodologies are placed under one education and research unit with clear engineering specialties. However, the objectives and the methods in which education and research activities in this new Research Group will be promoted have not been decided yet. It is quite stimulating to have total freedom in designing it. At present major research groups decide on graduate school entries, and seminars and academic meetings are jointly held enabling active interchange in research activities.

There have been no Japanese universities with "solid waste" as its laboratory name to date. Hokkaido University is the first one, and, moreover, this course is composed of three laboratories. This may be attributed to the importance placed by the times on solid waste research. Although people like us involved in solid waste research feel that this is a slow move, our feelings about the seriousness of our task and our responsibilities have been revived. We, the entire staff, will give all our efforts to attain a successful outcome from now on. In this regard, we do appreciate your guidance and encouragement.

This Research Group consists of the following Laboratories:

Solid Waste Disposal Engineering

Prof. TANAKA, Nobutoshi
(Phone:(+81)-11-706-6828 / E-mail:nobutosh@eng.hokudai.ac.jp)

Current research activities: biochemical/chemical reactions and transport phenomena of moisture, biogas and heat in solid waste landfill sites;gas flow, mixing and reaction characteristics in the combustion chamber of solid waste incinerators; LCA of RDF production or resources recycling facilities; analysis of waste stream flow in municipal area; behavior of high alkaline materials such as waste melted slag in the environment.

Mineral Processing and Resources Recycling

Prof. TSUNEKAWA, Masami
(Phone(+81)-11-706-6314 / E-mail: tunekawa@eng.hokudai.ac.jp)

Current research activities: Waste utilization and resources recycling; process mineralogy to recover gold from complex sulfide ore; advanced coal cleaning; on-line monitoring and process control system in mineral processing; biohydrometallurgy and bioremediation; production of ceramic microspheres by agglomeration in liquid.

Solid Waste Resources Management Engineering

Prof. FURUICHI, Tohru
(Phone(+81)-11-706-7283 / E-mail: t-furu@eng.hokudai.ac.jp)

Current research activities: development of systems planning methods and information systems for solid waste resources management; environmental protection by risk management of hazardous wastes;solid waste resources recycling sytems in respect of global environment;technical support on solid waste management planning in developing countries.

(by Tohru Furuichi)

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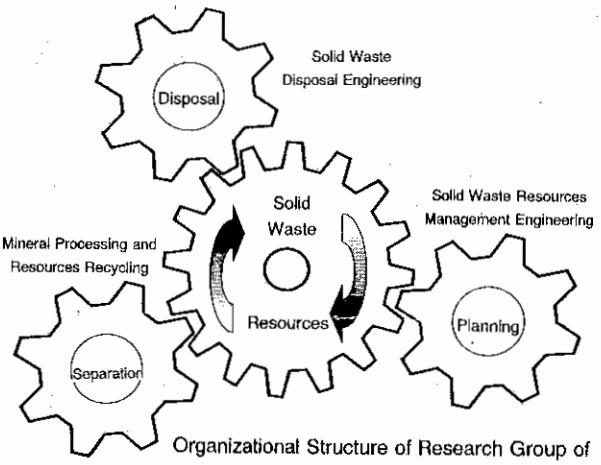


Organizational Structure of Research Group of Solid Waste Resources Engineering, Graduate School of Engineering, Hokkaido University

The Third Korea-Japan English Session

On May 14, 1999 the Korea Solid Wastes Engineering Society (KSWES) held its Spring General Assembly in Seoul City University, which is located at the northeastern part of Seoul. Ten members of JSWME including the governmental, private, and academic sectors participated in the Third Korea-Japan English Session.

At the beginning of the General Assembly Mr. Masayoshi Nakanishi, Director of JSWME's Secretariat, on behalf of Dr. Katsumi Yorimoto, president of JSWME, delivered an address of gratitude for their invitation and expressed a hope to future cooperation. The Third English Session started from 14:00 to 17:50. It was introduced by the Korean and Japanese Chairpersons, and was divided into three parts with 14 presentations in total, half of which was presented by Japanese experts. The session took place at an advanced seminar room that was equipped with the latest audiovisual system. The session revealed that recycling, especially recycling of food waste, is an important research subject in Korea.

We were able to strengthen our mutual friendship at the reception after the session; Dr. Um Won Tak who is the society chairman and professor emeritus of Yungnam University, Dr. Lee Dong-Hoon of Seoul City University who is responsible for international exchange in Korea, Dr. Shin Hang-Sik of Korea Advanced Institute of Science and Technology (KAIST) who was professor of Hokkaido University and many Korean participants, including students, had a commendable command not only of English, but also of Japanese. The cooperation between the Korean and the Japanese Societies is greatly indebted to them. We are looking forward to meeting them again in our International Session at Ohmiya this autumn, and we hope there will be more Japanese participants at the English Session by the Korean Society next spring.

(by Masato Yamada)

Financial Assistance for Solid Waste Management Facilities in Japan

Solid Waste Management by Municipalities

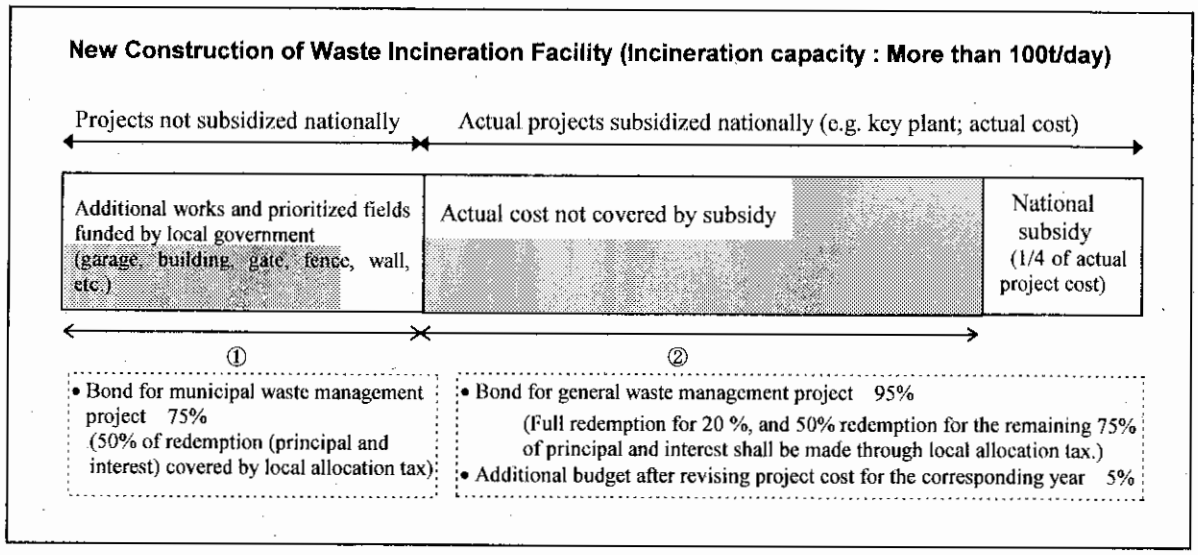
Japan's waste management law categorizes solid waste into municipal waste and industrial waste. Industrial waste refers to the 19 types of legally specified waste generated by industrial activities, while municipal waste refers to all other waste types, e.g., household waste, including some wastes generated by business activities. Municipalities are responsible for the management of municipal waste.

Financial Assistance to Municipalities for the Construction of their Solid Waste Management Facilities

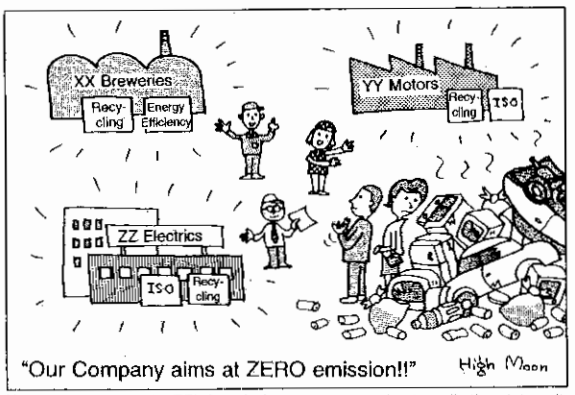
Often in Japan, ministries allocate national subsidy to approximately 1/4 to 3/4 of the construction cost of facilities for various public works carried out by local governments (the severer the conditions for the establishment of the facilities, the higher the subsidy rates are) in order to support their operations.

To properly handle general wastes the municipalities need to construct relevant facilities. One third or one fourth of the cost to construct the following solid waste management facilities: sludge recycling facility, municipal waste treatment facility (incinerator, crushing and recycling facility for bulky waste, sanitary landfill site, etc.), community wastewater treatment facility, etc. are subsidized by the Ministry of Health and Welfare. In 1998 a total of ¥241.7 billion was appropriated as a national subsidy for the construction of 29 sludge recycling facilities and 91 municipal waste treatment facilities.

The waste management policies of Japan aim for sanitation, stabilization, and the reduction of waste amount for landfilling mainly through incineration (76 % of the generated municipal waste is incinerated). Since discharge of dioxins is more effectively controlled in large incinerators, the construction of incineration plants targeting less than 100 tons of waste per day is excluded from those subject to the funding from last year.



The prefectural governments approve the granting of a bond to cover 75% to 95% of the remaining 2/3 or 3/4 of the national subsidy, and also for the construction of facilities ineligible for national subsidy. Moreover, 50 to 70% of the redemption of the bond will be covered by the national grant (local allocation tax) through the Ministry of Autonomy. (by Tetsushi Sato)



Note : More efforts for ZERO emission are requested externally than internally.

By courtesy of Prof. Hiroshi Takatsuki (Taka-tsuki literally means "High Moon".)
(translated by JSWME, taken from Monthly "The Waste", June '99)

Journal of the Japan Society of Waste Management Experts, Vol. 10, No. 2 (March 1999) and Vol.10, No3 (May 1999)

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

《Vol. 10, No.2 (March 1999)》

Paper

Is an RDF System with Energy Recovery Available? —Evaluation of Environmental Impact and Social Cost-Benefit Analysis of Total Process—
Jeong-Soo Yu and Yasoi Yasuda

Application of Sewage Melting Slag to Self-Compacting Concrete
Takehiko Midorikawa, Kiyoshi Momonoi, Kyuichi Maruyama and Noboru Sakata

The Effects of Informational Exposure and Behavioral Commitment on Residents' Evaluations of the New Waste Collection System: An Environmental and Social Psychological Approach
Junkichi Sugiura, Hiroshi Nonami and Yukio Hirose

Chemical Composition of Metal Formed in Ash Surface-Melting Furnace
Yu Hara, Kumiko Nemoto, Masao Nakamura and Minoru Tamura

Note

Decomposition of Dioxins in a Landfill Leachate by Advanced Oxidation Processes
Sota Nakagawa, Toshihiro Tanaka, Saburo Ito and Yousei Katsu

Thermodynamic Study of Exhaust Gas from Waste Combustors Chlorine Gas Emission from Certain Chlorides
Makoto Kitano

《Vol. 10, No.3 (May 1999)》

Preface

Wish for Fullness of Research Institute in Local Self-government
Toshiro Sakurai

Special Issues: Environmental Labels

Environmental Labels and Waste Management
Ken Morishita

Japanese Government Measures which Promote Environmental Labelling and Green Purchasing
Noriko Karaki

The Measure of Green Purchasing Promoted by Shiga Prefecture
Manabu Hattori

Development of Environmentally-Conscious Products (ECP) by NEC
Masayuki Saita

Ecolabelling and Waste Issues in Foreign Countries
Hiroyuki Sato

Standardization of Environmental Labelling in ISO and Waste Management
Haruo Uehara

Review

Architectural Design of Incineration Plants —History and Perspective—
Takeyuki Okubo

Report

Examination on the Characteristics of Shredderdust —The Prevention of Lead Elution—
Kohji Kakimoto, Yoshito Shirai, Hiroaki Ogawa, Masao Tomari and Yasuhiko Kato

Anaerobic Digestion of Municipal Solid Waste —Present State and Subject—
Shigeo Shikura and Hideki Harada

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