



NEWSLETTER

No.44

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April 2003

THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts

Spring has come. April sees the blooming of cherry blossoms, and is one of the best and most hopeful seasons in Japan. Though for the 15 % of the population who suffer from hay fever, it continues to be a difficult time. Cedar pollen is the main cause and diesel engine particulates are suspected of aggravating the epidemic.

From the new fiscal year starting this April, our Newsletter recommences with a series of articles, which introduce hot news and activities on SWM in Japan. Topics include the progress of recently enacted laws on disposal/recycling, municipalities on the move and noteworthy technologies. Japanese ODA in SWM improvement as well as environmental protection are also reviewed.

This issue reports on the rush of PCB treatment facility construction based on the Law for PCB Waste Destruction newly established in July 2001. Food waste recycling activities in one of the 23 special wards in central Tokyo follow the Food Waste Recycling Law established in June 2000. An RDF-based power generation project, as an advanced incineration technology, is also introduced. Finally, the outline of Japanese technical cooperation by JICA is reviewed by an expert from the Institute for International Cooperation, JICA

JSWME is now calling for papers for its annual research conference in Tsukuba to be held from October 22-24, 2003. Foreign non-members may participate the international session.

(Hideo Azuma)

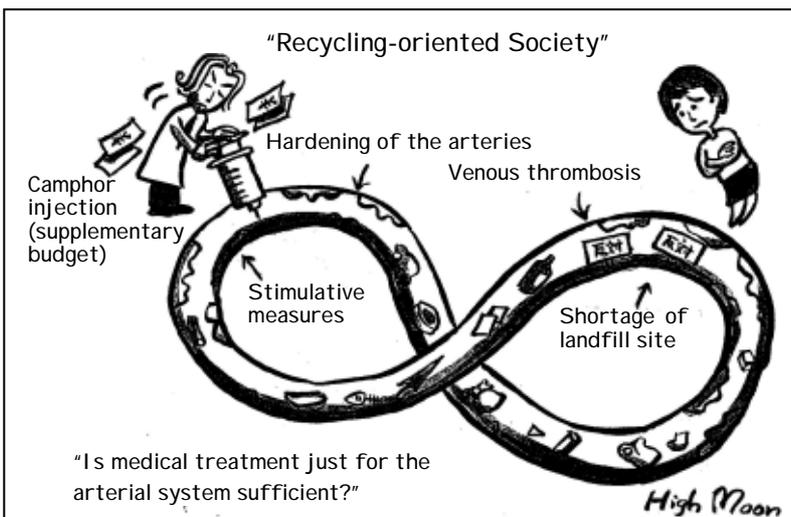
Promotion of the Destruction of PCB Waste in Japan

JSWME Newsletter No.40 reported that “the Law for the Promotion of the Environmentally Sound Destruction of PCB Waste” was introduced in July 2001 by which the framework to accelerate the destruction of PCB waste was established including the obligation of enterprises to appropriately treat the PCB they possess within 15 years. It is Japan Environment Corporation (JEC), a legal corporation established in 1965, that is responsible for planning and constructing regional PCB treatment facilities. JEC’s five construction plans of PCB treatment facilities have been approved by the Environmental Minister, and the progress are reported below.

The process flow of PCB treatment is shown in Fig. 1. PCB oil contained in transformers, capacitors and PCB adhered containers are treated for detoxification. The chemical treatment method is among the treatment methods specified by the Waste Management and Public Cleansing Law.

Facility construction necessitates the understanding of residents living near the construction sites, and this in turn requires the guarantee of facility safety and the thorough disclosure of information. JEC tries to ensure the safety of the process by organizing exploratory committees for PCB waste destruction. It will also invite local people to the explanatory sessions and the facilities aiming at the open management of the facilities.

The first project of PCB treatment facility construction was approved in November 2001. It is to be located on reclaimed land in the Hibikinada area in Wakamatsu district, Kitakyushu City, and to receive PCB waste from 17 prefectures in western Japan. The facility will have a capacity to treat 0.5 tons of PCB a day for the initial stage and start its operation in December 2005.



Comments by High Moon: “Sure enough, a necessity shall be the constitutional improvement of our society.”

Illustrated by Prof. Hiroshi Takatsuki (Taka-tsuki literally means “High Moon”). Taken from the Monthly “the Waste”, January 2003 and translated by JSWME.

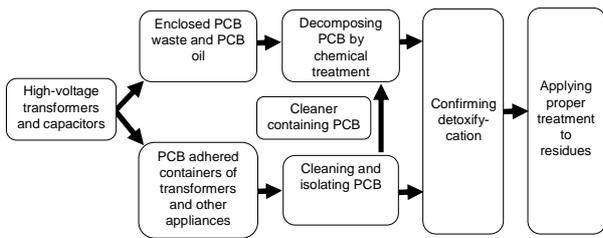
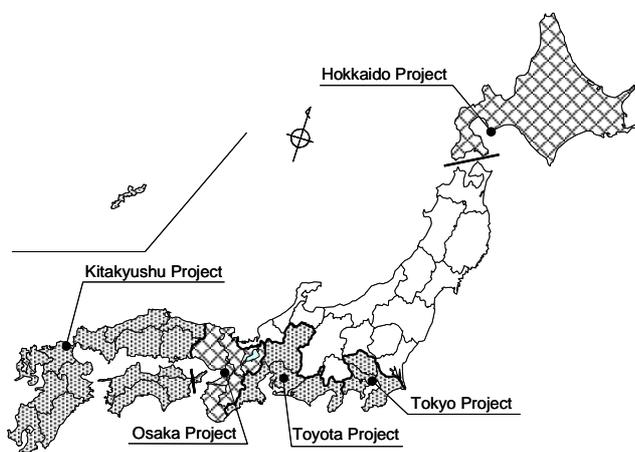


Fig. 1 PCB Treatment Process

Furthermore, four other regional projects were approved consecutively (see Fig. 2). The Toyota project in Hosoya-cho of Toyota City to receive PCB waste from four prefectures of the Tokai region was approved in October 2002; the Tokyo project in the Inner Central Breakwater Landfill of Tokyo Bay to receive PCB waste from four prefectures of the Tokyo metropolitan area in November 2002; and the Osaka project in Konohana district of Osaka City to receive PCB waste from six prefectures of the Kinki region and the Hokkaido project in Nakamachi of Muroran City to cover Hokkaido in February 2003. These five facilities will treat some 80% of PCB waste existing in the whole country. The treatment of PCB waste from prefectures outside of the service area of the five facilities will be further discussed among the Ministry of Environment and the local governments.

JEC is expected to steadily advance the construction projects and begin to treat PCB waste in a safe and appropriate manner, pursuing the elimination of PCB in Japan.



(Kimio Matsumoto)

Fig. 2 Location of PCB Projects

Municipalities on the Move

- Food Waste Recycling in Nerima Ward, Tokyo-

Japanese people generate 450 million tons of waste each year, 4 % of which is food waste. As far as municipal waste goes, food waste accounts for 30 %, implying that the reduction and

recycling of food waste is one of the keys to municipal waste management. The food waste recycling law was issued in 2000 in order to promote the recycling of food waste generated by food business enterprises. The recycling of food waste from households, however, has difficulties such as odor control when storing and the limited demand for compost produced from it. How to encourage the recycling of household food waste is the current question that most Japanese cities face.

Nerima ward, one of 23 special wards in central Tokyo, has a population of 675 thousand and an area of 48.16 km². With a large housing complex, its population has continued to increase. However, it is also one of the areas in Tokyo where agriculture is still active. Food waste recycling, in which compost is produced and used on farms that provide products to the local residents, has been tried there.

For example, the composting of school lunch leftovers at elementary and junior high schools has been carried out using garbage-composting devices provided by the ward authority. This activity started with one school in 1994, and has spread to another seven schools. The schools without such devices are provided with containers to store food waste, and the ward authority collects it for recycling. About 85 tons of food waste in total is recycled each year. This recycling program not only contributes to sound waste management but also has a positive effect on environmental education for the school children. They can experience the recycling and utilization of food waste that they generate.

In Nerima ward, there is also a housing complex where its residents jointly carry out food waste recycling. They started their activity in order to fertilize plants in the surroundings of the housing complex by making compost from food waste. A garbage-composting device was donated by its manufacturer and the recycling began in 1998. More than 60 families participate at present. The final product of compost is used to grow trees and flowers in the yards of the complex.

Such food recycling at the local level for the development of environment-friendly communities is expected to facilitate the establishment of a recycling oriented society.

(Ryoko Sugiyama)

RDF-Based Power Generation

Refuse Derived Fuel (RDF) consists of small pellets made from waste by dehydration and solidification. RDF can be good fuel as it has low moisture content and a stable calorific value. It is also good because the lime added to waste in the RDF manufacturing process ensures its storageability and decreases such corrosive gases as hydrogen chloride in the combustion process, preventing the boilers from corroding. Because it is

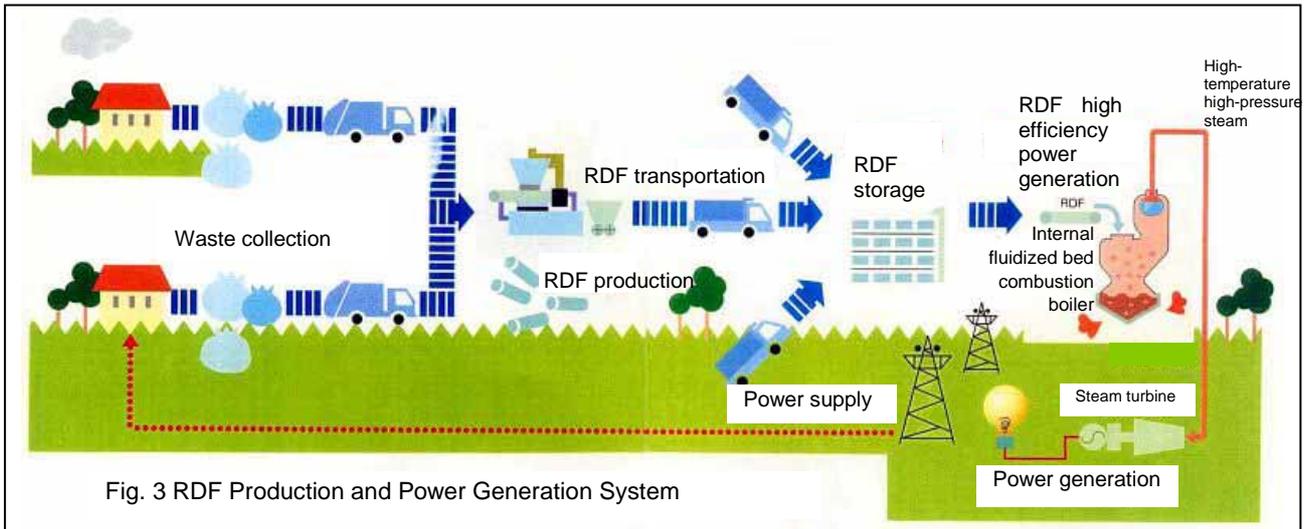


Fig. 3 RDF Production and Power Generation System

well formed, it is easy to collect and transport over a wide area.

Power generation by burning RDF is, therefore, not only considered as a measure to control dioxin generation by the management of waste across municipal boundaries but is also expected to be a relatively large scale and efficient refuse power generation, which is one of the most plausible waste-to-energy options.

In order to achieve a higher power generation efficiency of over 30%, a circulating fluidized bed boiler has been developed, which minimizes the contact of corrosive gas with the super-heater to generate steam of high temperature and pressure.

The figure above illustrates the system of RDF manufacturing and power generation. In Fukuoka prefecture and Kumamoto prefecture, there are seven RDF production plants which collect waste from 28 cities and towns, and RDF goes from these plants to a RDF-based power plant in Omuta city (see photo below), whose capacity is 315 tons of RDF a day, maximum output is 20,600 kW, and power generation efficiency is more than 30%. The Omuta-Arao RDF production plant, the largest of the seven plants with a capacity of 110 tons of RDF, is



Photo: View of Omuta RDF-based Power Plant

situated next to the power plant and RDF is fed to the power plant by conveyors.

Five RDF production plants out of the seven and the Omuta power plant started operation in December 2002. The system is expected to be a driving force behind the further development of RDF technology and its application.

(Hironori Ozaki)

**Technical Cooperation by JICA
in the Waste Management Area**

Japan International Cooperation Agency (JICA) is responsible for the technical cooperation aspect of Japan's Official Development Assistance (ODA) programs. This article briefly describes JICA's activities in the waste management area. The view in this article is of the author and does not necessarily reflect that of JICA.

Policy of Japan's Environmental ODA and EcoISD

Japan has emphasized the promotion of environmental measures through its ODA. In 2002, the Japanese Government announced its Environmental Conservation Initiative for Sustainable Development (EcoISD), which summed up the basic philosophy of Japan's environmental cooperation and program of action and placed pollution control (including waste management) as one of the priority areas.

Japan's Technical Cooperation in Waste Management Area

1) Capacity development of the public sector: The public sector is required to develop its capacity to tackle the waste issue. The type of capacity needed will be different depending on the type of waste to be managed. For municipal solid waste management, it is especially important to improve the capacity for the planning of waste collection and disposal, supervision of contractors and financial management. On the other hand, for hazardous waste management, the public sector should

firstly set up a legal system of regulation and a waste generators directory, and secondly improve regulation enforcement capacity, whereby illegal waste management is controlled and investment in waste management facilities is encouraged.

2) Private sector participation: As the private sector plays a bigger role through privatization, the public sector needs more capacity to supervise and regulate the private sector. Also, the private sector is supposed to play an active and responsible role not only as a waste generator, but also as a waste transporter and treater.

3) Participation of stakeholders: It is important to involve stakeholders in the planning process of waste management. Participation is particularly emphasized in, such as, the environmental and social impact assessment for the construction of a waste management facility, public education for improved waste discharge behavior, and the introduction of waste collection charges.

Technical Cooperation by JICA

1) Volume: The amount of technical cooperation in the waste management area is as follows (thousand yen):

FY1999	886,371
FY2000	872,536
FY2001	1,200,678

2) Programs: JICA conducts the following technical cooperation programs:

- Dispatch of experts and senior volunteers
13 experts in total were dispatched in FY2001.
- Training program in Japan and developing countries
JICA holds a training course on municipal solid waste and industrial waste. Five training courses were held in Japan in FY2001.
- Technical cooperation project (a combination of expert dispatch, counterpart training in Japan and provision of equipment) JICA assisted in the following projects:
 - Water Supply and Environmental Sanitation Training Center in Indonesia (1991-1997)
 - Evaluation and Analysis of Hazardous Chemical Substances and Biological Treatment of Hazardous waste in Malaysia (1993-1997)
 - Training in Industrial Pollution Prevention Technology in Indonesia (1993-1998)
 - The Industrial Waste Project in Brazil (1993-2000)
 - "Environment Center" project in Chile and Mexico
- Development study

JICA carries out development studies, in which technical assistance is provided to formulate master plans/action plans on waste management and/or conduct feasibility studies on waste management facilities.

The development studies on municipal solid waste were conducted in Azerbaijan, Niger, Panama, Sri Lanka, Syria and Vietnam, and those on industrial waste were conducted in the Philippines, Romania and Thailand in FY2001.

- Basic design study for grant aid program

JICA conducts basic design studies and procurement support work for Japan's grant aid program, such as the provision of waste collection vehicles.

3) Example:

In the development study on the Improvement of Solid Waste Management in Secondary Cities of Sri Lanka, JICA is conducting pilot projects such as drafting a model bylaw, improving the waste collection service and introducing a sanitary landfill. The result of the pilot projects will be reflected in the solid waste management plan of the targeted cities.

Recent Development

1) Rehabilitation and safe closure of a landfill site: As a spearheading work, JICA started the development study on the rehabilitation and safe closure of landfill sites in Malaysia in 2003, which will carry out pilot projects and produce guidelines and an action plan.

2) Revision of EIA guideline: JICA started revising the existing environmental impact assessment guidelines that should be applied to JICA's projects, including projects in the waste management area that could possibly affect the environment.

Related Documents

You can download the following related documents from the "Environment" and "Study Reports" pages on the JICA Website (<http://www.jica.go.jp/>).

- Committee Report for the Promotion of Cooperation on Climate Change Mitigation Measures and Implementation of CDM/JI
- Report on Promoting Cleaner Production in Developing Countries
- The Second Study on Development Assistance for the Environment

(Taisuke Watanabe)

**Journal of the Japan Society of
Waste Management Experts, Vol.14, No.1
(January 2003)**

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

Waste Management Research

Preface

From Recycling to Sustaining

Hiroshi Takatsuki

Special Issues: The 13th Annual Conference of JSWME

Overviews

Toshihiko Matsuo

Symposium

Hajime Yamakawa

Reports of Each Session

Reports of Each International Session

Reports of Mini Symposia

Review

***In Vitro* Bioassays for Dioxin and Dioxin-like Compounds**

Shin-ichi Sakai, Hidetaka Takigami, Kazunori Hosoe and Peter Behnisch

Report

A Study on the Volume-Based Waste Charging System in South Korea

Jung-Han Park, Susumu Tohno, Mikio Kasahara and Yi Pyongin

Journal of the Japan Society of Waste Management Experts

Review Paper

Comparison of Environmental Safety Management Systems for Recycled Materials Used in General Environment

Tomohiro Tasaki, Masahiro Osako and Shin-ichi Sakai

Papers

Synthesis of the White Calcium Cyanamide from Shells, Egg Shells, and Chicken Bones

Masahiro Ogawa, Kohei Yamauchi, Hisao Sugihara, Hiroyasu Nishiguchi, Tatsumi Ishihara and Yusaku Takita

***De Novo* Formation of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans during the Gas Cooling Process in a Solid Waste Incinerator**

Noriaki Ishibashi, Shigenobu Okajima, Yoshinobu Yoshihara, Kazuie Nishiwaki and Masakatsu Hiraoka

Influence of the Sludge Ratio on the High-solids Thermophilic Methane Fermentation of the Organic Fraction of Municipal Solid Waste and Bio-sludge

Yoshio Okuno, Yu-You Li, Hiroshi Sasaki, Koji Seki and Ikuo Kamigochi

Bending Strength and Porous Structure of Carbonized Panels Made from Waste Phenol-formaldehyde Resin and Magazine Paper

Kensuke Kawarada, Hiroataka Nakanami, Takahiko Iida, Takayuki Okayama, Toshio Waku and Arihiro Enomoto

Drying Performance of a Thermal Jet Dryer for Solid Waste with High Water Content

Naohito Hayashi, Hideyuki Umehara, Yoshiaki Asai and Sohei Shimada

- International Symposium Information -

- 1) May 15-16, 2003
Korea-Japan session during KSWM annual conference (Hwasong, Korea)
- 2) June 23-24, 2003:
International Workshop on Odor Measurement (Beppu, Japan), <http://www.orea.or.jp>
- 3) October 2-3, 2003:
Ninth International Waste Management and Landfill Symposium (Sardinia, Italy).
<http://sardiniasymposium.it>
- 4) October 22-24, 2003
International session during JSWME annual conference (Tsukuba, Japan)
<http://www.jswme.gr.jp/>
Call for Paper deadline: June 23, 2003

Current Members of JSWME as of 28 February 2003
(Values in parenthesis are differences
from 1 April 2002)

Regular Members	3,703 (236)
Students	322 (84)
Non-Japanese Members	22 (3)
Public Institutions	116 (4)
Supporting Members	211 (1)
Total	4,374 (328)

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Published by

Prof. Hiroshi Takatsuki, President,
The Japan Society of Waste Management Experts

Edited by

Prof. Isamu Yokota, Chairman,
International Relations Committee
Buzen-ya Bldg. Shiba 5-1-9, Minato-Ku,
Tokyo 108-0014, Japan

Phone: (+81) 3-3769-5099 Fax: (+81) 3-3769-1492

<http://www.jswme.gr.jp/>

e-mail. international@jswme.gr.jp

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