NEWSLETTER

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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts

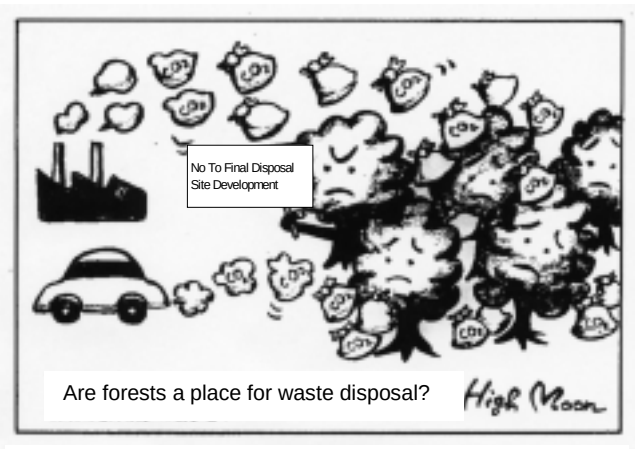
In January 2001, the Japanese Government drastically reorganized its system, unifying 22 Ministries and Agencies into a total of 12. With this governmental reform, the responsibility for waste management was transferred from the Ministry of Public Health to the newly established Ministry of the Environment. The structure and functions of the new organization in relation to solid waste management will be introduced in our next issue of the Newsletter.

This issue introduces the amendments to the Waste Management and Public Cleansing Law with regard to illegal disposal through an article contributed by Industrial Waste Division of the Waste Management and Recycling Department, Minister's Secretariat, Ministry of the Environment.

JSWME will hold its 12th Research Conference at the Kanagawa Prefectural Resident Hall in Yokohama, from 31 October to 2 November 2001. The 10th International Session will be held for one whole day during this period. We welcome your active participation. Papers should be no later than 11 June.

JSWME is also going to hold a "2001 Pacific Basin Conference (PBC) on Hazardous Waste" from 5-7 December at Okayama University. This will be co-sponsored by PBC.

(Hideo Azuma)



Note: It is not reasonable to expect too much from the CO_2 absorptive capability of forest resources.

By courtesy of Prof. Hiroshi Takatsuki (Taka-tsuki literally means "High Moon")

(translated by JSWME, taken from Monthly "the Waste,2 January 2001)

Key Points in the Amendment in 2000 of the Waste Management and Public Cleansing Law

" Change present conditions in industrial waste management, where bad money drives out good"

In Japan, the Waste Management and Public Cleansing Law established in 1970 stipulates that the disposal of industrial waste is the responsibility of the dischargers. (The law, however, allows the dischargers to entrust the disposal to waste service companies.) This directive was made based on the "polluter pays principle (PPP)", which was established in the discussions in the Organization for Economic Cooperation and Development (OECD) as a basic policy to cope with growing environmental concerns at that time (e.g. air pollution and water contamination)

Although the system has contributed to some degree in reducing the financial burdens of the administration, it has, on the other hand, created considerable structural defects in solid waste management. In everyday commerce, consumers spend money according to the quality of service they demand, because the price reflects the quality of service. As customers, dischargers consider waste service companies to be offering the same kind of services, especially as these services at least include waste collection. Because of this, the dischargers are reluctant to spend more for the services than what they think is necessary. This may be the natural tendency in commercial transactions, but in waste disposal, the attitude incites poor services that consequently raise the risks of improper disposal methods. This is exactly what constructs the "bad money drives out good" mechanism.

Under the circumstances, problems regarding the illegal dumping of industrial waste and the construction of industrial waste disposal facilities have become rampant nationwide. In order to cope with this condition, the law was amended in 1997 to raise the quality of industrial waste disposal services and to enforce stringent standards for incinerators and landfills of industrial waste. The amendment also strengthened penal regulations against illegal activities such as illegal dumping (a maximum penalty of 100 million Japanese Yen). Although certain improvements were realized, the law still allowed the discharger to consign the disposal of industrial waste to a waste service company that offers a lower price without due

mention of the importance of the service quality.

Acknowledging the need to rectify the situation, the government carried out radical reforms in May 2000. The amended law stipulates that it is the responsibility of the discharger to pay attention to the waste until it is disposed of (before, the responsibility ends when the waste service company carries out the intermediate treatment). The discharger should, therefore, make sure that the service he employs for the disposal of industrial waste is impeccable, because any adverse environmental impact that the disposal of the waste may cause would be considered a fault of his, under certain condition, e.g. the discharger consigns at considerably low price. In this case, the discharger shall be required to take measures to restore the environment. Accordingly, hiring an inefficient waste service company because it is cheap raises the risk of spending and hence losing a lot of money to repair the environment due to the damage done by inefficient waste disposal practices.

The latest amendment of the law establishes a system that allows the discharger to select a proper waste service company at a reasonable price. After the amendment, some large waste dischargers were observed to tend to select waste service companies conducting proper disposal. In order to sustain such trend, the government is preparing a system to disclose information on waste service companies nationwide on the Internet.

The enforcement of the responsibilities of the dischargers is expected to root out improper industrial waste disposal practices and ensure the building of a sound environment that will be continued in the next generations to come.

(Hideto Yoshida)

Changes in Incineration Plant Technology (later part, continued from No. 35)

4. Automatization

Weighbridges were introduced to the incineration plants operated by the Tokyo Metropolitan Government (TMG) sometime in 1973 for the measurement of incoming waste amount, with the widespread use of computers,

The Katsushika Incineration Plant, which was built in 1977, introduced an automatic combustion control system to control the quantity of combustion air and the amount of waste to be fed into the machine, based on the combustion conditions that may be determined from changes in the boiler steam amount. The automatization of the combustion process significantly contributed to the safe operation of the plant facilities, as well as to the stabilization of combustion for stable power generation and the reduction of nitrogen oxide levels.

At this time, the calorific value of waste rapidly increased and easily stabilized combustion, consequently leading to the adoption of the automatic combustion system nationwide. Moreover, the adoption of an automatic crane by the Hikarigaoka Incineration Plant, which was built in 1983, further accelerated automatization and labor saving techniques in the incineration plants.

5. Instrumentation

At present, the incineration plants are installed with many advanced instrumentation and control systems. Until 1955, batch type incinerators were only equipped with simple instrumentation such as flue damper gauge, open-close sign of damper and temperature indicator in furnace, while the control system was merely of the switch on-off type. This required skilled operators for appropriate combustion control as operation had to be manually controlled (the operators had to closely monitor the combustion process by the furnace). Because the waste calorific value was low, stable waste combustion was then difficult to attain.

By 1965, telemeters made remote control possible. Furnace pressure control and centralized operation by PID (Proportion Integral Differentiation) were introduced to the Edogawa Incineration Plant which was built after 1965. Measuring devices for CO2, etc., were also introduced. After 1970, the control system was further advanced with the introduction of TV monitors for the remote monitoring of the combustion process, introduction of data-logger and advanced monitoring panels. Developments in the technologies for the monitoring and control of air pollutants (e.g. CO, SOx, HCl and Nox) were also attained.

6. Architecture

Sometime in 1965, the enclosure of incineration facilities within a building was proposed as a means to counteract the adverse impacts of the operation (e.g. noise, offensive odor) on surrounding areas. Thereafter, incineration facilities were covered with reinforced concrete structure, and a sophisticated building design was adopted in consideration of the residents nearby.

In urban areas, a smokestack is the landmark of an incineration plant. During the time when batch fed incinerators were commonly used, the smokestacks were made of reinforced concrete with an insulating fire brick inside, and were less than 50m high. Ever since smokestacks more than 100m in height have been required to prevent air pollution. The structure of

smokestack was also changed to self-support or steel tower support-type lined with refractories. In recent years, further alterations to the design have been made. Although still made of steel, smokestacks are now covered with reinforced concrete in consideration of the surrounding landscape, and are more than 150m high.

On the other hand, corrosion and deterioration of the concrete and steel sheets have led to the collapse of old-type smokestacks in some incineration plants. These accidents prompted discussions and a detailed survey on the corrosion of smokestacks, and the adoption of a new structure (insulated steel on the outside, double tubes).

7. New Technology

TMG mainly introduced a stoker furnace and has struggled to improve its technology as well as introduce new technology. On the other hand, a number of municipal solid waste incineration alternatives have surfaced. TMG first introduced a fluidized bed incinerator for the Toshima Incineration Plant (1999), and is also considering the introduction of a gasification incinerator. Furthermore, to recycle ash from the incinerator, pyrolysis and ash melting furnace were employed for the Second Ota Incineration Plant built in 1990.

（Akio Ishii, Hideo Azuma）

Institute for Environmental Sciences, University of Shizuoka

The University of Shizuoka, located in Shizuoka Prefecture in central Japan, established the Institute of Environmental Sciences in April 1997 for post-graduate studies, to meet the growing needs for advanced and integrated scientific studies on environmental problems and to achieve the goal of sustaining man and his environment. The university welcomes the participation of interested graduate students and collaboration in intra- and international research programs as well as in regional environmental scientific activities.

The activities of the institute include researches related to regional environmental problems, public health and welfare, dissemination of scientific knowledge and training of advanced scientists and technicians on the environmental management, and development of international collaborative programs on environmental sciences. The institute has 5 sections with 13 laboratories.

The research work of two of the laboratories, the Environmental Policy and Environmental Engineering laboratories, also covers solid waste issues. Isamu Yokota, a professor in the Environmental Policy laboratory and also the chairman of the JSWME International Committee, teaches in this post-graduate course using his experiences with the Ministry of Public Health, the Environmental Agency and other government related organizations.

1. Main Projects of the Laboratory of Environmental Policy

a. Management by "3R" and Waste Disposal

People with interests in designing a social system based on the 3R waste management principle (reduce, reuse, or recycle) are encouraged to join. The study will also focus on environmentally sustainable disposal methods for domestic and industrial waste that cannot be handled under the 3R waste management principle.

b. Access to a better environmental management system

The best way to protect the environment is to prevent pollution, for it requires a lot of time and money to restore the environment once it is polluted by urban or industrial activities. The course will focus on two of the most typical pollution prevention systems: the "environmental impact assessment system" and the "environmental audit system."

c. Global Environmental Issues

Increasing greenhouse gas emissions are a result of our modern industrial society. At the same time, industrial activities that produce such emissions have also been a source of wealth to industrialized nations. There is a very significant connection between greenhouse gas emissions and economic activities. The study will center around how a society should respond to the increase in greenhouse gas emissions and the potential threat of global warming.

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2. Main Projects of Laboratory of Environmental Engineering

a. Development of advanced waste/wastewater treatment technologies

- Effective treatment of high-strength starch wastewater using fungi pellets
- Development of activated sludge fuzzy automatic

control system
- Application of PCR method to biological wastewater treatment process
- Microbial decolorization of melanoidin-containing wastewater using white rot fungi

b. Bioremediation for polluted sites

- Phenanthrene uptake in PAH-degrading bacteria
- Evaluation of surfactant partiation for phenanthrene-contaminated soils

c. Environmental monitoring

- Rapid detection of Nocardia amarae in activated sludge process using ELISA
- Applicability of environmental microorganisms to alkaline single cell gel electrophoresis (comet) assay

d. Recycling technology for waste

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11 laboratories other than Environmental Policy and Environmental Engineering introduced are as follows:

3. Atmospheric Environment
4. Water and Soil Environment
5. Chemical Environment
6. Physical Chemistry
7. Chemical Reaction
8. Environmental Chemistry
9. Ecological Chemistry
10. Environmental Microbiology
11. Radiation Biology
12. Environmental Physiology
13. Molecular Pathobiology & Toxicology

(Yoshitaka Nitta)

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

《**Vol. 12, No.1 (January 2001)**》

Paper

Evaluation of the Characteristics of Dioxin Decomposition and Reformation in Reburning-Combustor applied Purification System for MSW Incinerator Exhaust Gas
Tsutomu Okusawa, Satoru Nomoto, Terufumi Kawasaki, Masanori Takahashi, Hitoshi Ishimaru, Kazuhito Koyama and Michinari Tani

Basic Research on Improvement of Construction Sludge
Tsutomu Watanabe, Kazuhito Komiya and Eiji Shimizu

Quantitative Analysis for the Actual Solid Waste Discharge and the Awareness of Waste Reduction
Akira Koizumi, Kosuke Odawara, Noboru Tanikawa and Tomo Oikawa

Note

Quality of Dry Desalted Lees on Soy-source from Whole Soy-Beans
Yoshio Makino, Shigeyoshi Matsushita and Itsuko Takegami

Current Members of JSWME	As of 28 February 2001 (value in parenthesis is the difference from 1 October 2000)
Regular Members	3,517 (3)
Students	246 (-17)
Non-Japanese Members	71 (50)
Public Institutions	114 (1)
Supporting Members	209 (2)
Total	4,157 (39)

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