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THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts:

In Japan, there has recently been a shift of attention among waste management experts from conventional incineration and landfill disposal to the recycling of resources. With respect to disposal by incineration furnaces, municipalities have been conducting reviews of their treatment techniques including various dioxin (DXN) generation control measures.

In the 21st century, citizens, businesses and municipalities should cooperate to materialize their ideas about "harmonious coexistence with the environment" and a "circulatory society". They should also try to achieve these objectives and carry out the required replenishment so as to avoid depletion of global resources and to protect the environment.

(by Hisayuki Futami)

Seminar on Extended Producer Responsibility

On March 12, 1998, a seminar on Extended Producer Responsibility (abbreviated to EPR) was held at the National Institute of Public Health. More than 100 people attended this seminar, reflecting the current keen interest in this subject. Lectures were given by three experts, followed by brisk questions and answers between these lecturers and the audience.

The first of these lectures was a report by Mr. Hideaki Fujiyoshi of the Japan Environmental Sanitation Center on the OECD workshop on EPR in Ottawa, Canada in December last year. Reduction of the environmental loads throughout the product life cycle is essential for environment conservation on a global scale, and EPR is one of the strategies for that purpose. The aim of EPR policies, the roles and responsibilities of the people concerned, the definition of a producer and his responsibility, and candidates for the executive organ of EPR were discussed on that occasion. Major conclusions reached are as follows:

It is essential to assign the people concerned to each product group and define their roles and responsibilities. Full consideration should be given to the relevant

conditions before assigning specific responsibilities. The section empowered to design a product and change the materials should assume the related responsibility as leader. The National Government should consider the socio-economic effects of the introduction of EPR. The process of policy making should be disclosed to the public.

The second lecture, by Dr. Masaru Tanaka, Director, Dept. of Waste Management Engineering, National Institute of Public Health, outlined EPR and referred to some tasks to be accomplished. Safety of workers, prevention of environmental pollution in production processes, and the responsibility for industrial waste management constituted major portions of the scope of producers' and dealers' responsibilities in the past. In recent years, however, product liability at the consumption stage has become part of that scope of responsibilities. EPR has an even wider scope, covering post-consumer product management also. This means that the environmental cost throughout the product life cycle has been internalized in the market price. There is a limit to the recycling and proper treatment possibilities under the existing system within which producers and dealers assumed responsibility for production, distribution and consumption, and municipalities were responsible for waste disposal. An incentive to introduction of product designs conducive to recycling and proper treatment for producers can be generated by including waste management in producers' scope of responsibility, which results in the internalization of the environmental cost in the price. Hence EPR may be considered an effective policy helpful in waste minimization and sustainable development.

Lastly, Dr. Ulf D. Jaeckel of the German Environment Ministry gave a lecture on current EPR in Germany. The Closed Substance Cycle and Waste Management Act of October, 1996 is in force in that country, and this law is



based on the EPR principle. From the standpoint of environment conservation, "closed loop economy" itself is not a goal, but the saving of natural resources and reduction of emissions are the ultimate goals. Use of the LCA approach for waste management purposes is therefore highly important. The Packaging Ordinance introduced in 1991 was the prototype of EPR. Introduction of that ordinance resulted in the reduction of approx. 1.4 million tons of packaging materials between 1991 and 1996, contributing to waste avoidance. Application of the EPR principle will not be limited to containers and packages. Plans are under way to apply it to motor oil, information technology products (computers, printers, fax machines and so on), graphic papers, building rubble and cars.

Under the Packaging Waste Recycling Law put in force in Japan in April, 1997, producers of containers and packages are required to recycle their products. A new law governing the recycling of home electric appliances is to be enacted, and much attention is attracted now to expected future developments of the EPR practice.

(by Ryoko Sugiyama)

How To Reduce Packaging Waste: Enlightening Experiences of the EU

The Law for Promotion of Separate Collection of Waste Containers and Packages, and their Recycling Into New Products, etc. (Packaging Waste Recycling Law) will be fully put in force on April 1, 2001. From that time, primarily plastic containers in addition to PET bottles and glass containers, which are under the regulation of the law now, will be separately collected for recycling into new products in Japan. The experiences of the EU, an advanced environment management area in the world, offer much for Japan to learn regarding the reduction of packaging waste. In view of this, the Japanese Academic Society for Waste Management invited Mr. Gerald Goldschimid, a waste management consultant from Austria, to be a lecturer at a seminar held by that society.

To sum up, his lecture was a re-confirmation of the following point: A recycling system involving license charges is an effective method of inducing a recycling promotion policy which will also contribute to waste generation control.

An outline of this lecture will be given here.

In the 1980's, member countries of the EU were faced with a packaging waste problem. The need for some general measures was recognized in many parts of the EC. The required measures were actualized in the form of a directive entitled "European Parliament and Council Directive on Packaging and Packaging Waste 94/62/EC of

20 December 1994."

This directive, composed of 20 ordinances, prescribes the tasks to be accomplished by the member countries to promote recycling. Those tasks span a wide range including the upgrading of their recycling systems, action to make governmental information available to the public, markings on products, planning responsibility, enacting of necessary laws, etc.

The directive sets some numerical objectives to be attained by June 30, 2001. That is, 50% to 60% and 25% to 54% were prescribed as the goals for heat reuse and recovery-of-substances levels respectively.

At present, EU has 15 member countries, and 10 of them have packaging waste management laws. Three of the five remaining countries have already prepared bills, and the other two countries are planning to have self-governing private-sector agreements made or enact laws.

A number of examples in Austria will be presented here. The waste volume in that country had consistently increased since 1985 until its rate of increase exceeded the rate of increase of the country's GDP. Among all varieties of waste, packaging waste attracted special attention because it had been discovered that packaging waste accounted for 1/3 of the combined total weight of all kinds of waste and 2/3 of their aggregate volume.

Austria has already introduced the Altstoff Recycling Austria (ARA) system, under which a license fee is charged to producers and wholesalers at varied rates according to the kind of material used for containers/packages and the quantity. Thus, it is analogous to the system used by Duales System Deutschland (DSD) of Germany. Part of the license fee so charged to business enterprises is charged later to consumers as a component of the product price. The per-capita cost so borne by residents is approx. US \$25.20 per year. The cost per unit waste volume is approx. US \$0.30/kg. The corresponding statistical figures in Germany are approx. US \$27.6 and approx. US \$0.40/kg respectively.

To put it briefly, this system has proved successful. The recycling rate (for varieties of waste including composted kitchen garbage), which was about 10% in 1989, for example, went up sharply, reaching 40% in 1996 or about four times the figure in 1989. The containers and packages used were halved to 1.4 kg per unit spending, approx. US \$78.7.

This scheme is helpful in reducing the volume and in promoting consumption of certain "desirable varieties" of materials. A larger license fee is charged for container/package materials entailing a larger recycling expense (e.g., the license fee for a plastic container/package is approx. US \$0.90/kg and about three times the average license fee for all other kinds of containers/packages). This encourages replacement of the materials with paper or the like.

(by Susumu Shimura)

Plebiscite Held, Citizens Say No! to Industrial Waste Disposal Facilities

For the first time in Japanese history, three local governments (Mitake-cho in Gifu Prefecture, Kobayashi City in Miyazaki Prefecture and Yoshinaga-cho in Okayama Prefecture) held plebiscites to express citizens' opinion concerning the construction of industrial waste treatment and disposal facilities. The results were clearly negative toward construction of the facilities.

According to Japanese law, it is the prefectural governments which are authorized to permit construction of industrial waste treatment or disposal facilities. Results of plebiscites are not legally binding. However, the results certainly have influenced the prefectural governments.

In Mitake-cho, 80% of the voters disapproved of the construction of an industrial waste disposal site. The prefectural government said that it would consider the result of the vote in deciding whether or not to grant a construction permit. The facility proponent (a private firm) has sued Mitake-cho for delaying the commencement of construction and other matters. Court hearings have not started yet.

In Kobayashi City, the vote took place when a private

disposal company had almost completed construction of an industrial waste incinerator. Prior to construction, the Miyazaki Prefectural Government had granted a construction permit. About 60% of the voters voted against the industrial waste incinerator. The result of the vote was not strong enough to change the decision of the governor. However, in accordance with the citizens' request, the firm has promised to disclose all dates on operation and emissions. The firm is currently conducting test operations.

In Yoshinaga-cho, 98% of the voters rejected the planned disposal site. The mayor requested the prefectural governor to respect the results of the vote in deciding whether or not to grant a construction permit.

The set of voting may be interpreted as an expression of non-confidence in the National and Prefectural Governments which are responsible for setting facility and emission standards, and appraisal of environmental assessment respectively.

It is anticipated that there will be other local governments in the future which will conduct plebiscites for the same purpose. It will be increasingly necessary for project proponents to pay more attention to citizens' opinions and to disclose information on proposed plans.

(by Kiichiro Sakaguchi)

Outline of the Planned Facilities and Results of Plebiscites Concerning Construction of Industrial Waste Treatment and Disposal Facilities

	Mitake-Cho in Gifu Prefecture	Kobayashi City in Miyazaki Prefecture	Yoshinaga-Cho in Okayama Prefecture
Population	Approximately 20,400	Approximately 41,000	Approximately 5,400
Project Proponent	Private firm	Private firm	Private firm (note 1)
Type of Solid Waste	Industrial waste	Industrial waste	Industrial waste
Type of Facilities Proposed	Landfill site with lining for leachate collection	Incinerator (100tons/day) incineration ashes will be transported to another city.	Landfill site with lining for leachate collection. Landfill area: 6.6 ha
Environmental Impact Assessment	Completed and submitted with application	Completed and submitted with application	Completed and submitted with application
Permit by Prefectural Government	Not yet granted. The governor said he would respect Mitake-cho's will.	Granted in January 1996. Construction was completed at the end of 1997	A private firm has submitted a request for construction permit.
Date of Vote	June 22, 1997	November 16, 1997	February 8, 1998
Voter turnout	88%	76%	92%
Results of Vote	For: 18.7% Against: 79.7% Invalid: 1.6%	For: 40.2% Against: 58.7% Invalid: 1.1%	For: 1.8% Against: 97.9% Invalid: 0.3%
Current Situation	The disposal firm has sued Mitake-cho for delaying construction. Hearings have not commenced yet.	The firm has been testing operation. It has agreed to disclose all date on emissions and operation.	The mayor requested the governor to respect the voting result in making a decision.

**Environment-Friendly Eco-Cement Production
Technology Developed**

The New Energy and Industrial Technology Development Organization (NEDO), Japan has developed a new technology for producing an environment-friendly cement called eco-cement. Eco-cement is produced from sewage sludge and incineration ash which contains a chlorine density hundreds of times higher than that of ordinary cement material. According to test at the eco-cement plant conducted by Onoda Cement, dioxin emitted during the manufacturing process proved to be less than the values set by legal standards. Amounts of heavy metals eluded from the eco-cement products into the soil have also proved to be within the limit set by soil environment standards.

Production of one ton of eco-cement uses 0.5 ton of incineration ash from municipal waste and 0.3 ton of sewage sludge, thus contributing to the reduction of waste to be used as landfill. It is hoped that diffusion of this technology will promote utilization of incineration ash and sewage sludge. Eco-cement cannot be used for reinforced concrete, but can be used for non-reinforced concrete products such as foundation-hardening material or marine structure such as tetra pot. It is estimated that future demand for eco-cement will be as high as six million ton/year. At present, the Tokyo metropolitan government is constructing a verification plant for eco-cement production.

(by Yasuji Okita)

**Journal of the Japan Society of Waste Management
Experts Vol.8 No.7 (Nov. '97) & Vol.9 No.1 (Jan. '98)**

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

Vol.8, No. 7 (November '97)

Paper

Treatment Process for Photo-processing Waste Containing High-strength COD and Ammonium Nitrogen

by Kimihito Futono, Binle Lin, Aki Yokoi, Masaaki Hosomi and Akihiko Murakami

Screening Studies on Dioxin Using Enzyme Immunoassay

by Ruriko Sakai, Masahiro Osako, Yukihiro Yoshida, Naoki Haga, Kiyoshi Iwashima and Masaru Tanaka

Toxicity of Municipal Waste Incinerator Fly Ash Using Algal Growth

by Hidehiro Kaneko

Current Management Situation and Concerns Regarding the Handling of Organic Solvents at Osaka University

by Kazuhiko Akegawa, Masafumi Tateda, Michihiko Ike and Masanori Fujita

Estimation of Energy Recovery and Reduction of CO₂ Emissions by Advanced Power Generation from Municipal Solid Waste

by Suehiro Otoma, Yasufumi Mori, Tomonori Asou and Ryoji Samejima

Enhanced Biodegradation of Refractory Chemicals in Film-processing Wastewater by Fenton Pretreatment

by Aki Yokoi, Kimihito Futono, Binle Lin, Masaaki Hosomi and Akihiko Murakami

Vol.9, No. 1 (January '98)

Paper

Investigation of Characteristics and the Resource Recovery of Metal Generated in Ash Melting Processes

by Takeo Urabe and Shigeo Kobayashi

Leaching Mechanisms of Waste Molten Slag in Batch Type Experiments

by Hirofumi Sakanakura and Nobutoshi Tanaka

Development of an Induction Heating Solid Waste Ash Melting Furnace

by Toshiaki Arato, Isao Ookouchi, Ken Yasuda and Hisao Yamashita

Soil Mechanical Properties of Bottom Ash Obtained from Municipal Incinerators

by Yuji Maeno, Tokio Hirata and Hideo Nagase

Note

A Comparison Study of the Sorted Collection System and the System Factor Differences between Zentsuui and Hiroshima Cities

by Kohji Hayase and Hideo Ichimoto

Book Review

A Picture Book for "Living Lightly on the Earth"

PICTURECOLOGY Third Edition By High Moon

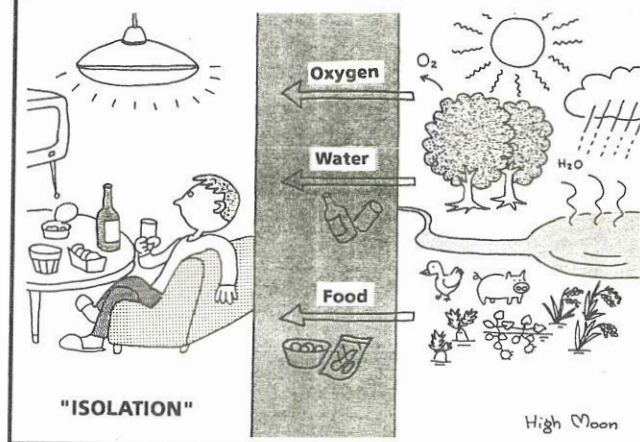
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