

# PWMI Newsletter

NO 11 1996.3



Plastic Waste Management Institute  
JAPAN

## Liquefaction Technology

# Construction of the Niigata Plastic-to-Oil Conversion Center

by Hiroshi Sato

Rekisei Koyu K.K./Head of Environmental Management

The Plastic Waste Management Institute (PWMI) has been directing a 2-year project since fiscal year 1995 for the development of next-generation technology to liquefy plastic waste.

In addition to planning the development of various kinds of required technologies, the project is also making plans for the construction and operation of a model plant to apply these technologies. Niigata City has been chosen as the site for the model plant and preparations are now underway for its construction.

The city has been vigorously promoting this liquefaction project as an effective countermeasure to its shortage of final disposal sites. Operation of the model plant will be undertaken by Rekisei Koyu K.K., which has been involved in the production of lubricating oil in Niigata City for many years.

In charge of this project will be Hiroshi Sato of the same company, and we have asked him to report on the current status of the project and its outlook for the future.

## Introduction

Rekisei Koyu K.K. has been involved in the production of industrial lubricating oil for about fifty years in Niigata City. As an addition to this line of business, we have been studying new business opportunities with an eye to making use of production technology, plant-operation know-how, and other skills developed at our company over the years, and to making effective use of about 20,000 square meters of idle land that the company owns in the city. In May of 1995, we happened to read a magazine article on the recycling of plastic waste by converting it to oil. This article prompted us to begin a



detailed study of plastic-to-oil conversion as one candidate for a new line of business.

Converting plastic waste to oil is not only a business in

which Rekisei Koyu can make good use of its accumulated technology and know-how, but also one that can be expected to grow in response to major social needs of the future. In particular, it can contribute to improving the problem of refuse disposal facing local governments such as Niigata City. The business of converting plastic waste to oil was therefore judged within the company to be of true social significance and a business that we should expend our efforts to develop.

In addition, while not anticipated at the time that we began our study, two events occurred that enabled us to proceed with our plans convinced that plastic-to-oil conversion technology had become even more reliable. These were the enactment of the Container and Packaging Recycling Law and the opportunity to make use of the technology generated by the Project for the Development of Next-Generation Technology for the Liquefaction of Plastic Wastes, which is promoted by PWMI.

## Plant Construction and Operation

The model plant is to be located near the coast of the Sea of Japan in Niigata City. The land for the site has been owned by Rekisei Koyu for some time and covers about 20,000 square meters. It is designated by city planners as land for industrial use only.

### Construction Schedule

Ceremony of Inaugurating the Construction	December 12, 1995
Pre-processing Facilities	December 13, 1995 <sup>5</sup> to June 30, 1996
Plastic-to-oil Plant	April 1, 1996 to September 30, 1996

The construction schedule is shown in the above table. Construction of the plant is to be undertaken by Chiyoda Corporation and its operation by Rekisei Koyu as mentioned. The Plastic Waste Management Institute will also be participating in test runs of the system. In constructing this plant, our plan is to:

- 1) Reduce labor significantly by achieving a high level of automation;
- 2) Pay strict attention to the environment by adopting countermeasures to offensive odor and exhaust gas;
- 3) Incorporate a "safety first" design; and
- 4) Give full consideration to the appearance of the plant and surrounding greenery.

### Refuse Collection

At present, noncombustible refuse (including bottles, cans and plastics) collected by Niigata City comes to about 33,000 tons annually. About 20% or 6,000 tons of this amount has been confirmed to be plastic related.

Niigata City has obtained the cooperation of its citizens in the separation and collection of plastic-related refuse and plans to produce about 2,700 kilo-liters of class A-heavy oil. The present separation of refuse into four categories will be changed into six categories from April 1996 in the western districts of the city and from April 1997 in the eastern districts. The new categories are the result of subdividing what used to be one collectible category of so-called "noncombustible material", that is, bottles, cans and plastics, into three different ones to be collected on separate days.

The current plan is to use the generated oil in public facilities and elsewhere, but specific locations are to be decided later. Suggestions at present include fuel for in-house use at Rekisei Koyu, heated swimming pools, aquariums, public cleansing centers, etc.

## Future Activities

Considering the gravity of the current refuse problem, the transformation of plastic waste into resources and their effective use will eventually be undertaken throughout Japan. The recycling of plastic waste into usable fuel can be viewed as one major step in this process.

In the light of the above, it is earnestly hoped that the technology and knowledge acquired in the construction and operation of this model plant will at least in some small way help other cities in their plastic-to-oil recycling projects.



# Thermal Recycling in Japan Using Refuse Derived Fuel (RDF)

By Tsukasa Kagiya

Executive Director and Consultant Engineer  
(Architecture and Sanitary Engineering)  
Environmental Planning Center

## Waste Disposal Costs Represent between 7% and 8% of the National Budget

Disposal of solid waste, which has long meant incineration and the use of the residue as land fill, is presently a topic of contention as disposal costs rise and approval from local residents for disposal facilities is proving difficult to obtain.

Capital investment costs for municipal solid waste incineration facilities have risen to approximately 100 million yen (1 million dollars at 1 dollar=100 yen) per ton per year, and it is not unusual for a city of 100,000 people to spend half of its general financial resources on municipal solid waste disposal.

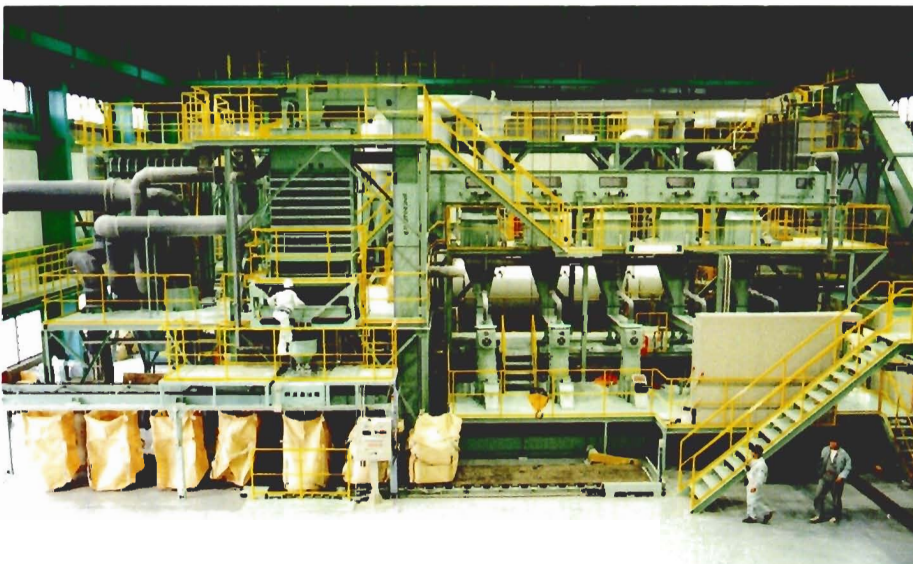
Nation-wide, Japan consumes two billion tons of resources (excluding water) every year. Four-hundred million tons, or 20 % of this figure, is discarded as solid waste. Municipal solid waste disposal costs amounted to approximately 1.6 trillion yen (16 billion dollars) in 1991. Add these disposal costs to those for industrial waste, and the figure is estimated to be between five and six trillion yen (50 and 60 billion dollars), or between 7% and 8% of the national

budget. Solid waste disposal expenditure will soon rival national defense spending. This can only be considered as an extraordinary set of circumstances.

## RDF Facilities Before Government Subsidies

The Environmental Planning Center commenced study on RDF in 1991. First, a survey of RDF facilities in a variety of regions was taken. This survey showed that the Sapporo Resource Plant and the Hokkaido Thermal Supply Public Corporation were using RDF to supply thermal energy to surrounding office buildings. Likewise, the venture corporation, Toyo Nenki (presently Recycling Management Japan, Inc.), had developed a viable business before RDF facilities were covered by government subsidies, by constructing a plant, accepting waste disposal contracts from local governments, and selling the RDF produced at this plant back to local governments. Examples of this same system can be seen in Haibara Town (Nara Prefecture) and Nogi Town (Tochigi Prefecture).

A technical policy pertaining to solid waste disposal facilities (incineration facilities, crushing facilities, final



disposal sites and high-rate composting facilities) had been set in place for businesses receiving Ministry of Health and Welfare subsidies, and all facilities had to be equipped in line with this policy. Until 1994, however, there was no established technical policy for RDF production facilities. Separate discussions with the Ministry of Health and Welfare were required.

## **RDF Production Facilities Come Under Government Subsidies**

The Ministry of Health and Welfare commenced subsidies on RDF production facilities in fiscal 1994. It was around this time that we started to receive requests for planning and consulting services pertaining to RDF production facilities.

Requests for consulting on RDF produced from household waste were received from the Echi-gun Regional Waste Disposal Association in Shiga Prefecture followed by the Tonami Regional Waste Disposal Association in Toyama Prefecture. We also participated in studies on RDF production with local governments. In the case of Shiga Prefecture, the local residents approved the construction of disposal facilities on the proviso that the waste would not be incinerated. This led to the planning of RDF production facilities. In Toyama, on the other hand, incineration facilities were in the midst of being prepared when it was decided that these facilities would be converted to RDF production. We were, therefore, enlisted to cooperate on the preparation of an installation program and agreements on matters not covered by the official guidelines.

In reference to government subsidies, the Echi-gun Regional Waste Disposal Association in Shiga Prefecture was unofficially notified in October 1993 that their facilities would receive government assistance. Following this, it was decided in December of the same year that the Tonami Regional Waste Disposal Association in Toyama Prefecture would also be granted government subsidies.

As these projects progressed, Itakura Town in Gunma Prefecture decided to look into RDF production, and made a request for our consulting services.

The citizens of this town opposed the construction of an incinerator in the local area, and were contracting waste disposal operations out to the adjacent town, Tatebayashi. When the end of the contract period for these operations approached, the

town held discussions with its citizens and gained approval for the construction of RDF production facilities.

## **RDF Facilities Gain Local Approval**

As indicated by these examples, the difficulty of gaining the approval of local citizens for the construction of conventional solid waste incineration disposal facilities has propelled RDF production forward as a viable means to breaking the deadlock over solid waste disposal. Aside from renovating existing facilities, it is expected that it will become increasingly difficult to reach local consensus on the construction of solid waste incineration disposal facilities in the future. From the perspective of generating minimal local opposition, RDF production facilities can be looked upon as an important method to alleviating solid waste disposal problems.

There are many examples of RDF production plants being constructed in midtown areas. In Sapporo City, locating thermal supply facilities in the midtown area has given rise to considerable benefits in terms of utilizing thermal energy. Moreover, Itakura Town is studying the possibility of erecting facilities in the midtown area, and using the thermal energy produced by these facilities to heat and cool town offices that are scheduled to move into the same area in the future.

In this way, RDF production facilities are advancing in line with policies for future solid waste disposal which dictate that solid waste is not simply incinerated, but utilized as a resource.

## **Outlook for the Future**

Presently, energy use is shifting from solid fuels (coal, etc.) to liquid (petroleum) and gas. Handling solid fuels is difficult, and there are certainly a number of drawbacks to using this form of energy, notably the labor costs involved. However, if we consider future energy and resource problems, and it is essential that we use all materials available to us, and if we are to become a society that uses resources in rotation, thermal energy using RDF will no doubt



become an important choice in this rotation.

A detailed plan will be required to actually instigate this program of thermal recycling using RDF, including securing energy users (demand) and a thorough implementation of sorted waste collection. In achieving a balance between the volume of solid waste generated and a demand for the RDF produced, it is also considered important to tailor programs to the special characteristics of each region and incorporate the opinions of the local residents.

Finally, I would like to outline the three points that will

ensure the success of this program. The first is that we must not think only in terms of the volume of solid waste discarded, but also fully appreciate the "quality" of solid waste. Second is the use of competent consultants that are well-versed in the business of RDF. The third point is to use RDF for the welfare of local citizens, and therefore guarantee a demand for this fuel. It is especially vital to fully consider these points for the effective use of government subsidies to construct meaningful RDF production facilities.

**Operational situations of RDF (Refuse Derived Fuel) plant in Japan**

(as of October, 1995)

	Company	Name and location	Situation		Year, month of completion	Capacity (t/hr (t/d))	Purpose		Outline	Remark Plant builder
			Test/Research	Applied			Use	Object		
Hokkaido	Cleansing Department, Environment Bureau, Sapporo Municipal Office (Plant operation: Environmental Business Corporation in Sapporo City)	Waste recycle plant in Sapporo city, Sapporo, Sapporo city		○	Started in April 1990	150/hr (2000/d)	Area cooling & heating Hot water supply	Hotel, hospital, etc. Pulp plant	<ul style="list-style-type: none"> <li>Material: Recyclable waste (waste from construction, concrete panel, pallet, wood box, wood waste, waste paper/soft waste plastic including corrugated cardboard)</li> <li>Mixing ratio of wood: paper: plastic is 5.4:1 (moulded to φ 40mm, L 100mm)</li> <li>Capacity: 200 t/day (13 hour operation), calorific value: 4,500 kcal/kg</li> <li>150 t/day use by the Mono-fuel combustion incinerator of Hokkaido Heat Supply Corporation</li> </ul>	Kyokuto Development Corporation Kurimoto Iron Works Ltd.
	Furano Municipal Office	Agricultural waste disposal facility Yamabe, Furano city		○	Started in July 1983	1 t/hr (7.2 t/d)	Heating Hot water supply Green house	Office School	<ul style="list-style-type: none"> <li>Constructed as a part of the program to increase permanent residents in farm area (volume reduction/recycle process)</li> <li>Extract solid fuel from domestic waste (paper) and waste agricultural film</li> <li>Boilers of public facilities</li> </ul>	Tyudo Machinery Corporation
Fukushima Prefecture	Fukushima branch office, Sakata Construction Company	Ookuma town, Putaba gun, Fukushima Prefecture		○	Started in February 1993	6,000 (t/year) 1.2 t/h	Heat source	Cleaning	<ul style="list-style-type: none"> <li>Waste plastic (from MSW) processing (noncombustible refuse in Matsudo city, Chiba prefecture)</li> <li>Used as heat source for boiler at cleaning plant</li> </ul>	Fuel plant: Japan Recycle Management Corporation Cleaning Plant: Tokyo Dye Machine Works Corporation
Tochigi Prefecture	Japan Recycle Management Corporation (Nogi town)	Nogi office oza-ideyama, oza-minami-akatsuka, Nogi town		○	Started in November 1992	(10 t/day)	Heat source	Public facilities, private company	<ul style="list-style-type: none"> <li>Material: Household waste (not wet since kitchen refuse is excluded)</li> <li>Amount of treated waste: Approximately 10 t/day (1,250 kg/h)</li> <li>Compostline is built as the annex. (2 t/day)</li> <li>Calorific value: 5,000 kcal/kg (φ15mm)</li> </ul>	Japan Recycle Management Corporation
Gunma Prefecture	Seki Shop Corporation	Tatebuyashi, Gunma Prefecture		○	Started in July 1991	40 t/day 8,000 (t/year)	Benisan Corporation Ashikaga Plant: Boiler fuel for dye works	Benisan Corporation	<ul style="list-style-type: none"> <li>Industrial waste plastic 80%, paper 20%</li> <li>Cylinder type: Diameter 30mm x length 50~70mm</li> <li>Calorific value: 6,000~7,000 kcal/kg</li> </ul>	Shinagawa Fuel co., Ltd. (Shinanen), Miike Ironworks, Hourai Boiler, Takuma
	Itakura Town Office, Oura-gun	Itakura Town Recycle Center		○	Will start in March 1997 (plan)	20 (t/h)	Heat source	Public facilities	<ul style="list-style-type: none"> <li>Mainly combustible waste from household refuse</li> <li>Build facility to make compost from kitchen refuse (3 t/day) as the annex (State subsidy is informally notified in April 1995)</li> </ul>	Undecided
Shizuoka Prefecture	Gotenba City, Koyama Large Area Administration Association	RDF Producing Facility Sangi, Koyama town		○	Will be completed in 1997 fiscal year (plan)	150 (t/15h)	Heat source	Private companies in Gotenba city	<ul style="list-style-type: none"> <li>Material: Household waste (combustible waste including kitchen refuse)</li> <li>&lt;Making enforcement plan (December 1994 ~ March 1995)&gt;</li> <li>&lt;Subsidy from the Defense Agency will start construction in 1996 fiscal year (plan)&gt;</li> </ul>	Ebara Corp., Ishikawajima-Harima Heavy Industries Co., Ltd., Fujita Corp., Mitsubishi Corp.
Fukui Prefecture	Takefu Environmental Conservation Company	Takefu City, Fukui Prefecture		○	Started in August 1990	0.5 t/h (1,000 t/month)	Now on the way to explore market	Now on the way to explore market	<ul style="list-style-type: none"> <li>Industrial waste (waste plastic) treatment (waste plastic, paper waste, coffee sediment, copy toner)</li> <li>Cylinder type: Diameter 10mm x length 20~40mm</li> <li>Calorific value: 6,000~7,000 kcal/kg</li> </ul>	Japan Recycle Management Corporation
Toyama Prefecture	Tonami Regional Waste Disposal Association, Western Area (Fukumitsu town, Johana town, Inokuchi village, 2 towns and 1 village)	Minamito Recycle Center Tatenohara, Fukumitsu town, Nishitonami-gun		○	Completed in March 1995	28 (t/h)	Heat source for cooling and heating	Public facilities (recycle center, welfare facility, junior high school)	<ul style="list-style-type: none"> <li>Material: Household waste (combustible waste including kitchen refuse)</li> <li>Application: Cooling and heating, melting, defrosting in the Minamito Recycle Center (started in April 1995)</li> <li>Heating in Yasuragi house (welfare facility), cooling and heating, and hot water swimming pool in the newly constructed junior high schools, etc.</li> </ul>	1st plant supported by state subsidy Japan Recycle Management Corporation
Shiga Prefecture	Echi-gun Regional Waste Disposal Association (Koto town, Aitou town, Echigawa town, Hatasho town)	Koto Regional Recycle Plaza Sobo, Koto town		○	Will start in March 1997 (plan)	22 (t/h)	Heat source	Public facilities	<ul style="list-style-type: none"> <li>Material: Household waste (combustible waste including kitchen waste) (State subsidy in April 1995)</li> </ul>	Undecided
Nara Prefecture	Japan Recycle Management (Haibara town)	Haibara Office Oaza Hagiwara, Haibara town		○	Started in November 1990	1.25 t/h (8t/day)			<ul style="list-style-type: none"> <li>Material: Household waste in Haibara town</li> <li>Cylinder type: Diameter 10mm x length 20~40mm</li> <li>Calorific value: Approximately 4,250 kcal/kg</li> </ul>	Toyo Fuel Machine Corporation (now changed to Japan Recycle Management Corporation)
Oita Prefecture	Tsukumi J. Katrel Process Demonstration Plant	Joint Research Oaza Hirai, Tsukumi city		○	Completed in November 1993	20 t/day	Fuel material for cement	Industrial heat source/ Cement material	<ul style="list-style-type: none"> <li>Collected municipal solid waste</li> <li>Tsukumi city, Oita prefecture, Demonstration from November 1993</li> <li>Tested if the waste can be used for cement material, fuel by Chiehibu Onoda Corporation</li> </ul>	Chiehibu Onoda Corporation in Tsukumi city, Ebara Corp., Ishikawajima-Harima Heavy Industries Co., Ltd., Fujita Corp., Mitsubishi Corp., Cooperation: Brand
	Tsukumi Municipal Office (Under construction)	Tsukumi city Oaza Himi-aza Kuboura, Tsukumi City		○	From February 1990 to December 1996	32 t/day	Fuel material for cement	Industrial heat source/ Cement material	<ul style="list-style-type: none"> <li>Collected municipal solid waste</li> </ul>	Joint Enterprise (Ebara Corp., Ishikawajima-Harima Heavy Industries Co., Ltd., Fujita Corp., Mitsubishi Corp.)
Saitama Prefecture	Kuki Miyashiro Sanitary Affairs Association	Plastic derived fuel producing facility, Oaza-Wado, Miyashiro Town		○	Started in April 1995	10 t/h	Heat source	Cleaning	<ul style="list-style-type: none"> <li>Waste plastic (from MSW) processing (sorted plastic waste in Kuki City and Miyashiro Town)</li> <li>Bale type: 700 mm x 700 mm x 800 mm</li> <li>Used as heat source for boiler at cleaning plant</li> </ul>	Fuel plant: Japan Steel Works, Ltd.
Yamaguchi Prefecture	Cbe Industries, Ltd.	Cbe Industries, Ltd.		○	Started in April 1995	3.6 t/h	Material for plastic derived fuel	Industrial heat source	<ul style="list-style-type: none"> <li>Waste plastic (from Industrial Waste) processing</li> <li>Pellet type: 12 mmφ x ca 15 mmL</li> <li>Calorific value: 5,000 kcal/kg</li> <li>Used as heat source for boiler</li> </ul>	Supported by NEDO (New Energy and Industrial Technology Development Organization)

# Compact and Simple Waste Plastic Volume Reduction System

By Tsuyoshi Masukawa

General Manager/R&D Department Plastic Waste Management Institute

## Effective Sorting to Reduce Recycling Costs

In 1994, the Plastic Waste Management Institute (PWMI) was contracted by the Machine Systems Promotion Association to develop a compact and simple waste plastic volume reduction system. The system allows for volume reduction of plastic bottles and other waste plastics at business establishments in an effort to make recycling more efficient. Matsushita Electric Industrial Co., Ltd. cooperated on the development of this system, with Kyushu Matsushita Electric Co., Ltd. and the Chubu Electric Power Co., Inc. offering technical support. In the area of plastics sorting, PWMI is already developing a sorted collection system for waste plastics that uses near infrared rays. Sorted empty bottles, however, have a relatively low bulk density which adds to the cost of transportation to the recycling factory. It was therefore essential that greater recycling efficiency be targeted by volume reduction of waste plastic at business establishments.

## Functions of the Developed Volume Reducer

- (1) Optimal volume reduction processing that can handle each sorting classification through the use of microcomputer technology.
- (2) The batch processing method, which is suitable for compact machines, is used. The processing time is 40 minutes for the first process and 30 minutes for the second process. The rate of volume reduction is 1/12 for PET bottles, 1/15 for vinyl chloride bottles and 1/40 for expanded polystyrene.
- (3) The gas generated is decomposed by catalysts.

## Volume Reduction

Until now, methods such as melting, dissolving, compression and binding, and crushing have been used to reduce waste plastic volumes, but from the point of view of space and maintenance, none of these methods have proved suitable for use in retail stores. Our volume reduction system is the world's first machine that reduces the volume of waste plastics at a low temperature. It is compact, safe and has a high volume reduction rate.

Waste plastics are heated to a temperature between glass transition point and melting point, that is between 120°C and 150°C, in a hot-air-circulating processing bath, after which the now moldable plastic is compressed by low pressure air. In this compressed form, the plastic is cooled and solidified. The heating and compression conditions are optimized by microcomputer so as to raise the volume reduction rate and minimize decomposition. Furthermore, the gas generated at the time of heating and compression is oxidized by catalysts through

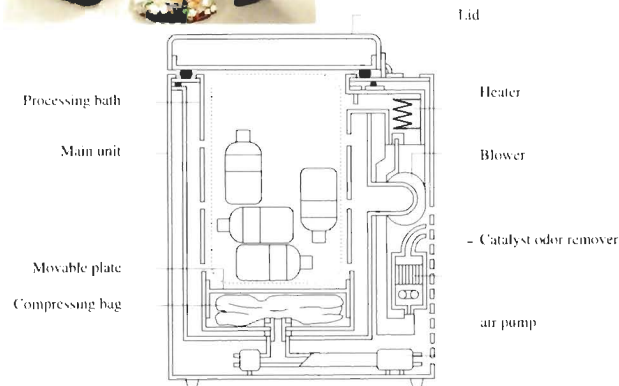
optimal control of heating and compression speeds, rendering it harmless and odorless.

## Future Developments

This volume reduction machine can be used to compress all types of plastic waste materials that are generated at the distribution level, and can also be applied to a large number of plastics discarded by industries and restaurants. We envisage the widespread use of this machine as a volume reducer suitable for waste plastics generated in small quantities at widely dispersed locations. A variety of monitor testing will be conducted, and the durability of the machine will be verified. Manufacture and sale of the machine is scheduled for fiscal 1996.

Please direct any inquiries regarding this machine to the contact number shown below.

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Structure of Waste Plastic Volume Reducer

# Full-scale Recycling of PET Bottles Commences

By Harunaga Miwa

Japan PET Bottle Association

Construction of recommercialization facilities nation-wide with the cooperation of six groups from related industries

## 37% of Discarded PET Bottles to be Recommercialized

The Study Committee for the Construction of a PET Bottle Recycle System, composed of six groups from related industries, including the Japan PET Bottle Association, has announced a plan that calls for the construction of eight recycling plants in locations throughout Japan by the year 2005. This plan promotes long-awaited full-scale recycling of PET bottles, and targets recommercialization of 37% of discarded PET bottles.

The Japan PET Bottle Association and five other organizations, The Japan Soft Drinks Association, Japan Fruit Juice Manufacturers Corporate Association, Japan Fruit Juice Association; the Japan Soy Sauce Brewer's Association and PET Bottle Recycling Association for Alcoholic Drinks, have formed a body to instigate this plan. PET bottles are already being collected by municipalities and the Consumers' Cooperatives throughout the Kanto region for recycling at a plant in Tochigi Prefecture. Execution of the Law for the Promotion of Sorted Collection and Recommercialization of Containers and Packages will extend these activities Japan-wide.

## Recycling Plant to be Established in Kansai in 1997

Following on from the operations presently being conducted at the Kanto plant (WITH PET Bottle in Tochigi Prefecture), a second plant will be constructed in Mie Prefecture as a recycling base for the Kansai region in expectation of large scale sorted collection. The plant will be located in Iga Town in Ayama-gun, Mie Prefecture, and a new company, Yono PET Bottle Recycling Co. (abbreviated to

YPR), managed by RD Engineering Co., will be established through cooperative investment by the six organizations mentioned above.

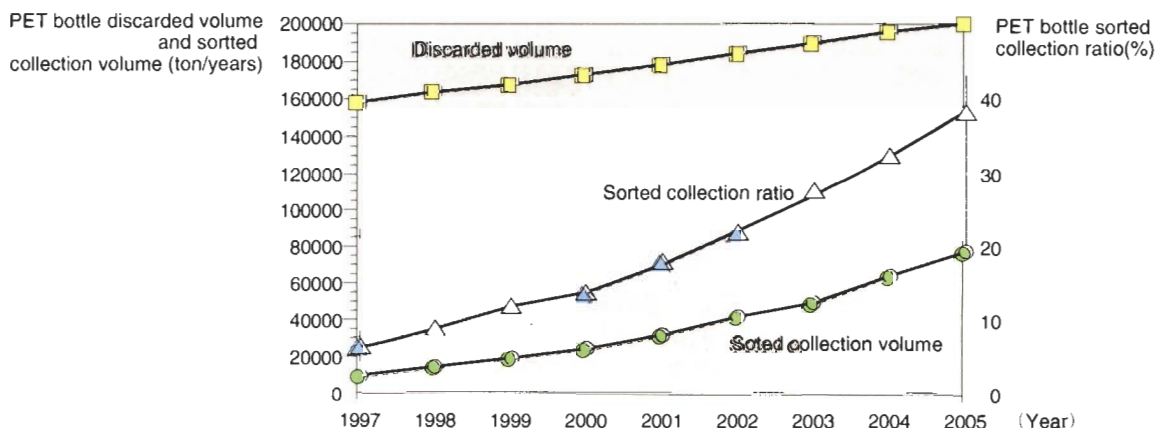
The plan moves on to initiate operations at eight plants nation-wide by the year 2005, and recommercialize 37% of the PET bottles discarded, some 74,000 tons. Each plant will process PET bottles collected by municipalities, with the target collection range for each plant to be a radius of 150km. To achieve economic viability, each plant is anticipated to process 8,000 tons of PET bottles per year.

## Responding to the Law for the Promotion of Sorted Collection and Recommercialization of Containers and Packages

Under the Law for the Promotion of Sorted Collection and Recommercialization of Containers and Packages, which was officially announced in June 1995, specified businesses (drinks and container makers, etc.) will be required to recycle (recommercialize) glass and PET bottles from July 1997. Accordingly, industries such as resin and PET bottle makers intend to follow the lead of the Tochigi plant, and establish recycling plants in other areas in an effort to advance recommercialization nation-wide in line with sorted collection estimates for all municipalities.

Forecasts indicate that PET bottle usage will grow 3% annually, reaching 200,000 tons in ten years time. Estimates predict that 157,000 tons will be used in 1997, with approximately 10,000 tons to be sorted and collected. In the year 2005, 74,000 tons of PET bottles will be recommercialized.

Predicted Discarded Volumes, Sorted Collection Ratio and Sorted Collection Volume



## Asia's EPS Recycling Activities Go Global JEPSRA Participation in the 2nd AMEPS Directors Meeting

By Yoshizumi Zushi

Japan Expanded Polystyrene Recycling Association

### Ties are Strengthened with European Groups

The second directors meeting of the Asian Manufacturers of Expanded Polystyrene (AMEPS) was held in the Taiwanese capital of Taipei on November 1 and 2, 1995, with three delegates from the Japan Expanded Polystyrene Recycling Association (JEPSRA), including the chairman, Mr. Kannan, in attendance. Joining JEPSRA were members from Taiwan's TEPsRA, Philippines' PPCP, and Korea's KFRA, as well as representatives from Malaysia who plan to establish a recycling association in March 1996.

The first item approved by the meeting was AMEPS participation in the International Task Force (ITF) proposed by the European Manufacturers of Expanded Polystyrene, or EUMEPS. The ITF concept targets the formation of teams that will provide support for international recycling, establish a database, and conduct other related activities. It was decided that AMEPS would share the database and other information exchange expenses, and each member would pay ITF directly from January 1996.

### Malaysia to Inaugurate Recycling Body

A detailed course of action was also decided upon at the meeting to support the formation of recycling bodies in those Asian countries that presently do not have such a structure. A special project team was set-up to facilitate the organization of these bodies consisting of one member each from the Philippines, Japan, Taiwan and Korea. This special project team was to set about preparing an action plan and budget program after the Taiwan conference, with a definite plan to be submitted for authorization at the next meeting.

On the topic of the next meeting, it was decided that the 3rd Asia EPS Recycling Conference, as well as the general and directors meetings of AMEPS would be held to coincide with the inaugural meeting of the Malaysian EPS Recycling Council (MERC), scheduled to be held in Kuala Lumpur in March 1996.

### Full Participation in the Rome Conference

As a result of a decision passed at the directors meeting, all members of AMEPS will participate in the World EPS

Recycling Conference in Rome in July 1996. On other matters also decided at this meeting, JEPSRA will cover the expenses of AMEPS for the present, but AMEPS activities will be studied in the future and a decision will be made on this issue after further discussions.

KFRA then expressed their willingness to hold the subsequent AMEPS and Asia EPS Recycling Conference, both scheduled for 1997, in Seoul, Korea. This matter will be slated for consideration at the next directors meeting to be held in Malaysia. The meeting prompted frank and optimistic exchanges of opinion from all delegates, and unanimous approval was obtained on all items of the agenda. The curtain closed on the two-day meeting with the preparation, approval and signing of a AMEPS memorandum.

### Steady Progress in Asian Recycling Activities

AMEPS was formed in April last year by EPS industry groups in a number of countries to promote EPS recycling in Asia where economic development is occurring at a phenomenal pace. AMEPS was the brainchild of JEPSRA, which proposed its establishment at the Asia Recycling Conference held in Manila in November 1994. The following initiatives have been promoted as the major activities of AMEPS.

- 1) The collection and organization of information concerning EPS recycling activities in member nations and the reporting of such information to each member;
- 2) Assistance in the establishment of specialized EPS recycling organizations in each member country and support for recycling activities;
- 3) Assistance to each country affiliated with AMEPS to facilitate the participation of such specialized organizations in the International Recycling Agreement; and
- 4) The collection and organization of information on a global scale, including data provided by the European Manufacturers of Expanded Polystyrene (EUPERS) and the Association of Foam Packaging Recyclers (AFPR) of the U.S.A.



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