



NEWSLETTER

No.48

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April 2004

THE JAPAN SOCIETY OF WASTE MANAGEMENT EXPERTS

Dear Waste Management Experts

Formulation of the Basic Plan for Establishing a Recycling-based Society

Sustainable development is a common goal of mankind who lives on a finite planet. Though its realization is far beyond any conventional ideas we have ever had, the 3Rs in SWM must be a common measure toward a sustainable society.

Japan enhanced its recycling-related regulations on the occasion of the new millennium and expressed 2000 as the first year of recycling. Then, last year the Japanese government established "The Basic Plan for Establishing a Recycling-based Society" and proposed ideas and measures for realizing the future society. Our Newsletter begins with a review of this basic plan.

Other stories covered in this issue include a unique food recycling activity in Sapporo city where animal food is produced instead of composting, a prestigious private university in Japan which has established an integrated research facility, and SWM improvement in Sri Lanka by Japan's ODA (continued from No.47).

(Hideo Azuma)

The Government of Japan formulated the Basic Plan for Establishing a Recycling-based Society and, on March 14, 2003, reported it to the Diet.

The Basic Plan, which is based on the Basic Law for Establishing a Recycling-Based Society established in May 2000, should be the fundamental framework for all other national plans in terms of the creation of a recycling-oriented society, so that the relevant policies are consistent with each other. The Basic Plan is also a ten-year program for accelerating the change of unsustainable patterns of production and consumption, based on the Plan of Implementation of the World Summit on Sustainable Development in September 2002.

The Basic Plan elaborates the current material flow in Japan as shown in Fig.1. It illustrates that the annual material input in Japan amounts to 2.1 billion tons, the recycled material accounts for only 10 % (0.2 million tons) of the input, and that 56 million tons of material are landfilled.

With the understanding of such a material flow, the Basic Plan sets target figures of three indicators for the target year 2010. One of them is resource productivity, which is to represent how effectively materials are used by industries and people. It is defined as:

$$\text{Resource productivity} = \text{GDP} / \text{Input of natural resources, etc.}$$

It was 280,000 yen/ton in FY 2000, while the target set by the Basic Plan is 390,000 yen/ton for FY 2010.

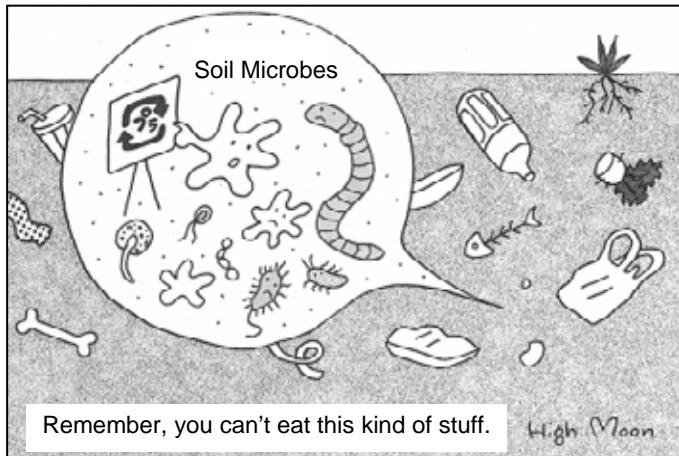
Another indicator is the material recycling rate, which shows the degree of the cyclical use of things input to an economic society, where:

$$\text{The cyclical use rate} = \text{The amount of cyclical use} / (\text{Amount of cyclical use} + \text{Input of natural resources and the like})$$

It was about 10% in FY 2000, and it is planned to be up to about 14% by FY 2010.

The third indicator is the final disposal amount, which was 56 million tons in FY 2000 and is planned to be cut in half to 28 million tons by FY 2010.

In order to achieve these targets, the Basic Plan stipulates several strategies to be taken by the government as



Comments by High Moon: "Soil microbes are the linchpins of recycling in nature."

Illustrated by Prof. Hiroshi Takatsuki (Taka-tsuki literally means "High Moon".) Taken from the Monthly "the Waste", February 2004 and translated by JSWME.

follows.

- To secure the material cycle in nature by, for instance, the active use of renewable energy supplies such as biomass.
- To encourage citizens to change their lifestyles by promoting environmental education and learning and the like.
- To develop a recycling-based society business market by promoting the use of environmental labeling and the standardization of evaluation criteria and test/valuation methods for the quality and safety of recycled products and the like.
- To examine economic instruments such as taxes, deposit systems, unit-based pricing and the like.
- To realize the safe and secure cyclical use and disposal of waste by various means.

The Basic Plan also requires citizens, NPOs, NGOs, business organizations, local governments and the State to communicate with each other, actively participate in relevant activities, appropriately share burdens, and bear costs fairly and impartially.

(Kimio Matsumoto)

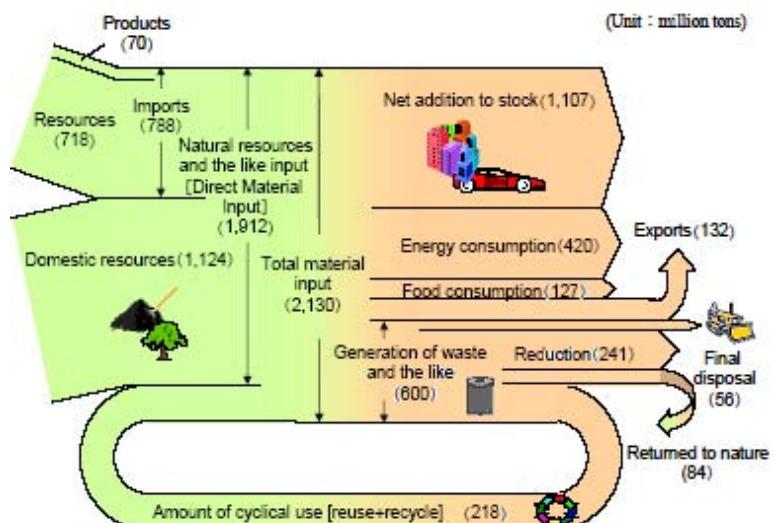


Fig.1 Current material flow in Japan
(<http://www.env.go.jp/en/pol/wemj/outline.pdf>)

Municipality on the Move
Production of Animal Food from Food Waste
- Sapporo Food Waste Recycling Center -

1. Food waste recycling

Sapporo City generates about 80,000 tons of food waste a year from business activities. It used to be incinerated, but in 1998, a new recycling system started whereby

food waste is separately collected from business entities which discharge a large volume of such waste (i.e. food processing factories, supermarkets, hospitals and restaurants) and is processed at a private facility to produce animal food. Currently, it receives 1.5 tons of food waste from 250 business entities a year, and the final product is fed to cultured fish and livestock.

2. Outline of the facility

- Operator: Private manufacturer of organic fertilizer from animal waste
- Design capacity: 50 ton/d of food waste, 10 ton/d of final products.
- Production process: Food waste is mixed with cooking oil and rapidly dewatered and dried under reduced pressure at 100°C. The process is nicknamed the “tempura method” (tempura is deep fried vegetables and seafood, one of the most popular Japanese dishes).

3. Characteristics of the system

1) Novelty of the technology used

It is not common worldwide for a municipal government to carry out animal food production by converting food waste at such a large scale. The reasons for Sapporo City to choose not composting but producing animal food are as follows.

- The nutritional value, which is the most advantageous feature of food waste, can be sustained.
- The market for animal food is well established, unlike that for compost, so the demand is ensured.
- The process of heatingm decompression and drying can proceed in a closed system to prevent odor problem.



Photo. Equipment for food waste recycling

2) Mechanism for collecting a large amount of homogeneous food waste

In Japanese cities, waste generated from business activities is generally collected by private licensed collectors which have won the price competition. This, however, makes it difficult to separately collect food waste in accordance with a common rule. Accordingly, Sapporo City restricts food waste collection to a municipal environmental service company, which uses collection vehicles specifically designed to collect food waste. In order to facilitate food waste recycling, the collection fee of food waste separately discharged from other sorts of waste is set cheaper than that of mixed waste.

(Katsumi Hatano)

**Development of
Waseda Environmental Research Institute (WERI)**

The WERI was established in July 2002, taking a leading role in global environmental issues of the new century. Professor Katsuya Nagata was appointed as the first director of WERI.

The WERI, located in the “Honjo Core City Area” with Honjo campus of Waseda University at the center, aims to develop education and research integrating four spheres, namely industry, government (public sector), citizens (region) and academia. As environmental issues in particular require interdisciplinary consideration,

WERI is expected to be a place where both scientific research and humanities are integrated.

In order to strengthen the linkage between WERI and the region, Honjo Waseda Research Park Foundation was established in April 2002.

The WERI takes three principal approaches toward environmental issues: i) environmental control to reduce the environmental impact of concerned items, ii) environmental operation to systematize and maintain the steady state of the environment, and iii) environmental creation to come up with a new concept aimed at harmonizing with the environment.

Focusing on these three approaches, several research clusters have been organized so that each of the research staff can do research in close communication with each other (see figure). This is an interdisciplinary research framework which attempts to ensure that research projects are carried out in parallel and their output will take root in a real society. On-going research projects are listed in the next table.

Full-scale research projects made a start at the end of 2003 on completion of the facilities on Honjo campus, which is the hub of WERI's activities. A new station “Honjo-Waseda” will open in March 2004, by which WERI will be within one hour's reach from Tokyo by bullet train. Graduate courses will also start in the near future based on WERI. A wide range of human resources not only from universities but also from industry, national and local governments, and non-profit

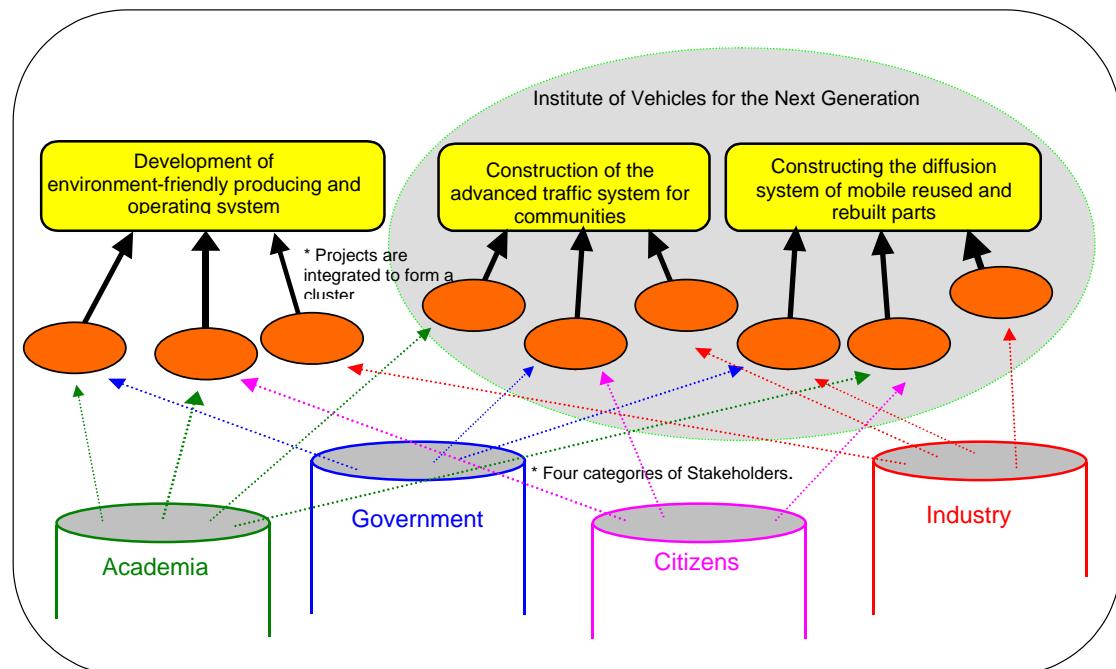


Fig.2 WERI's Structure of Research Clusters, Research Projects and Stakeholders

organizations will be accepted and practically developed.

It is getting difficult to sustain the social system without environmental consideration or environmentally-friendly actions. In this context, the contribution of WERI is promising. (<http://www.waseda.ac.jp/weri/>)

(Makoto Notomi)

On-going Research Activities

Research Projects/Research Clusters	Leaders
Development of environment-friendly producing and operating system	Prof. Katsuya NAGATA
Developing the recycling system of wasted stock farm products	Prof. Sunao KAWAI
Developing the visualization system for recycling sphere of recyclable goods	Prof. Katsumi YORIMOTO
Construction of the advanced traffic system for communities	Prof. Yasuhiro DAISHO
Constructing the purifying system of Motokoyama river in Honjo city	Prof. Yutaka SAKAKIBARA
Development of precise agriculture and regional cooperating system	Prof. Sunao KAWAI
Construction for system of the hydric model society	Prof. Masafumi KATSUTA
Constructing the diffusion system of mobile reused and rebuilt parts	Prof. Katsuya NAGATA
Development of the evaluating method of the carbon absorption in the forest using the Clean Development Mechanism (CDM)	Prof. Yasushi MORIKAWA

- Leachate collection & treatment facility
- Gas ventilation facility
- Installation of movable & fixed type fence
- Handrail for security (only in N.E.)
- Gate (only in N. E.)
- Tire wash pit (only in N.E.)
- Access road
- Disposal pit for health care waste
- Control office
- Education facility (only in N.E.)

The supervision by the MCs over the construction work under the guidance of the JICA study team was an important element for the transfer of construction method of sanitary landfills. After the completion of the improvement constructions, landfill management works, such as compaction of discharged waste and the covering soil, were instructed with the bulldozers donated by JICA to the both MCs. Further, the operation manual for sanitary landfill was prepared in order to maintain the sustainable appropriate operation.

What is important is to continue landfill operation following the manual and to keep sanitary condition. Otherwise, the landfills will turn out to be a public nuisance. Recognizing the Japan's experience in that we leaned the importance of promoting communication between the landfill authority and the general public for appropriate waste disposal, the JICA study team suggested the MCs to set up participatory monitoring committees.

Japan's ODA on Solid Waste Management

Improvement of an Existing Landfill Site and Establishment of a New Landfill Site in Sri Lanka

Following the last issue of JSWME Newsletter (available at <http://www.jswme.gr.jp/>), this issue reports on pilot projects targeting the improvement of an existing landfill site and the establishment of a new landfill site, which are dominant in many towns in Sri Lanka.

In order to mitigate the environmental pollution caused by the existing landfill site and establish a new sanitary landfill, the two pilot projects, i.e. the improvement of Gohagoda landfill in Kandy and the construction of the sanitary landfill in Nuwara Eliya, were implemented in this study. The “lift up type landfill” method was applied in Kandy, while the “valley type landfill” method in Nuwara Eliya. The project proponents were Kandy Municipal Council (MC) and Nuwara Eliya MC, respectively, and the JICA study team attempted to act as a facilitator and to transfer landfill skills. The pilot projects included the following items:

- Making a gentle slope with the discharged waste
- Covering with soil and turfing of the discharged waste
- Construction of storm water drainage system



Before improvement of Gohagoda landfill site



After improvement of Gohagoda landfill site
(Lift up type landfill method)

Accordingly, a monitoring committee was established for each site in order to maintain sustainable maintenance and operation at the improved and established landfill sites. The members of the monitoring committees include representatives of neighbors near the landfill site, members of health committee, relative persons of religion, staff of Municipal Councils in charge of solid waste management, NGOs and Central Environmental Authority.

The monitoring committees hold meetings periodically and make the monitoring results available to the public. They evaluate the maintenance and operation based on the check list.

It is expected that the landfills in Kandy and in Nuwara Eliya serve as a model of sanitary landfill that should be replicated in other municipalities in Sri Lanka.

(Naofumi Sato)

Journal of the Japan Society of Waste Management Experts, Vol. 15, No.1 (January 2004)

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

Paper

Analysis of Geographic Attributes and Probabilities Related to Illegal Dumping

Tomohiro Tasaki, Yasuhiro Matsui, Takatsune Kawahata, Masahiro Osako, Susumu Takagishi and Akihiro Morita

Importance of Clarifying Site Characteristics on Stabilization of Waste Deposits

Kazuo Kamura and Yasuhiro Yamazaki

Recovery of Abrasive Grains by Combustion/Thermal Degradation of Waste Grinding Wheels in O₂/N₂ and Steam/N₂ Atmospheres

Kensaku Sasaki, Yoshihiro Kojima, Hitoki Matsuda, Yoshiharu Terada and Katsuhiro Kano

Method of Compost Quality Evaluation Using a Bioassay Test with Hypha (*Pleurotus ostreatus*)

Mami Okamoto, Akira Ikeda and Akitoshi Ushikubo

A Charge in the Cr(VI) Leaching Characteristics by the Difference of Pre-treatment Processes for Foundation Improvement Works Using Cement Soil Stabilizer

Masato Kawaguchi, Motoyuki Asada, Sumio Horiuchi and Masayuki Horio

Effects of Basicity and Leachant pH on the Dissolution Rates of Molten Slag

Toshikatsu Maeda, Tsunetaka Banba and Tsuyoshi Mizuno

Characterization for Properties of Polystyrene Recovered from Back Cabinets of Waste TVs

Toshiaki Miyanaga

Waste Management Research Vol. 15, No.1 (January 2004)

Preface

Between the localization and Globalization in Waste Treatment and Management

Hideaki Itoh

Special Issues: The 14th Annual Conference of JSWME

Overviews

Special Lecture

Reports of Each Session

Reports of Each International Session

Reports of Mini Symposia

Current Members of JSWME As of 30 September 2003 (Values in parenthesis are differences from 30 June 2003)		
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Regular Members	3,656	(19)
Students	305	(4)
Non-Japanese Member	80	(2)
Public Institutions	113	(-1)
Supporting Members	190	(-3)
Individuals of NPOs	3	(1)
Total	4,347	(22)

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