



Eco-Town Initiatives in Japan and GEC's Eco-Town Recycling Technology Database

Makoto FUJITA

Manager, Planning and Coordination Department
Global Environment Centre, Osaka, JAPAN

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Profile of GEC

- Global Environment Centre (GEC) was established in 1992, as a supporting organization of the UNEP/International Environmental Technology Centre (UNEP/IETC) in Osaka, Japan.
- UNEP/IETC's main function is to promote the application of environmentally sound technologies (ESTs) in developing countries, in particular, in the field of “Waste Management” and “Water and Sanitation”.
- GEC is providing supports to UNEP/IETC, such as facility sharing and assistance in organizing workshops and meetings. GEC is also implementing surveys, collection & dissemination of information, and organizing trainings & seminars for the protection of the environment in developing countries and the global environment.

Eco-Town Program in Japan

- In Japan, the Eco-town Program is promoted by the Ministry of Economy, Trade and Industry (METI) and the Ministry of Environment (MOE) and operated by local governments, aiming at creating resource-recycling socio-economic systems by promoting waste reduction and recycling, and stimulating local industry and economy by promoting waste recycling businesses.
- UNEP/IETC focused on the concept of the eco-town program in Japan, and started pilot projects to promote the eco-town concept in Penang, Malaysia and Bandung, Indonesia from 2004.

Eco-towns approved by the Japanese government



Source: "Eco-Town Projects / Environmental Industries in Progress", Japanese Ministry of Economy, Trade & Industry, January 2008

GEC's Eco-Town Recycling Technology Database Project

- GEC has been supporting “UNEP/IETC’s Eco-Town Project” since 2004.
- In order to promote and facilitate the development of Eco-towns in developing countries, GEC started a new activity to create an “Database of Eco-town Recycling Technologies in Japan” in 2009.
- The objective of the database is to disseminate information that will be good references for developing countries to create policies, plans, and approaches for promoting recycling and Eco-town development.

Needs Survey on Recycling Technologies for Eco-Town Development

- Before starting the development of the technology database, surveys were carried out to identify the needs for recycling technologies in 2009 in Penang, Malaysia and Bandung, Indonesia, which were the pilot cities for UNEP/IETC's Eco-town project.
- The surveys were carried out by the Socio Economic Research Institute (SERI) in Penang and the Institute of Ecology (IOE) of Padjadjaran University in Bandung, based on a list of recycling technologies adopted in Eco-towns in Japan.

Results of Needs Survey on Recycling Technologies (1)

Waste Category	Type of waste	Recycling technology
Waste plastics	Waste plastics	Shredding / sorting/ manufacturing recycled products
	Waste plastics	Pelletization
	Waste plastics	Shredding / thermal degradation / dechlorination / distillation / recovery of recycled oil
	Waste PET bottles	Separation of colored bottles/ shredding/ Label separation/ washing
	Used textiles, used clothes, waste polypropylene	Cutting up / thermal compression
Waste woods / organic waste	Waste wood + waste plastics	Crushing / melting / stirring / mixing / molding
	Waste wood	Sorting / crushing / carbonizing / board manufacturing
	Waste wood	Fiberizing/ manufacturing mats with needle machines
	Food waste	Bio-gasification
	Sludge + food residue + rice hulls	Mixing / processing

Results of Needs Survey on Recycling Technologies (2)

Waste classification	Type of waste	Recycling technology
Waste paper	Various waste paper containing foreign matter	Dissolution / removing foreign matter / bleaching / paper-making
	Waste paper/waste paper containers and packaging	Shredding / processing into animal bedding for livestock
	Waste newspaper	Processing into cellulose fiber
Other	Waste tires, waste rubber	Kneading / processing / molding
	Glass bottles (one-way bottles)	Cleaning / inspection / crushing into cullet
	Used fluorescent lamps	Crushing / sorting
	Used home appliances, used office machines	Dismantling / crushing / sorting out materials
	Sludge and dusts containing valuable metals	Drying / melting / reducing
	Incineration ash + combustion residue + sludge	Pre-processing / blending / burning

Survey on Japan's Eco-Town Recycling Technologies

- Based on the results of the needs survey on recycling technologies, GEC carried out surveys to collect the following information regarding recycling technologies adopted in eco-towns in Japan in 2010.

(Eco-town recycling companies: 11)

- Technology process
- Background (Why did the company start the recycling business?)
- Factors in success, difficulties faced, issues and challenges


(Local governments: 9)

- Eco-town plans
- Background (Why did the local government start the eco-town program?)
- Difficulties faced, unique approaches and initiatives, issues and challenges

Technologies for Resource/Energy Recovery from Sewage Sludge - Windows Internet Explorer

http://nett21.gec.jp/Ecotowns/

Technologies for Resource/... x



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Waste Recycling Technologies and Recycling Promotion Initiatives in Eco-towns in Japan

In Japan, the Eco-town program is promoted by the Ministry of Economy, Trade and Industry (METI) and the Ministry of Environment (MOE) and operated by local governments, in order to create resource-recycling socio-economic systems and stimulate local industry and economy by promoting waste recycling businesses.

Aiming at disseminating information that will be good references for developing countries where policies, plans, and approaches are being created for the improvement of waste management and the transition to a recycling oriented society, GEC developed a database on the information of waste recycling technologies and recycling promotion initiatives in Eco-towns in Japan in 2011. The following information is included in the database.

- What types of waste recycling technologies are available?
- What should be taken into account when applying such technologies?
- What kind of initiatives and approaches are available for promoting waste recycling and Eco-town programs?
- What kind of laws and supporting systems are established for promoting waste recycling in Japan?

The information in the database is summarized based on the results of surveys of waste recycling companies and local governments in Eco-towns in Japan carried out by GEC in 2010.

*The development of this database was funded by the Mitsui & Co., Ltd. Environment Fund.

Contents

Waste Recycling technologies adopted in Eco-towns in Japan

- ❖ [Recycling of Waste Plastic Containers and Packaging from Households](#)
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- ❖ [Recycling of Waste PET Bottles](#)
- ❖ [Recycling of Waste Wood and Waste Plastics into Recycled Plywood](#)
- ❖ [Recycling of Waste Paper/Waste Paper Containers and Packaging](#)

Contents of Database (1/3)

● **Waste Recycling Technologies Adopted in Eco-towns in Japan**

- 1) Recycling of Waste Plastic Containers and Packaging from Households
- 2) Recycling of Waste Plastic Containers and Packaging from Households and Waste Plastics from Industries
- 3) Recycling of Waste PET Bottles
- 4) Recycling of Waste Wood and Waste Plastics into Recycled Plywood
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- 7) Bio Gasification of Food Waste and Organic Waste from Food Manufacturing Industries, Food Retailers and Household, etc.
- 8) Recycling of Used Home Appliances (1)
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- 10) Recycling of Used Florescent Lamps
- 11) Recycling of Sludge/Dusts Containing Valuable Metals (Nickel/Zinc)

Recycling of Waste Plastic Containers and Packaging from Households - Windows Internet Explorer


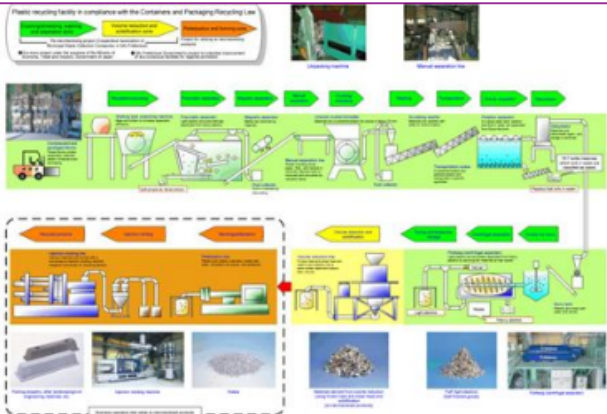
http://nett21.cec.jp/Ecotowns/data/et_a-01.html

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Data Entry: September 2011

Name of recycling technology	Recycling of Waste Plastic Containers and Packaging from Households
Name of recycler	Cooperative Association of Municipal Waste Collection Companies in Gifu Prefecture (Number of member companies: 37)
Location	Gifu Prefecture
Name of eco industrial park	-
Receiving waste materials for recycling	Separately collected waste plastic containers and packaging from households
Recycled products/recovered materials	<ul style="list-style-type: none"> - Polypropylene (PP)/polyethylene (PE) flakes - Refuse plastic fuel (RPF) - Raw material/fuel for cement production  <p>PP/PE flakes</p>
Capacity of recycling plant	25.4 t/day
Area of recycling plant	14,319 m ²
Number of employees in recycling plant	19 (as of April 2010)
Start of recycling operation	June 2000
Technical description	<p>Waste plastics separately collected from households are processed into plastic materials</p> 

● Waste Recycling Technologies Categories of Information

- Name of recycling technology
- Name of recycler
- Location
- Name of eco industrial park
- Receiving waste materials for recycling
- Recycled products/recovered materials
- Capacity of recycling plant
- Area of recycling plant
- Number of employees in recycling plant
- Start of recycling operation
- Technical description
- Background of starting recycling business and participating in eco-town program
- Fund procurement
- Major success factors
- Issues and Challenges
- Future prospects
- Remarks

Contents of Database (2/3)

● Initiatives of Local Governments for Promoting Waste Recycling and Eco-town Programs in Japan

- 1) Aichi Prefectural Government
- 2) Akita Prefectural Government
- 3) Chiba Prefectural Government
- 4) Gifu Prefectural Government
- 5) Hokkaido Prefectural Government
- 6) Kawasaki City Government
- 7) Kitakyushu City Government
- 8) Sapporo City Government
- 9) Toyama City Government

Categories of Information

- Name of local government
- Department in charge of eco-town program
- Starting year of eco-town program
- Target area of eco-town program
- Location of waste recycling facilities
- Waste recycling facilities
- Background of starting eco-town program
- Basic concepts of eco-town program
- Programs for promoting eco-town development
- Major success factors
- Unique efforts and initiatives for eco-town development
- Future prospects

Contents of Database (3/3)

● **Laws and Support Systems for Promoting Waste Recycling in Japan**

- 1) National Legislative System for Promoting a Sound Material-Cycle Society in Japan
- 2) Basic Act on Establishing a Sound Material-Cycle Society
- 3) National Basic Plan for Establishing a Sound Material-Cycle Society
- 4) Waste Management Law
- 5) Law for Promotion of Effective Utilization of Resources
- 6) Containers and Packaging Recycling Law
- 7) Home Appliance Recycling Law
- 8) Food Recycling Law
- 9) Construction Material Recycling Law
- 10) End-of-Life Vehicles Recycling Law
- 11) Green Purchasing Law
- 12) Gifu Prefecture Recycled Products Authorization System
- 13) Hokkaido Prefecture Recycled Products Authorization System
- 14) Hokkaido Prefecture Industrial Waste Disposal Tax System
- 15) Hokkaido Prefecture Zero-Emission Award System
- 16) Aichi Prefecture Environment Award System
- 17) Sapporo City's Program for Training Community Leaders on Environmental Campaigns
- 18) Sapporo City Recycling Plaza

Please visit **GEC's Database on**
“Waste Recycling Technologies and
Recycling Promotion Initiatives in
Eco-towns in Japan” at;

<http://nett21.gec.jp/ECotowns/>



Case Studies of Private Sector Initiatives for Promoting Waste Recycling in Japan

Case Study of Private Sector Initiatives (1)

Recycling of Used Fluorescent Lamps

Recycler: Japan Recycling Light Technology & Systems

(Subsidiary Company of Kyushu Electric Power Company)

Location: KITA-KYUSHU City

Receiving wastes:

- Used fluorescent lamps

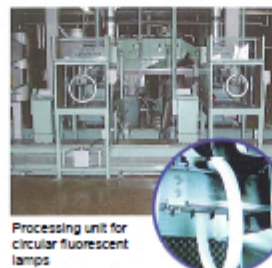
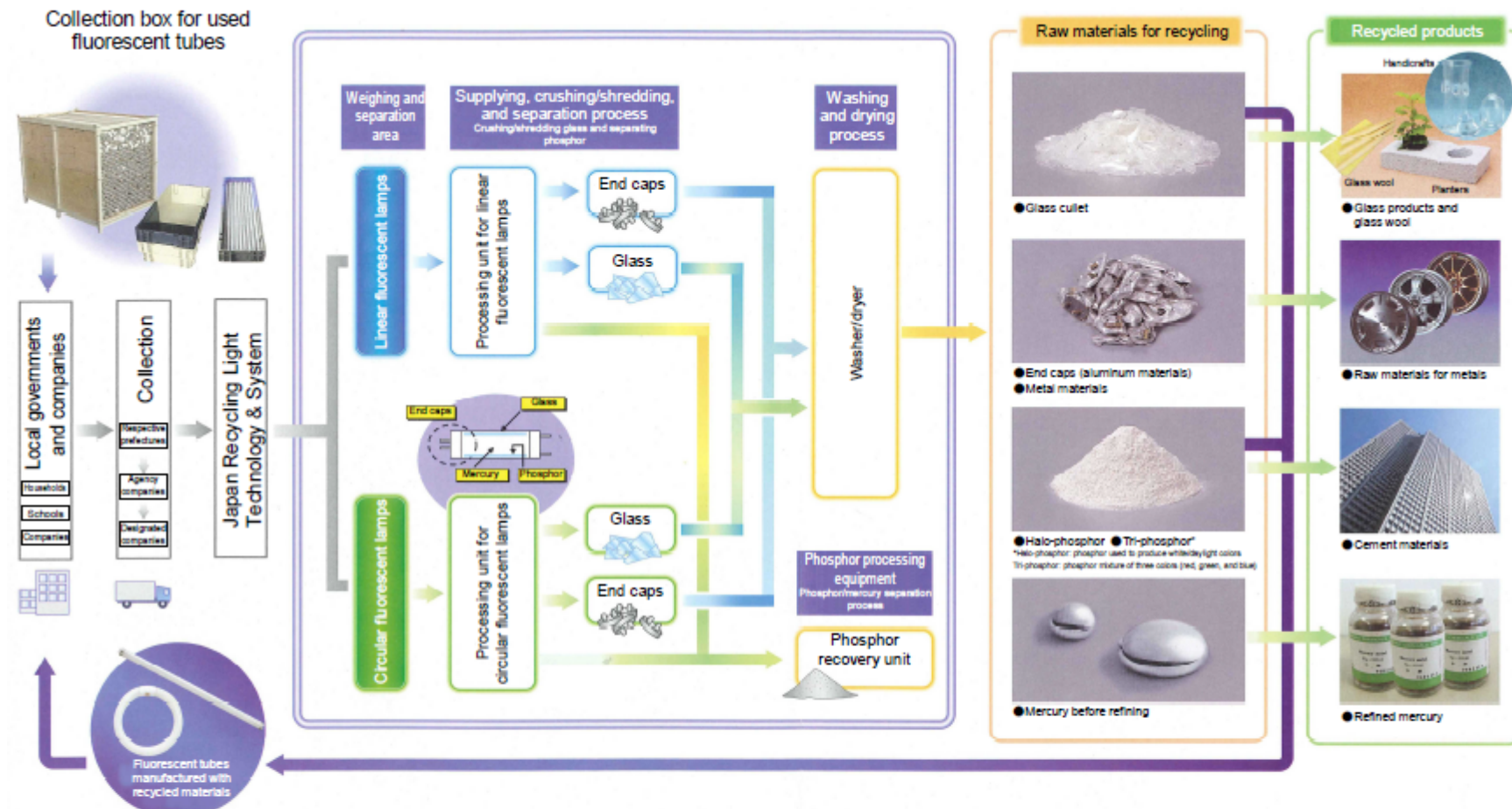
Recovered material:

- Glass cullet → Glass tube of fluorescent lamps, etc
- Aluminum/metal materials
- Phosphor → Fluorescent lamps, cement material
- Mercury → Mercury lamps



Recovered glass cullet and phosphor are recycled as raw materials to manufacture new fluorescent lamps by Toshiba Lighting & Technology Corporation.

Recycling process



Why did recycling start?

■ Parent company was exploring new business fields

- Their parent company is Kyushu Electric Power Co., Inc., which generates and supplies electric power in the Kyushu region.
- In Japan, deregulation of electric utilities has been under way since 1995, so their parent company has been **exploring viable new businesses** in terms of potential and corporate social responsibility.

■ Parent company's strong interest in the environment

- Before this recycling business was launched, there were only a few companies collecting used fluorescent lamps in Japan. But, in most cases, only mercury was recovered from the lamps; glass and metals were just landfilled.
- Their parent company therefore decided to enter the business of recycling fluorescent lamps (i) **to help build a sound material-recycling society** and (ii) because **the demand and potential for recycling fluorescent lamps were expected to be high.**

Issues and Challenges

■ Difficulties in collecting sufficient amount of used fluorescent lamps

When they started the business, it was difficult for the company to collect sufficient amounts of used fluorescent lamps, because:

- In Japan, **national laws did not require the recycling of used fluorescent lamps**, so there was limited need to actively recycle the lamps.
- At that time, **other companies** were collecting used fluorescent lamps, but most of them **only recovered the mercury while glass and metals were dumped in landfill sites**, so their recycling cost was lower.
- The company visited various local governments and large companies to raise awareness about the importance of recycling fluorescent lamps, **because local governments collect large volumes of used fluorescent lamps as part of household wastes, and large companies, universities, railway companies, large shopping centers generate large amounts of used lamps**. The company also requested local governments to separately collect fluorescent lamps from other household wastes.
- The company also **prepared posters showing the CO2 emissions reduced by recycling fluorescent lamps**, and gave them to local governments and companies in order **to raise awareness** about the importance of recycling fluorescent lamps.

Case Study of Private Sector Initiatives (2)

Production of Animal Bedding for Cattle, Pigs, Horses and Poultry from Waste Paper

Recycler: Marumasu Masuda Honten Co., Ltd.

Location: HOKKAIDO Prefecture

Receiving wastes:

- Waste paper
- Separately collected waste paper containers and packaging
- Confidential documents to be disposed of from businesses

Recycled products:

- **Animal bedding for cattle, pigs, horses and poultry**
- **Refuse paper & plastic fuel (RPF)**



Recycling process

■ Separation of foreign matter

The following types of foreign matter are manually separated. Confidential documents that must be shredded unopened are immediately shredded, skipping the manual separation of foreign matter.

- Metals and plastics such as paper clips, clamps and fasteners
- Wax coated paper, carbon paper, laminated paper
- Gold/silver coated paper/packaging
- Paper with magnetic stripe/layer
- Paper with fragrance (e.g. bags/cartons for detergent)
- Window envelopes, stickers and release paper/sheets, photos

Among these foreign matter, waste paper materials are processed into RPF.

■ Crushing/shredding

Crushes and shreds waste paper including confidential documents, paper containers and paper packaging. The crushing/shredding machine has a magnetic separator to remove any metal remaining after manual separation.

■ Swelling and softening

Beats and kneads waste paper to a fibrous form.

■ Compression

Compresses the product to reduce the volume by about two-thirds before packing for ease of transport, storage and handling.

Why did recycling start?

- The **company's original business was to collect waste paper** and sell it to paper-making plants as a waste paper wholesaler.
- Due to economic stagnation, progress of information technology, etc., it was expected that paper production would decline, and **the company needed to explore alternative use of waste paper.**
- Enterprises and government offices were required to manage information security more strictly. That has caused an **increase in confidential documents** and growing **demand for their secure disposal.**
- Dairy farming is widely practiced in Hokkaido. Conventionally, sawdust and rice straw have been used for animal bedding. However, the supply of sawdust and rice straw was decreasing, and there were **needs for a new animal bedding material.**
- The **company's president is highly interested in the environment and waste reduction** in Hokkaido Prefecture, as well as in exploring new businesses.
- The **Hokkaido Prefectural Government inaugurated an eco-town program** and invited companies to participate.
- The **Containers and Packaging Recycling Law (national law) was enforced**, therefore, demand for recycling waste paper containers and packaging was expected to increase.

Issues and Challenges

- Confidential documents often contain foreign matter such as paper clips, clamps and fasteners. Waste paper containers and packaging sometimes contain unrecyclable paper materials. Consequently, **careful manual separation has been required and magnetic separation process needed to be introduced.**
- The company needed to develop a product that would precisely meet customers' needs for using animal bedding. For this purpose, the company obtained **collaboration of agricultural cooperative associations** for the development of animal bedding material.
- The company could **utilize the distribution networks of the agricultural cooperative associations to sell their recycled products** to farmers.
- To **increase customers' trust in the handling of confidential documents and ensure the supply of confidential documents as valuable recyclable materials**, the company installed GPS in their transport trucks and obtained Information Security Management System (ISO/IEC 27001) certification, demonstrating an improved information security control.



Case Studies of Local Government Initiatives for Promoting Waste Recycling in Japan

Case Study of Local Government Initiatives (1)

Kita-Kyushu City Eco-Town

- Start of Eco-town program: 1997
- Eco-town plan was developed by:
Industrial Promotion Department
& Waste Management Department
of Kita-Kyushu City Government
- Number of Recycling Facilities: 25
Recycling facilities are located in 4 specific areas.
- Types of wastes recycled:
Waste plastics, PET bottles, home appliances,
office machines, fluorescent lamps, automobiles,
medical equipment, waste paper, waste wood,
food waste, cooking oil, construction wastes,
organic solvent, cleaning solution, etc.



Why Eco-Town program started?

- Kitakyushu was **facing shortage of waste disposal sites**, and it was **difficult to find a new disposal site** due to objections from residents. Therefore, it was necessary to promote waste recycling to reduce the amount of waste disposal.
- In Kitakyushu, existing local industries were on the decline due to economic recession, so it was **needed to revitalize the local economy by promoting industry**.
- Kitakyushu had a cluster of steel, chemical, cement and other manufacturers, and a wealth of **various industrial technologies has been owned by local industries**. Recycling businesses were created by utilizing these existing technologies owned by the local industries.
- Since **various national recycling laws were to be enforced**, it was expected that a huge amount of recyclable waste would be collected.
- In 1997, **the Ministry of Economy, Trade and Industry and the Ministry of the Environment established a national eco-town program scheme**.

Major Success Factors

- **Strong Leaderships in the Local Government, Academia and Industry**
 - In the city government, **the Mayor** at the time **showed strong leadership** in promoting environmental & recycling industries.
 - **The executives of local universities showed strong leadership** in facilitating collaboration among industry, government and academia.
 - **Top managers of major local private companies took the lead** in commercializing environmental & recycling industries .
- **Citizens' Support to the Policy Approach for Promoting Recycling**
 - Kitakyushu has once experienced serious pollution problems, therefore, the **citizens were highly aware of environmental issues.**
 - Through the process of overcoming pollution problems, **a dialogue mechanism** had been built **between the city government and citizens**, that enabled the both parties **to mutually propose and discuss policy approaches** for promoting recycling.
 - The **city government obliged recyclers** in the eco-town **to make their recycling facilities open to the public** and willingly accept site visits. This approach helped citizens to understand recycling.
- **City Government's Support for Recyclers**
 - **To ensure profitability for recyclers** in the eco-town program, **the city government subsidized them to carry out surveys and research** for securing the procurement of recyclable waste materials and the markets for recycled products.

Promotion of Partnership among Local Government, Industry and Academia

■ Environmental Industry Promotion Council

- To promote the eco-town program, the “Environmental Industry Promotion Council” was established in 1997 consisting of representatives of industry, academia and the city government, and chaired by the Mayor of Kitakyushu.

■ Environmental Business Consortium

- “Environmental Business Consortium” was established in 1998 to develop business networks and create new environmental/recycling businesses. Its members are companies interested in creating new environmental business. The city government is involved in the consortium as its secretariat.
- The Consortium’s activities include information exchange on technologies and markets for environmental/recycling businesses; industry-academia exchanges.

■ Research Promotion Organization

- “Research Promotion Organization” was established in 2001 to facilitate collaboration among industry, academia and government for promoting research and development programs.
- The organization coordinates collaboration among universities, research institutes and industries in Kitakyushu, and also provides general assistance to small/medium-sized and venture businesses.

Case Study of Local Government Initiatives (2)

Hokkaido Prefecture Eco-Town

- Start of Eco-town program: 2000
- Eco-town plan was developed by:
Waste Management Department
of Hokkaido Prefectural Government
- Number of Recycling Facilities: 73
Specific eco-town areas are not designated.
Recycling facilities spread over the prefecture.
- Types of wastes recycled:
Waste plastics, PET bottles, waste paper,
home appliances, fluorescent lamps, batteries,
livestock excreta, fisheries waste, agricultural
plastic products, etc.



Why Eco-Town program started?

- Unfavorable Situation regarding Waste Discharge and Management
 - The daily per capita **waste generation rate was higher** than the national average.
 - Municipal solid **waste was landfilled at a higher rate** than the national average.
 - The **recycling rate** of municipal solid waste **was significantly low**, at about half of the national average.
- Specific Waste Issue
 - Among industrial waste, construction waste is generated mostly in central Hokkaido. In other areas, fisheries and agricultural wastes account for a large proportion of industrial waste. The amount of these wastes are huge, therefore, **a strategic approach was needed to promote waste recycling.**
- Master Plans for Building a Recycling Society
 - The Hokkaido **Prefecture Environmental Master Plan** was established in 1998, and the promotion of resource recycling was specified as a **policy direction.**

Unique Initiatives for Eco-Town Development

■ Promoting Initiatives and Partnership among the Private Sector

- Aiming at promoting recycling business by the private sector, the “**Council for Promoting the Use of Recyclable Materials**” was established by the prefectural government, the local economic federation, industry association, etc.
- In the framework of the Council, **surveys, researches and demonstrations** are carried out **to explore new commercially-viable waste recycling businesses**.
- **3 Working groups** are set up under the Council, i.e. Inorganic Recyclable Materials Working Group, Organic Recyclable Materials Working Group and Business Promotion Working Group. Furthermore, **sub-working groups** are set up under them **to assess the feasibility and viability of recycling specific waste**.
- The members of the Council include private businesses, municipal governments, local universities and economic associations. Each member takes part in working groups or sub-working groups according to their respective interests.
- The activities of the Council are carried out on the **initiative of the private sector**. The theme of each sub-working group is proposed by a company with a specific business idea.
- The Council receives **advice from experts of local universities**.
- The **prefectural government is coordinating overall activities**.

Unique Initiatives for Eco-Town Development

■ Introduction of Industrial Waste Disposal Tax System

- In 2006, the prefectural government imposed a new tax on industrial waste disposal of 1,000 JPN/ton in 2006.
- Tax revenues are spent on policy approaches for reduction and proper treatment/disposal of industrial waste, promotion of recycling, etc.

■ Hokkaido Prefecture Recycled Product Authorization System

- To facilitate the appropriate use of recycled products and to promote recycling industries, the prefectural government set up a “Recycled Product Authorization System”. As of March 2011, 116 products had been authorized.

■ Hokkaido Prefecture Zero-Emission Award System

- The Zero-Emission Award is offered to models of good practice in reducing waste generation/disposal by business establishments located in Hokkaido, aiming at raising awareness of waste reduction and promoting environmentally sound business operations among the private industries.



Summary of Survey Results on Private Sector Initiatives for Promoting Waste Recycling

Why did Companies Start Recycling Businesses? (Multiple answers given)

- Invitation by local governments to participate in Eco-town programs: 8 companies
- Enforcement of recycling laws (home appliances, containers and packaging, etc.): 7 companies
- Exploring or expanding new business areas: 7 companies
- The top manager of the company or its parent company had a strong interest in the environment protection: 6 companies
- The company was originally engaged in waste collecting service: 5 companies (municipal waste, waste paper, wood waste, etc.)
- Incorporating new societal demands into the company's business: 3 companies (securing rare metals, secure disposal of confidential documents, etc.)

Major Success Factors

◆ Securing Markets for Recycled Products

- Some recyclers were introduced to companies that purchase recycled products (PE/PP/PET, recycled oil, etc.) by third parties.
- There were groups that cooperate in selling recycled products.
- Some recyclers could find companies/local governments that actively purchase recycled products from a CSR standpoint. (products made from recycled waste paper, etc.)
- The parent company provided cooperation and support for collecting recyclable waste materials and selling recycled products. (recycling fluorescent lamps)
- The parent company or affiliated companies agreed to purchase recycled products or residue. (recovered metals, slag, biogas, etc.)

Major Success Factors

◆ Finding Suitable Recycling Technology

- Some recyclers applied the company's existing technology and know-how. (steel-making, smelting, home electronics, paper-making, etc.)
- Some recyclers had already developed or established their own recycling technology. (oil recovery from waste plastic, waste paper recycling, etc.)
- Some recyclers were introduced to a company that has recycling technology. (sorting and crushing waste plastic into flakes, wood waste recycling, etc.)
- Some recyclers could find an association/organization that cooperate in technology development. (waste paper recycling, etc.)

Common Problems

- ◆ Foreign material mixed in recyclable waste materials
 - In the case of waste plastic, plastic bottles,
 - Cans, bottles, glass, trash, leftover drink liquid, dirt and sand, batteries, knives



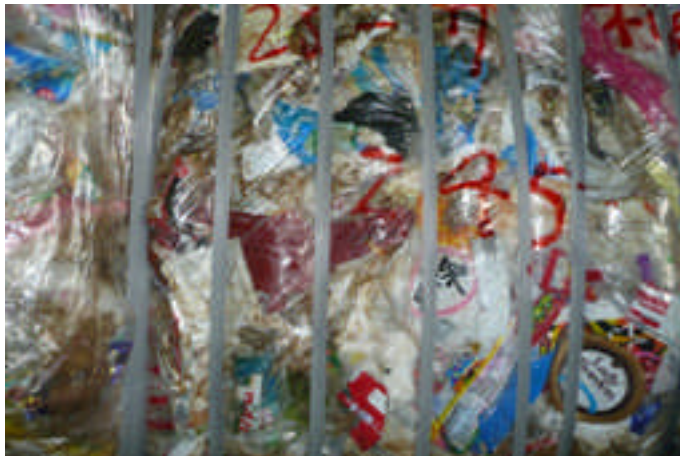
Common Problems

◆ Foreign material mixed in recyclable waste material

- In the case of food waste,
 - Plastic bags, plastic containers, chopsticks, forks, spoons, plastic, paper, cardboard
- In the case of waste paper,
 - Paper clips, clamps, fasteners, plastics, calculators
- In the case of wood waste,
 - Nails, clamps, nuts and bolts, chains

Common Problems

◆ Dirty plastic wastes



◆ Clean plastic wastes



Common Suggestions by Recycling Companies

□ Points for success in the recycling business

- How to secure a constant amount of waste materials?
- How to obtain waste materials properly separated?
- How to secure companies/organization/markets/channels which continuously purchase recycled products?



Summary of Survey Results on Local Government Initiatives for Promoting Waste Recycling

Why did local governments start eco-town programs?

Main reasons (multiple answers given)

- ◆ Difficulties in conventional waste management approaches
 - Shortage of waste landfill sites or incineration capacity (7)
 - Generation of a huge amount of organic waste from agriculture, forest, or fishing industry (3)
- ◆ Need for promoting local industries
 - Decline of major local industries, necessity for stimulating local economy (4)
- ◆ Strong leadership existed
 - Governor/mayor, leaders of local industries/academia (3)
 - Administrative officials of local government (3)
- ◆ Effects of laws/regulations
 - Obligation to formulate a waste reduction plan by national law (2)
 - Development of recycling laws by national governments (2)

Original Advantages for Eco-town implementation

◆ Utilization of existing technologies

- Manufacturing/steel-making industries or research institutes are concentrated in the area, accordingly various technologies have been existing in the local private-sector.
- Because near from a metropolitan area, many waste processing plants are located in the prefecture and various waste processing technologies have been owned by local waste processing companies.

◆ Understanding and cooperation of residents

- Because serious pollution problems had occurred in the past, the environmental awareness of residents has been already high.
- Through the process to overcome past pollution problems, a dialogue mechanism between the local government and residents has already been established.
- By the effort of local government, waste sorting and separate collection has been already well practiced by residents.
- By the effort of local government, residents have been already widely involved in waste reduction and recycling.

Unique Initiatives by Local Governments (1)

◆ Promotion of collaboration among private companies

- Several local governments are arranging opportunities and meetings for business-matching in order to promote waste recycling on private sector initiatives.
- A local government is hiring retired experts of private companies as coordinator for promoting waste recycling businesses.

◆ Collaboration with local universities

- Some local governments are promoting and arranging collaboration between local universities and private companies regarding research and development of recycling technologies.
- Some local governments are entrusting the feasibility assessment of recycling business proposals to local universities.

Unique Initiatives by Local Governments (2)

- ◆ Provision of information/policy to facilitate starting and operating waste recycling businesses
 - Some local governments are carrying out surveys on the amount of recyclable waste generation and disseminating the information to private companies.
 - Some local governments are widely disseminating information on the amount of waste generation and disposal by waste category.
 - Some local governments are providing private companies with subsidies to carry out research on the availability of recyclable waste materials and potential markets for recycled products.
 - Some local government are identifying specific priority wastes to be primarily recycled and inviting proposals for recycling technologies and business of the specific waste from the private sector.
 - A prefecture government is classifying waste items into ones to be recycled centrally and ones to be recycled locally.

Unique Initiatives by Local Governments (3)

◆ Securing funds for eco-town programs

- Several local governments introduced industrial waste disposal tax, and are using it for operational cost of eco-town programs, public awareness raising, subsidies to private companies, etc.

◆ Prioritizing recycled products and recyclers

- Every local government designates recycled products as priority items to be purchased in government procurement and public projects.
- Some local governments designate recyclers as priority facilities where municipal solid wastes should be processed.
- In a local government, recycled fuel from plastic waste was used for a sludge incinerator at a public sewage-treatment plant.
- A prefecture government issued a notice to public works departments of city/municipal governments in the prefecture to promote the use of recycled cement produced in a eco-town recycler.

Unique Initiatives by Local Governments (4)

◆ Encouraging incentives of recyclers

- Several local governments have established authorization systems of recycled products and goods.
- Some local governments have set up Environment Awards which are offered to companies with excellent practices/activities regarding 3Rs.

◆ Other forms of support to recyclers

- Some local governments are assigning staff in charge of providing support to recyclers participating in eco-town programs.

Examples of Authorized Recycled Goods by Gifu Prefecture Government



Unique Initiatives by Local Governments (5)

- ◆ Call for cooperation and involvement of residents in collecting recyclable waste materials
 - Holding symposiums in order to obtain a consensus among residents regarding a resource-recycling society
 - Mayor's appearance on TV to urge residents to promote recycling
 - Site visiting program to recycling factories for elementary school students as part of their social studies classes
 - Training program for resident representatives to create community leaders for promoting separate waste collection and recycling



Unique Initiatives by Local Governments (6)

- ◆ Call for cooperation and involvement of residents in collecting recyclable waste materials
 - Establishing patrol teams consisting of government staff to provide guidance/instructions on separate collection for residents
 - Displaying slogans/logos to promote separate collection on waste collection vehicles and the uniforms of waste collection staff
 - Setting waste collections on different days for waste plastics and for cans, bottles and PET bottles in order to facilitate separate waste collection
 - Establishment of an original collection system for small home appliances and electronics including mobile phones

Summary

- Every city/municipality, industry and citizen will face **shortage of waste landfill sites** in near future. **Waste reduction and recycling** will soon become inevitable for every city/municipality.
- There are **a wide variety of options** in planning, financing, technology selection, implementation, initiatives, partnerships, and support systems for promoting resource recycling. By **applying appropriate options suitable for local situation/condition in a flexible manner**, resource recycling can be facilitated effectively.
- **Strong leadership/initiatives of top leaders in government sectors and private sectors** are the important elements in success.
- **Involvement of wider stakeholders** facilitates finding business partners, financing, securing sufficient recyclable waste materials and markets for recycled products, obtaining technical/operational support, etc.
- It is extremely important to obtain **citizens' understanding and cooperation** in promoting separate waste collection, acceptance of recycling facilities, establishing regulations, etc. To this end, it is quite important to actively **raise citizens' awareness** and **disclose various information/data** on wastes and recycling to citizens.



Various case studies and supporting systems are included in **GEC's Database on**

“Waste Recycling Technologies and Recycling Promotion Initiatives in Eco-towns in Japan”

Please visit at

<http://nett21.gec.jp/ECotowns/>

Thank you for your kind attention.

