Tokyo Metropolitan Government

Tokyo Super Eco Town Project Outline

1. What is the Tokyo Super Eco Town Project?

The Tokyo Metropolitan Government (TMG) has been proceeding with the development of waste treatment and recycling facilities utilizing TMG owned land in the city's waterfront area. As one of the central government's Urban Renaissance projects, this aims to propel Tokyo's transformation into a recycling based society by resolving the issue of waste in the Greater Tokyo Area and providing locations for environmental industries.

Facilities for PCB-containing waste treatment and waste fuel electric power generation are operating in the Inner Central Breakwater Landfill site, and in the Jonanjima Island district, facilities for the recycling of mixed construction waste, food waste, and used IT and other electronic devices are in operation.

The TMG will strive to resolve waste problems by promoting the development of advanced and highly reliable waste treatment and recycling facilities that will boost the percentage of treated waste and reduce the final volume of disposed waste in Tokyo.

2. Fundamental Concepts

- The TMG will secure the necessary metropolitan government owned land for locating the facilities, decide upon the type of facilities to be developed and which companies will operate them, and coordinate and promote the entire project.
- For the treatment of PCB-containing wastes, the Japan Environmental Safety Corporation (JESCO) will develop and operate a facility for regional treatment based upon various laws including the PCB Special Measures Law (Law Concerning Special Measures for Promotion of Proper Treatment of PCB Waste) and the Japan Environmental Safety Corporation Law.
- Businesses that have been selected based on their applications will acquire TMG land and be responsible for the development and operation of their respective facilities.

  The businesses will be responsible for procuring their own funds and ensuring business feasibility. They will also be responsible for undertaking any legal procedures for city planning decisions and obtaining facility permits, etc. required for the development and operation of the facilities.

3. Project History

March 2001	The Governor of Tokyo proposes to the central government the “Five-Year, 10 Trillion Yen Project for Urgent Revitalization of the Greater Tokyo Area” that includes the Tokyo Super Eco Town concept.
May 2001	The central government establishes the Urban Renaissance Headquarters headed by the Prime Minister.
July 2001	The Urban Renaissance Headquarters establishes the “Council for Zero Waste Emission” and commences studies on the development of waste treatment and recycling facilities in the Greater Tokyo Area.
April 2002	The TMG announces the guidelines for the Super Eco Town Project and begins accepting applications from the public. The Council for Zero Waste Emission officially announces its final report which includes concepts for facility development.
July 2002	Companies selected for the Super Eco Town Project are officially announced.
May 2006	The TMG announces the guidelines for the Super Eco Town Project and begins accepting the second round of applications.
July 2006	Companies selected for the Super Eco Town Project are officially announced.

4. Facilities

4.1. PCB Waste Treatment

Japan Environmental Safety Corporation
Aomi 2-chome, Koto-ku, Tokyo
(Inner Central Breakwater Landfill Site)
Tel: 03-3599-6023
http://www.jesconet.co.jp

PCB decomposition reactor

[Business Overview/Features]

Under the leadership of the national government, the Japan Environmental Safety Corporation promotes the regional treatment of PCB containing wastes through five centers located throughout Japan (Kitakyushu, Osaka, Toyota, Tokyo, Muroran).

This facility was established for the chemical treatment and detoxification of PCB containing wastes (high-voltage transformers, high-voltage capacitors, ballasts, etc.) from Tokyo and the three neighboring prefectures of Saitama, Chiba, and Kanagawa. Treatment operations started up in November 2005 and will conclude by 2014.

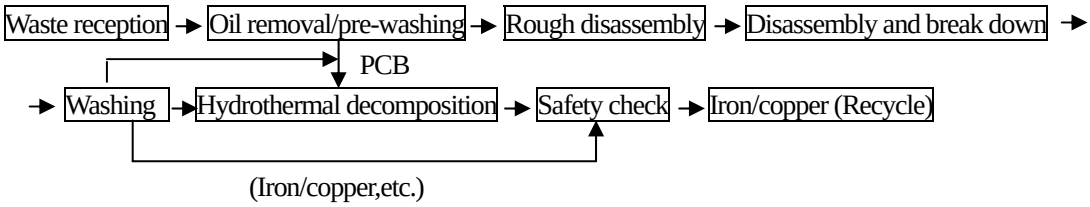
This facility treats highly concentrated PCBs by hydrothermal decomposition and low concentrated PCBs by dechlorination decomposition.

[Business Contents]

Treated Waste	Quantity Treated (Volume PCB decomposed)	Waste Generating Areas
Highly concentrated PCB waste	2t/day	PCB waste(high–voltage Transformers,capacitors,etc. in Tokyo,Saitama,Chiba,Kanagawa)
Low concentrated PCB waste	0.3kg/day	Insulation oil of pole-mounted transformers within Tokyo

[Flow chart of the treatment process]

(1) Highly concentrated PCB waste



(2)Low concentrated PCB waste

4.2. Waste Fuel Electric Power Generation

Tokyo Waterfront Recycle Power Co., Ltd.
Aomi 2-chome, Koto-ku, Tokyo
(Inner Central Breakwater Landfill Site)

Tel: 03-6327-3190
http://www.tgn.or.jp/tokyorp/

Power generator

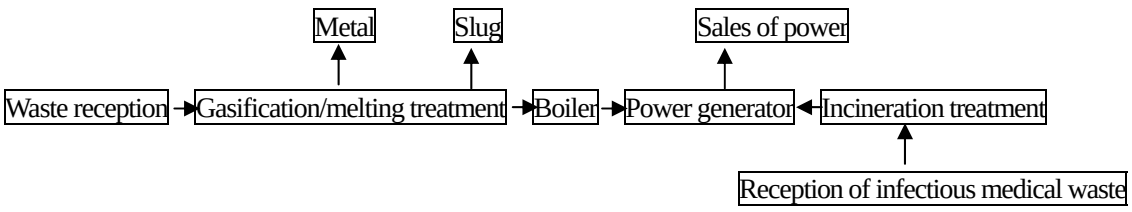
[Business Overview/Features]

In this facility, industrial wastes such as plastic wastes and crushed/separated residue of construction wastes are received for gasification and melting treatment. Ash is melted under high temperatures into slug to be recycled as construction material. In addition, 23,000kW of power is generated by recovering both the heat generated through this process and the waste heat of medical waste treatment. Metals such as iron, copper and aluminum are sold as valuable materials. Infectious medical wastes from medical institutions are incinerated in exclusive furnaces, and the waste heat is used for power generation. This facility is one of the largest of its kind in Japan. It aims for 100% recycling by combining material recycling and thermal recycling.

[Business Contents]

	Item	Quantity Treated /Produced	Waste Gererator /Produced
Type of Treated Wastes	Plastic wastes,etc.	550t/day	Various businesses/intermediate treatment facilities
	Infectious medical wastes	100t/day	Medical institutions(hospitals/ Clinics,etc.)
Recycled products and their applicatoins	Electrical power	23,000kWh	Used partially within the plant;also sold to the power company
	Slug	Approx.50t/day	Sold as construction material

[Flow chart of the treatment process]



4.3. Construction and Demolition Waste Recycling

Takatoshi Corporation Ltd.
2-15 Jonanjima 3-chome, Ota-ku, Tokyo
Tel: 03-5755-8011
http:/www.takatoshi.co.jp

Thorough pre-treatment is undertaken before automated treatment

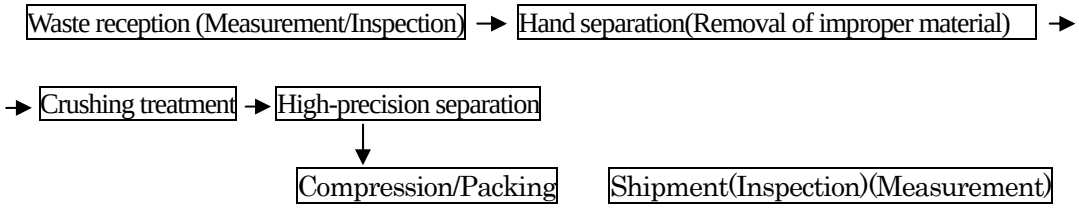
[Business Overview/Features]

Construction and demolition wastes that are difficult to be recycled are received at this facility. Using a recycling system with high-precision separation made possible by state-of-the-art technology, a recycle rate of over 90% has been achieved. This facility takes the fundamental position that "wastes are products" and aims for the boundless recycling of precious waste resources. Greater recycling efficiency will be sought through advancements in separation technology while also promoting a balance between people and machines. Environment-conscious operations are also conducted such as construction of a 10 meter high windbreak wall to care for the surrounding environment and equipping the facility with a high performance dust filter to protect the health of the staff.

[Business Contents]

	Item	Quantity Treated/Produced	Waste Generator/Waste Applications
Type of Treated Waste	Industrial wastes (construction and demolotion waste, etc.)	928t/day	New construction/refurbishing/ demolition etc. of buildings
	General waste(Plastic waste,etc.)		Wastes generated from moving ,etc.
Recycled products and their applications	Recycled sand	Approx. 80t/day	Reused as roadbed material, raw material for cement
	Other items	Approx. 783t/day	Reused as fuel for cement,reducers for blast furnaces, etc.

[Flow chart of the treatment process]



4.4Recycle Peer Co., Ltd.

4-3 Jonanjima 3-chome, Ota-ku, Tokyo
03-5755-8811
http://www.r-p.co.jp

Automated waste separation line

[Business Overview/Features]

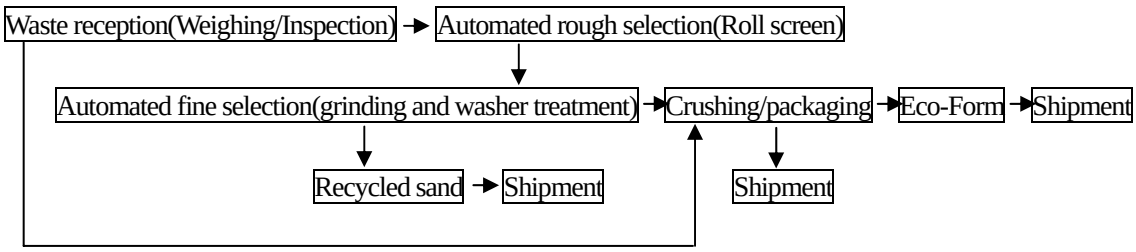
Construction and demolition waste is received at this facility and 94% is recycled. Three advanced technologies were introduced to achieve this high rate of recycling. Due to this, this facility was accredited as a nationally subsidized facility, the first private construction-related industrial waste treatment facility to receive this qualification.

(1) Achieved automated rough selection of waste by introducing a "roll screen unit"
(2) Achieved high utilization of earth and sand by introducing a "grinding and washer treatment unit" (separation by difference in specific gravity)
(3) Achieved utilization of coarse particles, etc. as a secondary raw material for steel manufacturing (Eco-Form)

[Business Contents]

	Item	Quantity Treated/Produced	Waste Generator/ Waste Applications
Type of Treated Waste	Construction and demolition waste	961t/day	New construction/refurbishing/ demolition of buildings, etc.
	Business-related industrial waste		Industrial waste generated from manufacturing and distribution, etc.
Recycled products and their applications	Recycled sand	Approx. 300t/day	Roadbed material, specific gravity modifier, etc.
	Eco-Form	Approx. 10t/day	Utilized at steel plant

[Flow chart of the treatment process]



4.5. Used Information Equipment Recycling

Re-Tem Corporation
2-9 Jonanjima 3-chome, Ota-ku, Tokyo
Tel: 03-3790-2100
http://www.re-tem.com

Heavy equipment operations before shredding

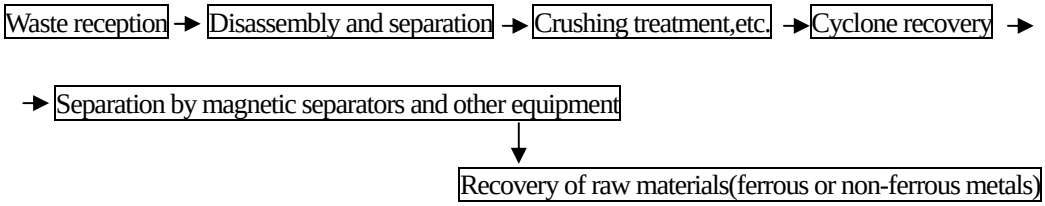
[Business Overview/Features]

This facility receives waste such as used iron metal matrix composites as well as electric/electronic equipment and information communication equipment. The products are disassembled and separated, and proper methods of treatment are undertaken after an accurate assessment of the composites. This leads to an extremely pure recovery of materials. As all items that have undergone the crushing treatment can be shipped out as raw materials for the materials industry, zero emission of waste (zero landfills) has been achieved.

[Business Contents]

	Item	Quantity treated/Produced	Waste Generator/Waste Applications
Type of Treated Waste	Metal waste, plastic waste, glass, etc.	300t/day	Machines, ATMs, electrical appliances, etc. from manufacturers, banks, leasing firms and offices
Recycled products and their applications	Ferrous metals	188.5t/day	Sold to electric furnace manufacturers and steel works
	Non-ferrous metal	40t/day	Sold to non-ferrous refineries,etc.

[Flow chart of the treatment process]



4.6.Future Ecology Inc.

2-14 Jonanjima 3-chome, Ota-ku, Tokyo
Tel: 03-3799-7153
http://www.f-eco.co.jp

Data removal and confirmation of PC operation

[Business Overview/Features]

This facility undertakes the reuse and recycling of used personal computers and other electric, electronic, and information related equipment. For information related equipment in particular, data is removed or destroyed under strict security procedures for their safe reuse and recycling.

[Business Contents]

	Item	Quantity Treated/Produced	Waste Generator/Waste Applications
Type of Treated Waste	Used electrical household appliances, OA machinery and electronic parts, etc.	36t/day	General businesses, leasing firms, etc.
Reused products and their applications	Electric/ electronic/ information related equipment	12t/day	Reused after repair following removal or destruction of data
Recycled products and their applications	Electric/ electronic/ information related equipment	24t/day	Recycled after data destruction, etc.

[Flow chart of the treatment process]

(1) Reuse

Waste reception → Inspection/separation → Data removal/destruction → Reuse

(2) Recycle

Waste reception → Separation through hand disassembly → Destruction of some parts → Separation → Sales/Recycle

4.7. Animal Feed from Food Waste

Alfo Co., Ltd.
3-2 Jonanjima 3-chome, Ota-ku, Tokyo
Tel: 03-5755-8841
http://www.tokyoclear.co.jp

Ingredient for formula feed

[Business Overview/Features]

This facility receives and dries food waste (food scraps) to manufacture ingredients used in formula animal feed for the pork and poultry industries.

The advanced technology of the "low temperature vacuum drying equipment" is based on the principle of "water evaporation by deep oil frying" to manufacture feed. Feed can be manufactured in approx. 90 minutes per treatment cycle (10 tons), allowing large volumes to be treated in a shorter period of time than other compost or feed production methods.

[Business Contents]

	Item	Quantity Treated/Produced	Waste Generator/Waste Applications
Type of Treated Waste	Business related general waste (food scraps)	140t/day	Kitchen scraps and leftovers (food scraps) from hotels, restaurants, supermarkets, etc.
	Industrial waste (animal and plant scraps)		Animal and plant scraps generated during the manufacturing, processing or cooking of food
Recycled products and their applications	Ingredient for formula feed	Approx. 25t/day	Formula feed for poultry and pork industries

[Flow chart of the treatment process]

Waste reception (Crushing process) → Mixing and heating of food scraps and used cooking oil →

→ Drying process → Separation of product and used cooking oil → Crushing of the product →

→ Separation by wind sifter → Product storage → Shipment of formula feed

4.8. Biogas Power Generation from Food Waste

Bioenergy Co., Ltd.
4-4 Jonanjima 3-chome, Ota-ku, Tokyo
Tel: 03-5492-1461
http://www.bio-energy.co.jp

Fuel cell and methane gas holder

[Business Overview/Features]

This facility accepts food waste that had traditionally been incinerated rather than recycled because of separation difficulty. Using a methane fermentation system, methane gas is generated as fuel for application in fuel cells and gas engines. Approximately 24,000kWh of power (equivalent to electricity for about 2,400 households) is generated a day. About 60% of this is sold to an outside corporation. Because this power is generated by biomass, it has been appraised as a natural form of energy, receiving certification as a green energy. It also helps to halt global warming by creating electricity from food waste. It reduces carbon dioxide emissions by an annual 5,000 tons.

[Business Contents]

	Item	Quantity treated/Produced	Waste Generator/Waste Applications
Type of Treated Waste	Business-related general wastes	Food wastes 110t/day	Food manufactures/ processors,restaurants, department stores, convenience stores, hotels, food service facilities, etc.
	Industrial wastes		
Recycled products and Their applications	Electrical power	24,000kWh (2,400 households)	Approx. 60% is sold to the power company

[Flow chart of the treatment process]