

Zero Emissions and Eco-Town in Kawasaki

Kawasaki City



Location : Kawasaki

Shenyang

3hrs 45m.

Seoul

2hrs 20m.

Shanghai

3hrs 10m

2000km area from
Kawasaki

Kawasaki City

Tokyo
Yokohama
Kawasaki

Kawasaki City

Fundamental Data of Kawasaki City



	Kawasaki City	Tokyo area and Japan
Area	144.35km ²	Tokyo area 13,281.35 km ² Japan 377,890.20 km ²
No. of habitant	1,369,443 (Oct. 1, 2007)	Tokyo area 34,900,000 (Oct. 1, 2007) Japan 122,780,000 (Oct. 1, 2007)
Population growth rate	1.26% (2006)	Tokyo area 0.66% (2006) Japan 0.06% (2006)
Working person	737,210 (2005) (men 458,810, women 278,400)	Tokyo area 18,430,000 (2005) Japan 66,410,000 (2005)

	Kawasaki City	Tokyo area and Japan
GDP	4,704,600 M ¥ (2004)	Tokyo area 160 T ¥ (2004) Japan 508 T ¥ (2004年)
Main industries	Steel, electronics, communication, machinery, oils, chemistry, information, service	
Developing industries	Advanced production technologies, info/communication, environment, welfare/life science, livings/culture	
Aliens registered	28,775 (Dec. 31, 2006)	Tokyo area 745,175 (Dec. 31, 2006) Japan 2,084,919 (Dec. 31, 2006)
Foreign companies	115 (83 companies locate head office in Kawasaki; No 5 rank in Japan) source ¹ Foreign companies handbook 2006 ₂ Toyo Keizai Shinbun	Tokyo area 2,988 Japan 3,500

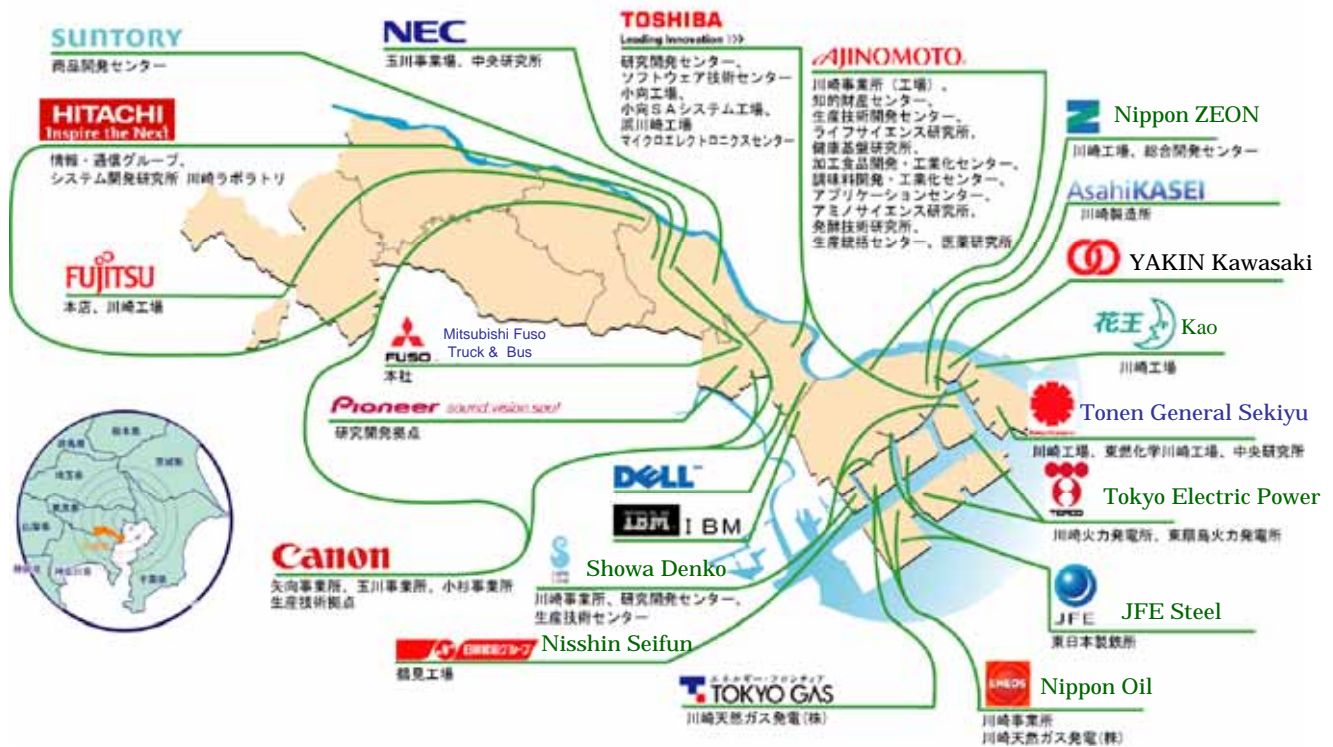
Kawasaki City  -2-

Features : Kawasaki City

- 1 . Industrial city developed as a core center in Keihin Industrial Area
Integration of various industries
Inner area : Electric and machine industries
Coastal area : Steel, oil and chemical industries
- 2 . Pollution mitigation and activities for better environment
Kawasaki's revitalization through environmental technologies accumulated in traditional industries
- 3 . Competing power of Asian countries and measures for de-industrialization in Kawasaki
Transforming Kawasaki into innovative city through integrating research and development institutions
- 4 . Utilization of the advantage of Kawasaki area as living zone between Tokyo and Yokohama
- 5 . Advantage of International Haneda Air Port (Expansion of intl. flights in 2010)
It will trigger Kawasaki to develop further as the gate way to Asia

Kawasaki City  -3-

Worldwide Companies in Kawasaki



Kawasaki City  - 4 -

Promoting Intellectual Property (IP) Strategy

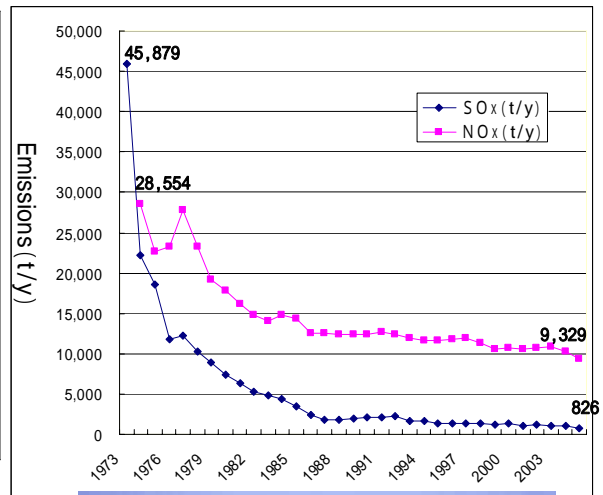
- **Formulation of IP Strategy (FY2007)**
 - ・Take advantage of the accumulation of industries
 - ・Appreciate and respect the value of IP
 - ・Establish the promotion program
- **Improvement of Corporate Value by Encouraging Application of IP**
- **Promotion of Innovation by Pursuing IP Strategy**



Kawasaki has overcome Pollution

Administration's role

- Clarify healthy damage
- to decide the relation of cause and effect
- Establish the air pollution observing system
- confirm the diffusion of air pollution
- recognize the measure for mitigating pollution
- Make rules on the scientific grounds and control for mitigating air pollution
- Collaboration among stakeholders to mitigate air pollution
- accumulate environmental technologies

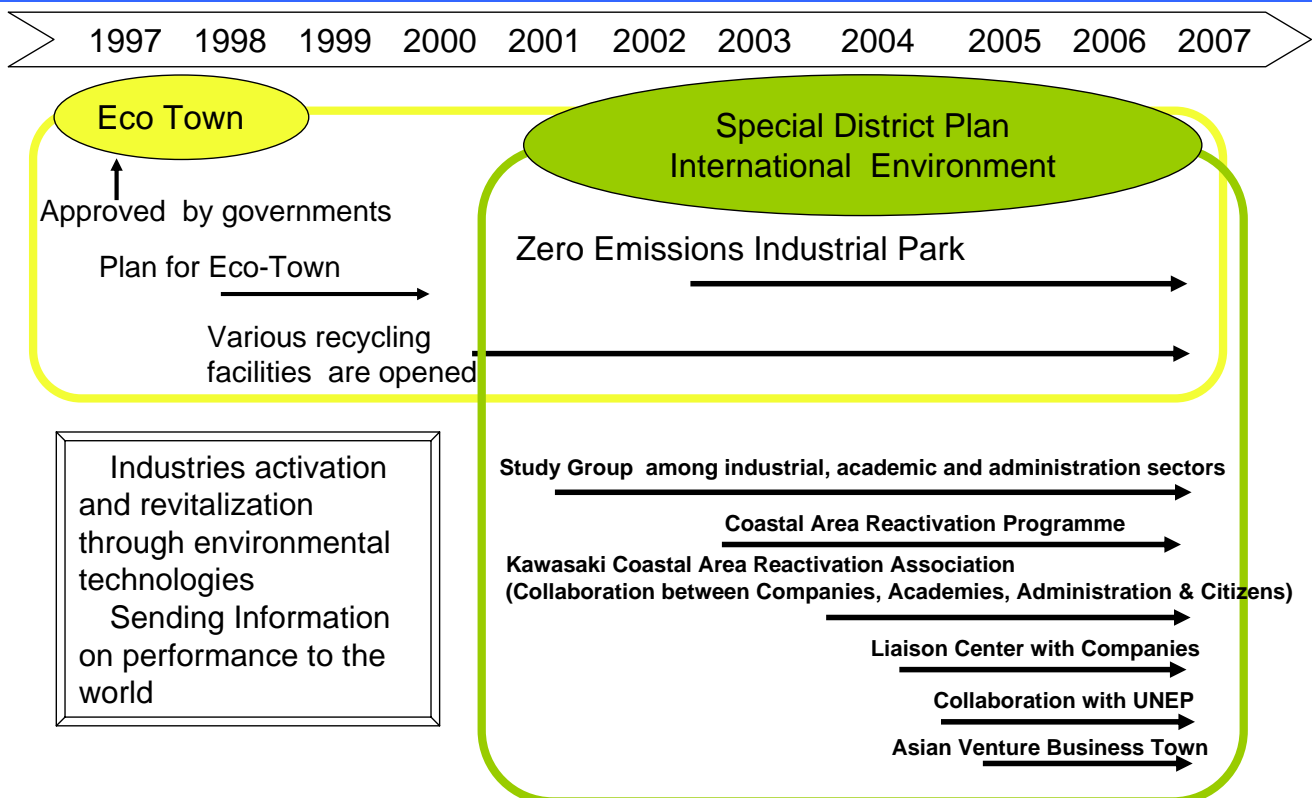


View of coastal area in 1970s



Present view of coastal area

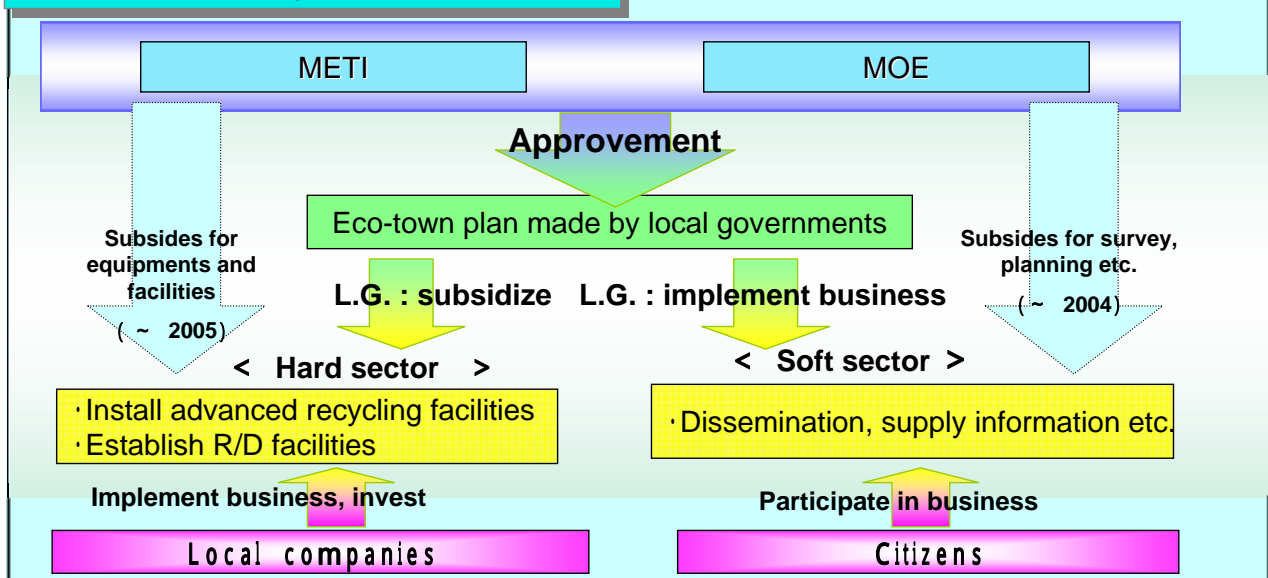
Environmental Actions in Kawasaki Coastal Area



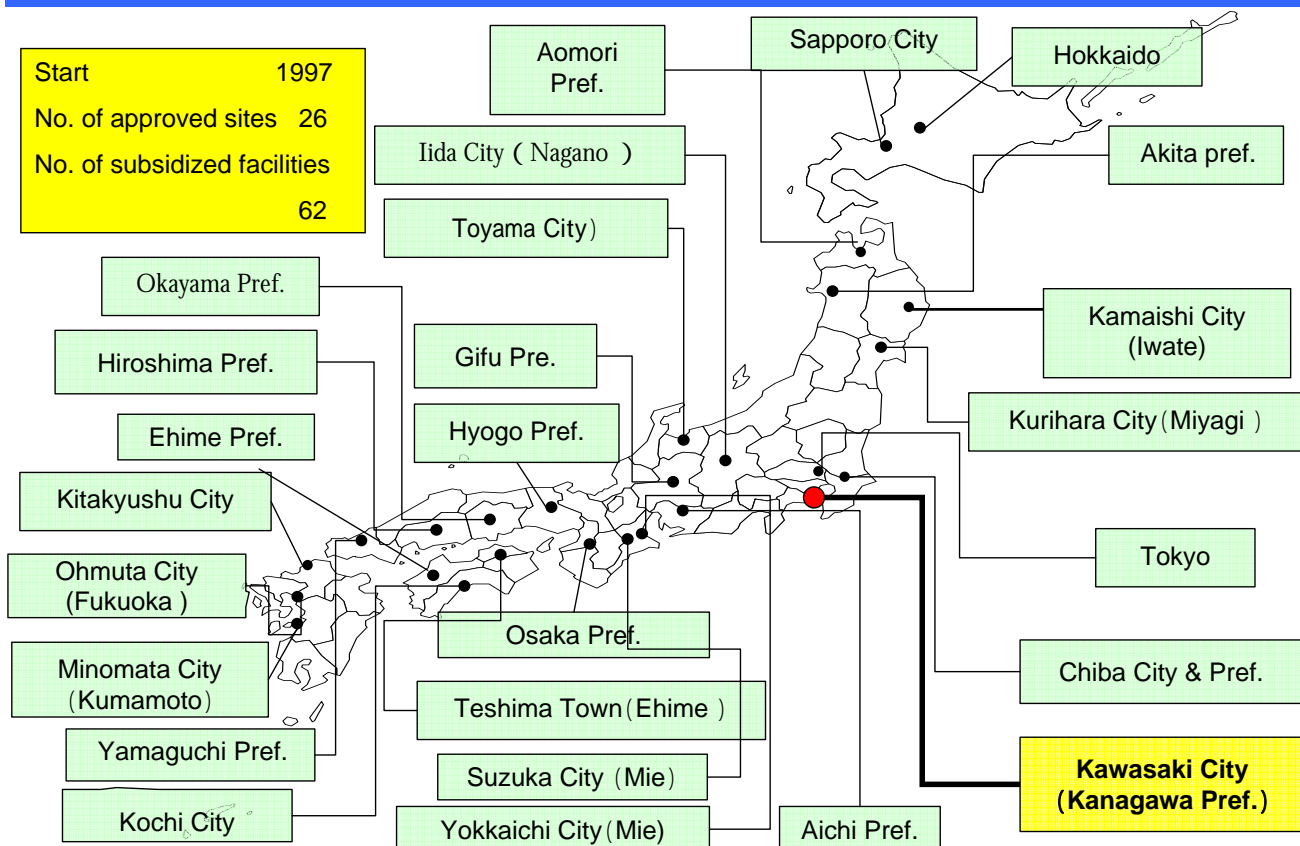
Eco-Town Project

Creation of Advanced Environmentally Harmonized Town 「Zero emissions Plan」
 Promotion of environmental industries on locally accumulated technologies
 Formation of resources cycling economy and society through reducing waste generation and promoting waste recycling on site

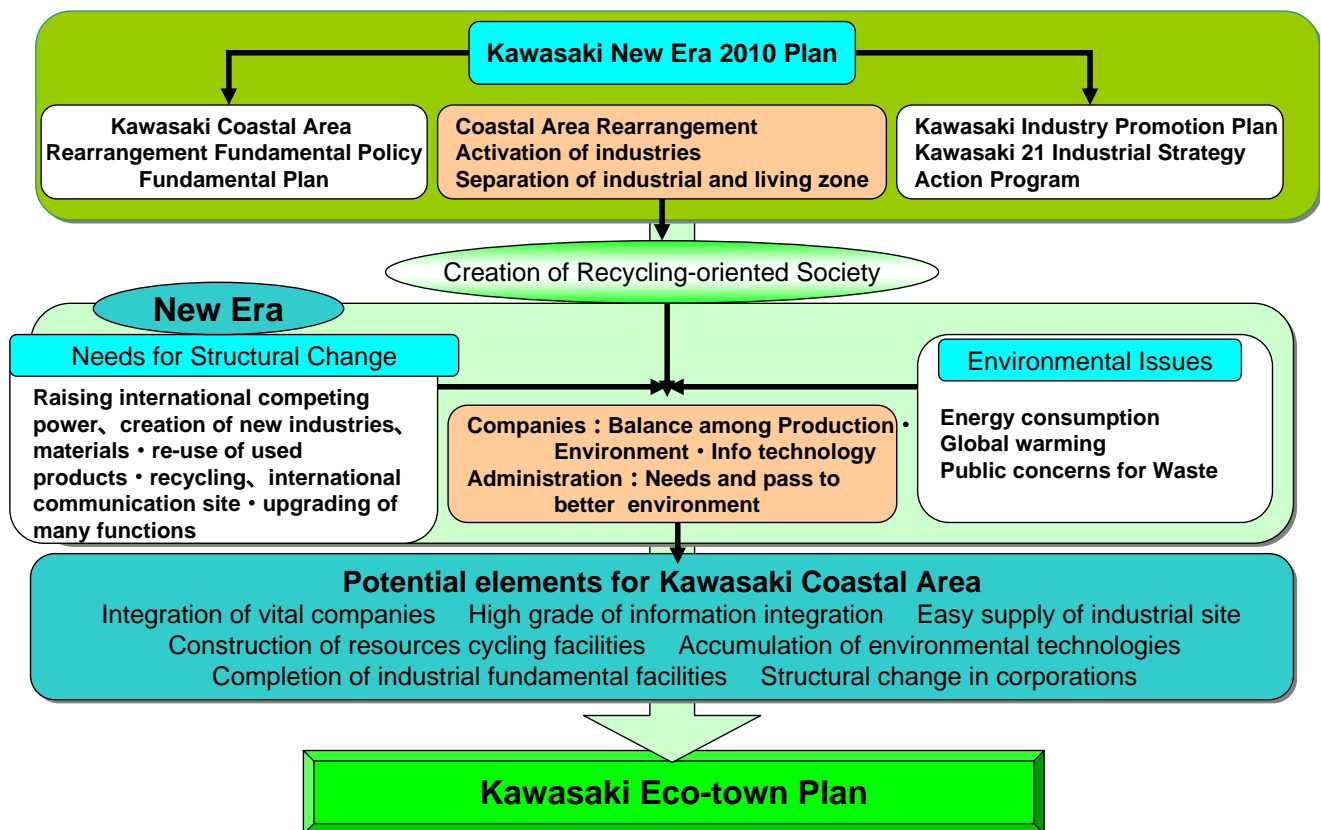
Scheme of system (1997 ~)



Eco-Town Plans approved by Governments (Oct. 2007)

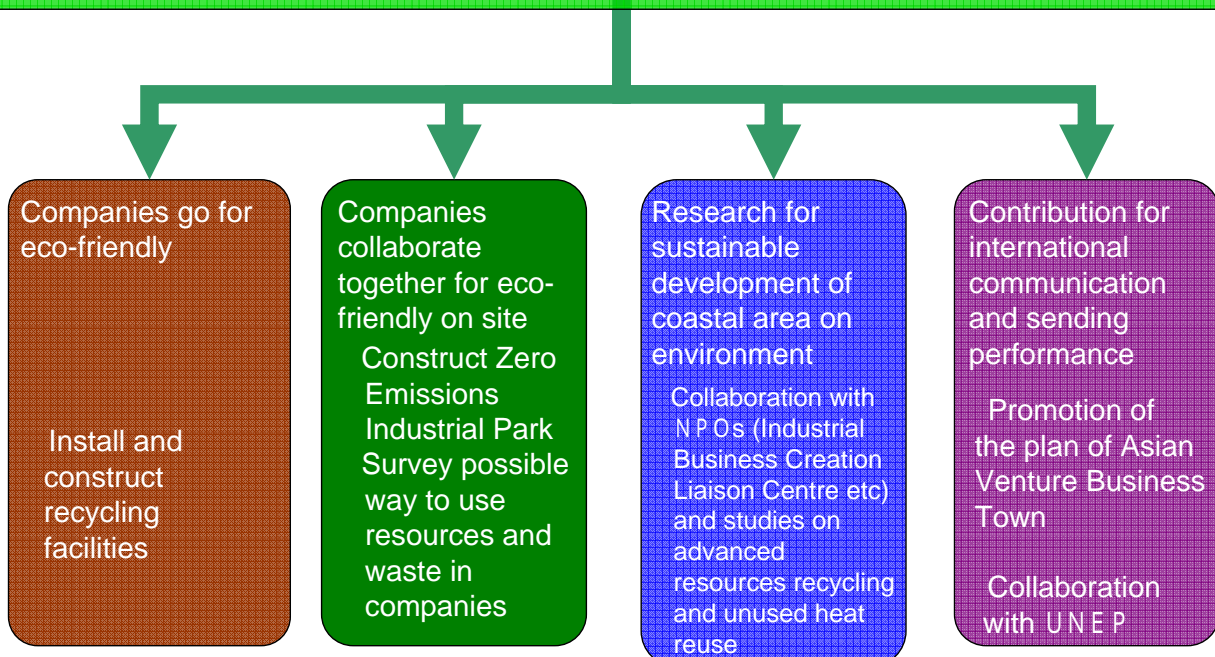


Background of Kawasaki Eco-Town Plan



Kawasaki Eco-Town Plan

Kawasaki's Fundamental Plan to create the Town harmonizing with Environment (Kawasaki Eco-Town Plan)



Outline of Kawasaki Eco-Town

- The plan was approved by MITI (at present, METI) in 1997
- Appointed area : Whole Kawasaki Coastal zone (2,800ha)
- Purpose 1: Facilitate companies operating there to develop resources recycling production and install new equipments for resources recycling
- Purpose 2 : Construct Kawasaki Zero Emissions Industrial Park oriented to waste reuse and recycling

Appointed zone



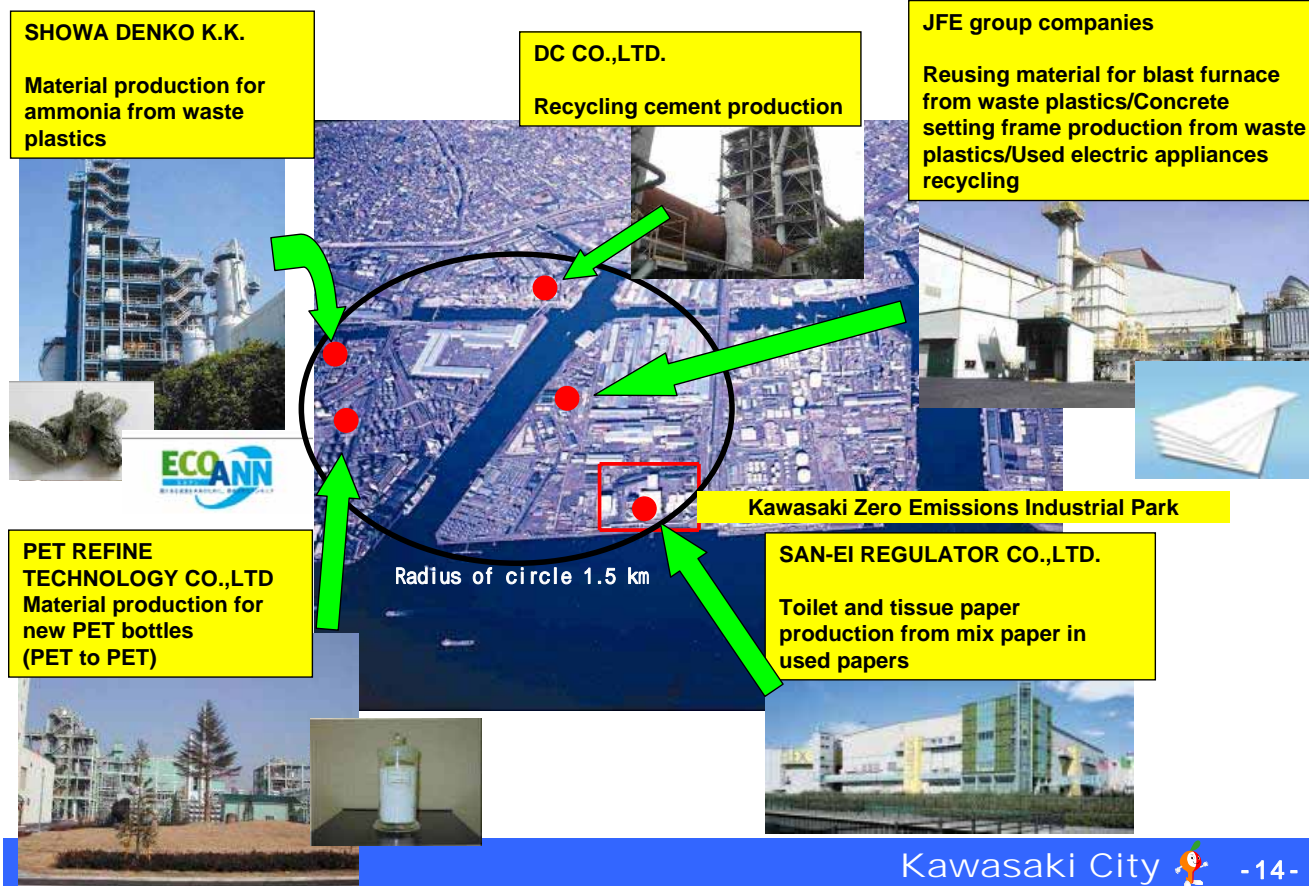
Kawasaki Zero emissions Industrial park

Resources Recycling Facilities

Reuse of waste plastics for blast furnace 2000 ~	Capacity (plastics) 25,000t / year	JFE KANKYO Corp.
Recycling of used electric appliances 2001 ~	Capacity 400,000 ~ 500,000 sets / year	JFE Urban Recycle Corp.
Concrete setting frame production from waste plastic 2002 ~	Capacity (plastics) 20,000t / year	JFE KANKYO Corp.
Material production for ammonia from waste plastics 2003 ~	Capacity (plastics) 65,000t / year Ammonia production 58,000t / year	SHOWA DENKO K.K.
Used mix paper recycling 2002 ~	Capacity (used mix paper) 81,000t / year Produced toilet and tissue paper 54,000t / year	SAN-EI Regulator CO.,LTD
PET bottles material recycling - PET to PET - 2004 ~	Capacity (used PET bottles) 27,500t / year Produced material for new bottles 22,300t / year	PET REFINE TECHNOLOGY CO.,LTD

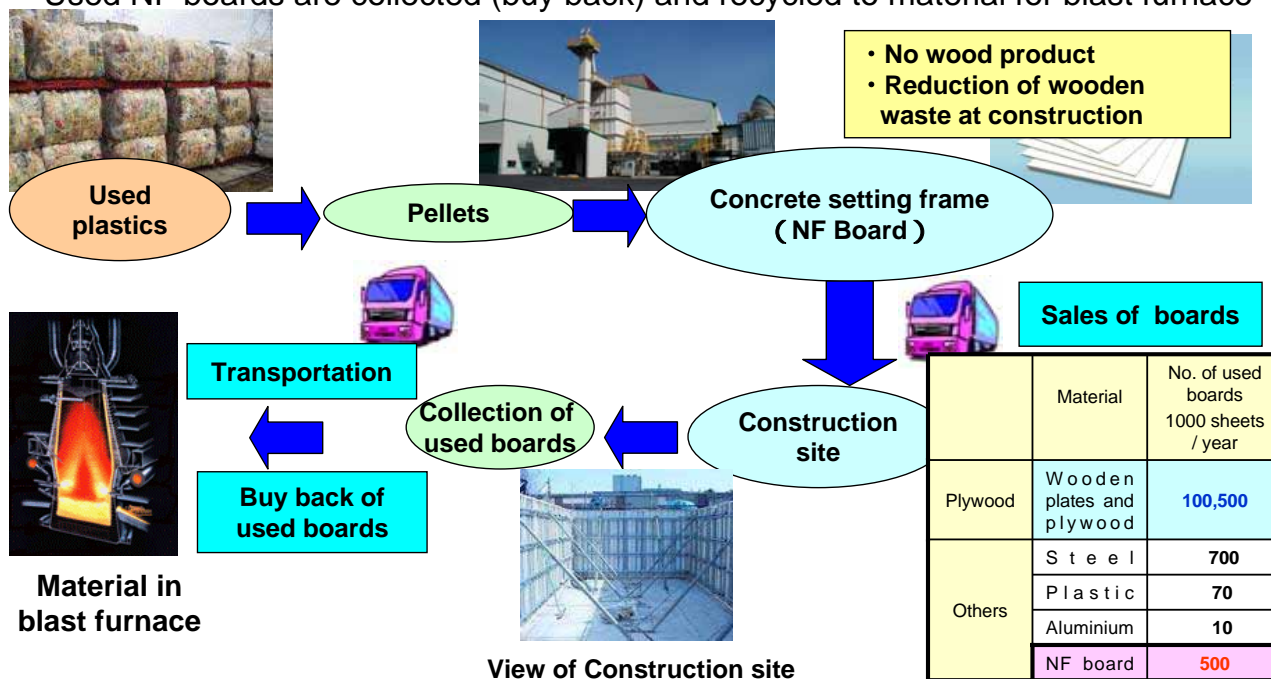
Others DC (Cement products) and YAKIN-Kawasaki (Non-ferrous products) implement recycling

Resources Recycling Facilities



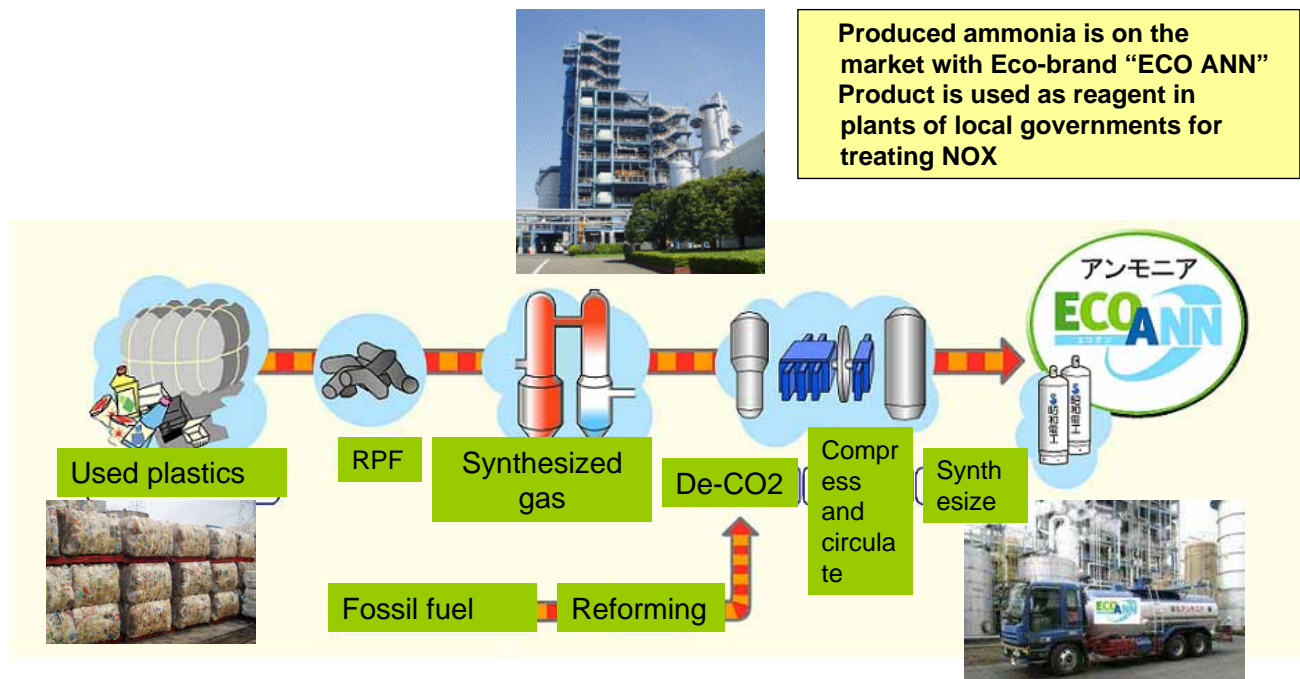
JFE Kankyo Ltd. : NF Boards Production

Production of concrete-setting frame (NF Boards) from used plastics
 NF boards are repeatedly used as many times as 20 cycles, double times compared with conventional wood boards
 Used NF boards are collected (buy back) and recycled to material for blast furnace



Showa Denko INC. : Plastic Recycling

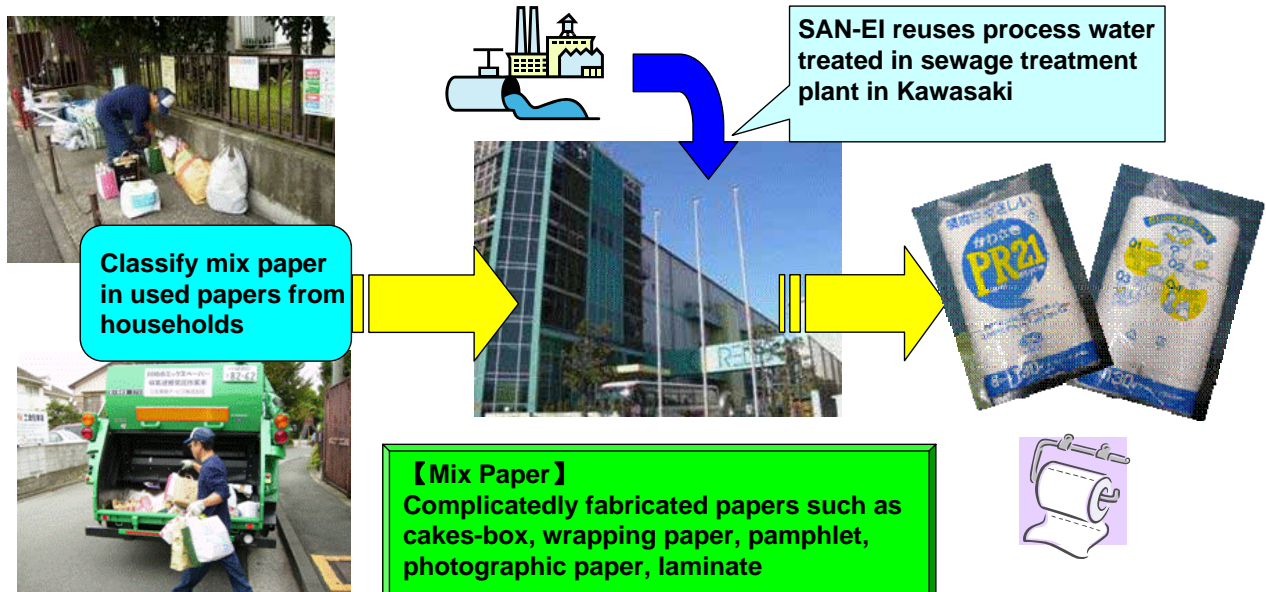
Production of material for ammonia from used plastics
175t chemical product from 195t used plastics



Kawasaki City  -16-

SAN-EI REGULATOR CO.,LTD : Recycling of Used Mix Paper (recycling hard-to-recycle used paper)

Kawasaki City collects used papers from households, classifies them according to composition & properties of papers and supplies to SAN-EI Regulator CO.,LTD for recycling to toilet papers
The toilet papers are sold in retail stores in Kawasaki City



Kawasaki City  -17-

Kawasaki Zero Emissions Industrial Park

- Industrial Park was launched as model facilities for Eco-town plan in this area
(operation started in November 2002)
- Reduce waste from business activities as much as possible
- Minimization of environmental load in the park by reuse and recycling of waste and cascade use of energy
- The whole industrial park obtained ISO14001 certification in March 2005



Kawasaki Zero Emissions Industrial Park

Major Practices of Companies in the Park

- Use of natural gas cars
- Use of hydro-generation plants
- Circulating use of chemicals and water
- Recycling of used mix papers
- Circulating use of waste water from surface plating
- Reuse of incinerated ash as material for cement

Location	Mizue-town, Kawasaki Ward
Area	77,464m ²
No of companies	15 (metal fabrication, paper, surface plating etc.)
Workers	About 400

Introduction of a high-efficiency, energy-saving ventilation systems for commercial facilities



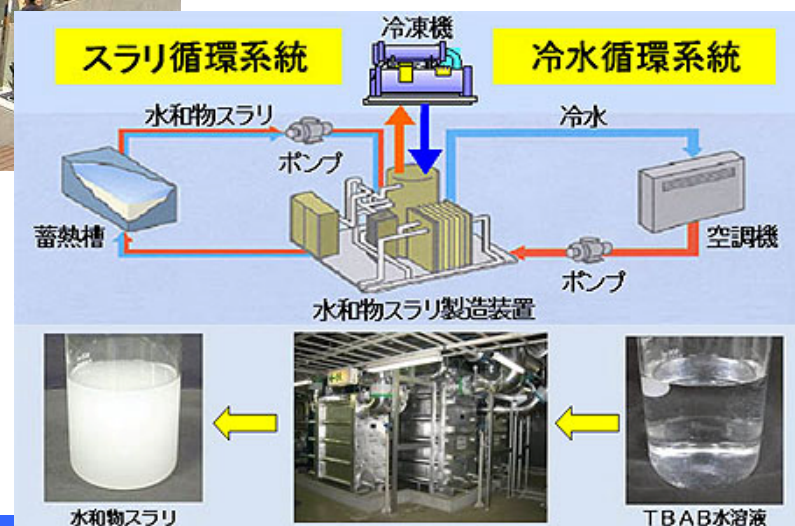
Introduced in “Azalea” in the underground shopping arcade in Kawasaki Station

Annual CO2 reduction effects 1,188t

Energy-saving technology

“neo-white”

(JFE Engineering)



Resource Recycling, Low CO2 Steel Operations

Operation of a new type of shaft furnace, the largest of its kind in Japan, which recycles with high efficiency scrap from JFE Steel and succeeds in keeping CO2 generated during the production process to about half the amount produced by conventional blast furnaces



Characteristics of Shaft Furnaces

- Scraps constitute the main material
- The amount of CO2 generated is roughly half that of blast furnaces
- Introduction of energy-saving equipment (emission gas recovery)
- Largest in Japan (70t/hr, 500,000t/year)
- Introduction of sensor technology developed through blast furnace operation technology

Kawasaki City  -20-

Energy Cycle and Effective Energy Use Initiative in Collaboration with Companies

This autumn Kawasaki plans to commence a large-scale energy-saving project with Tokyo Electric Power Company (TEPCO) to supply steam from a thermal electric power plant to factories in the surrounding areas.

- Quantity of steam supplied

Approx. 300,000 ton annually

- Time of supply

From second half of the year 2009

- Effect of energy saving

Approx. 11,000 kl. annually (crude oil conversion), about 4%

Equal to annual energy consumption of approx. 9,300 average families

Effect of CO₂ reduction

- Approx. 25,000 tons annually

Equal to annual emission of CO₂ approx. 4,600 families



Steam supply source (TEPCO Kawasaki Thermal Power Station)
Generating efficiency at world's highest level: 59%

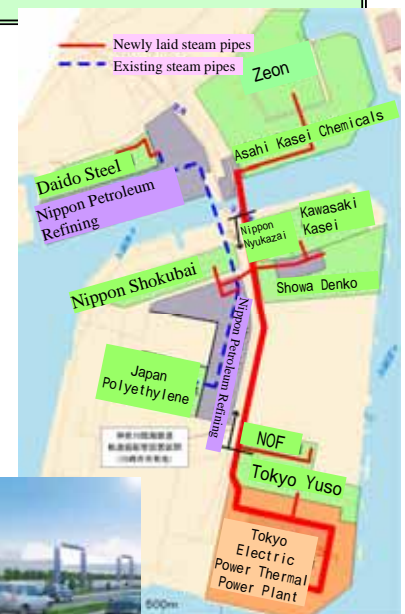


Image of steam piping
(Piping will be designed to complement the landscape.)

Kawasaki City  -21-

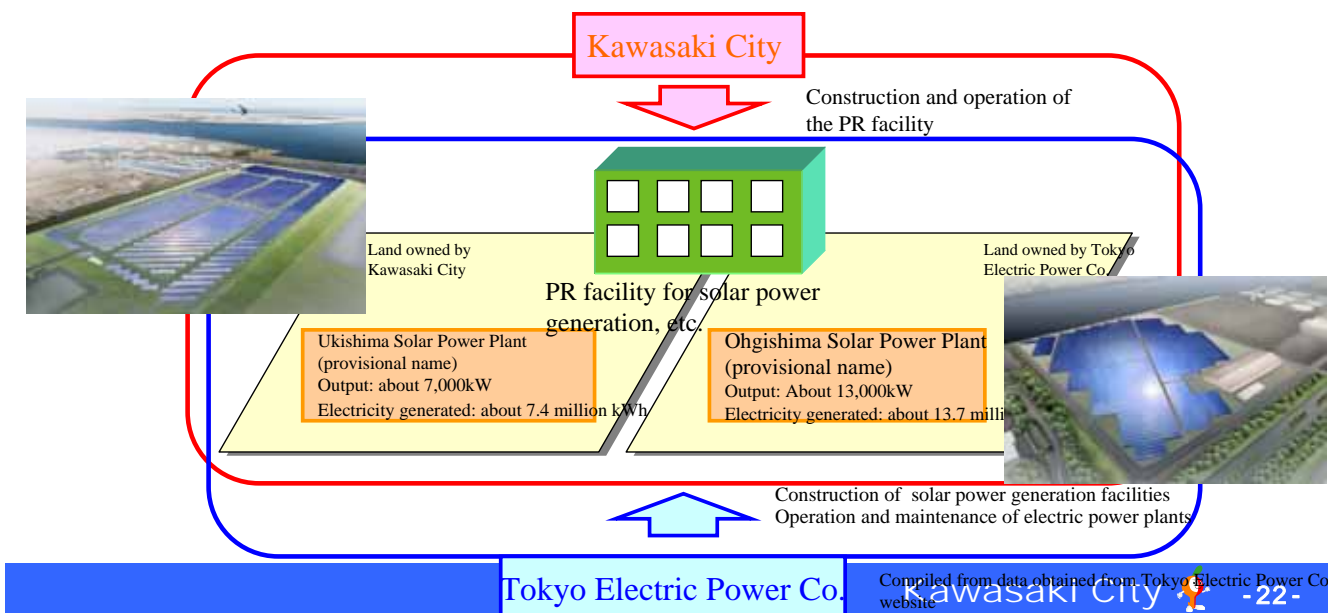
Mega Solar Power Generation Project

Kawasaki City and Tokyo Electric Power Co. are moving ahead with a joint mega-solar power generation project to construct solar electric power plants with a combined total output of 20,000kW in the Kawasaki City coastal area. These plants are set to commence operation in FY2011.

Tokyo Electric Power: Construction of the solar power facilities; operation and management of the electric power plants
Kawasaki: Construction and operation of a PR facility

One of the largest solar power generation plants in Japan

- 2 electric power plants with a total output of about 20,000kW (7,000kW + 13,000kW)
- Will generate about 21 million kWh, equivalent to the amount of electricity used by about 5,900 ordinary households annually
- Annual CO2 reduction effects of about 8,900t



Kawasaki International ECO-Tech Fair

From environmental technology that meets the policy needs of Asia to cutting edge environmental technology that solves global environmental issues
A place for business matching for environmental professionals from throughout the world



Participants were able to discover and learn about the history of environmental activities in Kawasaki City.



Presenting a wide range of environmental technology to the world, from new energy to recycling, with 117 exhibitors (199 booths)



About 150 guests overseas from such as China, Vietnam, Hungary

Transfer of Environmental Technology as Global Contributions and Industrial Exchange

Capitalizing on our past experience with pollution and cutting-edge environmental initiatives to date, we plan to widely disseminate information on superior environmental technology and products within Japan and overseas.

We will transfer environmental technology as a global contribution and a form of industrial exchange.



Kawasaki City  -24-