Presented at East and East South Asia BAT/BEP Forum

Annual Board Meeting, Siem Reap, Cambodia

UNIDO-Kitakyushu cooperation
for transfer of experiences in BAT.

The Concept of Eco-town

December 14, 2009

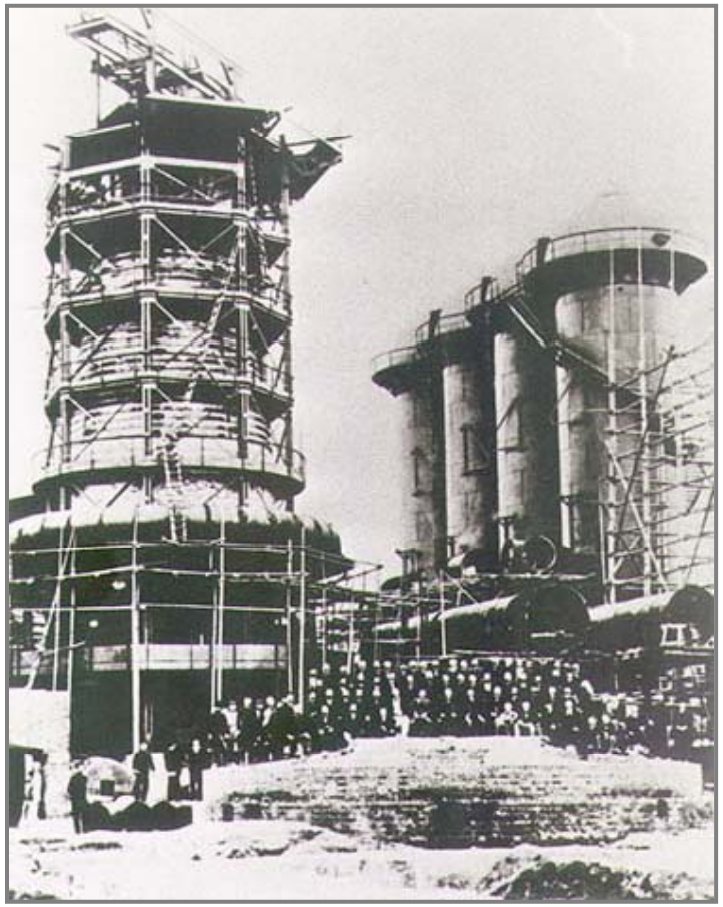
Meiji Sato
Eco-town Office
Kyushu Techno Research, Inc.

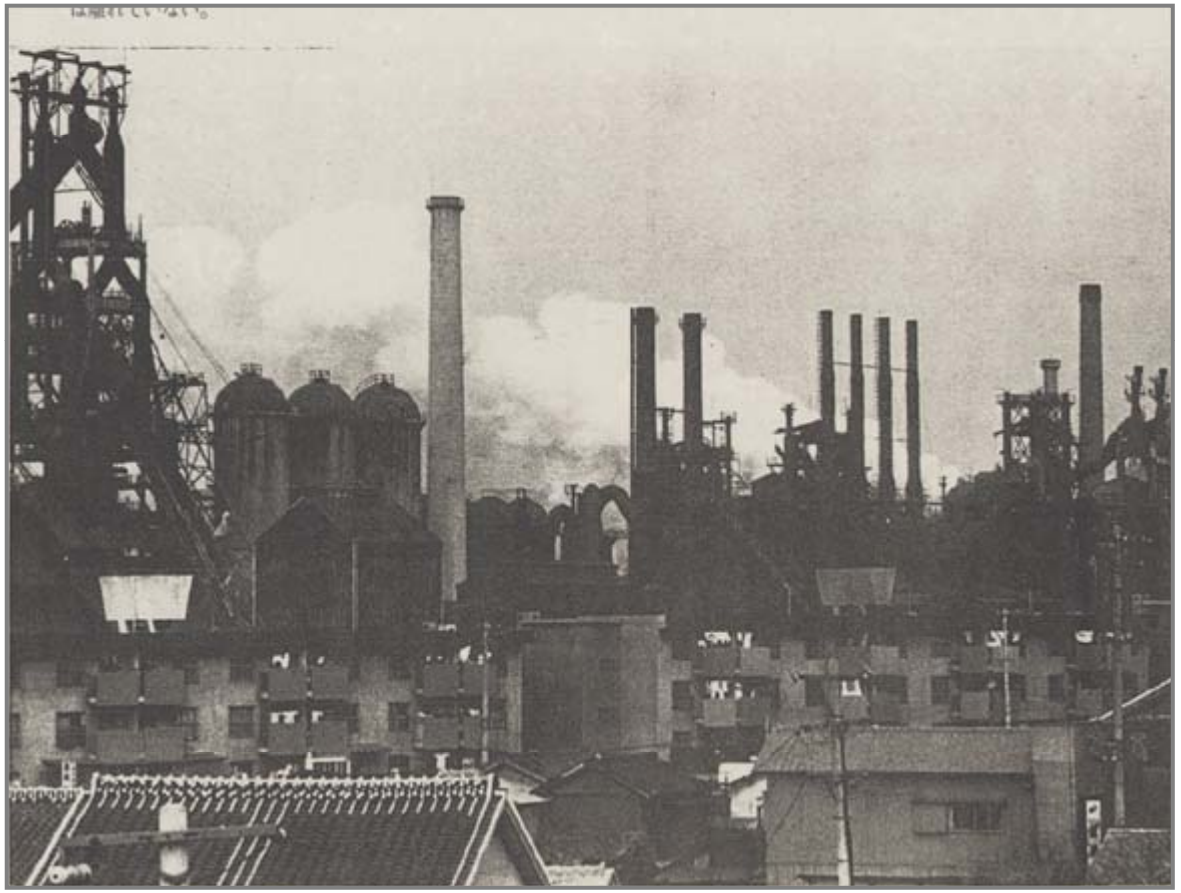
Office for International Environmental Cooperation Bureau
City of Kitakyushu

Location of Kitakyushu

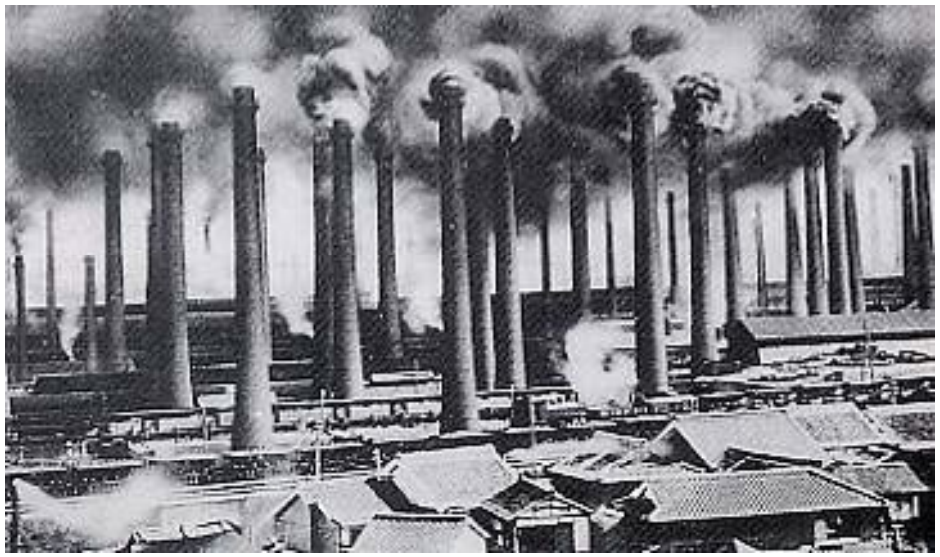
Area: 485 GDP: 3.5 trillion JPY (2005)
Population: 985 thou. (as of Oct. 2008)
Major Industries: steel, chemical, machinery, ceramics, IT industry

Kitakyushu's Industries Led to Modernization in Japan

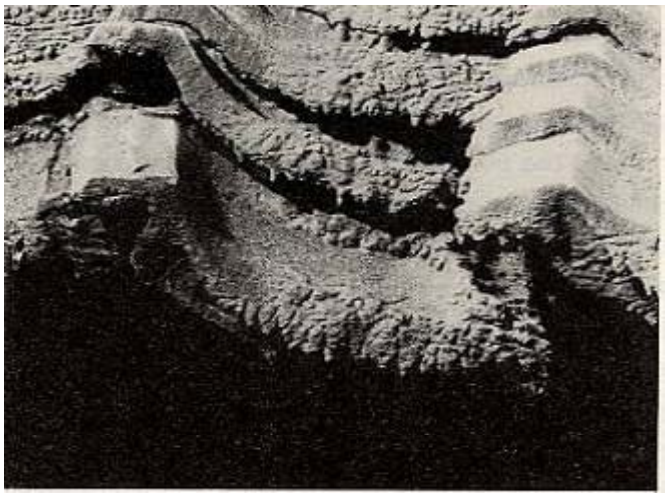




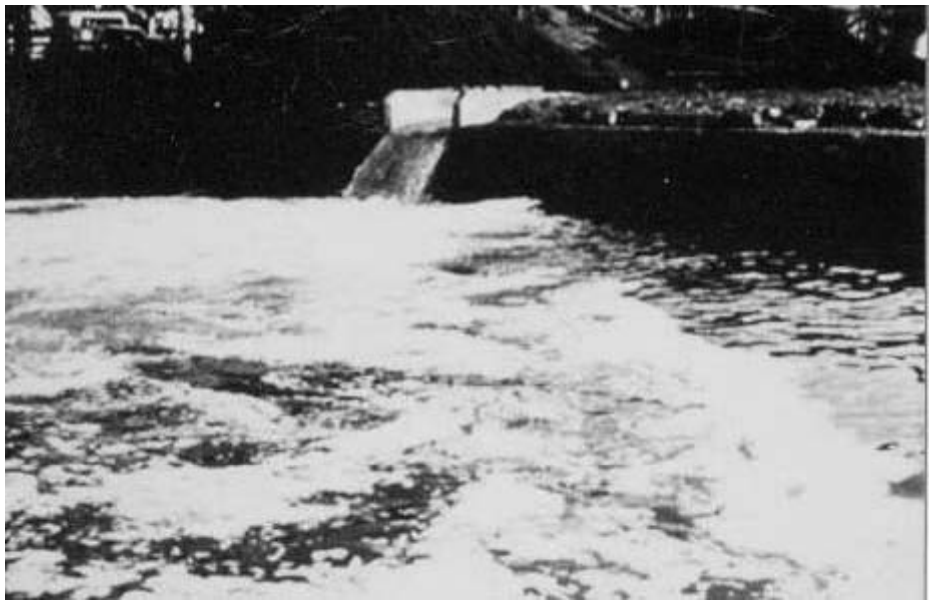
Air Pollution and Water Contamination



Stacks emitting smoke



Dust-fall on roof-top

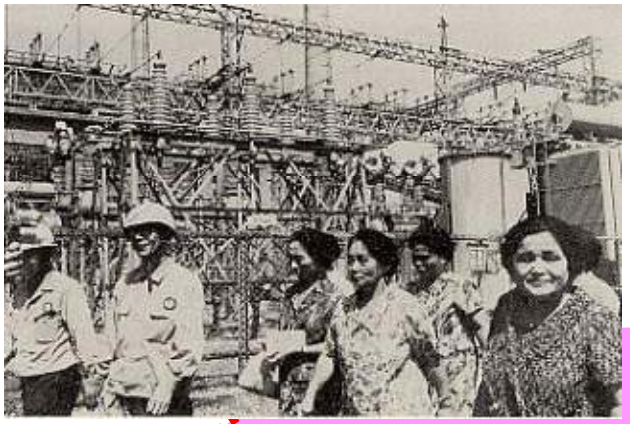


Wastewater Discharged into the Dokai Bay

A Screw Dissolved in the Bay

Factor of Environmental Achievement

Residents



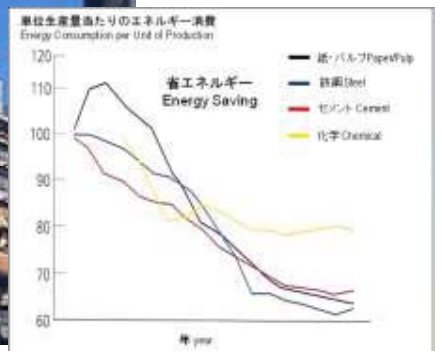
Residents' observation of a private company

Learning how to measure air pollution levels with a university professor

Partnership

Environmental control & environmental infrastructure

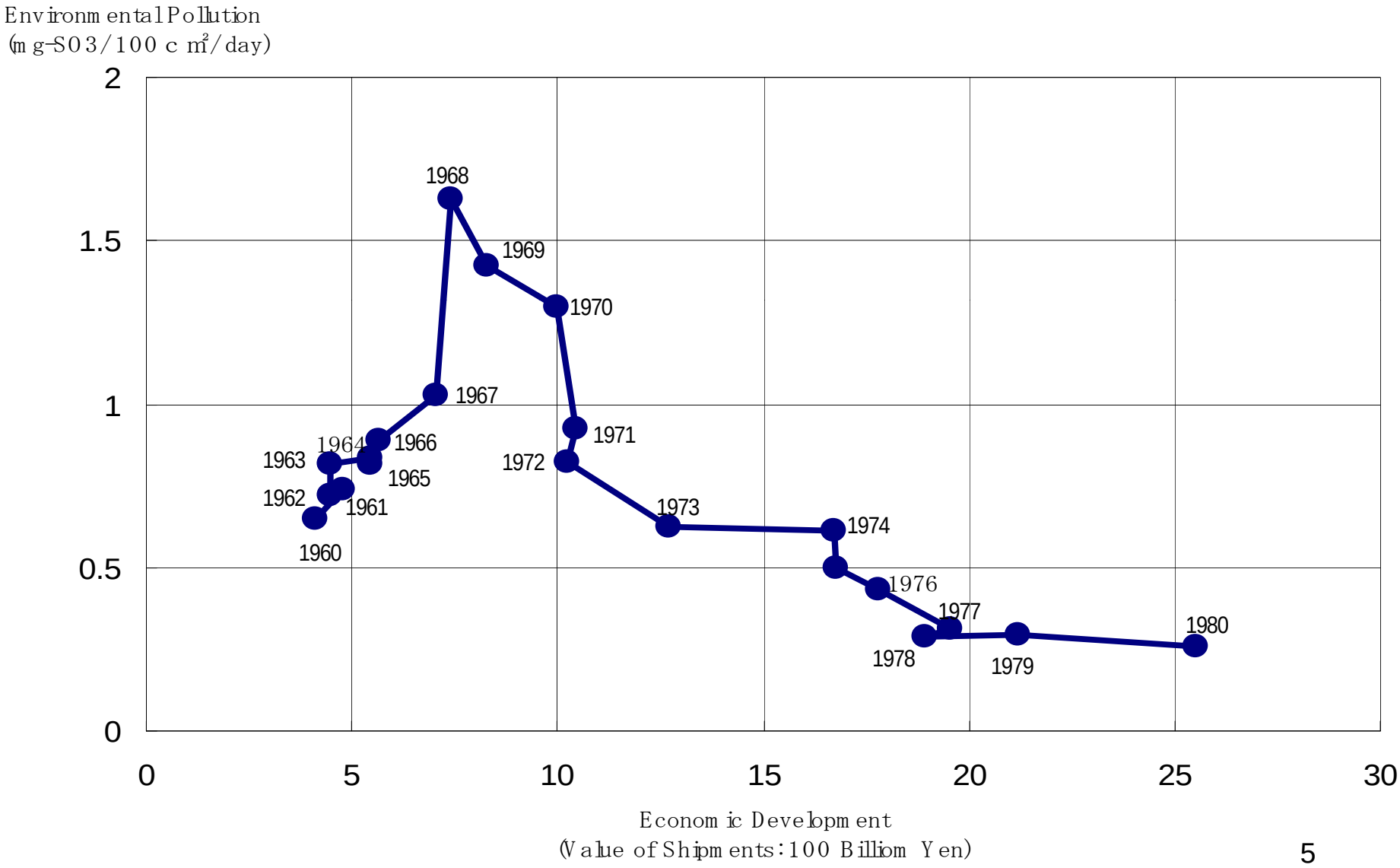
Local Government



Cleaner Production & pollution control equipment

Private Enterprises

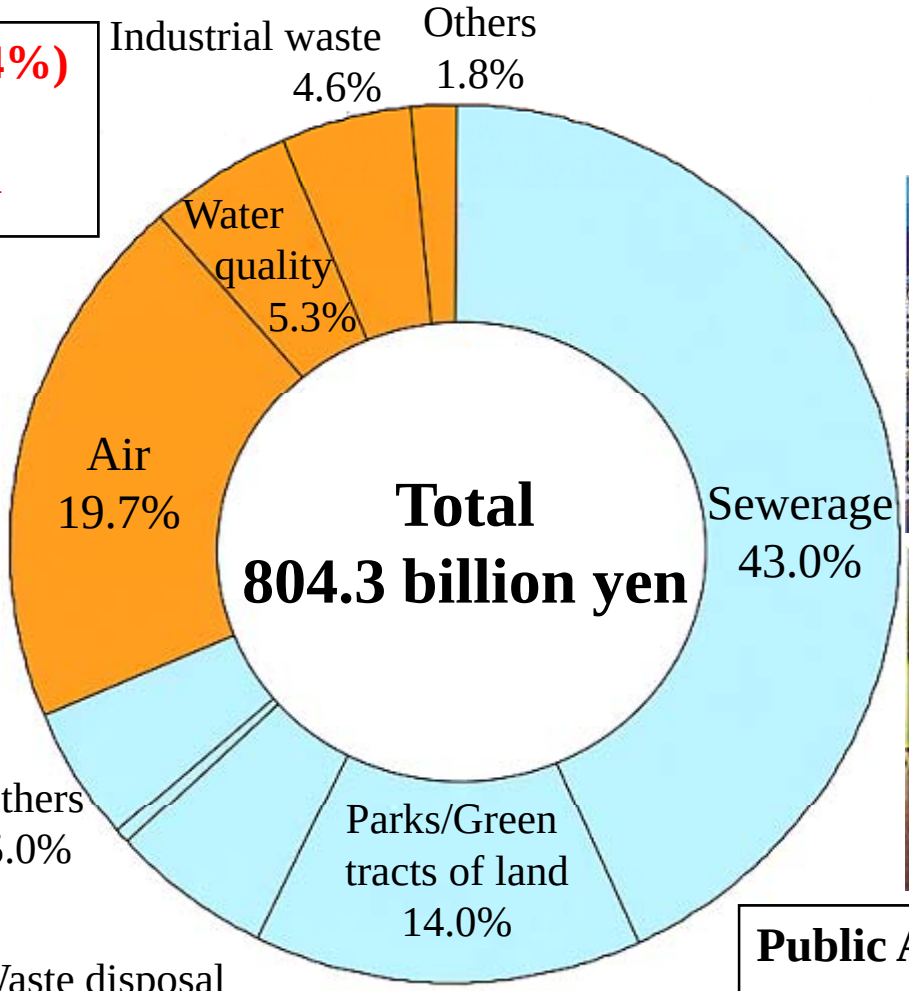
Economic Development and Environmental Achievement



Expenses Spent for Measures Against Environmental Pollution in Kitakyushu

Private Sector (31.4%)

252.6 billion yen



(1972-1991)

Public Administration (68.6%)

551.7 billion yen

Kitakyushu's Experience in Getting Pollution under Control
- A Miracle in the World History -

1960s

Today

Profile of KITA (Kitakyushu International Techno-Cooperative Association

History of KITA

July 1980 Establishment of KITA

Feb. 1987 Environment course began

Aug. 1992 Environmental Cooperation Center was established

Main international training courses concerning the environment currently available

Industrial environmental protection Energy management China's resource circulating economy

Top management seminar on sustainable industrial development

Plant maintenance techniques for cleaner production

Automotive control Creation of facility system for cleaner production

Maintenance engineering for cleaner production

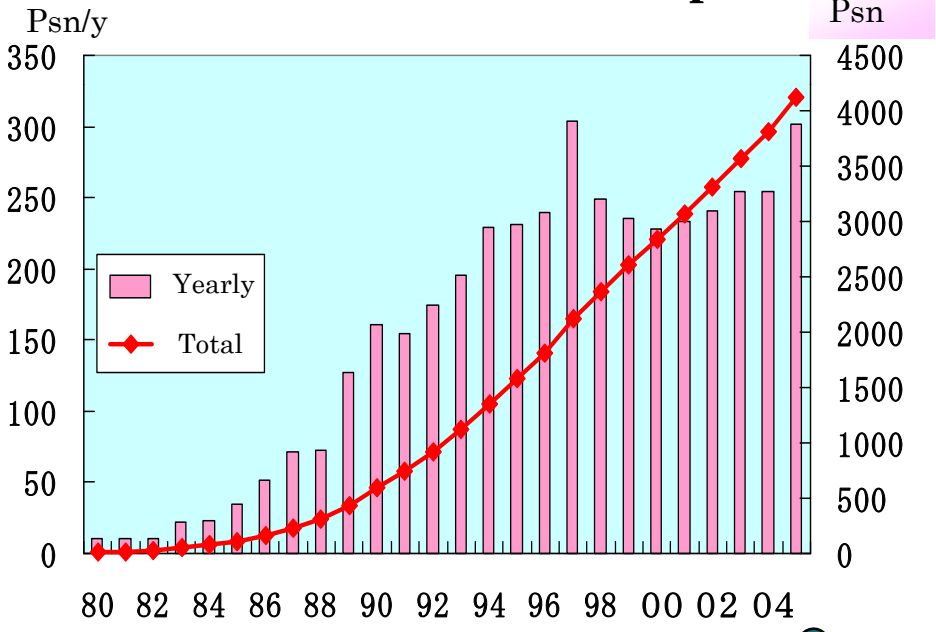
Computer based machine control Creation of advanced facility system for cleaner production

Renovation of plant facilities for cleaner production

From the “Sea of Death” to International Environmental Leadership

Technologies and human resources accumulated through Pollution abatement (more than 200 relative party, like companies,Universities, local government, NGO and so on)

Number of trainees accepted



Trainees accepted: 33 countries 5 366 pns FY1980 2008 Experts dispatched: 25 countries 44 pns FY1986 2008

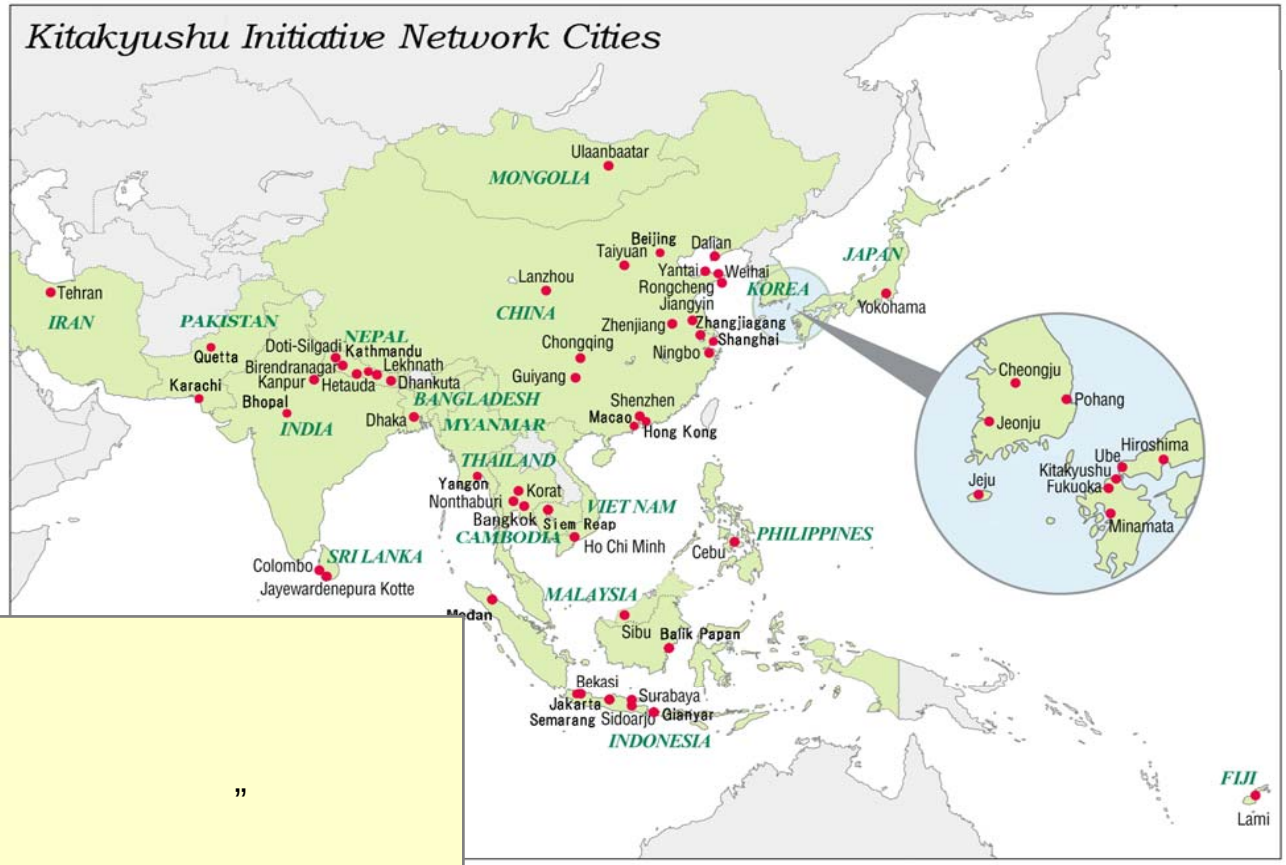
Environmental Improvement in Dalian, China

1994

2000

Promotion of Environmental Cooperation Through City-to-City Network

Kitakyushu Initiative Network



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Burning Efficiency improvement
Ulanbator, Mongolia

History of Development as an ial City

Inception of Modern Industry (1901)

Steel industry

Steel works
Nippon Steel

Local Assets
Coal, Lime stones
Ports

Development of large companies (~1920)

Material industry

Steel works
Sumitomo Metal Industries Ltd.
Hitatchi Metals Ltd.

Ceramic industry
Kurosaki Harima Corporation
TOTO

Chemical industry
Asahi Glass Company
Mitsubishi Chemical Corporation

Electronics
Yaskawa Electric Corporation
TOSHIBA Corporation

Plant Engineering ~1945

From Steel-related industry
Mishima Kosan Co., Ltd.
Okano Valve MFG. CO.
Hamada Heavy Industries Ltd

From Ceramic & chemical industries
Takada Corporation
Sankyu Inc.

Machine and Metal Processing Industry 1945~

Mitsui High-tech Inc
Nippon Magnetic Dressing

Manifold development

Zenrin Co., Ltd. (Map)
Yaskawa Information Systems Corporation
ICT Industry
Central Uni
Medical and health care devices
Shabondama Sekken
Natural soap

Advancement of fundamental industry" to "State-of-the-art Technology"

Technology on
-Pollution control
-Saving energy

Eco-Industries

Background and History of Kitakyushu Eco-town Projects

1960- History of Overcoming of the Public Pollutions.

A Sense of Difficulties under Weaken Conventional Industries.

1989- The Necessity of Utilizing of Hibiki Land 2,000ha)

The Movement of Starting Recycling Lows.

Utilizing Manufacturing Technologies to Recycling Business.

1995- Requesting of National Government Support toward Local Recycling Business.

1997： The Eco-town Project Started (METI & MOE).

The First Supported Business: Nishi-nihon PET Bottle Recycling.

Not only Inviting Companies, but Making Business together.

One Stop Local Government Services.

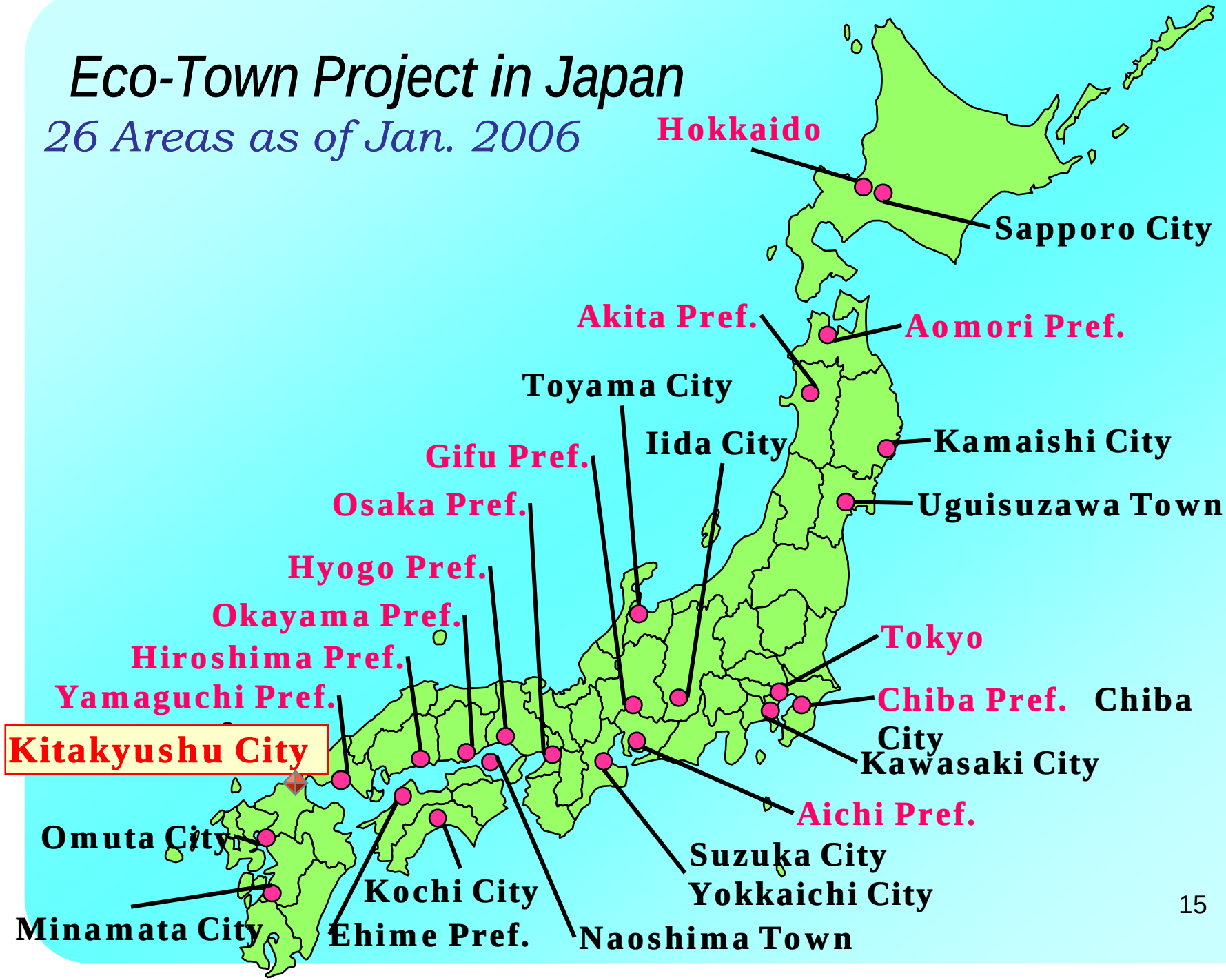
Zero-emission by Waste Furnace with Electric Generation.

2004 First National PCB Waste Treatment.

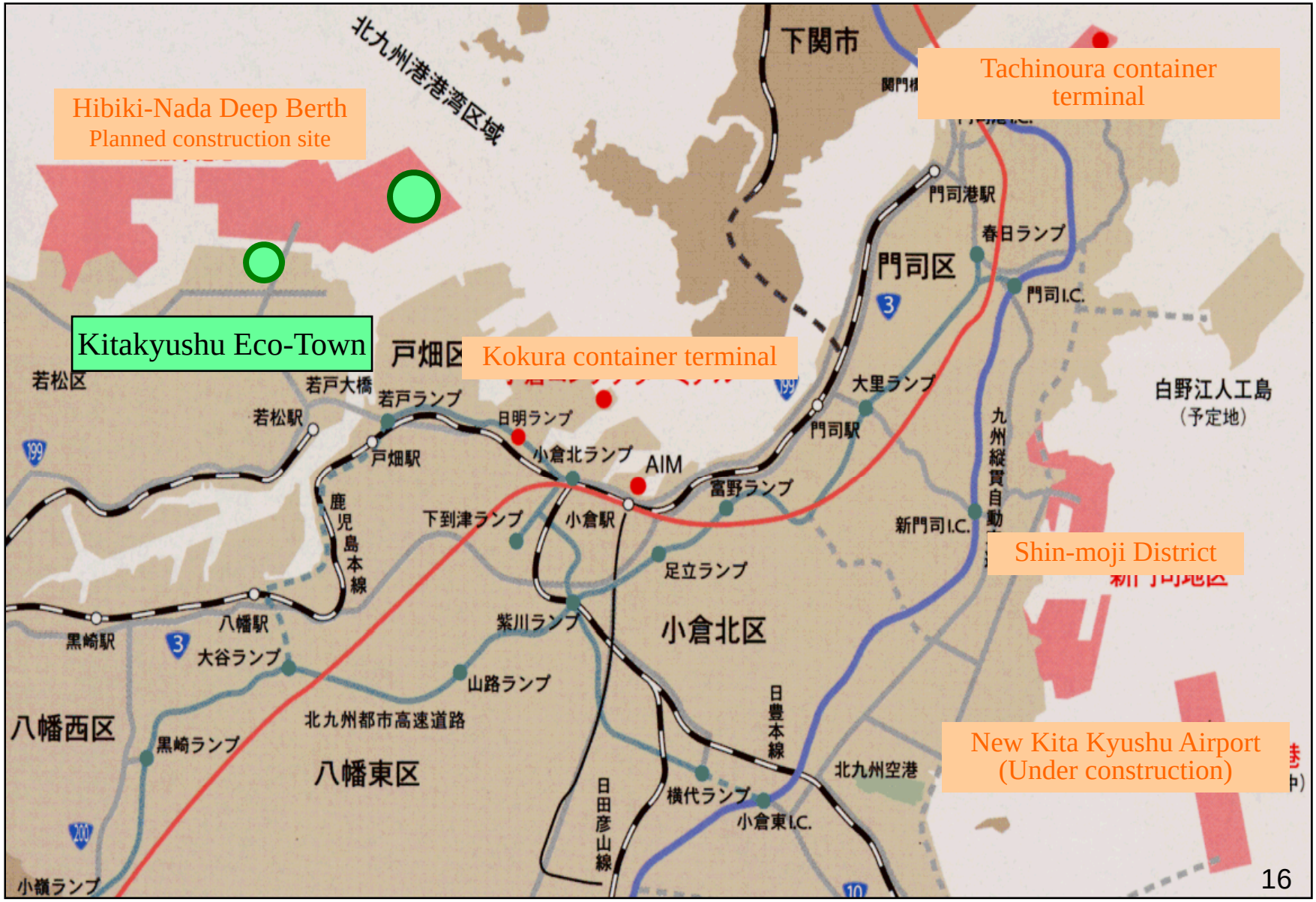
2008 One of the Four Eco-Model Cities in Japan for the Low Carbon Society.

Eco-Town Project in Japan

26 Areas as of Jan. 2006



Kanmon Strait and Hibikinada Landfill



Strategy of the City of Kitakyushu on promotion of environment-related industry

Comprehensive development from basic research technology development, testing, and industrialization

I Education/Basic Research

II Technology/ Practical Research

III Industrialization

Conception of Science and Research Park

Kitakyushu University, Faculty of International Environmental Engineering
University/Research Institute
Kyushu Institute of Technology, Graduate School
Cranfield University (U.K.)
GMD-Forschungszentrum Informationstechnik GmbH
Waseda University, Advanced Research Institute for Science and Engineering
Fukuoka Research Center for Recycling Systems
Other institutes
Institute for Global Environmental Strategies, Kitakyushu Office

Practical Research Area

Fukuoka University, Institute for Resource Recycling & Environmental Pollution Control System
Practical research in various areas
Waste disposal site management technology
Incineration ashes
Food refuse (kitchen garbage, tofu refuse, etc.)
Waste plastic
Fukuoka Research Center for Recycling Systems, practical research area
Eco-Town Center/Annex
Recycling plants
Tofu and Other Food Residue
Styrene Foam

Comprehensive Environmental Complex

Aggregation of recycling plants
Plastic PET bottles
Office equipment
Home appliances
Automobiles
Medical wastes
Fluorescent tubes
Demolition Waste(2)

Hibiki Recycling Area

Local small, midsize, and start-up business
Development of automobile scrap and used parts businesses

The Second Stage Area

Recycle and Reuse plants
Toner Cartridge
Pachinko
Waste Wood &Plastic
Wind-Power Project

Kitakyushu Science & Research Park

“Soap-based firefighting foam”
（2003-2007）

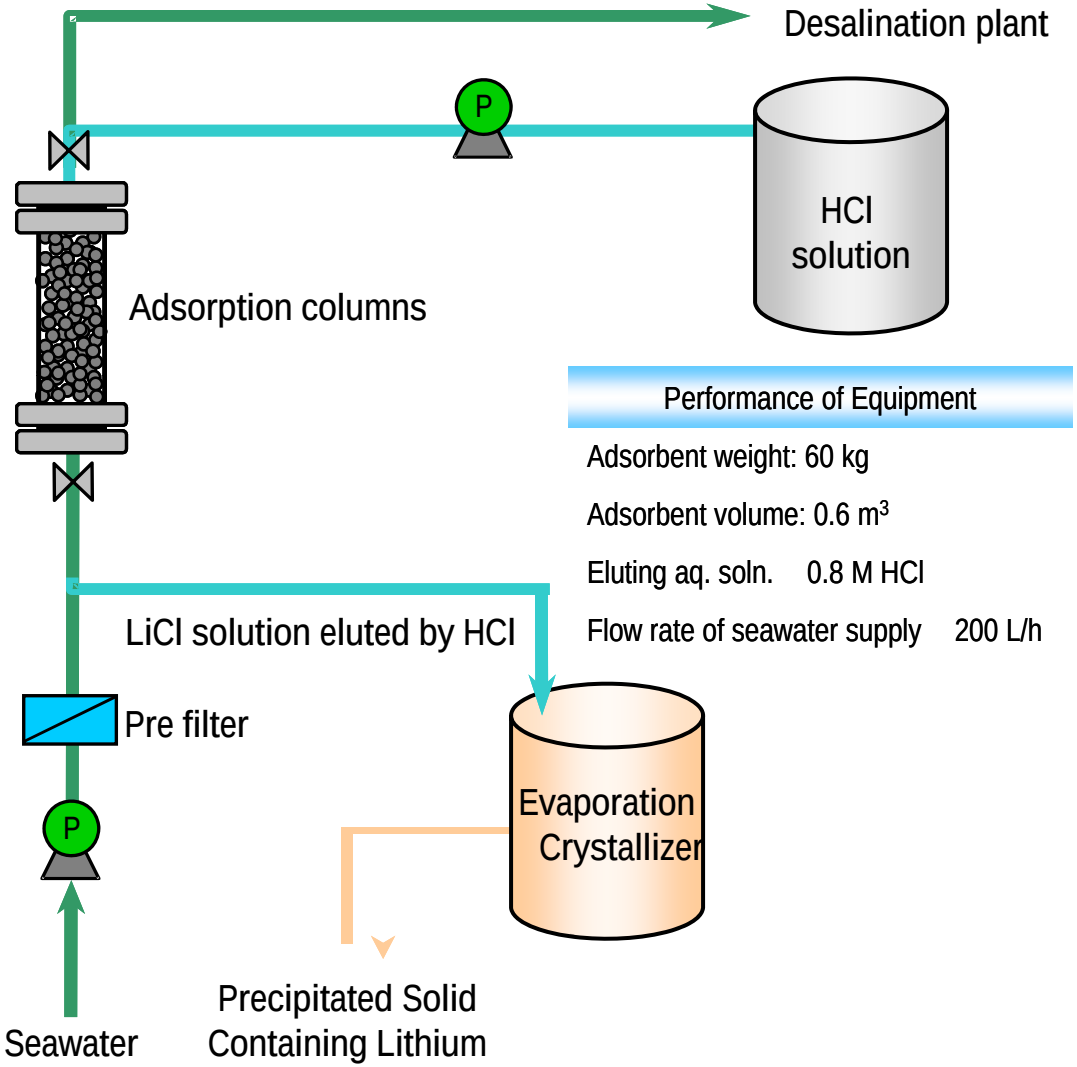
Miracle Foam

Miracle CAFS

MORITA
株式会社モリタホールディングス

- **Excellent firefighting performance**
- **Good defoaming property after firefighting**
- **Very low environmental impact**

Benchmark Plant of Lithium Recovery from Seawater



Performance of Equipment

Adsorbent weight: 60 kg

Adsorbent volume: 0.6 m^3

Eluting aq. soln. 0.8 M HCl

Flow rate of seawater supply 200 L/h

Kitakyushu Eco-Town Project

Research facilities: 14

Facilities under operation: 26

■Investment: 60.5Billion yen
(Private: %, Public: %)

■Employee: 1,020

■Visitor: 740,000(cumulative total)

Practical Research Area

Comprehensive Environmental Industrial Complex

Fukuoka University, Institute for Resource Recycling & Environmental Pollution Control System

(Institute)

(Testing facilities)

Research of waste treatment technology, recycling technology, and proper technology for control of environmental pollutants.

Project leader: Fukuoka University, Kyushu University, Kyushu Institute of Technology, Saga University, and private enterprises

Opened in April, 1998

Ministry of Education's academic research frontier project

Biodegradable plastic production research facility

Research of technology to produce biodegradable plastic from lactic acid that is produced from kitchen garbage

Project leaders: Kyushu Institute of Technology, Kitakyushu Technology Center Co., Ltd., Kitakyushu City Institute of Environmental Science

Opened in April 1999

Project commissioned by the Science and Technology Agency

Facilities on The Practical Research Area







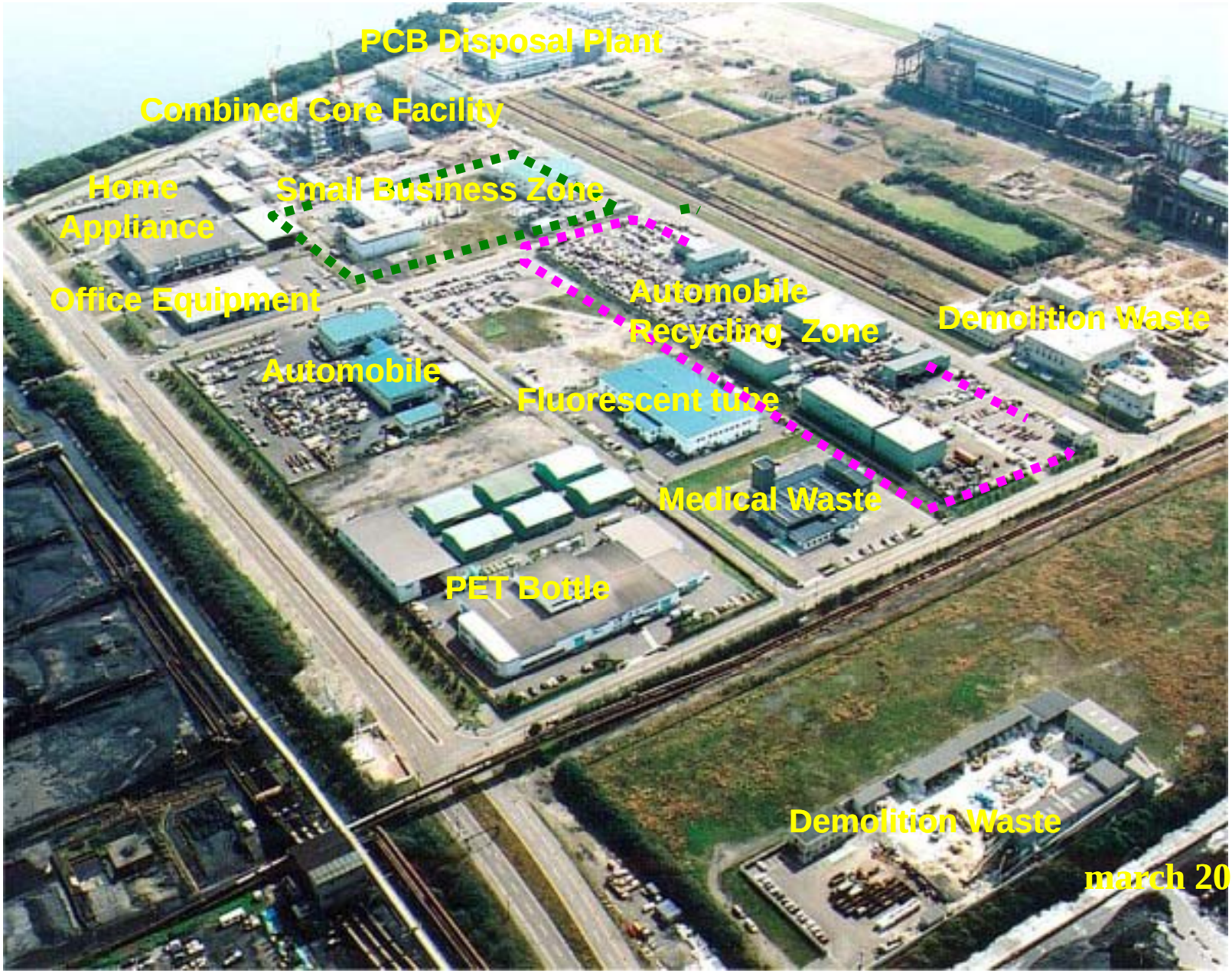




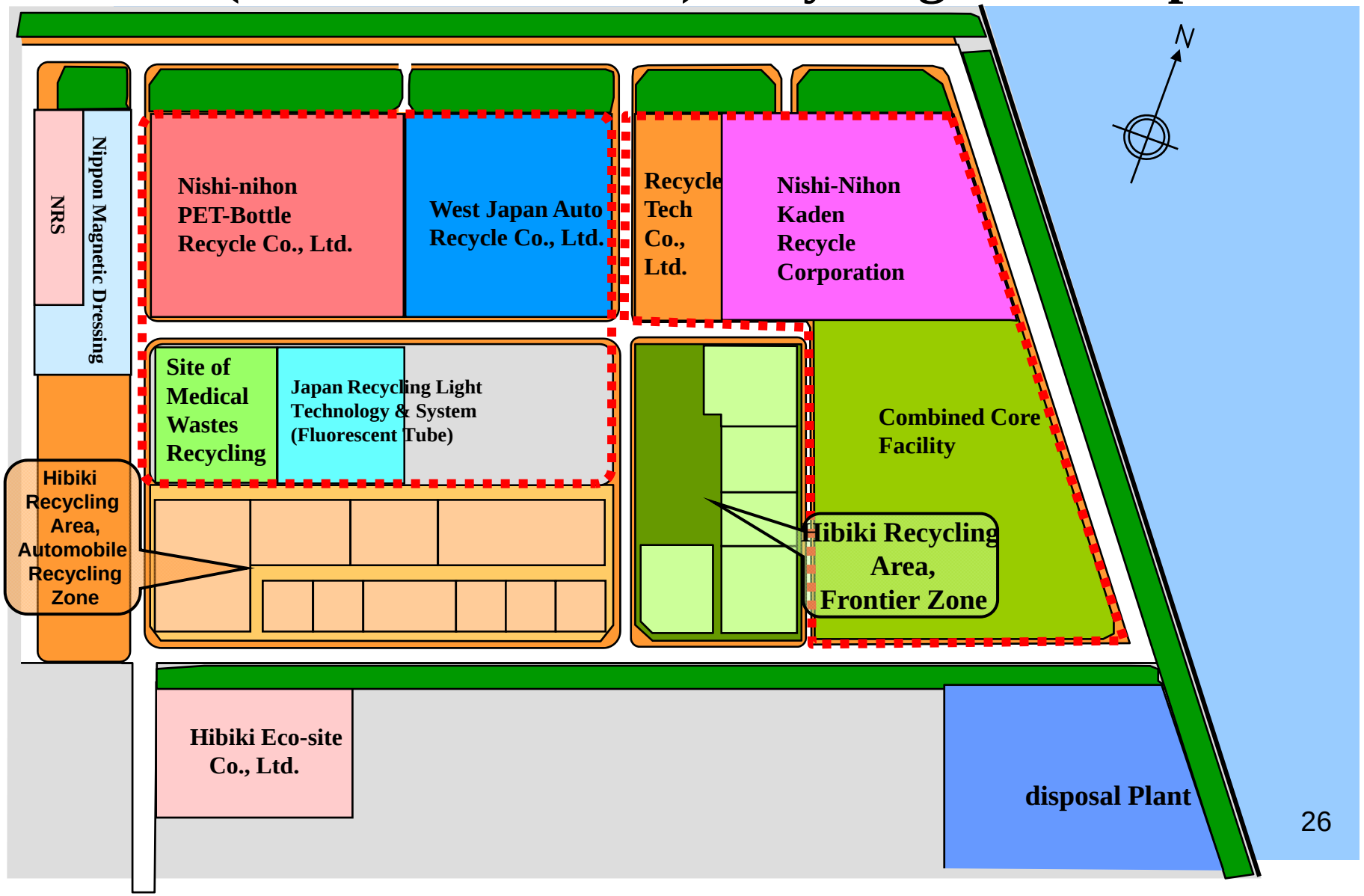





Comprehensive Environmental Industrial Complex



Comprehensive Environmental Industrial Complex
Hibiki (Small and Midsize) Recycling Area Map



Home appliance recycling project

(Plant)

(At work)

- According to the “Home Appliance Recycling Law,” electrical household appliances (TV sets, refrigerators, washing machines, air-conditioners, and freezers) are dismantled and separated to a high degree, producing quality recycled raw materials.
- Project leader: Nishinihon Kaden Recycle Corporation (Invested by Toshiba Corp., TERM Corp., Matsushita Electric Industrial Co., Ltd., Hitachi, Ltd., Mitsubishi Electric Corp., Sanyo Electric Co., Ltd., Sharp Corp., Sony Corp., and Fujitsu General Ltd.)
- Operation commenced in April 2000
- Processing capacity of approx. 750,000 per year
- Project with the eco-town subsidies of Ministry of International Trade and Industry

Used automobile recycling project

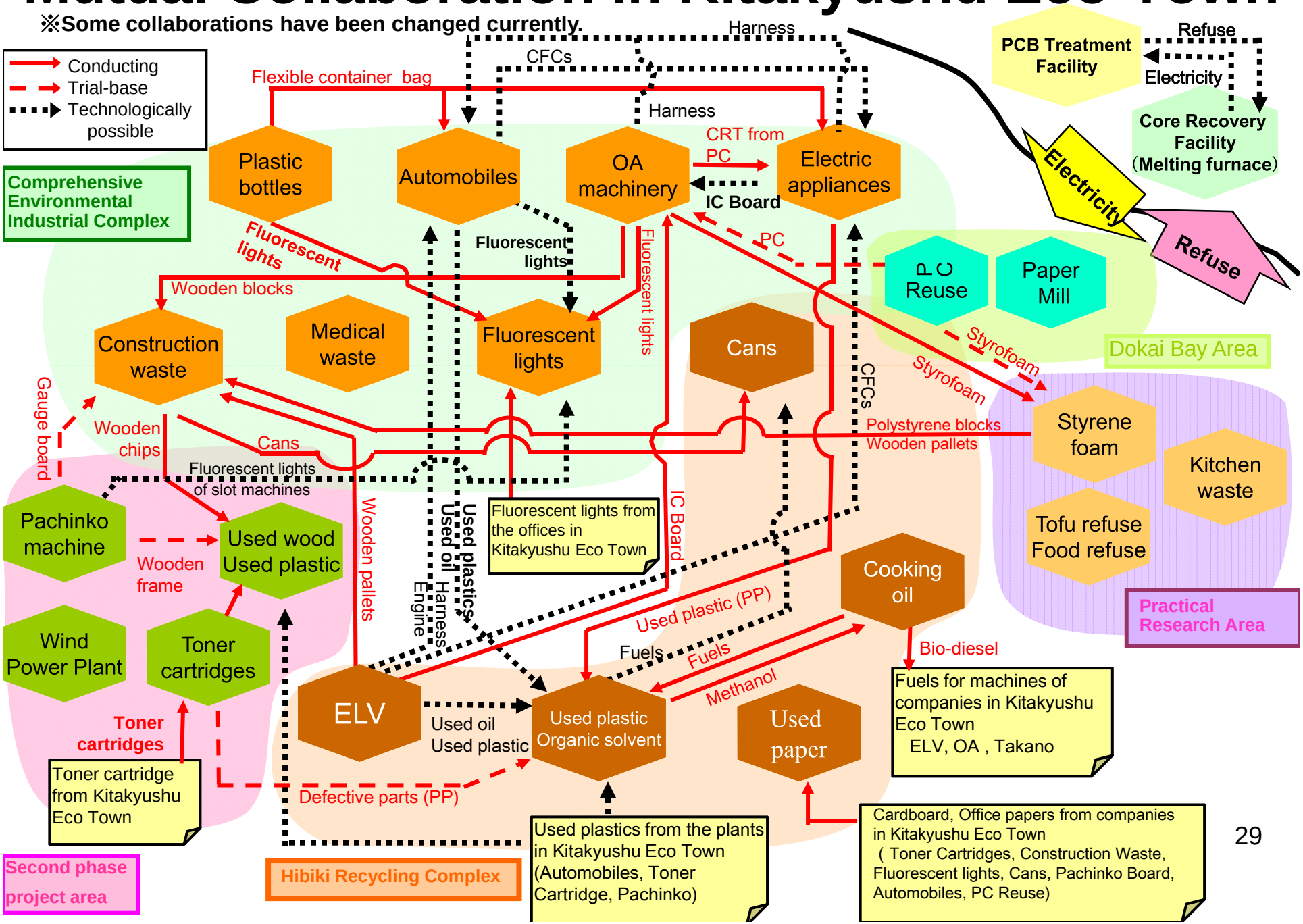
(Plant)

(At work)

- Used cars are recycled with an improvement in the recycling rate and the promotion of proper treatment of oils and CFCs, producing quality scrap by advanced technology of dismantling and separation.
- Project leader: West Japan Auto Recycle Co., Ltd. (invested by Yoshikawa Kogyo Co., Ltd., Mitsui & Co., Ltd., Nippon Steel Corp., Nippon Steel Transportation Co., Ltd., Kyushu Metal Industry Company)
- Operation commenced in February 2000
- Processing capacity of 18,000 cars/year
- Project with eco-town subsidies of the Ministry of International Trade and Industry

Mutual Collaboration in Kitakyushu Eco-Town

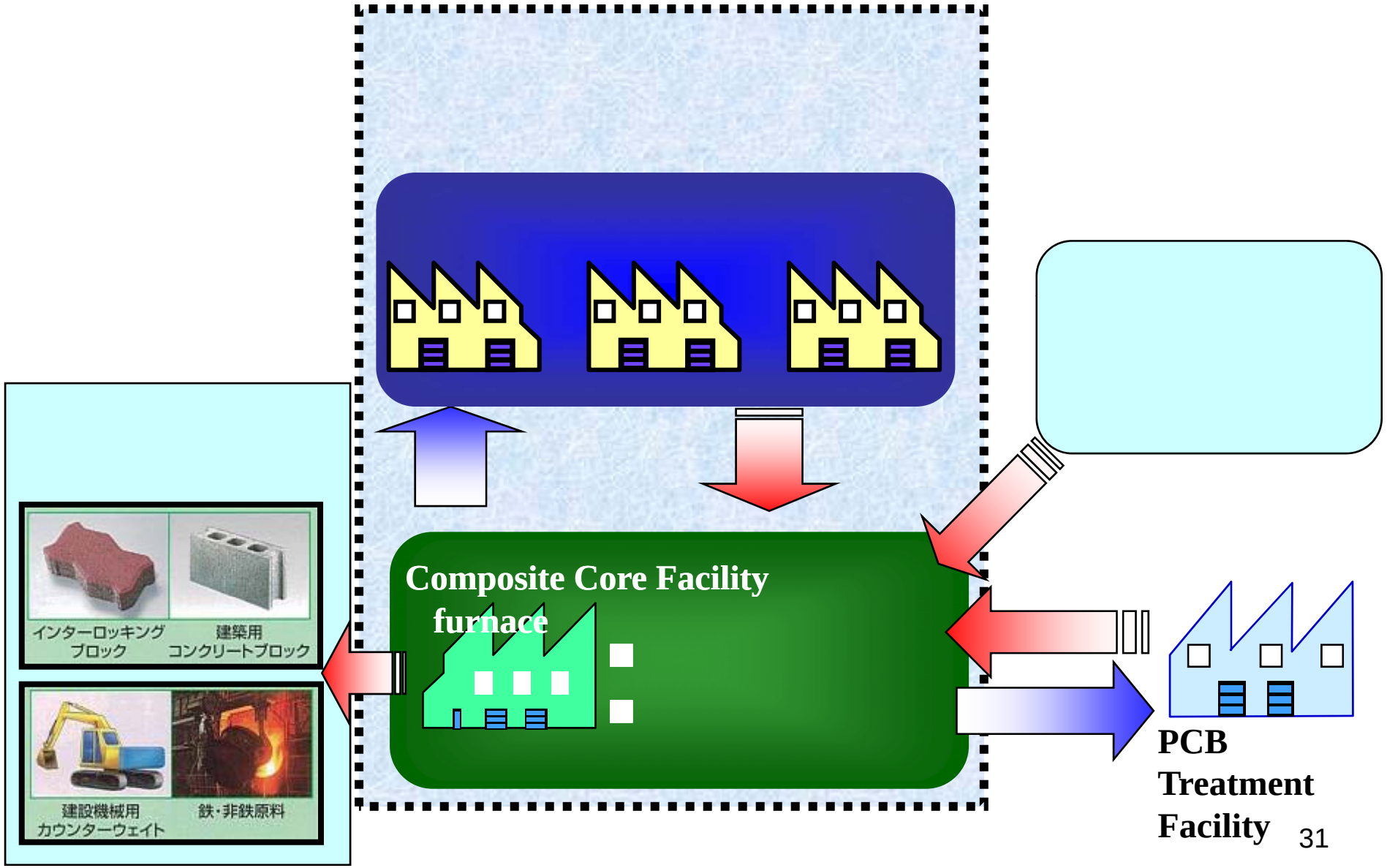
※Some collaborations have been changed currently.



Composite Core Facility

- Waste after thorough recycling by Eco-Town companies, industrial waste such as shredded waste are treated and recycled. Energy generated during waste treatment is efficiently used to supply electric power to recycling facilities in the complex.
- Operated by:Kitakyushu eco energy Co. Ltd. (invested by Nippon Steel Corp., Mitsui & Co., Ltd., Kyushu Electric Power Co.,Inc)
- Open: April 2005
- Capacity : 320 t/day
- Output : 14,000kw

Electric Power Supplying From Composite Core Facility

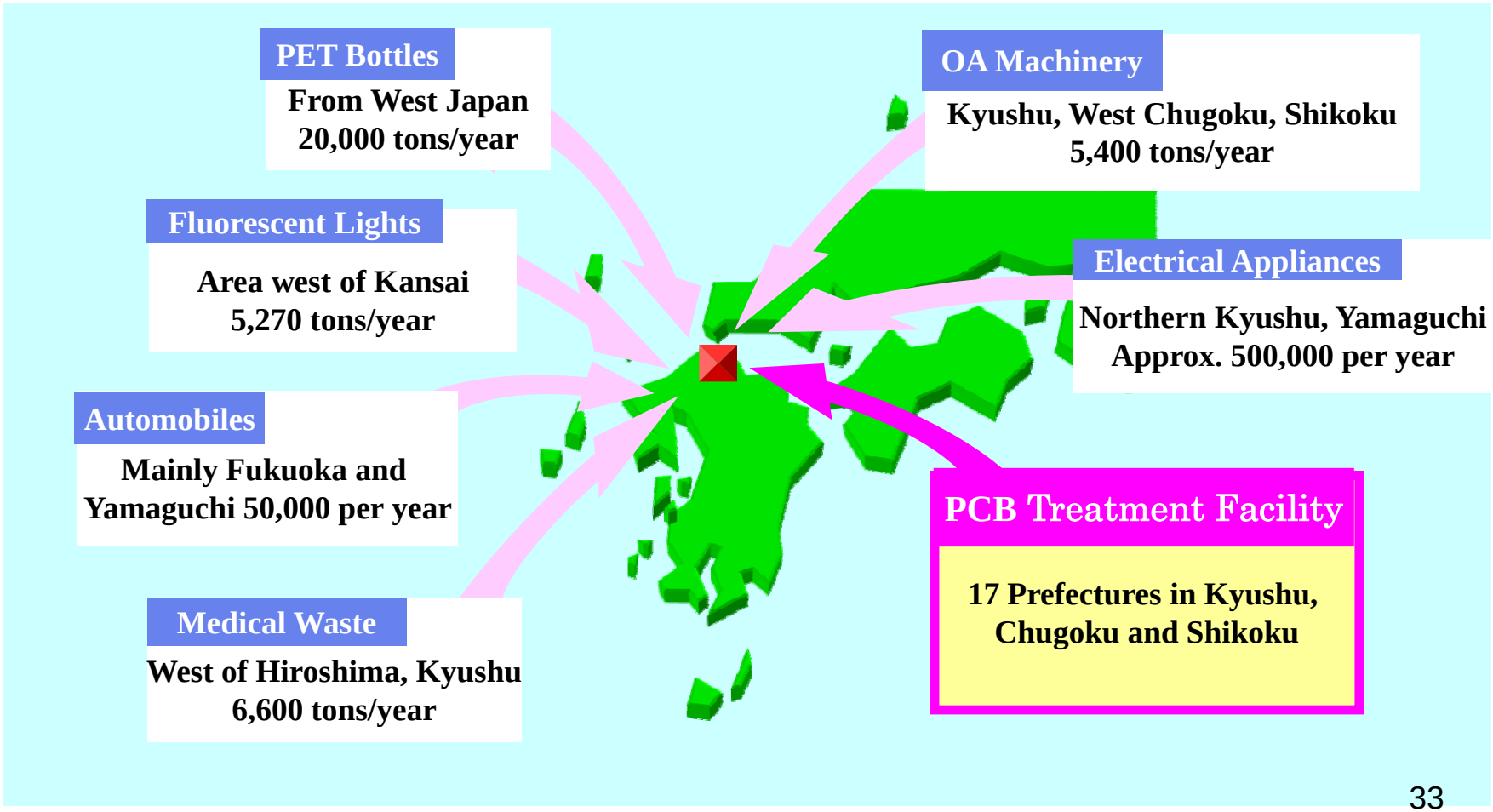


PCB treatment project

- Operated by: Japan Environment Safety Corporation (JESCO)
- Coverage: PCB wastes from 17 prefectures west of okayama.
- Treatment method: Chemical treatment (dechlorination)
- Open: December 2004

Accepting Waste from a Wide Area

Gaining citizens' understanding as a recycling hub for West Japan



The Vice Mayors of Kitakyushu and Qingdao signing an agreement at the 2nd Japan-China Joint Forum on Energy Conservation, Environment and Sustainable Development
(Sept.27, 2007, Great Hall of the People in Beijing)

The Mayors of Kitakyushu and Tianjin signing an agreement, accompanied by Chinese President Hu Jintao and Japanese Prime Minister Fukuda
(May 7, 2008, Prime Minister's Official Residence in Tokyo)

Eco-Model City of Japan (July, 2008)

Then-Prime Minister Fukuda (right) and
Mayor of Kitakyushu City Kitahashi (left)

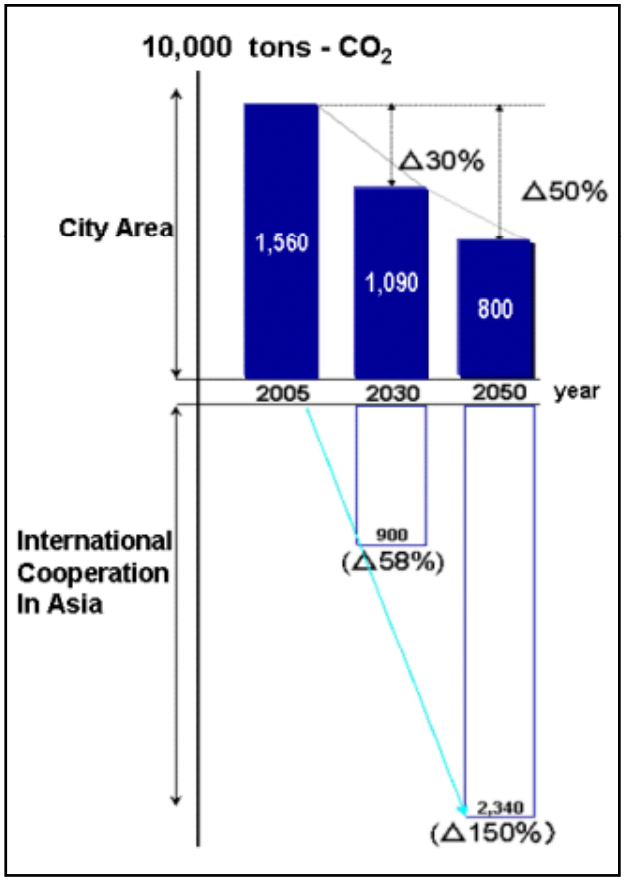
Objectives

Sustainable development towards creating a Low Carbon Society in Kitakyushu

- **Peoples' happiness**
- **40% of economic growth**
- **Large scale CO_2 reduction**

Approaches:

- **Urban development Low carbon urban structure**
- **Industrial development Innovative industries**
- **Human and social development Happy life**
- **Sustainable development in Asia Low carbon society**



CO_2 reduction target in 2050
City:50%
Asia: 150% of Kitakyushu emissions

Kitakyushu Eco-Model City Action Plan

Based on the concept of a stock-type society

Inspired by and tied to residents' environment

Creation of a Low Carbon Society

Creation of new values and culture

- Solutions for global warming
- Augmenting the city's vitality
- Asian Development and Exchange

CO_2 reduction targets: 30% by 2030 (citywide)

50% by 2050 (citywide) and 150% in Asia

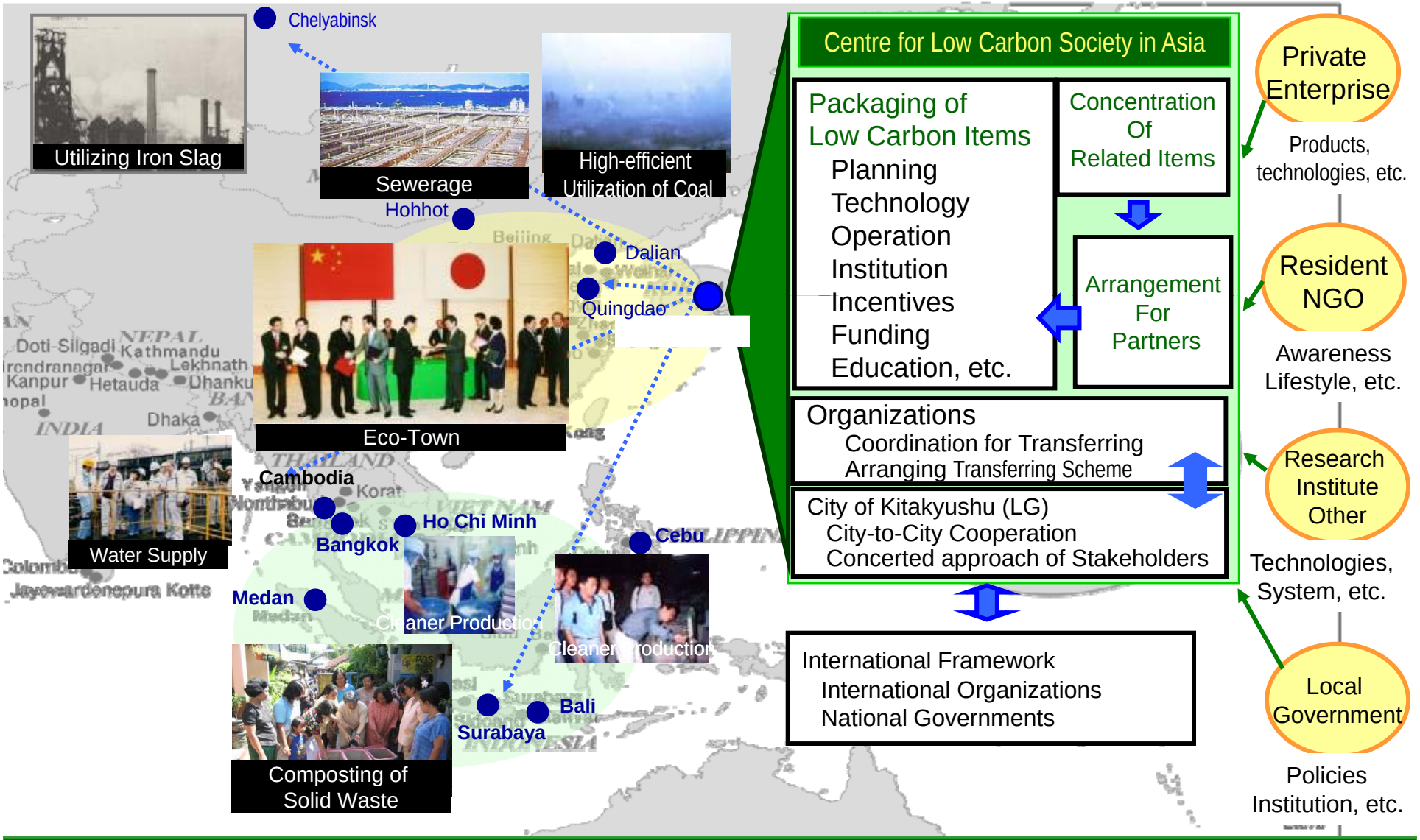
Policies and 5-Year Actions

- Environment creating a cutting-edge city
- Environment driving the economy
- Environment developing human resources
- Environment supporting a rich society
- Environment enhancing ties with Asia

Kitakyushu Green Frontier

Centre for Low Carbon Society in Asia

Co-benefit Cooperation (Economy & Environment)



City-to-City Environmental Cooperation Network in Asia (City Diplomacy)

Summary

The Identity for an Environmental City by the History of Overcoming Public Pollutions.

Environmental Industries are Necessary for all Industries.

The Uniqueness of Recycling Business are Entrance and Exit Problems.

Kitakyushu is Selected by Japanese Government for the One of the Four Eco-Model Cities for the Low Carbon Society.

In Eco-Model Projects, Activities

of [Energy] & [Materials]

at LCA: [Providing], [Manufacturing], [Using] and [Wasting]

Environmental Cooperation with Foreign Countries.