

An aerial photograph of Kawasaki, Japan, showing a dense urban area with a river winding through it. In the foreground, there is a large industrial or airport complex. In the far distance, the snow-capped peak of Mount Fuji is visible against a clear blue sky.

# Green Innovation in Kawasaki

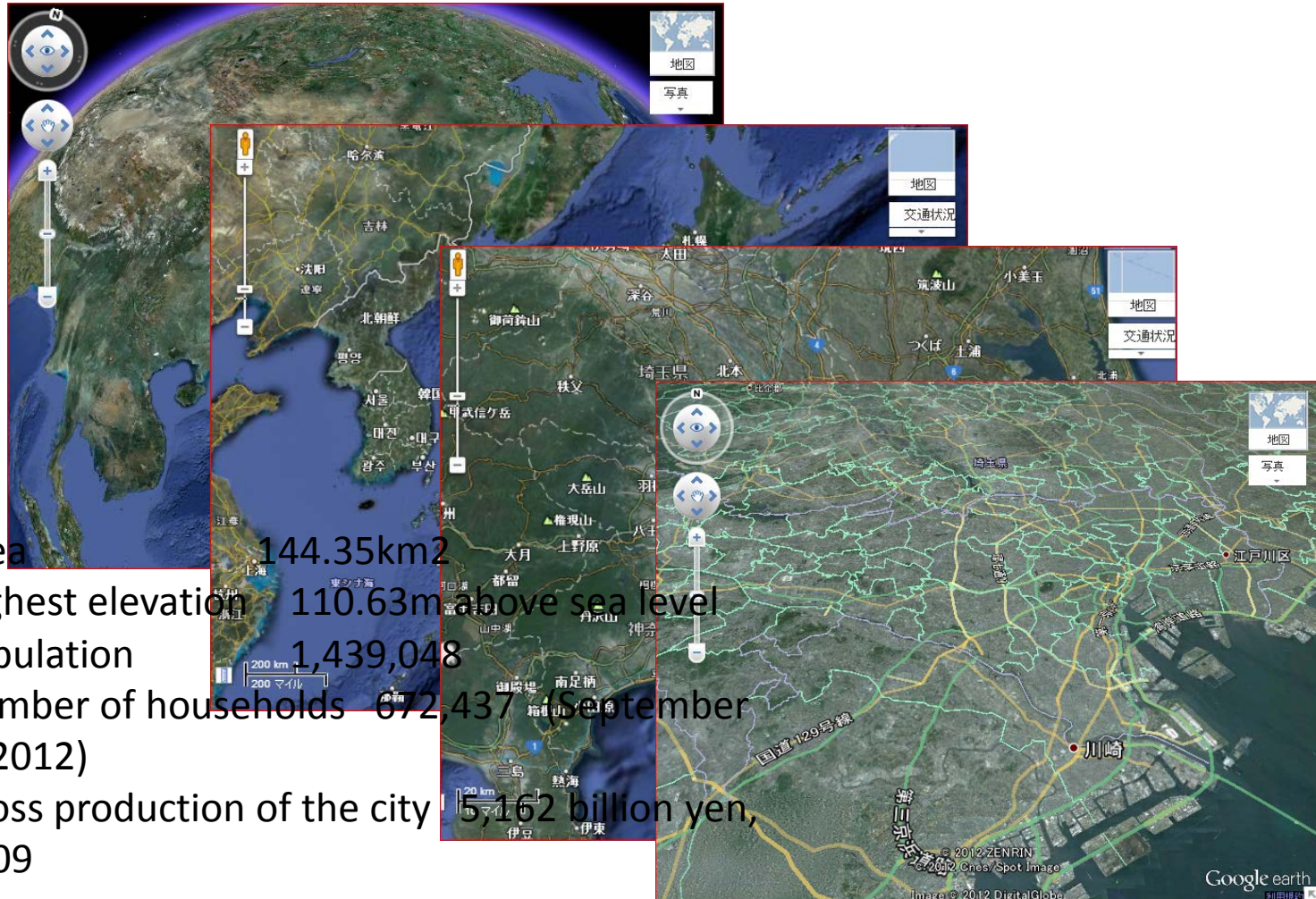
Yoko MAKI

Executive Director, planner

Kawasaki Environment Research Institute

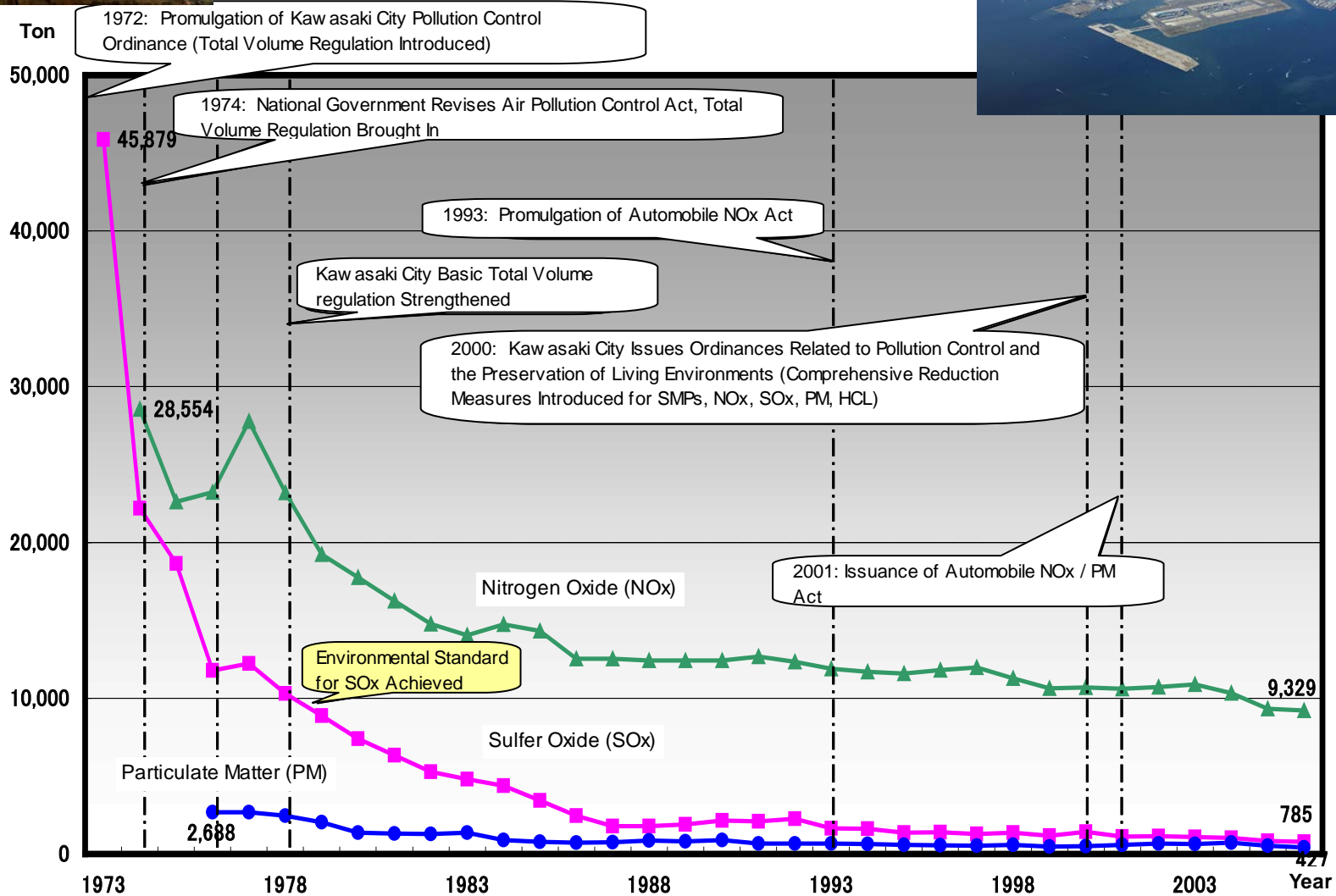
City of Kawasaki, Japan

# Outline of Kawasaki City





# Changes in Sulfur Oxide, Nitrogen Oxide, Particulate Matter



Changes in Atmospheric Pollutant Outputs Emitted by Factories / Offices (All Cities)

# Technology and Know-how Gained through Antipollution Measures

## Initiatives of businesses

- Aggressive investment in antipollution measures
- Development of technology and know-how for preventing pollution
- Training of technicians and engineers in pollution prevention

## Initiatives of residents

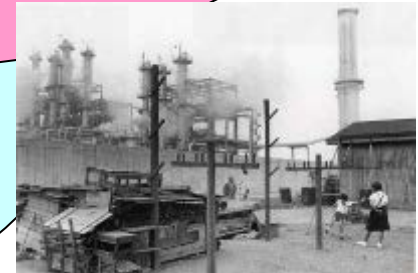
- Promotion of corporate and government antipollution measures through various activities including registering of complaints and filing petitions
- Cultivation of a heightened awareness of the environment among residents

- Establishment of a pollution victim relief system
- Signing of air pollution prevention agreements with 39 factories
- Establishment of anti-pollution local government ordinances
- Introduction of a monitoring system

## Initiatives of government



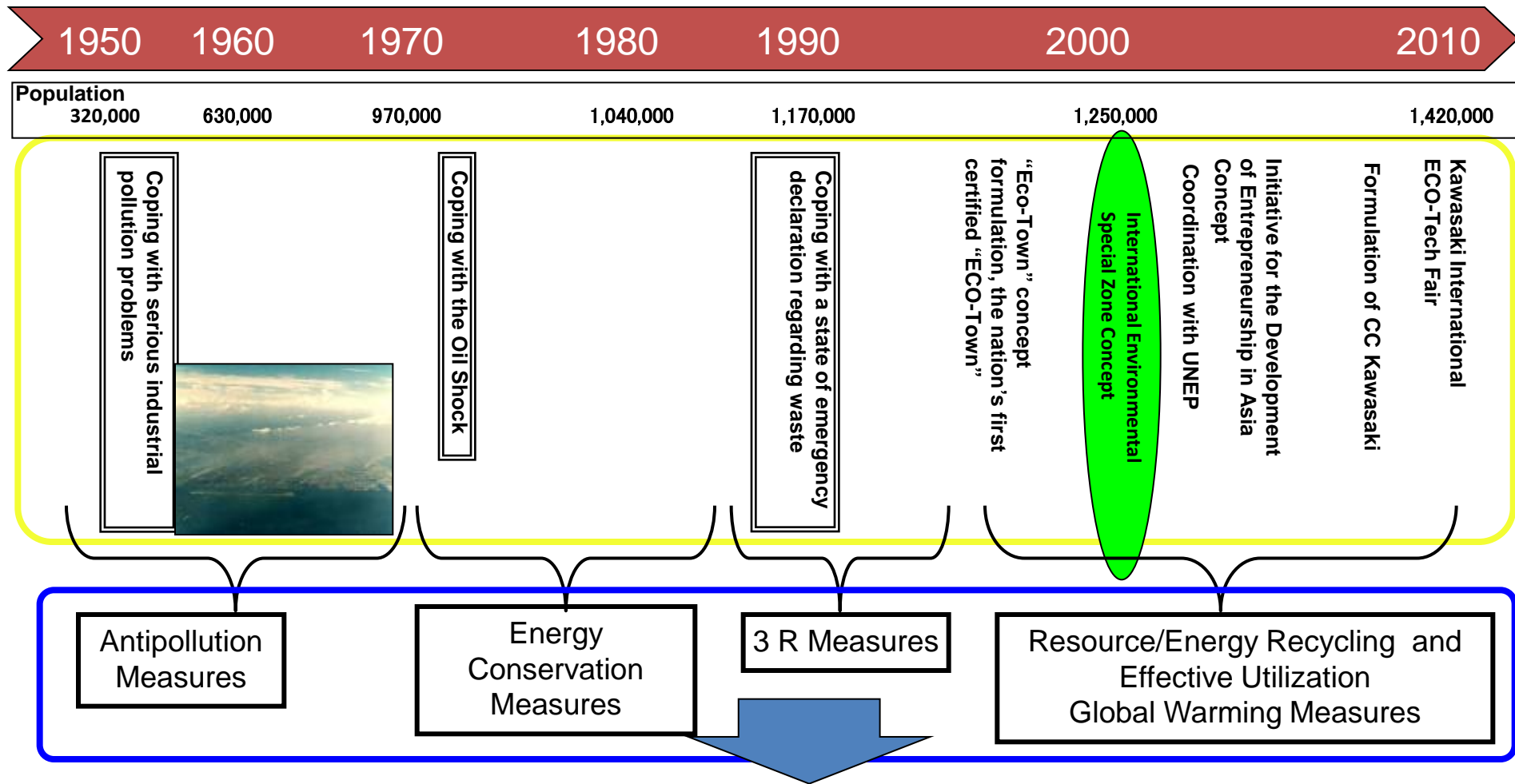
Flue gas treatment



Realization of a dramatic improvement in the atmospheric environment

Accumulation of superior environmental technology and know-how  
in the course of implementing various antipollution measures

# The Chronology of Kawasaki



- In the process of dealing with a variety of environmental issues, a vast amount of environmental technology and know-how has been accumulated within Kawasaki City
- Contributing to solving environmental problems on a global-scale is Kawasaki's responsibility through transferring these experiences overseas

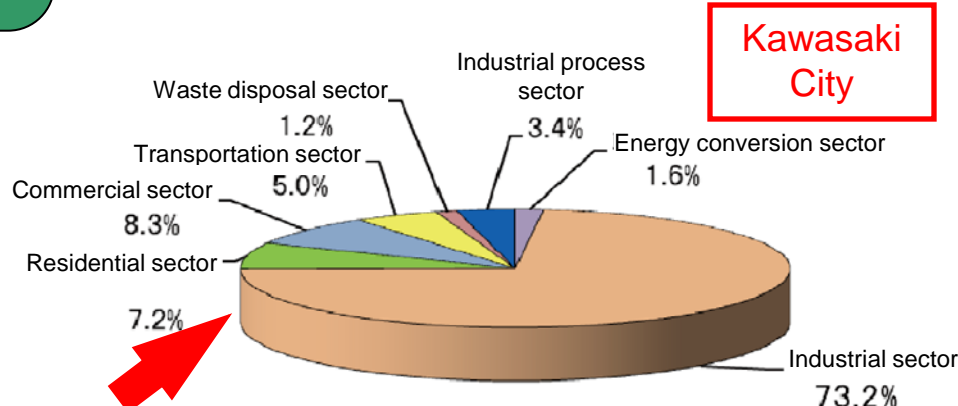
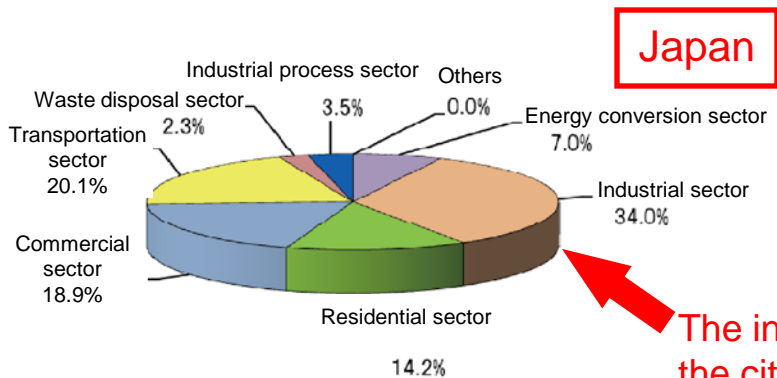
# Fight against global warming Kawasaki City



## Current status of GHG emissions from Kawasaki City (FY 2009)

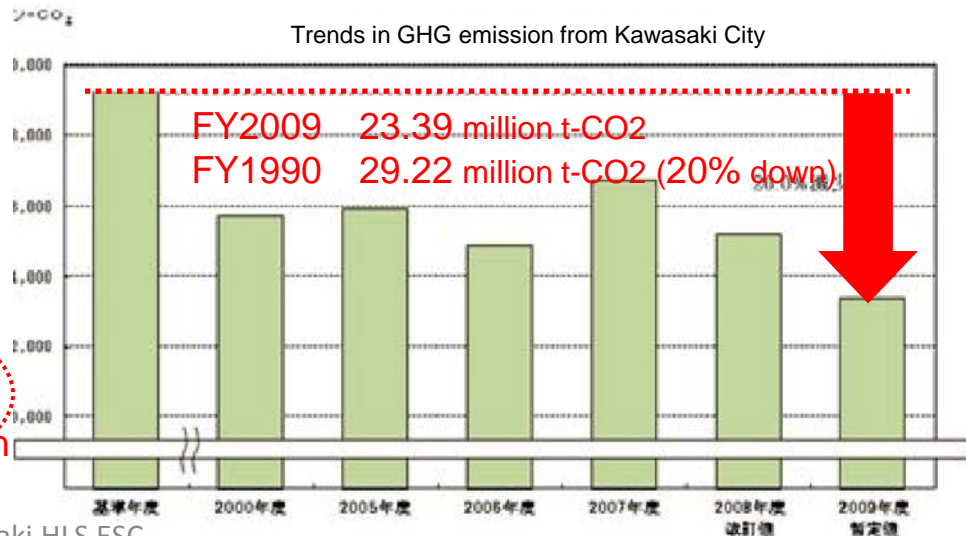
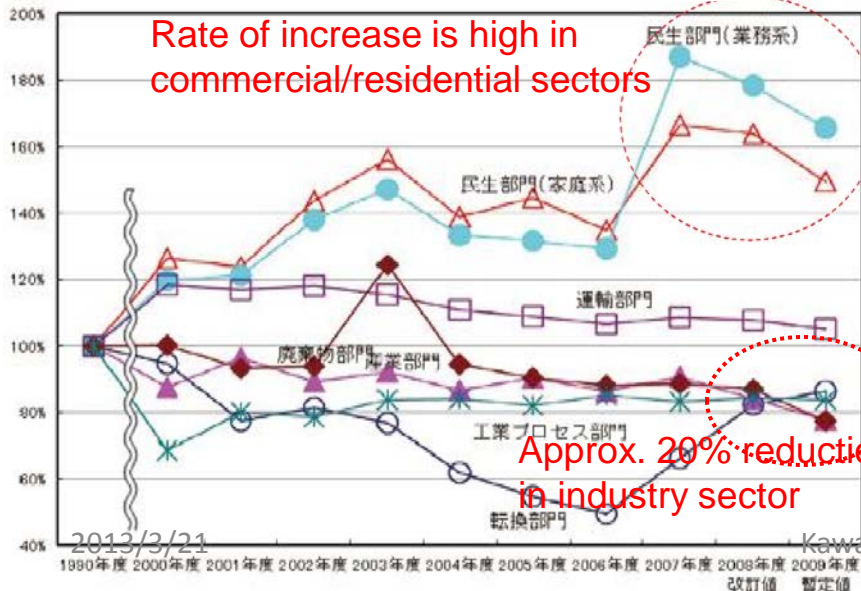
Breakdown by sector of CO2 emissions from the City (provisional values for FY 2009)

Breakdown by sector of CO2 emissions in Japan (FY 2009)



The industrial sector in Kawasaki produces a higher percentage of the city's total CO2 emissions than the national figure.

Trends in CO2 emission by sector (1990 level = 100%)



# Basic Framework of the Ordinance of Promotion on Global Warming Countermeasures

## 1 Draw up plans related to global warming countermeasures

In order to promote designed global warming countermeasures, the mayor drew up the plan related to global warming countermeasures that is enacted measures for achieving a basic direction and the goal

## 2 Global warming countermeasures related to business activities

Business entities that eject large scale of emission should submit The plan for reducing GHG to City Mayor, in order to create institute that should be reported to the Mayor about action plans, and the situation of GHG emission

## 3 Global warming countermeasures related to development actions

## 4 Utilization of renewable energy

In regard of significant renewable energy for promoting global warming countermeasures, the city takes supportive measures if necessary, and business entities and citizens are encouraged to use on a priority basic

## 5 Global warming countermeasures related to traffic

## 6 Promotion of international contribution by environmental technologies

As international contribution, business entities encourage to develop items and technologies that can contribute to reduce GHG emission, and the city promoted for development support and International contribution

7 Utilization of items/goods that eject few GHG emission amount

8 Prevention of waste generations, and others

9 Environmental education and environmental learning

10 Promotion for green conservation

11 Development of organization system

12 Institution of award ceremony

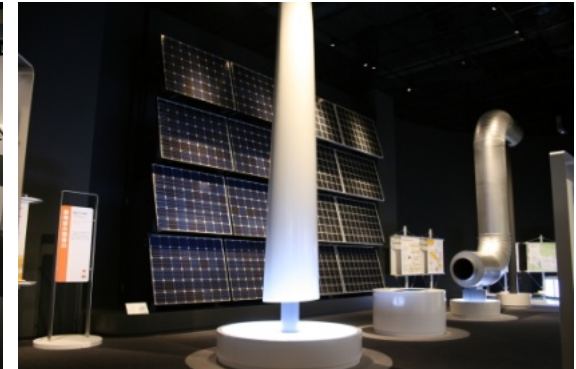
# Kawasaki Ecolife Museum for the future

- ◆ Environmental learning museum; Look, Listen, Touch
- ◆ themes  
Global warming, Renewable energy, Resource circulation

- ◆ start of operation 2011/8/6
- ◆ in the site of the Ukishima Incineration Plant
- ◆ open 9:00 close 16:30
- ◆ close : every Monday
- ◆ charge free



▲ 1F



▼ 2F

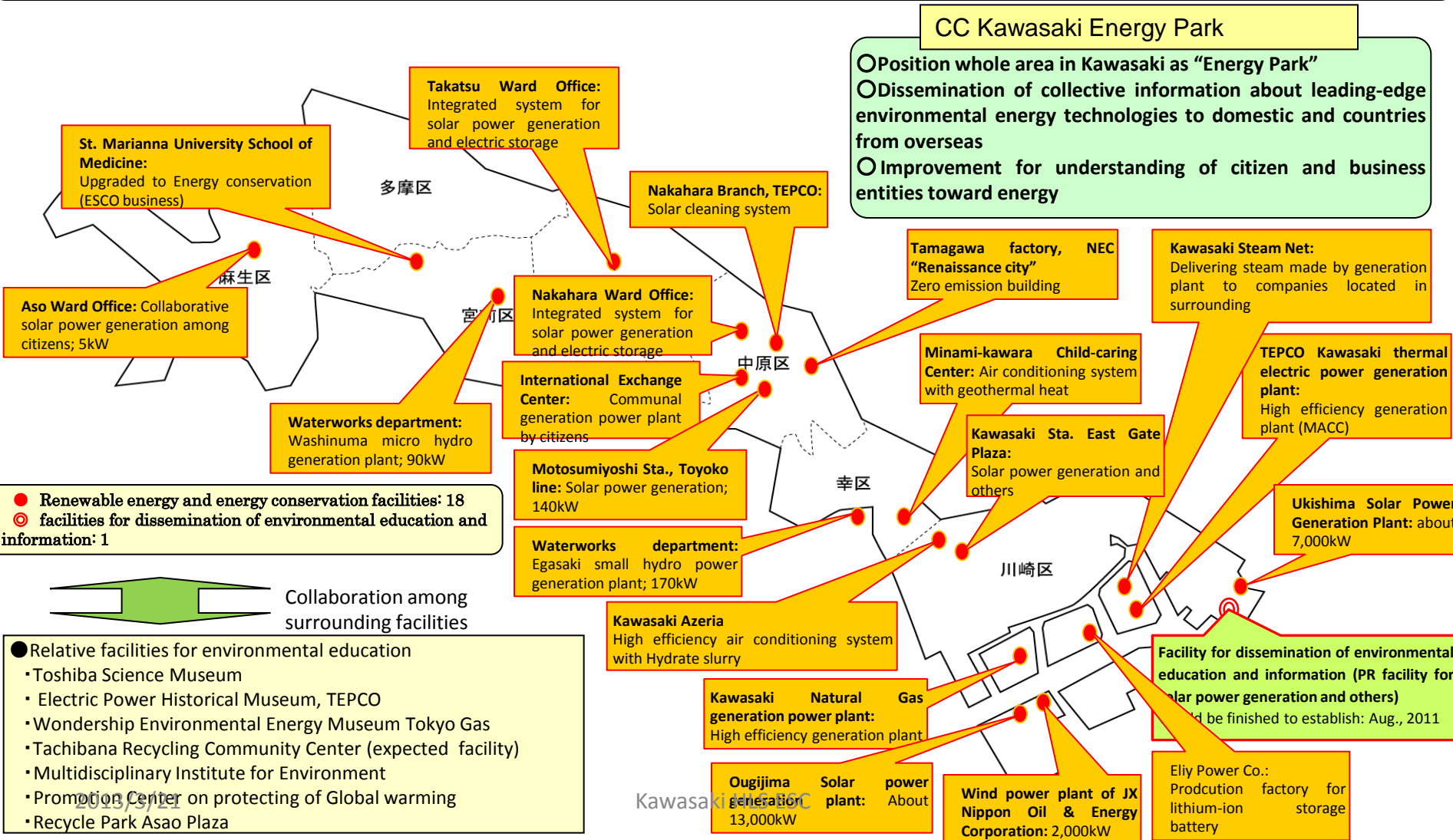


*Observation deck at the top of the packaging factory for recycling*



# Energy facilities accumulated in Kawasaki

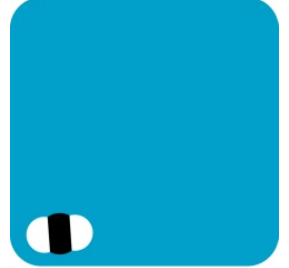
Introduction of facilities for renewable energy and energy conservation to whole area in Kawasaki city; Networking among dissemination of environmental education and information facilities; and Appealing the potential toward environmental action in coastal area of Kawasaki city both to domestic and countries from overseas



# Promotion of international contribution through environmental technologies



LOW CARBON



低CO<sub>2</sub>川崎ブランド

## Promotion of Low-Carbon Kawasaki brand

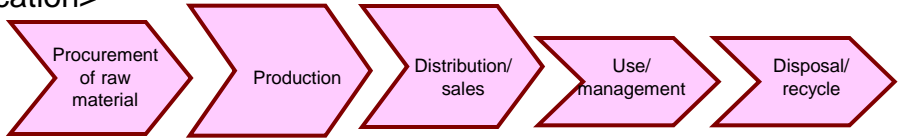
- Evaluate Kawasaki-based technologies that contribute to reducing CO<sub>2</sub> through its lifecycle
- Widely communicate the potentials of these products/technologies
- Contribute to reduction of GHG at the global level through promotion of Kawasaki brand

Kawasaki model for CO<sub>2</sub> reduction

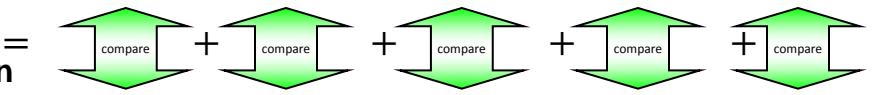
Visualize CO<sub>2</sub> emissions throughout all processes

Framework to evaluate products and technologies that contribute to CO<sub>2</sub> reduction through its lifecycle: Determine the CO<sub>2</sub> reduction effect of the product/technology based not only on its production process but on lifecycle comparison with conventional products

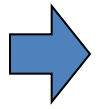
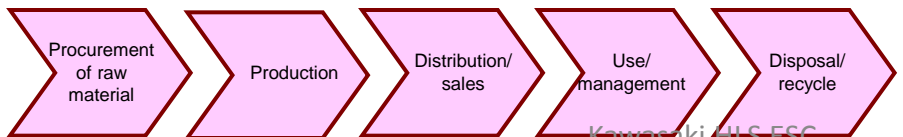
< Low carbon products, etc.: products/technologies subject to certification >



CO<sub>2</sub> reduction effect



<Comparison with baseline (conventional or standard) product >



Permeation of the concept of evaluating CO<sub>2</sub> reduction based on lifecycle

# Promotion of international contribution through environmental technologies



## 36 products/technologies certified in 4 years

- Products/technologies contributing to prevention of global warming through its entire lifecycle
- Determination of CO2 reduction is based not only on the effect of the final product but also takes account of the materials and components used

Company name: JFE Engineering Corporation  
Certified product: Geothermal air conditioning system utilizing steel pipe piles

### ○ LCCO2 reduction effect

Lifecycle CO2 emission is reduced by 29% compared with a standard type air-source heat pump



Cuts LCCO2 by 29%

Company name: Nihon Genryo Co., Ltd.  
Certified product: Saito Tank (Water filtration system without the need for filter media replacement)

### ○ LCCO2 reduction effect

Lifecycle CO2 emission is reduced by 9% compared with a water filtration system without an automatic washing function (Saito Cleaning)



Cuts LCCO2 by 9%

Company name: Kawasaki Steam Net Ltd.  
Certified product: Project to supply steam from a high-efficiency power generation system

### ○ LCCO2 reduction effect

Lifecycle CO2 generation is reduced by 45% compared with other means of steam supply (such as boilers) owned by individual users



Cuts LCCO2 by 45%

# Promotion of international contribution through environmental technologies



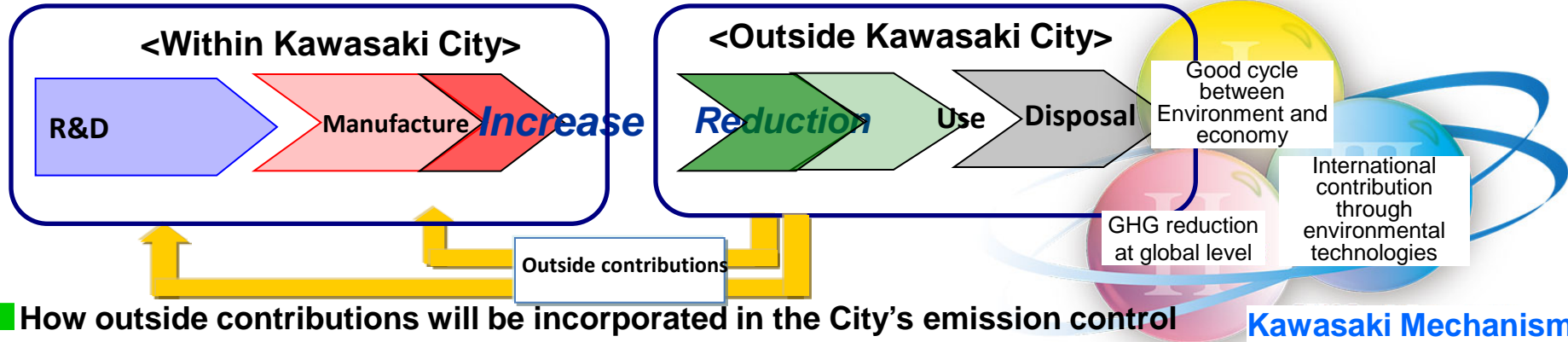
## Kawasaki Mechanism Certification System

Starting from 2013

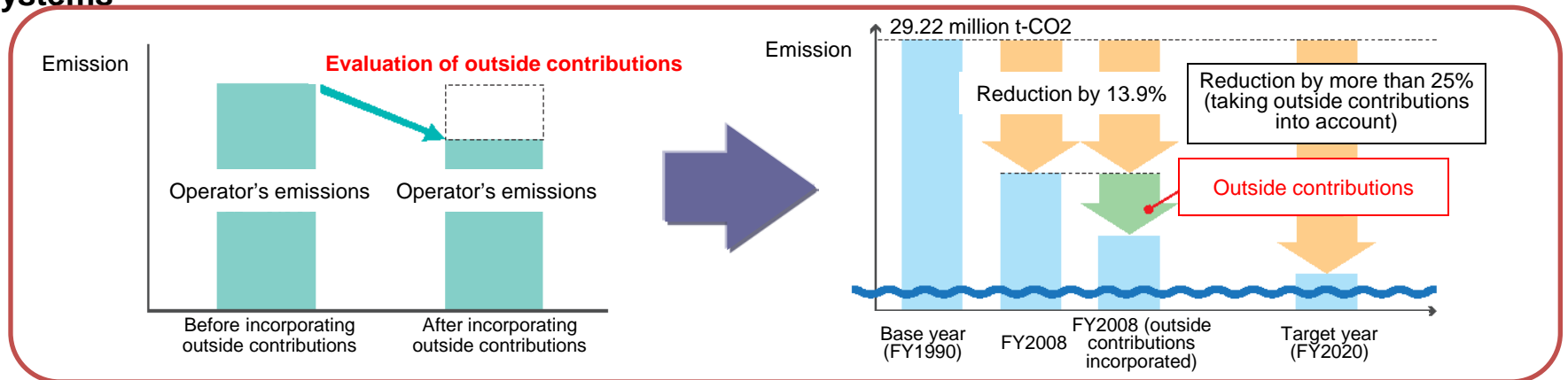
First among Japanese municipalities

Appropriately evaluates, throughout the lifecycle from material procurement to disposal, the amount of contribution to CO2 emission reduction outside Kawasaki City (outside contributions) made through environmental technologies of business operators located in the City

### Evaluation of outside contributions



### How outside contributions will be incorporated in the City's emission control systems



2013/3/21

Incorporation into operator's report

Kawasaki HLS ESC

Incorporation into the Kawasaki Plan

# Go to Kawasaki, Learn more

**The Asia-Pacific Eco-Business Forum  
From 2005  
With  
UNEP IETC**



- Shenyang, Dalian, Wuhan
- Bucheon, Ulsan
- Mumbai, Pune in India
- Da Nang in Vietnam
- Matale in Sri Lanka

**Kawasaki international Eco-tech fair  
From 2009**



- + Shanghai, Tsingtao, Hong Kong, Yancheng
- Daegu      ▪ Queensland
- Oregon, North Carolina, Pennsylvania