Kitakyushu City's Green Frontier Plan towards Realizing a Sustainable Society

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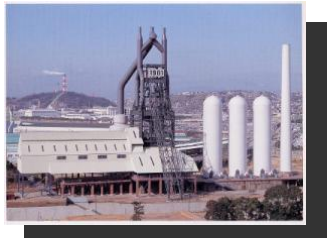
Reiji Hitsumoto, Director
Office for International Environmental Strategies
City of Kitakyushu, Japan

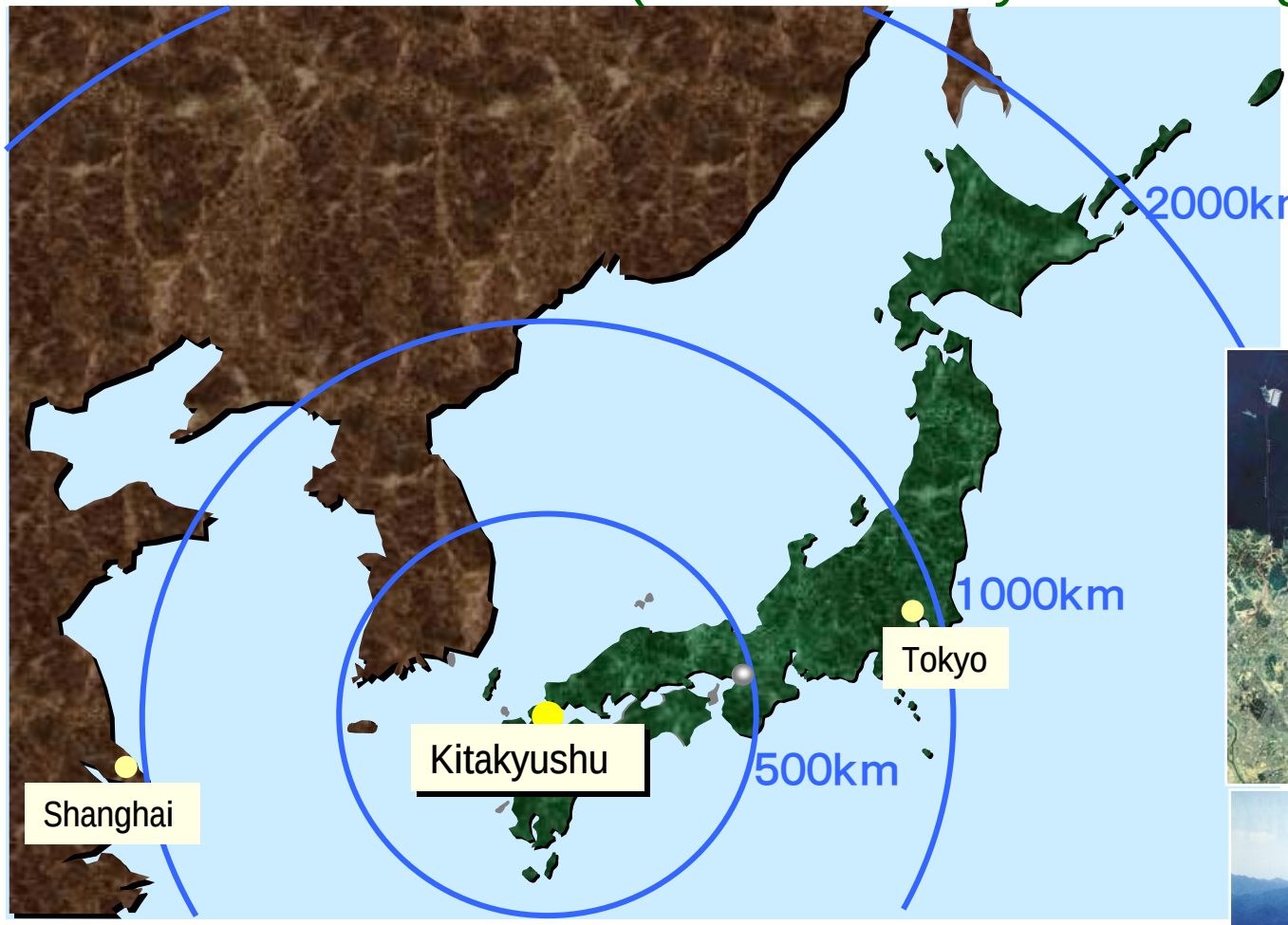
Green Frontier
環境モデル都市 北九州市



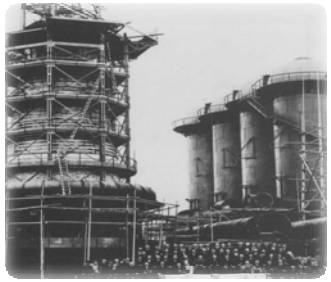
About Kitakyushu

Location (between Tokyo & Shanghai)



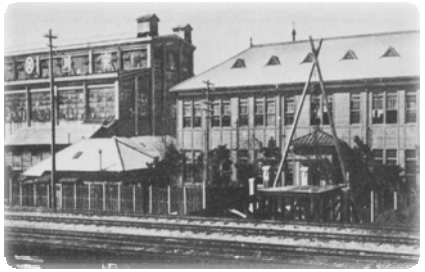
Population: 1 million
Area: 488 km^2
Status: Designated City (same as Prefectural Government)
Eco-Model City of Japan

Industrial Development and International Trade



1901 Yawata Steel Works

1920 TOTO



1925 Yasukawa

Industries founded in Kitakyushu

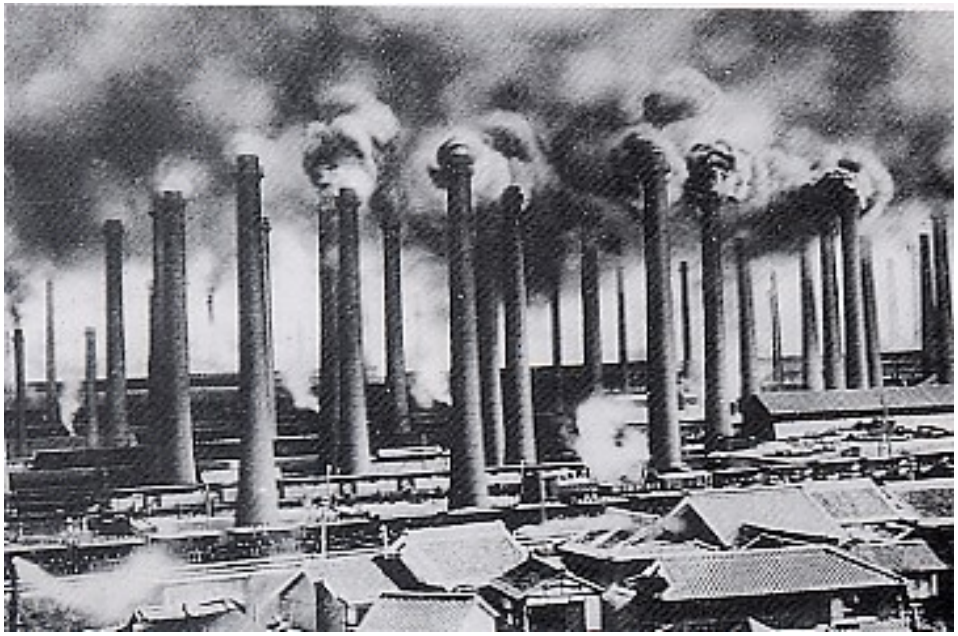
1935 Moji Port

Tachinoura Container Terminal

International Trade

Accumulated industries, technologies, infrastructure, and citizens' participation for a Sustainable Society

Environmental Pollution in the 1950s and 1960s

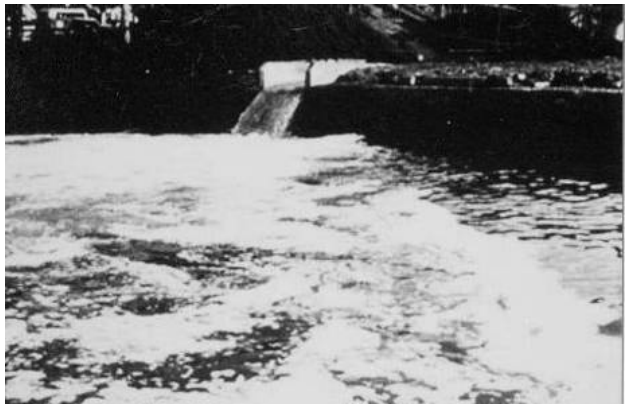


Heavy smoke from numerous chimneys

Harm to children

Heavy dust that fell on roofs

Corroded boat propeller in the toxic sea



Untreated wastewater discharged into Dokai Bay

Overcoming Severe Environmental Pollution

Worst Air Pollution
caused closure of a school

In 1960s

"Dokai Bay, Sea of Death"
Corroding boat propellers and killing even E. coli bacteria.

Present

Enjoying the blue sky

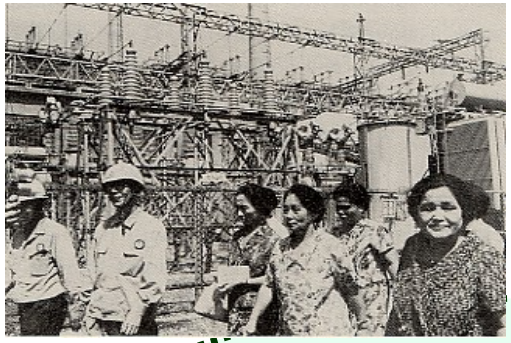
Swimming at Dokai Bay

Recovered blue skies and sea, people enjoying the environment

Kitakyushu was introduced by OECD's Environmental Report as "from Grey City to Green City" in 1985.

Partnerships among Local Multi-stakeholders

Residents



Residents visiting a private company

Learning how to measure air pollution from a university professor

Partnership

Environmental control & environmental infrastructure

Local Government

Cleaner Production & pollution control equipment

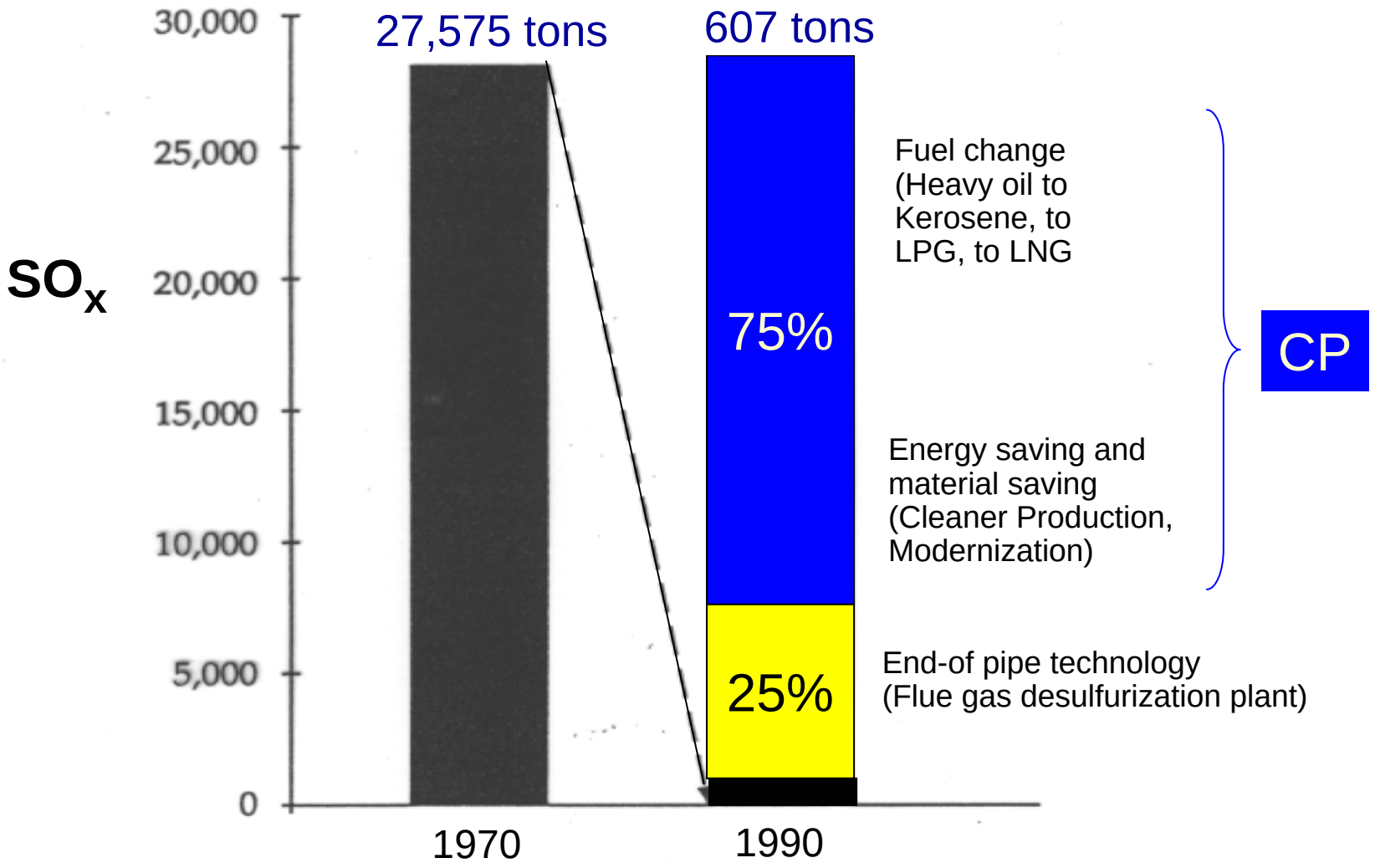
Private Enterprises

Local Initiative & Partnership
Environmental Technology & Environmental Investment
Education & Participation of Citizens
Environmental Governance

Reference: UNESCAP "Kitakyushu Initiative for a Clean Environment

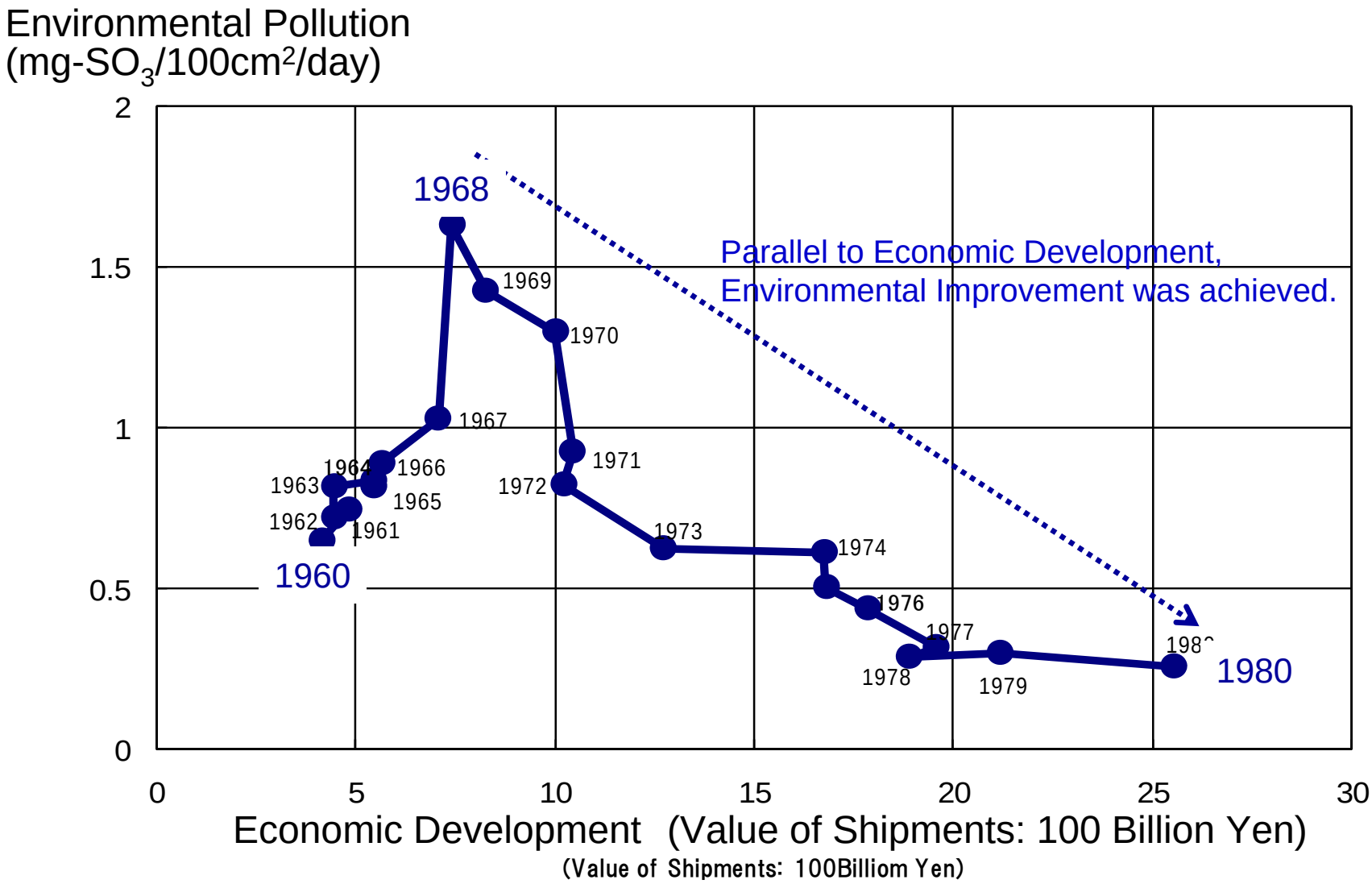
Cleaner Production & Reducing Pollutants

SO_x Reduction, S, Steel, Kitakyushu



Source: S. Imai, Features of Pollution Control in Japan (Tokyo: Japan International Cooperation Agency, n.d.)

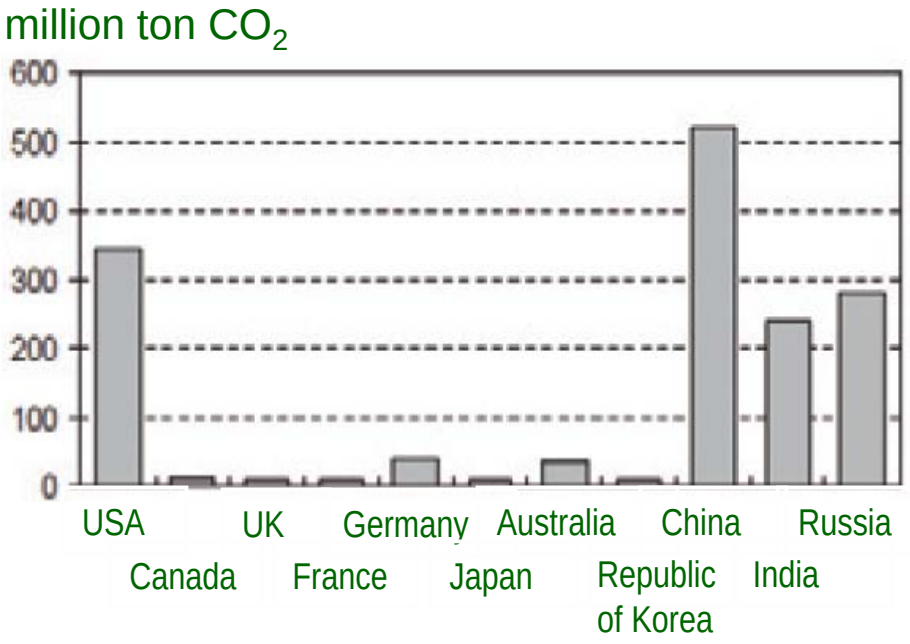
Co-Benefits: Economic Development & Environmental Achievements



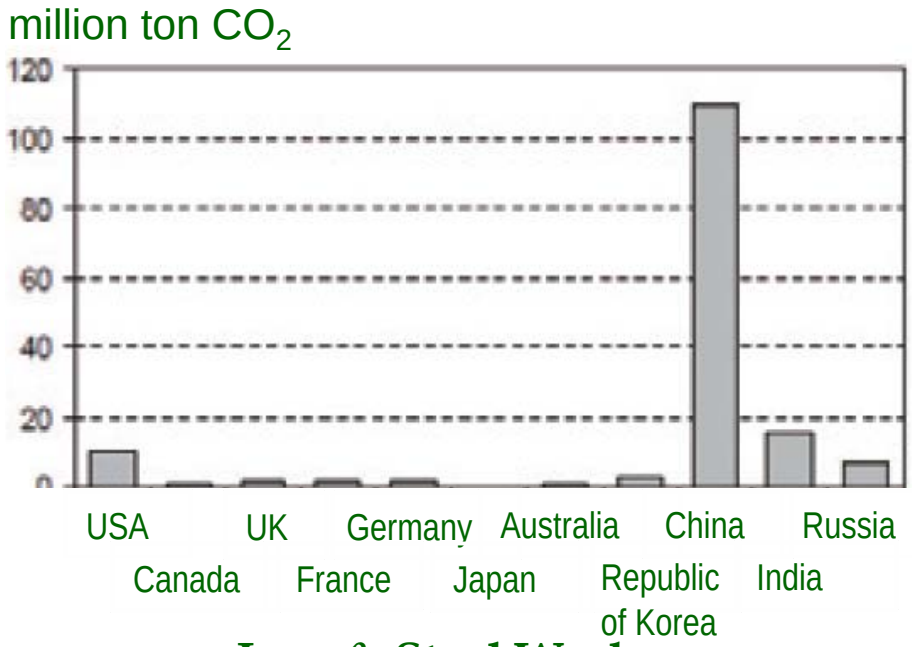
Source: World Bank, *MEIP Progress Report*, (Washington, DC, 1993).

Potential on Energy Saving (CO_2 Reduction) with both Economic and Environmental Benefits

Using Japan's Cleaner Production



Power Plant using Fossil Fuels



Iron & Steel Works

出典：エネルギー白書2008（地球環境産業技術研究機構(RITE)、エネルギー効率の国際比較（発電、鉄鋼、セメント部門）、平成20年1月）

Sustainable Development in the Growing Asian Region

Need for Environmental Improvement to Protect Against Climate Change

Prediction of **Energy Demand / CO_2 Emissions in Asia**

3.2 billion tons CO_2 in 2005 ⟶ 6.5 billion tons CO_2 in 2030

Reference：日本エネルギー経済研究所「アジア／世界エネルギーアウトルック2007」
総合資源エネルギー調査総合部会（平成20年度第２回）資料

Need for Economic Development to Alleviate Poverty

Percentage of Poverty (Income less than US$1 per day)			
Year	1990	1999	2005
Developing Countries	45.5	32.9	26.6
Least Developing Countries	63.3	60.4	53.4

Source: UNDP, *The Millennium Development Goals Report 2009* (New York, 2009).

People, including children, depend on resources in solid waste for their livelihood.

Kitakyushu's Approach to Sustainable Development

☑ **To Reduce CO_2 to Protect the Environment**

☑ **To Achieve Happiness and Health**

Comfortable and Convenient Life & Accumulation of Prosperity by Succeeding Generations

☑ **To Simultaneously Achieve Sustainable Economic Development**

Not Stagnation, but Promotion of Economy

⇒ ***The Kitakyushu Green Frontier Plan***

will efficiently achieve these targets

Kitakyushu Green Frontier Plan

made and shared by Local Multi-Stakeholders

Target: Society with accumulated prosperity over generations

Citizens' Willingness & Partnership

Making a Sustainable Society

New Sense of Value & Culture

- **Solution of Climate Change Issue**
- **Increasing City's Happiness & Activeness**
- **Asian Growth & Exchange**

CO_2 Reduction Target with 40% of Economic Growth in 2050

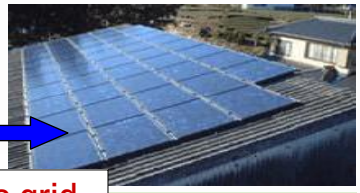
- ☑ City Area: **50%**
- ☑ Asian Region: equivalent to **150%** of Kitakyushu's Emissions

5 Strategies

- Urban Development
- Industrial Development
- Human Development
- Social **Development**
- **Sustainable Development in Asia**

Integrated Local Energy System with 30% Reduction of CO_2

Higashida Co-Generation System with high efficiency



Photovoltaic generation

Micro grid

→Thermal Supply for Factories

→Electric Supply for Town

Waterfront Area

Space World

Factory Area

Environmentally Friendly Housing

Community Centre

Information Industry Area

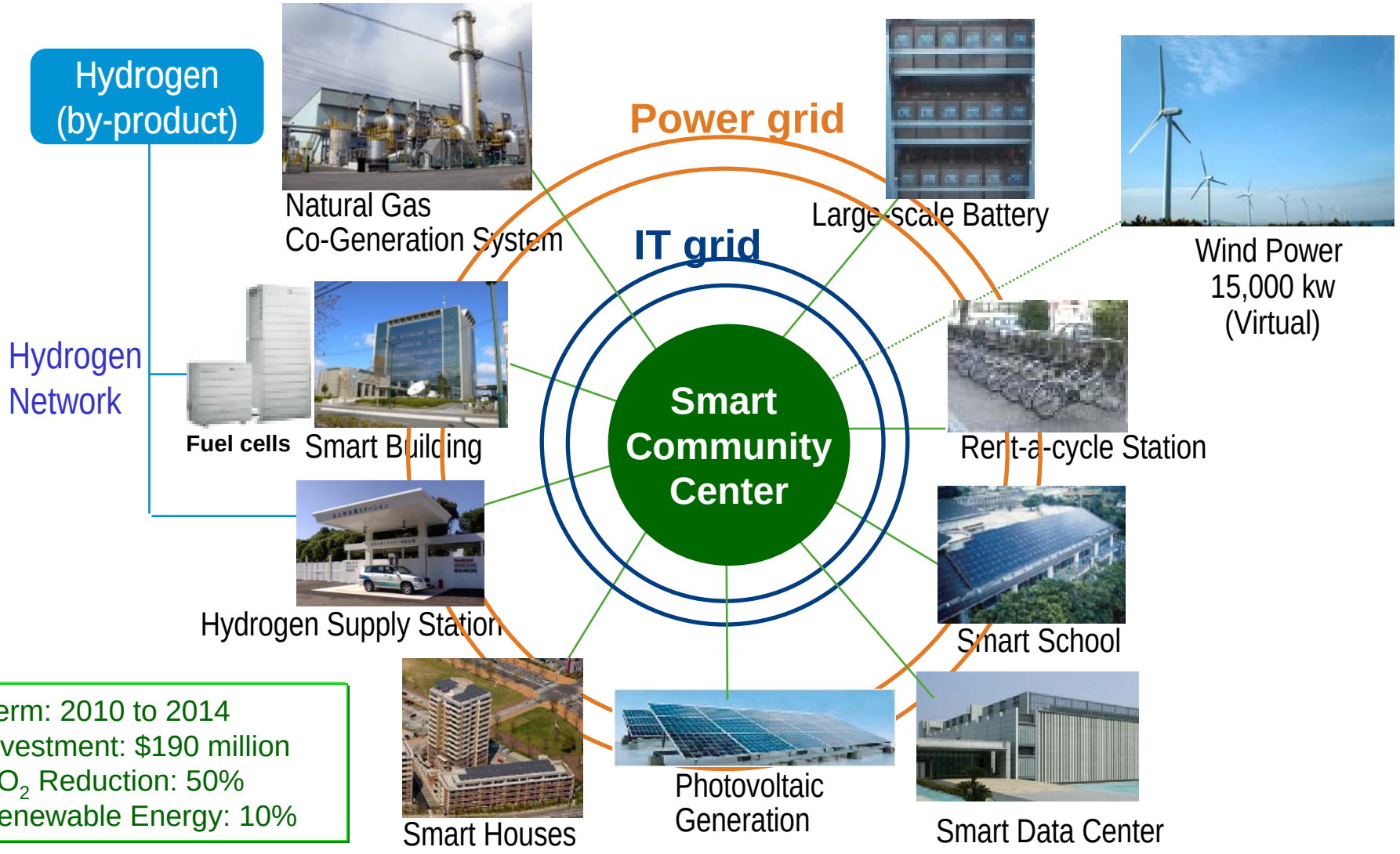
Residence

Education Area

Train Station

Higashida Green Village Area

Kitakyushu Smart Community Project (Higashida Area)



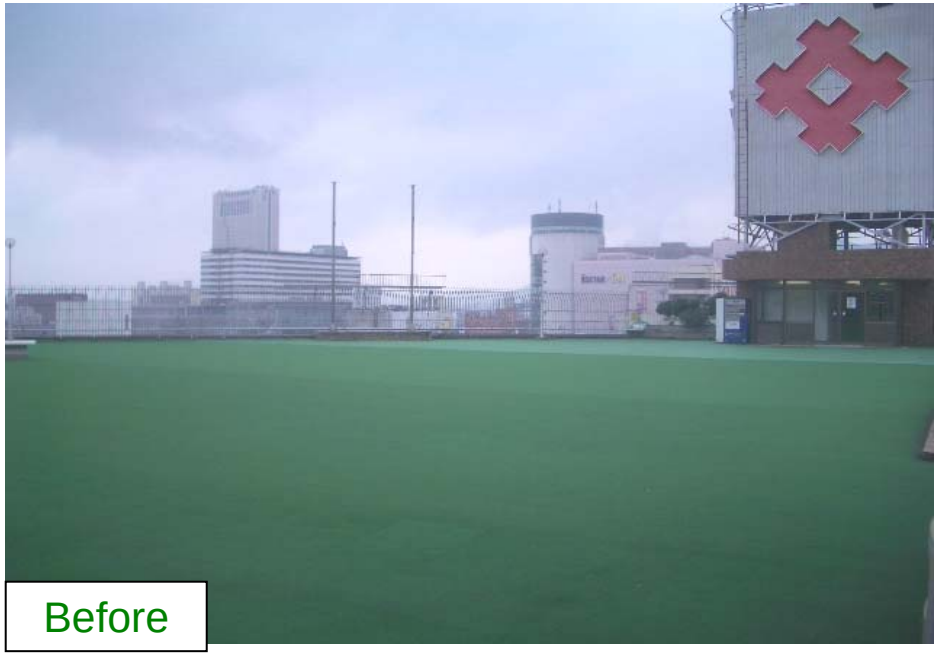
Term: 2010 to 2014
Investment: $190 million
CO_2 Reduction: 50%
Renewable Energy: 10%

Realization of optimized energy use per region, through coordination between new and mainstay energy sources and introduction of a control system for both energy supply and demand.

Zero Carbon Emission Town Development (Jono Area)

1) No private vehicle zone with convenient public transportation system
2) Self-supporting power through the use of renewable energy
3) Long-life housing with high heat insulation materials and energy-saving facilities
4) Rich greenery through people's planting
5) Environmentally friendly town with people's advanced awareness and activities

Green Roof at Department Store



Before

After

Project Outline
- Period: June to November 2008
- Area: 1,400㎡
- Budget: 100 million yen
  (subsidy: 40 million yen)

Outcome
- Surface Temp. in Summer: down 15℃ (max.)
- In-house Temp. in Summer: down 5℃ (max.)
- Reduction of Energy in Summer: 60% (max.)
- In-house Temp. in Winter: up 4℃ (max.)

Overall Evaluation of CO_2 Emissions and Reduction

- ☑Products & Services with Low CO_2 Emissions
- ☑ Wide Range of CO_2 Reduction Activities
- ☑Production Process with Energy Saving
- ☑Social Responsibility & Human Development

Kitakyushu Eco Premium

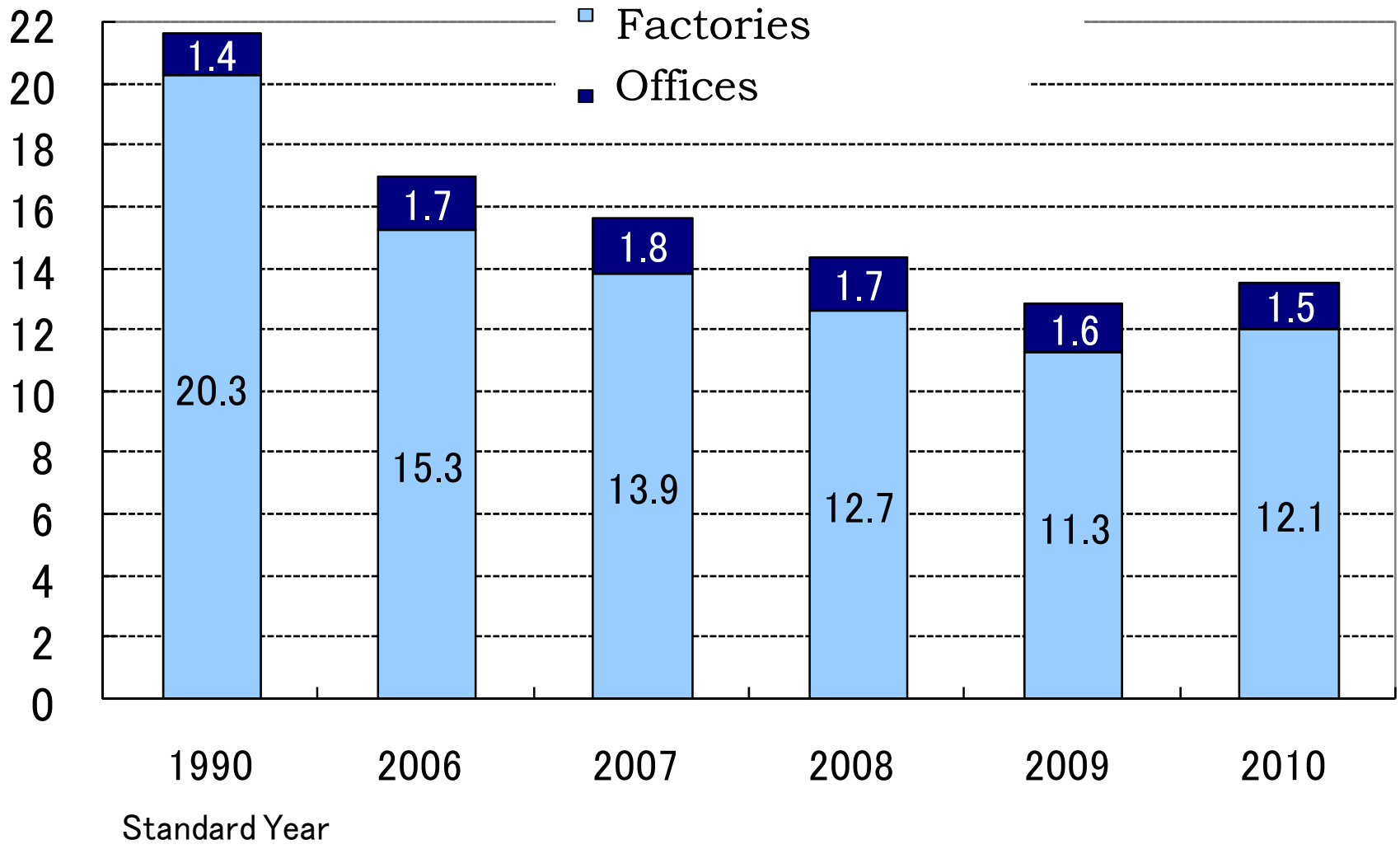
Efficient electromagnetic plate and sheet which contributes to energy saving

Rented-type eco-apartment house with photovoltaic power generation (First in Japan)

Water-saving automatic faucet with a self-power generation function

Technologies and products (eco-products), and services (eco-services) which lead to environmental impact reduction in the city are designated as "**Eco-Premium.**" Activities that consider the environment of the entire city by the industrial sector promotes its expansion and osmosis.
Point: Saving Energy, Saving Resources, Maintenance Free, etc.

Reduction of CO_2 Emissions in TOTO Group (Domestic)



Source：TOTO CORPORATE REPORT 2011

Kitakyushu Eco-Town （First in Japan)

Facilitating Resource Circulation and Eco-Industries

Practical Research Area
Practical Research Facilities: 15

Comprehensive Eco-Industrial Complex,
Hibiki Recycling Area
Industrial Plants: 26

Outcome of Projects

Environment: Reduction of environmental impact／0.32 million tons CO_2,
Saving resources and energy

Economy: Investment: 60 billion yen（Private Sector: 68.6%, Government Sector: 31.4%）
Employees: 1,300 people Visitors: 840,000 people (as of March 2010)

Promoting Eco Industry and Resource-Circulation in an Eco-Town

Plastic PET Bottle Recycling Project

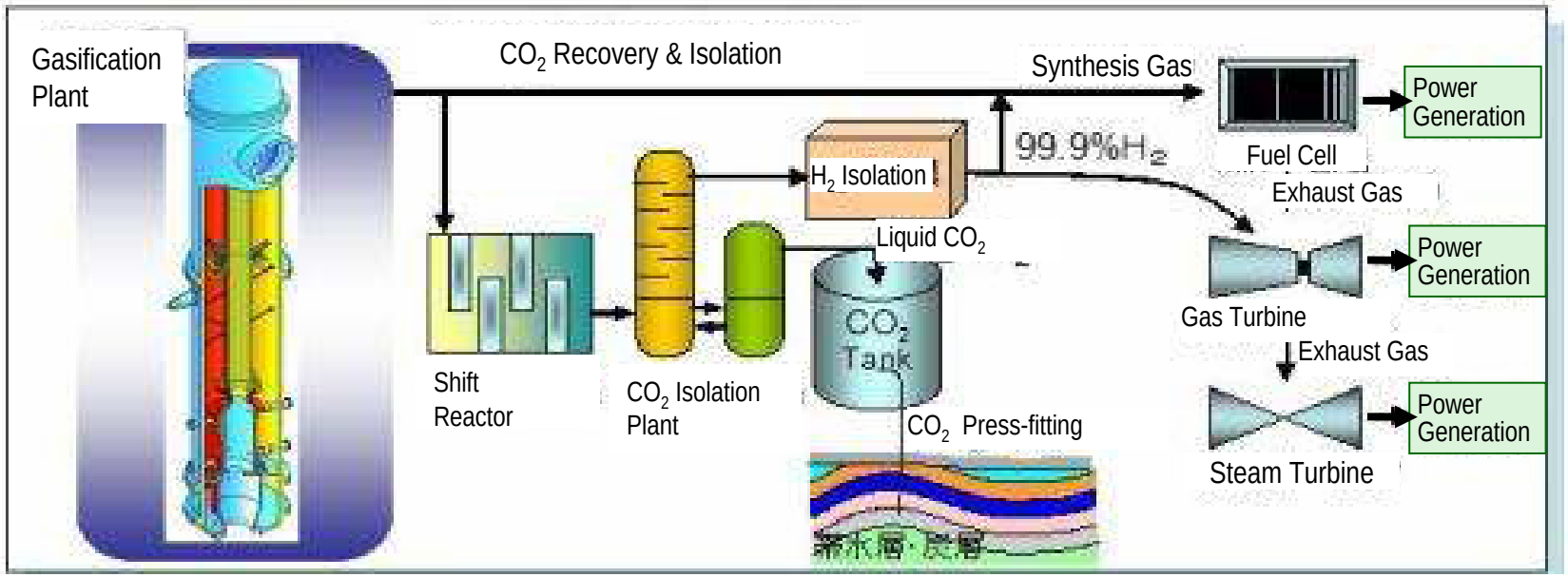
Office Equipment Recycling Project

Home Appliance Recycling Project

Automobile Recycling Project

Electric Power Development Co., Ltd. (J-Power)

Utilization of Coal with High Efficiency and CO_2 Absorption



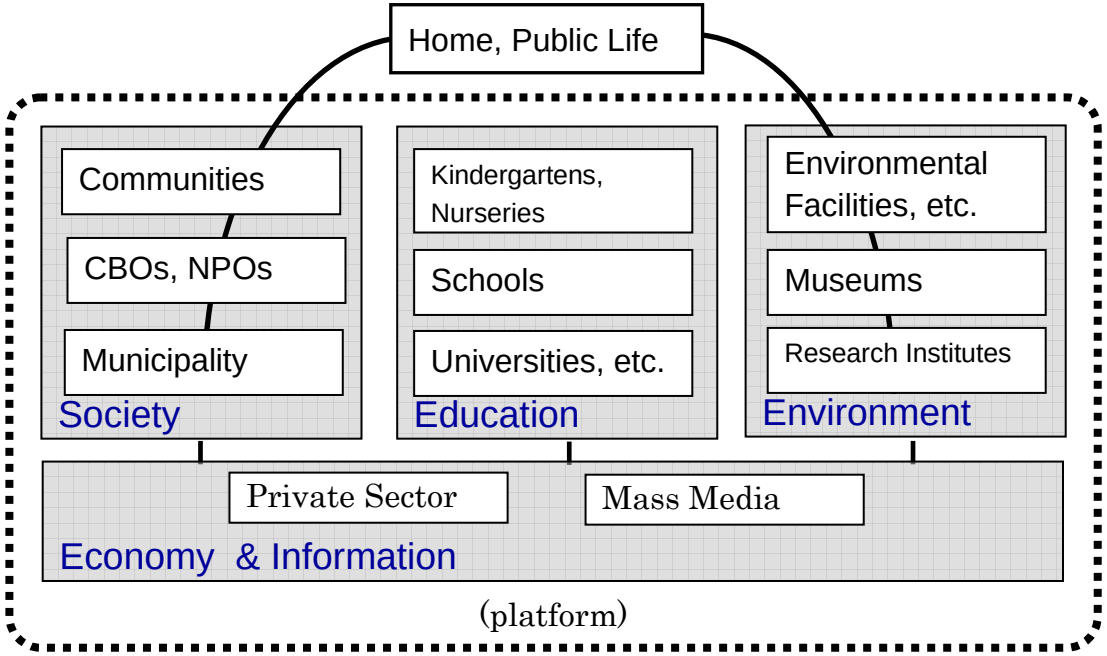
Coal Energy Application for Gas, Liquid and Electricity (EAGLE)

☑Enable high energy efficiency

☑Reduction of CO_2 emissions to 2/3

Kitakyushu ESD Council

ESD: Education for Sustainable Development



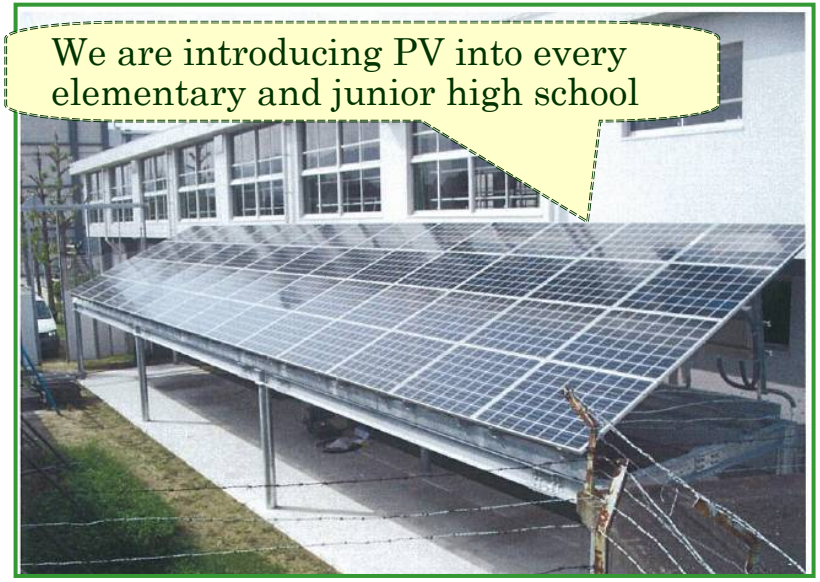
RCE (Regional Centre of Expertise) certificate from by United Nations University

Environmental Textbooks for Students from Kindergarten to Junior High School

Children's Environmental Activity

Overall Learning System on Sustainable Development

Centre of the System
Environmental Museum & Eco-House



Photovoltaic Generation at School

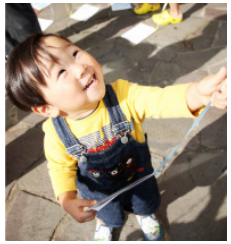
Citizens' Planting Trees

Sone Tidal Flat & Rare Living Creatures

Kitakyushu Eco-Life Stage

Mobilizing Citizens for Sustainable Development & Enhancing Quality of Life

Citizens preparing the “stage” for a presentation on environmental activities.
Through the exchange of information, environmental awareness and actions are being promoted.



Participants: 150,000 people / 2 days

Eco-Lifestyle

Towards a Comfortable and Low Carbon Emission Society

Carbon off-set to fireworks with light-down at summer festival operated by the Junior Chamber International Kitakyusyu , in cooperation with citizens

Eco-cooking promoted by citizens' group

Institutional Arrangement for a Sustainable Society

- ☑ **Kitakyushu Ordinance on Environment**
- ☑ **Kitakyushu Environmental Council** (Citizen, University, Industry, Local Government)
- ☑ **Eco-Point System for Reducing Waste and CO_2**
- ☑ **Subsidies for Citizens' & Citizen Groups' Activities**
  - Recycling of Waste Paper with Children's Groups
  - Introducing Home Composting System
  - Installing of Photovoltaic Generation In Homes
  - Advanced Activities for Creating a Low Carbon Society
  - Nature Conservation Activities, and etc.
- ☑ **Subsidy for Industrial Sector's Activities to Reduce CO_2**
- ☑ **Seminar on Eco-Action for Small- & Medium-Sized Companies**
- ☑ **Subsidy for Technological Research & Development**
- ☑ **Conference on Eco-Industry Promotion**
- ☑ **Kitakyushu Interdependent Business Consortium for Sustainable Development (KICS)**
- ☑ **Monitoring of Industrial Sector's Activities**
  - Spot Inspection
  - Reporting System on Consumption of Fuels, etc.

Institutional Arrangement for a Sustainable Society

Systems on transferring emission sector funds to the reduction sector

☑Eco-Point System for Reducing Waste and CO_2

Resource: Private Enterprises' Budget

Eco-Point: Equivalent to 2.5 Yen/ "My Bag"

☑Subsidy for Technology Research & Development

Income: City's Environmental Tax (Special-purpose tax) on Industrial Waste

Reclamation: 1,000yen/ton

Subsidy: Private Enterprise, Research Institutes

Object Fields	Subject	Ratio of Subsidy	Maximum
Feasibility Study	Companies in Kitakyushu or Companies in collaboration with Companies in Kitakyushu	1／3 or 2／3	2 million yen
Practical Research	Research Institutes in Eco-Town Area in Kitakyushu		20 million yen
Social Study	Companies in Kitakyushu or Companies in collaboration with Companies in Kitakyushu		2 million yen

Kitakyushu Conference for Eco-Model City

Number of Members: 400 Organizations & Groups

Multi-Stakeholders' Organizations, including Citizens, Industrial Sector, Academia, and Local Government.

Steering Committee:

Kitakyushu Hygiene Association

Kitakyushu Women's Group Association

Junior Chamber International Kitakyushu

Kitakyushu Prosperity Enrichment Council (KPEC)

Kitakyushu Foundation for the Advancement of Industry Science and Technology (FAIS)

Kitakyushu Citizens' Activities Support Center

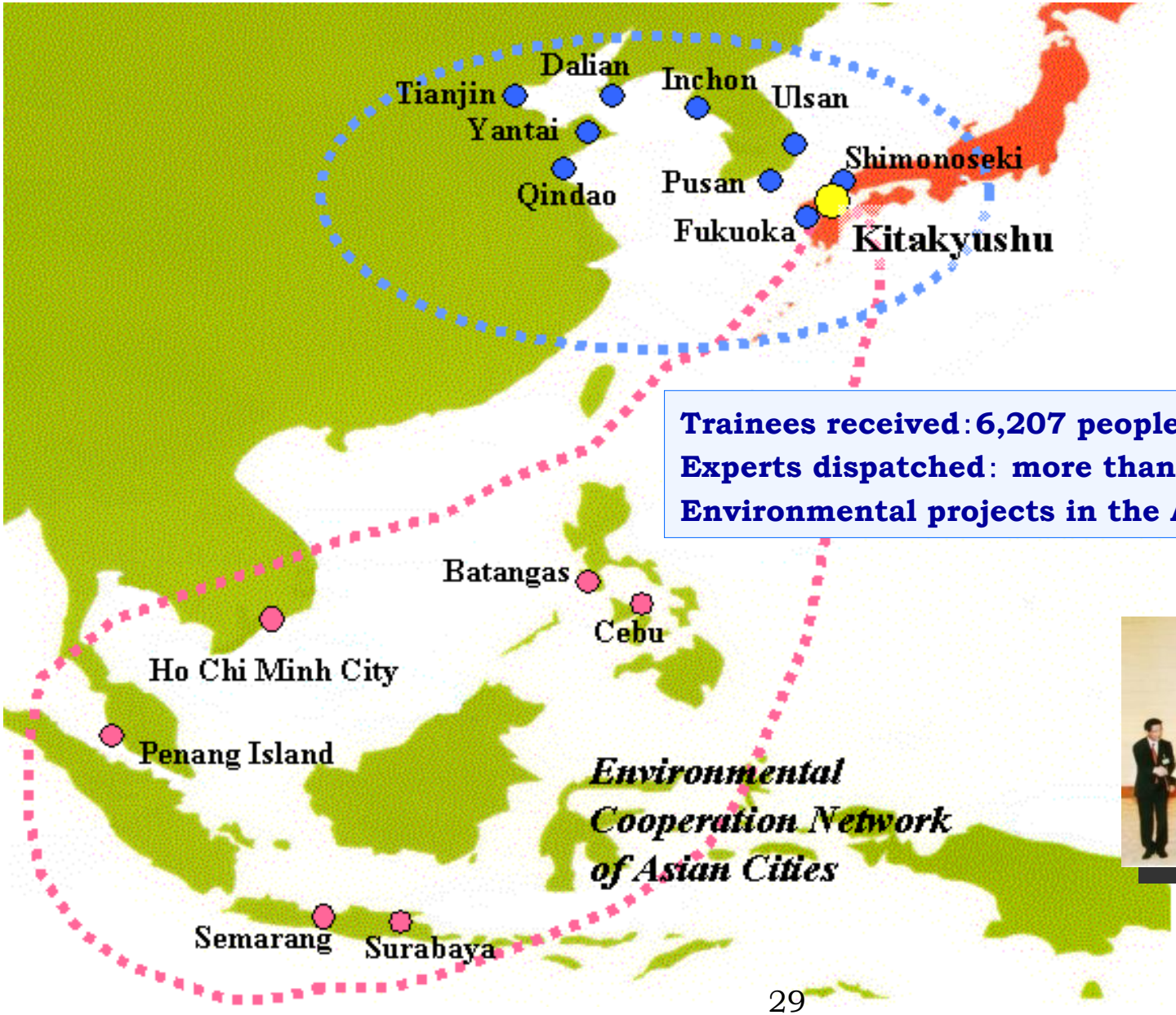
Trade Union Federation （Fukuoka・Kitakyushu）

Kitakyushu Chamber of Commerce and Industry

City of Kitakyushu

One step will spread to local communities and influence cities to change Japan and world communities into a Sustainable Society.

City to City International Environmental Cooperation



Trainees received：**6,207 people from 138 countries**
Experts dispatched：**more than 200 people**
Environmental projects in the Asian region, etc.

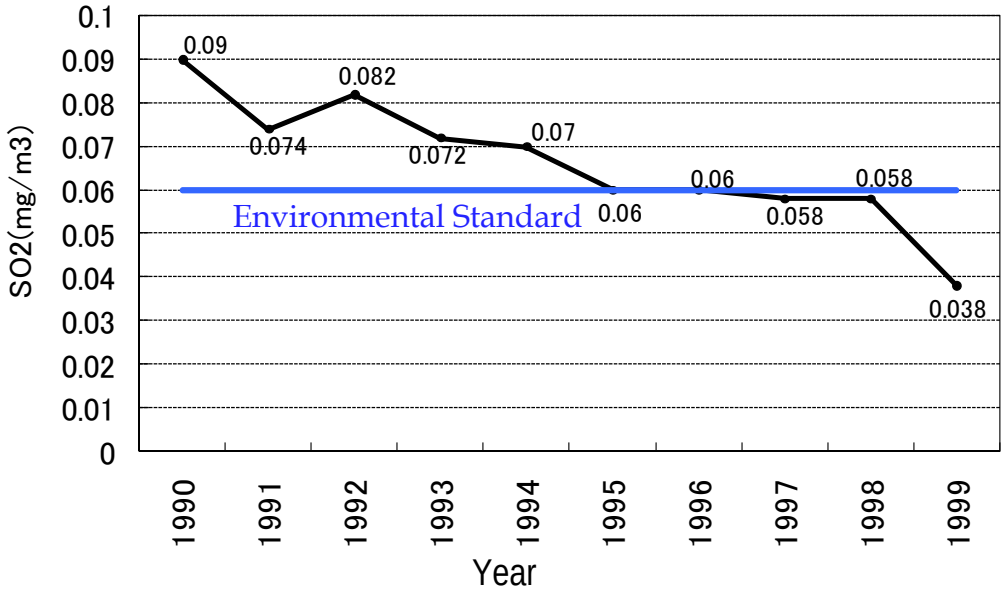
Cooperation on Eco-Town Project in China

Environmental Improvement in Dalian, China

The City of Dalian received the Global 500 Awards in 2001

1994

Present



Community Development and Solid Waste Management: Composting in Surabaya City, Indonesia

Environmental pollution
at landfill site (before)

Compost of solid waste

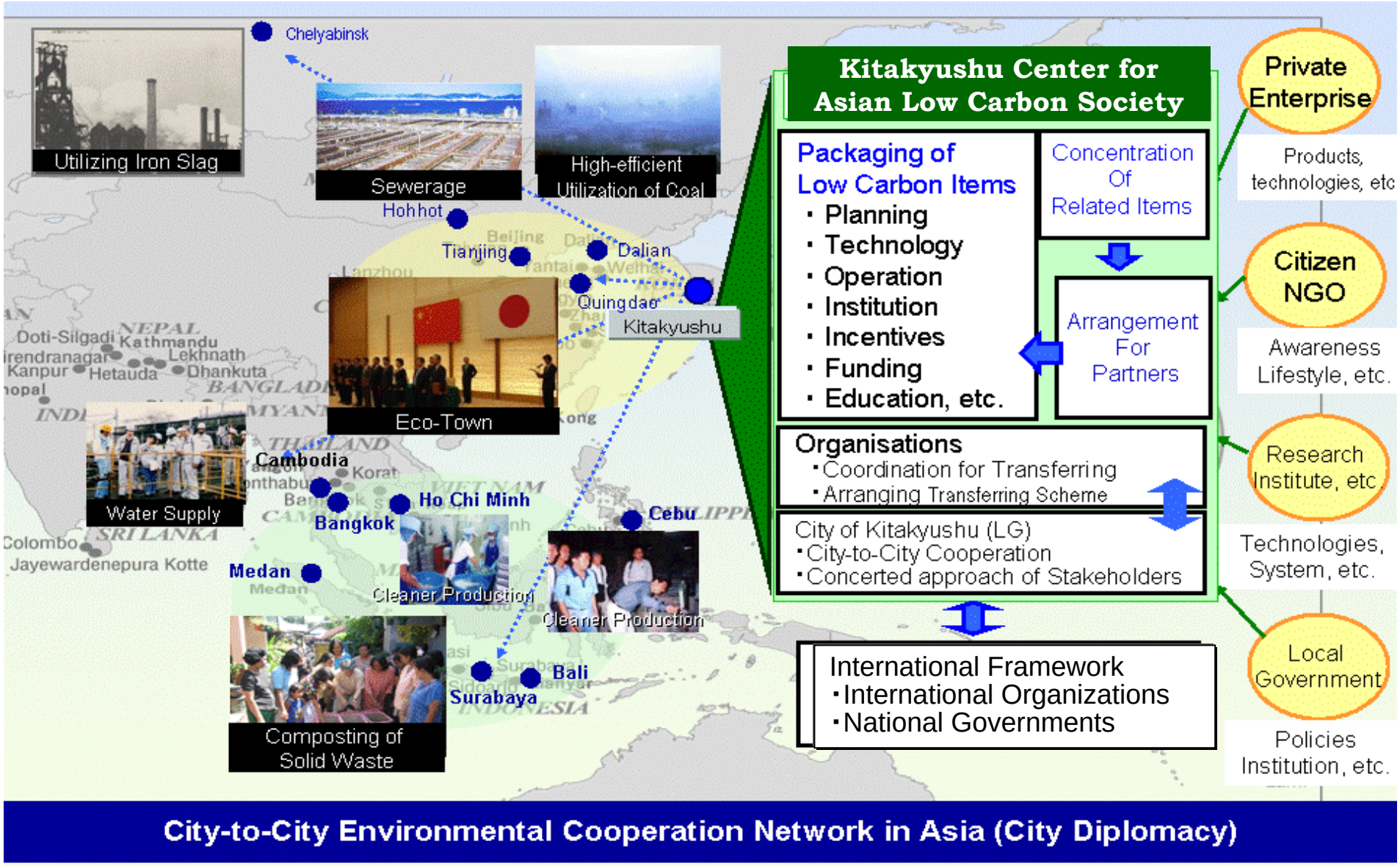
Expert from Kitakyushu instructs how to make compost in a community.

Composting Project in Surabaya, Indonesia
spreading to 20,000 households as well as other cities and countries.

Water Supply Improvement in Phnom Penh, Cambodia

Water Supply Efficiency: 28% in 1993 → 92% in 2006

Kitakyushu Center for Asian Low Carbon Society



Sustainable Society

Your willingness and actions will shape the future and save the human race and the earth.

We Can Create a Sustainable Society Together!

For further information, please contact:
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