

Protecting Global Environment

International Cooperation

among Cities in the Asian

Region

City of Kitakyushu



China

Tokyo

Kitakyushu

Shanghai

500km

1000km

Thailand

Viet Nam

Cambodia

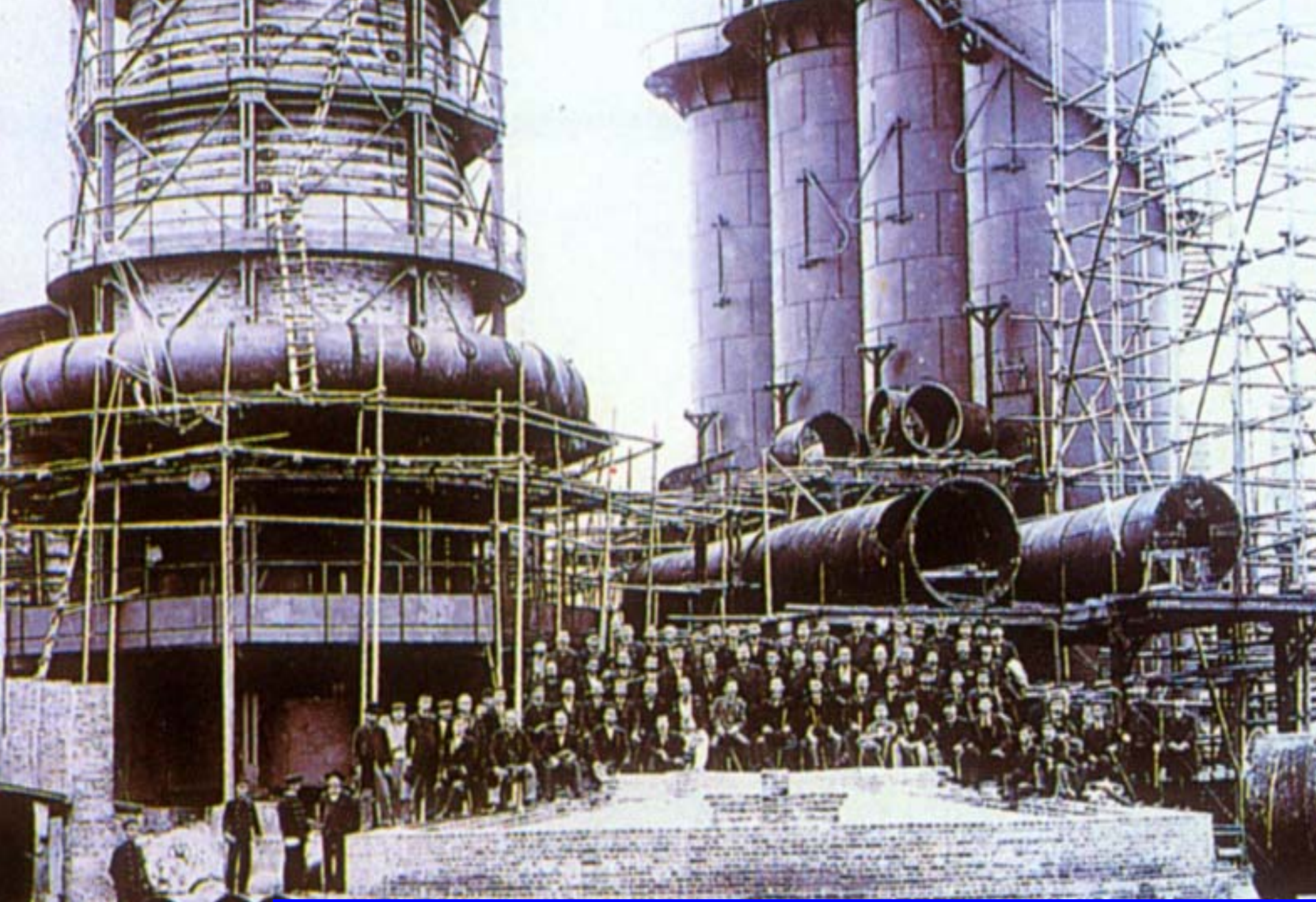
Philippines

Malaysia

Singapore

Indonesia

Kitakyushu and Asia



1901 Opening of Industry in Kitakyushu



(COB) 1.14 mg/l (COD) 100 mg/l (Dustfall) value 8000 g/m²/mo.



(COB) 0.14 mg/l (COD) 10 mg/l (Dustfall) value 700 g/m²/mo.

Environmental Pollution in 1960s



Recovered Sky and Sea at



(COB) 35.8 mg/l



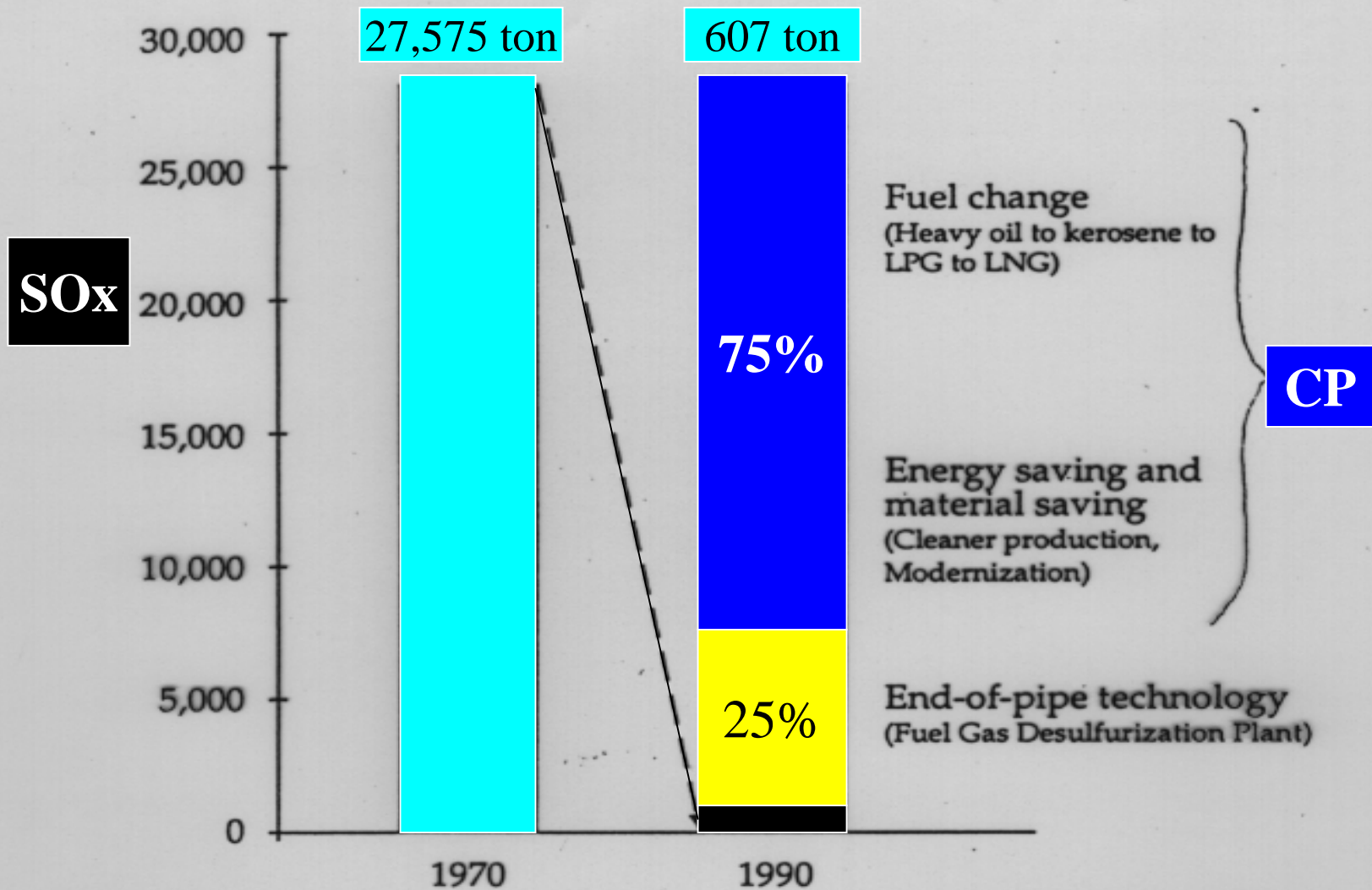
(COB) 0.8 mg/l

Cleaner Production (Win-Win)

- More Efficient Productivity with Economic Benefits and Environmental Achievement
- Assessment and Improvement of
 - Raw Materials Utilization
 - Production Process
 - Maintenance
 - Personnel (TQC campaign)
- Role of CP in Reducing Pollutants by 75 %
- Asian countries are introducing CP.

Role of Cleaner Production in Reducing Pollutants, Selected Years

(A) SO_x Reduction, S Steel, Kitakyushu

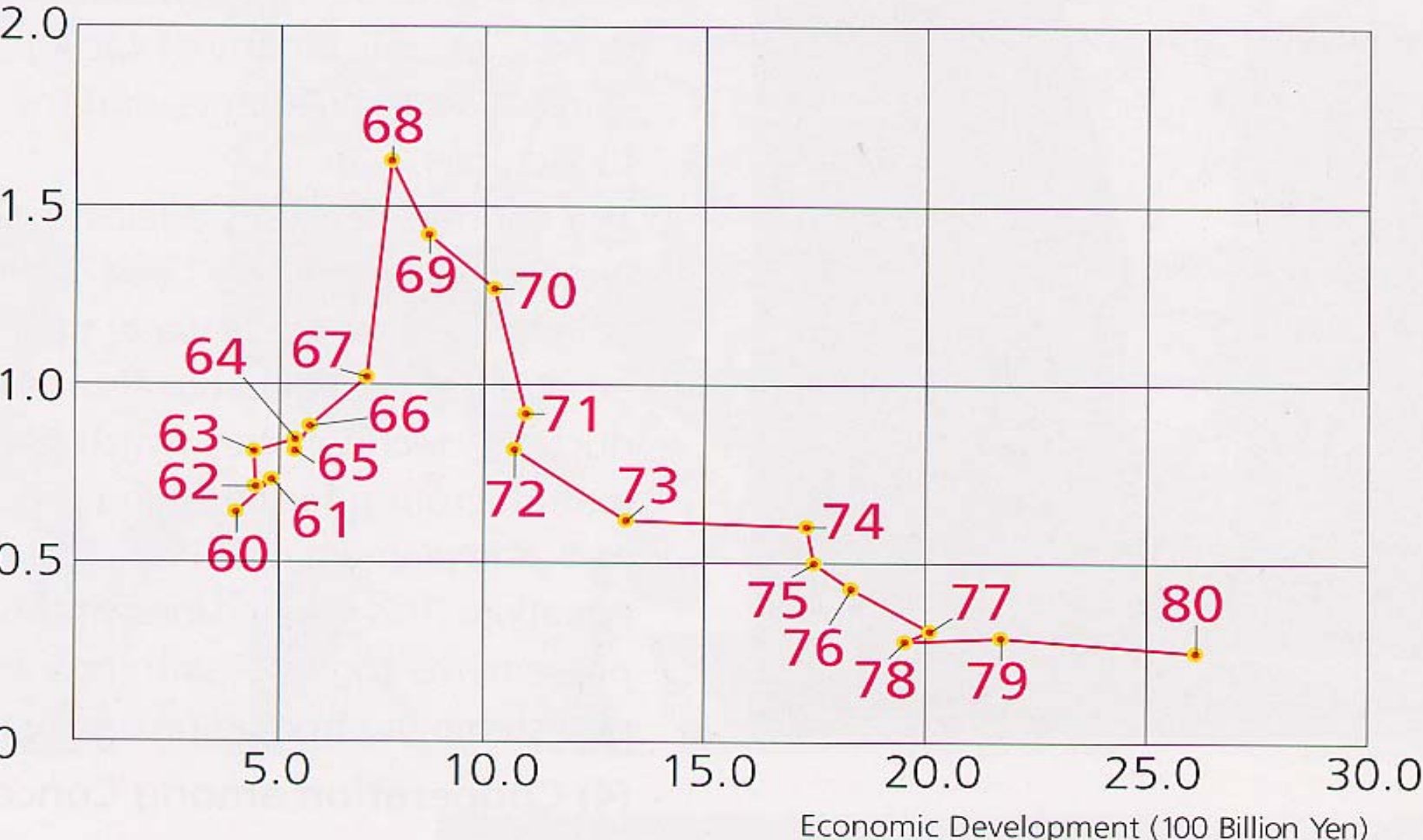


Source: Imai, S. Undated. *Features of Pollution Control in Japan*. Tokyo: Japan International Corporation Agency.

Economic Development and Environment

(figures in graph = choose one years e.g. 1960)

Environmental Pollution (mg-SO₃/100cm²/d)



Evaluation of Cleaner Production in the Steel Industry (For 4 years)

Investment in Plant

<u>Investment</u>	<u>US\$ 158 million</u>	
Energy Saving	70 %	
Benefits	Environmental	70% reduction of pollutant
	Economic	US\$ 145 million

Operation Effort

Investment	None	
Energy Saving	14 %	
Benefits	Environmental	14 % reduction of pollutant
	Economic	US\$ 46 million

Total Benefits

<u>Environmental</u>	<u>84 % reduction of pollutant</u>
<u>Economic</u>	<u>US\$ 191 million</u>

Yawata Works of Nippon Steel

- **Development of the OG Method**
 - Using of waste gas (2000 kcal/m³) from production process as an energy resource
- **Recycling of wastewater**
 - Recycling Rate: 99 %
- **Reclamation of waste acid and recovering metal resources.**
- **Introduction of TQC**
 - Human Development for Best Quality Control

Case 4 Kitakyushu Eco-Town ~ *Zero Emissions*



Practical Research Area

Hibiki Recycling Area (HRA)



Case 5 Electricity from Waste Incineration

- Heat generated from solid waste incineration plant can be used for electric power plant.
- Energy efficiency reached 30 %.
- Economic benefits from 3 plants in Kitakyushu total approximately US\$ 7.14 million.
- Remaining heat is being used for regional heating system.

International Environmental Cooperation



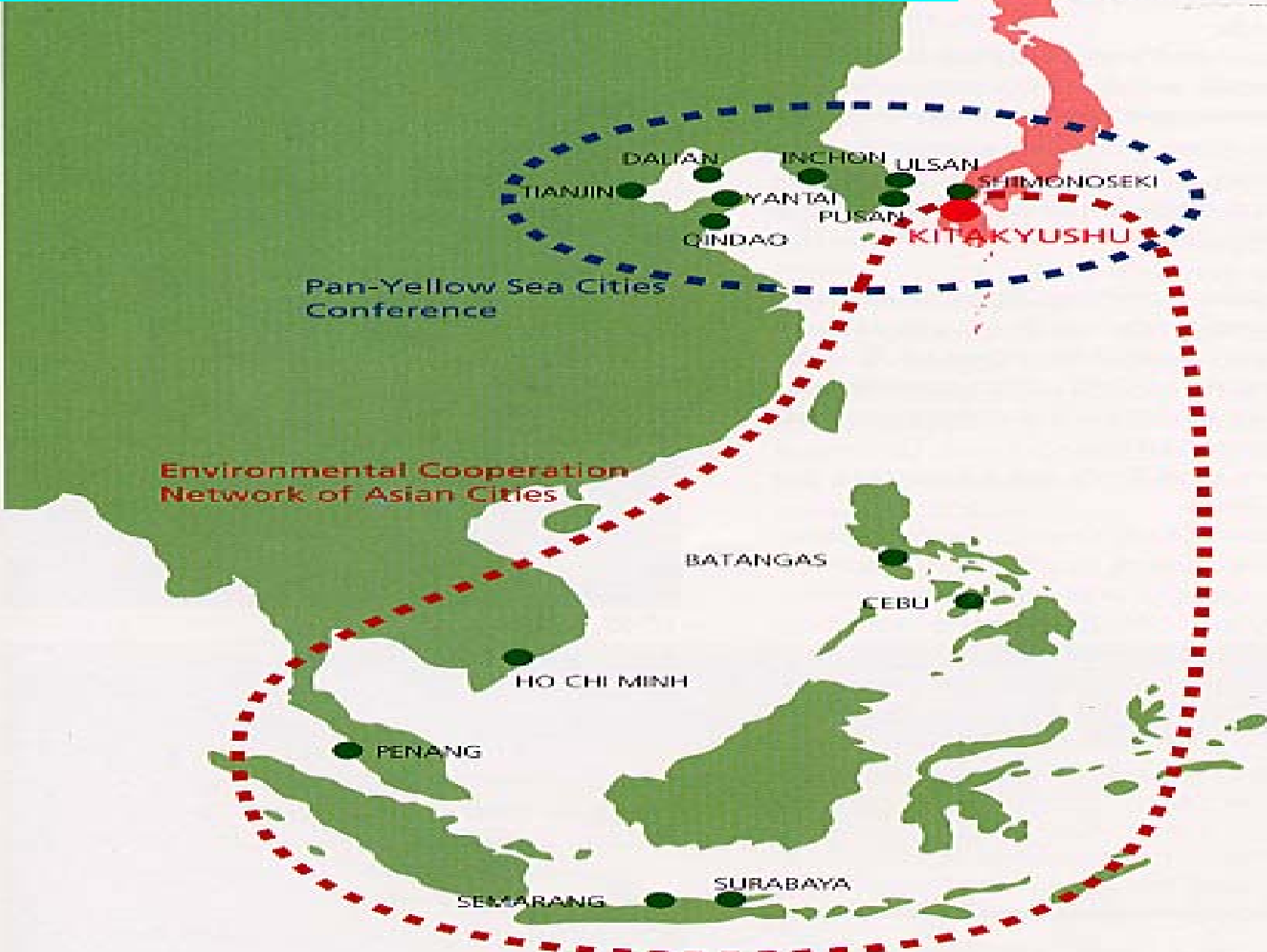
Trainees Received : 142 countries 3,158 people

Experts Dispatched : 24 countries over 200 people

Participating in International Cooperation

- Kitakyushu City Government
- JICA/KIC
- **KITA**: Kitakyushu International Techno-cooperative Association
- **ICSEAD**: International Centre for the Study of East Asian Development
- **KFW**: Kitakyushu Forum on Asian Women
- **IGES**: Institute for Global environmental Strategies
- Universities & NGOs
- International Organizations
- National Governments
- Private Companies over 200 in total

Environmental Cooperation Cities Network



On-going Cooperation Programme

- **Dalian, China**

Dalian Environmental Demonstration Zone (Master Plan)
Feasibility Study (ODA) on CP into Factories

- **Ho Chi Minh City, Vietnam**

Environmental Governance & CP Introduction
Frozen Seafood Factories

- **Metro Cebu, Philippines**

Environmental Partnership & CP Introduction
Ceramic Factory and Food Factory

- **Surabaya, Indonesia**

Solid Waste Management
Resource Recycling

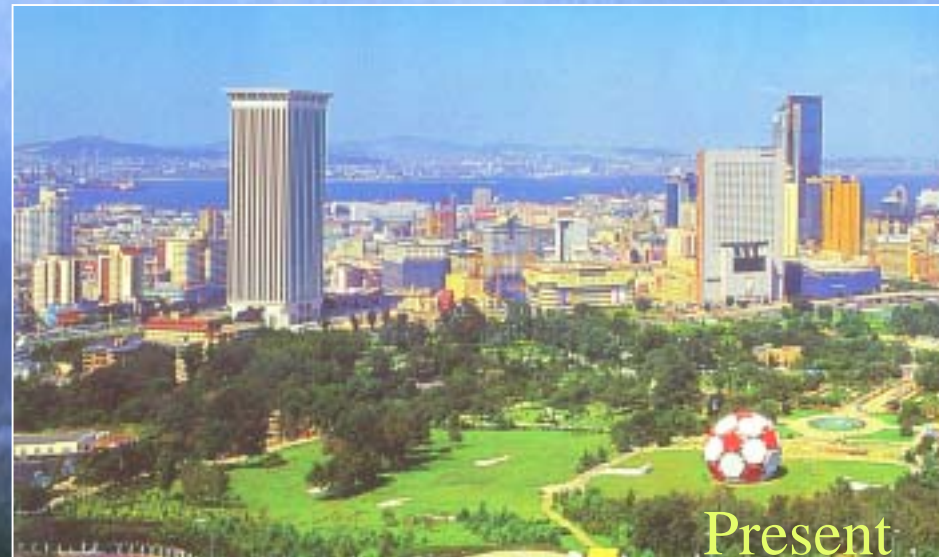
- **Semarang, Indonesia**

Community Based Sustainable Development
Food Factories

- Concentrating Resources on a Model Project
- Achieving Sustainable Development
- Target : *Kitakyushu's Environmental Level by the Year 2010*
- Successful Approaches Transferred to Other Cities in China



1994



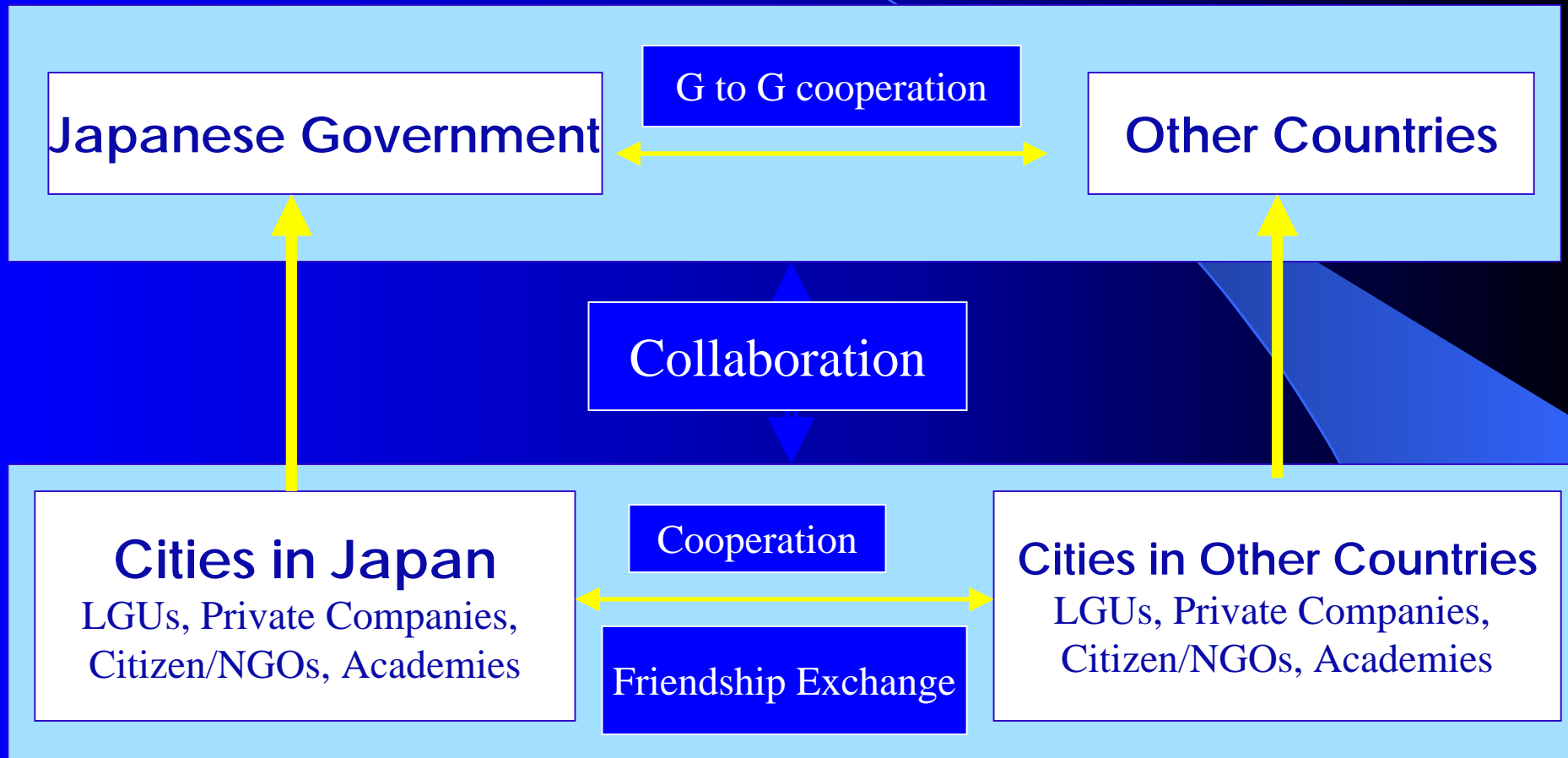
Present

Dalian Environmental Demonstration Zone

Proposed by Kitakyushu City to the Government of China in

1992

Collaboration between City-to-City Cooperation and ODA



- Creating an Environmental Master Plan (JICA + Kitakyushu)
- Simulation of Pollution, Environmental Monitoring, F/S on Important Projects
- Yen Loan (IBIC) and Follow Up Activities by Kitakyushu City



Signing of Scope of Works of Development Study: JICA, Dalian, Kitakyushu

Reduction of Energy Use (GHG)

CP Introduction into Some Factories

Iron & Steel :

Electric Power: 76 million KWH/year

Heavy Oil: 8,400 tons/year

Cement

Electric Power: 3.2 million KWH/year

Chemical

Electric Power: 200 million KWH/year

Ho Chi Minh City, Vietnam

Environmental Governance & CP Introduction





Frozen Seafood Factory

CP: 50% reduction of wastewater achieved

GHG: CO_2 , CH_4 , ...



- **Ho Chi Minh City, Vietnam**

**Environmental Governance & CP Introduction
City-to-City + JICA(Experts & Training)**

Metro Cebu, Philippines

Environmental Partnership & CP Introduction

Long-term & Leading Project

Creating a Common Environmental Vision among Stakeholders

Environmental Management Capability (Governance)



Outcome of Project as of March 2001

1. Proposal and Implementation for CP

Two Factories have introduced CP and have made some achievements.

2. Making Consensus among

DENR, LGUs, NGOs, Private Companies

Strengthening Environmental Partnerships with a common vision

3. Cooperation of Local Governments and Donors such

as JBIC & JICA

Example: Implementations of CP at Ceramic Factory

Reduction of Water Consumption

- Increased awareness at any level of employee
- Monitoring at any time
- 20 % reduction of water consumption

Reduction of excess cake at forming process

- Adjustment of thickness of clay before forming
- By arranging 12 kinds into 3 groups
- Reduction of excess cake: 40 ~ 50% 25 ~ 30%
- (Improvement of production: increased profits)

CP: Wastewater 20% Reduction
Excess Sludge 50% Reduction

GHG: CO₂

Surabaya

Solid Waste Management: Reduction and Recycling
GHG: CO₂, CH₄, ...



Kampung Improvement Programme (KIP) Community Participation and Environmental Improvement





Semarang City, Indonesia

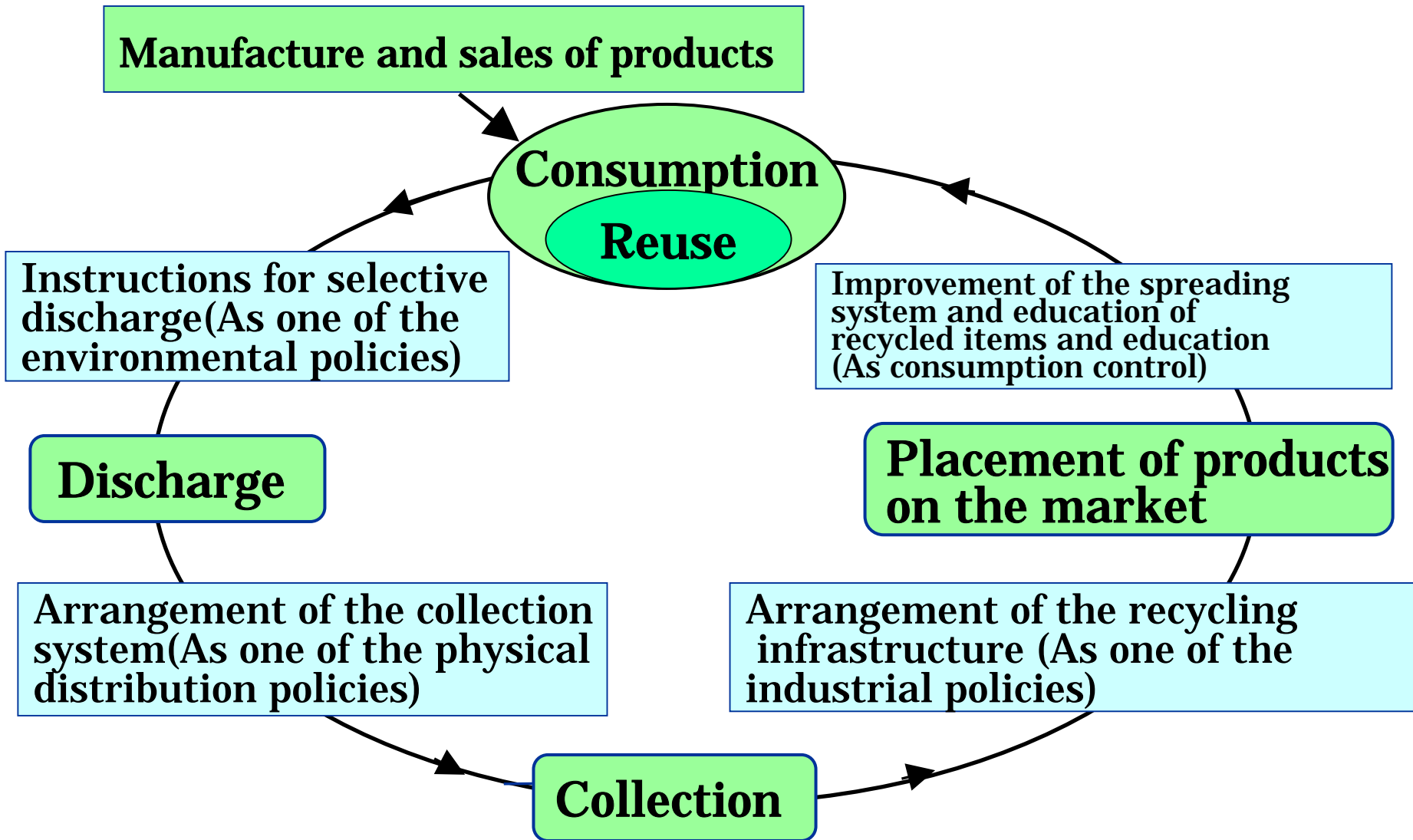
Community Based Sustainable Development

CP: small and medium scale industries

GHG: CO₂, CH₄, ...



Kitakyushu City - KITA(NGO) - BUNTARI(NGO) – Semarang City
Environmental Seminar Organized by NGOs in Semarang, Indonesia
Citizens from Kitakyushu City participated in this seminar.



Relationship between Resource Recycling and the Role of Local Government

Framework of Better Environmental Management in Metro-Cebu with Common Vision

Establishing Better Partnerships
More Feasibly & Effective Policies

Government (Control & Support)

- National (DENR, DOST, etc.): Macro Policy
 - ▲ Decentralization of Authority &
 - ▼ Cooperation
- Local Governments: Needs and Implementation
 - ▲ Cebu, Mandaue, Lapulapu
 - ▼ Participation, Cooperation
- Citizen, NGOs** (Needs, cooperation)

Policy of giving incentives

- Providing Information and Technique: Manuals and Experts
- Providing Finance: Two-step loan, etc.

Policy of regulation/Control

- CP Certificate for Permission of Establishing Factories
- Improvement Plan in case of Violation
- Agreements, Ordinances, laws

Private Companies/Factories (CP Introduction)

- Owners/Managers: Decision-making
 - ▲ Proposal of Improvements
- CP Technical Manager (trained PCO, etc.)
 - ▲ Proposal of Improvements
- Workplace : TPM, Implementation

Requests & Proposals

- Necessary systems and technologies
- Disclosure of Information**
 - CP: issues & improvement
 - Joint improvement

Philippine Development Bank, etc.

- Providing soft loans for environmental improvement, etc.

PCAPI: upgrading role and status

- Sharing information and promoting CP
- Training, consulting, etc.

Universities and Research Institutes

- Development and guidance of technologies
- To make manual and evaluation methods

Regulation of CP control
Seminar, etc.

Joint Development of CP Manuals
Evaluation of improvement plans

Supporting to make
CP proposals

CP Technical Assistance
in cooperation with
Governments and PCAPI

Promoting Cooperation

Integration of assistance and cooperation programme for promoting CP
Financial Assistance+Policy Cooperation+Technical Cooperation

Other donors
Technical assistance, etc.

Kitakyushu City (government,
companies, NGO, research institutes)
Following up and collaboration with
JBIC's projects

JBIC, JICA
• Technical and Financial Assistances
• Providing related software
in collaboration with
Kitakyushu City, etc.