



Future City Kitakyushu

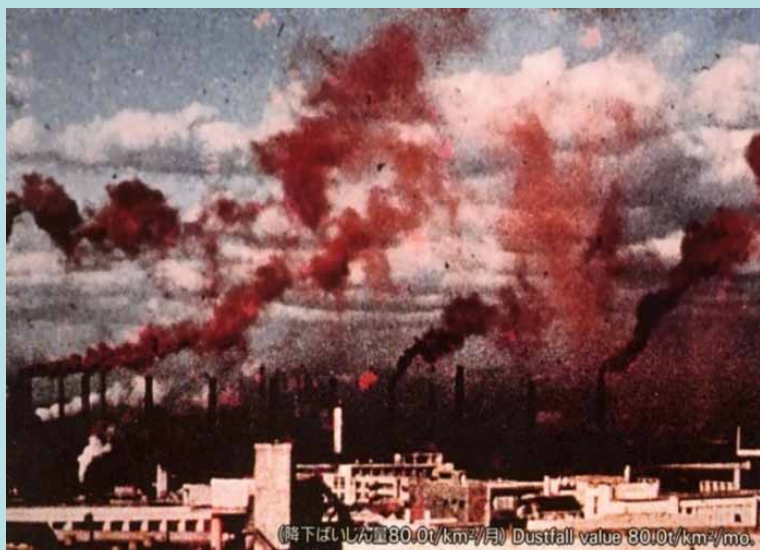
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Creating Green Cities in Asia through Intercity Cooperation

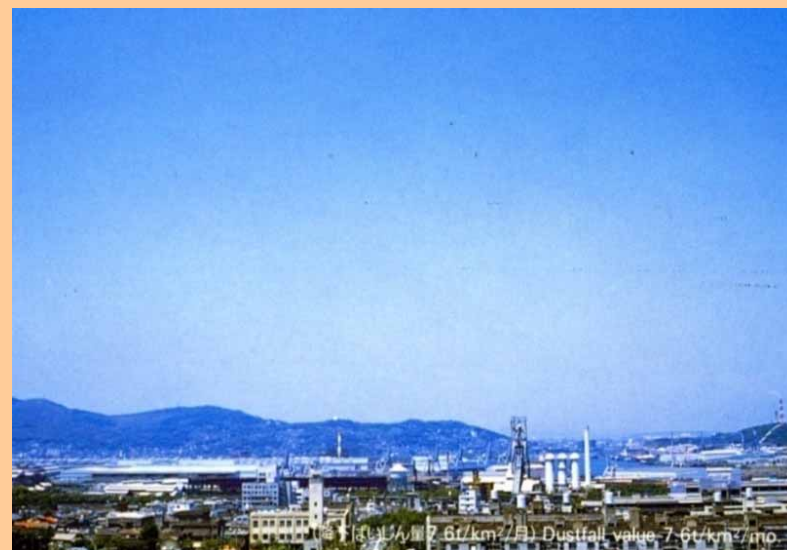
City of Kitakyushu

Overcoming Severe Pollution: Kitakyushu's Experience

1960s



Today



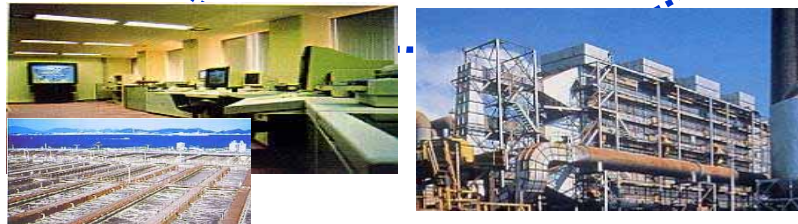
Factors of environmental improvement

Environmental pollution control is started by initiatives of citizens' groups, and conquered by measures taken in cooperation with enterprises, universities and administration. Throughout energy saving done by enterprises achieve both pollutant discharge elimination and production cost reduction (economical development and environmental conservation).

Citizens



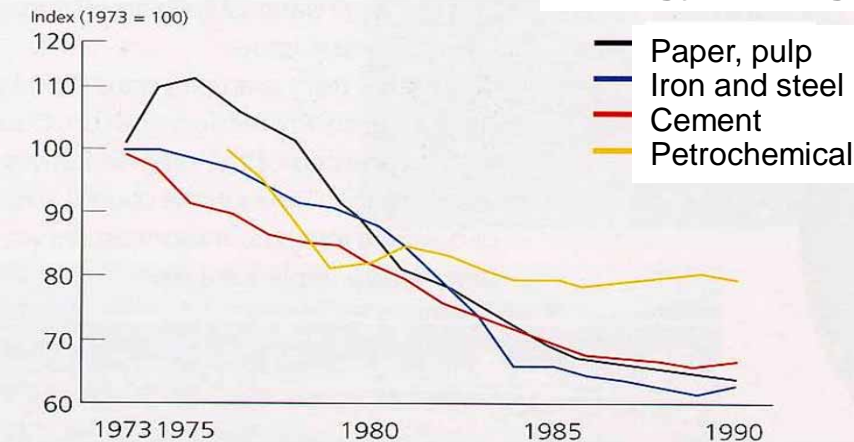
Partnership



Local self-governing body

Private enterprise

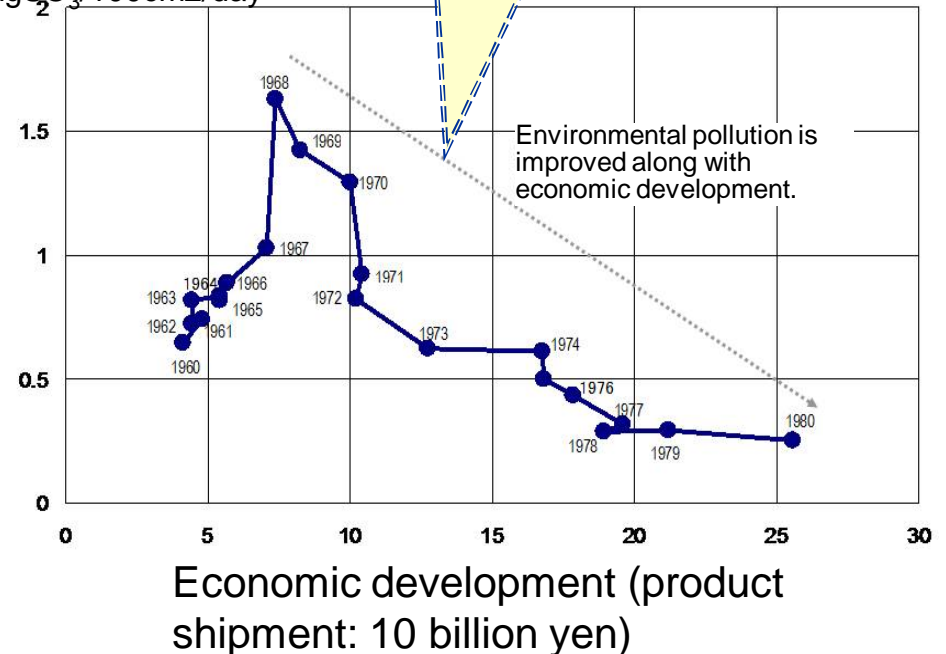
Energy consumption per production unit



Technology where environment is compatible with economy is useful in Asia

Environmental pollution (sulfur oxide)

mgSO₃/100cm²/day



Source: World Bank MEIP
"Experience Inspection of Japan"

Why Intercity Cooperation?

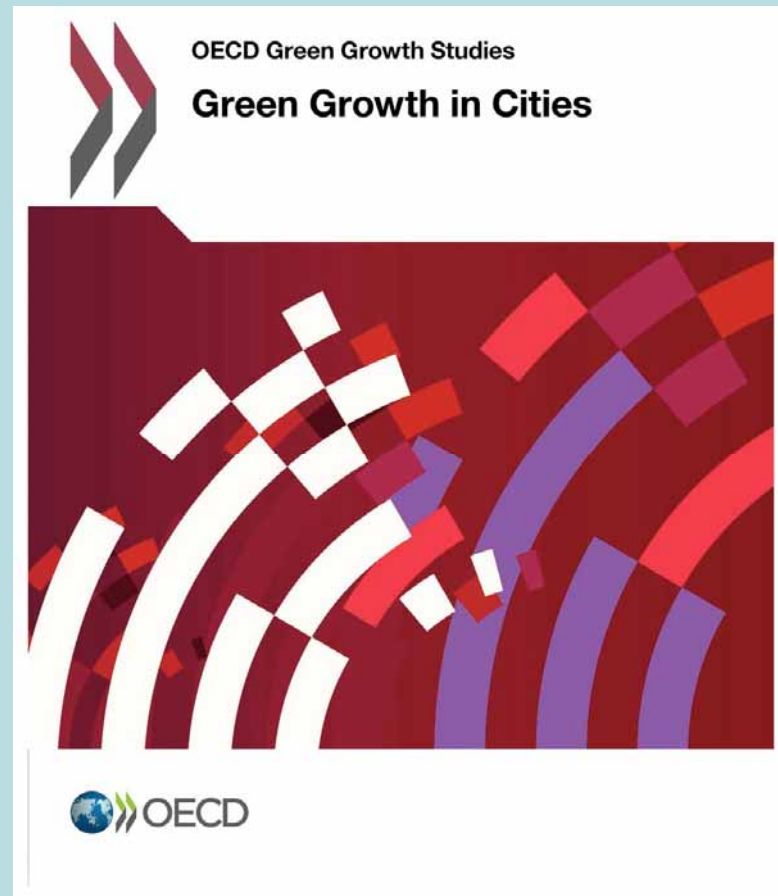
Building friendly relationships with Asia by taking advantage of our experience in overcoming pollution



Selected as a Green Growth City by OECD

Together with Paris, Chicago, Stockholm!

Joint report on four cities



No. of trainees to Kitakyushu: 8,207 from 156 countries

No. of experts sent overseas: 192 to 25 countries

(As of the end of March 2016)

Promotion of environmental improvement projects

G7 Kitakyushu Energy Ministerial Meeting



G7 Kitakyushu Energy Ministerial Meeting May 1-2, 2016, Kitakyushu Japan



Kitakyushu Initiative on Energy Security for Global Growth Joint Statement

- Energy Investment for Global Growth
- Nuclear Energy and Safety
- Innovation and Development of Energy Technologies
- Gas Security
- Cyber Security ,Electricity Security

Kitakyushu Asian Center for Low Carbon Society

Center established as engine for green growth activities

Concept : Developing interactions that place value on the relationship between cities and that will help Japan gain respect from international society in order to contribute to the creation of green cities in Asia



**Compile the experiences and know-how of the city from the process of overcoming pollution and becoming an environmental city in order to
Create the “Kitakyushu Model”**

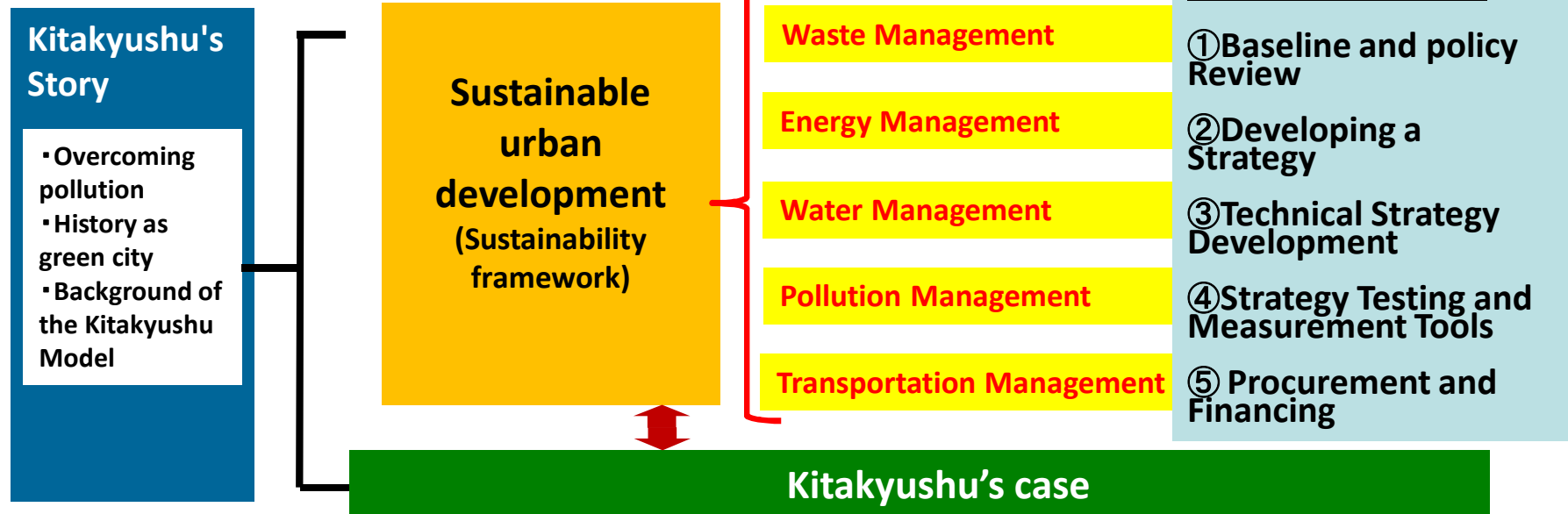
**141 projects in cooperation with 106 Japanese companies and
universities in 57 Asian cities**

Exporting Green Cities Using the Kitakyushu Model

- Create the “Kitakyushu Model,” which is a systematic compilation of the technology and know-how of the city from the process of overcoming pollution to becoming an environmental city.
- Support tools to create sustainable green cities that integrate waste, energy, water and sewage, and environmental protection.

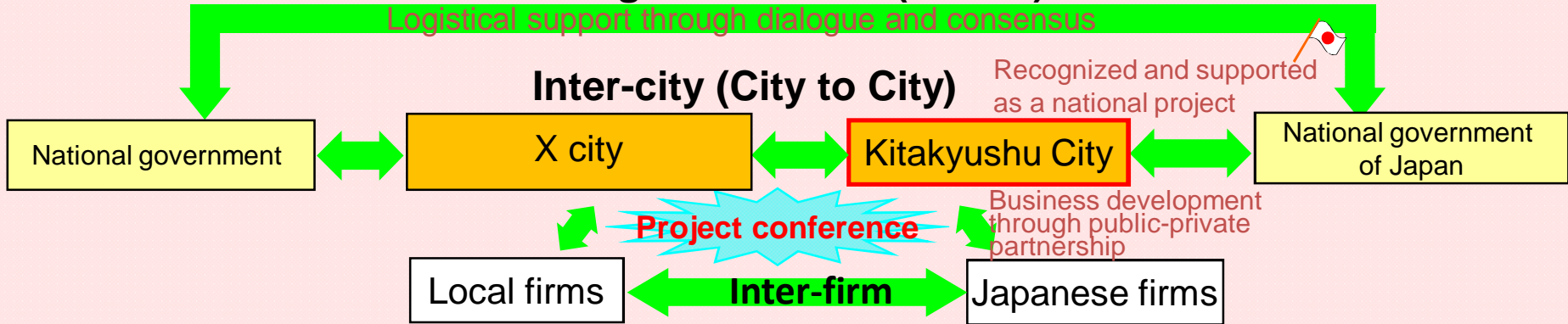


— Organization of the Kitakyushu Model —



Development Scheme for Exporting Green Cities

Inter-governmental (G to G)



Green City Master Planning

(Development of a comprehensive environmentally-friendly urban master plan)

Application of Kitakyushu Model



Social Platform Formation

Capacity building to enhance the foundations to develop the capacities of the government, citizens, and technology




Cross-border Infrastructure development


Kitakyushu's Involvement in Large-Scale JCM Project Development


Promotion of low-carbon development of entire cities using intercity cooperation


 **Surabaya, Indonesia: 2nd largest city in Indonesia with a population of 3 million**
<FY 2013- 2015> Low Carbon City Planning Project in Surabaya, Indonesia
Target areas: Energy, waste management, transportation, water resources
Participating Japanese companies: 13


 Green Sister City agreement signed (Nov 2012)


 **Haiphong, Viet Nam: Major port city in Viet Nam with a population of 1.9 million**
<FY 2014-2016> Green Growth Promotion Plan of the City of Hai Phong
Target areas: Low-carbon city planning, energy, waste management, conservation of Cat Ba island
Participating Japanese companies: 10


 Sister city agreement signed (Apr 2014)

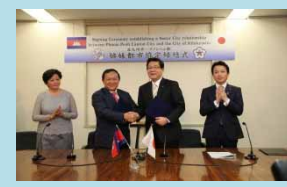
 **Iskandar, Malaysia: 2nd largest economic zone in Malaysia**
<FY 2014-2016> GHG Emissions Reduction Project in Iskandar
Target areas: Waste-to-energy, energy savings and industrial waste recycling in an industrial estate
Participating Japanese companies: 4

 Consultation with Mayor of Pasir Gudang City (Feb 2015)

 **Rayong Province, Thailand: Major heavy chemical industrial zone in Thailand with 2 large industrial parks**
<FY 2015-2016> GHG Emissions Reduction Project in Rayong Province
Target areas: Waste-to-energy project, energy savings, total recycling of industrial waste in an industrial zone Participating Japanese companies: 4

 MOU signed with Department of Industrial Works (Dec 2014)

 **Phnom Penh, Cambodia: Capital City of Cambodia with a population of 1.7 million**
<FY 2016> Action Plan for the climate change strategy in Phnom Penh Capital City
Target areas: Low-carbon city planning, energy
Participating Japanese companies: 4

 Sister city agreement signed (Mar 2016)

Green Sister City : Surabaya, Indonesia

International cooperation for composting household waste started in 2004



- ✓ 30% reduction of waste
- ✓ Streets decorated with flowers
- ✓ Improvement of public environmental awareness

Building a relationship of trust



“Green Sister City” agreement was signed in November 2012 between Surabaya and Kitakyushu

Exporting “Green City” to Surabaya

Development of a green city master plan

Comprehensive urban development plan that incorporates the formation of a social system and the training of human resources in urban development

**Reinforcing the foundation that is the source of growth
(local governmental strength, civic-mindedness, technological strength)**

Intercity Cooperation (Learning together/mutually enhancing & intensifying linkages/expanding cooperation)

Application of Kitakyushu Model

Kitakyushu City systematically arranges information on the technologies and know-how of Kitakyushu from its experience in overcoming pollution to its quest as an environmental city

Waste treatment



Maintenance/improvement of sewage systems



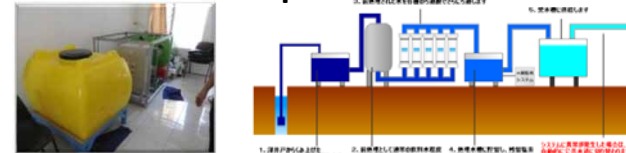
Export of green cities

Co-generation and energy saving



Studies on quantification techniques to reduce CO₂ emissions

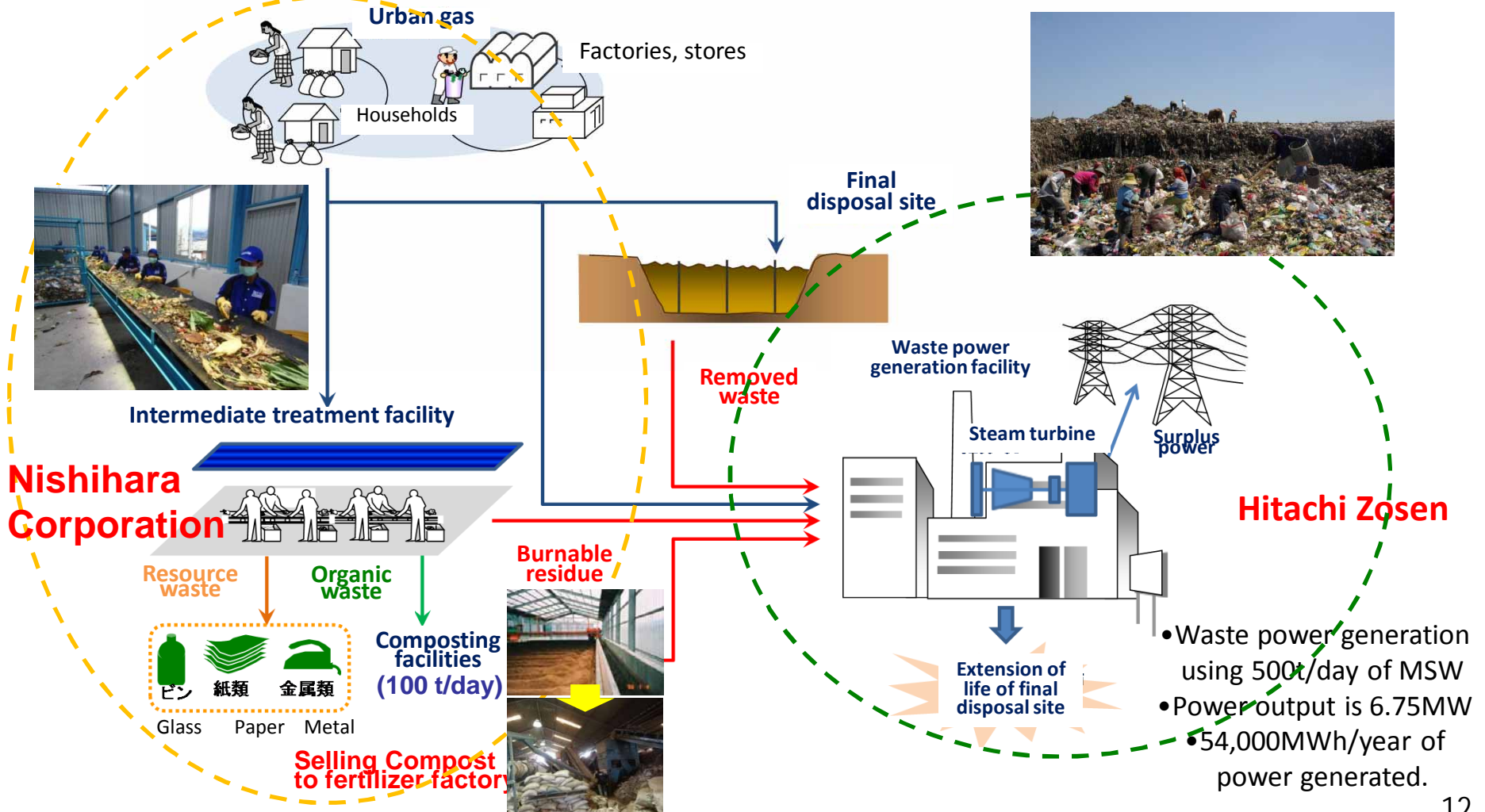
Purification of tap water



Intermediate Treatment Facility for Recycling & Power Generation from Urban Waste

Nishihara Corporation & Hitachi Zosen

- By combining high-calorie waste (Separation and composting of residue, waste removed by Nishihara Corporation) and general urban waste, it is anticipated that 500t/day of 1,500-2,000kcal waste can be guaranteed.



Energy Saving in Commercial Establishments

Introduction of High-Efficiency Air Conditioner System

This project was adopted as one of the financing program for JCM model projects in FY2015.

- ✓ Participating company: NTT FACILITIES, INC.
- ✓ Target: Tunjungan Plaza in Surabaya, Indonesia
- ✓ Business expenses: about 230 million yen

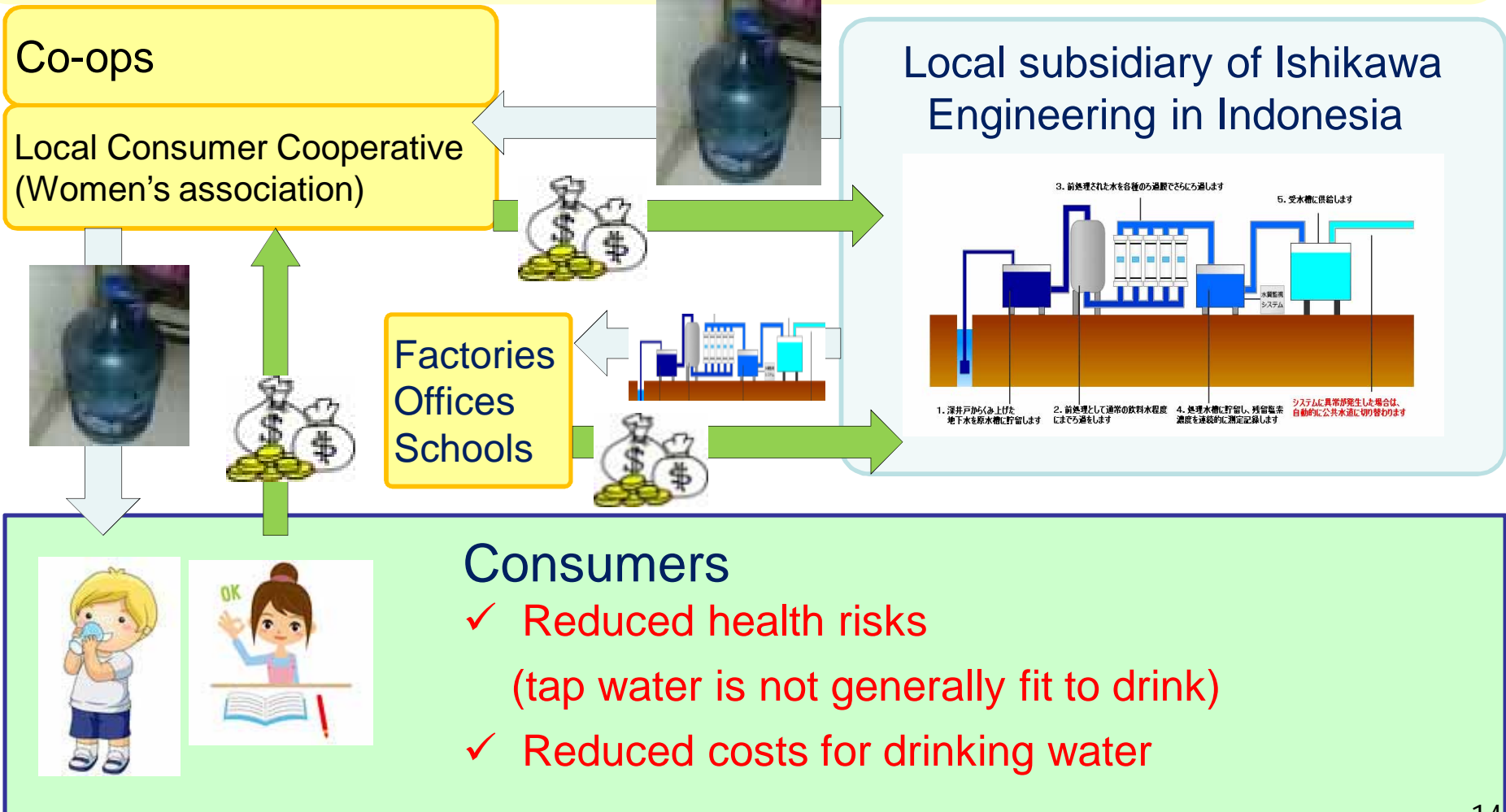


High-efficiency turbo, chiller, pumps, cooling towers, EMS

Drinking Water Supply

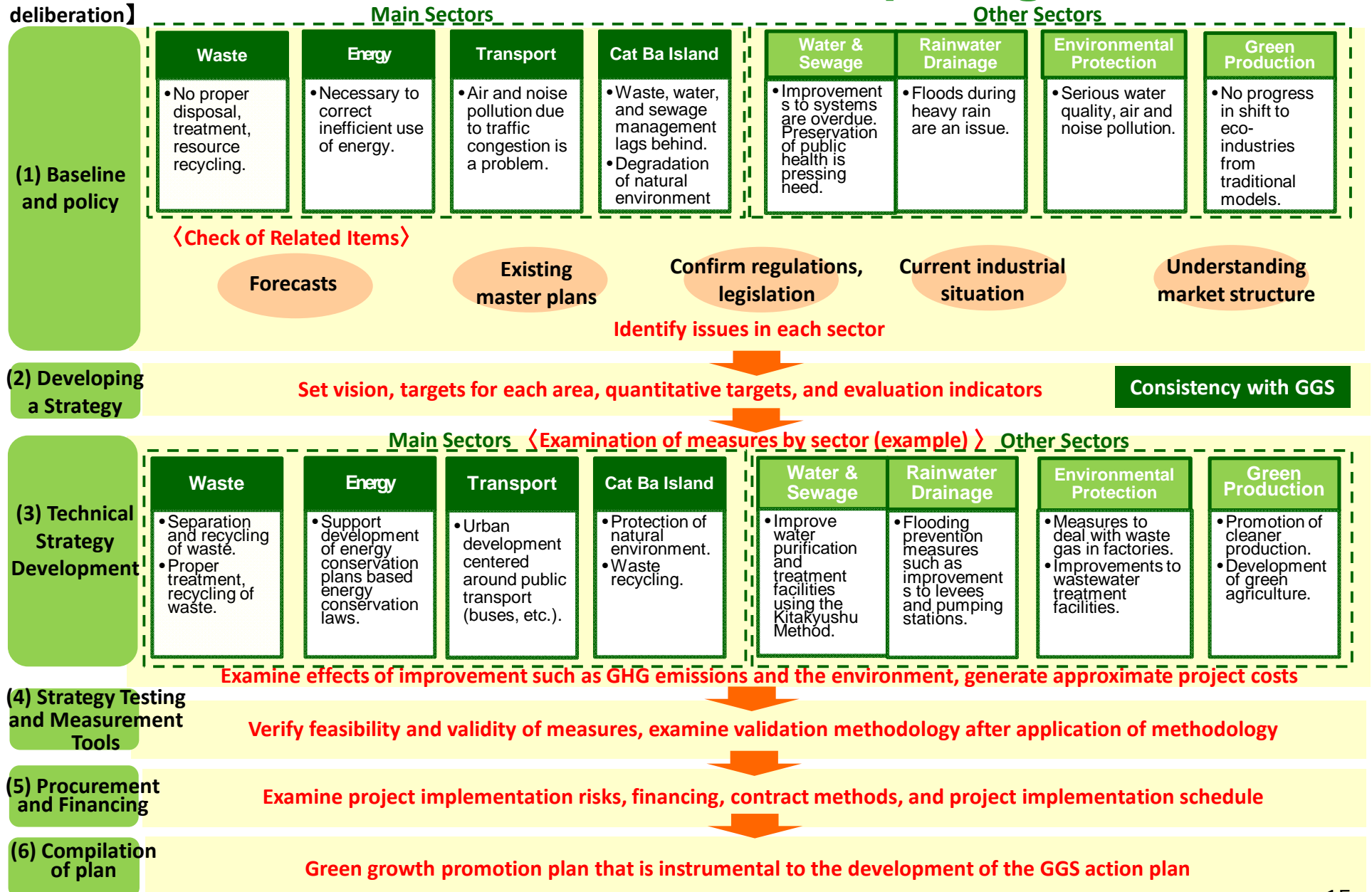
Ishikawa Engineering

Sale of inexpensive, good quality, and delicious drinking water through cooperatives (150) that are made up of local communities (women's groups)



Support for Development of Green Growth Promotion Plan in Haiphong





【Items under deliberation】



Hai Phong Green Growth Promotion Plan



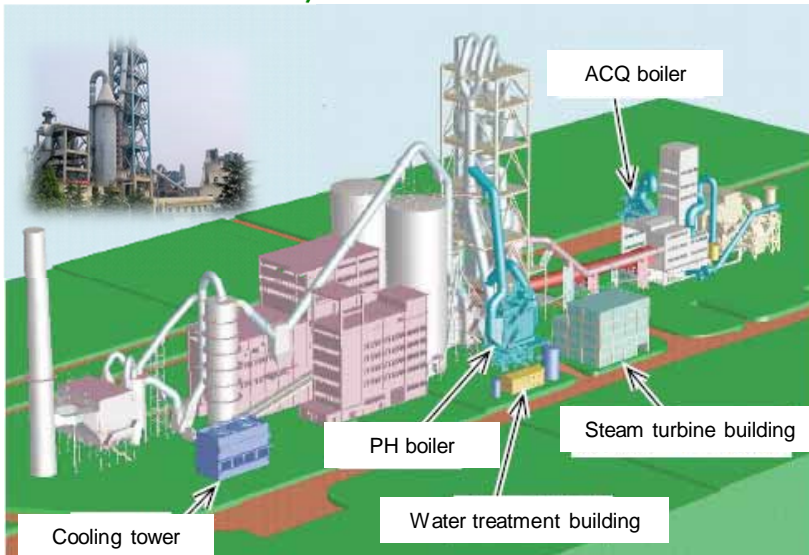
Promoting 15 Pilot Projects

Waste	① Separation and composting of household waste	
	② Waste heat recovery power generation & utilization of industrial waste	
	③ Recycling of e-waste	
Energy	④ Energy savings and introduction of decentralized energy systems in factories & buildings	
Transportation	⑤ Introduction of low-emission buses	
	⑥ Promotion of the use of public transportation	
Cat Ba Island	⑦ Development of comprehensive resource recycling system	
	⑧ Energy savings and introduction of renewable energy and EV buses in Cat Ba Island	
Water & Sewage, Rainwater Drainage	⑨ U-BCF expansion project	
	⑩ Handicraft village wastewater measures	
	⑪ Introduction of sewerage registry system	
Environmental Protection	⑫ Restoration of Tay Nam canal	
	⑬ Development of air and noise monitoring systems	
Green Production	⑭ Installation of high-efficiency furnaces in foundries	
	⑮ Promotion of green agriculture	

Creation of Eco-Friendly Cement Factory

Waste Heat Recovery Power Generation

- NTT Data Institute of Management Consulting, Kawasaki Heavy Industries
- Siam City Public Company Limited (Saraburi Province, Thailand)
- Adopted as FY 2016 JCM equipment subsidy project
- Project scale: ~JPY 2.29 billion (subsidy of JPY 580 million)



Horizontal expansion

Utilization of Industrial Waste



Waste emitters

Waste

Sludge, dust & soot, cinders, waste oil, waste solvent, waste acid, waste alkali, slag, used catalysts, metal waste, waste plastic, other

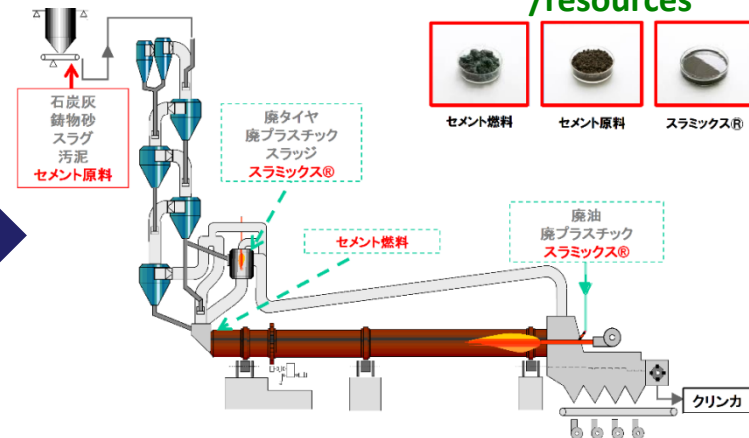


Waste treatment operator

Blending

VICEM HAIPHONG CEMENT

Alternative fuels /resources



Conservation Projects on Cat Ba Island

Demonstration run of EV bus in conjunction with solar power



Low-carbon technical innovation creation project for developing countries

Demonstration period: Dec 2015 to Feb 2020

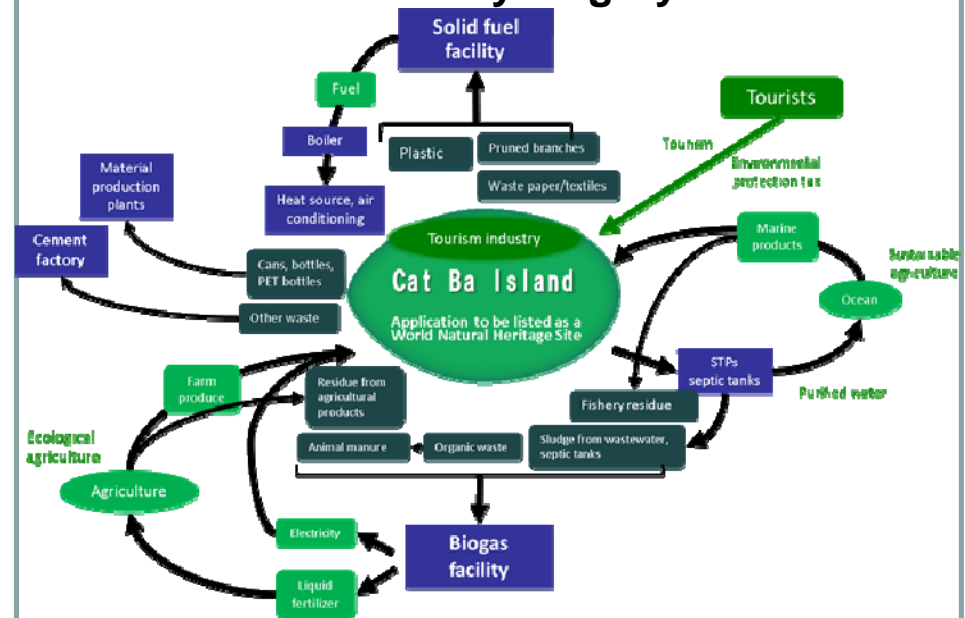
Joint development by local company, Soft Energy Controls, with a Chinese company (provider of technologies to control storage batteries)

Introduction of first EV bus in Viet Nam

- Temporary import measures → Approved by prime minister
- Demonstration run → Development of guidelines by the Ministry of Transport



Development of Comprehensive Resource Recycling System

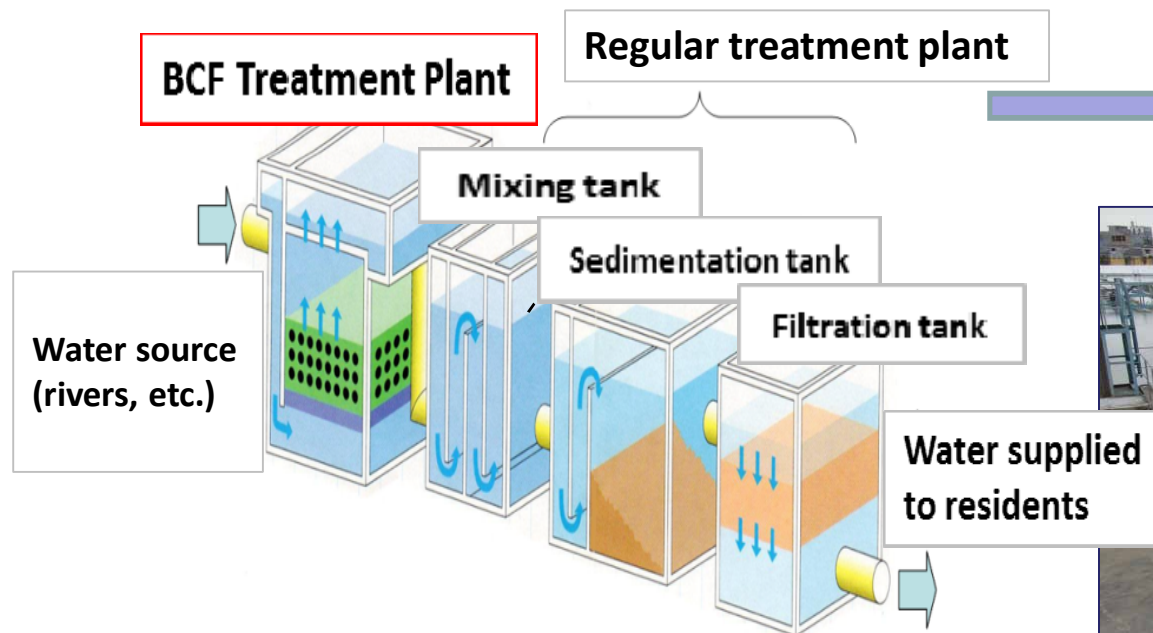


- Production of biogas from wet waste and sludge
- Ecological agriculture using liquid fertilizer
- Processing solid fuel from dry waste



Introduction of U-BCF to Main Water Treatment Plant

Introduction of U-BCF from small-scale water treatment plant in Hai Phong to main water treatment plant (using grant aid)



Main water treatment plant
(An Duong Water Treatment Plant)

Compared with conventional advanced treatment

- Construction costs: 1/2
- Running costs: 1/20

Expansion throughout Viet Nam and other countries in Southeast Asia

The Phnom Penh Miracle: Creating a Sister City Relationship

Transfer of water distribution block technology (Phnom Penh, Cambodia)



Rate of non-revenue water
(leakage, theft)

72%→8%



2005: Water declared potable
(The Phnom Penh Miracle)



Visit by Prime Minister Hun Sen in July 2015
Proposal by the Prime Minister to “conclude
a sister city relationship with Phnom Penh”



March 29, 2016
Linked as sister
cities



Project with Phnom Penh Capital City

Cambodia Climate Change Strategic Plan (2014 – 2023)

Supporting the development of an action plan for the climate change strategies of Phnom Penh Capital City

(1) **Baseline assessment**

Waste

Energy

Transportation

Water works
& sewerage

Environmental
protection

Green
production

Identification of specific issues for each area

(2) **Formulation of strategy**

Set vision, targets, numerical targets and evaluation indicators for each sector

(3) **Detailed policies and measures**

Waste

Energy

Transportation

Water works
& sewerage

Environmental
protection

Green
production

Pilot projects

Pilot projects

Pilot projects

Pilot projects

Pilot projects

Pilot projects

Investigation of GHG emission reduction and effects of improvement on the environment, etc. Determination of estimated projects cost

(4) **Verification of strategies policies / measures**
(5) **Methods to create contracts and raise funds**

Kitakyushu Model
(Experience, know-how etc.)

Energy Savings in Large Shopping Mall

Aeon Mall Cambodia will introduce “solar power” and “high efficiency chillers” in Aeon Mall II Phnom Penh (PPC, tentative name, scheduled to open in summer 2018).

- Adopted as a FY 2016 JCM equipment subsidy project
- Project scale: ~JPY 580 million (subsidy of JPY 230 million)



Benefits of Using Intercity Cooperation Frameworks

Cities are the stage for exporting urban environmental infrastructure.



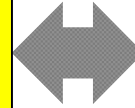
By taking advantage of intercity cooperation:

- ✓ It is possible to develop comprehensive projects from initial stages.
- ✓ Long-term follow-up can be carried out after the project ends.
- ✓ Direct access to partner city governments is possible and activities of Japanese companies can be supported.
- ✓ Human resources can be developed for the management and operations of urban environmental infrastructure.
- ✓ Objectives can be achieved in partner cities with fewer administrative costs by facilitating the entry of private companies through public-private partnerships (PPP).

Sharing Benefits as Part of Asia

Kitakyushu: Economic benefits

- Activate the local economy
- Create new industries by learning from Asia



Asian Cities: Social benefits

- Improved lifestyles
- Solutions for environmental issues
- Improved energy efficiency

A relationship of mutual learning and support!

