Kitakyushu’s Policies and Actions Towards Sustainable City Development

Submitted by: Japan
Kitakyushu’s Policies and Actions towards Sustainable City Development

City of Kitakyushu, Japan

City Profile

Location and Characteristics

Population: 1 million
Area: 488 km²
Designated City (as same status as Prefecture Government)

Once a polluted industrial zone, Kitakyushu is now a modern industrial city pursuing green growth.

: from Green Growth in Kitakyushu, Japan, OECD Green Growth Studies, 2013, OECD

Industries, International Trade, Biodiversity, and Urban Development
**Industrial Development and International Trade**

**Industries born in Kitakyushu**
- 1901 Yawata Steel Works
- 1920 TOTO
- 1925 Yasukawa
- 1950s Industrial area

**International Trade**
- 1935 Moj Port
- Tachinoura Container Terminal

Accumulated industries, technologies, infrastructures, and citizen participation for Sustainable Society

**Industrial Development (present)**

Value of Product Shipments:
Approx. **US$ 20 billion** per year

- Vehicle
- Robot
- Chemical
- Iron and Steel
### Chronology of Kitakyushu’s Environmental Policy ~Green Frontier~

<table>
<thead>
<tr>
<th>Year</th>
<th>Key Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>Government-run Yawata Steel Works Kitakyushu has developed as an Industrial City</td>
</tr>
<tr>
<td>1950</td>
<td>Aggravation of Pollution Problems Women’s Movement against Environmental Pollution</td>
</tr>
<tr>
<td>1960's</td>
<td>City Government Organizational Arrangement, Ordinance, and Pollution Control Agreement with Companies Private Enterprise Cleaner Production Improvement of Production Process Treatment of Pollutant, Tree Planting</td>
</tr>
</tbody>
</table>

### Partnerships among Local Multi-stakeholders

**Residents**
- Residents' observation of a private company
- Learning how to measure air pollution from a university professor

**Local Government**
- Environmental control & environmental infrastructure

**Private Enterprises**
- Cleaner Productions & pollution control equipment

### References
- Reference: UNESCAP “Kitakyushu Initiative for a Clean Environment”
Overcoming Severe Environmental Pollution

Severe Air Pollution in 1950s & 1960s

“Dokai Bay, Sea of Death”

Residents enjoying blue sky

Swimming at Dokai Bay

Blue Skies

Outcome of Environmental Improvement

Improvement of Murasakigawa River

before

after

Sport Festival at Murasakigawa River
Economic Development & Environmental Achievement (Win-Win) in Kitakyushu

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

Economic Development (Value of Shipments: 100 Billion Yen)


Outcome of Cleaner Production Approaches

Energy Saving in Industrial Sector in Kitakyushu

Cleaner Production: Improvement of Productivity and Reduction of Pollutant
Improvement of Productivity: CO₂ Emissions per Production in Kitakyushu

CO₂ Emissions per Net Domestic Product: 100 in 1963

Factor of Sustainable Development

Kitakyushu Green Frontier Plan
Made and Shared by Local Multi-Stakeholders

Target: Society with prosperity accumulated over generations
- Utilizing industrial infrastructure
- Elderly and Children Friendly Society
- International Cooperation for Asian Sustainable Development

Residents’ Willingness & Partnership
Making a Sustainable Society
New Feeling of Values & Culture

Solution to Climate Change Issue
Increasing City’s Happiness & Activeness
Asian Growth & Exchange

CO₂ Reduction Target with 40% Economic Growth in 2050
☑ City Area: 50%
☑ Asian Region: equivalent to 150% of Kitakyushu’s Emission

5 Strategies
- Urban Development
- Industrial Development
- Human Development
- Social Development
- Sustainable Development in Asia
Kitakyushu Eco-Town: Facilitating Resource Circulation and Eco-Industries

Outcome of Projects

Environment: Reduction of Environmental Impact 0.38 million ton CO₂e
Saving Resources and Energy

Economy: Investment: 66 billion yen
Private sector: 71.7%,
Central Government: 18.2%, Local Government: 10.1%

Employees: 1,340 people
Visitors: 1 million people (as of October 2011)

Industrial Development: Recycling

Promoting Eco Industry and Resource-Circulation in Eco-Town

Plastic PET Bottle Recycling Project
Office Equipment Recycling Project
Home Appliance Recycling Project
Automobile Recycling Project
### Social Development: Citizen

#### Citizen’s Activities towards Realizing Resource-Circulating Society

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic Waste Generation (g/day/capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>748</td>
</tr>
<tr>
<td>1998</td>
<td>703</td>
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<tr>
<td>1999</td>
<td>698</td>
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<td>2000</td>
<td>706</td>
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<td>2001</td>
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<td>2006</td>
<td>609</td>
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<td>2007</td>
<td>536</td>
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<tr>
<td>2008</td>
<td>522</td>
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<tr>
<td>2009</td>
<td>506</td>
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</tbody>
</table>

#### Recycling Ratio (%)

- **Resource-Circulation Station**
  - Can & Glass Bottle: 12 JPY/ bag
  - Waste Plastic Bottle: 50 JPY/ bag
  - Waste Plastic Package: 50 JPY/ bag

#### Citizen’s Activities towards Achieving Resource-Circulating Society

- Waste Separation at Home
- Social Development: Citizen

#### Reduction of Domestic Waste & Increasing of Recycling

Successful waste management: Japan has one of the lowest rates for municipal waste production among OECD economies, 1.03kg per person per day (2008), and Kitakyushu produces less than half that amount, 506g per person per day (2009).

### Urban Development: Transportation

#### Public Transportations Connection Development

- **Kokura Station**
- **Kurosaki Bus Terminal**

#### Connections between Public transportation: Train, Monorail, and bus

- Monorail
- Rental of Electric Bicycle
### Urban Development: Transportation

#### Kitakyushu Public Transportation Network

![Map of Kitakyushu Transportation Network](image)

- **Suonada Sea**
- **Hibikinada Sea**
- **Shimonoseki**
- **Honshu**
- **Mt. Hobashira**
- **Mt. Fukuchi (900.8 m above sea level)**
- **33.8 km**
- **33.5 km**
- **JR, Monorail, Chikuho Railway**

### Urban Development: Transportation

#### Introduction of Eco Vehicles and Driving with Low Emission

- **TOYOTA’s Fuel Cell Vehicle**
- **Electric Vehicle and Quick Charger**

#### Kitakyushu ECO DRIVE project

<table>
<thead>
<tr>
<th>ECO DRIVE</th>
<th>Effect</th>
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<tbody>
<tr>
<td>soft acceleration</td>
<td>Increasing of fuel efficiency</td>
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<tr>
<td>idling stop, etc.</td>
<td>reduction of cost and pollutants)</td>
</tr>
</tbody>
</table>

#### IT technology development on EV driving

- **Feasibility Study:**
  - Supplying EV charger information by car navigation system, etc.

- **Institutes:** Yaskawa Information CO., Nissan CO., Zenrin CO.

- **Cooperation:** City of Kitakyushu, FAIS

#### Charger Network for EV

- **Kokurakita-Ward Office**
  - Every day and 24 hours
  - Free of Charge
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.

Kitakyushu Smart Community

Target:
Term: 2010 to 2014
Investment: $ 190 million
CO₂ Reduction: 50%
Renewable Energy: 10%

Smart Houses
Photovoltaic Generation
Smart Building
Large Scale Battery
Wind Power: 15,000 kw (Theoretical)

Outcome as of Oct. 2013:
- World’s first FS project on Dynamic Pricing
- Peak cut: 20%
- CO₂ reduction

Domestic & Overseas Expansions

Urban Development: Energy

Higashida Green Village

Integrated Local Energy System with Reduction of CO₂

Higashida Co-Generation System with high efficiency operated by Nippon Steel Corporation

- Thermal Supply for Factories
- Electric Supply for Town
- Photovoltaic generation

Higashida Green Village Area
Kitakyushu is in the process of developing the UR Jono Housing Complex and the undeveloped public land north of JR Jono Station in the center of Jono District (approx. 19 ha) into a "zero carbon community." A number of low-carbon technologies and measures are being incorporated to accomplish this, including promoting the construction of energy creation/energy saving eco-houses, optimizing energy use by implementing an energy management system, and facilitating the use of public transportation.

**Zero Carbon District**

**Land Readjustment Project Schedule**
- 2012: Start Construction
- 2013: Sell several housing lots
- 2015: Inauguration of Carbon-free Residential Area
- 2016: Project complete

**Reduction of Household CO2 Emissions**
- Step 1: Regulate energy use
- Step 2: Switch from fossil fuels to renewable energy

**Image of Jono Zero Carbon District**
Kitakyushu Regional Energy Policy

- High Efficiency Power Plant & Renewable Energy in Hibikinada Area
- Regional Energy Management System including Demand Management

International Cooperation Towards Shared Prosperity and Sustainable Development

Human Development towards Realizing Sustainable development

Accepting International Trainees from Developing economies:
146 economies, 7,059 people  (as of 31 March 2013)

In collaboration with JICA and KITA (Kitakyushu International Techno-cooperative Association)
According to Asian economic growth, export from Kitakyushu port to Asian economies are increasing with economic growth in Kitakyushu.

### Export of Green-Products from Kitakyushu Port to Asian Economies
(Contribution to Asian Green Growth through Export of Green Products)

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**Green Products being exported for Global Contribution**

**Nippon Steel and Sumitomo Metal’s Electrical Steel Sheet**

Nippon Steel offers high function steel in order to contribute to the weight reduction and higher energy efficiency of automobiles, ships, and so on; thereby helping to conserve energy and reduce CO₂ emissions.

http://www.nsc.co.jp/eco/warming/product.html

**OECD Green Growth Studies: Green Growth in Kitakyushu, Japan, 2013, OECD**

Moving the iron and steel production from Kitakyushu or Japan to another economy would be likely to create more CO₂ emissions for the same output. Kitakyushu’s iron and steel industry offers a range of products with advanced energy performance, such as flat rolls, magnetic steel sheets, thin sheets or surface-treated steel sheets. These products represent over 80% of iron and steel exported from Kitakyushu to China and about 75% of all products shipped.
### International Cooperation Towards Shared Prosperity and Sustainable Development

**International Projects implemented by private enterprises**
in collaboration with the Kitakyushu Asian Center for Low Carbon Society

<table>
<thead>
<tr>
<th>Projects and Related Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Saving Project in Beijing, China</strong></td>
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<tr>
<td>YASKAWA Electric Corporation, Largest World Share in the field of Industrial Robots and Inverters in Kitakyushu</td>
</tr>
<tr>
<td><strong>Promoting Water Saving Equipment in Dalian, China</strong></td>
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<tr>
<td>TOTO Ltd., International Housing Equipment Company in Kitakyushu</td>
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<tr>
<td><strong>Promoting Waste Water Purification with Provision of License for Nitrate Nitrogen Removal Technology to Chinese Company in Dalian, China</strong></td>
</tr>
<tr>
<td>Nippon Steel Chemical CO., Ltd., Coal Chemical Company in Japan</td>
</tr>
<tr>
<td><strong>Promoting Recycling Business in India</strong></td>
</tr>
<tr>
<td>Nippon Magnetic Dressing CO., Ltd., Rare Metal Recovery and Circulation Company in Japan</td>
</tr>
<tr>
<td><strong>Promoting Recycling Business in Tianjin, China</strong></td>
</tr>
<tr>
<td>Eco-Material Corporation, International Recycling Business Company in Japan</td>
</tr>
<tr>
<td><strong>Received an order on the City of Siem Reap, Cambodia, related to water works planning project</strong></td>
</tr>
<tr>
<td>Kitakyushu Water Supply Bureau and Hamagin Research Institute, Ltd.</td>
</tr>
</tbody>
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**Sustainable City**

Your willingness and actions will shape the future and harmonise the environment and city development.

We Can Create Sustainable City Together!

For further information, please contact:

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