Improvement of the Urban Environment; Activities of Kitakyushu City to support sustainable urban development

Takatoshi Oyama
Kitakyushu Waterworks and Sewage Association

Green Frontier
環境モデル都市 北九州市

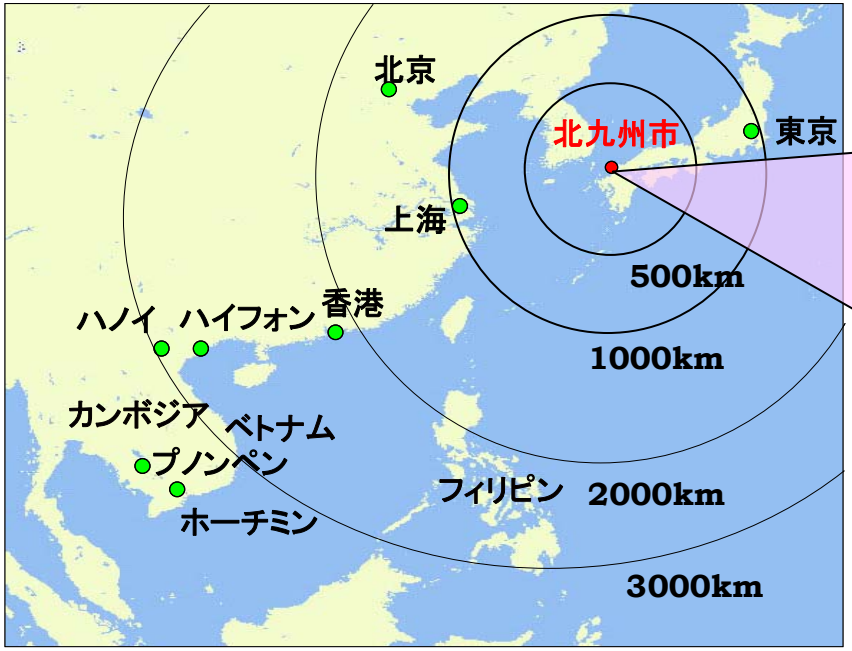
Green Frontier
環境モデル都市 北九州市

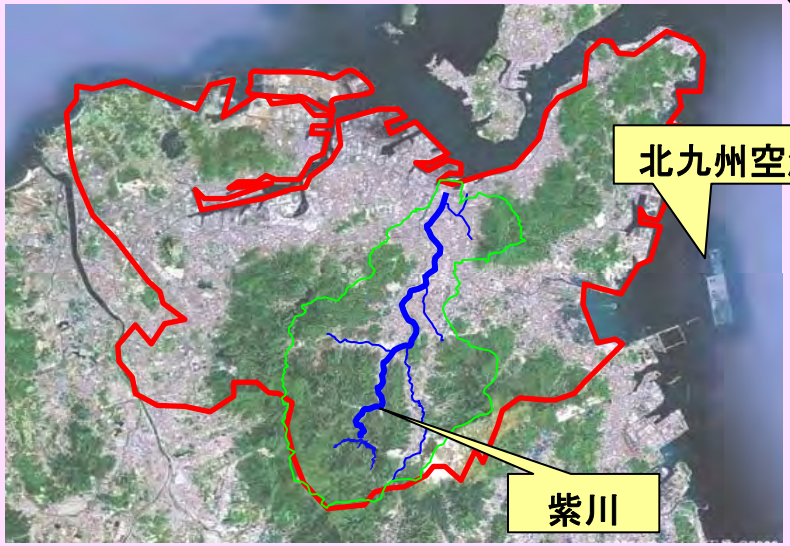
©teitan,City of Kitakyushu

1. Needs for a sewage system

Overview of Kitakyushu City

- Located at the west-end of Japan; northern tip of Kyushu⇒ Gateway to Asia
- A City of Industrial Clusters and Technology⇒ Steel, Chemicals, Machinery, Ceramics, IC
- Surrounded by rich nature ⇒ 210km Coastlines, 40% of the city is forest





data

- Area：488km^2、Pop：0.98 mil.
- Ave Termp ：16℃
- Annual Rainfall ：1,600mm

【Rivers】

- 261Rivers、total length 394km

【Sewage Situations】

- Sewage Systems in place ：99.8% （2006年3月、汚水整備概成）
- 5 Treatment Centers （Capacity 621,000m^3/Day）
- Total length of pipes：4,324km、Treatment area coverage：16,164ha （うち合流区域面積：3,422ha）

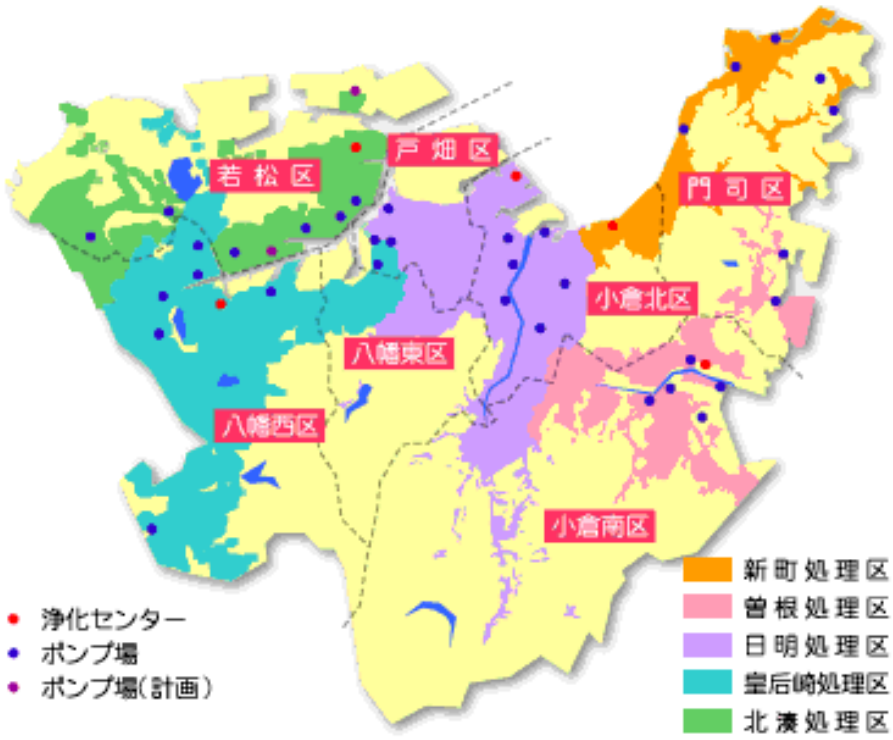
Kitakyushu City: An Environmentally Revived City

◆Overcoming the 'negative legacy' of pollution as a result of city's development

Citizen led movements, with support from the local governments, enabled the 'dead sea' to revive, which has won international recognitions.

＜110種類の生物が棲む海＞

Treatment Centers in Kitakyushu City



新町浄化センター

昭和47年 4月運転開始

曽根浄化センター

昭和54年10月運転開始

日明浄化センター

昭和45年 4月運転開始

皇后崎浄化センター

昭和38年 7月運転開始

北湊浄化センター

昭和47年 4月運転開始

Kitakyushu City: An Environmentally Revived City

◆Overcoming the 'negative legacy' of pollution as a result of city's industrialization

Citizen led movements, with support from the local governments, enabled the 'dead sea' to revive, and the movement has won international recognitions.

1979

Present

＜Revived River＞

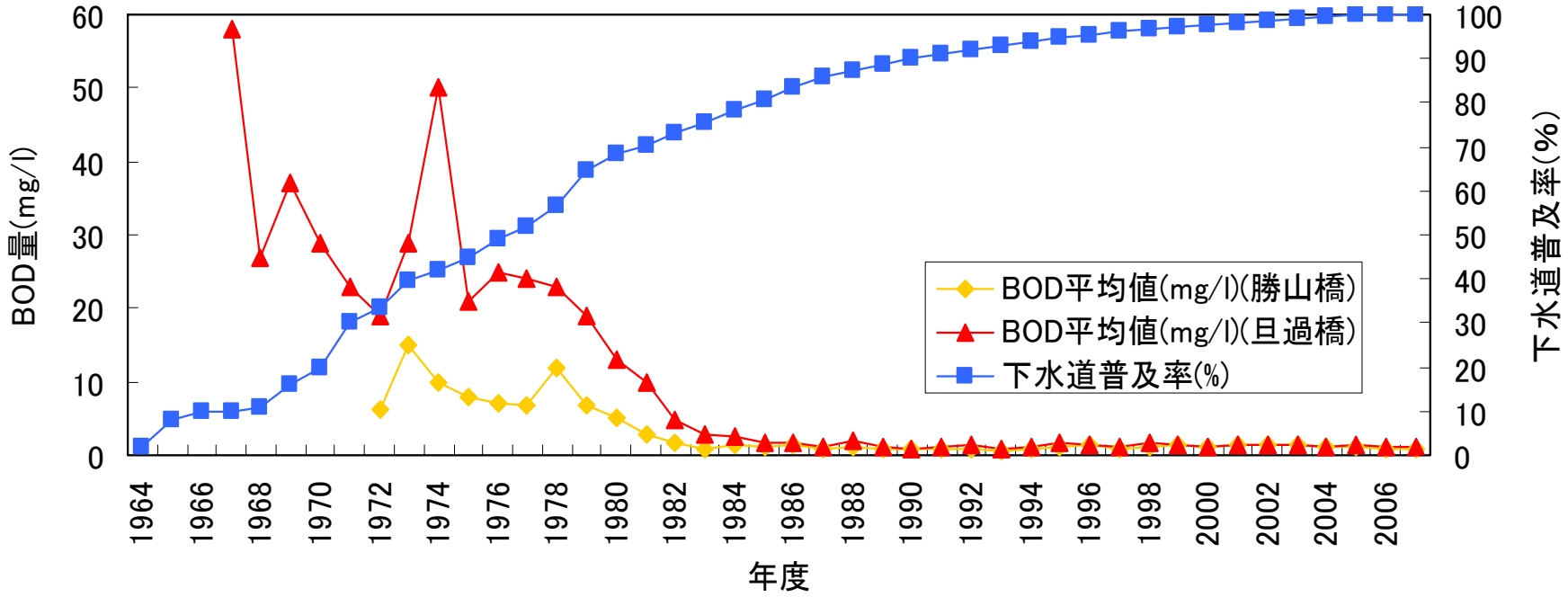
Effects of Sewage Systems Installation

◆Spent 40 years with joint effort of the local government and citizens to establish a sewage system

- Local government role : sewage plants and piped sewage in place
- Citizens roles : connection to sewer lines

戻ってきた清流に棲む魚：アユ

※With penetration of piped sewage systems, the water quality of Murasaki river dramatically improved



Flood damage from heavy rain

◆The Flood of Nishinippon in June 1953

・650mm rainfall in 4 days ⇒ 40% of annual rainfall

※Flooding of Murasaki river and mudslide damages

・Deaths 183

・No of Houses partially damaged :3，800

・Total No. of Affected Houses : 83，000

Sewage Treatment; in the past

The London Convention 1972

Past Practices

- coastal reclamation（1998）
- sea dumping（～1999）

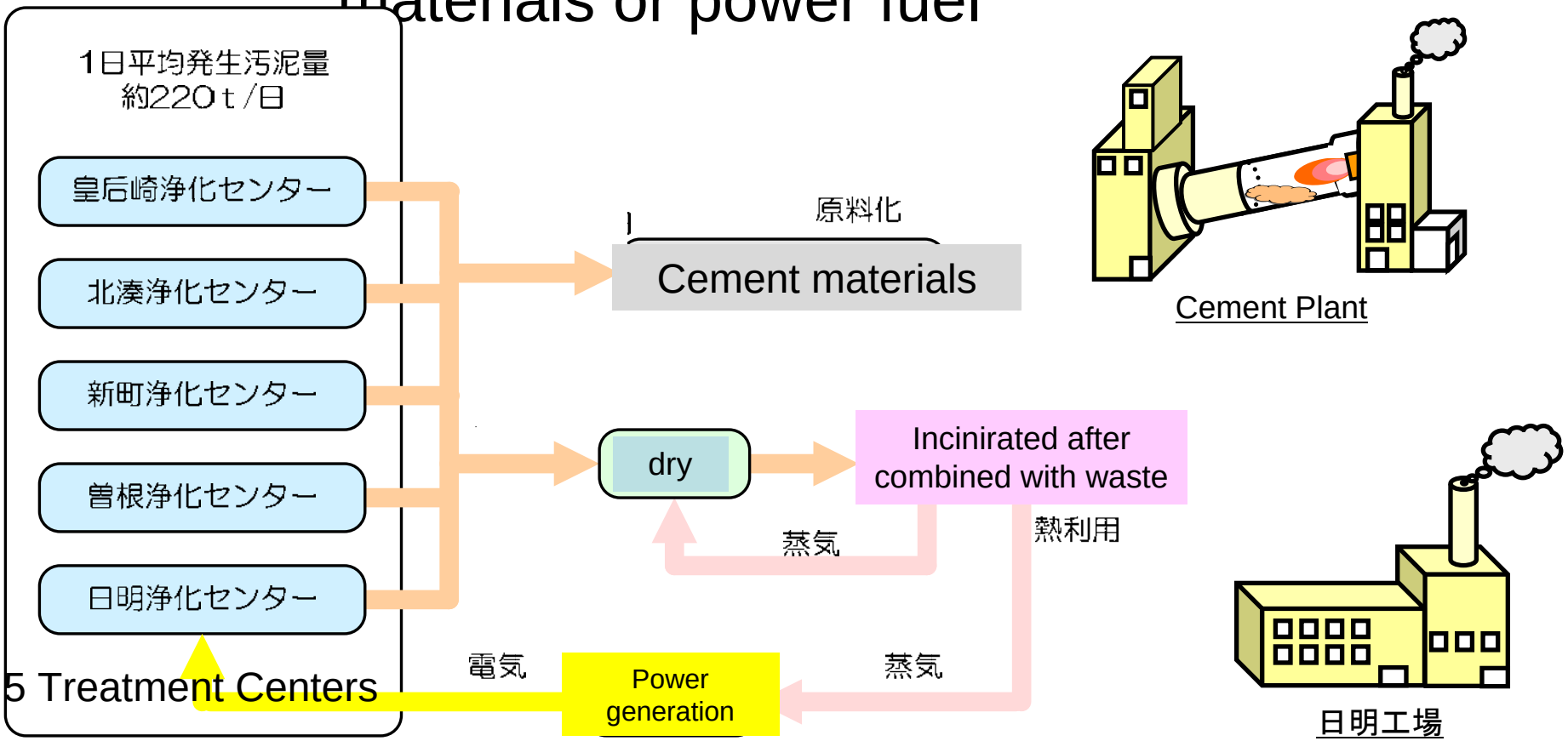
Coastal reclamation

Sea dumping

Utilization of sewage resources（FY2009）

◆Amount of Sludge Treated ：210 Tons/Daily

⇒ All treated sludge is utilized as cement materials or power fuel



Cement Plant

日明工場

Utilization of sewage resources（FY2009）

◆Treated Water　：450,000m^3/Daily

⇒Out of which, 30,000m^3/Day（=6.7%）is utilized as

- Gray water used at Treatment Centers
- Industrial water

Sone Treatment Center

Utilization of sewage resources

Hiagari Treatment Center

Biogas Power

年間発電量　１，１００千kwh
Co2削減量　　４１０ton

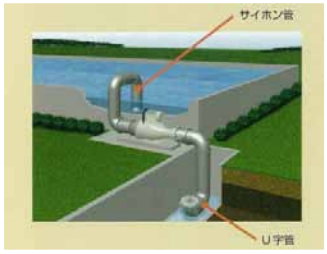
Water Plaza

Sludge Fuels
（石炭代替燃料として使用）

年間生産量　　６，３００ton
Co2削減量　　２，８００ton
（事業としては　１２，８００ton）

Miro Power Plant

年間発電量　　１６千kwh
Co2削減量　　６ton



Micro Wind Power

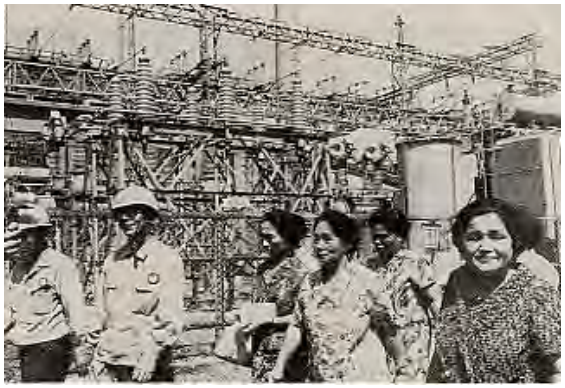
年間発電量　　５千kwh
Co2削減量　　２ton

Solar Power

［３，４系列］
年間発電量　　１４０千kwh
Co2削減量　　５２ton

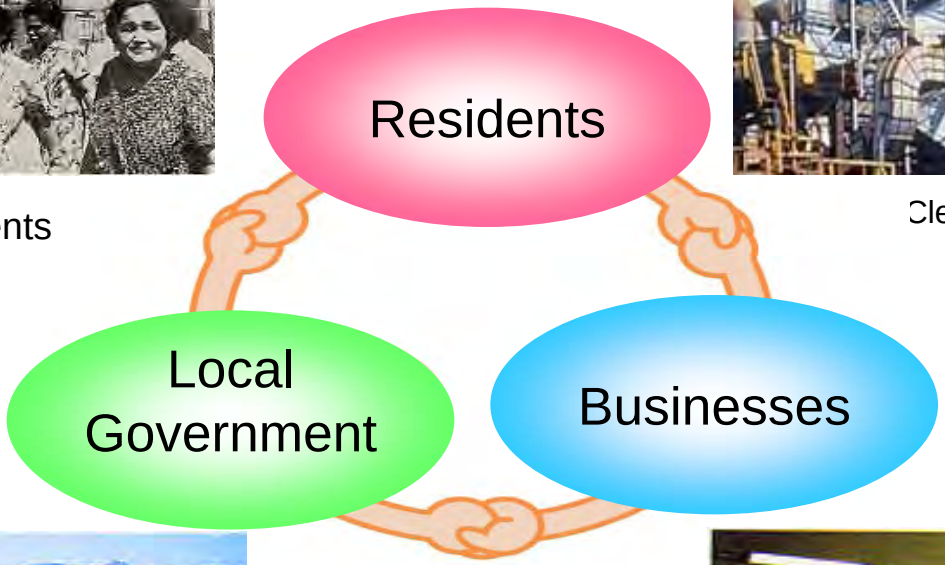
※H23年度以降順次１，２，

Kitakyushu City: An Environmentally Revived City



Civic Movements

Cleaner Productions



Piped Sewage Systems

Monitoring

2. International Technical Cooperation Activities: Achievements and Issues

（1）Technical Assistance（Dispatch experts to Overseas）

① Policy Formulation Advice

② Operations and Maintenance training of treatment and pumping facilities

③ Organizing Seminars

（between years1990～2010）

Dispatched 173 experts to 13 countries

（China, Cambodia, Indonesia, Saudi Arabia, etc.）

(2) Capacity Building and Training (receiving trainees from Overseas)

① Conducting curriculums planned by the City

(Planning, Design, Maintenance, Management, PR)

② Site Visits (Between years1990～2010)

Received 2,900 trainees from over 100 countries




Trainings conducted in Kitakyushu- City

Kitakyushu City's International Technical Cooperation: Achievements

＜Recent Cooperation Cases＞

- Kunming City, Unnan Province, China

Proposals to improve water environment （2006～、jointly w/JICA）

- Saudi Arabia

Improvement of Operations and Management of Sewage Treatment Facilities （2007～2009、w/JICA・GCUS）

- Surabaya, Indonesia

Cooperation for improvement of Water environment （2007～2008、w/JICA・CLAIR）

- Hai phong, Vietnam

Cooperation for improvement of Water environment （2007～200w/JICA・CLAIR）

Areas for Further Consideration

（1）Secure Budget

International technical cooperation is not only goodwill exchange, but requires involvement of technical experts. Therefore the budget needs to cover for cost such as translators, dispatch and accepting of personnel.

（2）Understanding the real needs of the target region

A fine-tuned and well matched cooperation is expected. Therefore understanding of the adequate needs of the region is an issue.