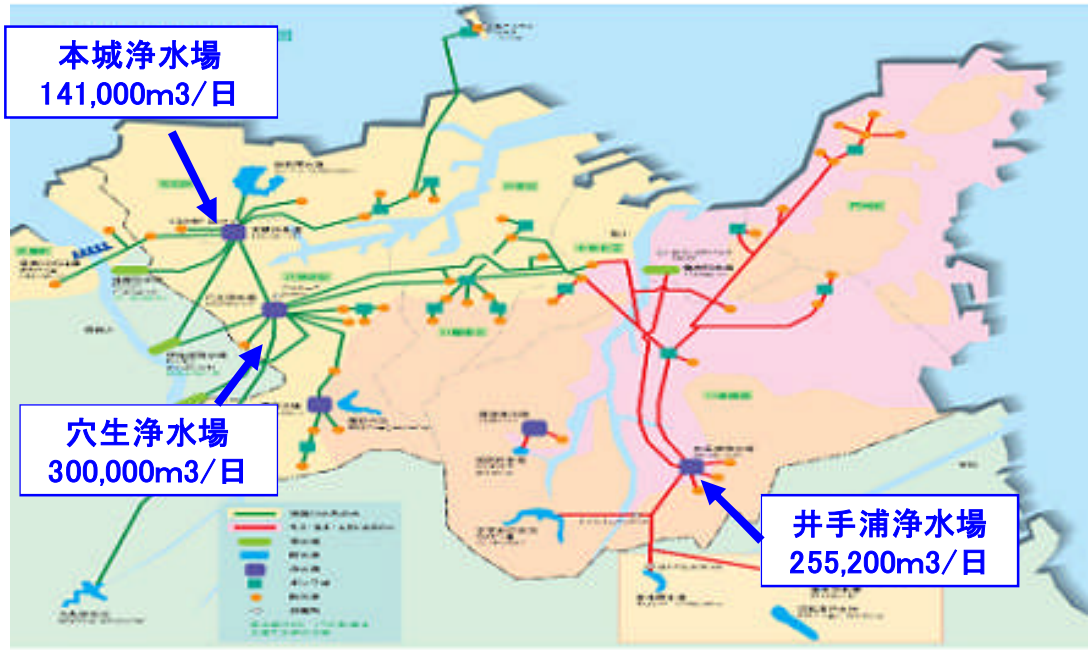
北九州市の水道概要

【主要施設】

（平成２２年３月３１日）

- ●水　源　１０ヶ所
- ●浄水場　５ヵ所
- ●配水池　４７ヶ所
- ●管路延長　４,２７５km
  - うち配水管　３,９１７km
- ●供給能力　７６９,０００㎥



【給水状況】

（平成２１年度）

項　目	内　容
行政人口（北九州市のみ）	979,476　人
給水区域内人口　（うち芦屋町）	993,360　人（14,904　人）
給　水　人　口　（うち芦屋町）	988,848　人（14,822　人）
普　及　率	99.5　%
供　給　能　力	769,000　m3/日
有収水量	106,187,569　m3/年
一日最大給水量	361,300　m3/日
一日平均給水量	333,138　m3/日

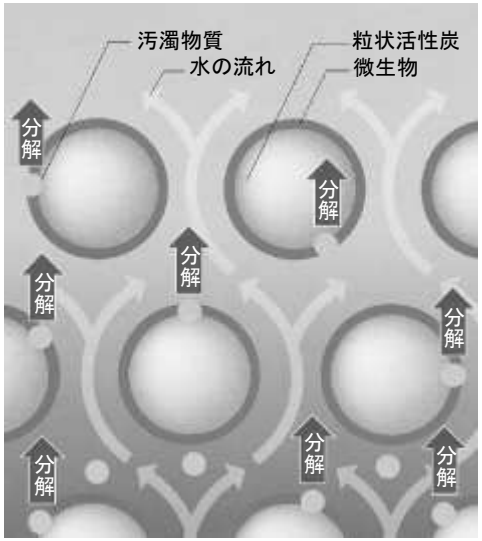
北九州市の水道技術

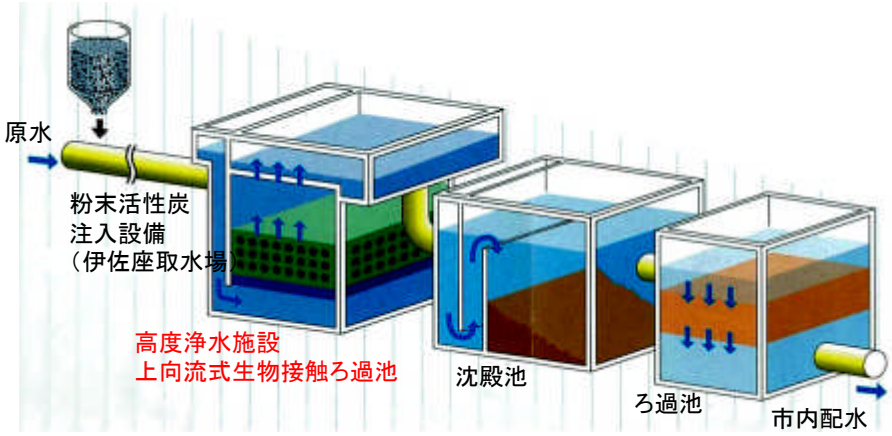
【省エネ対策】

種　　類		省エネ効果 千kwh／年
自然エネルギーの活用	太陽光発電（６施設）	７，１５７
	水力発電　（４施設）	２２０
省エネルギー対策	ポンプ改良	２７７
	ポンプのインバータ化	１、３８１
	管路更新	１，６５０
	沈でん池改造	３０８
	配水ブロックの改善	７７

【BCF（上向流式生物接触ろ過）】

【BCFについて】
自然の微生物が汚濁物質を取り込み分解する作用を人工の装置内でより効果的に実現するもので、他の高度浄水に比べ、コストが大幅に低いのが特徴です。





高度浄水処理（穴生浄水場）の配置図

Explanatory material for the 2nd PPP
Council for Overseas Water Infrastructure

Overseas Water Infrastructure Measures in Kitakyushu City

FEB. 14, 2011

Kunio OHARA
Chief Executive, Construction Bureau

Green Frontier 環境モデル都市 北九州市
City of KITAKYUSHU

Overview of Kitakyushu

- Located at the western end of the Japanese archipelago and northern end of Kyushu ⇒ Gateway to Asia
- Manufacturing city known for industrial accumulation and technical strength ⇒ iron and steel, chemicals, machinery, pottery, IC, etc.
- City with abundant nature ⇒ 210-km-long coastline, forests accounting for approx. 40% of the city area

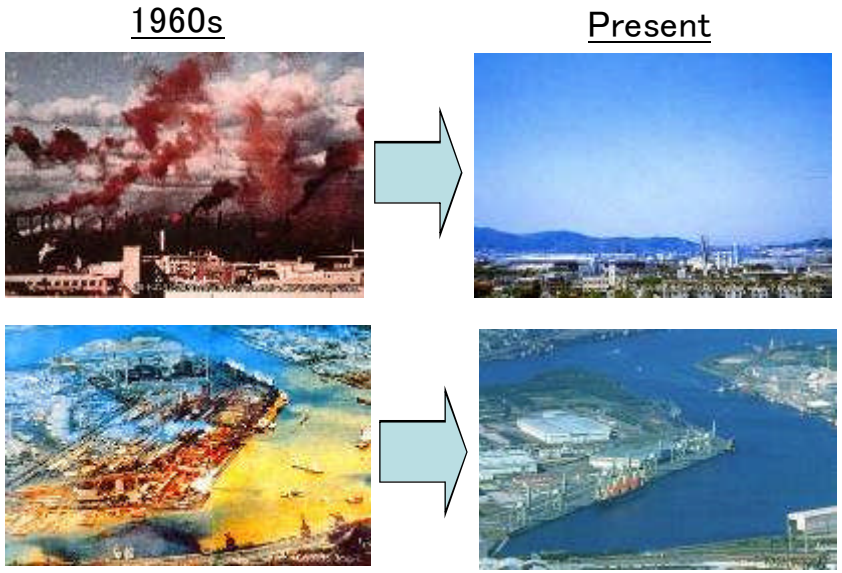
【Basic data】

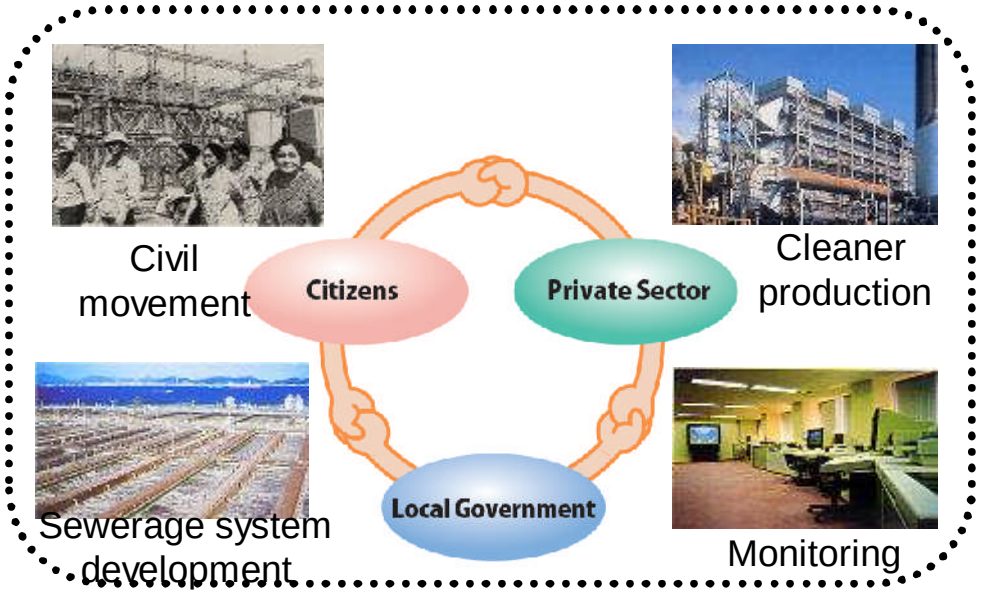
- Area: approx. 488 km2, population: approx. 980,000
- Mean temperature: approx. 16℃
- Annual precipitation: approx. 1,600 mm

Results achieved by environmental restoration and accomplishments in international technical cooperation

■ The city has a successful experience in environmental restoration (overcoming pollution)

The government supported the efforts of residents to revive the smoke-filled sky and dying sea.





■ The city has abundant experience and accomplishments in international cooperation

Transfer of environmental restoration technologies and expertise to overseas

○ Training of engineers (water supply/sewerage FY 1990 – 2009)

- Dispatch of specialists: 126 to 12 countries
- Acceptance of trainees: approx. 2,500 from over 100 countries

○ Improvement in civil power/environmental education

- China, Indonesia, etc.

Achievements in technical cooperation (water supply)

1993	Significant improvements in Phnom Penh	2006
25%	Water supply coverage in the administrative district	90%
10h	Water supply hours	24h
72%	Non-revenue water ratio	8%

Declaration of water being safe to drink in May 2005

For export of water infrastructure to overseas

＜Measures taken in Kitakyushu＞

■ There is a support system involving both the public and private sectors.

The Kitakyushu Oversea Water Business Association was established together by 85 private companies and government organizations (JICA, JBIC, GCUS, etc.).

・Private: consulting, material supply, plant construction, financial support, etc.

・Government: support for policy planning, provision of government expertise, etc.

■ Support can be provided in water supply and sewerage projects in general, from planning, construction and maintenance of facilities to project management.

Kitakyushu satisfies diverse needs related to water with expertise of the government sector and technologies of the private sector.

◆Proposal of optimum facility planning

◆Support for sound project management

(e.g., price setting, dealing with residents)

◆ Personnel training (training, technical guidance)

Specific measures

＜Sewerage＞

◆Technical exchange with Haiphong, Vietnam

◆Survey/project proposal in Dalian, China

◆Involvement in project formation for Saudi Arabia (GCUS)

◆ Realization of the utilization of treated wastewater for ballast water

◆ Opening of a state-of-the-art technical base (Water Plaza)

◆ Education on water environment improvement in Cambodia

Participation in a water exhibition in Vietnam (Haiphong)

＜Water supply＞

◆ Technical cooperation and personnel training

Cambodia (1999 -), Dalian, China (2000 -), Haiphong, Vietnam (2010 -)

◆ Survey of local needs

Cambodia; Haiphong, Vietnam

◆Promotion of safe water supply in Cambodia

◆ Dispatch of a mission to Haiphong, Vietnam, participation in a water exhibition and technical proposal

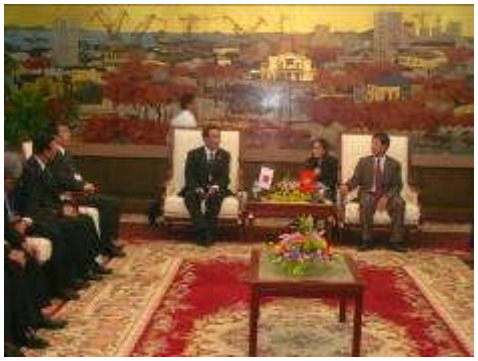
Dissemination/development of technologies

Representative cases of measures

■ Technical exchange with Haiphong, Vietnam (sewerage)

・Conclusion of a memorandum with the Haiphong Sewerage and Drainage Company (November 26, 2010)

・In the future, facility planning, project management, personnel training and other measures will be proposed based on field surveys.



Exchange between the deputy mayors

Signing ceremony

Technical discussion

■ Support for stable water supply in Cambodia (water supply)

・ Cambodia's Ministry of Industry, Mines and Energy and Japan's Ministry of Health Labor and Welfare concluded a memorandum (January 6, 2011).

- Consideration of measures to apply Japan's experience and advanced measures in Cambodia to the entire nation
- Consideration of measures to utilize technologies owned by industries of the two countries
- Implementation of field surveys by the government and private sectors
- Promotion of partnership/cooperation among entrepreneurs and industries of the two countries

Signing ceremony

・Adjustment and development of specific activities by Kitakyushu and with Cambodia in the future

Thank you for your attention.

Do come to Kitakyushu if you have an opportunity!

Contact

Water Environmental Division, Construction Bureau

E-mail: ken-mizukankyou@city.kitakyushu.lg.jp

Green Frontier 環境モデル都市 北九州市

City of KITAKYUSHU

Reference material

International reputation of environmental restoration

- 1990 : Won the Global 500 award from the United Nations Environment Programme (UNEP) (first municipality in Japan)
- 1992: Won the UN Local Government Honours Award at the Rio Summit (only municipality in Japan)
- 2000: UN/ESCAP Environment Ministers Meeting held in Kitakyushu (ESCAP: Economic and Social Commission for Asia and the Pacific)
- 2006: Won the Clear Water Award from the NPO Water Front Center in USA
- 2007: Won the Excellence on the Waterfront Award from the Water Front Center

UN award ceremony

Water Front Center award ceremony

※Selected as one of the six Eco Model Cities in Japan in 2008

Selected as an Eco Model City

Visit by Vice President Xi Jinping of China

Overview of Kitakyushu's sewerage system

【History】

- Feb. 1963 Incorporation of Kitakyushu as a city ⇒ **Commencement of development in full scale**
- July 1963 Operation of the Kogasaki Sewage Treatment Plant starts
- Mar. 1977 Sanitation coverage reaches 50%
- Jan. 1982 Pipe installation length reaches 2,000 km
- Mar. 2005 Pipe installation length reaches 4,000 km
- Mar. 2006 Sanitation coverage reaches 99.8% (almost complete sewage treatment)

More than ¥600 billion construction project cost has been invested in approx. 40 years.

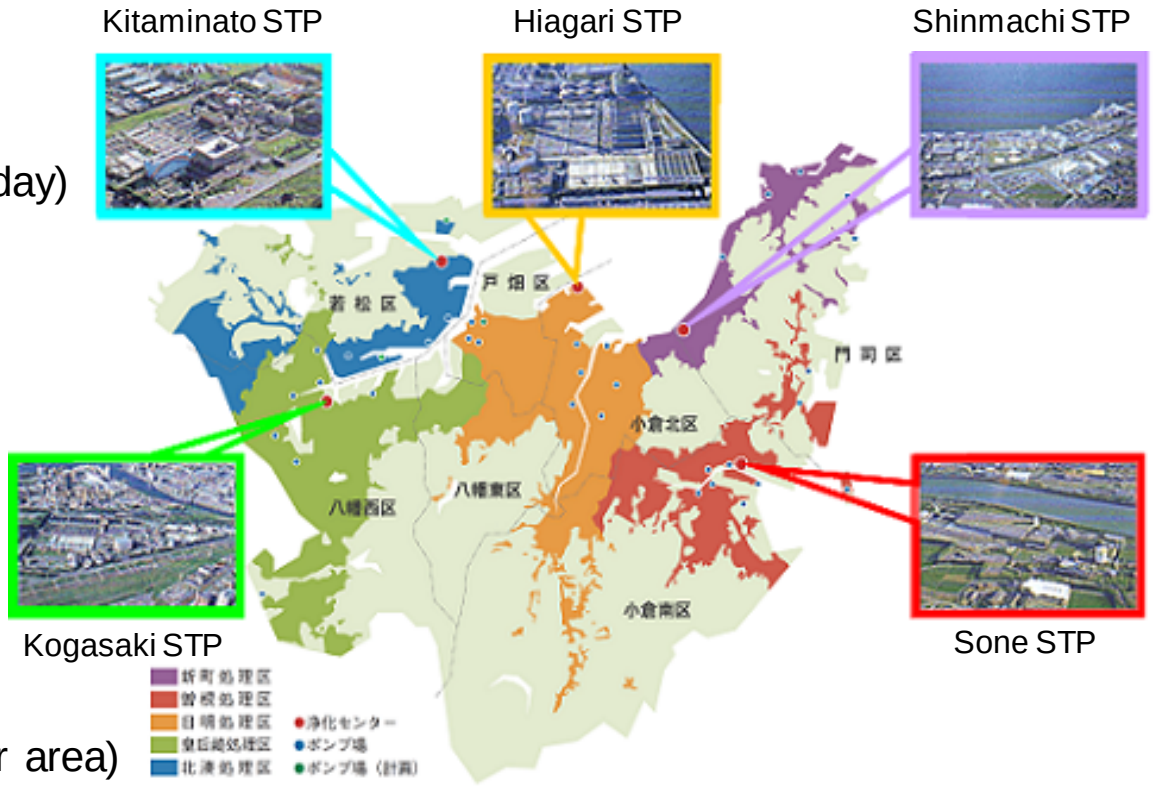
【Main sewerage facilities】

- **5 sewage treatment plants**
  (treatment capacity: 621,000 m3/day)
- 36 pump stations
- Pipe length 4,324 km

Sewage	3,172 km
Stormwater	312 km
Combined	840 km

【Treatment area】

- 16,164 ha
  (incl. 3,422 ha combined sewer area)



Effects of sewerage system development

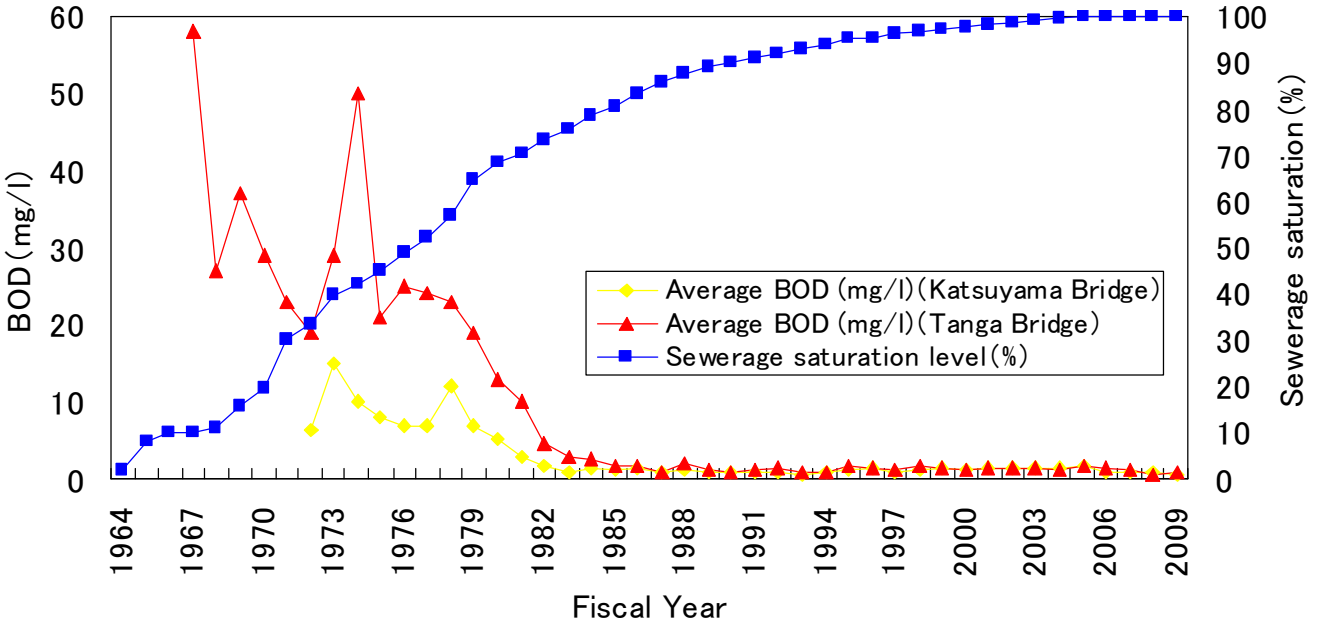
◆The government and residents have joined forces to promote sewerage system development for approximately 40 years.

- Government: establishment of treatment plants and sewers
- Residents: thorough promotion of flush toilets

(connection to the sewer system)

Ayu living in the restored clear stream

※Water quality of the Murasakigawa River has improved significantly with an increase in sanitation coverage.



A variety of technologies can be observed in Kitakyushu.

【From planning to construction, maintenance and management】

Sewage treatment plants: 5
Pump stations: 36
Pipes: 4,324 km

Sewage treatment plant

Pipe lining

【Effective sludge utilization】

Use as cement raw material

Power generation at a waste incineration plant

【Latest technologies】

○ Utilization of sewerage and natural energy

Digestion gas power generation

Solar power generation

○ Reuse of treated water (membrane treatment)

Showroom of advanced technologies (MBR+RO)

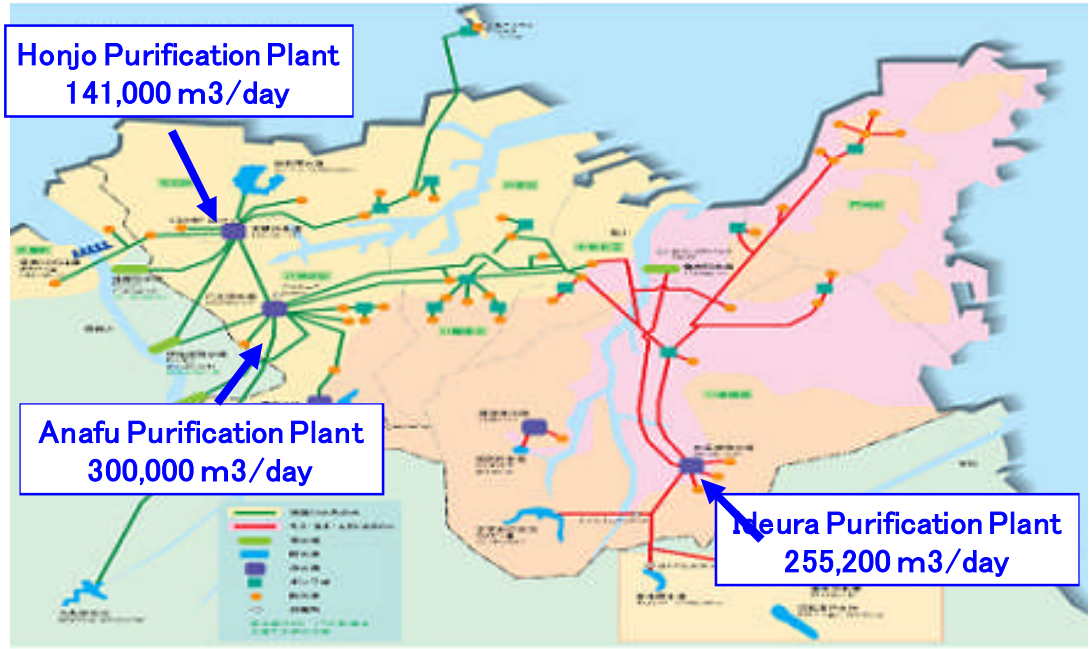
Green Frontier 環境モデル都市 北九州市

City of KITAKYUSHU

Overview of Kitakyushu's water service

【Main facilities】 (March 31, 2010)

- Water sources: 10
- Purification plants 5
- Distribution reservoirs 47
- Pipe length 4,275 km
  Service pipe length 3,917 km
- Supply capacity 769,000 m³



【Water supply status】 (FY2009)

Item	Content
Total population (Kitakyushu City only)	979,476
Population in the supply area (no. in Ashiya-machi)	993,360 (14,904)
Supply population (no. in Ashiya-machi)	988,848 (14,822)
Coverage	99.5%
Supply capacity	769,000 m3/day
Revenue-earning water	106,187,569 m3/year
Daily maximum supply	361,300 m3/day
Daily average supply	333,138 m3/day

Water technologies in Kitakyushu

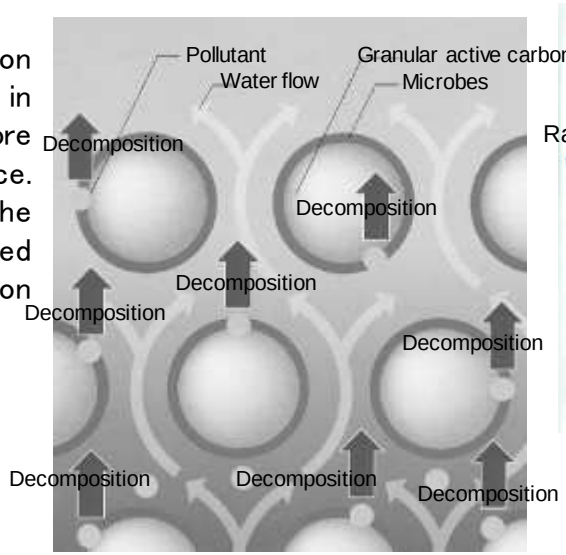
【Energy-saving measures】

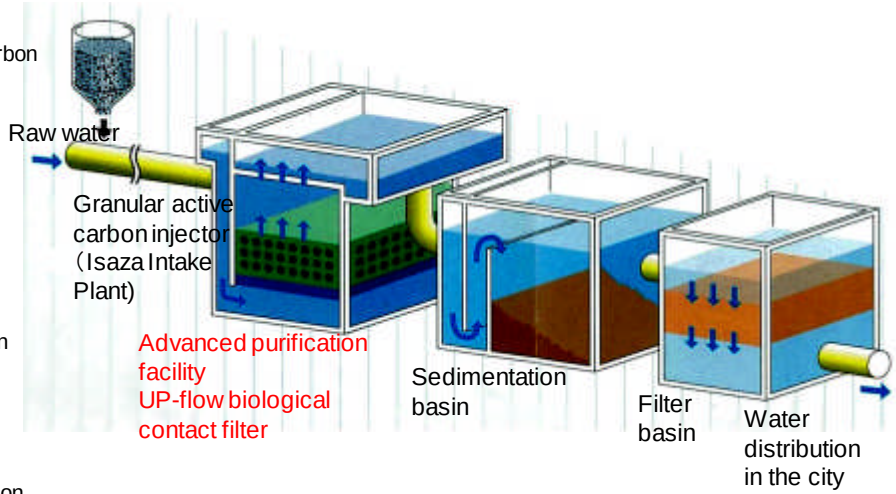
Type		Energy-saving effect 1,000 kwh/year
Utilization of natural energy	Solar power generation (6 facilities)	7，１５７
	Hydropower generation (4 facilities)	２２０
Energy-saving measures	Pump improvements	２７７
	Application of inverter pumps	１、３８１
	Pipeline rehabilitation	１，６５０
	Reconstruction of sedimentation basins	３０８
	Improvement in the block distribution system	７７

【BCF (up-flow biological contact filter)】

【About BCF】

The system performs the action of natural microbes to take in and decompose pollutants more effectively in an artificial device. It is characterized by the significantly lower cost compared to other advanced purification systems.





Layout of the advanced purification plant (Anafu)