

Japanese Government Policy
in regard to the
International Water Industry

June 2009

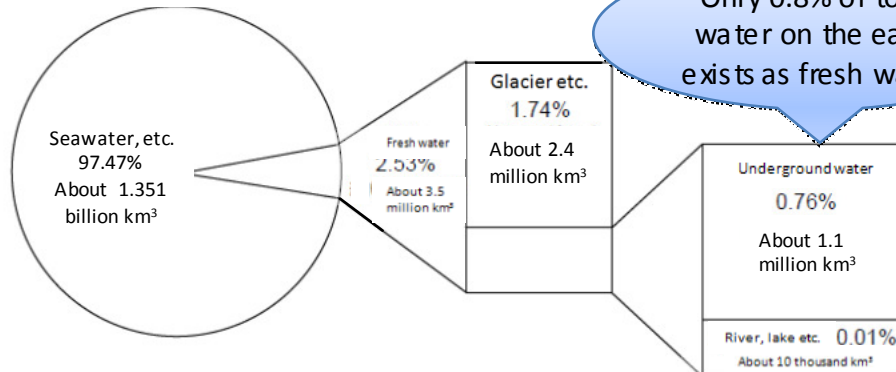
Ministry of Economy, Trade and Industry

Current status of water resources and expansion of water demand

- Water is critical for human life , the natural environment, as well as industrial development.
- It is said that only about 0.8% (1.1 million km³) of the water on the earth(1.4 billion km³) is fresh water.
- Due to population growth, economic development, global warming and pollution , global demand for water is expected to increase 30% over that of the 2000 by 2025.

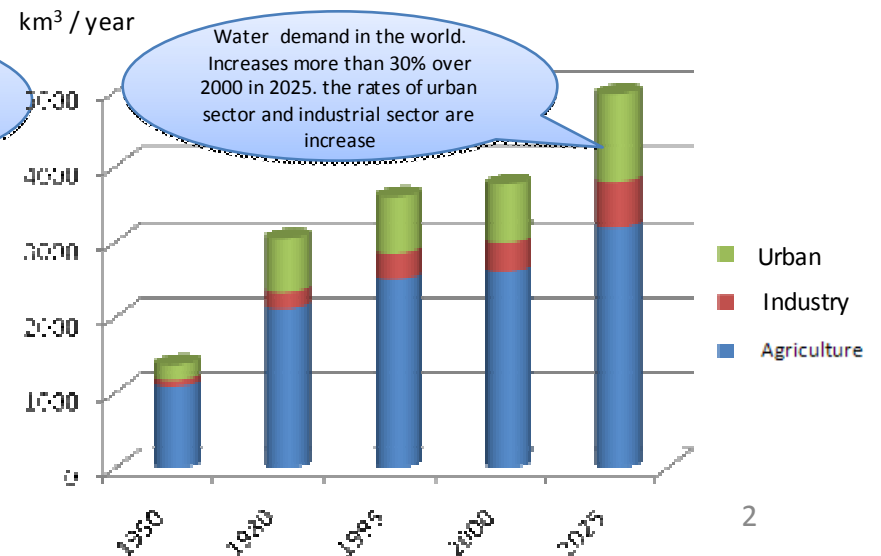
The balance sheet of water resources on the earth

The amount of water on the earth:
about 1.386 billion km³



Note 1: Data provided by The Ministry of Land, Infrastructure and Transport
Based on "World Water Resources at the Beginning of 21st Century: UNESCO 2003"
Note 2: Underground water in Antarctica is not included.

Trends in global water demand

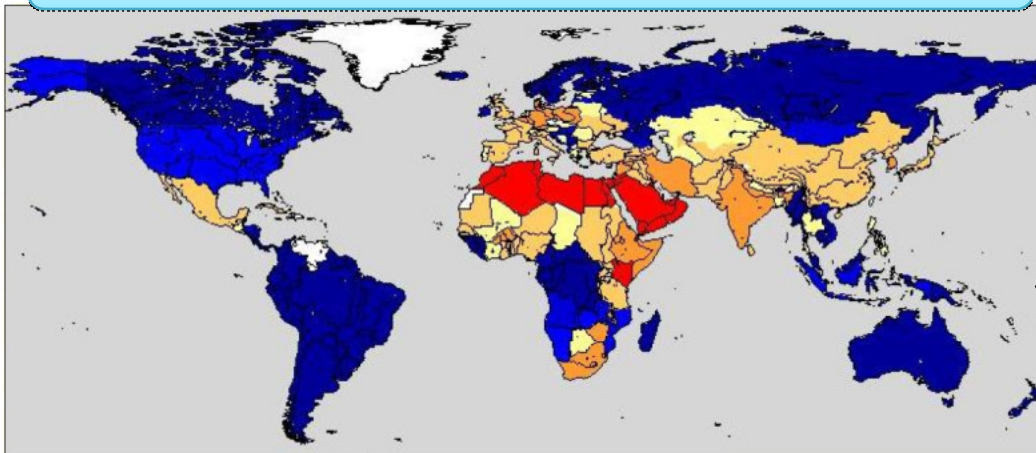


Origin:SHI and UNESCO(1999)

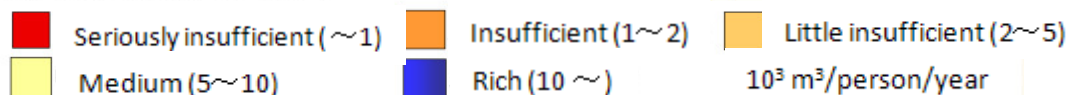
The current state of water shortages in the world

- According to the forecast of the United Nations Development Program, about 700 million people experience a shortage of water in daily life, and the number will reach 1 billion in 2050.
- The number of people who cannot access safe water is expected to reach 1.1 billion, and about 70% are concentrated in the Asian region.
- The regionally uneven distribution of water resources is another serious problem. For example, in the regions such as equatorial areas, the Middle East region, China and India, water resources are limited, but water demand is too large because of the size of the population and the economy.

The amount of water resources per person in each country



(Oki and Kanae, 2004)



Origin: The Ministry of Land, Infrastructure and Transport

There are problems in both the quality and quantity of the earth's water resources.

(There are programs from the viewpoint of hygiene and from the viewpoint of uneven distribution.)

The UN Millennium Development Goals set the target that the number of people who cannot access safe water and basic sanitation will be reduced by half by 2015, but it seems very difficult to achieve this target, as a large budget is necessary and these areas tend to be politically unstable.

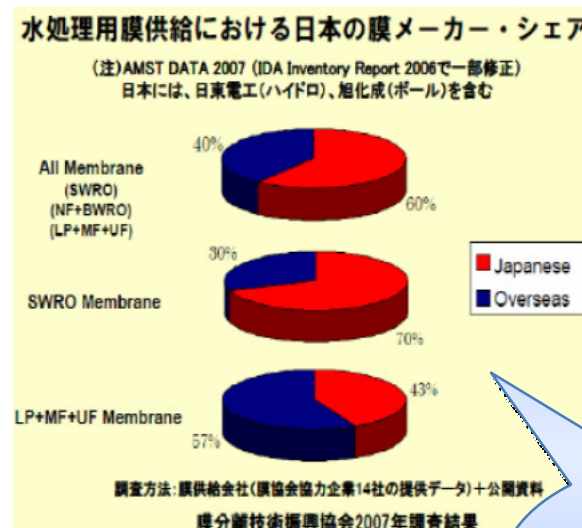
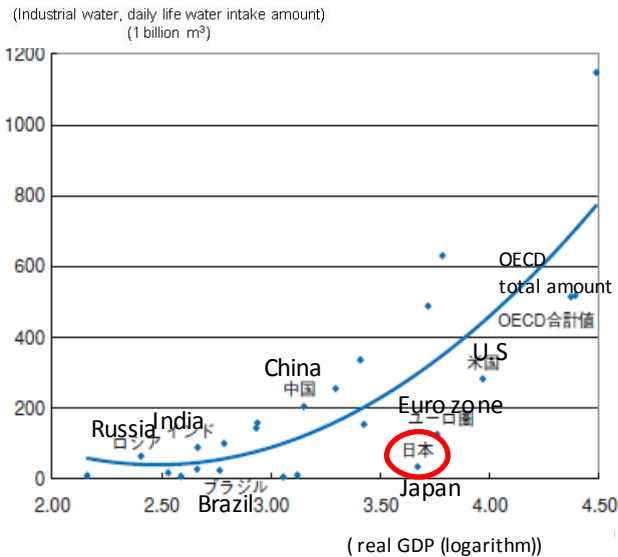
The Water Industry in Japan

- Water demand in Japan is small for the size of the economy because of highly efficient management of water resources using advanced water-saving technologies such as membrane technology, and earthquake-proof and water leak prevention technology, and water recycling technology.
- Japanese companies have sophisticated technologies in water processing equipment, and local governments also have accumulated know-how to manage water services.
- However, foreign companies' business in the management of water services is more dominant than that of Japanese firms.

Relationship between GDP and water demand

Share of Japanese membrane manufacturers in the world

The rate of water leaks in main cities in the world



	The rate of water leak
Tokyo	3.6%
Los Angeles	9%
London	26.5%
Cairo	20%
Bangkok	33%

Japanese-made membranes for water processing equipment have about a 60% global share.

The rate of water leaks in Japan is the lowest in the world.

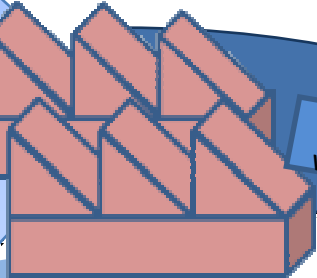
Advantage of Japan's water treatment-related technology

water purification



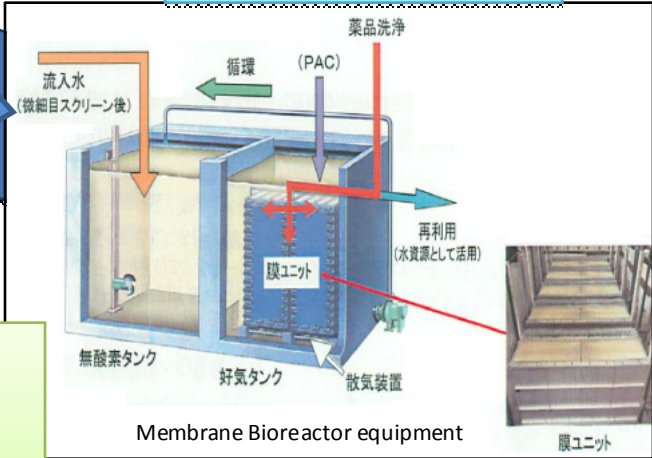
desalting of seawater plant using RO membrane in Kuwait
desalination of seawater
water purification technology

recycle



discharged water

sewage treatment



Membrane Bioreactor equipment
MBR (Membrane Bioreactor)

Feasible water-saving system

Recycle ratio of 80% is achievable

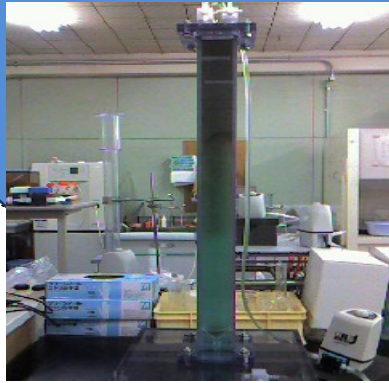
purification of water source



start of test
appearance of purification in Jiangsu Wuxi in China
purification of lake by ozonation



recovery



extractive process from plating wastes



recovered nickel compound

Valuable metal collection technology

Japan's water related policy

Politics workshop

Water security workshop by special committee of the Liberal Democratic Party (LDP)

- December 2007 – May 2008
- Final report compiled in July 2008.



Special committee related to water security of the LDP:

Established as the successor organization to the Water Security Workshop by the LDP

- Established in November 2008

Committee concerning water and hygiene of the New Komeito party

- February 2009 –

Water policy project team of the Democratic Party of Japan

- September 2008 –



Team WATER Nippon

After receiving final report from the Water Security Workshop by a special committee of the LDP, Team WATER Nippon, which is a consortium among politics, industry, academia, and government, was established.

Water Security Council of Japan

Cross-sectoral type of policy proposal organization by government, industry and academia

- Established on January 30, 2009

Committee of the Whole

Execution council

Expert committee

Government workshop

Water resource policy workshop by Ministry of Economy, Trade and Industry

- January 2008 – April 2008
- Report compiled in July 2008



Support by Ministry of Economy, Trade and Industry

Water-saving and environment-conscious water circulation project (FY 2009 - 2013)

- FY 2009 general budget 1.2 billion yen
- FY 2009 supplementary budget 4.8 billion yen



Private sectors workshop

Council on Competitiveness – Nippon (COCN) Water treatment and effective use technology of water resource project

- January 2007 – January 2008
- Report compiled in March 2008



Private community

Global Water Recycle System Association

- Established in November 2008
- 38 participating companies (as of April 2009)



Teams by private sectors

Teams consisting mainly of private companies or such to deal with each areas.

- Global Water Recycle System Association team
- Sewage global center and another 19 teams in total (as of April 2009)

Liaison meeting of concerned government ministries and agencies related to water problems

Liaison meeting of concerned government ministries and agencies related to water problems, which was established in the cabinet, in order that the concerned government ministries and agencies exchange information and views to promote cooperation

- Established on January 28, 2009

Vision for Japan's future Water Industry

Japan aims to contribute to the solution of global water problem by meeting various needs in the countries all over the world, using Japan's highly efficient water treatment-related technology such as water-saving and environment-conscious water circulation system.

Approach of the Ministry of Economy, Trade and Industry(1)

reference

1

Purpose

Water-saving and environment-conscious water circulation project

- **Develop more efficient water treatment technology and demonstrate efficient water circulation system based on Japan's advanced technologies and experience.**
- **promote water-saving and environment-conscious water circulation systems in the world.**

Development of elemental technology related to improvement of water treatment efficiency

(FY 2009~ FY 2013)

Innovative membrane separation technology

Development of membranes with orientation-controlled fine pores below the nanoscale level

Energy-saving type MBR

Development of energy-saving type Membrane Bioreactor (MBR), which is resistant to membrane obstruction.

Valuable metal collection technology

Development of selective separation and collection technology of valuable metal resources (nickel, zinc etc.) from industrial discharge water

Highly efficient persistency substance resolving technology

Highly efficient resolution and disposal technology of persistent chemical compounds using ozone and micro organisms.

Demonstration of water-saving and environment-conscious water circulation system in Japan and abroad

(FY 2009~ FY 2013)

Acquisition of know-how for plant operation and management in Japan and abroad

Build water-saving and environment-conscious water circulation systems in areas with industrial complexes in Japan and abroad to acquire know-how for operation and management. (Feasibility research of water management and operation systems in industrial complex areas in Japan and abroad is planned for FY 2009.

Business matching of our country's water treatment related industry

Implement matching between seeds of our country's water treatment related industry and needs overseas.

Approach of the Ministry of Economy, Trade and Industry (2)

reference

2

Purpose

Waterfront-type aqua community project

Accelerate promotion of highly efficient water circulation system in the world enhanced by Japan's water treatment related industry, through demonstration of the water circulation system and development innovative water treatment technology.

Summary

Demonstration of integrated water treatment technology

Construction, demonstration and research on know-how for operation and management of water-saving and environmentally conscious water circulation systems using new elemental technologies that contributes to cost decrease of water treatment, circulation use for water, recycling of useful metals, etc. Also, a part of elemental technologies that compose water circulation systems are demonstrated in severe environments in foreign countries, effective know-how for operation and management in order to verify the technological application of the water circulation system enhanced in Japan can be matched to various needs in foreign countries.

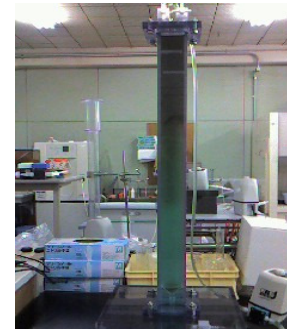
Develop innovative water treatment technology

Seeds of the next generation water treatment technology that enables cost decrease of water treatment, energy-saving and water-saving are researched and developed.

Examples of research and development

- Rare metal recovery technology
- Low-power membrane treatment technology
- Hazardous substance depleting agent reduction technology
- Chemical-free membrane treatment technology
- Technology for the monitoring of leakage reduction, etc.

Extractive process from plating wastes



Recovered nickel compound



Example of nickel recovery from plating wastes