



Japan: Water and Wastewater Industry Overview

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Summary

As 97 percent of Japan's population now enjoys piped fresh water supply, and the population is now in decline, the country does not have much need for the construction of new water supply facilities. However, demand for the renovation or reconstruction of existing facilities – many of which are 50 or 60 years old – is expected to be high. Generally, local governments are responsible for construction and maintenance of water supply facilities. The April 2002 revision of the Water Works Law has paved the way for privatization of water supply business, which has resulted in more opportunities for foreign companies to manage and maintain facilities. Approximately 70 percent of Japan's population is served by sewage removal and treatment facilities. Again, local governments are responsible for facility construction and maintenance. The Japan Sewage Works Agency, jointly owned by local governments, has constructed many sewage facilities through contracts with local governments. Demand for renewal or reconstruction of sewage facilities is high. In either market (water or wastewater), local governments and contractors of existing facilities maintain close relationships that market entry difficult. There are signs of future improvement, however, because the Japan Fair Trade Commission has recently tightened its policy toward compliance with the Antimonopoly Act. The industrial wastewater treatment market is expected to grow steadily as the economy recovers and water quality standards are tightened. As many Japanese manufacturers are now expanding their business in other Asian countries, success for a U.S. firm in Japan might lead to success in other Asian markets. The U.S. Commercial Service in Japan is pleased to assist U.S. companies interested in entering or expanding their presence in Japan.

Market Demand

Water

As Japan's population peaked in 2006 (at 127.7 million) and is now entering a long-term decline (leading to a projected reduction of 20 million people over the next 50 years), there will be no substantial demand for construction of new water supply facilities. However, there will be substantial demand for the renovation of existing facilities. Most of Japan's facilities were constructed in the immediate post-war period after 1945 and these facilities will need to be renewed or expanded over the next 15 years. Furthermore, the industry will require heavy investment to introduce advanced water treatment systems. Japan depends on surface water for 78 percent of its raw water supply. However, surface water quality has recently deteriorated for a number of reasons, including residential and industrial developments causing water from sewage systems to spill into rivers and lakes. There is strong demand for advanced treatment systems to produce potable water. One industry analyst estimates that by 2020 the industry will require annual investment of \$30 billion. This represents considerable growth over the \$12-16 billion seen in the last several years. However, the U.S. Commercial Service in Japan (CS Tokyo) believes that limited budgets at both the central and the municipal governments will limit any rapid expansion of the market for at least a few years. The revised Water Works Law, which became effective on April 1, 2002, has enabled the various water utilities to contract their operation management and quality management to other utilities or qualified organizations. A number of private domestic and foreign companies have shown interest in participating in this new market opportunity.

Wastewater

Japan has a very low level of sewage coverage considering the level of its GDP. As of March 2006, Japan's wastewater facilities serviced 69 percent of the population. Of the remainder, 12 percent of households used septic tanks and 19 percent had no access to sanitation. To improve this, the sector's first priority is to expand the wastewater treatment system in rural areas. Other goals include:

- Development of wastewater treatment technologies,
- Reduction and recycling of sewage sludge,

- Development of rainwater control systems,
- Improvement of sewer infrastructure,
- Increased levels of recycled water,
- Improved efficiencies in and management of existing sewage facilities, and
- Investment in the rehabilitation, renovation, and reconstruction of sewage facilities.

While this presents an extraordinary range of opportunities, U.S. firms should keep in mind that cozy relationships exist between local governments and domestic contractors. Moreover, constrained budgets will limit procurements by municipal governments. So, while the opportunities will be there, it will take some determination and a long-range view to take advantage of them.

Industrial Wastewater

Industrial wastewater results from various industrial and commercial activities and its nature varies with the type and scale of the facility discharging it. Japan has two sets of legislation to deal with such wastewater. The Water Pollution Control Law (WPCL) designates facilities that emit hazardous wastewater as Specified Facilities while the Sewage Law refers to those same facilities as Specified Business Premises. Any projects that will construct a Specified Facility must report to appropriate authorities. The WPCL applies to cases when wastewater from Specified Facilities is poured into public water or underground. ("Public water" refers to water available for public use, including rivers, lakes, marshes, harbors, coastal waters and the like.) Specified Facilities are required to install wastewater treatment facilities in order to keep the hazardous content within the limits of effluent standards. In cases where wastewater is poured into a sewage system, the Sewage Law applies. The Sewage Law then requires such establishments to install equipment that will treat wastewater, keeping it within levels that do not adversely affect the quality of the sewage. The following industry sectors have major specified facilities: machinery, food processing, chemical, steel, pulp and paper. Due to increasing constraints in industrial water supply, many companies are interested in recycling water. As the economy perks up and environmental standards are tightened, the industrial wastewater treatment segment holds much more potential for U.S. firms than the other water treatment segments.

Market Data

Member of the Japanese Society of Industrial Machinery Manufacturers command approximately 80 percent of the wastewater treatment market and the following figures show the dollar value of the equipment they produced in 2004, 2005 and 2006.

Production of Water Pollution Control Equipment

(In millions of dollars)

	2004 FY	2005 FY	2006 FY
Industrial wastewater treatment:	608	613	678
Sewage water treatment:	1,989	1,703	1,303
Human waste treatment:	379	324	268
Sewage sludge treatment:	1,107	809	581
Sea water pollution control:	1	2	1
Peripherals:	314	292	322
Total:	4,397	3,743	3,153
(Exchange rate:	108.15 yen/\$	110.11 yen/\$	116.31 yen/\$)

Best Prospects

U.S. equipment and service providers will find the best prospects in the following areas.

Water

- Water purification system to kill chlorine-resistant, waterborne pathogenic microorganisms, e.g., cryptosporidium.
- Next-generation water purification technology that kills bacteria resistant to antibiotics.
- Technology to eliminate traces of hazardous materials such as dioxins and endocrine disruptors.

- Rust removal and anticorrosion lining for water supply pipes.
- Rehabilitation and life extension technology for water supply pipes.
- Micro Filtration (MF) membrane.
- Ultra Filtration (UF) membrane.
- Reverse Osmosis (RO) membrane.
- Ion-exchange resin.
- The electronics industry offers strong demand for ultra-pure water production systems, mainly for re-export to Korea, Taiwan and China.
- Desalination plants offer strong demand for re-export to the Middle East.

Sewage and Industrial Wastewater

- Solid-liquid separators: screen, precipitator, floating separator, clarifier, etc.
- Physical chemical treatment equipment: pH controlling equipment, oxidation-reduction equipment, extractor, absorption equipment, ion-exchanger, electro-dialysis equipment, reverse osmosis devices, ferrite treatment equipment, de-aerator, etc.
- Biological chemical treatment equipment: activated sludge treatment equipment, trickling filter, rotating biological contactor, contact aeration equipment, anaerobic digestion equipment, biological nitrogen removal equipment, biological treatment equipment, lagoon, etc.
- Heat treatment equipment: evaporator, heating devices, heating-cooling equipment, freezing treatment equipment, etc.
- Deodorizing equipment
- Heat recovery from sewage sludge
- Biomass gas recovery from sewage sludge and power generation
- Rehabilitation & life extension technology for sewage pipes

Key Suppliers

Key players for water related business in Japan are classified into three categories: EPC (engineering, procurement and construction) companies, system suppliers and product suppliers. Top 30 companies monopolize more than 80 percent of the market.

EPC companies: Ebara Corporation, Kubota Corporation, Hitachi Plant Engineering & Construction Co., Ltd., Tsukishima Kikai Co., Ltd., Mitsubishi Heavy Industries, Ltd., Sumitomo Heavy Industries, Ltd., Suido Kiko Kaisya, Ltd., Nishihara Environmental Technology, Inc., Shinko Plantec Co., Ltd., Organo Corporation, Ataka Construction & Engineering Co., Ltd., NGK Insulators Co., Ltd. and JFE Engineering Corporation

System suppliers: In addition to the above EPC companies, Toshiba Corporation, Hitachi, Ltd., Fuji Electric Holding Co., Ltd., Meidensha Corporation and Sanki Engineering Co., Ltd.

Product suppliers:

Pump: Ebara Corporation, Hitachi, Ltd. and Tsurumi Manufacturing Co., Ltd.

Chemicals: Kurita Water Industries Ltd. and Katayama Nalco Inc.

Membrane: Mitsubishi Rayon Co., Ltd., Toray Industries, Inc. and Nitto Denko Corporation

Pipes and valves: Kubota Corporation, Kurimoto, Ltd., JFE Engineering Corporation and Maezawa Industries, Inc.

Prospective Buyers

Water

Generally, cities treat and distribute water to individual users. There are cases where prefectures treat water and then supply it to groups of small cities, towns, and villages. Those groups then supply to individual users through municipal governments. There are also cases in which prefectures treat and distribute to individual users. Therefore, prefectures and cities are prospective buyers. For construction of water treatment and supply facilities, the Japanese government has encouraged a move from traditional bulk or bundled contracts

to separate procurements. As for water supply systems, three works are procured separately: civil engineering and construction, equipment, and electrical equipment.

Wastewater

Municipal governments (cities, towns, and villages) most often are responsible for construction and management of sewage systems. However, some prefectures construct and manage sewage systems for regions covering two or more municipalities. The Japan Sewage Works Agency (JSWA) constructs and manages terminal sewage treatment facilities based on contracts with municipal governments. JSWA was established with equal participation from the central and local governments but is now fully owned by local governments. Many municipal governments have entrusted JSWA with contracts for construction of sewage facilities. JSWA has constructed approximately 60 percent of Japan's total sewage facilities.

Industrial Wastewater

The following list presents potential buyers in specific industry sectors.

Automotive:	Toyota Motor Corporation, Nissan Motor Co., Ltd., Honda Motor Co., Ltd., Mitsubishi Motor Corporation, Isuzu Motors Limited, Denso Corporation
Chemical:	Shin-Etsu Chemical Co., Ltd., Tosoh Corporation, Mitsubishi Chemical Holdings Corporation, Mitsubishi Plastics, Inc., Sumitomo Chemical Co., Ltd., Showa Denko K.K.
Machinery:	Mitsubishi Heavy Industries, Ltd., Sumitomo Heavy Industries, Ltd., Ishikawajima-Harima Heavy Industries Co., Ltd., Toshiba Corporation, Hitachi, Lt, Kubota Corporation
Food Processing:	Ajinomoto Co., Inc., Nichirei Corporation, Toyo Suisan Kaisha, Ltd., House Foods Corporation, Kikkoman Corporation, Nissin Food Products
Pulp & Paper:	Oji Paper Co., Ltd., Nippon Paper Group, Inc., Mitsubishi Paper Mills Limited., Daio Paper Corporation, Hokuetsu Paper Mills, Ltd.
Steel:	Nippon Steel Corporation, JFE Steel Corporation, Sumitomo Metal Industries, Ltd., Nisshin Steel Co., Ltd, Nakayama Steel Works, Ltd.

These companies have already installed wastewater treatment equipment at existing factories. U.S. suppliers will likely see significant opportunities when these firms construct new factories. Although many large companies have started shifting production from domestic to foreign locations, some companies have poured new investments into their domestic facilities. Additionally, domestic manufacturers of wastewater treatment equipment are pursuing business with companies whose manufacturing facilities have been shifted from Japan to other Asian countries, including China, India, Thailand, and the Philippines. U.S. firms should consider partnering with Japanese companies to pursue opportunities in these countries. Constraints in industrial water supply has led to higher rates of water recycling and this should also provide opportunities for U.S. firms offering efficient recycling technologies.

Market Entry

The U.S. Commercial Service in Japan suggests that U.S. firms consider the following when conducting business in the environmental equipment market:

- Marketing and sales should be conducted in Japanese. Also, consider partnering with Japanese companies that are familiar with Japanese regulations and industry practices.
- However, teaming up with large Japanese companies doesn't always work. Some Japanese firms might be too large to focus on the sales of your products. Therefore, consider partnering with aggressive and ambitious, medium- to small-sized companies with an engineering background. The U.S. Commercial Service in Japan offers various products and services to assist in identifying appropriate partners. More information is available at: <http://www.buyusa.gov/japan/en/>
- Marketing in Japan should follow a long-term, comprehensive strategy. Again, the U.S. Commercial Service in Japan would be pleased to discuss strategy formulation.

- The U.S. Commercial Service in Japan conducts seminars and exhibitions that can be effective in gaining market exposure for U.S. firms.

Market Issues & Obstacles

On May 23, 2006, the Japanese Fair Trade Commission (JFTC) filed a complaint, claiming a suspected violation of the Antitrust Law. The complaint named eleven companies that were allegedly involved in bid rigging related to the construction of bio-solid and human waste treatment facilities. The eleven companies included:

1. Ebara Corporation
2. Kubota Corporation
3. Ataka Construction & Engineering Co., Ltd.
4. Kurita Water Industries Ltd.
5. Nishihara Environment Technology, Inc.
6. Takuma Co., Ltd.
7. Sumitomo Heavy Industries, Ltd.
8. Mitsubishi Heavy Industries, Ltd.
9. JFE Engineering Corporation
10. Hitachi Zosen Corporation
11. Mitsui Engineering & Shipbuilding Co., Ltd.

Following the JFTC's complaint, the Ministry of Economy, Trade and Industry (METI) and other agencies suspended the designation of these companies as qualified participants in their bids.

Historically, Japan's wastewater and sewage industries have been closed and occasionally corrupt. So, major domestic engineering companies have easily dominated the market and it has been extraordinarily difficult for foreign firms to succeed. But, there are signs of improvement. As evidenced by the JFTC's complaint in 2006, the commission is attempting to apply the Antitrust Law as strictly as possible to open the market to increased competition. In one successful case, Hiroshima City has awarded Veolia Water (France) an operation and maintenance contract for sewage treatment facilities with a daily capacity of 20 tons.

Trade Events

These three events are among the industry's most significant and present networking opportunities.

Sewage Works Exhibition 2008

Organizer: Japan Sewage Works Association (JSWA)
Event partner: The Japan Industrial Journal
Period: July 22-25, 2008
Venue: Pacifico Yokohama, Yokohama, Japan
Visitors: 100,000
Frequency: Annual
Note: Participation as an exhibitor is open to JSWA members only.

N-EXPO 2008 Tokyo

Organizer: Nippo Co., Ltd.
Period: June 3-6, 2008
Venue: Tokyo Big Sight, Tokyo, Japan
Visitors: 154,000
Frequency: Annual

2008 Exhibition for Geo-Environmental Restoration

Organizer: Geo-Environmental Protection Center/The Nikkan Kogyo Shimbun
Period: October 1-3, 2008
Venue: Tokyo Big Sight, Tokyo, Japan
Visitors: 31,000

Frequency: Annual

Resources & Key Contacts

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Website: <http://www.jwwa.or.jp/>

Japan Water Research Center
Address: Toranomom Denki Bldg., 2-8-1 Toranomom, Minato-ku, Tokyo 105-0001
Tel: 81-3-3597-0221, 81-3-3597-0215
Website: <http://www.jrwe-net.or.jp/>

Federation of Japan Water Industries, Inc.
Address: 3F, Nippon Suido Kaikan, 4-8-9 Kudan Minami, Chiyoda-ku, Tokyo 102-0074
Tel: 81-3-3264-1654, Fax: 81-3-3239-6369
Website: <http://www.suidanren.or.jp>

Japan Water Agency
Address: 11-2 Shintoshin, Chuo-ku, Saitama 330-6008
Tel: 048-600-6500
Website: <http://www.water.go.jp/honsha/honsha/index.html>

Water Re-use Promotion Center
Address: Fukuda Bldg. 4F, 4-5 Nihonbashi Yokoyamacho, Chuo-ku, Tokyo 103-0003
Tel: 03-5644-7565, Fax: 03-5644-0686
Website: <http://www.wrpc.jp/index-e.htm>

Association of Water and Sewerage Works Consultants
Address: 4-8-7 Roppongi, Minato-ku, Tokyo 106-0032
Tel: 03-3403-0250, Fax: 03-3403-0252
Website: <http://www.suikon.or.jp>

Japan Institute of Wastewater Engineering Technology
Address: Suido-cho Bldg. 7F, 3-1 Suido-cho, Shinjuku-ku, Tokyo 162-0811
Tel: 03-5228-6511, Fax: 03-5228-6512
Website: <http://www.jiwet.or.jp/english/>

Sewerage Business Management Center
Address: Yushimadai Bldg. 2F, 2-31-27 Yushima, Bunkyo-ku, Tokyo 113-0034
Tel: 03-5842-3313, Fax: 03-3815-3941
Website: <http://www.sbmc.or.jp/>

For More Information

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