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ASIA PACIFIC MARKET OPPORTUNITY PROFILE
ENVIRONMENTAL
KOREA

WATER/WASTE WATER TREATMENT MARKET

Market Overview

The Korean environmental market has been growing steadily at more than 10 per cent per annum. Although exact information is not readily available, the total market was estimated at US $19.2 billion in 2006. The water/wastewater treatment component, the largest sub-sector of the market, was estimated at US $7.1 billion in 2006. Given the Government of Korea's continued commitment to improving the environment, this high growth rate is likely to continue throughout the next decade.

Access to clean water and water quality is a major environmental issue in Korea. Given Korea's high population density, its average precipitation per capita is only 2,775 m^3, which is 12.5 per cent of the world average of 22,096 m^3. The United Nations classified Korea as a water-stressed nation in 1993 and according to the Korea Water Resource Corporation the country is forecasted to face a water shortage of 1.8 billion tons in 2011.

While demand for increased underground water use continues to grow, due to limited inland water sources, total use of groundwater in 2004 was still only at 32 per cent (3.7 billion m^3/year) of the development potential (11.7 billion m^3/year), demonstrating that the value of groundwater as an alternative source of water is very high. A 2004 groundwater quality study of 4,760 test samples indicated that 230 (4.8 per cent) did not meet regulatory standards, creating opportunities for remediation of contaminated water.

Korea discharges about 2.5 million tonnes of sewage sludge per year, 72 per cent of which ends up dumped into the ocean as a result of a 2000 regulatory change that prohibited the disposal of sludge at landfill sites. In early 2006, however, ocean dumping sludge regulations changed again, thus advanced solutions for volume reduction and recycling of sewage sludge are in great demand.

Currently, there are 242 municipal sewage treatment plants nationwide, and the Korean government constructs over 10 new sewage treatment plants every year. In addition, as Korean environmental regulations are strengthened, the Korean government is upgrading existing sewage treatment plants to install tertiary processes such as activated carbon filtering and advanced disinfection processes.

Drinking water treatment measures have been widely expanded in order to address public concerns related to waterborne viruses and pathogens. Due to public mistrust of the public waterworks, only a few people drink unboiled tap water. Among these efforts include the development of comprehensive plans for the adoption of water treatment standards as well as improvements in water purification facilities.

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ENVIRONMENTAL

Opportunities

Korea's water pollution control market is driven mainly by government spending (estimated at US $3.1 billion in 2004), slightly more than half the national total in this sector. Korean government water management projects focus on improving both water quality and water supply. Water quality improvement involves upgrading of municipal, livestock, and industrial wastewater treatment plants, and retrofitting sewer pipelines. Supply side improvements include multi-purpose dam construction, water supply development for industry, agriculture and drinking purposes, and flood prevention management.

The government continues to strengthen regulatory requirements for polluting industries and enforcement is a key factor driving the water treatment equipment market. Technical needs focus on the elimination of nitrogen and phosphorus and the treatment of insoluble materials. Water purification needs include advanced treatment process technologies to eliminate hazardous substances, taste and odor. In the last 30 years, the development of huge industrial complexes and many new cities in coastal areas has made the disposal of industrial water effluents and sewage from urban areas an urgent issue.

MARKET ENTRY STRATEGIES

Korea's water pollution control market is receptive to foreign suppliers. Import duty rates for most products are 8 per cent on a CIF basis. However, the Korean government grants reductions or exemptions on pollution control equipment imports, and offers long-term, low-interest loans to environmental investors and technology developers.

Water pollution control products and services are either sold directly by the manufacturer to the end user, or through a sales agent. The Korean government purchases generally through the Public Procurement Office. It issues international public bids for national and local water pollution control projects where the project cost is over an internationally agreed standard. Engineering and design firms are usually in a position to influence the selection of specific products, and B.C. firms should engage Korean representatives who can provide full market information and effective sales support. It is also useful for prospective suppliers to work with environmental firms who specify equipment for major projects.

Water pollution control equipment requires high levels of precision, reliability, and maintenance. Therefore, if a decision is made to enter the market using an agent, it is important to choose a reliable and competent firm that possesses the requisite technical capabilities and has excellent government and industry contacts.

Partnerships with Korean firms can take many forms including: distributor or agent agreement, technology transfer or license agreement, and a joint venture company. If a B.C. company has experience and knowledge of the Korean market, it can establish its own representative or branch office, or a wholly owned subsidiary. It is also possible to have a local presence by acquiring an existing Korean environmental company.

It is also important to prepare a clear-cut agreement; however, many Korean corporate decision-makers still value personal trust and relationships more than contractual terms and conditions. Such a trusting relationship can be built by maintaining frequent and effective communications, both formal and informal, and through patience. In this context, it is imperative to thoroughly evaluate the prospective partner through reliable and objective sources in order to avoid or minimize any unexpected future conflicts and risks.

Target Sewerage Treatment Rate

Category	2004	2010	2015
Sewerage Treatment Rate (%)	81.4	84.2	90
Total Population (thousand)	49,053	49,594	49,803
Served Population (thousand)	39,924	41,758	44,822

Target Sewer Installation Rate

Category	2004	2010	2015
Sewer Installation Rate (%)	68.1	70.0	72.3
Planned Extension (km)	120,814	137,307	139,377
Pipe Extension (km)	82,214	95,994	100,733

Source: Korean Ministry of Environment, http://www.me.go.kr

COMPETITIVE ENVIRONMENT

Although official import share data is not readily available it is estimated that approximately 10 per cent of the overall market for water pollution control equipment comes from offshore suppliers. Japan is the principal foreign supplier with 40-50 per cent of the market, due to its lengthy commercial experience in Korea and its attractive financial packages. It is followed by the U.S. and Germany with market shares of 20 per cent and 19 per cent respectively.

Traditionally, local water treatment equipment manufacturers have supplied a major portion of environmental projects with medium-level technology and medium-cost products. They are either affiliated with large conglomerates such as Hyundai, Samsung, SK, Ssangyong, Halla and Lotte or small to medium-sized, independent environmental specialists. While the local suppliers have significantly improved their technologies, mostly through technology transfer and mergers with non-Korean suppliers, they still lack the core technologies needed to supply the products that meet the government's stringent regulatory requirements. As a consequence Korean companies are continually looking overseas for the latest technology and often form partnerships with foreign companies. Examples of these partnerships include Hyosung-Ebara (Japan) and Korea Cottrell (United States).

For the last several years, French companies have actively invested in Korea's municipal sewage treatment plant projects that are either build-transfer-operate (BTO) or build operate-transfer (BOT). Active third country suppliers include Vivendi Environmental (France), Led Italia (Italy), Danish Hydraulic Institute (Denmark), Daiki (Japan), Rochem (Germany), Denka Engineering (Japan), Trailigas (France), Nitto Denko (Japan), Suirei (Japan), Nittetsu Chemical Engineering (Japan), and YIT (Finland).

REGULATORY ENVIRONMENT

The Korean Ministry of Environment (MOE) is responsible for environmental policies and programs including water quality management, waste management, and water supply and sewage treatment. Legislation and regulations that pertain to sanitation include the following: the Sewerage Act (1966); Wastes Management Act; Act on the Disposal of Sewage, Excreta and Livestock Wastewater; Water Quality Conservation Act.

A "Special Taskforce for Sewage Pipeline Rehabilitation" was launched by the MOE in 2002 with participants from state and local agencies. The resulting Comprehensive Plans for Sewage Pipeline Rehabilitation were established and remediation pilot projects embarked upon by 9 local governments around the Paldang reservoir.

In 2006, a Water Environment Management Master Plan was introduced by the MOE that shapes the government's policy directions for the 10 year period 2006~2015. Its goal is to promote and ensure ecologically healthy water environment and high quality water systems. The Master Plan is a legally recognized framework for implementing national water quality management programs under the Water Quality Conservation Act. The Plan is to secure and preserve the nation's water environment and aquatic ecosystems.

Under the Plan, investment in environmental infrastructures will be increased and the goal is that sewerage treatment rates will rise to 90 per cent by 2015 (from current rates of 81 per cent). Small-scaled wastewater treatment facilities in non-urban areas will be expanded as will wastewater treatment to coastal areas, upper courses of dams, and other areas as required.