

KEY CONTACTS

British Columbia Ministry of Technology, Trade and Economic Development - International Business Development Branch

Suite 288 - 800 Hornby Street
Vancouver, BC V6Z 2C5
Phone: 1-604-660-2399
E-mail: Asia.Pacific@gov.bc.ca

British Columbia Trade & Investment Office - China

Managing Director
425 Hong Feng Road
Shanghai, 201206 China
E-Mail: Asia.Pacific@gov.bc.ca

Consulate of Canada, Chongqing

<<http://www.chongqing.gc.ca>>

Consulate General of Canada, Guangzhou

<<http://www.guangzhou.gc.ca>>

Canadian Embassy Beijing

19 Dongzhimenwai Street
Chaoyang District
Beijing 100600, China
Tel: +86(10) 6532-3536
Fax: +86(10) 5139-4450
E-mail: beijing-td@international.gc.ca
<<http://www.beijing.gc.ca>>

Consulate General of Canada in Shanghai

<<http://www.shanghai.gc.ca>>

State Environmental Protection Administration

No. 115 Xizhimennei Nanxiaojie
Beijing 100035, China
Tel: +86(10) 6615-3366
Fax: +86(10) 6615-1768
E-mail: mailbox@sepaec.gov.cn
<<http://www.zhb.gov.cn>>

China Association of Environmental Protection Industry

9 Sanlihe Road, Haidian District
Beijing 100835, China
Tel: +86(10) 6839-3245 or -3827
Fax: +86(10) 6839-3748
E-mail: ciepec@163.net
<<http://www.caepi.com>>

Guangdong Provincial Environmental Protection Bureau

213 Long Kou Xi Road, Guangzhou
Guangdong 510630, China
Tel: +86(20) 8753-1701
<<http://www.gdepb.gov.cn>>

Guangdong Association of Environmental Protection Industry

<<http://www.gdepi.com.cn>>

Guangdong Environmental Engineering and Equipment General Corporation

<<http://www.geeein.com.cn>>

Links and References

Environment Protection Sector Profile- Guangdong, China, October 2007, Canadian Trade Commissioner Service

Environmental Health Research Briefs and Fact Sheets, China Environment Forum

Exporting to China: A Guide for Canadian Businesses, Export Development Canada

Urban Wastewater and Solid Waste Management for Small Cities and Towns, Asia Development Bank, December 2007, Project Number: 40645

GLOBE-Net, the On-line Guide to the Business of the Environment, published by the GLOBE Foundation, has many articles and reports on the China environmental market. <http://www.globe-net.com>

China Environment Industry Network <http://www.cein.net>

China Environmental Protection <http://www.zhb.gov.cn>

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WASTE / WASTE WATER
TREATMENT MARKET

Market Overview

China's rapid economic expansion has left a legacy of serious environmental challenges, including chronic shortages of water and electricity, massive flooding, severe soil erosion, excessive levels of pollution, and one of the highest rates of desertification in the world.

Many parts of China experience severe shortages of clean water, the result of the growing demands of its large population, but also due to years of pollution of natural aquifers by the nation's massive chemicals and resource development industries. Although China has significantly improved its water and wastewater infrastructure, many parts of the country, especially north of the Yellow River (which includes Beijing), continue to suffer water shortages. This has led to some industrial development expansion plans being put on hold. As a consequence, water reuse for industrial applications has become a major priority.

Municipal Wastewater Treatment:

Virtually all municipalities in China are either constructing or planning to construct wastewater treatment facilities. Some of the larger projects being planned or built are in Beijing, Tianjin, Chongqing, Guangzhou, Shenzhen and Liuzhou.

China also is experiencing problems in dealing with municipal waste water sludge, as most wastewater treatment plants developed over the last decade do not have facilities for sludge treatment and disposal. This has created a huge demand for water treatment technologies, particularly for biological and phosphorus removal technologies; anaerobic biological reactors such as upward-flow anaerobic sludge bed reactors, anaerobic filters, anaerobic attached-film expanded beds, and anaerobic fluidized bed reactors; immobilized microbe technologies; membrane manufacture technologies; low-speed and variable-speed multi-

pole centrifugal blowers; sludge treatment and disposal equipment; packaged thickening and dewater belt presses; horizontal screw centrifugal dewatering equipment; methane electric generators; and automatic control equipment for water treatment.

Industrial Wastewater Treatment:

In the industrial wastewater treatment sector, technologies that can efficiently remove non-biodegradable organics are needed particularly in the pulp and paper, textile, chemical, and petrochemical industries. The following technologies and equipment have the best market potential in China: high-concentration organic wastewater treatment technology; membrane separation technologies, such as reverse osmosis, nanofiltration, ultrafiltration, microfiltration, and ion exchange; wastewater deep treatment and reuse technology and equipment in the coal mining, pulp and paper, metallurgy, and petroleum industry sectors.

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Opportunities

Under the nation's 11th Five-Year Plan (2006-2010), government investment in environmental protection will exceed US \$192 billion, an amount equal to 1.4-1.5 per cent of the country's gross domestic product (GDP). China will spend US \$6 billion to construct over 500 municipal wastewater treatment plants by 2010, many of which will be associated with long-term mega-projects.

These include: the *South-North Water Diversion Project* to transfer water to the China's drought-ridden northern areas; the *Three Gorges Dam*, the largest hydroelectric dam in the world, which alone requires 200 water treatment and solid-waste treatment plants; and the *Western Region Development Strategy* to help China's western provinces through investments in water conservancy and energy.

These projects present opportunities for B.C. companies in the following areas: monitoring equipment; water-quality monitoring instruments and automatic control systems; disinfecting systems including ozone generators, chlorinating machines, metering pumps and chemical agent equipment; sludge scrapers, suction devices and aerators; resource recovery and clean production management systems.

MARKET ENTRY STRATEGIES

Partnering with a reliable Chinese company to work on wastewater treatment projects is an effective method of doing business in China. Chinese companies are usually more experienced in bidding for major government-funded projects.

B.C. companies can also enter the Chinese market by forming alliances with local design institutes. These design institutes usually welcome the opportunity to form co-operative ventures with Canadian companies, as they can gain state-of-the-art knowledge, experience and problem solving skills that such firms can offer.

Also, in China many water/wastewater improvement projects are financed by International Financial Institutions (IFI), including the Asian Development Bank and the World Bank. British Columbia environmental service companies are encouraged to regularly check the IFI web sites to find out about new or updated environmental business opportunities.

The Vancouver-based GLOBE Foundation manages a web site that provides comprehensive market reports and business opportunity information for the China market (<http://www.globe-net.com>).

While China holds excellent market potential for B.C. environmental companies, the challenges of entering the market are also significant. China's highly complex business environment, along with its culture and ways of conducting business, can be daunting to new, export-ready companies—and even to the

most seasoned exporters. To succeed in this market B.C. companies must: offer products that are price and quality competitive; be prepared for lengthy negotiations; be committed for the long term; and have international business development experience.

A strong local presence is often required to build solid business contacts, to conduct marketing campaigns, and to provide clients with systematic and constant training.

Business opportunities are identified and technology decisions made generally at early stages of project development, so it is important for B.C. companies to get involved at the outset in the planning stages of a project, and to have ongoing discussions with applicable government agencies and equipment suppliers. Projects are often contracted out to local design institutes, though more recently, national institutes have been getting a larger share of business, particularly in less developed provinces and municipalities where local design institutes don't have the experience to manage large-scale projects.

As a general precaution, B.C. companies should be aware that although China has indicated a strong commitment to improving protection for intellectual property rights, trademark infractions and theft of patented technology are still prevalent. Accordingly, B.C. exporters should enlist the services of a qualified lawyer familiar with China's intellectual property rights environment.

COMPETITIVE ENVIRONMENT

Competition for water and wastewater infrastructure projects in China is fierce. China's domestic technology, equipment, and service sectors do not compare favourably to imported products.

Until recently, local governments held the prime responsibility for public water and sewage works and waste treatment services. Government-affiliated academic institutions (typically called "design institutes"), were, and continue to be, an integral part of the industry.

Small and medium sized enterprises only recently became players in the industry.

Public-private partnerships (P3) for water and wastewater treatment, especially build-operate-transfer contracts, are increasingly popular in China. Many forms P3 are now accepted by the Chinese government for supplying technology and equipment and for providing long-term investment opportunities for foreign enterprises.

China's domestic environmental firms have gained a stronghold in small-scale wastewater treatment technology projects. As a result, the best market for B.C. wastewater treatment companies is the medium to large-scale wastewater treatment projects.

REGULATORY ENVIRONMENT

China's government has shown an increased willingness to enact and to enforce environmental regulations and has set ambitious targets in areas such as renewable energy and provision of clean water. The government has

made the environment a matter of national importance, making increased energy efficiency and more sustainable economic development major components of the country's 11th Five-Year Plan, which runs through 2010.

While a great deal of progress has been made, China's regulatory regime for water/wastewater treatment is plagued with inconsistencies and very notable lapses. Successful prosecutions are rare.

Key Markets

• **Shanghai Sungoal Water Treatment Equipment Co. Ltd** is a water treatment company in Shanghai that focuses on natural and wastewater treatment engineering solutions, and advanced water treatment systems, including reverse osmosis (RO) drinking water purification systems and industrial wastewater systems.

Contact:

RM 401, NO. 82, Lane 1100, GuDai Rd
Shanghai 200112 China,
+86(21) 3417-0626

• **Beijing Tri-High Membrane Technology Co.,** is an international company providing water treatment products and expertise in membrane research and application.

Contact:

406, Baiyan Mansion, No. 238 Beisihuan Zhonglu
Haidian District, Beijing 100083, China
Tel: +86(10) 8271-5570 Fax: +86(10) 6284-3557
<http://www.trihigh.com.cn>