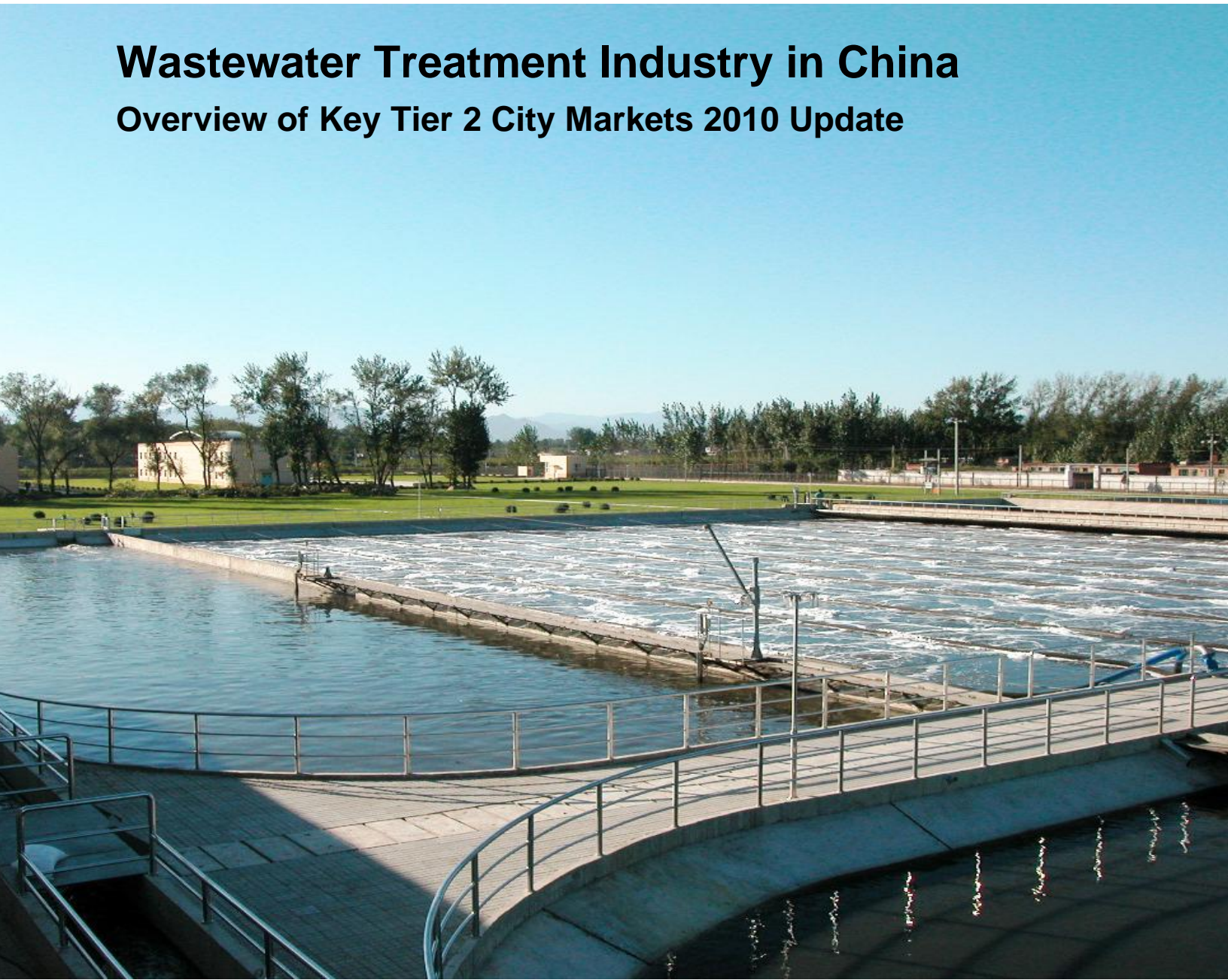


Wastewater Treatment Industry in China

Overview of Key Tier 2 City Markets 2010 Update



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INTRODUCTION

The objective of this report is to provide an overview of the Chinese market for wastewater treatment¹, with focus on some key emerging Tier 2 city markets beyond already established Tier 1 cities such as *Shanghai, Beijing, and Guangzhou*².

EXECUTIVE SUMMARY

Market overview. China continues to face severe water pollution and water scarcity problems. China generated 57.2 billion tons of wastewater in 2008; municipal wastewater and industrial wastewater account for 58% and 42% respectively. It is expected that total wastewater will continue growing due to rapid urbanization and industrialization, reaching 79 billion tons by 2015. The current wastewater treatment infrastructure is still inadequate (although many WWTP's³ operate under-capacity) and there will be continued construction of new facilities and upgrading of existing ones, resulting in a large demand for investment. However, competition for projects is fierce, from foreign companies that can provide advanced technology and management, as well as from domestic players, which can typically offer more competitive prices and in some cases comparable technology.

Regulatory environment. China has recently stepped up its efforts to improve the regulatory framework for modern wastewater management, especially in the last decade. A range of regulatory and economic instruments are used (e.g. user charges for water services); however, local enforcement remains weak in many regions (e.g. low collection rates on water tariffs). The 11th Five-Year Plan (2006-2010) emphasizes the concepts of constructing a water-saving society and treating water pollution and this trend is expected to continue into the 12th Five-Year Plan (2011-2015). China has also stipulated relevant policies to encourage private and foreign investment in wastewater treatment facilities.

Wastewater treatment industry in the Financial Crisis. In response to the world economic crisis, the Chinese central government announced an RMB 4 trillion stimulus package (funds injected from 2008 to 2010) to encourage infrastructure development. Nearly 50% of the funds are earmarked for infrastructure and related projects; RMB ~370 billion is earmarked for rural infrastructure including water supply and RMB ~350 billion is earmarked for environmental protection projects, including municipal water and wastewater treatment projects.

¹ The process of removing contaminants from wastewater, which involves physical, biological, and chemical treatments

² In this report we use the term "Tier 2" or "secondary" city to refer to cities besides Beijing, Shanghai, Guangzhou and Hong Kong. The term, however, should not be misleading as most of the Tier 2 cities analyzed in this report are of very significant in size and contribute greatly to the overall China economy

³ Wastewater treatment plant; please refer to glossary

Key emerging Tier 2 city markets and best prospects. Best prospects closely follow government directions and the areas of planned investment in wastewater treatment facilities. In general, equipment with advanced technology that domestic companies are not able to provide is most needed. In the eight emerging markets analyzed in this report – *Tianjin, Dalian, Hangzhou, Wuxi, Shenzhen, Xiamen, Chongqing, and Wuhan* - a key trend is a strong focus on developing *biological treatment process* with *nitrogen and phosphorus removal technologies*, creating potential opportunities for foreign companies. All the cities are also moving towards greater use of *separation, membrane and disinfection* technology and equipment, and the needs for *sludge treatment equipment* and *water reclamation technologies* are expected to increase. Although different technologies have been applied in different WWTPs, good prospects are for *sequencing batch reactor (SBR) activated sludge process* and *biological aeration filter (BAF) process*. *Physical-chemical* and *biological processes* are widely used to treat industrial wastewater in all cities, including *sedimentation, filtration, anaerobic and aerobic activated sludge*, etc., which also provide potential opportunities for foreign equipment suppliers.

Market access. Although there is a good perception of foreign equipment, foreign companies face several barriers. Local governments generally prefer foreign direct investment (FDI) in wastewater projects as it brings technology transfer and capital investment. There is also strong competition from local companies that compete on price and from other foreign companies with advanced technology. However, there are still opportunities for foreign companies, which can access the market by using local distributors, participating in bidding for equipment procurement, or by establishing a presence (e.g. Representative Office, Wholly Foreign Owned Enterprise).

