

An Integrated Approach for Septic Tank Management: World Bank Global Environment Facility Yantai Demonstration Study

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Septic tanks are widely used in many cities of China, where sewage is first discharged to septic tanks for the removal of suspended solids and organic matters, then is handled by sewerage and wastewater treatment system. Although septic tanks can reduce the loading to wastewater treatment process, many septic tanks in China suffer the lack of cleaning and maintenance, resulting in septic overflows either directly onto roads or becoming part of combined sewer overflows (CSO). Such problems create serious public health hazard and pollution to the environment. Developing an efficient, cost effective and practical process for septic tanks management is in urgent needs. The City of Yantai in Shandong Province, China, is serviced by approximately 5,000 septic tanks that discharge to a combined sewer system. The final effluent of treated wastewater is discharged near shore to Yellow Sea. Septic overflows and CSOs have been a major concern to the public health and water quality. The challenges that Yantai faces is typical in China. The World Bank's Global Environment Facility (GEF) program provides grants to support technical demonstration and implementation study on climate changes, biodiversity, international water protection, and ozone layer protection. GEF aims to promote sustainable development for the protection and improvement of the global environment. Yantai received a GEF grant in 2007 for developing an integrated septic tank management system. The study is administrated by Yantai Bureau of City Administration and undertaken by the Yantai GEF Demonstration Project Office of Yantai Xin'anhe Wastewater Treatment Co. Ltd. ESD China Ltd.



provides consulting services for design, development and management of the study program. This paper describes key considerations and components of this Yantai study.

The study objectives are to investigate key factors affecting the management, operation, and maintenance of septic tanks, to develop relevant practical policy and regulations, to design an institutional structure and organization for sustainable septic tanks management. This pilot project was planned for a two-year period to study the city's Laishan District, eastern portion of Zhifu District, and High Tech Park. In the pilot study area, there are 1,700 septic tanks with a combined volume of approximately 23,000 m³, the population serviced by septic tanks is approximately 190,000.

The paper will present the findings from this project, which will benefit septic tank management in many cities of China and the world.