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Municipal Waste Management Report

China to invest USD 43.2bn in construction of
safe garbage disposal facilities

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A plan being drafted by the **Ministry of Environmental Protection (MEP)**, called the Technical Guide for Municipal Solid Waste Leachate Treatment, is expected to come out this year, according to XportReporter sources. The draft recently went through a public consultation process and is now awaiting approval by the MEP's Science and Technology Standard Department. After receiving approval, the plan will undergo a final review by an MEP committee and be published. This news service reported in October 2012 that the MEP was drafting policy on leachate control, with an expected release in early 2013.

Then, in May 2013, an MEP official told XportReporter that the policy had been put on hold due to difficulties arising from the need to coordinate with other government bodies, namely the Ministry of Housing and Urban-Rural Development (MOHURD). The Beijing government officially published its city-level groundwater protection plan, Beijing Groundwater Protection and Pollution Control Action Plan, in September 2013, following a broader plan released by the MEP. Beijing's plan also includes guidance on municipal sewage and leachate treatment. The government stressed the importance of treating leachate generated by urban landfills.

On 12 December 2013, Beijing announced a new regulation that planned to increase non-residential garbage disposal fees as the city grappled with a waste management crisis. The new policy took effect on 1 January 2014, when non-residential buildings, including companies, office buildings,

restaurants and schools, will begin to pay USD 16.4 (CNY 100) per ton for disposed kitchen waste and USD 50 (CNY 300) per ton for other kinds of garbage, excluding construction waste. Construction waste will be disposed of at a charge of USD 5 (CNY 30) per ton with an extra transportation fee based on the distance.

On 6 December 2013, Guangzhou, the capital of Guangdong province, announced a plan to conduct a pilot program to encourage people to sort their garbage, paving the way for more efficient garbage disposal. The government will collect waste treatment fees from residents in six pilot communities starting 21 January 2014. All households in the trial communities will be demanded to sort the waste and put them into separate waste containers or bags. The government would then charge certain fees for different kinds of waste. In two pilot communities, residential waste will be charged per barrels. Kitchen waste, which can be recycled as fertilizer, will be collected without any disposal fee.

Other types of waste, however, will be imposed a treatment fee, USD 1 (CNY 6) for every standard barrel (120L). In the other four communities, residents will have to purchase separate waste bags, USD 0.02-0.03 (CNY 0.1-0.2) each for kitchen waste and USD 0.03-0.08 (CNY 0.2-0.5) for other types of waste.

Overview

China's National Development and Reform Commission (NDRC), Ministry of Housing and Urban-Rural Development (MOHURD) and Ministry of Environmental Protection (MEP) jointly unveiled in May 2012 the 12th Five-Year Plan for construction of safe municipal garbage disposal facilities. It is estimated that during the 12th FYP period the total investment in construction of garbage innocuous disposal facilities will reach USD 43.2bn (CNY 263.6bn), 65.6% for facility construction, 13.3% for waste transportation, 8% for storage control, 4.1% for kitchen waste projects, 8% for sorting garbage projects and 1% for management system establishment.

According to the FYP, though both landfill and incineration capacities aim at a higher standards, incineration holds more shares of the garbage treatment. Experts in China also prefer incineration projects rather than landfill ones because the secondary pollution by inappropriate landfill seems more serious than that by incineration. However, either by incineration or landfill, leachate is one of the most harmful, complex and difficult unit to treat.

Opportunities in solid waste treatment are abundant because this field involves equipment and technologies not only for solid waste itself but for other fields like wastewater and waste-to-energy, etc. Technologies and equipments which convert solid waste and waste gas are most popular for Chinese companies to import, such as landfill gas-to-energy (LGTE) and biogas machines. Besides, advanced membranes, reverse osmosis (RO) membranes and high density polyethylene (HDPE) impermeable membranes are also accepted and recommended to efficiently deal with the toxic leachate. Furthermore, regarding the different projects, other kind of technologies or equipments used in wastewater/solid waste/waste-to-energy field would be selected accordingly.

Regulatory summary

China's 12th Five-Year Plan for construction of municipal garbage disposal facilities (2011-2015) ("十二五"全国城镇生活垃圾无害化处理设施建设规划) stated that the fast development of cities in China have increased the volume of municipal garbage, and thus placed more pressure on the current garbage disposal capacities. Some cities are even facing a situation where garbage is not

being properly disposed. Thus, the 12th FYP called for an increase in the capacity and operation quality of garbage disposal.

According to the plan:

o By the end of 2015, garbage has to be 100% safely disposed of in municipal cities, capital cities and cities specifically designated in the state plan; 90% safely disposed of in other prefectural and county cities; 70% safely disposed of in county towns. Total increasing disposal capacity is expected to reach 0.58 million tons per day – 398,000 tons per day for cities above county level and 182,000 tons per day for county towns. By the end of 2015, China's total garbage safe disposal capacity by incineration is to reach a share at least 35%. Particularly the capacity in the central-east areas of the country is to reach a share at least 48%.

o By the end of 2015, half of the China's cities with districts have to realize sorting kitchen waste and each province, region or municipal city has to set at least one sample city for sorting municipal garbage.

o By the end of 2015, the state is to establish an improved management system for municipal garbage treatment.

o Besides the disposal capacity expansion mentioned above, expanded capacity for transshipment is planned to reach 457,000 tons per day, of which 230,000 is for cities above county level and 227,000 is for county towns; expanded capacity for transportation is planned to reach 457,000 tons per day, of which 229,000 for cities above county level and 228,000 for county towns. Detailed data of the planned projects can be referred on the bottom of the report.

o By April 2013, there were 122 garbage incineration disposal plants in China and incineration reached just 20% of garbage treatment.

Related Chinese companies

Soil remediation

☑ Sound Group (桑德集团): Sound Environmental Resources Co.'s main businesses are: system integration of solid waste treatment projects, municipal wastewater treatment projects, and investment and operation of municipal water supply treatment projects. It is the only company currently listed on the A-share market whose main business revolves around solid waste treatment and disposal (Stock code: 000826).

☑ Poten Environment Group Co. (博天环境): Founded in 1995, Poten has gradually developed into a leading comprehensive service provider of integrated solutions for water and soil environment in China.

☑ Beijing Dingshi Environmental Engineering Co. (北京鼎实环境工程有限公司): Founded in 2002, Dingshi is a specialist in the soil contamination treatment and control field.

☒ New World Environmental Service Group (新天地环境服务): Established in 1994 as a wastewater and waste gas treatment company, New World Environmental developed and expanded its business to solid waste treatment field in 2003.

☒ Beijing KOE Environmental Protection Technology Co. (北京科益创新环境技术有限公司): Founded in September 2013, Beijing KOE is a subsidiary of KOE Technology Investment Co. (超越科创投资(北京)有限公司). Its main business scope is wastewater and solid waste treatment, especially pollution due to heavy metal.

Leachate

☒ Jiangsu Welle Environmental Co. (江苏维尔利环保科技股份有限公司): Founded in February of 2003 as a high-tech enterprise, Jiangsu Welle delivers complete solutions and relevant services ranging from design, equipment supply, installation and commissioning, operation in the fields of waste treatment, leachate treatment and industrial wastewater treatment.

☒ Wuhan Tianyuan Environmental Protection Group Co. (武汉天元环保集团有限公司): Wuhun Tianyuan is involved in landfill, incineration and other solid waste treatment projects.

☒ Beijing TDR Environ-Tech Co. (北京天地人环保科技有限公司): Founded in 2002, TDR is a manufacturer of leachate equipment.

Existing or potential suppliers

Soil remediation

☒ Calgon Carbon Corporation: Calgon is a leader in the activated carbon industry through innovations in the purification, separation and concentration of liquids, gases and other media. As the activated carbon industry forerunner and with ultraviolet light disinfection and oxidation expertise, Calgon Carbon has originated cutting-edge purification systems for drinking water, wastewater, odor control, pollution abatement, and a variety of industrial and commercial manufacturing processes.

☒ Ecolab: Global leader in water, hygiene and energy technologies and services.

☒ Landtec: Headquartered in Colton, California, Landtec designs and manufactures systems for accurate, repeatable measurement of methane and other greenhouse gases. The system includes Accu-Flo wellheads, GEM portable gas analysers, AEMS stationary monitoring systems and the EnviroComp report service.

☒ Product Recovery Management, Inc. (PRM): PRM is a well established environmental remediation and landfill gas company with over 37 years of history and experience. PRM is one of the US's only Equipment Integrators who is Third Party Certified to manufacture our Treatment Systems and Equipment to UL and NFPA standards. PRM provides equipment and services to the Remediation and Landfill Gas Industries.

☒ Thermo Fisher Scientific Inc.: A leading company in the measurement and testing sector.

Leachate

☒ Siemens AG

☒ Pall Corporation: A US-based company engaged in environmental protection.

☒ Ofra Aqua Plants: Founded in 1991, Ofra is a family owned company located in the north of Israel. Ofra Aqua is the leader in the field in Israel, and has designed and built constructed wetlands to treat municipal wastewater, gas stations, military facilities, dairy farms, slaughterhouses, fish farms, landfill leachates, cosmetic factory, and river rehabilitation projects.

☒ TAHAL Group International B.V.: A global engineering design and construction firm owned by the Kardan Group, TAHAL ranks among the top companies of its kind. Based in Amsterdam, the company has two main business units – TAHAL Assets B.V., for strategic investments, and TAHAL Group B.V., for project execution. TAHAL was established in 1952 with the aim of meeting Israel's greatest challenge – transforming its arid, ancient lands into the fertile fields of the modern state, starting with the design of the National Water Carrier project to many other national infrastructure projects.

Since that time, and following hundreds of successful projects in more than 50 countries, TAHAL has become a key player in water, sanitation and agricultural development, with unparalleled expertise in mobilization of funds and investments.