

Soil pollution remediation

Guangdong digs into soil
remediation; opportunities for
monitoring, chemical and
environmental firms

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1/16/2014



Pollution Solutions

Guangdong, a coastal province in Southern China, is one of the leaders of the country's most recent environmental cause of addressing soil pollution and contamination, renewing efforts that started then stagnated nearly seven years ago.



The province came under the media spotlight in May when a study by the local Food and Drug Administration in Guangzhou, Guangdong's capital suggested nearly half of 18 rice samples tested in the market were found containing excessive levels of cadmium, a toxic heavy metal. Two subsequent surveys in other parts of Guangdong showed contamination levels of 5.8% and 1.4% of rice supplies.

The cadmium-tainted rice supplies pushed the province to put in motion a number of measures to address the soil contamination issue.

For example, Guangdong's Department of Environmental Protection is establishing a soil quality monitoring system, which will be capable of regular monitoring by the year of 2015. The local government has also released a working plan and technical solutions on pollution remediation for arable land. Related soil treatment plans are under review and expected to be in effect by year-end.

In July, the Ministry of Agriculture selected Shuitou town (水头镇) of Qingyuan city (清远市) as one of the country's arable land remediation demonstration areas, the only one in Guangdong province. The district covers 492 acres of arable land, and was found in 2005 to have cadmium levels five times greater than the limit previously set by the central government.

Another area, Dabaoshan (大宝山) mining area, located in Shaoguan (韶关), Guangdong province, where lead pollution was 44 times over the limit according to 2010 reports, is one of the six demonstration projects listed on the country's 12th five-year-plan for soil remediation.

Also in July, the Department of Land and Resources of Guangdong province disclosed that 28% of soil collected in parts of the Pearl River Delta contains excessive level of mercury, cadmium, lead and arsenic.

The report also said that cities like Foshan, Jiangmen, and Baiyun, were found to have abnormal levels of radiation, exceeding the limit by 50%.

In 2012, Guangzhou invested USD 31m (CNY190m) to tackle heavy metal pollution in soil, and forced 492 polluted enterprises to close.

Opportunities

The recent flurry of policy introductions could encourage the soil remediation industry to take off. The huge gap between China's soil remediation technological capabilities and those that exist in advanced economies presents opportunities for foreign companies specializing in this area. The sector is expected to grow into a thousands of billions yuan market.

In August, the State Council released policy guidelines to facilitate environmental protection industry. The guidelines on soil remediation include focusing on developments of in-situ immobilization, ectopic fixative, bio-remediation, safe disposal, and resource utilization technologies.

The mainstream technology applied in advanced economies is in-situ immobilization, which uses soluble chemicals or fluids to stabilize heavy metals in soil, thus, preventing the migration and expansion of the pollutants into other parts of the ground. The technology is just starting out in China.

BCEG Environmental Remediation Co., subsidiary of Beijing Construction Engineering Group, and Hunan-based Yonker Environmental Protection Co. are two major Chinese soil remediation companies.

In June, Yonker introduced the country's first heavy metal soil remediation chemical production line, with annual capacity of 80,000 tons of ion mineralization stabilizer capable for 260m tons of contaminated soil. From public tendering information, Yonker has been awarded heavy metal remediation contracts worth USD 25m (CNY 150m) in 2013.

Soil remediation will also drive the growth of heavy metal source monitoring. Local leaders are Skyray Instrument, Centre Testing International, Focused Photonics and Sailhero Environmental Protection High-tech Co. Foreign companies making heavy metal monitoring equipment include US-based Ubibest International, Canada-based Tekran Instruments Corp., and Switzerland-based Metrohm AG.

Previous policies, Hunan's efforts

While Guangzhou is shaping up to be a leading market for this sector, other areas in China are also taking steps toward soil remediation.

The State Council announced in January that all provinces should start looking into this area. The Current Arrangement for Soil Environment Protection and Control required major cities, heavy metal pollution areas, and centralized drinking water resource regions to start soil remediation demonstration projects. Local governments should finish the planning and start operation by the year end.

So far, only Guangzhou, Beijing, Shanghai, Jiangsu, Zhejiang, Guizhou and Ningxia have publicly announced plans this year. More than a hundred provincial-level demo projects are scheduled to be completed by 2015.

The other province that is in focus is Hunan, which has been targeting soil pollution for longer than other areas. But those efforts seemed to have not been successful. Some of the contaminated rice found earlier this year actually was traced back to Hunan province. Follow-up reports found that more than half of cadmium contaminated rice in Guangdong came from Hunan, the central province that produces 11% of the country's annual crop and 22% of the country's nonferrous metals.

As early as 2009, Liuyang city, Hunan province, invested USD 1.6m (CNY 9.6m) to treat soil around Xianghe Chemical Plant and USD 3.3m (CNY 20m) on surrounding areas. In the meantime, the city invested nearly USD 4.9m (CNY 30m) for soil remediation of 31 villages, which were called "cadmium villages."

In August 2011, Department and Reform Commission of Hunan issued Xiangjiang River Basin Heavy Metal Pollution Prevention and Control Implementation Plan, which is the country's first regional heavy metal control plan approved by the State Council. The project is projected to draw a total investment of USD 9.8bn (CNY 59.5bn).

In addition, in July, Hunan first introduced environmental certification system for agriculture production sites. Crops and vegetables produced from qualified land will be labeled with "soil identification."

Guangzhou and Hunan are two examples of the increasing public attention on soil pollution and burgeoning soil remediation market in China.

On 3 December, the Ministry of Environmental Protection announced the completion of the draft of Soil Environmental Protection and Comprehensive Treatment Action Plan, a nationwide regulation that expected to be released soon.