



Case Study



Case 41 China Jiangxi Province: Manure is Being Turned into Money

Problem to resolve:

The livestock raising industry creating a life-threatening mountain of waste in the Chinese countryside.

Response:

By converting waste into clean energy, livestock farms in Jiangxi Province, People's Republic of China, help manage an environmental threat, contribute to the national energy grid, and boost their income.



By 2020, the livestock industry in the PRC will have produced nearly 7 billion tonnes of waste. In the photo, pigs being fed in the Qi Bu farm in Jiangxi Province.



In Jiangxi Province, like in other regions of China, many small, family farms have grown into large scale commercial livestock operations to provide meat, eggs, and milk to the increasingly prosperous residents of the country's big cities. This is creating a life-threatening mountain of waste in the Chinese countryside. By 2020, the livestock industry in the country will have produced nearly 7 billion tons of waste, according to the Ministry of Environmental Protection. Less than half of commercial livestock farms have waste treatment facilities.

A promising solution: turn some of that waste into clean energy and organic fertilizer while earning cash in the process.

The People's Republic of China and the Asian Development Bank are working together to help about 118 livestock farms improve their waste treatment facilities and convert an estimated 7 million tons of waste into biogas that is estimated to produce 92 million kilowatt hours of electricity.

This solution is being put to the test at the Qi Bu farm in Jiangxi Province, in the southeastern part of the country. The manure produced by the 20,000 pigs bred in the farm is collected and fed into a digester where it is slowly turned into biogas. This is then used in a power plant onsite to generate electricity, which is sold to the grid.

Selling the additional energy is a new source of income for the farm, says 45-year-old Wang Zhanjun, General Manager of the Jiangxi Wannian Xinxing Agriculture & Animal Husbandry Co., Ltd., a company that runs the Qi Bu farm and plant along with seven more similar facilities, "We can only keep our local river clean if we manage pig farming well."

In Chen Zhangxin. Around 200,000 tons a year of organic fertilizer are produced in the Qi Bu plant and then sold to local farmers. Adding the production of electricity and fertilizer to pig farming has significantly improved the company's finances. Jiangxi Wannian Xinxing Agro-pastoral Co. Ltd., is now preparing to list on the Shanghai Stock Exchange. Employees have also benefitted from the plant's upgrade. Their salaries went from an average of RMB 20,000 (about \$3,000) per year to over RMB 30,000 per year.

The introduction of a biogas electricity generation system along with the production of organic fertilizer has reduced the farm's environmental impact. Waste that is left over after the process is cleaned in a pond system before being safely discharged in the environment. This includes introducing algae to help purify the water to a level fit for agriculture and animal consumption.

An example in green farming. The project is providing the companies running the farms with access to loans in a region where it is difficult to obtain capital to modernize agricultural practices. The success in Wannian County is being noticed by its neighbours.

"With our project well under way, we are now setting an example for nearby counties," says Jiang Wuping, Deputy Director of the Jiangxi Provincial Rural Social Affairs Development Bureau. "Other authorities are closely following what the companies involved in this project are doing, learning from our experience."

More income, less pesticide. The project is helping dozens of big livestock operators but it is also assisting the small farms. Peng Xueying, 52, from Shewan, a village in Jiangxi Province, grows rice in a small piece of farmland that provides her family their only source of income.

In 2014, she started using a locally-produced organic fertilizer and her harvest yields have been growing steadily, raising her income with them.

"We used to harvest about 500 kg of rice per crop. Now, it is more than 650 kg and we also use less pesticide," she says." 1

Credentials

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References

ADB. 2016. In the People's Republic of China, Manure is Being Turned into Money. 20 June 2016
<http://www.adb.org/results/people-s-republic-china-manure-being-turned-money>

1 ADB. 2016. In the People's Republic of China, Manure is Being Turned into Money. 20 June 2016
<http://www.adb.org/results/people-s-republic-china-manure-being-turned-money>