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SRI LANKA

CASE STUDY

Generating Biogas from Wastewater

A scientist uses products of the manufacturing process to save energy



Photo: Kim Mihalik, Louis Berger Group

Dr. Chad Kanagachandran holds a bag of biogas from the pilot plant.

“USAID support... gave me the opportunity to learn about anaerobic wastewater treatment systems in distilleries, and helped me to design the process for breweries to treat a combination of wastewater and spent grain,” said Dr. Kanagachandran.

Challenge

The Lion Brewery Limited is among the leading breweries of Sri Lanka, manufacturing its brand-name beer and holding a franchise to produce Carlsberg beer. The facilities are located along the Kelani River, the major source of drinking water for the capital Colombo and roughly three million people living in the greater metropolitan area. To ensure the health of these downstream users, proper disposal of wastewater is critical. The company is paying high energy costs to operate its wastewater treatment system at European standards. Disposing of wastewater containing spent grain and other byproducts to meet these standards was a major challenge.

Initiative

Two years ago, Dr. Chad Kanagachandran, the brewery’s special projects manager, began investigating the concept of producing a bio-fuel from the products of the manufacturing process. USAID sponsored Dr. Kanagachandran on a technical visit to India to learn about the technology used by Lars Enviro Private Ltd, a subsidiary of the U.S.-based Larson Engineering. On his return Dr. Kanagachandran helped Lion Brewery develop a pilot system that combines spent grain with untreated wastewater. This “wastewater tea” is then sent to an anaerobic treatment tank where microbes consume the waste in the water and produce methane fuel — creating a win-win situation for the company and the environment.

Results

The pilot test converted about 1 percent of Lion Brewery’s total waste into a fuel source. Due to the success of the test, the brewery is implementing a larger application to optimize the process and generate the data needed to prepare for full-scale application at the facility. The system will reduce the amount of solid waste generated by the plant, decreasing the volume of spent grain by up to 40 percent. Lion Brewery also expects that the new development could cut energy costs by a third — saving approximately \$80,000 a year.

Telling Our Story

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