firstclimate
Green Energy, Climate Neutral, Water

Dedicated, Naturally.

India: Clean energy from organic food waste

Certification: Gold Standard

Key Facts

TÜV NORD CERT GmbH – Verified Carbon Offsetting

Location:
India

Project type:
Renewable Energy – Biogas

Total emission reductions:
» 60,000t CO_2e p.a. «

Project standard:
Gold Standard

Project start date:
January 2009

Background

India has the third largest economy in the world following rapid development since the turn of the century. Many however, have been left behind in this development and around 273million Indians are still in poverty. This number is more than twice the population of Nigeria, Africa's most populous country. The rapid economic growth not only lacks equal societal development, supportive infrastructure has also been left behind, leading to several large problems. The first is lack of sanitation facilities. Although the WHO records that 93% of India has access to water, less than 40% have access to sanitation. This causes a huge hygiene issue and in rural areas, many suffer from harmful fertilizers entering the water systems. The Indian government estimates that about 40% of all the fertilizer applied to crops is not absorbed and ends up in water systems.

Another issue is electricity access. An estimated 240million people in India are without electricity. Those who are connected suffer from poor output from the overwhelmed and overdemanded system, meaning regular power shortages. This causes residents to turn to natural resources for fuel. This is both harmful to health but also the local environment.

The Project

The project is spread over India, with the first small-scale project starting in Kerala. Here, a total of 16,746 biogas units are distributed. Of these, 11,668 replace fuelwood, 75 replace grid electricity and 5003 replace other fossil fuels. The capacity of the biodigesters range from 0.5m³ to 500m³ and are available on a household, community or institutional level. Depending on size and usage requirements, the units can be either fixed or portable and can be used to produce cooking gas, heat or even electricity on the larger scale units. Unlike most biodigesters, the units use organic food waste rather than cow dung to create biogas, making them suitable for both rural and urban areas.

Sustainable Development

By supporting this project you'll contribute to the following Sustainable Development Goals:

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SUSTAINABLE DEVELOPMENT GOALS

While focusing on reducing greenhouse gas emissions, all our projects also generate multiple co-benefits. These are supportive of the United Nations Sustainable Development Goals.

No poverty

The project allows poor families to make savings on fuel costs. This will help those in poverty to make economic savings and improve their quality of life.

Good health and well-being

840million Indian's rely on fuelwood for cooking fuel. Unprocessed fuels release 50 times as many noxious pollutants as natural gas. Furthermore, traditional methods are inefficient and so biomass is not completely combusted, releasing carbon monoxide into households. Biogas is clean and safe to use.

Quality Education

Community level biodigesters can be supplied to schools and used to provide heat and electricity. This will significantly improve the quality of education in these schools as the learning environment is improved and a power supply allows for a wider range of learning resources to be used.

Gender equality

The task of collecting firewood often lands on women and can be tiresome to do. Furthermore, women are often expected to cook in the household making them most vulnerable to the toxic fumes released in traditional cooking methods. The improved stoves will save time and improve women's health.

Clean water and sanitation

The slurry generated by the units can be used as an organic fertilizer, reducing the risk of harmful chemicals entering local water sources. In addition to this, food waste is traditionally just dumped, which reduces local hygiene. The units will also prevent this issue.

Affordable and clean energy

The biodigesters don't just provide a clean, stable and cheap source of energy. Methane that would have otherwise been released by the decaying waste is also avoided.

Decent work and economic growth

The project employs locals to manufacture, distribute, monitor and maintain the biodigesters, offering alternative income. Also, the improved power supply on an institutional level will reduce risk of power cuts and therefore improve industrial output.

Sustainable cities and communities

The project reduces waste in communities, which reduces water pollution and risk of rats. Community level units can be used to provide street lighting to local areas.

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Technology brief – how it works

The biodigesters in this project are different to how most biodigesters operate. Usually, biogas is produced through the decay of animal dung, however this can be unavailable to those without livestock. The units in this project only need dung to start off the biodigester process and are then self-sufficient with organic kitchen waste. Initially, dung is put into the unit to develop the anaerobic bacteria needed for the decay process. This is then mixed with waste water from kitchens such as rice washing water. After a few days, solid content is mixed with the waste water and added to the digester.

Slowly, this amount is increased as the microbes inside decompose more and more types of organic waste. Within about a week, the biodigester will start to produce biogas and can then continue with just the addition of solid food waste and waste water. The gas can then be used for cooking and heating. Those digesters that are used for electricity have a generator fitted within them, which uses the gas supply to generate electricity.

Project Standard

The Gold Standard is an award winning certification standard for results based project finance and is recognised internationally as the benchmark for quality and rigour in certifying environmental and socio-economic project outputs. Established in 2003 by the World Wide Fund For Nature (WWF), the Gold Standard today is trusted and endorsed by NGOs, governments and multinationals including United Nations agencies worldwide.

First Climate Markets AG
Industriestr. 10
61118 Bad Vilbel - Frankfurt/Main
Germany
Phone: +49 6101 556 58 0
E-Mail: cn@firstclimate.com

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