

turning WASTE into WEALTH

WASTE TO BIOGAS

using co-digestion model



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BANGLADESH
COUNTRY PROGRAMME

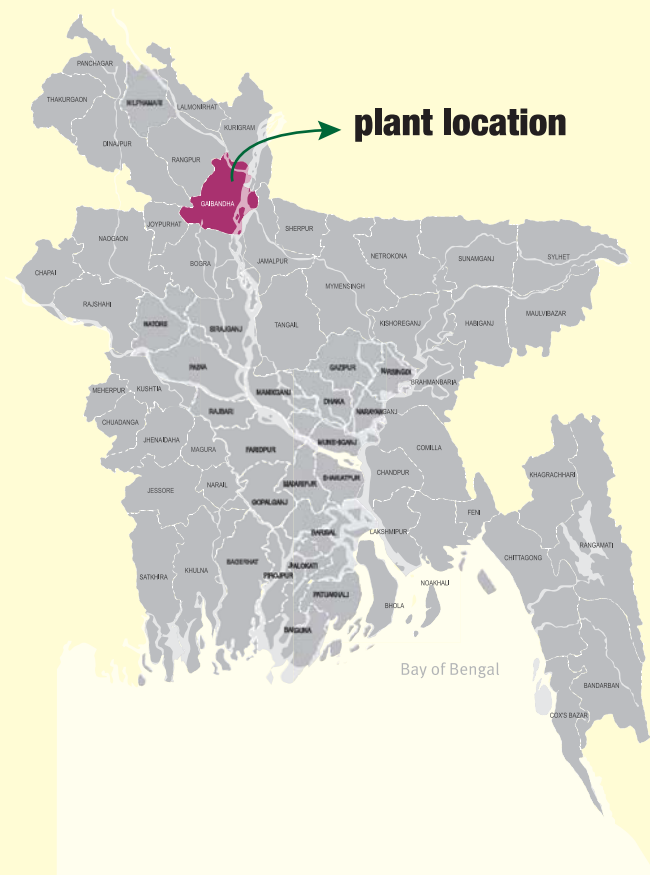


Our biogas plant in Gaibandha Municipality processes kitchen wastes to generate biogas. Around 150 kg of municipal wastes are collected daily from 100 households in the town using non-motorised tri-cycle rickshaw vans. The organic & inorganic wastes are sorted and then only organic part of waste (vegetables, fish, meat, newsprint, leafs, straw etc.) is shredded by a mechanical shredder to make sure the size of waste will be 0.75 inch. The workers mix the shredded waste with same quantity of water in a mixing pit. The workers then feed these wastes together with water through inlet pipe. The inlet pipe diameter is 10 inch.

A mechanical agitator is used to mix the waste with older waste and avoid clogging in the digester. This agitation facility allows a high dry mass content up to 32% with a high & consistent gas output, and high process stability. It also prevents scum forming as well as settling of sludge.

These waste-water mix go into the digestion chamber. The digestion chamber is made of reinforced cement concrete and which is 20 ft. in diameter and 80 cubic meter in volume. The decomposition of these wastes take place in digestion chamber and produce gas which is collected through an outlet pipe set at the top of the chamber.

The collected gas is distributed to customers by a 1,000 ft. main pipe & 1,400 ft. service pipe network. The length of the pipe network from production to households has a great influence on the pressure of the gas. The maximum operating pressure for the pipe network has been set at 35 KPa. The pipelines are also equipped with condensate removal facilities with maintaining proper slope.



plant location



CONTROLLING & MONITORING

For distribution of gas through pipelines, a separate control room has been constructed. This room contains several types of sensitive equipment like safety valves, pressure valves, alternator, pipes etc. These equipment help to maintain a good gas distribution service for the clients.

The digestion of waste activity involved in microbiological methanization is dependent on the following factors: substrate temperature, available nutrients, retention time (flow-through time), pH level, Nitrogen inhibition and C/N ratio, solid content of the substrates and agitation and few other inhibitory factors.



INFLUENCING FACTORS

2012
year of establishment

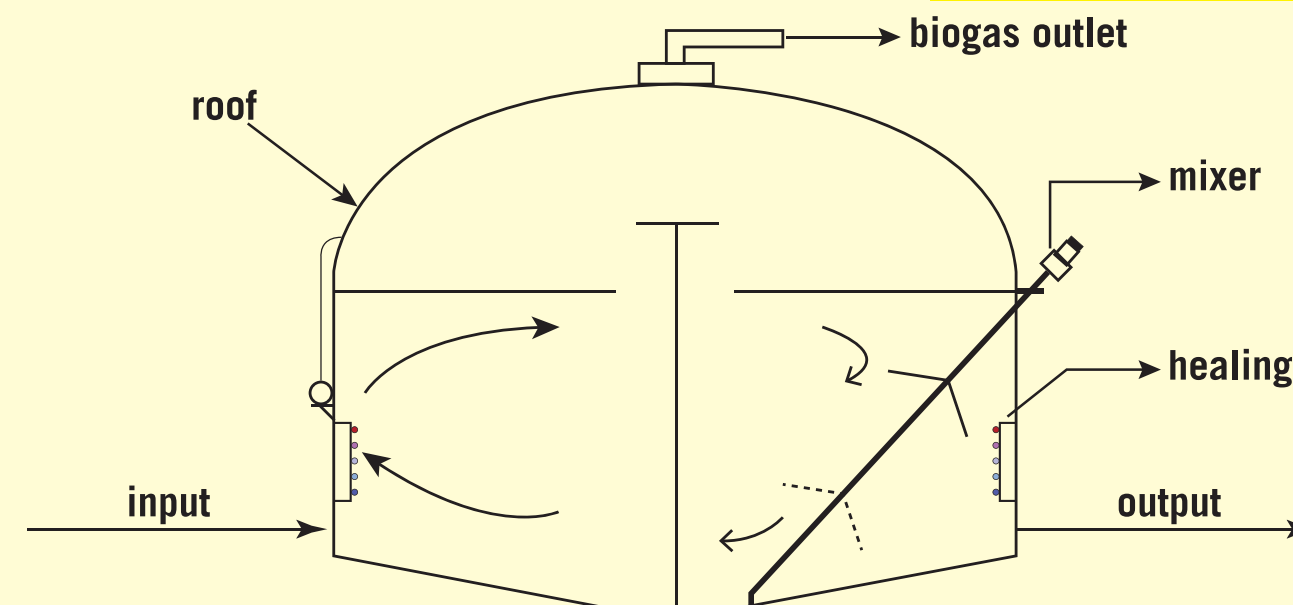
80 cubic meter
size of digester

fixed dome
type digester

kitchen waste
as raw material

cooking & irrigation
main purpose of use

BDT 1.8M
cost of infrastructure



technical drawing of a digester



GAS SUPPLY HOUR

The estimated gas supply hour per day is 7 hours, divided in 3 shifts. The shifts are determined in consultation with the consumers. The produced gas is solely used for household cooking purposes.