

CBG/biogas business models

1. Banaskantha BioCNG plant, Banaskantha, Gujarat

S. No	Particulars	Details
1.	Capacity of plant(CBG)	800 Kg/ day
2.	Feedstock Capacity	40-ton
3.	Type of Feedstock	Cow dung from Households and Potato Waste
4.	Cost	<ul style="list-style-type: none">Rs. 8,04,00,000. (excluding land cost)Civil Work – Rs. 4,56,50,000Mechanical Work- Rs 3,47,50,000
5.	O & M Cost	Rs. 38,47,479 per month
6.	Feedstock collection	Daily collection of waste from 254 households of 12 villages by around 7 tractors.
7.	Source of funding	Banaskantha District Co-operative Milk Producers' Union Ltd

The Banaskantha BioCNG plant located at Banaskantha, Gujarat is being managed by the Banaskantha District Co-operative Milk Producer's Union Ltd. Waste is collected from around 254 households having more than 5 cows/ buffaloes from across 12 villages. The cow dung collected from these households is weighed and the quantity is marked using a mobile App. Along with the payment for milk, Rs.1/Kg for the cowdung is credited every 15 days to the beneficiary account.

The biogas generated is stored in a balloon having capacity of 1000 cum. The plant generates a total of 800 Kg of BioCNG per day and the purified gas is filled in vehicles through a dispensing system. Around 100 vehicle can be filled through the gas station (8kg per vehicle). The solid part of the slurry is converted to vermicompost or converted into PROM by adding rock phosphate and sold to farmers . The liquid part is reused for treatment.



2. Zakariyapura cluster model, Anand Gujarat, A pilot project by NDDB

S. No	Particulars	Details
1.	Total no. of household	368
2.	Plant Capacity (Biogas)	2 cum/day /Household
3.	Feedstock Type	Cow dung and biodegradable waste
4.	Cost	Total Cost- 123 Lacs <ul style="list-style-type: none">• 88 Lacs for biogas plants (368 HH* Rs. 24,000)• 35 Lacs for slurry processing unit
5.	Funding Source	<ul style="list-style-type: none">• Fully funded by National Dairy Development Board• 50% contribution will be collected from beneficiaries for biogas plants. The amount being collected in instalments from beneficiaries by the cooperative for Operation & Maintenance

The cluster model at Zakariyapura, Anand in Gujarat was implemented as a pilot project by National Dairy Development Board(NDDB). In this model, flexi biogas plants of 2 cum is provided to 368 women dairy farmers having 2-3 cattle. Biogas generated is used by the household for cooking purposes and the slurry is collected at a centralised location. The slurry is further separated into solid and liquid part using simple separation method and sold in bulk to non-biogas owner/ needy farmers @Rs 1-2/ Ltr under the brand name "Su-Dhan".

A Sakhi Khad cooperative Society is engaged for:

- Quality based slurry procurement
- Create fund for maintenance and plant replacement



3. Bharat Biogas Energy Limited, Umreth, Gujarat

S. No	Particulars	Details
1.	CBG Capacity	2700 Kg/day (per digesters)
2.	Feedstock Capacity	70 ton/day (per digester)
3.	Feedstock type	Cow dung, press mud, potato waste and water hyacinth
4.	Cost	21 Cr (Excluding Land Cost)
5.	Feedstock collection	The cow dung is sourced from approx. 700 families from around 400 plus villages. The animal keepers/ farmers collect the dung from their animals on daily basis, which is collected through the tractors/ trolleys and brought to the plant storage area.
6.	Source of funding	<ul style="list-style-type: none"> • Self-Financing • Central Financial Assistance of 2.32 Cr under MNRE

The CBG plant at Umreth in Gujarat has been constructed by Bharat Biogas Energy Limited, which covers approx. The plant covers an area of 3 Ha and has 2 anaerobic biodigesters and a fertilizer unit. Each digester has a feedstock capacity of 70 ton/day. The feedstock, cow dung, is collected on a daily basis from approx. 700 families across 400 plus villages at the rate of Rs 0.75 - 1.0 / kg. Pressmud sourced from M/s Dhandhara Sugarmill, potato waste from Iskon Balaji Wafers' plant and water hyacinth from the Dakor temple pond are also used as feedstock for the plant. The BioCNG is supplied to AMUL Dairy through cascades and Slurry is converted to Solid and liquid fertilizer and sold to farmers under the brand name "Sundar".



4. Haridwar BioCNG project, Uttarakhand

S. No	Particulars	Details
1.	Capacity (CBG)	400 Kg/day.
2.	Feedstock Capacity	20 Ton Per day
3.	Feedstock type	Cow dung from Gaushalas
4.	Cost	3.0 Cr. (excluding land cost)
5.	O & M Cost	2 Lakh
6.	Feedstock collection	Daily 20 tonnes of cow dung is collected from three gaushalas and transported to the plant using 4 tractors. At times, one tractor may have to take 2 trips also.
7.	Funding source	<ul style="list-style-type: none">• Corporate Social Responsibility- 1.75 Cr from ONGC• Self-financing (Shri Krishnayan Desi Gauraksha & Golok Dham Sewa Samiti)• Has sought Central Finance Assistance under Waste to Energy Programme of MNRE

The BioCNG project located in Haridwar, Uttarakhand is being managed by Shri Krishnayan Desi Gauraksha & Golok Dham Sewa Samiti. The plant is spread across an area of 0.69 acre and feedstock for the plant is collected from three gaushalas. The raw biogas generated is stored in a small horizontal balloon and compressed to produce CBG. The purified methane/ CBG is stored in cascades and supplied to the Ayurveda factory in Sidcul, Haridwar. The slurry is separated into solid and liquid parts. The solid part is fortified and converted to biofertilizers, while liquid part is used by the samiti in their own farm. Bio fertilizers are packed in bags of 5 kg, 10 kg, & 50 kg capacities and sold under brand name "Surabhi Sudha". 36 different products have been developed after enriching bio fertilizer with microbes into bio-pesticide, growth promoter, PROM, fungicide etc.



5. Hisar, Haryana

S. No	Particulars	Details
1.	Plant Capacity (feedstock)	800 kg per day
2	Biogas Generation	320 Cum per day
3	Feedstock Type	Cattle dung
4	Capital Cost	Rs. 75 Lakh
5	O & M Cost	Rs. 30,000 per month
6	Feedstock collection	Daily 800 kg cattle dung is collected from the village and transported to the plant using one tractor-trolley.
6	Source of funding	<ul style="list-style-type: none"> • Swachh Bharat Mission (Grameen) • Gram Panchayat Fund, • MGNREGA, • MPLAD Fund, • State Govt. Fund

Community biogas plant at Nayagaon, Hisar, Haryana has been constructed under SBM(G). It is being operated and managed by the Gram Panchayat . Cattle dung for the plant is collected from village and transported to the plant using a tractor. The villagers will be paid @10 Paise per kg of cattle dung. The biogas is distributed to households of the villages through a network of overhead pipes . The slurry is being sold to the local farmers @ Rs. 1000/tanker and @ Rs. 1500/tanker to farmers of other villages. The Biogas Plant is designed to cater to the needs of 150 households in the village.



6. CBG project at Varanasi, Uttar Pradesh

S. No	Particulars	Details
1.	Plant Capacity (CBG)	2500 Kg /day
2.	Feedstock Capacity	90 ton / day
3.	Feedstock Type	The cattle dung from the nearby cow shelter and Gaushala, press mud sugar industries in Azamgarh and municipal solid waste
5.	Cost	22 Cr
6	Funding source	Corporate Social Responsibility Fund

The project is being implemented by Varanasi Nagar Nigam along with the Animal Husbandry Department, Government of Uttar Pradesh. The plant is being constructed by an Ahmedabad-based company “Bharat Bio Gas Energy Limited- BBEL”. The feedstock capacity of the digester is 90 ton/day. The material being used for the construction of the digester is GFS/GLS – Glass Fused to Steel or Glass Lined to Steel which prevents corrosion and such tanks are easy and fast to install. The feedstock will be mainly cattle dung from the nearby cow shelters, gaushalas; municipal solid waste and, press mud from sugar industries in Azamgarh.

