

Ministry of New and Renewable Energy
(Bio-energy Technology Development Group- BGFP)

The first Biogas Bottling Plant towards commercialization in India – A success story

Keeping in view the energy shortage in the country there is a need to tap biomass resources such as cattle dung, kitchen waste, agricultural waste etc for generation of biogas through the involvement of entrepreneurs and industries to set up decentralised biogas based energy infrastructure in the country, at the potential sites where biomass available is plenty.

Under technology demonstration of new RDD&D Policy of Ministry of New and Renewable Energy (MNRE), the Ministry took up a new initiative for bottling of biogas to demonstrate an Integrated Technology-package in entrepreneurial mode on medium size mixed feed biogas-fertilizer plants (BGFP) for generation, purification/enrichment, bottling and piped distribution of biogas. Installation of such plants aims at meeting stationary and motive power, cooling, refrigeration and electricity needs in addition to cooking and heating requirements. There could be a huge potential of installation of medium size biogas-fertilizer plants in the country. Under the demonstration phase, the Ministry is providing a central financial assistance from 30-50% of the cost (excluding cost of land) for a limited number of such projects for implementation following an entrepreneurial mode on Built, Own and Operate (BOO) and re-imburement basis.

The proposals are proposed to be evaluated by experts and considered by Technology Demonstration Appraisal Committee of the Ministry. Recommended projects are to be implemented, operated and owned by the concerned industries/entrepreneurs/ project developers.

A 500cum biogas generation per day capacity BGFP project for generation, purification/enrichment, bottling of biogas has sanctioned by the MNRE with Rs. 50 lakh CFA during the year 2009-10 to Ashoka Biogreen Pvt. Ltd. at vill.- Talwade, Dist. – Nasik (Maharashtra).

Accordingly, the first biogas bottling plant under Technology Demonstration of new RDD&D policy of MNRE has been commissioned on 16.03.2011 after obtaining licence for filling and storage of compressed biogas in CNG cylinders from Petroleum & Explosives Safety Organization (PESO).



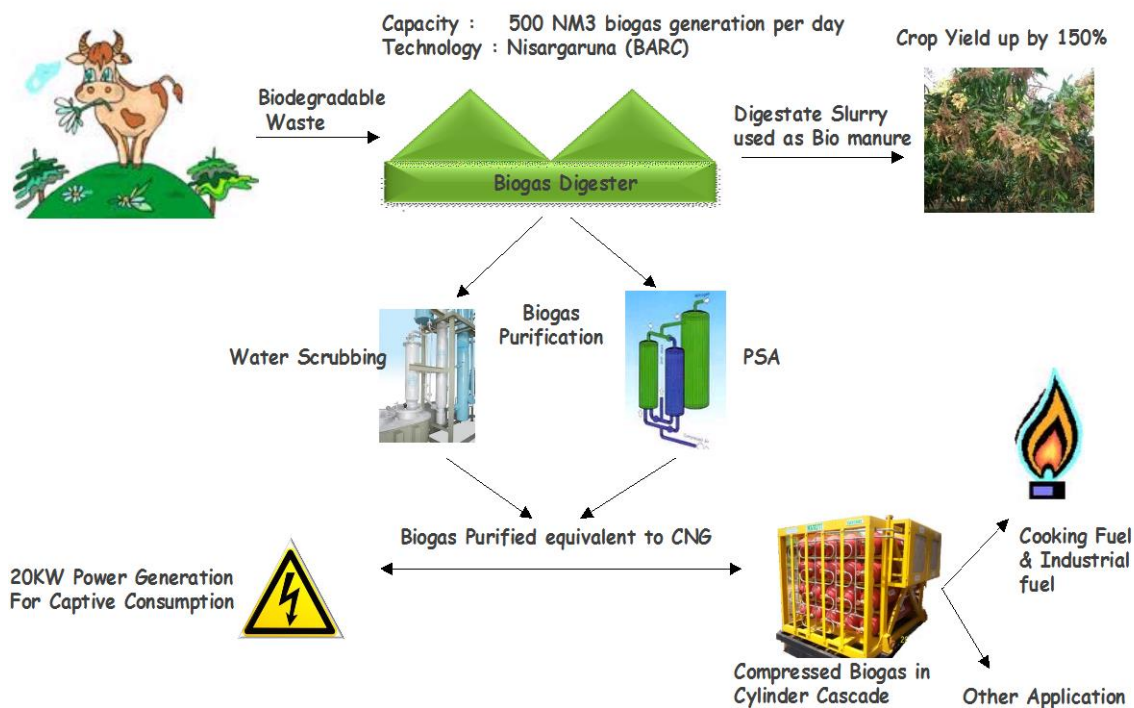
BGFP Project at Village – Talwade, Taluka- Trimbakeshwar, District- Nashik (Maharashtra)

The biogas generated from the plant at vill.- Talwade, Dist. – Nasik (Maharashtra) by Ashoka Biogreen Pvt. Ltd. have been purified and a purity of 98.4% methane has been achieved through test conducted by Shriram Institute for Industrial Research, Delhi (NABL). The results are given below:

RESULTS				
(As on dry basis except moisture)				
S. No.	Parameter	Unit	Test Value	Protocol/ Method Followed
1.	Methane (CH ₄)	% v/v	98.4	GC-FID
2.	Carbon dioxide	%v/v	1.2	IS: 13270
3.	Oxygen (O ₂)	ppmv	50	Oxygen Analyzer
4.	Hydrogen Sulphide (as H ₂ S)	ppmv	4.3	IS: 11255 (Pt-4)
5.	Nitrogen (N ₂) & other gases	%v/v	0.4	By difference (Remainder)
6.	Moisture	ppmv	44	Gravimetric, Ref. IS: 307

The purity of the enriched biogas is continuously monitored by online analyzing system alongwith calibration of analyzers. The purified biogas is equivalent / similar to CNG

The schematic diagram of the BGFP project is given below:



Schematic Diagram of BGFP Project Installed at Ashoka Biogreen Private Limited, Village – Talvade, Taluka – Trimbakeshwar, District – Nashik (Maharashtra)

The biogas generation capacity of the plant is 500 cum per day and based on NISARGRUNA (BARC) Technology. The purity of biogas is about 98% and compressed to 150-bar pressure for filling in cylinders.

The upgraded biogas is used for power generation, cooking and industrial application. The slurry of biogas plant is being based as an organic fertilizer in their nearby agro fields. The field trials have indicated 150% growth in agro-production and substantial improvements in the quality.

The salient features of BGFP project are given below:

(Figures mentioned are on per day basis)

Particulars	Description	Remarks
Quantity processed	12.5 MT	Cow dung, agricultural waste etc.
Biogas generated	500 NM ³	
Purified/Upgraded Biogas	270 NM ³	
Purified Biogas used for captive power generation	81 NM ³	30 %
Power generated	160 units	
Purified/Upgraded Biogas Filled in Cylinders at 150 bars	16 Cylinders of 9 kg each filled.	Equivalent to Rs. 5040 of CNG or Rs. 7200 of commercial LPG
Slurry / Manure	20000 Liters/day	Used as liquid fertilizer substituting chemical fertilizer worth Rs. 10000.



Secretary, MNRE visiting Biogas Purification and Bottling plant (BGFP) at village - Talwada, Taluka - Trimbakeshwar, District - Nasik (Maharashtra)
