

Enhancing Production in Orchards Through Biogas Plants

A success story of biogas plants benefiting in orchards



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Beneficiary's Profile

District Wise Map of Punjab (Pakistan)

General Info*

Beneficiary Mian Irfan-ul-Haq

Age 55 Years

Occupation Orchard & Dairy Farming, Advocate

Village 121 JB (Gokhuwal)

Tehsil Faisalabad

District Faisalabad

Province Punjab, Pakistan



Biogas Plant Info*

Sr No.	Type	Size	Date of Construction	Plant I.D/Scheme
Plant # 1	GGC	15m ³	06-01-2012	FSD-P000285
Plant # 2	GGC (R&D)	50m ³	31-01-2014	R&D

*: As on 12-05-2014

Pakistan Domestic Biogas Programme (PDBP) is working in 12 districts of Central Punjab since 2009 to provide the rural community with biogas through construction of GGC model biogas plants. The primary objective of the PDBP was to benefit rural domestic women with the biogas as a kitchen fuel to reduce wood cutting, soot pollution, and their hard efforts for collecting woods or making dung-cakes and its use to cook food under an unhygienic kitchen environment. But with the passage of time needs, demands and innovations added in the programme. The new uses and innovations were properly experimented and the lessons learnt brought additions in objectives and interventions and enriched the vision, mission and goal of the programme.

The visible addition in the programme such as use of biogas in Agricultural, Dairy and Fish Farming brought producing Electricity from biogas, running Peter Engines, and use of Bioslurry as an organic fertilizer in agricultural farms and as a feed in fish farms. The multiple uses have provided the users with an opportunity to holistic development in aspects of economic, social, environmental physical development and even supported them in practicing their ritual and religious activities with ease and comfort.

Thus PDBP has a variety of uses and users of biogas in the range of its programme. Apart of specific uses of biogas such as kitchen fueling, Tubewell running, electricity production, Bioslurry in agricultural farms and fish farms, a large number of beneficiaries is a multi user of biogas. They are using biogas to get all said benefits at the same time. Observing the user attitude it can be expected that the 100% of users wish to or can use biogas to get all said benefits but the only thing that matters is the size of the plant.

Mian Irfan-ul-Haq from village 121-Jb Gokhuwal, Faisalabad, is a 55 years old farmer. He owns 50 acres of land in partnership with his brother. He has done M.A and LLB and practices law as an advocate. The main business is orchard farming. His orchard namely "Saeed Ahsan Fruit Farms" produces Dates, Mangos, Citrus and Guava. These fruits are exported as well as distribution to local market at a vast level. The orchard is famous locally as "*Khajuran wala bagh*" in all over the district. Mian Irfan-ul-Haq home is adjacent to his orchards having a same main gate. He is living with his other brother's and children as large family having 35 people. Mian Irfan-ul-Haq was concerned about the energy crises and raising expenses of fertilizers in his orchards and electricity and gas shortage at his home. All of these shortages were consuming a huge budget that had been decreasing the revenues from the orchards. Mian Irfan-ul-Haq seriously started searching for solutions to the issues.



Mian Irfan-ul-Haq standing in Orchards with his Nephews

Mian Irfan-ul-Haq's brother Mr. Rehan had served KISAN BOARD as a president, so he knew about some alternate resources for fertilization and energy to enhance the production in the orchards. He was familiar with PDBP that facilitates in provision of biogas through construction of biogas plants in the twelve districts of central Punjab. He advised Mian Irfan-ul-Haq to contact PDBP and avail the facility with the provided subsidy.

In December 2011 Mian Irfan-ul-Haq contacted BDPB and constructed a 15m³ Biogas plant in his orchards availing PKRs 7000/- as subsidy from PDBP. The family started using biogas in alternate of expensive LPG cylinders. The slurry exhausted from the plant was drained to the fruit plants that put visible impact on their growth. The fruits of those plants were richer in taste and nutrition than before and the cost of chemical fertilizers also reduced because the Bioslurry was used instead. Mian Irfan-ul-Haq was happy to see the positive effects of and wished to have more slurry to fertilize maximum area in his orchards. So in January 2014 Mian Irfan-ul-Haq constructed a new plant bigger in size as 50m³ under the R&D scheme of PDBP and availed subsidy up to 75%. The total cost of the plant was PKRs. 425,000/- but under the scheme Mian Irfan-ul-Haq paid only PKRs.106, 250/- . To store the gas and increase its efficiency storage cylinders and gas filters had also been installed with the plant. With this provision Mian Irfan-ul-Haq and his entire family are enjoying the benefits of biogas in greater quantity.



50m³ Biogas Plant Constructed in Mian Irfan-ul-Haq's Orchards



Storage Tanks & Filters Installed with Plant to Enhance its Efficiency

The plant exhausts enough slurry after digestion and production of Biogas. The slurry is stored in the slurry pits and later on drained to fruit plants through the irrigation channels. The slurry is best known as an organic fertilizer to balance the PH level of the arable land. Mian Irfan-ul-Haq is using this organic fertilizer in 6 acres. Thus he is saving the cost of chemical fertilizers up to PKRs 144,000/annually. He shares that the fruits of these acres are very rich in taste and nutrition and the growth of the plants is better than the other acres where the chemical fertilizers are being used.



Slurry Used as Fertilizer to Enhance Growth of the Fruits

Mian Irfan-ul-Haq's family had been using LPG cylinders as kitchen fuel. To cater the kitchen needs of the big family they used to refill the cylinders for four times in a month. So the total cost of kitchen fueling took PKRs. 7500/month. But now there is enough biogas produced that is being used as kitchen fuel by the family. They have no more worries for refilling the cylinders and consuming lots of money for the LPG. The fear of explosion of the cylinders has also vanished away. And the family especially the women are happily enjoying the facility.



Biogas Being Used as Kitchen Fuel at Mian Irfan-ul-Haq's Home

The third major benefit of biogas in the house is that it is being used in replacement of expensive petrol for electricity generation. The power crises all over country had been increasing and the expensive petrol was used for generating electricity through the generator. Mian Irfan-ul-Haq runs a 5KV generator on biogas. The generator is used for 6 hours a day and it takes a liter of petrol per hour that costs PKRs.108/liter. Now the biogas has eased the life of the family as they save up to PKRs. 19,440/month through running the generator with biogas.



Mian Irfan-ul-Haq Using Biogas to run 5KV Electricity Generator

Mian Irfan-ul-Haq shares that the multiple benefits of the biogas plant have brought a significant change in entire family's life. The enhanced production in the orchards is providing increased revenues and the savings at electricity production and kitchen fueling is also very satisfactory. He tells that apart of the benefits at domestic level, that biogas is very good for environment as it abolishes cut of trees for firewood and the biogas plant manages the animal dung in a very productive way. He wishes that other farmers and domestic women should also avail this opportunity and enjoy the multiple benefits of the biogas plant.



Mian Irfan-ul-Haq's Neat and Clean Dairy Farm near his Orchards