

# Irrigation Cost Reduced Through Shifting Tubewell on Biogas

A Success Story of Using Biogas to Run 16HP Peter Engine for Irrigation



**Narrated By:**  
**Javed Salik**  
**Monitoring Officer**  
**PDBP-RSPN**





District Wise Map of Punjab (Pakistan)

## Beneficiary's Profile

### General Info\*

**Beneficiary** Mirza Manzoor Ahmad Baig

**Age** 53 Years

**Occupation** Agriculture  
(Rtd. Senior Clerk, Water Management  
Agri Department- Punjab)

**Village** Moza Wijlanah

**Tehsil** Jhang

**District** Jhang

**Province** Punjab, Pakistan



### Biogas Plant Info\*

No. of Plants	Type	Size	Date of Construction	Plant I.D
1	GGC	15m <sup>3</sup>	26-06-2011	JNG-P000461

\*: As on 25-02-2014

Pakistan is an agricultural country having 40% arable land of its total area but only 27% of the total arable land is cultivated here. This deficiency is due to numerous factors especially irrigation problems, lack of agricultural technology and modern techniques, poor soil, and the raising energy crises all over the country. Pakistan's irrigation system through canals is world famous but the management of the system and proper utilization is not adequate due to several barriers. On the other hand the average rainfall in the country is around 255 millimeters which is also not sufficient for the farming needs.

As agriculture is the backbone of Pakistan's economy and income source of 41% of population of the country, the survival demands to put utmost efforts to increase the production. So the poor farmers are compelled to expense huge amount to deal with the issues hindering agriculture. Irrigation is done with using 16 to 36 Horse Power Peter Engines on expensive diesel, Drip Irrigators which are also very expensive, and Petrol-run-generators to overcome electricity issues, while both the diesel and petrol are increasing their prices day by day. In these circumstances cost-effective techniques are extremely required to provide relief to the poor farmers for increasing their production. Biogas is one of the mitigating solutions as it has one-time installation cost on very reasonable prices.

Mirza Manzoor age 53 is a prospered farmer who has experienced finding solution to reduce expensive diesel consumption and electricity loadsheddings problems that effected his crops due to short and improper irrigation. Before starting agricultural farming properly, he had been working as a senior clerk in Water Management Cell of Provincial Agricultural Department. As he gained knowledge and experience from his service in the department he was familiar with various cost-effective methods of irrigation and cultivation so after his retirement from the government service he started agricultural farming. He owns 4 acres of agricultural farms. He cultivates crops in all two seasons of the year and thus needs proper irrigation to his crops for a better growth and revenue. He was using a 16 horsepower peter engine to run his tubewell for watering his crops. The peter engine was run on diesel that is increasing its price day by day. Mirza Manzoor was worried for this rapid increment in diesel price, but he also knew about the biogas that could be used instead of diesel to reduce irrigation cost.

To observe the benefits of biogas in agriculture, Mirza Manzoor visited his friend in Pakpattan who had constructed 2 biogas plants and was enjoying multiple benefits of biogas in farming and domestic needs. After this exposure visit Mirza Manzoor got contented and encouraged, thus he finally decided to construct a biogas plant in his farms. In June 2012 he contacted PDBP for construction of a 15m<sup>3</sup> biogas plant near his tubewell on a subsidized cost. The 'Muhammad Nawaz BCC' of district Jhang constructed his plant on Rs. 73000/- providing him subsidy under the Pakistan Domestic Biogas Programme (PDBP) of RSPN



Biogas Plant constructed in Mirza Manzoor's Farms

As the primary objective of biogas plant for Mirza Manzoor was reduction of diesel, so after construction of the biogas plant he started fueling his 16 Horse Power peter engine with biogas instead of expensive diesel. Since that time he has no worries of irrigating his farms. He says that he is running 70% of tubewell on biogas and only 30% on diesel. The reduction of diesel has been providing him saving PKRs. 36000/year. The profit of proper irrigation to the crops is additional.



16 Horse Power Diesel-Engine Shifted on Biogas

Irrigation to his 4 acres of land was never so economical. The biogas production in the plant is ongoing so there is no shortage or breakage of irrigation to the crops. The need of irrigation increases in the summer and surprisingly the production of biogas also increases. So the required quantity of water to the crops throughout the year is easily met through the biogas run tubewell. He is very satisfied and hopeful for better growth of his crops and expects good revenues from the production.



Mirza Manzoor irrigating crops through Biogas-run-diesel engine

Apart of using biogas for irrigation Mirza Manzoor is using it as kitchen fuel as well. This provision has eased domestic chorus of the females in his house that had been suffering from wood soot and spending a lot of their time in collecting woods and making dung-cakes for kitchen fueling. They are saving their time for accomplishing all their domestic responsibilities comfortably. This way the family is saving PKRs. 14400/year as well as enjoying a better domestic life.



Fueling in Kitchen - Another Usage of Biogas in Mirza Manzoor's

Another benefit of biogas plant is bio-slurry that Mirza Manzoor is using as an organic fertilizer in his 2 of 4 acres of farms, this way he has reduced 50% of his expenses occurring on chemical fertilizers so he is saving PKRs. 32000/year through usage of bio-slurry.

Mirza Manzoor estimates that the savings, profit and revenues from several benefits of the biogas plant amounts PKRs. 82000/year. He says that he is enjoying these facilities because of the biogas plant that takes no expenditures to run after construction. All the biogas and bio slurry is produced from the animal dung which has no cost.

PDBP ensures to reach to maximum people especially farmers and domestic women to provide them with the opportunity to benefit from the biogas programme. In this concern an ongoing promotional campaign is working parallel with the programme. This includes pamphlets, brochures, and panaflex depicting benefits of the programme to the rural community. Mirza Manzoor being a progressive farmer is also part of that campaign as his picture along with his plant and tubwell is printed in one of the panaflexes and distributed in all twelve districts of Punjab where the program operates.



Mirza Manzoor being part of PDBP Promotional Campaigns



Mirza Manzoor Standing in his Lush Farms

Mirza Manzoor is very happy and satisfied with the biogas facility as he is enjoying its multiple benefits. He expresses his happiness sharing that he is meeting the entire needs of 6 members in his family. He is supporting education of his 3 children as his two sons are studying in class 9<sup>th</sup> and a daughter in class 4<sup>th</sup>. His family is prospered and living a good standard of life. They are enjoying all blessings of social, cultural, religious and other aspects of their life. Mirza Manzoor is motivating other farmers to avail the biogas facility to increase their revenues and the betterment of their lives. 5 farmers have

constructed biogas plants after getting motivated from Mirza Manzoor.