# **Biogas Credit Feasibility Study**

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**Presented by** 











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Shahzad Bukhari General Manager & Shadab Fariduddin Director and Lead Consultant Karachi June 25, 2010



# **ABBREVIATIONS**

RCDS	Rural Community Development Society
RSPN	Rural Support Program Network
PRSP	Punjab Rural Support Program Network
NGO	Non Governmental Organization
RSP	Rural Support Program
MOU	Memorandum of Understanding
BCC	Biogas Construction Company
NWFP	North West Frontier Province
QED	Quality Ensuring Discount
MFI	Micro Finance Institution
MFB	Micro Finance Bank
PDBP	Pakistan Domestic Biogas Program
SEBCON	Socio-Economic & Business Consultants
NRSP	National Rural Support Program
ZTBL	Zaraei Taraqiyati Bank Ltd



# **PART 1 - INTRODUCTION**

Pakistan Domestic Biogas Programme (PDBP) is a 4 year programme which aims at installing 14,000 domestic biogas plants across central Punjab in its first phase with the financial support of the Embassy of the Kingdom of the Netherlands.

This Programme envisions the creation of a commercially viable biogas sector in Pakistan in next 10 years. During the period, the vision is to set up 300,000 domestic biogas plants across Pakistan. To ensure that the vision materializes, partnerships and agreements with various stakeholders such as Rural Support Programmes (RSPs), Government Organizations, Micro Finance Institutions, NGO's etc will be formulated. Strong, dynamic and profitable biogas construction companies will constitute significant component of the new and viable biogas sector in the country. To that end, the main actors at the supply side of the sector are private Biogas Construction Companies (BCCs), providing biogas construction and after sales services to households. On the demand side, Rural Support Programmes organized under the RSPN will be the main executing partners, as well as NGOs, farmers' organizations and dairy organizations.

RSPN has already signed a memorandum of understanding (MoU) on August 6, 2009 with the Ministry of Environment that establishes that the Ministry of Environment will be the "patron" of the Programme and will facilitate coordination among government institutions for the successful implementation of the programme to meet the energy needs of rural people. Operations have begun in Central Punjab and will subsequently expand to other districts of Punjab, Sindh, NWFP, and Baluchistan provinces. In order to be able to provide adequate support, provincial biogas offices will be established in the provinces and Quality Control Centres will be established to support their activities.



# Background

The average cost of the biogas plant ranges from PK Rs. 33,000 to 59,000 (depending upon the size of the plant), out of which PDBP provides Quality Ensuring Discount (QED) of PK Rs. 7,500 so the actual cost to the farmer would be around Rs. 25,500 - 51,500. Around 10-15% of this cost can be covered by the unskilled labour, which the household can supply. Even with the QED, labour contribution and equity from the households, there is a need of credit of Rs. 20,000 to 45,000. So far, all users have funded the biogas plant by using their own financial resources.

RSPN's Energy Utilization and Demand Baseline Assessment Survey 2009showed that around 57% of the women respondents were interested to have a biogas plant in their house. However the high upfront cost of the plant is major hurdle to install a plant.<sup>1</sup> Households that can afford to pay the upfront cost can install the biogas plant. However, those households, who cannot pay the cost upfront of the biogas plant would be deprived from the benefits of the biogas plant and cannot enjoy the discount given by the programme for biogas installation, as well hindering the overall objective of fostering the development the biogas sector in the country.

# **Objectives Of The Study**

The overall objective of this study was to identify the constraints and opportunities in promoting the credit for biogas plants in the programme areas of PDBP. The idea was to establish feasibility of biogas credit.

The specific objectives were:

<sup>&</sup>lt;sup>1</sup> Baseline Survey Report- Energy Utilization and Demand Baseline Assessment (2009), RSPN and The Netherlands Development Organization (SNV )





- To assess the relevant stakeholders (Retailer and Wholesaler) in promoting biogas credit in terms of their interest, capacity and position.
- To analysis the need of the credit for the biogas installation in the Programme area
- To identify the constraints and opportunities in financing of biogas plants (biogas credit) in the programme area.
- To recommend the appropriate models, mechanisms and products to promote the credit for financing of biogas plants.

# **Scope Of Work**

The scope of work shall be;

#### A. To assess the existing situation

- a. Overview of biogas and micro finance sector in Pakistan.
- b. Assessment of credit need (liquidity gap) for biogas installation
- c. Assessment of modalities and practices in financing biogas plants including accessing knowledge from the region

# **B.** To analyze the policy framework and the concerned stakeholders

- Map the financial institutions and supplier of Biogas credit offering the micro credit in Punjab Province, particularly in the rural areas
- b. Analysis of legal frame work concerning biogas credit through MFIs.
- c. Assessment of institutional capacity of MFIs in reference to providing credit finance access to biogas plant users
- d. Position and interest of the local micro finance institutions

# C. To analyze the opportunities and constraints

a. Analysis of opportunities to increase access to credit for biogas installation

# D. To develop appropriate financing models

- a. Assessment of the need of establishing the biogas wholesale credit fund
- b. Institutional framework



- b. Analysis of policy and operational barriers
- c. Analysis of the sources of credit for biogas financing
- d. Analysis of risk mitigation measures
- c. Defined roles of various stakeholders
- d. Identification of broad parameters of a biogas credit product suitable for various types of clients
- e. Procedures for wholesale lending to MFIs/local partner organizations and onlending to the biogas clients
- f. Necessary interventions required; policy lobbying, capacity building, linkage facilitation
- g. Preparation of action plan for implementation



# Methodology

Keeping research objectives and information sought in consideration, it was suggested to collect both Qualitative and Quantitative information for final analysis. Following methodologies were used to address the both:

Sr.	Instrument	Target Audience
1	Literature Review	Various reports, research papers and literature exclusively designed and prepared in context to Biogas Development and Promotion in Pakistan
		Internet search for best practices, issues and constraints in biogas sector specially with relate to credit facilities
2	Meetings	Meeting with micro-credit wholesale organization i.e. PPAF, UBL, etc Meetings with microfinance institutions i.e. PRSP, ASASAH, RCDS, Kashf Microfinance Bank, etc
3	Focus Group Discussion	FGDs were held with biogas users and potential-users about their detailed insights on Biogas usage. Their attitudes and perceptions were tapped to generate insights about biogas, its utility for them and their credit needs.
4	Face-to-Face Interview	Face to Face Interviews were conducted with Users and Potential Users of Biogas (including both male and female users) Different stakeholders will be interviewed (i.e. Farmers, Biogas Construction Companies and Policy etc) to obtain their opinion, concern and fears regarding the use of biogas and related
5	In-Depth- Interviews	MFIs were also interviewed for getting their positions and interests regarding possibility of biogas credit, to potential biogas users. Interviews were also held with biogas construction company (BCC) members and owners to understand the issues and gaps in the construction of biogas plants and



how credit supply could facilitate construction process.



# a. Sampling Methodology

As agreed in inception report research was conducted in Faisalabad and Khushab districts of the Punjab province.

# **Qualitative Focus Group Discussions (FGDs):**

In all 8 FGDs were done to gather insights in detail

Sr.	Туре	Faisalabad	Khushab
1	Biogas Users	4	0
2	Biogas Potential-	2	2
	users		
Total		6	2

## **Qualitative In-Depth Interview (idis):**

In all 9 IDI were done to gather insights in detail

Sr.	Туре	No of IDI	Regions
1	BCC	4	Faisalabad
2	MFI's	2	Lahore
	Credit wholesalers	1	Nankana Sahib
3	Whole sellers	1	Islamabad
4	Policy level	1	Islamabad
	Total	9	

## **Quantitative Face to Face Interviews:**

In all 78 Face to face interviews were done to gather insights

Sr.	Туре	Faisalabad	Khushab
1	Biogas Users	18	0
2	Biogas Potential Users	30	30
	Total	48	30
Grand total			78





# Implementation:

Prior to start any activity of the project, a meeting was essential to understand the client's perspective. Detailed terms of references were shared by RSPN. In a briefing on biogas and expected outputs were clarified. Multiple meetings were held in RSPN head office prior to field implementation.

# Development, Pre-Testing and Finalization of Data Collection Tools

After the meeting with the RSPN team, a range of data collection instruments were prepared including the following

#	Tool	Expected Outcome
01	Biogas Consumers & Users	<ul> <li>Farmer's perspectives on benefits and constraints of using Biogas</li> <li>Feasibility and process of biogas installation and size of plant preference.</li> <li>Finance management and possible finance solutions for biogas plants.</li> </ul>
02	Biogas Potential Users	<ul> <li>Community awareness regarding Biogas and its benefits</li> <li>Constraints and limitation in installation of biogas plan at home with special emphasis on finances related issues.</li> </ul>

#### Focus Group Discussion Questionnaire

## In-Depth Interview Guide

#	Tools	Expected Outcomes
01	Biogas Users & potential-Users	<ul> <li>Benefits and limitation of using biogas</li> <li>The process of biogas installation and preference in choosing right or desired size of plant</li> <li>Finances management for biogas plant related issues</li> </ul>
01a	Biogas users SECTION Only	<ul> <li>Community awareness regarding biogas and its benefits</li> <li>Constraints and limitation in installation of biogas plan at home and finance related issues</li> </ul>
01b	Biogas Potential-users Only	<ul> <li>Benefits and limitation of using biogas</li> <li>Constraints and limitation in installation of biogas plan at home with special issues faced regarding installation and finances.</li> </ul>



02	Microfinance Institutions (MFI <sub>s</sub> )	<ul> <li>Categories and type of credit facilities offered.</li> <li>Policies and standard for introducing new policies</li> <li>Policy level support if biogas credit line introduced, constraints and limitations</li> </ul>
03	Credit Wholesaler	<ul> <li>Knowledge about the existing status of credit lines</li> <li>Standard operating procedures for introducing new credit lines</li> <li>Constraints and limitations in introduction new credit line for biogas</li> </ul>
04	Biogas Construction Company (BCC)	• Financial constraints and possible solutions for financing plants in partnership with MFIs.
05	Discussion Guide for Policy Making Institutions	Mainstreaming biogas credit line in microfinance sector as promotion tool of alternate energy medium

The draft tools were shared (in Inception Report) with the RSPN team and management to get their feedback. The approved questionnaires and checklists were finalized after pretesting. All instruments and tools are attached. *Annexure* 



# **Team Composition**

The following team was mainly responsible for the conduct of study in Faisalabad and Khushab:

#	Member	Responsibility
1.	Shahzad Bukhari	Enterprise Development and Gender-Specialist
2.	Ali Raza	Quantitative Research Specialist
3.	Qasim Mumtaz	Senior Researcher, Client- Liaison and Field Manager for study execution
4.	RifatSabzwari	Qualitative Research Specialists
5.	ShadabFariduddin	Lead Research Advisor, Development Sector Specialist
6.	UzmaTaha	PMDC Psychologist & Expert in Qualitative Research
7.	RobilaAgha	Micro Finance Expert
8.	Field Enumerators	8 Numbers in Faisalabad 6 Numbers in Khushab
9.	Quality Assurance	2 Individuals



# Survey

A detailed work plan was prepared and shared with RSPN's PDBP team for approval. The study was carried out as per agreed and approved timeline.

# **Quality Assurance**

The Field Team Supervisor was nominated to review the process in the field and ensure the quality information before sending information to head office.

FCG's monitoring expert also joined the survey team in their initial field work and observed the field consultation process. The field schedule was shared with RSPN's PDBP team and they were also invited to visit or observe the FGD or interview process when and where they wanted.

# Data Entry/Cleaning/Processing

The FCG has an in-home Quality Control and data entry team equipped with required data entry hardware and software. The data analyst supervised data entry and carried out data cleaning by using different statistical tests.

# Documentation

Two reports, inception and final were promised to submit to RSPN for their review record and approval.

- **Inception report** is already submitted and approved.
- A **draft of final report** was submitted that contained findings of the study. After receiving comments from PDBP team a final incorporated version appears as this document for RSPN's approval and record.



# LITERATURE REVIEW ON ENERGY AND BIOGAS CREDIT

Energy, being a common human need, enjoys a global demand from the poorest of the poor to the richest of the rich. It is also an established fact that the energy cost is rising, which puts an unbearable burden on household budget especially of middle and lower income strata of societies. Rising energy cost, depleting fossil fuel reserves and environmental concerns have unleashed search for cleaner, cheaper and sustainable source of energy. Closely tied to this search is the question of affordability: making investment to create or switch to a newer source of clean energy. The role of credit therefore becomes central to promoting alternative energy sources: solar, wind, biogas etc. World experience amply demonstrates that availability of and access to credit has helped achieve accelerated growth on both sides of the sector: demand (accelerated growth in use of biogas) as well as supply (portfolio diversification of vendors and microfinance institutions, ie, MFIs).

One finds two distinct phases of growth in adoption of biogas as energy source: before and after availability of credit. Biogas programmes typically starts with a subsidy to the user. Adoption rate is slow and quality poor. This phase is also of long duration. For example, in Bangladesh from 1972, when first biogas plant was built to 1994, biogas plants were primarily financed through subsidy amounting to USD 70 (Taka 5000).<sup>2</sup> Biogas subsidy usually turns into soft loan to users on concessional terms.

Biogas users and microfinance clients have very similar demographic profiles. As soon as MFIs are educated about biogas users' credit needs, they realize the potential and diversify their credit portfolios to include biogas credit as well. Concerted efforts by biogas promoters are required to in order to facilitate MFIs' development of credit products.<sup>3</sup> Once this happens, biogas usage witnesses wide-spread adoption quickly. This pattern is common across cultures in Asia, Africa and Latin America.<sup>4</sup>

While the latent demand for biogas credit has to energised by way of proper need identification in terms of amount and tenure of loans, it is also evident from international

 $<sup>^{\</sup>rm 2}$  Haque, Nizamul, October 2008, Country Paper for Bangladesh on Biogas Financing, The Netherlands Development Organization (SNV )

 $<sup>^{\</sup>rm 3}$  Dhakal, Nara, September 2008, Financing Domestic Biogas Plants in Nepal, The Netherlands Development Organization (SNV )

<sup>&</sup>lt;sup>4</sup> Hilman, Subedi, Gilman et al, November 2007, Using Microfinance to Expand Access to Energy Services, Experience in Asia, Latin America and Caribbean, USAID and Citi Foundation



experience development of need-responsive biogas credit (or energy credit) products is not easy or automatic. Although they don't have a funds constraints, MFIs generally resist the ideas because of internal factors such as efforts required to develop a new method of loan appraisal. There are external obstacles as well that MFIs need to overcome in order to make biogas credit products available to potential lenders: policy environment, governmental support in terms of credit-enhancement schemes, availability of energy and electricity price subsidies, availability of low-cost base funds for wholesale microfinance institutions etc.<sup>5</sup>

The objectives of this study and the areas of inquiry are therefore based on lessons from the international experiences in energy credit. The report explores biogas credit needs of consumers; it looks into concerns of MFIs, both retail and wholesale and finally recommends a course of action for promoting biogas credit in Pakistan. This study is in follow-up of the base survey commissioned by RSPN in 2009 to establish energy utilization and demand baseline in 2009. They key insights from the survey are summarised below:<sup>6</sup>

Overall, both men and women expressed strong interest in and willingness to opt for bio-gas technology, provided the financial and technical constraints are addressed appropriately.

- Mobility of women is not an issue in either of the districts. The women are willing to attend any training in and outside the village, as long as the trainings are provided by women. Once the plants have been installed, women should be made responsible for their repair and maintenance for better results and better sustainability.
- In order to enable the maximum number of women to participate in project activities, several introductory sessions should be organized with the men, especially on bio-gas technology, to give them maximum information. As expressed in the FGDs and also indicated in the survey findings, men are still the major decision-makers at the household level so they need to be informed about the technology first in order to tap into their investment capabilities.
- Considering that a large number of those interviewed want to see a functioning bio-gas plant before making a decision, it is recommended model bio-gas plants be set-up at key

<sup>&</sup>lt;sup>5</sup> ibid

 $<sup>^6</sup>$  Baseline Survey Report- Energy Utilization and Demand Baseline Assessment (2009), RSPN and The Netherlands Development Organization (SNV )



areas to demonstrate to the people how the technology works. Considering the low education levels, exposure in this manner would be more convincing. Media could be used for information dissemination as well. Also, technical, financial and functioning details would be required to help them decide whether they like the idea.

- A lot of mobilization is required to create awareness about bio-gas and its benefits. There is evidence of NGO presence in some villages in Samundri (as NGOs are a source of credit for some of the villages there), thus the networking of such NGOs can be tapped into.
- The cost of bio-gas plant installation is high, meaning most of our rural and potential communities will be deprived of benefiting from the project. In order to involve middle and low income groups, grant or microcredit mechanisms should be worked out to allow the maximum number of families to benefit from the project. A mechanism should also be worked out to involve most vulnerable communities in this project through donor funding and minimum community contribution
- It was found during the visits that most of the villages closer to the main towns of Jaranwala and Samundri either already have sui-gas connections or have been promised by their politicians that they will get sui-gas within months, hence their reluctance to consider bio-gas as an alternate source of energy. Thus while selecting project areas for installation of bio-gas plants, remote villages away from the main towns should be selected for effective implementation of the project. The sampled villages of Faisalabad districts were located on an average distance of 16 km from their respective tehsils, while the average distance of the sampled villages of Vehari from the nearest main town was 9 km.



# PART 2 – ANALYSIS OF KEY INDICATORS

# **Stakeholders Assessment**

# Situation Assessment & Analysis (Stake Holder Analysis)

# Findings in a Nutshell

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#### Awareness and Usage

1	Awareness of Bio-gas plant	Moderate to low	Moderate to low	
2	Use of biogas	Moderate	Not as such (recently	
			installed)	
3	Potential Users of Biogas	Average	Quite a few	
4	Quality of Plants	Good / but at its best	Good	
		in summers		
5	Economic Profile of user	Middle class	Middle class	
6	Operation & management	Good	Good	
	of Plants			
7	Affordability	Perceived expensive	Perceived expensive	
8	MFI's awareness about	Almost none	Almost None	
	biogas			

## **Funds and Microcredit**

1	Funds Availability	Hard to mobilize	
2	Presence of Micro-finance	Not at all for biogas	Not at all for biogas in
	Institution (KASHF, First	in specific	specific
	Women Bank, First Micro		
	Finance Bank, Khushhali		
	Bank, ASASAH, RCDS,		
	PRSP, NRSP etc)		
3	Credit facility for biogas	None	None
4	Willingness to provide	Conditional on meeting certain prerequisites	
	credit for biogas (all MFIs)		



## Services

1	BCC	Functional but need			Almost invisible need		
		more	presenc	e and	comprehei	nsive	
		communication			communication model		
12	PDBP	Exist	but	more	Exist l	out	more
		awareness campaigns		awareness	camp	paigns	
		required		required			

Hence, the key insights extracted are:

- At present biogas has moderate awareness in Faisalabad region. There are quite a few users of the plant which adds to the awareness and usage. However in Khushab, the awareness is less as the biogas plant installation is quite recent.
- The plants are of good quality. Nonetheless, there still are gaps that need improvements. A plant work best in summers and is somewhat less productive in winters. And it takes time to settle and start producing enough amount of gas.
- Overall, it seems that in Faisalabad the profile of individual biogas users is much better than in Khushab. Consumers must meet certain prerequisites of land and animal ownership before biogas plant installation.
- MFI's do not play any role in credit offer for biogas plants at present. There are no funds as yet specifically for biogas. Moreover, MFIs share that there might be a need for biogas credit but the actual concern is more to do with the awareness of its benefits and secondly the fact that it is not an income generating activity.



## Women: Biogas And Biogas Credit

In current rural scenario access to and control over resources exists as gender issue. Out of various biogas plants visited, only one plant is owned by a female in Faisalabad districts.

Beside ownership, various houses were visited to get female perception and acceptance regarding bio-gas and following were found:

- Less hassle in cooking, etc
- Less effort in fire-wood collection
- Freedom from making dung-cakes
- Biogas is an excellent energy alternate.
- Reduction in expenditures and workload.
- We don't have to make dungs any more, cleaning is ash, no more ash on the cloths, kids also remained clean more than before.

Biogas, no doubt, comes out a tool of women's empowerment in the rural areas. However there is also an important linkage between women and microcredit and, by the same token, biogas credit.

Women have been main targets of MFIs because of women empowerment agenda. Women are also considered more credit worthy than men are better at generation savings from household budget provide by men, who may be better earning or income generation.

This last point is of special significance and needs deeper analysis microfinance all ever the world has proven to expand income generating possibilities for women. This role played by microcredit is laudable and has developed entrepreneurial capacity of women. The emphasis on income generation has at the same time, over shadowed women's inherent ability to generate savings from the household budget, howsoever meager it may be.

Wide spread prevalence of "committee" system among women talk in testimony of women's keen interest and abilities to benefit from savings. In doing so they operate as a collective a social feature successfully exploited by MFI's to manage risk of their loan portfolios.

This research study did not delve into women's role in household saving management. The respondents were mostly men. Accordingly the findings capture mainly their perspective. Women's role vis-à-vis biogas credit needs deeper inquiry.



# **Profile Of Biogas User**

In Faisalabad 18 Biogas users (age 26 +) were interviewed for the study. A typical user can be profiled as under:

- Mostly upper middle class which means family comparison 8-10 members on average including children.
- The chief wage earner is mostly the adult male of the house (husbands and fathers).
- He is the sole decision maker of any family matter and enjoys complete authority in this respect. He seeks less or no consultation from his family specially females.
- About 33% of the users were member of any MFI or community organization and same percentage had taken loan before from any institution.
- No saving policy has been recalled by the users in term of health and cleaning expenses.
- Most of the users had 6+ buffaloes with a land area of 23 acres
- Monthly income of users were Rs. 30,000



# **Biogas**

Majority of biogas users has 6+ buffaloes and Biogas plants from 4 cubic meter to 15 cubic meter are installed as per requirement at each consumers place respectively. The land owned by users is mostly covering area (about 23 acre). The biogas user household average monthly income is Rs.30, 000/- per month. The biogas plant users also use gas cylinders and wood simultaneously to manage continuous gas availability. Last, but not the least they are the key decision makers in bioaas plant installation.



Having a joint family system the nature of work is divided among family members. Males are usually occupied with work such as looking after their lands however females are mostly confined to their homes. Despite being at home females also contribute in preparing dung cakes which is later used as a fuel.

Such families have a moderate lifestyle and they struggle to meet both ends. Mostly the concern of biogas user is frequent rate of inflation and energy crisis specially electricity, which affects their decision power in terms of demand for necessities.

All biogas users have financed their plants from their own resources. Their income level and lifestyle typically fall outside the target profile of a microcredit client.

Mostly the source of awareness for users was word of mouth. Many had seen their neighbours using the plant.

The key trigger that prompted them for purchase was a hassle free product that saves their time and energy. Mostly all the users view their plant working effectively. It prepares enough gas that they can prepare one time meal. Hence, they showed willingness to share about the efficacy of the plant to their relatives, neighbours and friends.

All users can be classified as early adaptor of the technology and exhibited typical characteristics: they are relatively high income households and can afford to take risk of testing the new technology. Once the working plants are on the ground, there will be much confidence about the technology. The users/early adopters will attract potential users to have biogas plant at their locations and thus relatively lower-income strata of the society will try



this technology. Availability of credit that is likely to make such tiral less risky for them. Instalments plans can well be expected to attract those household cannot afford to pay in lump sum the upfront cost of a biogas plant.



## **Profile Of Potential Biogas User**

In Faisalabad and Khushab a total of 60 potential users (mostly age 26+) were interviewed for the study. The potential users can be profiled as under:

- Mostly lower middle class A family comprises 8-10 members on average including children. However, it is important to note that the average profile of Khushab user is a little less than that found in Faisalabad due to limited resources and earning opportunities.
- Most of them had minimum Buffaloes 2-4
- The land owned by the potential users were about 11 acres and 9 acres in Faisalabad and Khushab respectively
- Potential users household average monthly income is Rs. 25,000 and 20,000 in Faisalabad and Khushab respectively
- The main source of energy to them are use of woods and gas cylinders in Faisalabad and for Khushab, they only rely on woods
- Almost none of the potential user was member of any MFI and hence no one has any loan facility taken before.

# **Biogas Potential User**

Majority of biogas potential users have 2-4 or less buffaloes. The land owned by potential users is mostly covering area (about 11 acre in Faisalabad & 9 acre in Khushab). The biogas potential user household average monthly income is Rs.25, 000/- per month in Faisalabad and Rs.20, 000/- in Khushab. The potential users mostly use wood and gas cylinders as fuel, however in Khushab the wood usage is significantly high than any other source.



The chief wage earner is mostly the adult male of the house (husbands and fathers) in both regions. He is the sole decision maker of any family matter and enjoys full authority. He seek less or no consultation from his family specially females.



Joint family system dictates that the nature of work is divided among family members. Males are usually occupied with work such as looking after their lands however females are mostly confined to their homes. Females also have to contribute in preparing dung cakes which is later used as a fuel.

Such families have a moderate lifestyle and they struggle to meet both ends. Mostly the concern of potential user is frequent rate of inflation and energy crisis especially price of electricity, which affects their decision power in terms of demand for necessities.

A potential user is keening searching for biogas credit and is willing to pay up to PKR 3500 per month in repayments. Their target threshold of interest rate is about 10-12%, which is perhaps due to them borrowing no- or low-cost funds from friends and families for personal needs. He does not know from where and how to seek credit.

A typical potential user is likely to gather complete information and practically observe a functioning plant before making a purchase decision.



# **Existing Situation of Biogas Plant**

## **Awareness of Biogas Plants**

The consumers related to Biogas plants in a positive manner.

Biogas is viewed as an alternative energy source by using natural waste which can fulfil the domestic needs and can be an alternate to gas especially in area where Sui gas has still not reached. "It's a very beneficial way to utilize energy" (Mr. Saiullahf, bio-gas user of jaranwala village in –Faisalabad)

"Biogas is easily produced by animal dung" (Mr.Nadeem, bio-gas user of jaranwala village in –Faisalabad)

However, the perceptions and awareness about bio gas potential users is yet limited. They were not so aware of the plant and thus were not confident in sharing their views about it. The prospective users had either just heard the name, or have seen it in the neighbourhood village.

Mostly all of them shared that the sources of awareness was much limited. Their source of information was either word of mouth or some seen the biogas plant installed at the user's place. Only a few mentioned that people from BCC/ NRI come and create awareness about biogas plant.

"We have just heard the name – we don't know what it is in real" (potential users – male -Khushab) "I really don't know much about it" (potential users – male -Khushab)

About half of the people in potential users in Khushab mentioned that have consulted some one living near by about biogas. The discouraging point was that, more than three fourth of these could not excess the most relevant person (actual users) to seek advise from.



# **Purpose Of Having Biogas Plants**

Users eagerly shared the positive aspects of the Biogas plant. It was delivering well on the functional and the emotional level. On functional level, it provides an alternate to other fuel items such as woods/oil and gas cylinders. Along with that it satisfies



owners in terms of good value for money, which is the emotional end. However, it is important to note that the users or the potential users did not show their concerns over health or hygiene factor at present. It is more to do with time and monitory saving than any other benefits.

## Triggers – Biogas Plant

Nonetheless, they key triggers perceived of having biogas plant are:

Males	Females			
➢ It saves time for cutting wood (for	➢ It saves time drying dung etc			
males to go to woods)	(specially for females)			
$\succ$ It saves the cost of woods	> Saves from smoke (specially from			
➢ It saves cost of oil	smoke while cooking with woods)			
<ul><li>Can get the good fertilizer out of it</li></ul>	<ul><li>Saves utensils from getting black</li></ul>			
$\succ$ It is hassle free	> Leaves the kitchen neat and clean (no			
	mess)			
	> Keep the kids clean, saves labour of			
	cleaning them			

Based on individual's livestock capacity majority of the users were using 10 cubic meter plant, followed by 8 and 4 cubic meter plants in Faisalabad.

Capacity	Users
10 Cubic Meter	44%
8 Cubic Meter	39%
4 Cubic Meter	17%



Overall 45% of the potential users hold 3-4 cows and their average household family size is 10 members, so appropriate capacity size will be 10 cubic meter plant, however the potential users were not very much clear about the capacity of the plant in term of output capacity but from the animal holding it can be estimated that majority of them were requiring a plant capacity of 4 cubic meter or lesser.

Potential Users						
If you will be interested in	Capacity	Faisalabad	Khushab			
installing a Biogas plant what is	2 Cows	20	50			
your target plant capacity in term	3-4 cows	50	40			
of cattle?	6-8 cows	20	7			
	10 plus cows	10	3			

About all the users mentioned that biogas is better option than the fuels they were using before, about 67% like biogas because of its less expense, however 11% each mentioned for food cooking is fast, the natural benefits of biogas and 6% mentioned the health benefits of biogas.



More than half (57%) of the users were using gas cylinder facility before the biogas plant installation, while 43% were using wood as energy source. Approximately Rs. 2500 per month was the expense of each household; however this had been completed wiped off after the biogas plant installation or reach to Rs. 700 to 750 per month which means they saved about Rs. 1800 per months after having a biogas plant at their facilities. Similarly about Rs.2,000 plus being spent by potential users on gas or woods in a month. The profile of Faisalabad out skirt's people was slightly better than Khushab potential users.



Almost all the potential users were like to have biogas plant at their home; the over perceived benefits of biogas were as follows (percentage data):



It is encouraging to note that potential user's perceive the benefits in very concrete and tangible terms, such as increased saving, decrease household expense, more disposable income, ease and convenience. Given the fact that there is wide spread lack of awareness, such benefits are easily communicated and generally very well understood. The task of demand generation therefore, becomes less onerous.

A related, but no less important, aspect of general lack of awareness is that it applies to sources of credit as well: those unaware about biogas also have no idea about biogas credit facilities.



# **Barriers – Biogas Plant**

Along with the advantages there are a few barriers related to it which are mostly share by prospective users as:

	<b>Bio Gas Plant Barriers</b>
$\triangleright$	The biogas plant has some important prerequisites, (such as live stock, land etc) if a
	farmer is willing but is unable to fulfil the preconditions he would never be able to
	use the facility.
$\triangleright$	For some consumers the cost is quite high, which might be difficult for individuals
	to think about installing it.
$\triangleright$	The usefulness/worth is yet not convincing enough hence, it's a risk to install such a
	plant
	The dung out from plant is not in good shape like in form of liquid which is a big

- The dung out from plant is not in good shape like in form of liquid which is a big hassle for them to dispose off.
- > Consumers cannot pay in lump sum to purchase the plant

More than three fifth respondents were not aware of biogas plant benefit and this was even higher in Khushab district. Second big reason for not having a biogas plant is its cost, which was very high to take such risk and they cannot pay such amount lump sum.



## Key Reasons For Not Installing Biogas Plant

## Need For Credit By Users

The consumers shared at the upfront that Biogas installation is quite expensive. The users shared that on average they had to spend Rs.35,000 /- to Rs.40,000/- for the complete installation.

On the contrary, the potential users are completely unaware of the cost. They are aware of similar cost by word of mouth. Mostly believed it to be 25,000 /- to -**40,000/-.** 



However, there were some who shared that it cost them about Rs.25000/- to Rs.28,000/- in case when they provided they own material for construction such as (cement, bricks etc).

It is imperative to share, that most of the consumers who were part of the research were the ones who arranged and installed Biogas plant by self investment instead of getting loan from anyone. About 50% of the users had this amount by selling a property, while one third 33% got it from their saving. The most encouraging point is that, people are getting benefits from it both financial and functional. Even they are selling animals or property to get to it among those who were well aware and financially in a better situation than average people.

Moreover people from Faisalabad had some awareness about its costing among potential users, the mean of desired costing was around Rs. 25,000 but the situation in Khushab was not so good as majority feels that the cost is around Rs. 18,000 for a plant. They also feel that the labour cost is very high and it should not be like that, the labour were charging more than the work and secondly they involve many people during the plant installation which creates problem for them especially while sitting at home and watching them work/ construct and install plant.

## Need For Credit By Potential Users

## Average Spending On Wood And Gas

In Faisalabad, on an average people spend Rs. 2,200 on gas and wood, while people living in Khushab were spending Rs. 2,050 on wood per month.

# How much amount they can arrange from their own for biogas plant installation

About Rs.14, 000 In Faisalabad and Rs. 10,000 in Khushab can be arranged by the respondent at their own. Accordingly, potential biogas credit need is depicted in the following table:





## How much credit is needed?

On an average, about Rs. 23,000 were required by Faisalabad potential users as loan whereas Rs. 18,000 was required by people in Khushab. keeping one thing in mind, potential users were still not aware of cost break up, just like the users who had invested and provided the raw material requirement of plant to labor which ultimately save their overall cost. If potential users will follow the same direction, then there might be a chance of relying for more credit might decrease and they will be requiring lesser amount as loan.

## How Much They Can Pay In A Month (Monthly Instalment)

By keeping the income, loan requirement, current fuel expense/saving in case of biogas plant facility available to them and suggested time to pay it back. It looks that everyone can pay Rs. 2,500-3,000 to pay it back completely in 2 years.

#### How Much Interest They Can Pay Easily

Higher interest rate will automatically increase the amount borrowed and hence all the deliverable will be delayed. Mostly respondents were of the view that the interest rate should not be more than 10% where as MFIs approximately giving at 20% interest rate for any income generating activity.

#### Satisfaction Level Among Users

Some of the consumers of biogas plant shared that they were provided training of how to use and maintain a biogas plant. They seemed much satisfied with the plant. The amount of dung required, water mixing and disposing of the waste, all is explained to them at the time of installation. They shared that it has helped them in maintaining and using the plant.





## **Consumer's Perspective About Micro Credit Institutions And Biogas**

There is a limited loan facility available for income generation activities in small villages. The consumers (users & potential) at the upfront only recalled names such as NRSP / funded by agri banks/Zarai Tareequati Bank. These are the only resources that offers loan to a farmer depending on his need to purchase a tractor or a land. Over and above, as the interest rates on such loans are quite high hence, the consumers don't ideally prefer to avail such facility. Other than these two resources, there exist some other credit institutions which the consumers are absolutely unaware of (such as institutions like (*First Micro Bank, Khushali bank, ASASAH, PRSP, First Women bank and RCDS etc*). These offer credit loan facility for (land, business, tractor or agriculture)

Among those who mentioned the loan facility available for income generation activities, 90% mentioned the name of Zarai Tareekyati Bank. Almost everyone who got the loan was against the land.



In general, it seems the role of MFI is not so strong at present in terms of offering loan facility in a flexible way to consumers. Nonetheless, the consumers also are less aware of that fact that such institutions exist.

Sr.	Institution/Bank	Loan for (Category)
1	National Rural Support Programme (NRSP)	Agriculture related
2	Zarai Taraqiyati Bank Limited (ZTBL)	Tractors / land

## **Consumers Knowlege Of General Terms And Conditions Of Such Loans:**

Sr.	Institutio n/Bank	Terms and Conditions	Min-Max Size of Loan	Tenure (min-max instalments)	Collateral	Processing Time
1	NRSP/	Monthly instalment	18000 to	12 months	Keep land	20-25 days
	ZTBL	Need to pay on first	25,000		papers and	
		of every month			national Id	
					cards	

General term and conditions for loan offers are quite sophisticated. At the upfront, it seems almost not possible for a farmer to think about availing such a facility. Moreover, being illiterate or uneducated they feel insecure in taking a policy that might have underlying costs and rates which they do not understand upfront.

About 86% of the users mentioned that loan was available against the papers of land. Minimum duration of paying back the loan is 1 year and it goes to 5 years depending upon the amount of loan given. While the potential users believed that NRSP is making some contribution in loan giving especially in Khushab district and ZTBL in Faisalabad. In Khushab loan facility is available for business while Faisalabad the loan facility is available for land only. Hence, it seems that almost around 94% users and 65% potential users felt that if they would need loan than they would go to their relatives instead of going anywhere else. In actual about 50% respondent had taken loan from their relative which is free from any special condition like collateral and interest.

A mix kind of response was gathered when we asked about the collateral for loan. Many believed that it should be a personal guarantee by someone like the nazim/patwaree of village. While some of the respondents shared that mortgaging against land is a better



option. In Khushab people believed that NRSP had made few general committees and one had to member of that committee to be eligible for loan.

Above all, the most throbbing is the interest rate. It is perceived quite high than expected. The interest rate is as high as 20% which is perceived much by the individuals and if it would have been around 7-9% than it was believed to be justified. Even in potential users segment where people received loans from their relatives were paying interest ranging from 5-20%. This is especially true in Khushab where 75% of the potential users were paying 20% interest rate to their relatives from whom they had taken loans.

## **Process Of Getting Loans**

The process of getting loan is not so clear to the consumers. As they are less awareness about MFI's, therefore the process is also not clear to them.

However, a few shared that there is a committee made which is specific in giving loans. Such a committee requires some prerequisites like form to be filled and NIC. Once the committee decides for the eligibility criterion, the individual receives loan in another 25-30 days. Additionally, for assurance the committee asks for land papers. This is a typical procedure followed by MFI<sub>s</sub>.

# Perception About Loan For Biogas Plant Installation

The idea is strongly welcomed across the board. A loan that is good enough for consumers should at least be 50% of the actual cost. One hand it would help the consumer avail facility along with the sense of achievement.

Nonetheless, the preconditions such as livestock and land are impediments in availing of such facility. One who could afford livestock and land would be capable of sparing 25-30,000 for a bio gas plant. Such consumers do not fall under poor client that is offered credit by any MFI.



About 89% of the users like the idea of getting loan from any institute for biogas but a slightly higher than half of potential users liked to get the discount.





#### **Potential Need For Biogas Loan**

#### **Consumer's Expectations From A Credit Institutions**

At present, none of the banks are providing credit facilities for Biogas installation and the consumers are aware of it. However, banks are perceived as a good resource for providing credit facilities. The interest rate is the key element that holds back consumer. The

"the interest rate should be as low as Rs.5 to Rs.7/-" (users – male –fsld)

"Rs. 1000 per month could be an ideal installment" (mostly all – Fsld&Khub)

higher the interest rate the less would be the consumer. Additionally, a flexible and realistic instalment plan is the key to such an offer by some credit institution.

Overall, the consumers shared that the loan should be atleast 50% for the cost of bio gas plant. Last but not the least, this amount can be ideally paid back in 1-3 years in minimum and maximum 2-5 years.

Users and potential users look forward to lowest interest rates. The least they could agree upon was of 9-12% on biogas loan.

Region	L	oan Amour	ıt	Interest			
	Min	Max	Mean	Min	Max	Mean	
Faisalabad	3,500	35,000	21,700	5%	90%	14%	
Khushab	15,000	50,000	28,158	5%	15%	9%	
Total	3,500	50,000	26,813	5%	90%	12%	

The grid indicates a few users and details of plant installed and loan. It is imparative to note that majority of the respondents had provided the raw material of contruction at their own hence cost of plant is reported lesser than the actual one.

Name of the Person	District	Size of the Plant	Total Cost	Quality Ensuring Discount	Labour Contribution	Loan Taken (if any)
Saifullah	Faisalabad	10 cm	36,000/-	7,500	Yes	No
	Jaranwala					
Umer	Faisalabad	8 cm	30,000/-	7,500	-	No
	Jaranwala					
Nadeem	Faisalabad	6 cm	25,000/-	7,500	Yes	No
	Jaranwala					
muzaffar	Faisalabad	4 cm	25,000/-	7,500	-	No
	Jaranwala					



# **Micro Finance Institutions: Institutional Assessment**

# Findings from Retail MFI's

This portion of study has carried out to make an assessment of sample of three microfinance institutions with following profiles:

## **KASHF Microfinance Bank:**

Kashf Microfinance Bank Limited (KMBL) was established in June 2008 with a vision to become Pakistan's leading microfinance bank serving all to become a prosperous, equitable and poverty free Pakistan. KMBL envisions offering a diversified range of financial products and services to low income wage earners as well as the self-employed of Pakistan. It targets to leverage and build on its associated company's outreach and experience, as well as charter new paths as a regulated, deposit taking entity, maintaining the group's commitment to financial services for all.

KMBL, initiated its lending operations from 1st November 2008 and is now geared to commence liability operations with 18 branches. Initially, the presence was in 13 cities of Pakistan and an additional 14 branches will be opened this year taking the network to 32 branches by end of the year. In 5 years, they plan to open 100 branches across 31 cities reaching out to more than 1 million client.

## **Rural Community Development Society:**

Rural Community Development Society is a Non Governmental Organization, founded in 1995 and registered in 1998 under the Societies Registration Act 1860. The organization is working in Sheikhupura and Nankana Sahib, Kasur and Faisalabad Districts. It is a community development entity that implements different Programmes at grassroots level aimed at attaining sustainable development.

RCDS is working on poverty alleviation and empowering marginalized, deprived, oppressed and neglected communities through Micro Finance & Enterprise Development Facility, Community Physical Infrastructure, Education, Health, Capacity Building and Advocacy Programmes. RCDS believes that empowerment and social change is only possible through ensuring the effective and efficient participation of marginalized communities in economic development.





## Punjab Rural Support Programme:

PRSP is a non-government, non-profit, and non-commercial organization registered as a company limited by guarantee under Section 42 of the Companies Ordinance, 1984. It aims to alleviate poverty and provide social and economic empowerment in the rural areas of the Punjab through community participation.

The participatory approach adopted by PRSP does not accept the notion that the poor are resigned sufferers of the historical and multi-dimensional phenomenon of poverty. PRSP assume that the poor suffer from, inter alia, a lack of access to opportunities for social, physical, and economic improvements in their lives. The frustration this causes over time breeds attitudes that are commonly perceived to denote resignation. However, PRSP do not accept that the poor can be pulled out of this vicious circle of exclusion only through strong and sustained state interventions. Historically, the experience with state interventions has been that they are neither sustained, nor focused. The participatory approach works for the empowerment of the poor through sensitization, mainstreaming, skill enhancement, and capital formation.

Except for KASHF Microfinance Bank, the two of the above MFIs are integrated programmes specifically targeted to rural communities. None of these MFIs believe that Biogas should be part of Credit Component.

PRSP which has major involvement in Biogas installation had put credit as an offering to its clients but none of the clients have ever requested for credit to install Biogas. Keeping in view this crucial observation Biogas can be promoted as value addition for this non-marginalized community. Biogas if promoted for additional utility than domestic will attract more people example was quoted by RCDS where Biogas Plant was used to run tube well.

However, keeping in view that for Biogas, availability of dung of two to four animals is a prerequisite; Biogas promoters can rather promote means, which is Livestock Loan, instead of promoting Microcredit for Biogas. Also Biogas should be promoted as value addition product and not for domestic purposes only which would make more sense for this rural agricultural clientele.

Target market for Biogas Plants installation is the remotest rural areas where NGOs have deeper penetration and regularized banks have not so far outreached to such communities.



Therefore, the target MFIs to promote credit for Biogas should be these MFIs, and more specifically Rural Support Programmes.



#### Awareness Of MFIs About Biogas Credit Needs

Microfinance institutions have an idea of biogas needs, however whether there is need for credit or not is not explored by them, also because the intervening MFIs have done it mostly through cost sharing. Having said that biogas if provided on cost sharing would mean that clients are able to partially share the financing of the Biogas Plants. These MFIs have received grants to provide said intervention.

For KMFB, the awareness is more of hearsay, as the bank is not even operational in rural communities. KMFB assumes that, as Biogas is the most inexpensive alternate source of energy, which can be made available to the rural community with extended credit facility *(Assumption).* KMFB clearly feels that the benefits or value addition of such energy source needs to be demonstrated both to the demand side and supply side of the participants. And as in any other financial productive need, credit can be looked as an intervention for Biogas.

RCDS has already providing Biogas plants on cost sharing basis through its grant programmes. They do confirm that Rs. 20k to 30k is sharing of the client. Whether there is need for credit or no was never explored. However, these people are able to part share in the cost of Biogas plants which has economic and productive implications on their lives. For RCDS the Biogas plants are also being used for tube wells hence providing value addition. RCDS is very enthusiastic about the said intervention. They strongly feel that international successful models should be explored and replicated in Pakistan.

PRSP is one of the integrated Institutions, who have done maximum intervention in Bio Gas provision in the rural communities. PRSP's intervention is by default in rural communities as per its specific target market of rural community. The most valid information was generated by PRSP. PRSP feels that if one has to provide credit it should be provided for means that is Livestock and then for Biogas Plant, which is indeed heavily dependent on Dung. Another crucial observation made is that other than Biogas plant installation cost there is cost for running and maintenance of the said plant. Biogas requires minimum dung of two animals however for most of Poverty Reduction Programmes; the target market is defined as people having ownership of less than two animals. Therefore, Biogas users do not fall in the ambit of typical clients of Microfinance for Programmes like PRSP.

# **Credit Facilities Of MFIs/Leasing Companies**

Most MFIs define the target market for Credit Component as poor. Such MFIs are for nonprofits organizations therefore restrict themselves to bare minimum service charge. The credit products are made to customer friendly and as per need of target.



*KMFB* has only two credit products. Kamyab Karobari Karza KMBL's first product was piloted earlier by Kashf Foundation in 2005 catering to the financial needs of micro and small enterprises. The product mainly targets small businesses that have a fast turnover through a unique loan appraisal methodology. It focuses on experienced entrepreneurs, who have a running business of two years. The maximum loan size limit is of Rs. 150,000, assuming compliance with SBP limits on larger sized loans (only 20% of the portfolio comprise of loans with balances between Rs 100,000 and Rs. 150,000).

Kashf Sawari is a motorbike leasing product introduced by Kashf Microfinance Bank Limited. This product has been specially designed to meet the needs of low income salaried employees of both government and private institutions such as schools, hospitals, NGOs and other likeminded social cause oriented institutions that are on KMBL's approved list and branch preferred customers having good credit history for at-least one year or maintaining an average balance of Rs.5,000/- with KMBL since at-least 3 months. Kashf Sawari was launched on March 15, 2010, with flat mark up of 24-26% to be repaid in equal monthly instalments whereas the loan term period varies from 12, 18 to 24 months. Loan amount provided ranges from Rs. 35,000/- to Rs. 100,000/-. Post dated cheques are prerequisite to avail loan from KASHF Bank.KASHF Bank is for profit institution and therefore a product unless has financial viability, cannot be offered.

**RCDS** offers five loan products viz., Credit & Enterprise Development; Enterprise Development Facility; Microfinance Innovation and Outreach Programme; Emergency Loan and Consumption Loan. Loan amount ranges from Rs. 500/- to Rs. 100,000/- with instalment and term ranging from 6 months to 30 months and flat service charge of 5% to 15%. Microfinance Innovation and Outreach Programme; as well as Farmer Enterprise Group Loan are offered specifically in the rural communities depending on individual loan needs. RCDS has some grant resources also to run its Farmer enterprise group loans. No collateral is required for credit schemes.

RCDS is a nonprofits organization and its major focus is poverty reduction where it tries its best not to burden its clients as per their mandate of poverty reduction. RCDS therefore charges bare minimum mark-up and is sustainable operationally only.

Broadly speaking **PRSP** has two Loan categories viz., Micro Credit/Normal Credit Product – for all operational areas – for all eligible borrowers and Special Product – for all operational areas – for limited borrowers/entrepreneurs or for small businesses.



In first category Product is designed for the clients taking loan for first time or newly formed COs whereas second category product is designed to encourage regular clients who have properly used and fully repaid at least three loans over the last 36 months for the same purposes as stated in earlier loan, the loan amount is up toRs. 40,000/-.

In its first category four Loan Products are offered viz., Agri Inputs; Enterprise Development; Livestock Development and Small Infrastructure as Individual Enterprise (SIIE), as per individual need and demand. Maximum loan size offered for this category is Rs. 25,000/-, loan period ranging from 12 to 18 months. Option of monthly, quarterly, half yearly or lump sum repayment is available for clients. The maximum service charge applicable is 20% p.a on declining balance method.

# Diagnosis Of Financial Institution With Respect To Biogas Investments

None of the MFI has ever delved upon Biogas as an investment. MFIs who are involved in Biogas interventions have done it with grant money. And have provided Biogas on cost sharing basis to clients, none of these MFIs are approached for credit by any clients. MFIs when probed and pushed to consider Credit for Biogas Installation agreed to do so only with the provision of Soft Loans (subsidy), as the product will not be demand driven but supply pushed.

For *KMFB* any intervention that makes the business sense and is profitable enough to sell to the board of directors should be acceptable venture. However, for Kashf Bank the constraint at this particular time is the non existence of its operations in rural communities. Also Kashf CEO feels that it will be more viable for non-regularized MFIs to get into such venture due to their deep penetration.



**RCDS** is involved with Biogas through grant money, therefore RCDS would not consider Biogas as an investment infect the MD feels that there is no wisdom in looking for commercial loan or even subsidized credit line if they are already getting grant from interested parties (stakeholders), of Biogas.

Both PRSP and *RCDS* have provided Biogas as CPI (Community Physical Infrastructure) intervention on cost sharing basis with grant available to them.

# Potential Financial Aspect, Getting Loan, Finances To Get It Done

As the credit sector for Biogas will not be demand driven it is strongly felt by interviewer that if pushed on MFIs they would do so on either soft loan or on other subsidies. Free funds are always welcomed by human nature therefore even if pushed on clients it is assumed they would accept it as clean loan or with bare minimum mark up as the purpose will not be non affordability by clients but just to use an opportunity of funds provision to cater to the supply push product.

There are no specific barriers in financing of Biogas. Issue lies in awareness campaign to market the product as alternate energy source for domestic and value addition. However, it will be crucial to understand that financing should be provided for means of biogas i.e. Livestock.

Assuming a supply push credit product funds can be explored in the available MF donors but for a profit driven Bank it should be generated from deposits. KMFB has launched five saving products to which should be funding any Credit Product that the bank has or will offer in future as well as makes KMFB a profitable investment for its stakeholders.

*RCDS* They can consider taking soft loans with minimum mark up and other subsidies like technical assistance capacity building etc. to expand their operations in this Biogas sector.

**PRSP** thinks Biogas Credit will not be demand driven or addressing the "poor", as people who can meet the minimum demand of Livestock for Biogas are not classified as poor at PRSP. PRSP has installed 195 plants in the district of Punjab on cost sharing basis. The credit for Biogas was though on offering by PRSP, was not demanded by any of its client.

## **Barriers In Financing Biogas Plant**

Most important issue is awareness of benefits and utility of Biogas Plants. Country wide demonstrations, exhibitions should be organized to make people aware of Biogas plants, its



complete cost and benefits should be demonstrated. Also prerequisites should be clearly spelled, where indeed Livestock is important for installation of Biogas Plants.

However for supply pushed product, financing barrier should be easier to overcome as there is lot of interest in Donor Sector (even like JICA & GTZ), for Biogas, the crucial question lies in demand, which is not witnessed by RCDS.

Absolutely no barrier to financing is ever witnessed by PRSP who have major contribution in this sector. They feel that if a client can afford to have enough dung for Biogas installation they should be able to afford it on cost sharing or even otherwise. The experience of 195 Biogas Plants installation has proved so.

# Policy And Operational Obstacles In Biogas Credit Product Development

All the MFIs interviewed categorically clarified that there is no policy issue to offer Biogas Credit. The only obstacle seems to be in observation of demand for credit to install Biogas. Once it is proved that there is enough demand and need in the clientele to make a demand driven product for Biogas Credit,MFIs would require technical assistance to make the product operationally viable.

The inherent value of product whether or not it really helps the target market is the primary obstacle for Biogas Credit Product development. There can be a credit risk involved for biogas loan, as there is no clear statistics available for the repayment capacity of the target market, keeping in view that it is not an income generation activity.

The obstacle for specifically for *KMBL* is of penetration. KMFL is basically situated in urban and semi urban areas and still have to penetrate the rural areas. There can also be risk in monitoring the credit portfolio specifically keeping in view the existing outreach of KMBL especially if they have to make agency agreements in this regard. Again for KMFB operational risk that the target market will be at a geographical distance from the respective branches the instalments to be paid on monthly basis shall involve cash risk.

Technical loopholes as there is low productivity of biogas in some season (Dec-Feb), therefore repayment can suffer. Nevertheless the prerequisite for product development lies in convincing research for demand and optimum benefit of Bio Gas plant for target market making it a financially viable product for a MFI.



# **Capacity Issues In Introducing Biogas Credit By Institutions**

MFIs feel that if and when they will introduce Biogas Credit as a product, capacity building for both clients to install, run and maintain Biogas as well as for MFI to market and price the product would be a prerequisite. However it was repeatedly voiced that Biogas itself needs marketing by demonstration and exhibitions but demand for credit to install these plants is not observed in whatever little outreach Biogas seems to have achieved.

# **Views And Perceptions From Wholesale Credit Institutions**

The Pakistan Poverty Alleviation Fund (PPAF) represents an innovative model of public private partnership. Incorporated under section 42 of the companies' act 1984 it follows the regulatory requirements of the Securities and Exchange Commission of Pakistan.

As the lead Apex institution of the country wholesaling funds to civil society organizations, the PPAF forms partnerships on the basis of rigorous criteria. Before finalizing partnerships the PPAF ensures that the partners have well targeted community outreach Programmes that are committed to enhancing the economic welfare and income of the disadvantaged peoples.



# **Biogas Credit Facility- The Need**

The awareness level of wholesale regarding biogas is limited. PPAF is aware of the fact that in area where sui gas has not reached yet Biogas can be an alternative but they were not absolutely aware of this need as a consumer demand.

Moreover, the need of <u>credit</u> for biogas plant installation is not explored yet, however this is observed that wholesaler was not very much aware about the biogas plant and biogas credit needs. This is mainly because most of the time, wholesalers invest through MFIs, which are on-ground and hence much closer to the need; their lack of knowledge feeds upwards. As wholesaler has the large funds, they also have a greater need to diversify its portfolio. They are more likely to search for newer avenues of business development as compared to retail MFIs. Wholesaler also has a trend-setting value; if they endorse a concept; it is more likely to be accepted by their downstream partners. The implication for RSPN's PDBP is clear: guide wholesale institutions and help them form policy for biogas credit.

There is restriction or limitation on any MFI to invest in any particular sector but they were of the view that someone is making some contribution in this sector. Also, the key benefits of biogas were not easily recalled therefore they perceived that biogas is not a demand driven product.

## **Potential Risk & Mitigating Measures**

PPAF personnel believe that 30% of the investment has already been in the livestock sector, PPAF issue short and medium term loan, the loan size varies from Rs. 30,000 to 75,000. The loan beneficiaries from PPAF perspective was to invest some where anyone can generate some income, activities like entrepreneur but once again they will not force any MFI to invest in any particular segment, they usually give the loan at 8% mark up which is further charged to client at 15-25% range. The general term & conditions for loan were set by partner organization with their client; PPAF has nothing to do with that. They generally had some check and balance regarding the investment/loan given in the right direction or not like given for income generating activities or not.

Just like the micro finance institution, they also feel that is no or littel need for credit in biogas because they are of the view that people who own more than 4 animals are not their target market. PPAF only gives loan to poor and for income generating activity. The PPAF consider the risk factor to be low for itself. It gives out funds at 8% to partner MFIs who further loan to end users. In case of end- users default. MFI will bear the major risk.



PPAF risk-perception of biogas credit is low for another reason: long-term nature of biogas plant asset. The plant can potentially provide saving based cash flows for a longer period of time, which translates into higher probability of loan being repaid.

# **Policy & Operational Obstacles In Biogas Credit**

Wholesaler work with donor organization with a set agenda of investing in entrepreneurial set up, they work with World Bank and IFAD, and they can make investment if any donor comes in and give them the donation to properly invest in biogas sector.

However, they shared that there are obstacles in giving loans. The absolute classification of the potential consumer is not identified yet.

While discussing biogas, it was observed that the general awareness about biogas was limited. The benefits, costing of plant, comparison costing with other fuel expense is also not clear. They were of the view to contact the MFIs and convince them to make investment in any sector but they can't make/suggest them to do so, however MFI should obey and follow the rules & regulation like investing in income generating activities and give loan to poor.

While discussing the barriers in it, PPAF believe that persons living in rural area or with low income group always see these loans and benefits as short term; they make analysis on short term basis hence awareness of recovering loan from 2-3 years can be communicated or clarified to the wholesaler so that their opinion/perception about biogas loan may change.

They have also suggested meeting NRSP because they are already working in the rural areas and to some extent in the same sector. NRSP can give the loan up to Rs. 75,000 which is good enough for making 2-3 plants. They also suggested that it may work if we had a bigger plant at village level and all the households can get the energy out of it.

## **Potential Financial Aspect/ Getting Loans**

Financing is one of the issues in biogas plant installation as PPAF does not recognize biogas as a potential sector to work with. The awareness level about its costing, financial credit need is also very low. The loan if given at all would be according to EXISTING rules and regulation, which were framed for income-generation activities; thus current parameters may not fit biogas credit needs. Need for educating the policy makers and facilitation of product development is very obvious, thus.



# **Other Factors**

## **Brief about BCC Respondents**

Mr. Mohd Yasin, Mr. Anwar, Mr. Ahsan and Mr.Bashir working in different bio gas Construction Companies for almost a year and above. On average each one has installed above 25 bio gas plants in Faisalabad region. Mostly all of them have found successful results of installation.

Some work for registered companies while others are struggling hard to get it registered. Mainly the background of these individual is either from construction or they worked as mason etc. Mostly, a team of 8-10 is good enough for biogas plant installation and resolving queries later.



# Views On Biogas Plant Construction Viability

Biogas plant installation is considered to be a feasible and profitable business in Pakistan. The BCC workers shared that the business is commercial and cost effective only when the number of Biogas plant installation is more than 2-3 in one area. As it's a slow process constructing a biogas plant and it needs to settle down in a couple of days. So it's ideal that they have more than 2-3 plants in one area so that the construction process continues on one plant while the other is settled and the number of days are not wasted.

On the contrary, if there is only one plant installed at a time, a lot of time is wasted in waiting to get it settled down in stages. Hence, BCC workers avoid constructing one plant at a time in one place.

BCC saves maximum cost when the 15cubic meter plant is installed. The nature of work remains the same however the cost of construction is increased accordance to the size of the plant. The bigger the size the more is the saving.

Also BCC workers shared that there are often consumers who offer to bring their own material for construction, so from them the only construction cost is charged. Over and above, the preconditions / eligibility criterion is yet the most important factor for installation.

## Views On Profitability & Sustainability For The Growth Of Biogas Industry

There is a need at policy making level that helps BCC to attain profit and sustainability. However, they were not so clear about how and what would be the terms and conditions. A few shared that a policy should be flexible in a way that it addresses to the needs of the consumers. Also, the government should help BCC to develop and register so that more number of consumers confine to it.

Last but not the least, if some banks or Micro credit institutes comes upfront to offer loan for Bio gas plant installation, than it would benefit BCC in a way that they would identify consumers and install biogas plants in their homes and would take credit from the MFI's or banks for the same, simultaneously the credit will be paid back in instalments to the banks. Thus, both the parties would benefit mutually.



## Steps Involves In Construction Of Biogas Plant

Following are the key considerations for biogas plant construction:

- First and foremost is the prerequisites that is livestock and amount of dung on average and availability of land
- The second is the place for construction (most important aspect) sunlight is an important requirement in selecting place of installation
- Digging and constructing
- ➤ Material
- > Quality control

## **Departments Involved In Construction Of Biogas Plant**

The relevant departments and stakeholders involved in biogas are as follows

- > Farmers
- ➢ BCC



# **Need For Biogas Plant**

	Triggers	Barriers	
Financial	Saves money that was initially spent	Those who cannot afford	
Fillanciai	on purchasing wood/oil/gas cylinder	Don't have funds	
	No smoke	In case of access or leakage	
Health	No smell	Nitrogen will pollute the	
	Good in terms of hygiene	environment.	
	- who meets the preconditions have	Only those who do not have live	
Status	somewhat a better status than others	stock (at-least two buffaloes and	
	in the village	enough land)	
	Saves time for cutting woods		
	Saves time for drying dung		
Other	Alternate source of gas		
Benefits	Left over waste is used as field	-	
	fertilizer		
	Saves from pollution		

## **BCC and Micro Credit**

The awareness about loan offering institues /credit facility is less in small villages. PRSP is the only name recalled in this case. PRSP offers loan facility to the eligible consumers about which the details are not so clear. A few believed that it offers credit facility upto 50% while the others believed that the loan is nothing more than 20,000/-

It seems that the absolute role of PRSP is not clear to the BCC workers. Neither they are sure of the exact amount of loan offered nor they know the policiy or terms and conditions for such loan offereings. Above all, the role of MFI's in providing loan for biogas does not exist at present.

However BCC shared that the mode of payment would be instalments but the total cost would be somewhat higher that means rate of interest would be higher. The guarantee for loan is yet another important concern. The credibility and reliability from the loan holder is an important aspect for consideration. BCC shared that if they would be offering loan than in that case they would need a guarantee by Nazim/Zameedar , or signing a stamp or keeping land papers.



# PART 3-CONCLUSIONS & RECOMMENDATIONS

# **Appropriate Financing Models for Bio-Gas Credit**

## **Biogas as Technology Adoption Model**

It is evident that biogas usage is following a classic technology adoption lifecycle.



The **technology adoption lifecycle** is a sociological model developed by Joe M. Bohlen, George M. Beal and Everett M. Rogers. The technology adoption lifecycle model describes the adoption or acceptance of a new product or innovation, according to the demographic and psychological characteristics of defined adopter groups. The process of adoption over time is typically illustrated as a classical normal distribution or "bell curve." The model indicates that the first group of people to use a new product is called "innovators," followed by "early adopters." Next come the early and late majority, and the last group to eventually adopt a product are called "laggards."<sup>7</sup>

True to the characteristics of innovators, who are typically more risk oriented, the current users have taken a major risk by self-financing the plants. Early adopters follow the lead provided by innovators. They wait for some support structures to emerge and join later; they seek rational justifications and concrete evidence of benefits experienced by others before making a go-decision. They seek practical demonstrations. Next to follow is early majority who are typically influenced by the desire to benefit from a trend early on. They are susceptible to advertising and promotion influences. Providing timely and relevant information that answers questions raised in the minds of waiting-on-the-sideline majority is key to speeding up the adoption process.

<sup>&</sup>lt;sup>7</sup> <u>http://en.wikipedia.org/wiki/Technology\_adoption\_lifecycle</u>



The biogas industry is at a very nascent stage; it can be categorized as hovering around innovation and early adoption. Both the demand and supply characteristics exhibited, and found by the research, testify to the fact.

A very basic product is supplied with no frills and add-ons, which become available once competition heats up as industry matures. There is lack of credible information and general awareness about uses and benefits of biogas. Potential users have apprehension, fears and questions that need to be answered.

Concomitantly, the supply side is very weak too as lack of easy credit has dampened the demand being experienced observed by the masons and BCCs. However PBDP is training more mason to strengthen the supplyside while demand. A handful of biogas construction companies are striving to meet a huge potential. Plant construction technology, though easy to learn, is yet to be learned by a large enough number of masons and constructers before real competition sets in and potentially brings prices down.

Third element that speeds up adoption is availability of biogas financing. 89% of potential users identify financing as a facilitative factor, while over 60% are looking for some kind of discount. BCCs on their own are offering instalments to their clients. All this is indicative of an unmet biogas financing need. MFIs and MFBs are positively disposed towards the concept of biogas credit. They also highlighted the need for more information and lack of depth in current market, in their assessment, as reasons for their lacklustre response in coming up with appropriate biogas financing schemes.

Total Cost	Rs. 33,000 to Rs. 59,000
Quality discount	Rs. 7,500 standard for all sizes
Equity contribution	Rs. 13,333 at their own
Appropriate intest rate	10-15% at maximum
Loan required	Rs. 18,000 to 23,000 loan required but they don't know
	the exact costing
Total loan period	2 years
Instalment type and amount	Monthly Rs. 2,500-3,000

# Summary Of Above Sections



# **Biogas Financing Model for Pakistan**

It clearly emerges from the research that there are common challenges on both supply and demand side of the biogas credit equation. Here is a summary of issues highlighted by this research

Supply-Side Analysis	Demand-Side Analysis (Users and		
(MFIs/MFBs/Wholesale Credit	Potential Users)		
Supplier)			
Lack of Knowledge and Information	Lack of Awareness		
Supply-side is constrained by a veritable lack	Users and potential users do not know if		
of credible information as to:	financing for biogas plant is available and		
What biogas is	from where to get it. They are ill-informed		
What socio-economic benefits it brings	about procedures involved, operating inters		
How it can be a subject of financing	rates of the scantily available biogas		
	financing		
Undefined Target Market	Profile Mismatch		
Biogas users fit the marketing definition of a	Potential demand is hampered because the		
serviceable segment: they have distinct	potential users are:		
needs, they are willing to avail of credit and	Either not reached by MFBs,		
they are likely to grow in future. The available	Or, because of their income status fall		
MF products are pitched below, and the	outside the target beneficiary profile of most		
agricultural credit product above, their needs.	MFIs		
MFIs acknowledge financing needs of biogas			
users but cannot fit them in current			
categorizations/profiles used for loan			
approval			
Low-Cost Source Funding	Access to Biogas Credit		
MFIs are willing to extend biogas credit	Lack of availability of subsidized funds		
provided they have access to subsidized funds	translates into MFIs unwillingness to		
from wholesale institution, which in return	expand biogas credit to potential users.		
are open to the idea, are willing to support			
biogas financing provided the case for it is			
justified to them. They also expressed need			
establishing linkage with foreign sources of			
subsidized "energy funds".			



Product Development*	Product Availability			
Lack of awareness and inability to segment	Users have come up with their own			
properly naturally results in no need-specific	products. Credit need is being fulfilled with			
biogas credit being developed by MFIs and	borrowings from relatives and friends. These			
MFBs. This is further compounded by the	products have no or low interest payment			
fact that all MFI products are income-based	and require no collateral. Family financing is			
and it is mentally difficult to accept a	limited in scope and by definition not			
departure from the norm and think of a	scalable.			
saving-based financing product. Financing				
institutions are open to considering biogas				
credit as "tag-along" item: package it in garb				
of an existing income-generating loan.				

\*As biogas replaces fuels and thus generates household savings. In essence any biogas credit product ought to be, by definition, based on savings stream rather than the income stream of the household. All micro credit products in vogue are income based: repayment schedules are worked out from the anticipated income stream of an enterprise created by microcredit. This current practice is wide spread across the sector and therefore is a constraint in acceptability of biogas credit products. The two approaches may seem different; however fundamental principles are exactly the same as shown below:

Features	MFI Current Products/ Agri Credit Products	Biogas Credit Product	
Repayment Based on	Cash flow	Cash flow	
Nature of Cash flows	Future Income (from sale)	Future Savings	
Source of Cash Flows	Market prices of output produced	Market prices of fuel replaced	
Financial Appraisal Methods Used	Payback period Net present value Internal rate of return	Payback period Net present value Internal rate of return	
Interest rates	24-36% (prevalent)	10-15 (expected)	
Need for Subsidy	No or Low	High	

Comparison of Biogas Credit and other Micro-credit Products



#### **ORIGINAL** Biogas Credit Feasibility Study

		In common practice	_	No common precedence
	-	Staff well trained	_	Capacity building required
	-	Product knowledge well	_	Product yet to be developed
Other issues		spread	_	Risk management yet to be
	_	Risk mitigation procedure		worked out
		well laid out	_	Focus: environmentalism and
	-	Focus: poverty alleviation		alternative energy

Pakistan has imported MF knowledge and practice from Bangladesh; it may well be the case that it models biogas credit financing on the Nepalese system.

# Appropriate Financing Models for Bio-Gas Credit Along with Recommendations

Given the nature of technological adoption both in terms of biogas and biogas credit, we propose a model that simultaneously at multiple levels and addresses issues related to:

- Demand Generation and Supply Enhancement
- Fulfilling information and education needs
- Influencing policy and regulatory environment
- Capacity building

# **Demand Generation and Supply Enhancement**

## **Create Demo Effect**

Seeing is believing. Demo effect normally leads to favorable buy-decisions as is evident from the interview findings. People having become aware search for live demonstration or seek advice from current users before making up their minds to buy or not to buy. Live demos help in generating demand in many ways:

- Convince potential users
- Persuade biogas credit suppliers
- Serve as capacity building site
- Serve as lobbying tool
- Serve as branding tactic

Biogas demo plants can be established in each district or tehsil. They can be cofinanced with partner MFIs. The exercise could be treated as marketing investment.



About 300 plants of biogas have been installed by PBDP and this will act as Demo plots. However, this fact needs to be communicated well to decision makers in MFIs, policy makers of the government and potential consumer generally.

## **Current Users As Biogas Advocates**

Current users are the ones who did not need to be convinced by someone else. They welcomed the opportunity and took great risk in owning a biogas plant financed 100% from their own personal resources. As said earlier, they can be categorized as "innovators or early adopter". While majority are unaware or vaguely aware, these early enthusiasts are already reaping benefits of adopting biogas as their primary source of domestic fuel. Their experience is a great source of advocacy to potential users, who have a similar profile and life style. The advocacy message coming from someone they can identify with is more believable for the potential users and can quicken their purchase decisions.

Another possibility is to hire current users as sales promoters in the area. Within this possibility there are three options:

- a) The male plant owners is hired and paid commission on successful leads generated, or
- b) The female biogas consumer who experiences direct benefits can be offered to promote biogas fuel. This will economically employer the women while creating indirect demand of biogas, or
- c) Ideally, both husband and wife (or father and daughter) are brought on board to promote biogas in their area and they supplement their incomes.

## **Phased Product Development**

Initially biogas loans can be packaged with an existing income-generating product of financing institutions. It has been suggested that biogas credit can be co-packaged with loans for livestock (particularly buffalo) and fertilizer or other agricultural inputs.

As biogas credit gains acceptance and MFI staff gets trained on true saving-based product, biogas credit can then be offered as stand-alone product in its own right.

Transition from first to the second phase hinges on removing mental block among MFIs' staff; they need to realize that a loan product can also be paid back through cash flows generated from savings. Examples from countries like Nepal would be very useful in broadening the scope of loan products. It may be of importance to point out that saving-based loan product will be a major innovation undertaken by financing



institutions. It is therefore likely to follow the same adoption lifecycle. The key is to identify MF partners who are willing to be early innovators.

Other possible options for product design are:

## Joint Credit With BCCs

BCCs are already provided a quality assurance fund i.e. Rs. 7,5000 (23% of the total cost). The QAF should be directed to MFIs and credit facilities should be made available to the BCCs under enterprise and business categories. The qualified BCC can be registered with MFIs and identification to installation process should be taken care by the BCC and a turnkey project can be handed over to consumer with monthly instalment plan. The cost of the project can be paid to BCC and instalment can be charged to consumer on monthly basis. The consumer can be charged the actual amount of the plant while the BCC will get additional QAF from MFI.

## **Rspn-Subsidized** Pilot

The RSPN grant can be given to MFIs to pilot a subsidized credit exclusively for biogas. The pilot can be streamlined with regular credit line after a successful completion of pilot. The pilot can then be marketed for subsidized interest rate in donor sector.

## **Donor-Funded Pilot**

A credit line was introduced years back by PPAF with USAID support, where community members were provided enterprise development trainings to ensure successful business of borrowers so that they can pay back the instalment in time. A similar approach can be adopted by communicating the bio-gas agenda with various donors promoting their agenda in environment, gender, education, health, hygiene and community led sanitation. They can only asked to take the load of subsidy of interest (i.e. 10-14% of total interest). The Programme can be routed thru MFIs as other infrastructure, sanitation or development schemes.

## Government-Sponsored Biogas Credit

Government is already promoting energy conservation in the industrial sector through ENERCON, an energy-efficiency consulting outfit in the public sector. ENERCON has developed elaborate financial models to prove return on energy efficiency investments. Similarly Alternative Energy Development Board should be



keen to promote a cleaner and cheap fuel. The idea of alternate energy source (especially for rural community who don't have sui gas and there is no chance of having gas in next 5-10 years) can be taken to cabinet for discussion and a government interest subsidy can be obtained for bio-gas under specific terms and conditions If agreed, the Programme can be route thru NRSP, RSPs, MFIs and MFBs on the vehicle of BCCs. The how of the Programme can be designed based on the willingness of the government.

## **Fulfilling Information And Education Needs**

Adoption of innovative technology such as biogas, and saving-based loan products for that matter, critically hinges on timely and proper education of relevant actors on demand, supply and policy sides. RSPN has launched a media campaign to create awareness of biogas. This will surely influence demand for biogas plants. However, those with low affordability are also in search of biogas loan information. A separate campaign may be initiated to inform them of loan availability, once institutional arrangements have been put in place. Partner institutions are also well-advised to reach out to target beneficiaries through their own loan mobilizers and networks.

#### **Influencing Policy And Regulatory Environment**

MFIs, both wholesale and retail, did not identify any policy barrier in promoting biogas credit. This is perhaps due to total lack of a regulatory framework for the biogas sector per se. Having no regulations does not bode well for the sector. Government typically lays low and waits until a fledgling sector gathers critical mass. It then wakes up to the challenge of regulating it and often imposes hard-to-meet conditions for the actors in an industry. A case in point is CNG industry of Pakistan. Initial no or low regulations led to mushroom growth of CNG stations. Government then stepped in to with regulations that are considered punitive in nature.

Growth in biogas sector is imminent and inevitable. RSPN needs to work on enabling regulatory environment in tandem with sector's organic development. Means and mechanism of policy advocacy are well-known and well-established.

## **Multifarious Capacity Building**

Knowledge and skills are two crucial aspects of capacity building, which impact technology adoption immeasurably. Capacity building needs were identified by various stakeholders:



**Potential and current users:** for operating and maintaining biogas plant; for accessing biogas credit and understanding and fulfilling loan requirements

**Biogas construction companies and plant suppliers:** for building the plant; for enterprise development; for financial management; for guiding their clients to sources of biogas credit.

**Decision makers in MFIs and MFBs:** for understanding the concept of energy loaning that leads to funds allocation to biogas credit as viable business

*Staff in MFIs and MFBs:* for understanding saving-based product; for designing and managing such products and their portfolio

**Regulators and public policy makers:** for understanding and supporting the concept; for creating enabling environment and being able to effectively regulate the sector

300 plants have already been setup by PBDP; these can be act as demo plot as well as on-site capacity building of relevant stakeholders.



# ANNEXURE



# **Background Of Geographical Area**

The two areas that were covered for the study were:

## <u>Jaranwala</u>

Geography of Jaranwala- Jaranwala is a city in the Faisalabad District of Punjab, Pakistan. It is located at 31°20'oN 73°26'oE with an altitude of 184 metres(606 feet). The city serves as the headquarters of Jaranwala Tehsil, an administrative subdivision of the district. Jaranwala Tehsil is located on the north bank of the Ravi. Jaranwala is between two canals; Gogira Branch(GB) and Rakh Branch (RB).

It is at 35KM distance from Faisalabad on South-West and 25KM from Nankana Sahib on West. This city is connected to Lahore and ShorKot with railroad. its a major link between Shorkot Airbase & Lahore. There are 300 villages in Jaranwala, covering an area of 437,386 acres (1,770.04 km2), with a population of 1.3million.

## History of Jaranwala

Jaranwala is about 400 years old city. There was a well with big roots hanging in it of an old willow tree. In Punjabi language roots are called "Jaraan" and place is called "Wala". So, these both words combined and formed the shape of a name "Jaranwala". By the passage of time, the place called Jaranwala and later on this name became famous and the city was also called Jaranwala.

Existing city was founded by British government in 1908. Mr. Micheal Ferrar deputy commissioner of Faisalabad has inaugurated this town in 1909.

Rai Ahmad Khral and Bhagat Singh two famous freedom fighters were sons of historic city of Jaranwala. Mian Abdul Bari a freedom fighter and President of All India Muslim League District Paghwara And Then Lyallpur district was settled in Jaranwala after partition.

Jaranwala is an agriculture based city. Major crops in this area are sugarcane, wheat, corn and rice.

Jaranwala hosts the 3rd largest jute mill in the world (it is closed now a days). The city of Jaranwala shares in growth of Pakistan with sugar, chemical, textile, wheat and rice industry. Surroundings of Jaranwala are also famous for its dairy products.



# <u>Khushab</u>

Khushab is a town in Khushab District in the Pakistani province of Punjab. This is a historical city of province Punjab. Geographically this is quite unique district of Pakistan which has mountains, deserts, lush green harvesting land, lakes and river. SOON valley is one of the most beautiful hill stations of Pakistan. This district is quite rich in natural resources (salt & coal) etc.. People are very hardworking and most of them are associated with farming and agriculture. Khushab is also known for its delicious sweets specially DHODA and PATEESA. Name of this city "Khushab" was given by King Shar Shah Surry on arrival in area. Khushab means "Metha Pani" or Pure Water.

There is a 50 MWT heavy water reactor in Khushab. The facility is located around 105 km NW from Faisalabad and around 45 km West from Sargodha Air Force Base. This reactor shows no visible output of electricity generation. This facility is said to produce enough plutonium for 1-4 nuclear weapons each year. It has around 8 cooling towers located 50-70 metres due east of the main reactor building.

The facility has a heavy water plant on site located around 3 km south of the main reactor building. The heavy water plant is located at 31°59'; 72°11'. The facility is heavily guarded, with both reactor building complex and heavy water plant having two individual security cordons each over and above the main facility cordon.



# **Proceeding Of Biogas Seminar**

(Consensus building event with potential biogas stakeholders)

Having a seminar (with all potential stakeholders) at one of the potential location was a tangible of the research study. It was suggested that after having all fieldwork done, a seminar will be an ideal event, where all the stakeholder who participated in the research process should be invited.

The event was held on the 6<sup>th</sup> May, 2010 and representatives from RSPN's PDBP team from Islamabad and Faisalabad, FCG (both Karachi and Lahore), Microfinance Institutions (from Faisalabad, Khushab, Lahore and Nankana Sahib), BCCs, Biogas users and potential users attended the event.

The event was designed to give an overview of biogas and how credit can play a key role in promoting the alternate energy agenda in Pakistan.

All participants were first requested to visit a nearby Bio-gas plant and than their views and concerns were discussed in an interactive session.

The following were participant's comments regarding: (Annex)

## Awareness

- 1 People don't know about the biogas project an awareness campaign should be launched potential user
- 2 Plant sharing option should be explored; two, three or all houses in mohalla can share a plant, even a big one.
- 3 Biogas message can be mainstreamed with other sector campaigns.
- 4 It's not a poverty reduction but gender sensitization Programme.
- 5 A policy level discussion seminar should be conducted where all sector donors should be invited MFIs.



## Credit

- 1. The credit line for bio-gas is available but there is no demand arise PRSP
- 2. MFIs are willing to give credit but what about the subsidy MFIs.
- 3. We already doing it, but not structured. If a system or support provided this can be introduced as regular credit line RCDS
- 4. The credit line is mainly for poors and vulnerable. The lowest denominator of bio-gas is, who has at least two cattle's, which is not under our target group PRSP
- 5. We will design a product exclusively for bio-gas users Assasah
- 6. Who will ensure the payback MFIs

# Linkage Building

- RSPN should link the Programme with health, hygiene and other project who can take the load of subsidy.
- Programme should be linked with Milk Value project in Vehari, it has a direct link with livestock