



Gender Mainstreaming in the Pakistan Domestic Biogas Programme (PDBP)

FINAL REPORT
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Abbreviations

AEDB	Alternative Energy Development Board
AP	Action Plan
BCC	Biogas Construction Company
BUS	Biogas User Survey
CEDAW	Convention on the Elimination of all Forms of Discrimination Against women
CDM	Clean Development Mechanism
CNG	Compressed National Gas
EKN	Embassy of the Kingdom of the Netherlands
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GMS	Gender mainstreaming
GMSO	Gender Mobilizing Social Officer
MDG	Millennium Development Goals
MIS	Management Information System
MOU	Memorandum of Understanding
NPA	National Plan of Action
NCHD	National Commission for Human Development
NFP	National Focal Point
NGO	Non Governmental Organization
PDBP	Pakistan Domestic Biogas Programme
PKR	Pakistani Rupees
QCC	Quality control center
RSPN	Rural Support Programmes Network
SNV	Netherlands Development Organization
TNA	Training Need Assessment
TOT	Training of Trainers

1 INTRODUCTION AND BACKGROUND

1.1 The ENERGIA Gender Mainstreaming Activity

ENERGIA International is a Network of organizations and individuals committed to address gender disparities in the access and use of energy services. The International Secretariat is located in the Netherlands and is responsible for the overall management and coordination of activities of the network. ENERGIA's goal is to contribute to the empowerment of women, both rural and urban, through a specific focus on energy. Currently there are 22 national ENERGIA networks in Africa and Asia coordinated by their respective National Focal Points. The network operates through well reputed organizations working on energy and sustainable development issues.

During its phase 4 (2007-10), ENERGIA has been assisting a number of energy projects to mainstream gender issues. The initiative, supported by SIDA, aims to assist and document a set of successful energy projects to showcase how gender-specific impacts can be generated through rural energy access projects/markets, and to use the outcomes of these projects to exemplify how, given both commitment by stakeholders and the availability of gender-specific resources, such impacts could be multiplied.

This final report documents the process and outcomes of gender mainstreaming in the Pakistan Domestic Biogas Programme (PDBP) between 2009 and 2011. The planned duration of the project was initially 2 years starting from 1 January 2009 and ending on 31 December 2010 which, was later extended to October 2011 to allow more time for implementing the gender action plan developed under this project. This report has been developed by the PDBP, and facilitated and supported by ENERGIA.

1.2 Pakistan Domestic Biogas Programme (PDBP)

Pakistan Domestic Biogas Programme (PDBP) aims to facilitate the construction of domestic biogas plants at household level. Rural Support Programmes Network (RSPN) with technical support from SNV (Netherlands Development Organisation) and Winrock International is implementing the programme. RSPN is a non-profit organisation and is a Network of 11 Rural Support Programmes in Pakistan.

The PDBP is being implemented in a modular approach. The first module of the programme is already started in 2009, and has a target of installing 14,000 biogas plants in Punjab over the next 4 years. The Embassy of the Kingdom of the Netherlands has provided financial support for the implementation of the programme in Punjab. The subsequent modules will follow and will be implemented in various parts of the country.

Project Summary of PDBP first module:

Project Time line: 01/11/2009 -- 31/10/2013
Total Cost of the project: PKR 355,688,374
Donor: The Embassy of the Kingdom of the Netherlands (EKN)

Long-Term Objectives: The long term objective of the Pakistan Domestic Biogas Program is to improve the livelihoods of 300,000 households through the provision of household biogas plants promoted by a commercially viable biogas sector in the next ten years.

Immediate Objectives: The immediate objective is to set up 14,000 biogas plants in Punjab. The specific immediate objectives are:

- Strengthening the institutionalization of the biogas sector in Pakistan.
- Increased demand for domestic biogas technology in Punjab through raised awareness on benefits of biogas and access to appropriate financing mechanisms.
- Enhanced capacity of the private sector for installation of quality biogas plants and to offer after sales service in Punjab

The purpose of the project is to develop a commercially viable domestic biogas sector nationwide. For that purpose the project has selected a specific design of a biogas digester, which converts animal dung, and possibly human excrement and other organic materials, into combustible biogas. Biogas at the household level can be used to fuel simple gas stoves for cooking and lamps for lighting.

Project Beneficiaries:

Main beneficiaries are the 14,000 rural households in Punjab who will benefit from installation of biogas digesters as a result of project activities; women especially will benefit from an improved kitchen environment, tremendous health benefits and reduced drudgery through reduced use of traditional fuel wood and animal dung. Other

beneficiaries are private companies, through capacity building and market development. The Government will benefit from reduced burden on subsidized fossil fuel supply.

Project location:

Central Punjab, focusing on Faisalabad, Jhang, Sargodha, Toba Tek Singh, Khushab, Nankana, Chiniot and Sahiwal.

Present Status of the PDBP (As of July 2011)

- 176 masons trained in 7 trainings. 17 Biogas construction Companies (BCCs) are actively working with PDBP.
- First Biogas Users survey (BUS) conducted.
- Technical audit of biogas plants done.
- 1,128 biogas plants constructed in eight districts of central Punjab.
- Four Quality control centers (QCC) are established in four districts.
- 25 activists trained for Biogas promotion.
- Hands on training of Biogas users are conducted in different districts through BCC and PDBP staff.
- 3 workshops are conducted on gender and development of PDBP Staff, BCC and activists

1.3 Objectives of gender mainstreaming in PBDP

Gender mainstreaming can be defined as¹: “...the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women’s as well as men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated.” Gender mainstreaming ensures that policy and decision-making takes account of cultural barriers, challenges, and men’s and women’s different interests and needs. The concept of bringing gender issues into the mainstream of society was clearly established as a global strategy for promoting gender equality in the Platform for Action adopted at the United Nations Fourth World Conference on Women, held in Beijing (China) in 1995. It highlighted the necessity to ensure that gender equality is a primary goal in all areas of social and economic development.

Gender Mainstreaming is necessary in PDBP because the main beneficiaries of this project are women. In rural areas female spend most of the time in the collection of fuel and cooking. The programme greatly helps to provide substantial benefits to women in conducting their day to day tasks. The strategy is based on identified opportunities to involve women & men in the supply side as owners or promoters of biogas construction companies, and in the demand side as trainers, community organizers, income-generation facilitators, micro-finance lenders, and as integrators of biogas into other social and economic activities.

The overarching goal is to integrate awareness of and attention to gender-specific concerns into every aspect and level of the Pakistan Domestic Biogas Programme in the present Project and succeeding Projects, until 2013 and possibly beyond. This requires the creation of a ‘circular’ stream of information and action, flowing from the policy level through the Programme and back to the policy level. The programmatic goal is to ensure that the biogas plants meet the practical and productive needs of women and men, including the provision of clean, safe and convenient cooking fuel and ensuring a healthier environment where the cooking is done. In order to systematically mainstream the gender into the program, a clearly spelt out Gender Mainstreaming Strategy, Action Plan and Monitoring and evaluation Plan is developed and adopted by the programme. The main objectives of the gender mainstreaming strategy are as follows:

- Ensure the inclusion of gender- specific concepts, activities and outcomes, including gender –specific R&D, in successive project
- Identify the points at which donor funding for Biogas links with all Government policies that concern energy.
- Try to ensure that at least one gender and energy expert is a member of the National Biogas steering committee
- Recruit and train ‘gender-intelligent’ professional staff

¹ ESCAP 1997. UN Economic and Social Council. Report of the Economic and Social Council 1997. New York 1997.

- Establish links with RSPs and service providers
- Provide information to women household members so they are able to use and maintain the biogas plants efficiently
- Contribute to knowledge on energy and related issues affecting women
- Enable women to use time saved in entrepreneurial activities

1.4 Scope and limitations of gender mainstreaming

The scope of the gender mainstreaming was to develop the strategy, action plan and monitoring & evaluation framework for PDBP. As gender mainstreaming is an ongoing process, initial results are documented through biogas user survey and this report.

As the ongoing module of the PBDP was initiated before the GMS was in place, no specific budget has been put into the project. However, due to the inherent nature of the programme and the beneficiaries being women, many of the GMS activities are part of programme activities. In future modules, the budget allocation will be based on the level of donor involvement.

Biogas, as a technology, has certain limitations and the potential for gender mainstreaming needs to be viewed within that context. Firstly, given the cost and the need to have minimum number of cattle, it is difficult to promote biogas plants among the very poor. On top of that, the initial adopter of this technology would be from the upper middle class households. This programme is relatively new in Pakistan. Experiences from other countries show that once people gain confidence in the technology by seeing the operational plants in their neighborhoods, poor household with atleast 2 heads of cattle will adopt this useful technology.

2 NATIONAL CONTEXT: GENDER AND ENERGY CHALLENGES IN PAKISTAN

2.1 The Situation of women and men in the Country

Pakistan, with a population of 173.5 million is the 6th most populous country in the world. The male female ratio of population in the country is 51.7% versus 48.3%. The proportion of population living in rural area is very high i.e. 63.7%. Population growth from 2007 through 2010 (projected) is 2.05%. Overall life expectancy is 64.5 year with male and female life expectancy of 63.6% and 65.4% respectively².

2.1.1 Millennium Development Goals and other development indicators

The MDGs were developed out of the eight chapters of the United Nations, signed in September 2000. There are eight goals with 21 targets, and a series of measurable indicators for each target. Although there is no specific MDG on energy, it is widely understood that increased access to energy is an essential factor in fulfilling most of the MDGs, including combating extreme poverty and hunger and empowering women. The measurable indicators against each goal for Pakistan, as given the UNDP/DIFED reports, are as follows.

Goal 1: Eradicate Extreme Poverty and Hunger

The proportion of the population living below the national poverty line decreased from 34.5% in 2001 to 24% in 2004/5. MDG target of halving the proportion means a target of 13 percent for 2015.

Goal 2: Achieve Universal Primary Education

In 2005/06, 53% of 5-9 year olds were in primary school, up from 42% in 2001. Present literacy rate is around 57%. Overall Female literacy rate is 45% and it is only 33% in rural areas. The target of literacy is 100% by 2015.

Goal 3: Promote Gender Equality and Women Empowerment

Progress has been made since 1990, but gender inequality remains high. The ratio of female to male primary enrolment rates increased from under 0.68 in 1990 to 0.85 in 2005/2006.

The proportion of seats in the national assembly held by women increased from 15 in 1990 to 215 in 2005. The goal has one target: 'to eliminate gender disparity in primary and secondary education, preferably by 2005 and to all levels of education no later than 2015'.

Goal 4: Reduce child mortality

The indicators include, the decline in under-five mortality in 2005 was 99 per 1000 live births compared to 130 in 1990. The majority (80%) of deaths occur in the first year, infant mortality

² Government of Pakistan 2010. *Sub Group II on Population Projections for the 10th Five Year People's Plan 2010-15*.

rate of 102 in 1990-91 is to be reduced to 40 by 2015, proportion of fully immunized children of 12-23 month should exceed 90 percent by 2015, proportion of children suffering from diarrhea fell from 26 in 1990-91 to 16 in 2004-05 and coverage of Lady Health workers is to be universal by 2015.

Goal 5: Improve maternal health

Pakistan has the 6th highest number of maternal deaths (at least 15,000 a year), around 300-400 deaths per 100,000 births. While the target for 2015 is 140. The percentage of births attended by skilled health professionals doubled from around 20% in 2000 to around 40% currently which is far below the target of 90% by 2015.

Goal 6: Combat HIV & AIDS, Malaria and other diseases

Pakistan has the 6th highest burden of TB diseases in the world. Although cure rates have improved significantly since 2000, and are on track to meet WHO targets for 2010. Polio is almost eradicated although a few isolated cases remain. 39 cases were reported in 2006, up slightly from 28 in 2005. There are around half a million cases of malaria a year. HIV/AIDS prevalence is low among the general population (<0.05%). While the target is 1.0 for 2015.

Goal 7: Ensure environment sustainability

Pakistan is still on track to halve the population without access to improved water and sanitation by 2015. In 2005/06 66 % of the population had access to a tap or hand water pump and 60% had access to a flush toilet. It is expected to meet the target of 93% by 2015.

Goal 8: Develop a Global Partnership for Development

The strength of the relation between international partners and Pakistan has varied over the last decade. However over the last few years development assistance has been increasing. The goal is to foster cooperation at the bilateral and multilateral level for realizing the MDGs.^{3,4,6}

2.1.2 Female headed households

Female headed households are those “households where no adult male are there due to divorce, break up, separation, migration, non migration or widow or where man although present but do not contribute to the household”.

The proportion of female headed household (FHH) in Pakistan is relatively low. According to the Pakistan Integrated Household Survey (PHIS), roughly 7.5% households were headed by women in 1998. This figure increased to 8.13% according to PIHS (2002). Female headship in

³ Pakistan and the MDGs-DFID (last updated :Nov 2007), available at <http://webarchive.nationalarchives.gov.uk/+http://www.dfid.gov.uk/countries/asia/pakistan/mdgs.pdf>

5. UNDP and ENERGIA. 2004. Gender and Energy for Sustainable Development: A Toolkit and Resource Guide, www.undp.org/energy/publications/2004/2004a.htm

6. Havet, I. 2003. “Linking Women and Energy at the Local Level to Global Goals and Targets”, in Energy for Sustainable Development, VII, www.ieiglobal.org/esd.htmlHoskin

Pakistan typically pertains to 'male-absence' (either due to death, migration or debilitation due to illness) rather than assertion of female autonomy in establishing an independent household.⁵

2.1.4 Gender issues in Pakistan

Different roles and responsibilities of women and men that are assigned by society can be divided into three main categories i.e. **Productive Work, Reproductive Work and Community Work**. Women's roles encompass work in all these categories, and this is referred to as women's triple role. Based on social values and Gender Norms, different roles are prescribed for men and women. Typically in Pakistan's Society, men and women's roles are as follows

Roles of women: Conjugal, Procreation, Domestic, Occupational, Occupational, Kinship, Community and Individual

Roles of Men: Earn and control financial resources, Guardian /Protector, Take decisions in family / community / kinship groups, Serve the country and be active in politics

The world in which we live is characterized by extremely unequal sharing of the burden of adversities between women and men. Inequality between women and men can take many different forms. Definitely, gender inequality is not a homogeneous phenomenon, but it is a constellation of both unrelated as well as interlinked problems. In relation to Pakistan mostly issues are related to women so Gender inequality in Pakistan can be described as follows.

The link between gender and poverty is evident all over the world. Out of 1.3 billion people living in poverty, 70 percent are women). The society invests far less on women than men. Female literacy in Pakistan is 43.6 compared to male literacy at 68.2 5 as of 2008. Women are the poorest among the poor and the most vulnerable among communities. Poverty in Pakistan has a "woman's face." There are considerable intra-household disparities in food distribution and investment of resources between male and female members. Among poorer households, incidence of chronic malnutrition is higher among female children. Women's access and control over productive resources are extremely limited. In addition to suffering from the same deprivations as men, women face the additional suffering of unequal opportunities to education, health, and other social services due to patriarchal control over their sexuality and cultural restrictions over their mobility.

Pakistani women often lack social status because of negation of their roles as producers and providers in all social roles. The preference for sons due to their productive role dictates the allocation of household resources in their favor.

Violence against women and men in Pakistan include different forms of physical and mental torture, murder and honor-killing, sexual harassment and rape, kidnapping and women trafficking, and forced prostitution. According to Madagaar data base in 2004 number of men cases reported are 3,494 and that of women are 8,304 in the country. In Pakistan women got the

7. Youssef NH, Carol BH 1983. Establishing the Economic Conditions of Woman-headed Households in the Third World: A New Approach

right to participate in all political activities in 1947 and their representation increased continuously and reached 10 % in 1990 and increased to 21% in 2005. However, the number of seats for women in the Parliament has not been increased to 33% as is required by the government of Pakistan, being a signatory to the Beijing Convention. The number of women in parliament remained lower in Pakistan, but the present government raised the women representation in national and provincial assemblies and local governments. On the basis of the Gender empowerment Measure (GEM11) the rank of Pakistan is 71. ^{6, 7}

The employment opportunities are limited in Pakistan for both women and men as there are limited viable business and industrial sector to create new jobs. Secondly, with very high birth rates, it is not possible to supply jobs for all who are desirous of work. According to the Pakistan Labour Force Survey 2008⁸ out of total employment (15+ age group), in large population of women (73%) are involved in Agriculture sector followed by services (13.9%) and industries (12.2%). Men are more involved in the service sector (42.3%) followed by agriculture (35%) and industries (22.6%).

Women lack ownership of productive resources. Despite women's legal rights to own and inherit property from their families, there are very few women who have access and control over these resources. Similarly, formal financial institutions do not cater to women's credit needs due to the underlying assumption of women's role in the reproductive sphere.⁹

A summary of key gender issues being faced in Pakistan today, especially in rural areas are as follows:

- Women play a minimal role in decision-making, which is thought to be an exclusively male domain. This is especially the case in decisions requiring the allocation of financial resources. Despite their onerous responsibilities, women are considered to be economically inactive and, for example, hardly register in the official statistics on labour force activities.
- Women have a high workload, especially in poor rural households. The availability of water and its proximity to the household are critical factors in determining women's workloads. The best case scenario is that of a well-to-do household living in an irrigated area. Conversely, women in poor households in arid areas spend a disproportionate amount of time carrying water. The opportunity costs of carrying water are very high for women and girls.

⁶ Mahjubah Magazine, Jan. 2002

⁷ Md Tariq undated. *Status of women in SAARAC Countries A comparative Analysis*. Available at http://king-saud.academia.edu/DrMTarique/Papers/91915/STATUS_OF_WOMEN_IN_SAARAC_COUNTRIES_A_COMPARATIVE_ANALYSIS

⁸ Government of Pakistan, 2007. *Labour Force Survey 2007-2008 (LFS)*. Available at surveynetwork.org/surveys/index.php?request=SURVEY_VIEW...

⁹ ILO Country Office for Pakistan 2009. *Pakistan Employment Trends for women 2009* (series No 5) Ministry of Labour and Manpower. Available at http://www.ilo.org/islamabad/whatwedo/publications/WCMS_114406/lang-en/index.htm

- Although school enrolment figures are rising (presently 43% for girls in Government schools), access to education for girls and low rates of adult literacy for women are major factors that restrict women's access to services and basic information.
- World Bank 2005 notes the significance of limited 'mobility' for women: the ability to move about in public spaces unless accompanied by a male relative, and the fear associated with moving about alone in public (for example, to attend school, to go to work, to reach a health facility, to go to the bank, to attend a training course) - as major impediments to women's ability to participate in paid economic activities. This is an issue in both urban and rural areas but is more likely to be a concern in rural areas. In addition to the fear of physical and verbal aggression there is the fear of malicious gossip which can potentially threaten a women's physical safety¹⁰.
- Very few women in Pakistan own any assets with significant economic value, whether land, homes or agricultural machinery. The exceptions are jewelry and livestock, both of which can be sold quickly in emergencies.
- An encouraging trend is that as more women gain access to micro-credit from MFIs (through RSPs and NGOs) the majority of rural women invest their profits and savings in purchasing animals.

2.2 The Enabling Framework for Gender in the Country

Major gender Polices and institutions in Pakistan

Gender concern of government policies in Pakistan has been fairly strong at the policy-making level and this is reflected in the five-year plans, which recognize women's deprivation and gender disparities in the education, health, economic, and political spheres.

From 1947 until 1971, there was no separate chapter on women in the five-year plans. During this period, women were seen as a vulnerable segment of the society in need of social welfare support. The welfare programs were designed to relieve poor, destitute, and disabled women's needs in terms of their roles as mother and housewives.

The 1973 Constitution of Pakistan that was adopted by the Parliament entrusted women equal status as citizens. Article 32 of the Constitution stipulates that "there shall be no discrimination on the basis of sex alone." All government services were opened to women including the district management group and the foreign service (in the civil service), which had been denied to them earlier.

Presently, Pakistan is a signatory to the Convention on the Elimination of all Forms of Discrimination against women (CEDAW). With its ratification, it has become obligatory for the

¹⁰ World Bank, 2005. *Pakistan Country Gender Assessment. Bridging the Gender Gap: Opportunities and Challenges*. Washington: Environment & Social Development Sector Unit, South Asia Region.

Government to adapt this international instrument to local conditions by changing laws to conform with the principles of the CEDAW. Pakistan has also finalized the National Plan of Action (NPA) as a follow-up to the Fourth World Conference on Women held in Beijing in September 1995. The Ministry of Women's Development (MWD) is the implementing and lead agency for the CEDAW and NPA. After Beijing, Core Groups and Beijing Follow-up Units were set up with external assistance at the national, provincial, and district levels. These are the administrative bodies that are responsible for implementing the NPA that includes the CEDAW. Another critical policy document, the Pakistan 2010 Program published in 1997, includes the enhancement of women's status as one of the 16 goals listed in the document.

Women-Related Government Organizations and Institutions

In 1979, the Women's Division was established as part of the Cabinet Secretariat. The main objectives of the division were (i) to improve the quality of life of women in the country, particularly in rural areas; and (ii) to deal with problems peculiar to women especially working women.

In 1989, the Women's Division was upgraded to the level of a ministry. In 1997, it was merged with the Ministry of Social Welfare and became the Ministry of Women's Development to formulate public policies and laws to meet specific needs of women.¹¹

The FWBL (First Women Bank limited) was established in 1989 to address women's financial needs. In view of the high incidence of custodial rape, women's police stations have been established in the country. The country's first all-women university, Fatima Jinnah, has started functioning in Rawalpindi. The university was inaugurated on 6 August 1998. There are 276 Darul Aman centres in Pakistan that offer medical treatment, skills training and legal assistance to victims' women and children.

Women's centers and shelters at the district level have also been established to provide legal support to female victims of violence. The Ministry of Women Development runs 10 crisis centers located in major cities of Pakistan to offers free legal aid and medical care in addition to accommodation, education and vocational skills training.^{12,13}

Good Practices in working with women and men in projects and programs

Good Practice—IFAD Pakistan

The International Fund for Agriculture Development (IFAD) was established in Pakistan in 1978. Since inception, the organization supported 21 projects in rural areas with a total of \$387.5 million as loans and a total estimated project outlay of over \$2 million. These projects have benefited approximately 1.6 million households in rural Pakistan. The main objective of the

¹¹ ADB 2000. "Women in Pakistan." *A County Briefing Paper*. Programs Department (West)

¹² Reported by Shafqat Sultan President of FWBL June 15, 2011

¹³ Government of Pakistan. Education Statistics in Pakistan 2009-10. Available at <http://www.infopak.gov.pk/EconomicSurvey/10-Education.pdf>

organization is to focus on poverty reduction in rural areas through community development, agriculture, livestock, income generation, women empowerment and generating a mechanism for sustainability. During the last decade, IFAD has implemented multi sectoral projects in Pakistan setting a road map to understand the importance and impact of gender mainstreaming in rural areas. IFAD emphasized the importance of building a partnership with a local NGO to develop a credible, legitimate structure to oversee the project to serve all aspect of mainstreaming including men's involvement in the decision and policymaking process.

Good Practice—Pakistan Lady Health Workers

In 1994, the Pakistan National Programme for Family Planning and Primary Health care has rallied an aggressive program and relied on over 80,000 Lady Health Workers who provide basic health care to nearly 70 percent of the country's population. The workers receive 15 months of training (three months full time, 12 months part time) in various healthcare areas.

Recent research shows a clear connection between the presence of Lady Health Workers and an improvement in community health. Independent evaluations note that after Lady Health Worker cadres were introduced, substantial increases were documented in *childhood vaccination rates*, *child growth monitoring*, use of contraception and antenatal services, and provision of iron tablets to pregnant women and lowering rates of childhood diarrhea.

2.3 The Energy Situation in the Country

Overview of the energy sector

Today, only 55% of Pakistan's population has access to electricity. The nation is currently facing a 3 GWh power supply shortage, and the prolonged and frequent power outages have had a negative impact on industry operation, the economy and the livelihood of citizens in general. While the energy shortage continues to grow, abundant indigenous sustainable energy resources such as wind, solar and biomass remain virtually untapped. The government attempted to promote the adoption of renewable energy technologies (RETs) in 2006 by implementing its first renewable energy policy. However, this policy has had limited success and faces a number of challenges. Currently, approximately 66% of power generation in Pakistan is derived from fossil fuels (primarily oil and gas) followed by hydroelectricity (30%) and nuclear energy (3%) (International Energy Agency 2007). Hydro is the only sustainable energy resource which Pakistan employs for large-scale power generation. The implementation of the 2006 renewable energy policy has stimulated some interest in large-scale renewable power generation.

The potential for renewable energy technologies to bridge the gap between energy supply and demand in Pakistan is significant. Renewable energy projects have the potential to improve energy security, provide socioeconomic benefits, reduce local pollution and mitigate climate change. Solar, wind, biomass and hydro energy resources are widespread and abundant in Pakistan. The potential for each of these energy resources to help meet energy needs.

Energy Policy in Pakistan

In order to address the energy crisis, the government of Pakistan instituted its first private power policy in 1985. This policy was aimed at attracting private investors to the power sector. Prior to

its implementation, power generation in Pakistan was a monopoly, exclusively state-owned and operated. New energy policies were also instituted in 1994, 1998 and 2002. The 2002 Power Policy, currently still in place, encouraged the use of local resources including renewable energy resources.

Pakistan's First Short Term Renewable Policy developed and adopted in 2006 was limited to wind, solar and hydro power, providing attractive incentives to private investors. This policy gave a good start in which a number of investors were attracted towards setting up of wind farms, but there was still a need to do more to guarantee renewable energy penetration. There was a need to expand and elaborate the policy to include other renewable and alternative energy resources and also have a section of off-grid electrification. From other international experience it has been established that modified up-front or feed-in tariff would provide greater security and incentive to investors.

The existing Short Term Policy was meant to be replaced by a Medium Term Policy in 2010-11, which will start the consolidation phase to last till December 2014. This would be followed by a Long Term Policy which would serve as mature renewable energy market and sustain growth on a competitive basis. The Medium Term Renewable Energy Policy is currently under formulation.

Government institutions for the Promotion of Renewable Energy Technologies

Various government institutions have been established over the past 30 years in order to promote the implementation of RETs as well. The National Institute of Silicon Technology (NIST) was founded for research and development (R&D) in the field of solar energy in 1981. The Pakistan Council for Appropriate Technology (PCAT) was also established four years later. This group aimed to promote hydropower, biogas and small-scale wind energy technologies. The two institutions were merged into one, forming the Pakistan Council of Renewable Energy Technology (PCRET) in 2002. The goal of PCRET was to organize, coordinate and promote R&D efforts within the field of renewable energy.

The Alternative Energy Development Board (AEDB) was established in 2003. The objective of this institution was to develop renewable energy policies for the promotion of wind, solar and small-scale hydro power projects¹⁴. The AEDB is tasked with implementing government policies and plans, developing projects, promoting local manufacturing, creating awareness and facilitating technology transfer, channelling international assistance, and coordinating all associated activities as the apex national facilitating agency for the development of renewable energy in the country. It has also been designated as a "one-window" facility for processing renewable energy power generation projects nationally.

Major gender and energy issues in the subsector in the country

Due to a lack of importance of the policy in the past, today, the country is in a situation where energy demand exceeds the available supplies. Electricity supplies are significantly behind demand, especially during peak hours, which have resulted in frequent and unscheduled blackouts, causing anger and restlessness among public. These outages aggravate the socio-political situation and are costly to the national economy. Domestic oil supplies do not satisfy the

¹⁴ Mashael Yazdanie 2010. Renewable Energy in Pakistan: Policy Strengths, Challenges & the Path Forward June 2nd 2010 Available at www.cepe.ethz.ch/education/termpapers/Yazdanie.pdf

demand, so costly imports continue to rise. Domestic gas supplies, which are being drawn down faster than they are being replenished, are in short supply particularly during winters.

Firewood is the main cooking fuel in the rural areas of Pakistan. Other biomass based fuel sources are dung cakes and agricultural residues. Biomass meets about 86% of total domestic energy requirements. Ninety per cent of the rural and 50% of the urban population depend on biomass fuels¹⁵.

Reliance on biomass has some evident benefits: there is usually no cash outlay and some of the materials are readily available. Biomass may be considered 'free' if no economic value is attributed to the time spent by girls and women in carrying water and collecting materials. However, in reality, the implications and social costs of collection are huge. A major problem is that burning biomass causes localized air pollution, especially if the cooking is done indoors, which damages lungs and eyes, phenomenon women and small children are exposed to, on a daily basis.

Unlike urban and semi urban areas rural households are rarely connected to the piped gas supply. In the present situation of massive load shedding experienced in gas supply to the urban areas it is unlikely that the piped gas supply would extend to the rural areas in the near future. For agrarian households who already own livestock biogas becomes an attractive source of easily accessible renewable energy.

2.4 Major Gender and Energy Issues

- Rural women are comparatively less informed about the social, financial and material impacts of the efficient use of energy resources.
- Women are more susceptible to indoor air pollution caused by the burning of biomass, crop residues, untreated coal and other fossil fuels used for cooking.
- In comparison with men, women's energy consumption behavior affects directly the health, education and upbringing of children.
- In comparison with boys, the drop-out rates among girl children in villages is mainly due to their unaccounted labor involved in the subsistence economy; particularly energy arrangement efforts at homes and outside.
- While leaving homes for seeking biomass and other conventional energy producing stuff; rural women invite harassment and other security threats
- The productivity of male worker is equally affected, if he allots extra time for the household energy arrangements.
- Community behaviors for the use of clean renewable technologies significantly affect the socio-economic position of women in rural areas

¹⁵ WHO 2005. *Situation Analysis of Household Energy Use and Indoor Air Pollution in Pakistan*. Department of Child and Adolescent Health and Development. World Health Organization

3 GENDER SITUATION IN THE ENERGY PROJECT

3.1 The Gender and Energy Situation in the Project Area

PDBP was started in the year 2009. It was included in the frame work of the PDBP that a base line assessment will be conducted at the first year and Biogas Users Surveys (BUS) will be conducted every year, a midterm assessment after 2 years and a final assessment study at the completion of the 4 year programme.

So according to the framework, Energy utilization of Demand Baseline Assessment (EUDBA) was conducted in the start of project year 2009. The study was conducted in Faisalabad and Vehari districts of the Punjab. In total 21 villages were surveyed (8 villages in Samundri and 7 in Jaranwala Tehsil of Faisalabad District and 6 in District Vehari). Gender indicators were included as part of this baseline. Main gender-related findings of the Baseline survey are as follows:

- In 21 villages of two districts, only 20% villages in district Faisalabad have sui gas in the form of cylinders while none of the villages in Vehari have this facility.
- In both districts majority of the working population in the villages belong to agriculture and live stock related occupation.
- In all villages people use dung cakes and kerosene for cooking and for lighting they use electricity.
- The average daily production of manure among the surveyed households in Faisalabad was 83 kg, and it was 111 kg for Dist. Vehari. The major use of the manure was burning and composting.
- Both districts have Banks and people were taking loan for agriculture and their livestock. High mark up is the major constraints in both districts.
- 93% in District Faisalabad and 95 % in District Vehari respondents perceived biogas as cost efficient and healthier source of energy.
- In districts, all domestic work, child caring and unpaid work like cooking, cleaning, making dung cakes were the responsibility of females. And all paid work and outside the house work was the responsibility of males.
- Women are not facing a mobility problem in both districts.
- In both districts males have main decision power like in children's education, marriages, health and other social areas.
- There was a strong willingness, 60% men and women, to opt for biogas for their houses in both districts.
- 56% of the women in both districts showed their willingness to opt for biogas but high cost of initial set up was considered a major constraint.
- The main beneficiaries of the biogas plant are women, to allow them more time to participate in entrepreneurial activities. However the families installing the biogas plants upto now are

upper-middle class families whose women do not usually participate in operation of biogas plant; they have their servants do such tasks. Currently, a User Survey is being conducted; this might shed some light on this concern.

- 63% of the female respondents in both districts cited self – financing as a primary source of financial arrangements for biogas plant.

3.2 Gender Capacity in PDBP: the baseline

As part of the gender mainstreaming initiative, an institutional review was conducted in PDBP in 2010. The purpose of Institutional review is to assess the level of awareness of the PDBP staff about gender and to identify the gaps and facilities regarding gender mainstreaming. The main findings of this review are following.

- The initial focus of the PDBP was to install biogas plants and to dispel incorrect information and myths about biogas technology, high priority was not given to gender mainstreaming strategies; however, there has been a gradual integration of gender concerns into the program implementation.
- The primary focus of the BCC has been on male users training due to social culture values and the focus is only on number and quality of plants so there is less number of females users trained.
- The main criteria for partnering with NGOs were their outreach and relationships with communities. However in an effort to increase the number of orders for biogas plants, the PDBP has trained 2 health workers and 1 livestock worker to promote biogas installations among women.
- Based on the Workshop, the PDBP staff scored 17 on the Gender Quiz (highest possible score was 36 points).
- Due to high turnover of women staffs, the involvement of females in project activities is limited. Staff explained that they resigned due to their personal/private problems. Currently women and men staff ratio of PDBP is as follows:

Table: Women & Men Staff Ratio at PDBP

Departments	Women	Men	Total
Administration and Support Staff	0	9	2
Technical Staff	1	5	6
Admin and Finance	0	3	3
Programme Officers	1	3	4
TOTAL	2	20	22

- The PDBP staff members need training in gender awareness even though they do understand the points outlined in the Gender Mainstreaming Strategy and the Gender Action Plan.

- Women staff members have not faced any problems within the office or in the field. All women explained that the work environment for them is conducive.
- Women/ men staff members are offered paid maternity/paternity leave. If women have to work with children, it must be supported through own resources (no nursery or childcare area provided). Due to this one woman MIS officer has been working since the last two years, with her baby and maid with her.
- All office policies for the PDBP have been adopted from RSPN.
- There is no woman BCC supervisor/activist working at this time. In the past three women activists were trained and they also identified 2-3 plants but due to their mobility problem in other areas they could not continue their work. Efforts to bring women as masons and within BCCs are ongoing. However due to social culture reasons no one female is interested to be trained as mason and BCC. PDBP is trying to register for female BCC /supervisor/activists.

4 THE PROCESS OF GENDER MAINSTREAMING IN PDBP

The gender mainstreaming in the PDBP was designed with the main purpose to involve women in all aspects of life and to improve the access and participation of women in those sectors where they are weakly represented. To develop a permanent support on gender issues to the community, gender sensitization of the PDBP staff/BCC/users of biogas/Activists was another purpose of the study. To accomplish the said purpose, following steps and process were adopted.

4.1 Steps for gender mainstreaming

Key activities were conducted, in close contact with PDBP management in order to arrive at the specific objectives for gender mainstreaming in the Pakistan domestic biogas programme for this purpose following methodology and steps has been taken 2009 to up till now.

- Review of the Gender and Energy Situation in Pakistan
- Energy utilization of Demand Baseline Assessment (EUDBA) was conducted in the start of project year 2009. Important gender mainstreaming indicators were part of this baseline.
- In the year 2010 Biogas user's Survey (BUS) was conducted. Although it was quite premature to assess the gender disaggregated impacts of the project, questions on gender issues were incorporated.
- Institutional review from the gender perspective was conducted in PDBP in 2010.
- The Action Plan (AP) and strategy for gender mainstreaming in PDBP was prepared for Gender Mainstreaming in June 2010 and updated in June 2011.
- Number of field visits to know the current situation of gender issues and informal interviews/FGD of biogas users, knowledgeable persons/ organizations were conducted.
- Networking of PDBP with Government and private institutions. Discussions with concerned government officials, Rural Support Programmes, NGOs, private companies and possible stakeholders were conducted. Purpose of all these meetings was to increase the access of women over various services offered by these institutions, link biogas users specially the women to those services and promotion of the program.
- Interviews with biogas users, key persons/ organizations. Meetings were conducted with different stakeholders to know how the biogas sector has overcome their problems and other possibilities / services for the community.
- Project promotional material has been developed according to the different levels of users and project requirement. These were made gender sensitive targeting specifically women members of the households.
- Capacity building workshops were arranged for PDBP staff, BCC, activists.
- Focus group discussions (FGD) regarding gender and development were arranged for biogas users. Thirteen individual case studies on biogas users were prepared. Two such samples are included as Annex 3.

The Gender Main Streaming Strategy, Action Plan, Monitoring and evaluation Plan, along with the present status of implementation is included as Annex 2 to this report.

4.2 Building organisational readiness for Gender Mainstreaming

The gender mainstreaming in PDBP was initiated and practiced in close consultation with senior management of RSPN and the project team.

Consultations for developing the strategy and action plan

The Consultation on Gender Mainstreaming in the Biogas Programme took place in two sessions. The first was at the RSPN Head Office: this was attended by the CEO, the COO (who has led the Biogas Programme since its inception), the Programme Manager for Special Projects (who has assumed responsibility for the PDBP since joining RSPN in March 2010), the Programme Officer for Special Projects and the Programme Manager for the PDBP. The Programme Manager for Gender and Development presented the Strategy, the Action Plan and the M&E Plan.

The second session was held in Faisalabad, which is the Project Head Office. All staff members attended the session, which was led by the RSPN Programme Manager for Gender and Development. The ‘deliverables’ identified in the Agreement were discussed, so the Project



Multi stakeholders’ consultation for the Gender Mainstreaming Strategy

Team could see the broader context of the Strategy and the activities. All financial resources were provided by ENERGIA where as Winrock International and SNV provide the technical advisory services.

Subsequently, the draft strategy and action plan was presented in a multi stakeholder workshop where representatives from government agencies, non-governmental organizations, biogas construction companies, activists and biogas users were provided their feedback to the strategy and action plan.

In order to disseminate the experiences of gender mainstreaming process and encourage gender integration in every aspect of the programs, a National Dissemination workshop on Gender Mainstreaming in Pakistan Domestic Biogas Programme was organized on 5th November, 2010 at Faisalabad. The participants included local government officials, representative of local NGOs, Social Activists, Biogas Construction Companies, Biogas users and PDBP staff. All together there were 41 participants out of which 7 were female.

Consultations during the case study

PDBP team, biogas construction companies, activists, and users were consulted. Various government offices and NGO led programs were visited to explore the potential partnership and linkage for biogas users. Valuable advices were provided by Winrock, SNV and RSPN management. Quality Control Centers provided the information regarding areas and plants. All secondary and current updates were provided by MIS officer. BCC remained very helpful regarding areas information and regarding arrangements of the meetings. Government institutions showed very positive attitudes and ready for fully support according to their rules and regulations.

Building organizational readiness and implementing the AP

The gender section of RSPN conducted a gender mainstreaming session with the project staff, to orient the project staff on how and why to involve men and women equally in the biogas projects. In addition the Area Manager of the PDBP (who leads the implementation of the project in the field) attended a gender and energy training workshop in Sri Lanka.

A gender consultant was hired for a period of 4 months (March-July 2011) to help support the project staff in implementing the Gender Action Plan. The consultant conducted a number of gender sensitisation sessions with the project staff, BCCs and activists. The consultant also reviewed the GAP and updated the action plan according to available resources and conducted consultation sessions with a number of stakeholders included NGOs working on gender issues and livelihood and micro finance institution to help link the activities proposed in the GAP.

The position of Social Mobiliser in PDBP was redesigned as Social mobilisation and gender officer, and the ToR was redrafted to include gender specific activities.

5 RESULTS OF GENDER MAINSTREAMING

5.1 The Gender Action Plan

The Action Plan (AP) for gender mainstreaming in PDBP was prepared by PDBP staff for Gender Mainstreaming in June 2010 and it has been updated in June 2011. The purpose of Action Plan is that all proposals and activities should be gender mainstreamed and Gender issues should be address properly.

The AP contains 8 objectives in total. Activities listed under each objective were updated on the basis of experience and review of the progress. Every objective is explained with the possible activities, its outcomes, Indicators, sources of data and frequency of data collection.

Objectives:

- 1: Ensure the inclusion of gender- specific concepts, activities and outcomes, including gender specific R&D, in successive project
- 2: Identify the points at which donor funding for Biogas links with all Government policies that concern energy.
- 3: Try to ensure that at least one ‘gender and energy’ expert is a member of the National Biogas steering committee.
- 4: Recruit and train ‘gender-intelligent’ professional staff
- 5: Establish links with RSPs and service providers
- 6: Provide information to women household members so they are able to use and maintain the biogas plants efficiently.
- 7: Contribute to knowledge on energy and related issues affecting women.
- 8: Enable women to use time saved in entrepreneurial activities.

The action plan was focused on number of areas:

- Capacity building of the PDBP staff and the stakeholders regarding gender & development for achieving their maximum participation in the whole project cycle
- Provision of other services and maximum utilization of saved time of biogas users, developing a linkage with service providers is also a key activity in this Action Plan
- In order to achieve the operational sustainability of the installed plants, training of women users on Operation and maintenance
- Development of gender sensitized printed material for the promotion of biogas technology

6 INITIAL RESULTS OF INSTITUTIONALIZING THE GENDER ACTION PLAN

6.1 Vision building and Engendering of the Pakistan Domestic Biogas Programme (PDBP)

The Vision of the PDBP is, in the next 8-10 years, to foster and support the creation of a commercially viable biogas sector in Pakistan. During the period the vision is to set up 300,000 biogas plants across Pakistan which will adhere to all guidelines required for the Clean Development Mechanism (CDM) so that Carbon Credits obtained from the project can be redeemed. The program is being implemented in modular approach and first of such module is now in operation in Central Punjab.

The Gender Mainstreaming initiative has helped in developing a clear strategy for the project. The project has a clear way forward for increasing the role of women in the project in both supply- and demand-side activities. The strategy is based on identified opportunities to involve women in the supply side as owners or promoters, and in the demand side as trainers, community organizers, income-generation facilitators, micro-finance lenders, and as integrators of biogas into other social and economic activities. (Page #27: The project Doc)

6.2 Capacity Building and Staffing

The most vital part of enhancing the supply of the biogas plants is to capacitate the masons to build high quality biogas plants in the precise and required manner. In the project framework, different type of trainings has been planned in the project period of four years. These trainings have been planned to give the BCC's the guidance and support they required so that they could be successful entrepreneurs and to give the users the required knowhow to operate and maintain the plant to achieve its maximum output.

According to the PDBP program documents, the trainings are planned not only to the PDBP staff but also to the stakeholders (users, activists, BCC, Supervisor and Masons).

At this time 20 men and 2 women are working in the PDBP. No doubt the number of men employees is more than women employees but there is no restriction at any position. PDBP is an equal opportunity organization and women are encouraged to apply for positions in the project. Female employees with full time contract are also eligible for the benefits of maternity leave. From management side all benefits are equal for all staff (male& female) and all RSPNs rules of organization and on gender are applied on the PDBP staff.

6.3 Gender disaggregated data on impacts

An important aspect of the gender mainstreaming exercise was incorporating gender aspects into the baseline survey and the annual biogas user surveys. Some gender impacts as highlighted by the Biogas User's Survey (BUS) conducted in 2010 are as follows:

Decision making regarding acquiring biogas plants: The 2010 BUS indicated that 62% of the respondents stated that the decision was made by male and only 2% stated that the decision was made by the female head of the household. 33% stated that decision was made mutually after discussion within family. These results at one hand indicate that females have apparently little decision making power while on the other hand, among 33% information were shared also with female members and decision was made after consultation. This could be hinting at some degree of gender awareness among our clients.

Improved standard of living and convenience: Both men and women enjoy the benefits of biogas technology like reduced indoor air pollution and reduced wood consumption. In relation to satisfaction level of the users, 74% respondents stated that they were fully satisfied with their biogas plants and the reason for satisfaction was the reduced work load. 24% households indicated health benefits and 26% stated environmental benefits. These indicate that biogas installations are reducing the burden in all the three aspects of gender roles (reproductive, productive and maintenance) while also fulfilling their practical needs of providing health benefits and improving their home environment

Biogas plants have helped reduce the workloads. 92% respondents reported that time was saved due to biogas plant which amounts to an average of 157 minutes saved daily. Women now have time to rest, for prayers, for home decoration, for caring of children and for social activities. Now whenever they want/need, they can cook food, otherwise before installation cooking was very troublesome especially when some guest came in particularly in the rainy season or in the hot season. Lighting at night allows opportunities for outdoor and indoor productive activities to continue beyond the period of day-light. Gas lamp used with biogas provides an advantage to children for prolonged hours of reading and studying in the evening and at night.

With cleaner kitchens, men and children also like to do some kitchen work by themselves. Home environment, family health and marital relations have improved.

Monetary saving: Biogas plants save money not only in the shape of less expenditures in compare to using wood or cylinder as fuel, it also saves money on other things like washing soap and utensils soap was consumed in less quantity. Biogas users are using the slurry for healthy crops/kitchen gardening which improves their health and also save their money. Some families also using the slurry for the kitchen gardening and now they are getting fresh and healthy vegetable for their kitchen. This helps for their balanced food and saves money. In terms of savings in money, those respondents who were using the firewood they said they saved on average PKR 2,543.23 per month and on LPG they saved on average PKR 2,182.77 per month. The money saved can be used to solve their practical needs or if invested in the education of the girl child as part of their strategic interest.

These findings were also corroborated by the case studies of biogas users in Sargodgha and Faisalabad districts.

6.4 Documentation and dissemination

A study documenting the process of gender mainstreaming in the PDBP programme was conducted in August 2011. The study looked at four broad aspects of the gender mainstreaming project: gender and energy challenges in the national context of Pakistan, the process followed for gender mainstreaming in the PDBP, the initial results of gender mainstreaming and lessons learnt in the process of gender mainstreaming in the PDBP. The documentation is useful not only

because it gives a synthesis of all the efforts made in the gender mainstream project but it also gives value added information that are missing in other project documents such as the study includes a section on the policies and interventions under taken by the government and other donors in field of energy and renewable energy sector and an analysis of how successful these policies and interventions are. It also sheds light on the lessons learnt during the course of gender mainstreaming and provides a way forward to take the next steps needed to strengthen the gender mainstreaming strategy of PDBP.

As part of this exercise, PDBP has produced a number of useful documents and study reports such as, a brief on gender and energy in Pakistan, a baseline survey of energy demand and utilization, gender mainstreaming strategy and action plan and promotional materials on biogas technology and its benefits. All these documents and reports have included gender sensitive indicators and efforts were made to provide gender disaggregated information and analysis. This is particularly important given the dearth of literature on the nexus of gender and energy in the Pakistan.

The project staffs have also produced a total of 13 case studies on operational biogas plants. The case studies particularly highlighted the benefits of the biogas plant to the women. These are also useful documents to create awareness among the users as well can be used as advocacy tools for the promotion of biogas.

The project has also developed and disseminated a number of biogas marketing and promotional materials. These materials are gender sensitive in some aspects like educational activities shows both girl and boy studying together, in some posters there are woman and men both together feeding plants. But in some pictures it does promote stereotyping like only women is in kitchen, only women feeding biogas plant, man is working as farmer and women are doing sewing and stitching as usual. Other entrepreneurial activities can also be introduced like electrician, mason's work etc. Women do work in fields with men so promotional material should show both working i.e. in kitchen, fields, feeding biogas plant, cleaning household and helping children in study etc.

6.5 Implementation and present status of the Gender Action Plan

Implementation of gender action was initiated as a two pronged approach. While all other activities were ongoing as per the Gender Mainstreaming Strategy, a dedicated effort was made by hiring a gender consultant for 4 months from March to July 2011. The objective of hiring the gender consultant was to explore how much of the activities can be implemented with dedicated person. The activities related to the field have been implemented in two clusters i.e., Chak 53/1 in District Faisalabad and Chak Behk Maken in District Sargodha. The initial results of Gender Mainstreaming under each objective are explained below. Further details are presented in Annex 2.

Objective 1: Ensure the inclusion of gender- specific concepts, activities and outcomes, including gender specific R&D in successive project modules

Gender specific activities are included in the concept notes and proposals prepared for future modules sent to various donors.

Objective 2: Identify the points at which donor funding for Biogas links with all Government policies that concern energy.

A National Biogas Steering Committee is formed to link this programme with government agencies and initiatives especially to include the biogas technology and gender mainstreaming in Pakistan renewable energy policy. The committee consists of the four the directors of the provincial Environmental Protection Departments (EPDs) representatives from Alternative Energy Development Board (AEDB), PAKRET, Winrock, SNV, RSPN, BCCs and Lahore Chamber of Commerce. The committee secretariat was based and chaired at the Federal Ministry of Environment. Efforts were made to include and gender and energy expert on the steering committee. However, after the promulgation of the 18th amendment the Federal Ministry of Environment is dissolved the committee has become dysfunctional.

Objective 3: Try to ensure that at least one ‘gender and energy’ expert is a member of the National Biogas steering committee.



Gender Training for the BCC and Activists

A recommendation to include one gender and energy expert in the National Biogas Steering Committee is forwarded to the committee.

Objective 4: Recruit and train ‘gender-intelligent’ professional staff

Under this objective training on Gender and Development for PDBP staff, BCC, activists and for biogas users were conducted. Tailored made training material was developed according to the requirements of the project. A total of 19 PDBP staff (17 M and 2 F), 18 BCC members (All males), 20 Activists (All

males) and 27 users (12 F and 13 M) participated in the gender sensitisation sessions.

Objective 5: Establish links with RSPs and service providers

- Links were established with the PRSP working in the area for community organization, credit facility and capacity building of the users. PRSP arranged trainings of the community members/users through government trainings institutes. PRSP has shown their support to facilitate the community members/users/potential users of PDBP for capacity building.
- PDBP established links with 11 local level NGOs as well as RSPs. These NGOs promoted the biogas technology and submitted 131 biogas plant orders. But due to limited resources these organizations refused for work and contracts with these organizations have been discontinued. Punjab Rural Support Programme is still working with PDBP and up till now total 400 plants identified in their areas. Users of the biogas plants are also participating the other capacity building and income generating activities of Punjab Rural Support Programme.

- Contacts with local NGOs were made. They have shown their interest to work in collaboration with PDBP for the capacity building of users.
- Kashf Microfinance Bank has agreed to provide credit if users located within a range of 10-12 km of city.
- For the capacity building of the users, links have been established with the Sanatzar, TEVETA and Extension Department of Agriculture University. Sanatzar is ready to offer training courses to the organized groups of PDBP on very nominal fee at community's own place. As TEVETA runs regular training for the institutions, they have shown their inability to conduct trainings of the community in rural areas, however they are ready to accommodate PDBPs nominated candidates in their institutes for a nominal fee. The Extension Department of University of Agriculture is ready to provide trainers and training modules provided PDBP enters in to signing a MOU with them.
- For improving enrolment rates of the schools going age children and to bring out of school children in the schools, meetings with school councils were conducted who have shown their full support for this purpose.
- The contacts with the Veterinary Hospitals were very encouraging as they are ready to train women on animal caring and to extend support for animal health.
- Links were established with the Rural Health Centers and Basic Health Units available in the areas. They are ready to extend their support for the promotion of the PDBP through their health workers who move from door to door for health facility.
- All the Government and non-government institutions and organizations have shown interest to join hands with the PDBP for the development of the Community. PDBP is required to enter into signing of formal MOUs with these institutions to deliberate the details of the cooperation.

Objective 6: Provide information to women household members so they are able to use and maintain the biogas plants efficiently.

Users trainings are useful especially women as they are the final end users. As of now, total 113 women and 251 males trained for biogas plants use. PDBP staff and BCC trained users (82 men and 41 women in Sargodha, 60 men in Jahang and Chiniot, 67 men and 56 women in Faisalabad and 42 men and 16 women in Toba Tex Singh. The number of women covered is less than the number of men as firstly, initially the focus of user training was only the number of biogas plants and technology promotion but since the last six months, PDBP's focus is to provide hands- on users training to both sexes (at least one man and one woman in each household.



Biogas user couple sharing the benefits of biogas plants installed in their house

Objective 7: Contribute to knowledge on energy and related issues affecting women.

One successful couple user of biogas from Behk Maken was arranged with an opportunity of interview on the FM Radio Sargodgha, who not only shared their experience but also answer the questions of the listeners. Two successful couples as user of biogas from Behk Maken were provided shared their experiences on the stage on the ceremony of 1000th biogas plant celebration. This sharing was the most appreciated topic of the celebration program.

Objective 8: Enable women to use time saved in entrepreneurial activities

Under this objective meetings were conducted with the users of biogas to know their interests. Most of them wanted to learn stitching and sewing, jam and squash making for commercial uses. So meeting was conducted with the service providers who are ready to provide such type of services if PDBP sign MOU with them (Sanat Zar, Extension department of UAF).

7 LESSONS LEARNED

7.1 Challenges encountered in gender mainstreaming

Efforts to mainstream gender in the programme have been affected by some larger project-level and some societal level constraints. Firstly, the Pakistani cultural value system is patriarchal and male have decision-making power. So in each aspect of life females are dependent on males. Due to low level of awareness and exposure in rural areas, most men are reluctant to provide any rights to the women. Low literacy level in rural areas, especially among women is a further impediment towards access, exposure and understanding of the project activities.

At the project level, the adoption rate of biogas plants has been lower than expected. The community perceives that the project is not for the poor as not directly benefiting in economic terms and only benefiting the well off who can contribute for the installation of the plant so poor and disadvantaged community show their reluctance in participation.

At the local level, the government institutions have not been as co-operative as was envisioned earlier, which makes interaction with community becomes somewhat difficult. Further, due to social cultural values and mobility problems females are reluctant to work as activists/supervisor/masons. As an outcome of the GM activity, PDBP trained three women health workers for demand generation of biogas plant. These females' activists obtained two orders of biogas plants and after that due to their mobility problem they stopped work.

Response of local NGOs have not been found so positive due to lack of sufficient financial support. During the meetings with stakeholders / service providers and NGOs it has been realized that without financial support they will not become active partner of PDBP. PDBP partnered with 11 NGOs: welfare organization for women rights , helping hands foundation, Basic councilors net work , Public development forum , Majlis –Tahafuz-e- Maholeyat ,Alfalah Health Organization, Welfare Organization for Women Rights, Ayesha Welfare Organization, Basic Councilors Network, Jhang, Rural Community Development Organization, and Ujalah Welfare, Ali welfare organization. These NGOs promoted the biogas technology and submitted 131 biogas plant orders. (Plant wise NGOs Annex# 3 is attached). Initially these NGOs gave the plants order and work actively but after some time they lose their interest. However these organizations were not helping in bringing in orders for biogas plants or promoting biogas technology. Therefore, contracts with these organizations have been discontinued.

At the programme level, the PDBP appreciates that women are main beneficiaries of the biogas technology but they do not have the financial resources to initiate activities to increase women's participation within the existing module. Available human and financial resources with the program were not sufficient to the implementation of all activities outlined in the gender action plan.

7.2 Overall assessment of the Gender mainstreaming process

A study documenting the process of gender mainstreaming in the PDBP programme was conducted in August 2011¹⁶. The study looked at four broad aspects of the gender mainstreaming project: gender and energy challenges in the national context of Pakistan, the process followed for gender mainstreaming in the PDBP, the initial results of gender mainstreaming and lessons learnt in the process of gender mainstreaming in the PDBP.

Relevance: The Gender Mainstreaming in energy Project has clearly identified the need of men and women on the demand and supply side of the project. Women are seen as consumers but not as contributors to energy efficiency. The fact that most women do not have a direct say in household expenditures is another kind of issue: since the biogas plants are purchased by male heads of households, women are invariably seen only as beneficiaries of the technology. However, the Strategy takes account of the numerous health and other benefits that accrue to women in the household and tries to ensure that these are optimized. The evaluators observed that it is not enough only to identify the gender issues, there is need of linking gender mainstreaming activities with resources to address the identified issues.

Efficiency: The PDBP has put significant effort in mainstreaming gender into future programmes and sensitising the project staff and BCCs on gender issues. However, more efforts are needed to win the trust of the local communities to engage women equally in the demand and supply side of the project. The PDBP management needs to negotiate with the current donor for dedicated funds for activities of gender mainstreaming, this also needs proactive actions and room for using available resources for more innovative techniques for engaging women. Sole dependence on linkages with other organizations has so far not resulted in any meaningful partnerships.

Impact: The key impact of the Gender mainstreaming project has been project management and staff and developing relevant literature on issue of gender and energy. There is significant impact visible in attitude and knowledge of the project management, staff and BCCs. The literature created under the project is actively being used in successive donor proposals. The project staff and BCCs now recognise the importance of involving women in the project not only for better utilisation of the biogas technology but also for empowerment of women. The user trainings were initially focused on men only and now the strategy is changed and at least one man and one woman is being trained from each user household: as of now total of 113 females and 251 males have been trained in biogas plants use. In the PDBP office separate space has been allocated for married females to come with their baby and maid.

7.3 Gaps and Next Steps

Resource requirement for GAP activities

¹⁶ RSPN 2011. An end of project evaluation of the implementation of gender mainstreaming into the Pakistan Domestic Biogas Programme, Fazal Ali Saadi and Sadaf Dar, Monitoring Evaluation and Research Section, Rural Support Programmes Network (RSPN), September 2011

Some of the activities identified in the GAP are linked to external factors that are beyond the immediate control of the project, for example, two of the activities identified in the action plan are “design an entrepreneurship programme for women, including ‘value chain addition’ and the establishment of effective market linkages, or establish links with an existing programme” and “Train women in basic veterinary care so they are able to keep their animals healthy and productive (e.g. the essentials of optimizing fodders and veterinary micro-nutrients, and identifying signs of poor health in their animals)”. These activities need dedicated resources or a new set of programming.

Similarly some activities were presented for creating linkages with other organisations without analysis of whether the service providers in target area available or not and whether they be willing to facilitate these activities, for example, “facilitate linkages with RSPs and other service providers and work to ensure that women whose families own (or wish to own) biogas plants have access to micro-credit, community-physical infrastructure schemes, vocational training opportunities and any other benefits of social mobilization, facilitate linkage of women who are not literate with high quality functional literacy and numeracy programmes, facilitate the linking of children of school going age who are not attending school to local Government and community schools”. All these activities need strong advocacy and human and financial resources.

Pinning responsibilities

For the monitoring of the Gender Action Plan, an M&E plan was incorporated in the gender action plan. The M&E plan reasonably identified the outcomes and measureable gender-disaggregated indicators, source and frequency of the data. However, the M&E plan did not determine that who will be responsible to monitor these activities.

Further capacity building

Although the PDBP staffs have gone through gender sensitisation sessions but according to the assessment of the evaluation team, the current staff needs further capacity building on how to engage women and men equally in the programme. The need to network with other organisations to increase knowledge about gender awareness and to adapt strategies to increase female participation was highlighted in institutional assessment; subsequently the project staff conducted a number of meetings with other NGOs such as RCDO and Ayesha Welfare but could not be successful.

Other Suggestions

- Management should take some affirmative actions to increase the ratio of women staff
- There should be a gender expert permanently on board who can give input in each and every step and can do gender audit of the project every year
- There should be a proper gender capacity building plan for the Biogas team so the field team can tackle and address gender issues in the field.
- RSPN has adopted anti sexual harassment law. The posters should be displayed in PDBP RSPN office. There should be an awareness session on anti sexual harassment law

- To increase the ownership of biogas plant; the credit opportunity should only offer to women
- Gender expert should review to update the promotional material that should not promote stereotypes
- PDBP staff needs to think different strategies to involve women activists i.e. a group of two or three women activists work together in 15-20 villages.

Annex 1. Bibliography

Project reports and documents

ToR of the gender specialist indicating the support to be given to the implementation of activities coming out of the action plan

Brief documentation report on gender, energy and biogas experience and issues in Pakistan

Baseline assessment instrument including assessment methodology questionnaires and checklists for field survey

Baselines assessment report, including institutional and project assessment and findings from the field survey

Gender mainstreaming strategy for the project including Gender Action Plan

Note on Consultation on the Gender Action Plan with the project management

Institutional assessment (Gender perspective)

Annual user survey questionnaires and report

Dissemination workshop report

Case study on gender mainstreaming in the project

GMP project ToR

Project Implementation Document (PID)

RSPN 2011. An end of project evaluation of the implementation of gender mainstreaming into the Pakistan Domestic Biogas Programme, Fazal Ali Saadi and Sadaf Dar, Monitoring Evaluation and Research Section, Rural Support Programmes Network (RSPN), September 2011

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Annex 2. Progress update (as of September 2011) on the Activity Matrix and M&E Plan

The activities with are underlined are those activities that are either already being carried out or will be carried out in the core programme of the ongoing module albeit not under a prescribed budget of gender mainstreaming. The remaining activities will be added to future modules based on

Action Plan	Outcomes	Indicators	Progress as of September 2011
Objective 1: Ensure the inclusion of gender-specific concepts, activities and outcomes, including gender-specific R&D, in successive project proposals.			
Incorporate gender mainstreaming strategy, activities and budget in successive biogas project proposals.	All the future proposals will be gender mainstreamed.	<ul style="list-style-type: none"> Gender mainstreaming checklist for new proposals Gender mainstreaming section included in proposals. 	GMS Activities prepared to be put into any/all future proposals.
Discuss with each donor the need for gender-mainstreaming, negotiate the level of significance each donor is willing to accord to it, and determine the funds they are willing to allocate to GM.	All future proposals will be gender mainstreamed.	<ul style="list-style-type: none"> Numbers of gender related activities in the proposal Amount of Fund allocated for such activities 	4 concept notes have been developed and submitted to donors. Gender related activities with allocated funded will be developed at full proposal stages. Responses on 2 concept notes is pending whereas no positive response from 2 donors.
Objective 2: Identify the points at which donor funding for Biogas links with all Government policies that concern energy.			
Advocate with relevant policy makers to include at least an understanding of gender issues and requirements in those policies, as they are reviewed and implemented.	Government Policies are gender sensitive.	Gender issues highlighted in the relevant government policies especially the renewable energy policy.	A National Biogas Steering Committee (NBSC) was formed with in the Ministry of Environment, primarily with the objective of addressing gender issues in renewable policies of the government. But after the 18 th amendment the Ministry of Environment was dissolve and no further work could be done on this front. The NBSC could hold only one meeting.
Involve women and men professional staff in advocating the inclusion of 'gender issues' in the country's renewable energy policies.	Gender issues are well addressed in renewable energy policy.	Number of interactions with government agencies to discuss the gender issues	
Objective 3: Try to ensure that at least one 'gender and energy' expert is a member of the National Biogas Steering Committee and add GM to the responsibilities and activities of the Committee.			
Prepare a list of gender and energy experts in the country.	Gender and Energy experts identified	List of gender and energy experts	A Gender and energy expert identified
Propose one gender and energy expert to be included in the National Biogas steering Committee	Gender and energy Expert represented in the NBSC	Name of the NBSC members	Gender and Energy expert has been proposed to NBSC as member. But no

Action Plan	Outcomes	Indicators	Progress as of September 2011
			further action was taken by the NBSC after its liquefaction.
Objective 4: Recruit and train 'gender-intelligent' professional staff			
Review HR policies periodically to ensure that women professionals are provided a conducive environment, to prevent unnecessary turnover.	Gender sensitive HR policy of PDBP	Number of women staff in PDBP recruited and retained.	During the last two years, 6 female staff members were hired. 5 of them left PDBP on personal reasons.
Recruit women Social Organizers and other professional staff members in PDBP	PDBP will have increased number of women staff	Number of women staff in PDBP	Currently one woman staff (MIS officer) is working with PDBP. The position of Gender & Social Mobilization officer is vacant for 2 months due to sudden resignation of previous officer and will be filled as soon as a suitable candidate becomes available.
Identify relevant ENERGIA and other training courses on gender-mainstreaming in energy projects (<i>i.e.</i> gender concepts, action plans, analyses, learning from other countries, <i>etc.</i>)	Number of gender related trainings conducted	List of gender mainstreaming courses available in the PDBP. % of existing PBBP training courses allocated to women.	There is no staff training plan available. However, one staff member (male) attended gender mainstreaming course organised by ENERGIA in Srilanka.
Organize at least 2 gender related training/orientation sessions annually	Staff members are well trained in gender related issues	Number of professional staff provided training	And all other staff attended gender sensitisation training conducted by a short term gender consultant hired for 4 months to sensitise the staff and BCC on Gender issues.
Objective 5: Establish links with RSPs and other service providers			
Organize interaction programs with local medical professionals (doctors and LHWs) on the domestic biogas program and its potential benefits for women and encourage them to advocate on behalf of the programme with community members	Local medical professionals are encouraged to advocate the benefits of biogas to local people.	Number of awareness raising interactions with local health professionals	5 meetings with Rural Health Center and Veterinary centers advocating the benefits of the technology
Facilitate linkages with RSPs and other service providers and work to ensure that women whose families own (or wish to own) biogas plants have access to micro-credit, community-physical infrastructure schemes, vocational training opportunities and any other benefits of social mobilization.	Women members of the biogas user households are linked with other programs to better utilize the saved time.	Number of women owned biogas plants linked to biogas credit facility and other beneficial programmes	One such plant is installed on credit out of total Eight women owned biogas plants.
Facilitate linkage of women who are not literate with high quality functional literacy and numeracy programmes	Women members of the biogas user households are linked with other programs to better utilize the saved time.	Number of biogas users linked with other stakeholders providing capacity building programmes	Efforts were made to establish linkages with 11 local level NGOs as well as RSPs. These NGOs promoted the biogas technology and submitted 131

Action Plan	Outcomes	Indicators	Progress as of September 2011
Train women in basic veterinary care so they are able to keep their animals healthy and productive (e.g. the essentials of optimizing fodders and veterinary micro-nutrients, and identifying signs of poor health in their animals). If necessary link to PM Special Initiative for Livestock for this.	Women members of the biogas user households are linked with other livestock programs	Number of biogas users linked with other stakeholders providing capacity building programmes. Integrate a % of training programmes for women into successive funding proposals.	biogas plant orders. These NGOs are now working independently and several local NGOs are working on biogas technology development. Punjab Rural Support Programme is still working with PDBP and up till now total 400 plants identified in their areas. Users of the biogas plants are also participating the other capacity building and income generating activities of Punjab Rural Support Programme. However there is no verifiable data available with PDBP on number of users successfully benefited from capacity programmes of the partner organisations.
Facilitate the linking of children of school going age who are not attending school to local Government and community schools. The concept of Village Education Committees can be introduced and implemented.	Children benefited by saving time otherwise spent collecting biomass, enrolled in school	Percentage of school - aged children attending school	Too early in the programme to focus on this activity. As programme develops efforts will be put into developing Education Committees etc
Develop training for women in kitchen gardening using slurry.	Saved time of the women members of the biogas user households is better utilized.	Number of women attended the slurry management and kitchen gardening training	In process with agriculture department who will provide female extensionist for this job
Link women with Government, INGO or private sector health and hygiene programmes that teach them how to identify warning signs of respiratory problems in themselves and their children.	Rural people are better informed about the potential impact of indoor air pollution	Number of awareness raising interaction with local health professional	One such orientation meeting held with local health professional
Orient women the necessary hygiene methods following the handling of manure.	Biogas user household members are better informed about the operation and maintenance of the biogas plant.	Women involvement in user training of biogas plants	341 biogas user households have been trained. Due to social and cultural norms, only 78 of those trained are women.
Objective 6: Provide information to women household members so they are able to use and maintain the biogas plants efficiently.			
Develop marketing and information materials responsive to the needs and capacities of the women members.	Ensure that marketing information is sensitive to the needs and capacities of women household members.	Number of marketing materials developed which are sensitive to women's needs	All the promotional materials are gender sensitised, including posters, flyers, brochures, user guides, calendars, etc.

Action Plan	Outcomes	Indicators	Progress as of September 2011
Objective 7: Contribute to knowledge on energy and related issues affecting women.			
Identify issues requiring further information	Research topics related to gender and energy identified	List of issues identified	Too early in the programme to focus on this activity. As programme develops efforts will be put into doing research on gender and energy
Initiate small scale 'rapid assessments' on those issues (for example, time spent collecting biomass, availability of water). These will be the basis of Case Studies.	Gender and energy related issues researched	Number of case studies conducted	13 case studies have been conducted and one has completed under the framework and template of Energia
Conduct annual qualitative and quantitative assessments of energy use and related issues directly affecting women. Analyse findings and make recommendations for inclusion in project reviews and subsequent proposals.	Gender and energy related issues researched	Number of studies done	One biogas user survey with relevant questions have been completed
Engage women staff members with expertise in monitoring and evaluation in assessments, including the design and analysis.	Capacity of the women staff members enhanced	Number of women staff members engaged in assessment design	One women is involved as monitoring person, who monitors through Management Information System
Objective 8: Enable women to use time saved in entrepreneurial activities.			
Design an entrepreneurship programme for women, including 'value chain addition' and the establishment of effective market linkages, or establish links with an existing programme.	Saved time of the women members of the biogas user households is better utilized.	Number of interactions with entrepreneurship training programmes	Training in Kitchen gardening is being planned in partnership with extension officers of govt departments

Annex 3: Case studies conducted by the PDBP staff on biogas users

Biogas – Leads to comfortable Life

Ms. Sana & Mr. Tashfeen, PDBP/RSPN, FSD

Mr. Khalid Hussain, lived in Chak # 250 R.B, Tehsil and District Faisalabad. Mr. Hussain having 65 years of age, was retired from the Extension department of Agriculture. He was an officer of 13th scale. He had three sons and two daughters. One of his son is doing job in Lahore as a shift in-charge in some organization Either mention the organization or just say the son is working in lahore. The second son is a Homeopathic Doctor and works in the village. The third and the youngest son is earning money through wheat grinder that was installed in front of their home. One of his daughters was married and other one is a student of 9th class. Moreover, he mentioned that they had been living in that village since 1872 if its over 100 years, number of generations should be mentioned or just said over a hundred years. He said that as there was no sui gas in their village, they had to spend a lot of their time and effort on arranging fuels. These fuels are very expensive and without those they could not be able to cook. He told that the biogas had resolved their problems and made their life easy. He mentioned that almost three to four thousand was spent on such fuels before Biogas.



This biogas plant was constructed by the mason Mr. Muhammad Ihsan working under one of our BCCs named Bashir Ahmad Construction Company. The plant was located in front of their house in a boundary wall used as animal farm. The size of the plant was 6 cum meter. It was started to be constructed on 14th July 2009 and was in working position since 15th of August.

Mr. Hussain's wife and daughters are very happy. They told that we were almost 9 members including 1 child whose age is almost 2 years. The quantity of biogas was enough to meet our daily requirements. They further said that they cooked food almost three times a day that include breakfast, lunch and dinner. They used stove almost 4 to 5 hours daily. They had a total of 10 buffaloes out of them 5 are calves.

They have heart about the biogas plant from one of their relative named Mr. Javed who is working in the Railway department. Mr. Javed saw a plant near railway station at Risalywala and informed them to contact with the owner of the plant. Mr. Bashir Ahmad (BCC) is the owner of that plant. He guided them and they decided to construct the plant to get the relief from dung cakes and fire wood. Ms. Uzma (daughter in law of Mr. Hussain) mentioned that the smoke from firewood and dung cakes was very much irritating. she got eye sight problem because of that. Now the feeding is done daily by their servant. They had guided their servant regarding the ratio of dung and water that was 1:1.

Moreover, it was very much difficult to clean the pots because they got black due to cooking through firewood and dung cakes.



She said that now she enjoyed cooking and the taste of food had been improved by cooking on biogas. Now, she had much free time to spend with her child and mother in law. She added that people from surroundings often came to see the Biogas plant to see the stove that burns with biogas. They get really surprised by seeing that gas was generating by using dung and water.

Regarding the use of slurry, they said that they have stored it and used in fields with water. Mr. Hussain and his family now enjoyed the benefits of biogas, which made their lives much easier.

Biogas- Bachat, Sahat Aur Aasiash

Ms. Sana & Mr. Tashfeen, PDBP/RSPN, FSD

Mr. Ghulam Murtaza has constructed a domestic biogas plant in his house in village 250 R.B of Union Council 137, Faisalabad. The construction of that Plant was started on 13th July, 2009 and completed on 8th August, 2009. Mr. Bashir Ahmad Construction Company constructed this 6 Cubic meter plant. Mr. Ghulam Murtaza by profession is a farmer having 6 cattles.

Mr. Ghulam Murtaza's wife and mother named Shamshad Murtaza and Doulat BiBi respectively, told that only 4 persons were living in their home. They cooked meal three times a day. The cooking was mostly done by Ms. Shamshad. In the morning, she prepared breakfast for her family. According to her, stove was used almost 4 to 5 hours daily. Further, Stove was used about 1 hour for breakfast, 2 hours for lunch and then some hours in the evening. Then, she showed her kitchen and stove.



She was cooking meal at that time. The flame was blue and the stove was working properly. There was a gas lamp too. She told that it was very useful whenever electricity failure happened.



Regarding before Biogas situation, She told that previously, she had to do a lot of work in order to arrange fuel for burning like dung making, fire wood collection etc. That was too much time consuming. Moreover, proper place is required to

store these types of fuels in rainy season. Sometimes, they bought the firewood and LPG cylinder from the market. Those things disturbed their budget because a lot of money spent on acquiring these. Moreover, it was very difficult to cook food. It yielded a lot of smoke and cause eye burning too. The pots' outside bottom

was almost black due to that fire and it was very difficult to clean up those. They were really fed up from that type of fuels and wanted some solution. Then, one of her uncle from Faisalabad City told her husband about biogas plant and PDBP team. Her husband contacted with the BCC and got the detailed information. Later, he placed an order to Bashir Ahmad to construct the plant. They had been enjoying the gas since the last week of August.

She seemed to be very much satisfied with the Biogas. Now, her cooking time was reduced. She had a small daughter of one month named Huma Murtaza. She said that she has quite enough time to take care her daughter. Now, she started sewing her clothes at home. According to her view, the pressure of biogas plant was more than that LPG cylinder. In the morning, Shamshad with her mother in law daily put the dung and water in equal ratio in to the plant and her husband used the slurry in fields.

They wish the best for the PDBP staff members for providing them the biogas facility and making their lives easier.