



INAFI Bangladesh Workshop

On

Exploring Renewable Energy Sector in Bangladesh: Opportunities and Challenges for Microfinance



Key Note Paper

Rashed Al Hasan

Programme Head (Financial Inclusion)
INAFI Bangladesh

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1.0 Introduction

Access to energy has been considered as an important element for economic development of a country; however, still 1.4 billion people, one fifth of the world population, do not have access to electricity and 2.7 billion are dependent on traditional biomass for cooking¹. Most of the rural poor people of Least Developed Countries (LDCs) are living without electricity. According to the World Bank, up to 2009 total 41 percent people of Bangladesh had access to electricity². The electricity production has increased over the last three years and at present 60% of the total population (including renewable energy) has access to electricity³. However, the share of renewable energy in 2009 was only 0.5% of total power generation. The government enacted Renewable Energy Policy in 2008, which committed to facilitate both public and private sector investment in renewable energy projects to scale up the existing renewable energy based power generation. This policy envisions 5% and 10% power generation by 2015 and 2020 respectively⁴. The vision of the government is to provide access to affordable and reliable electricity to all by 2021⁵. In Bangladesh, only 1.5 million households have access to natural gas and the rest of the households depend on traditional biomass, kerosene, Liquefied Petroleum Gas (LPG) cylinder⁶. The Ministry of Power, Energy & Mineral Resources has been implementing different renewable energy projects such as installation of solar irrigation pump, installation of mini grid solar power system, solar park, roof-top solar power solution and installation of Solar Home System (SHS) etc through Infrastructure Development Company Limited (IDCOL), a company established by the government⁷.

Microfinance has gained wide attention among different stakeholders over the last two decades. Microfinance has played an important role in enhancing the economic opportunities available to poor people; however, the financial product for renewable energy is limited. MFIs can expand access to energy for poor clients by offering loans for renewable energy products and by partnering with local energy companies to help them branch out into new markets that include poor and rural people⁸. It is assumed that in countries with mature Microfinance markets, MFIs are well placed to supply renewable

¹ United Nation Environment Programme, 2011, Renewable energy: Investing in energy and resource efficiency.

² World Bank, Access to electricity (% of population), <http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS> (accessed on 6 June, 2013)

³ Government of Bangladesh, Power division, Ministry of Power, energy and mineral resources, <http://www.powerdivision.gov.bd/user/brec1/30/1> (accessed on 6 June, 2013)

⁴ Government of Bangladesh, Power division, Ministry of Power, energy and mineral resources, <http://www.powerdivision.gov.bd/user/brec/49/89> (accessed on 6 June, 2013)

⁵ *ibid*

⁶ Titas Gas, <http://www.titasgas.org.bd/index2.htm> (accessed on 6 June, 2013)

⁷ Government of Bangladesh, Power division, Ministry of Power, energy and mineral resources, <http://www.powerdivision.gov.bd/user/brec/50/91> (accessed on 6 June, 2013)

⁸ Morris, E., Winiacki, J., Chowdhary, S. and Cortiglia, K. (2007) *Using Microfinance to Expand Access to Energy Services: Summary of Findings*, SEEP Network, Washington DC

energy financial products if certain business model assumptions are validated⁹. MFIs in Bangladesh have entered into the renewable energy market in late 1990s and early 2000. Grameen Shakti, which was established in 1996 as a sister organisation of Grameen Bank, has been considered as pioneer in renewable energy market in Bangladesh. Up to May, 2013 Grameen Shakti has installed 1,150,587 Solar Home System (SHS) and 25,619 Biogas plants¹⁰. The success of Grameen Shakti has attracted other MFIs to enter in to the renewable energy market. BRAC has launched its Solar Energy programme in 1998¹¹. The other medium and small sized MFIs in Bangladesh have entered in the renewable energy market from 2005 with the financial and technical support from IDCOL, which launched its solar programme in 2003. Up to January 2013, total 46 Partner Organisations (POs) of IDCOL have installed a total of 1,938,957 SHSs¹². Among the 46 POs of IDCOL, 19 are large, medium and small sized MFIs or sister organisations of MFIs. The diversified financial as well as renewable energy products are not available among the MFIs in Bangladesh. Besides, along with opportunities, MFIs in Bangladesh have been observing different challenges to offer renewable energy financial products. This paper aims to explore the existing renewable energy sector in Bangladesh, and opportunities and challenges for MFIs to enter and penetrate the market.

2.0 An Overview of Renewable Sector of Bangladesh

2.1 Market coverage

It is estimated that up to May, 2013 a total 2.4 million SHSs have been installed by different organisations including MFIs or sister organisations of MFIs¹³. Among the total SHSs installed, it is estimated that MFIs or sister concern of MFIs have installed approximately 1.5 million SHSs¹⁴.

2.2 Key players

The key players of the renewable energy market of Bangladesh are Grameen Shakti, Rural Service Foundation (RSF), BRAC Solar, Srizony Bangladesh etc. Up to May, 2013 Grameen Shakti has installed 1,150,587 SHSs and up to April, 2013 RSF Foundation has installed 3,34,195 SHSs¹⁵. Among the medium and small sized MFIs, Srizony Bangladesh

⁹ United Nations Capital Development Fund(UNCDF) (2012), *CleanStart: Microfinance Opportunities for A Clean Energy Future*, Asia Pacific Regional Office, Bangkok.

¹⁰ Grameen Shakti, *Programs at a Glance May, 2013*, http://www.gshakti.org/index.php?option=com_content&view=category&layout=blog&id=54&Itemid=78 (accessed on 9 June, 2013)

¹¹ BRAC Solar, A BRAC Social Enterprise, *Background*, <http://www.brac.net/content/brac-solar#.UbQUeEjxLIU> (accessed on 9 June, 2013)

¹² IDCOL, *Renewable Energy Projects*, <http://www.idcol.org/energyProject.php> (accessed on 9 June, 2013)

¹³ Estimated by the author based on data of IDCOL, Grameen Shakti and other organisations

¹⁴ Estimated by the author based on data of IDCOL, Grameen Shakti and other organisations

¹⁵ Grameen Shakti and RSF Foundation websites, <http://www.gshakti.org/index.php> and <http://www.rsf-bd.org/program.html> (accessed on 9 June, 2013)

has been playing as a key player and up to April, 2012 it has installed a total 58,297 SHSs¹⁶. The other medium and small sized MFIs, which have made progress in SHSs installation worth mentioning, are Hilful Fuzul Samaj Kalyan Sangstha (HFSKS), Integrated Development Foundation (IDF), Thengamara Mahila Shabuj Shangha (TMSS), Palli Daridra Bimochan Foundation (PDBF), DESHA, Resource Development Foundation (RDF), and COAST Trust¹⁷.

2.3 Available products

The available renewable energy products are Solar Home System (SHS), commercial solar panel for irrigation, commercial solar panel for electricity distribution, and Biogas for electricity generation and cooking etc.

2.4 Target clients

The target clients of renewable energy products are the people who are living in the remote rural areas such as *char* and *haor* areas, where there is no electricity facility. Usually the target clients of renewable products of MFIs are Microfinance borrowers, who do not have access to electricity. However, some MFIs also sell SHSs other than its Microfinance borrowers. The target clients of other organisations are the people who either do not have access to electricity or have electricity but willing to install SHSs as substitute of electricity during load-shedding.

2.5 Marketing and Distribution Method

The MFIs use its Microfinance branches as marketing and distribution centre. Some MFIs or sister organisations of MFIs such as Grameen Shakti and BRAC Solar have its own marketing and distribution offices. The other organisations which do not have Microfinance programme have its own marketing and distribution centres. However, both MFIs and other organisations have separate staffs for marketing and distribution of renewable energy products. Grameen Shakti has a total 1529 offices and RSF Foundation has total 486 unit offices¹⁸.

2.6 Price

The price of SHS depends on its capacity. Usually the price of 20 Wp (Watts peak) capacity SHS is US\$ 170, 50 Wp US\$380, 85 Wp US\$ 580 and 130 Wp is US\$ 940¹⁹. However, the price varies based on quality and after sales services.

¹⁶ IDCOL, *Progress with SHS's installation up to 29 April 2012*, <http://www.idcol.org/prjshsm2004.php> (accessed on 9 June, 2013)

¹⁷ *ibid*

¹⁸ Grameen Shakti and RSF Foundation websites, <http://www.gshakti.org/index.php> and <http://www.rsf-bd.org/program.html> (accessed on 9 June, 2013)

¹⁹ IDCOL, IDCOL Solar System Model, November 2011, http://www.idcol.org/Download/IDCOL%20SHS%20Model_30%20Nov'111.pdf (accessed on 10 June, 2013)

2.7 Renewable energy financing mechanisms

The Partner Organisations (POs) of IDCOL charge 15% down payment of the price of SHS and provide loan for the rest of the 85% price. This loan is provided for 3 years, repayable through monthly instalments and the interest rate is 12% flat per annum. Grameen Shakti has flexible financing mechanisms. If the client pays 15% of the total price as down payment, then the remaining of the total cost is to be repaid within 36 months with 6% flat rate service charge. If the customer pays 25% of the total price as down payment, then the rest of the total cost is to be repaid within 24 months with 4% flat rate service charge²⁰.

2.8 Sources of fund for renewable energy programme

The main sources of fund for renewable energy programme are organisations own fund, refinancing and grant from IDCOL, loan from banks and other donor's fund. It may be mentioned here that IDCOL refinances 80% and provides 10% as institutional development grant of the price of SHS²¹. IDCOL provides loan to its POs for 7 years with 2 years grace period and 6% annual interest rate²².

3.0 Opportunities and Challenges for Microfinance

Microfinance sector in Bangladesh has become matured over the last two decades through providing diversified financial and non-financial services to the low income people. Renewable energy financing has opened a new avenue for the Microfinance sector of Bangladesh to serve its clients with additional products and services. However, renewable energy financing has both opportunities and challenges for the Microfinance sector.

3.1 Opportunities

The opportunities for Microfinance sector to offer renewable energy financing and products are explained below:

- **Market potential for renewable energy products:** It is estimated that 40% of the population of Bangladesh do not have access to electricity. According to BBS, the total population of Bangladesh is 149.8 million and average household size is 4.4²³. It is estimated that 13.61 million households of Bangladesh do not have access to electricity and among them approximately 2.9 million households

²⁰ Grameen Shakti, *Financing Solar Home System*, http://www.gshakti.org/index.php?option=com_content&view=article&id=66&Itemid=62 (accessed on 9 June, 2013)

²¹ IDCOL, IDCOL Solar System Model, November 2011, http://www.idcol.org/Download/IDCOL%20SHS%20Model_30%20Nov'111.pdf (accessed on 10 June, 2013)

²² IDCOL, *Participation agreement, Part-C-IDCOL Renewable Energy Programme*.

²³ Bangladesh Bureau of Statistics(BBS), *Population and Housing Census 2011*

are above the poverty line²⁴. It is estimated that the market size for SHSs in Bangladesh is approximately 5 million including 2.1 million poor households²⁵. Along with SHSs, there is a huge market potential for solar irrigation system and Biogas plant in the rural areas.

- **Microfinance borrowers as target clients:** The total clients of MRA licensed MFIs in Bangladesh are 26.6 million²⁶. MFIs in Bangladesh have covered only 1.5 million households through renewable energy products and still a large number of Microfinance clients are untapped. As MFIs have long relationship with its borrowers, so it is easy for them to target these clients for renewable energy products.
- **Branch networks in the rural areas:** Due to branch network in the rural areas, MFIs have comparative advantage than the other renewable energy service providers.
- **Low marketing and distribution cost:** The rural branch networks and involvement of field staffs reduce the marketing and distribution costs of MFIs than the other competitors.
- **Access to low cost finance:** MFIs have the privilege to access to low cost finance from different financing agencies and donors such as IDCOL, PKSF etc.
- **Increase loan portfolio and revenue:** The renewable energy finance will increase loan portfolio and revenue of the MFIs.
- **Technical assistance facilities:** MFIs have the advantage to get technical assistance from financing agencies and donors such as IDCOL, United Nations Capital Development Fund (UNCDF), and United Nations Environment Programme (UNEP) etc.
- **Availability of products in competitive price:** As MFIs have comparative advantage to address the large cliental segment, so it could develop long-term partnership with the renewable energy product vendors. The long-term partnership would ensure availability of products in competitive price.
- **Access to more donor funded programmes in future:** Renewable energy products and financing are one of the top most priorities of the donors for climate change adaptation. As Bangladesh is one of the most vulnerable countries of the world to climate change, so it is expected that more donor funded programmes on renewable energy would be undertaken. The proven success of Microfinance in

²⁴ Estimated by the author based on data of the World Bank access to electricity; Government of Bangladesh Power division, Ministry of Power, energy and mineral resources; and Bangladesh Bureau of Statistics(BBS), *Population and Housing Census 2011 and Household Income Expenditure Survey 2010*.

²⁵ Estimated by the author based on various data and BBS HIES 2010 data on national average poverty rate.

²⁶ Microcredit Regulatory Authority(MRA), *Microcredit in Bangladesh*, http://www.mra.gov.bd/index.php?option=com_content&view=category&layout=blog&id=29&Itemid=80 (accessed on 11 June, 2013)

Bangladesh would increase access of MFIs to more donor funded programmes in future.

3.2 Challenges

Along with opportunities, there are some potential challenges which MFIs may observe.

The key challenges are:

- **Lack of diversified renewable energy loan products:** The MFIs in Bangladesh are offering almost similar renewable energy loan products and there is lack of diversified loan products. The target clients of renewable energy loan are not homogeneous and they have diversified demand. So diversified loan products are necessary for different cliental segment.
- **Liquidity constraint:** Some MFIs specially the medium and small sized MFIs observe liquidity constraint to offer renewable energy loan to the target clients.
- **Lack of access to low cost fund:** At present only IDCOL is providing low cost refinancing facilities to its POs. However, to address the potential clients, along with IDCOL, access to low cost fund from other financing agencies is necessary.
- **Lack of expert and efficient human resources:** MFIs have expertise in savings and credit, however renewable energy financing requires technical expertise, which are not available in the rural areas. MFIs are observing technical problems due to lack of expert and efficient human resources.
- **Lack of awareness and interest among the target clients:** There is lack of awareness and interest about renewable energy products among the target clients.
- **Substandard products:** Sometimes due to lack of technical expertise of MFIs, the vendors supply substandard products. The substandard products create negative impact among the target clients.
- **Low repayment rate and high portfolio at risk:** Sometimes MFIs observe low repayment rate of renewable energy loan due to natural disaster, income erosion of the household, health hazard etc. The low repayment rate increases portfolio at risk of MFIs.
- **Propensity to adjust renewable energy loan with savings:** Some clients have propensity to adjust renewable energy loan with their deposited savings in the MFIs.
- **Difficult to become sustainable without low cost refinancing:** It is difficult for MFIs to make renewable energy loan products sustainable without low cost refinancing facility. Renewable energy products requires at least some years of free after sales service facility, which is costly for MFIs.

4.0 Towards Sustainable Renewable Energy Finance

Despite some challenges, following initiatives could ensure sustainable renewable energy finance for MFIs in Bangladesh.

- **Partnership with high quality product suppliers:** MFIs could develop partnership with high quality product suppliers in competitive price.
- **Develop Diversified financial products:** As the target clients of renewable energy products are not homogenous, MFIs should develop demand driven diversified financial products.
- **Capacity building of staffs and aware the target clients:** MFIs should undertake capacity building programme for its staffs and awareness building programme for the target clients.
- **Utilisation of renewable energy products for economic activities of the clients:** If the renewable energy products contributes to the economic activities of the clients and increases their income then the client would able to repay the loan.
- **Strong field level monitoring to mitigate the portfolio at risk:** Strong field level monitoring is essential to mitigate the portfolio at risk.
- **Role of government:** The government should come forward with more stimulating packages such as tax holiday and low cost refinancing facilities for renewable energy products.
- **Role of Donors:** Donors should undertake more long-term projects such as technical assistance, grant and refinancing etc. for renewable energy.

5.0 Conclusion

Renewable energy products and financing have been considered as one of the key components of climate change adaptation for the most vulnerable countries. Bangladesh has made a significant progress in renewable energy sector over the last one decade. However, there are only a few empirical studies on the impact of renewable energy finance on the rural poor. INAFI Bangladesh believes that the empirical study on the impact of renewable energy on the livelihood of the rural poor would assist the policy makers to adopt new policies and undertake future programmatic interventions.

6.0 Key Questions for Discussion

1. To what extent there is market potential for renewable energy sector in Bangladesh?
2. What are the opportunities and challenges for Microfinance sector?
3. What role the government should play for sustainable renewable energy sector in Bangladesh?
4. What could be the role the donors to promote renewable energy sector?
5. How to make renewable energy sector sustainable?