



Review

Sustainable solar home systems model: Applying lessons from Bangladesh to Myanmar's rural poor

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ABSTRACT

Myanmar's rural population has very low access to electricity, mainly due to low disposal income and the remoteness of communities. This paper attempts to test the potential applicability of Grameen Shakti-Infrastructure Development Company Limited (IDCOL), which is a Bangladeshi public private partnership microfinance model, to rural Myanmar towards enhanced solar home systems (SHS) deployment. Rural poor are enabled by this microfinancing scheme to own SHSs in a few years for as low as US\$6.40 per month. The objectives of this paper are to assess the experience of Grameen Shakti-IDCOL and other similar projects for invaluable lessons, identify barriers to sustainable electrification for Myanmar's rural poor and to apply these lessons learned to overcome barriers by developing policy recommendations for sustainable electrification for rural poor in Myanmar. Recommendations are provided suggesting the revision of some assumptions in the National Electrification Plan (NEP) and the creation of a microfinance-based public private partnership, with a polycentric structure, strong local presence and effective after sales service, to increase the deployment of SHSs to sustainably and economically supply modern energy to Myanmar's rural poor.

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Abbreviations: CFL, Compact Fluorescent Lamp; DRD, Department of Rural Development; IDCOL, Infrastructure Development Company Limited; LED, Light Emitting Diode; MFI, Microfinance Institution; MLFRD, Ministries of livestock, fisheries and rural development; MOEP, Ministries of electric power; M MV/HH, Metres of Medium Voltage grid line per household; NEP, National Electrification Plan; NGO, Non-governmental organisation; PO, Partner organisation; PPP, Public Private Partnership; RET, Renewable energy technologies; SHS, Solar home systems; UNDP, United Nations Development Program.

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Introduction

Roughly 36 million people in Myanmar, equivalent to 68% of the population lacked access to electricity in 2013 (IEA, 2015). In terms of access in rural areas, Myanmar, is ranked among the lowest in the world with electrification rate of 28.4% in 2010 (Index Mundi, 2015). More recent data on rural electrification rates appears unavailable. The lack of access to electricity areas in rural areas is especially compounded by the geographic remoteness of such communities and relatively low income. Access to modern energy services such as electricity is reported to be intrinsically linked to, income generation, economic development, agricultural productivity, gender and safety issues, access to water, health, education, and overall, a better quality of life (Pode, 2015). This has been confirmed, in part by the “Energy Plus” model – which was first reported by United Nations Development Programme (UNDP) – that combining access to electricity with capacity development and productive uses of electricity for income generation can help guarantee the ability to pay for electricity services, ensure longevity of the intervention and overall, improvement in livelihood (Velumail et al., 2015; Larsen et al., 2016; UNDP, 2012).

Two key terms – electricity access and rural population – often used throughout this paper have been briefly defined. Firstly, it is important to recognise the non-binary nature of electricity access. For example, having access to electricity goes beyond whether a household is electrified or not. Rather it encompasses issues such as reliability, affordability and productive use of that energy, all play crucial roles in determining the extent of access to energy services (Global Network of Energy for Sustainable Development, GNEED, 2015; Singh et al., 2014). Secondly, the paper focuses on rural populations in Myanmar based on the definition employed by national statistical offices.

The objectives of this paper are to:

- (i) analyse lessons learned from experience with Grameen Shakti-IDCOL in Bangladesh and similar initiatives,
- (ii) identify barriers to sustainable electrification for rural areas of Myanmar,
- (iii) apply these lessons learned from Grameen Shakti-IDCOL to rural poor in Myanmar, and,
- (iv) offer policy recommendations to overcome identified barriers to sustainable electrification for rural poor in Myanmar.

Scope and methodology of report

The paper was achieved through a desktop literature analysis. Several pieces of literature from various sources were reviewed including

academic, institutional, newspaper articles, organisational reports and national policy documents. The paper begins with a review of the demographic of the rural poor population in Myanmar, and a summary of lessons learned from sustainable energy for the rural poor from previous projects. This is followed by, analyses and lessons learned from the Grameen Shakti-IDCOL model with the goal of exploring potential applicability to the Myanmar case, as well as the current status of electricity in Myanmar. The paper then analyses the applicability of the Grameen Shakti-IDCOL model to the situation in Myanmar, and gives recommended measures accordingly. Through compilation, review, and analysis of several pieces of literature, this paper contribute knowledge (which otherwise is absent) on how the Myanmar situation could benefit from the experience of the Grameen Shakti-IDCOL model to address barriers in SHS deployment through microfinance-based public private partnerships (PPP).

Background review

Sustainable energy for rural poor: analysis and lessons learned

In addition to Grameen Shakti-IDCOL model, the United Nations, World Bank, as well as various non-governmental organisations (NGOs) and governments have attempted with varying levels of success to develop models of sustainable energy for the rural poor in developing countries around the world using a range of different technologies, implementing various strategies and financing mechanisms. Many lessons have been learned and progress has been made in developing an effective model. A brief summary of some of the key learnings from these projects is provided below.

Financial considerations

The unaffordability of Renewable Energy Technologies (RETs), due to high capital costs, is the main constraint for many rural poor in Myanmar, who, as previously mentioned, have very little disposable income and spend very little on energy. Financial institutions are often unwilling to lend to the rural poor to overcome this constraint. On the other hand, local manufacturers or dealers of RETs also face challenges in obtaining loans. These local dealers also face geographic barriers in Myanmar, which make developing sales and marketing infrastructure difficult. Microfinance was found to be a critical input for success in several projects, as it allows users to gain ownership of the system (Alazraque-Cherni, 2008; Laufer and Schafer, 2011), and does not rely on ongoing donations, but rather creates a self-sustaining business model.

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