BLENDED FINANCE

June 2018

Extending Access to Clean Energy for Low-income Households in Rural Bangladesh

COUNTRY
Bangladesh

GPOBA PROJECT YEARS
2010–2012; 2015–2018

PROJECT PARTNERS
Government of Bangladesh; Infrastructure Development Company Limited (IDCOL); partner organizations (POs); other development partners

OVERVIEW

In Bangladesh, a blended finance approach has been used to extend access to off-grid electricity for rural low-income households. An output-based aid (OBA) grant in combination with microcredit from local partner organizations (POs)—mostly non-governmental organizations (NGOs) with experience in microfinance—enhances affordability of clean energy technology for low-income consumers. The POs also benefit from concessional finance through a World Bank line of credit, improving liquidity for renewable energy development.

DEVELOPMENT CHALLENGE

The government of Bangladesh has long been committed to infrastructure development to spur economic growth and reduce poverty. Electrification, in particular, promises benefits such as improved health and education outcomes, and expanded opportunities for income generation. However, much of the country still lacks access to electricity, and in rural and remote areas where grid extension is not economically viable, access rates are even lower. In these areas, solar energy is a more cost-effective alternative; however, affordability of off-grid technologies remains a challenge for low-income households.

BACKGROUND AND ENABLING ENVIRONMENT

The government of Bangladesh Vision 2021 set forth goals to reach universal access to electricity, with a focus on improved quality and efficiency in energy supply, enhanced commercial operation and leveraged private sector participation.[1] Electrification expansion at the national level saw steady improvement from 32 percent access rates (2000) to 76 percent (2016).[2] While rural areas experienced expanded access over the same time period (from 20 to 69 percent),[3] the coverage rate is lower, due in part to service delivery limitations

1 GPOBA, 2015.

2 World Bank, Sustainable Energy for All (SE4ALL) Database. Access to electricity (% of population) World Bank; Washington, DC. https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=BD.

3 World Bank, SE4ALL Database Access to electricity (% of rural population). https://data.worldbank.org/indicator/EG.ELC.ACCS.RU.ZS?locations=BD.

GPOBA 15 YEARS 2003-2018 SUPPORTED BY WORLD BANK GROUP

This learning note is part of a series developed by the Global Partnership on Output-Based Aid (GPOBA) to analyze and showcase experiences where results-based finance (RBF) has been used to leverage private finance through a blended finance approach.

related to high costs of traditional system expansion to remote areas with topographical challenges for infrastructure development. As a result, off-grid renewable energy solutions became increasingly sought for provision of electricity in rural areas. Solar photovoltaic (PV) technology, such as solar home systems (SHSs) and renewable energy mini-grids, were viewed as the most realistic, rapid and cost-effective method to reach remotely located segments of the population.

In 2003, the World Bank and the Global Environment Facility (GEF), in support of the government of Bangladesh's agenda for universal access to electrification, launched the Rural Electrification and Renewable Energy Development (RERED) project to increase access to renewable energy in rural areas through grid and off-grid options.[4] Under RERED, an output-based financing approach was implemented through a SHS pilot program, which utilized a subsidy to buy-down the technology costs, thereby reducing the investment cost for households.

BLENDED FINANCE APPROACH

Building on the output-based financing model piloted under the RERED SHS program, the Global Partnership on Output-Based Aid (GPOBA) joined the partnership in 2010 with a US$13.95 million grant. In 2015, an additional US$15 million grant was provided to support a scale-up of the project, RERED II, with continued focus on expansion of SHS access to low-income households in rural areas, while embracing a broadened scope to pilot additional renewable energy technologies.[5]

The project is implemented by the Infrastructure Development Company Limited (IDCOL), a government-owned finance company, in partnership with POs. IDCOL extends a line of credit from the World Bank to the POs enabling them to offer microcredit to rural households for investments in SHS. In addition, IDCOL provides technical assistance and oversees maintenance and PO system installation through a network of qualified verification agents.

Rural households interested in financing a SHS enter into a purchase contract under a microfinance scheme with a PO. The household makes a down payment covering around 10 to 15 percent of the system cost, and repays the balance (minus the OBA subsidy) over a period of two to three years at interest rates of 12 to 15 percent. In some instances, POs then enter into a contract with renewable energy technology suppliers to procure SHS equipment on credit; however, in many cases, POs act as both the lender and supplier, which helps streamline the process. POs cover the initial cost of the SHSs with their own resources, and ensure subsequent household installation.

Upon verification of SHS system installation, POs are eligible for concessional refinancing from IDCOL for 60 to 70 percent of the total credit provided to households. In addition, the OBA grant is channeled in the form of a partial capital subsidy to the POs. At RERED inception, the OBA subsidy was priced at US$90 for SHS systems of up to 135 watt-peak (Wp). In 2010, when GPOBA joined the program, the subsidy was lowered to US$50, with further reduction in 2015 to US$20 for systems less than 30 Wp. The size of systems applicable for the OBA grant also decreased, ensuring enhanced pro-poor targeting.[6] The gradual subsidy reduction was possible due to economies of scale, which contributed to a decrease in unit price, as well as SHS technological advancements, which allowed for better service at lower system capacity and cost.

RESULTS

The SHS program developed under RERED became the most dynamic in the developing world. Since 2013, approximately 4.2 million SHSs have been installed. By 2015, the SHS program exceeded 50,000 installations per month.[7] Market expansion was observed through growth in the number of participating POs, which have climbed from 5 to 49 since 2003, further validating the establishment of a "competitive business model." A 2014 GPOBA -funded impact evaluation found that rural electrification increased household income by 21 percent and decreased expenditure on lighting by 11 percent.[8]

The OBA grant blended with microcredit has stimulated demand by helping to bridge the ability to pay gap for household investment in SHSs. The subsidy lowers the consumers' cost for technology, and in turn improves microfinance accessibility. Microcredit is important as it allows households to spread their repayment over time (lower debt service installments over longer periods), which

4 Additional international development partners have also supported the program, including ADB, IDB, DFID, JICA, KfW, GIZ, GEF and USAID. GPOBA, 2015.

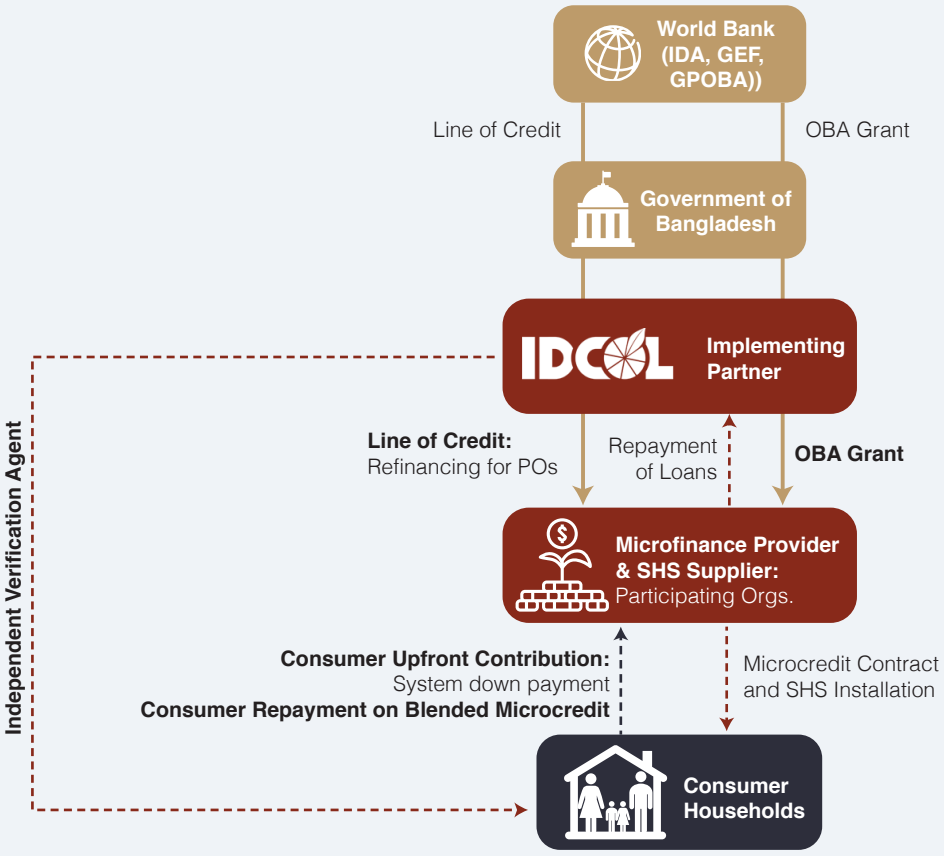
5 These include: solar irrigation pumps, clean cook stoves, biogas plants and mini-grids.

6 IDCOL, 2016.

7 Ibid.

8 Khandker et al, 2014.

FIGURE 1. Financial Flows Structure



is especially conducive for poor households with fluctuating cash flows.

The blending of World Bank concessional finance (the line of credit) with PO finance via refinancing improves liquidity for the POs, which allows for greater lending capacity to consumers at better rates. For large POs, the refinancing has been gradually reduced under the RERED II scale-up to 60 percent of the total credit provided to the households in an effort to move the POs in the direction of borrowing at market terms.[9]

The successful SHS experience led to replication of the OBA blended finance approach for other renewable energy technologies in-country, including mini-grids, biogas plants, improved cook stoves and solar irrigation pumps, and has also been adapted for the sanitation sector. Lessons from the program's technical and commercial sustainability, such as the use of a capital subsidy to stimulate competition among suppliers, develop supply chains, and reach economies of scale, thus laying the ground for gradual subsidy decrease, have been incorporated in several renewable energy programs around the world, including Tanzania, Ethiopia, and Myanmar, among others.

SUCCESS FACTORS[10]

An important element in the overall program is IDCOL, which has proven a strong and critical implementing partner, effectively channeling the concessional finance and OBA grant, conducting oversight and providing multiple layers of quality assurance and technical assistance in facilitating market development. IDCOL conducted trainings and awareness programs for POs and consumers, launched marketing campaigns, and established

9 GPOBA, 2015.

10 Additional information can be found in GPOBA, 2015.

strong quality control, including a phone line to receive customer feedback.

The verification component, helping to ensure proper installation of quality certified systems, is a decisive feature for technical sustainability and consumer repayment. Households demonstrate less incentive to make debt service on systems that don't function. Conditioning the receipt of concessional credit and OBA upon successful installment applies pressure for correct system setup. This challenge is also addressed through the SHS post-sale services, which includes a five-year warranty for batteries, and three years of maintenance.

The environment in Bangladesh has played a key role in project success. High population density helped with achieving economies of scale, which effectively contributed to the reduction in SHS transaction costs. In addition, the well-established microfinance sector in the country allowed access to an already existing and trusted clientele base ready for the SHS loan products, thereby contributing to efficiency enhancements in uptake.

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