

# *FWWB-I's Solar Microloan Initiative*



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## AFFORDABILITY MECHANISMS AND ENERGY ACCESS

### Leveraging a Network to Reach India's Most Isolated Region

In 2009, Friends of Women's World Banking-India (FWWB-I) added energy access to its mandate when it collaborated with five partner institutions to launch a solar lantern credit initiative in the conflict-riven state of Manipur.

Three years and 40,000 solar lanterns later, the initiative is one of the most successful instances of energy microfinance currently

taking place in the Indian context. This case study surveys the approaches and lessons of two of FWWB-I's Manipur partners, the Weaker Section Development Society (WSDS) and Volunteers for Village Development (VVD).

Their experiences show how small, community-based institutions, with the aid of a high capacity partner, can have a big impact.

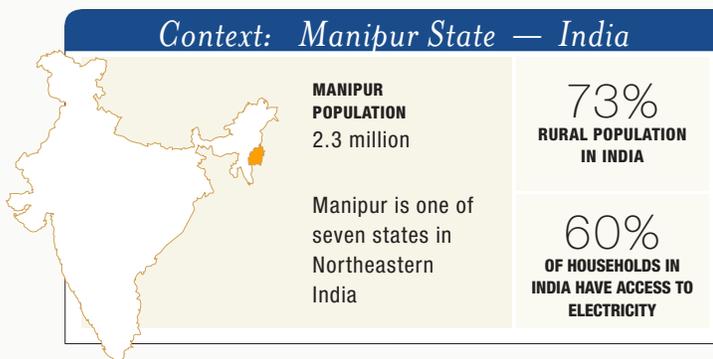
**CHANGING LIVES THROUGH ACCESS TO FINANCE  
FOR CLEAN ENERGY AND WATER**



*“The idea for the program came from going to villages, seeing kerosene at Rs.120 per liter on the black market, seeing the constant shortages in electricity. We asked ourselves, ‘Why not explore solar?’”*

— Mangboi Kipgen, Director of Weaker Section Development Society (WSDS)

## INSTITUTIONS & CLIENTS



Manipur is one of seven states that make up India's Northeastern Region (NER). Occupying the extreme edge of the country's isolated eastern territory, the entire region remains culturally, politically and economically dislocated from the rest of India. In recent decades, resource pressures resulting from population growth and migration have given rise to militant ethnic conflict in many parts of the state. By diminishing political stability and government capacity, and disrupting trade and commerce, the volatility and violence of the ongoing insurgency are major underlying factors contributing to Manipur's considerable socioeconomic challenges.

WSDS and VVD are not-for-profit organizations that work to address a range of unmet needs in Manipur's remote rural communities. WSDS's activities promote natural resource management, technology adoption, community health, and livelihood development. Similarly, VVD extends numerous vocational and income-promotion services to its members. Lack of access to financial services is a significant barrier to development in the communities that the organizations serve, with virtually no formal banks operating outside of the capital city of Imphal. Recognizing the consequences of this deficit, both organizations began to

explore microfinance as a new program beginning in the mid-2000s. With financial and technical assistance from FWWB-I, WSDS and VVD initiated microcredit programs that link traditional self-help groups to external sources of finance using a joint liability approach. Today, WSDS and VVD support memberships of 12,000 and 3,000 individuals, respectively.

One-hundred percent of both WSDS's and VVD's members are women, the majority of whom reside in small, densely populated communities of 100 to 200 households in Manipur's forested, hilly regions. Both organizations also serve smaller segments located in the peri-urban hinterland of Imphal. VVD operates in the districts of Imphal East and Ukhrul, and WSDS serves communities in the districts of Senapati, Chura, Changpur, Imphal East, and Vishnapur.

Pig and poultry farming, rice and jhum cultivation, and a host of forest-based activities are critical forms of subsistence and income-generation for members. Weaving is a traditional vocation widely practiced by women in Manipur. Products sold both locally and in Imphal enhance household earnings. Peri-urban clients operate small, mostly informal businesses selling vegetables, groceries, clothing, mobile phones and other goods. Earnings and access to services differ between groups: WSDS estimates that its peri-urban clients have monthly disposable incomes ranging between Rs. 3,000–5,000 (USD \$55–\$90), whereas the range for rural clients is roughly half that amount. VVD's clients are of comparable financial status, with disposal incomes of Rs. 2,500–5,000 (USD \$45–\$90). The physical and economic isolation of Manipur restricts access to energy services. The hilly, forested terrain makes deprivation particularly acute in rural areas.

Many of VVD's and WSDS's clients are connected to the government-run electricity grid, though the state suffers from chronic power shortages and therefore service is highly limited and unreliable. Connected households receive power on alternating days in two-hour blocks in the mornings and evenings, but service disruptions are frequent and can last up to several weeks.

Manipur's marginal status within India greatly limits the amount of subsidized kerosene that local residents receive through the national Public Distribution System (PDS) as compared to other regions of the country. Some demand is met through the black market, but exorbitant prices make the fuel unaffordable for the poor. Clients are more likely to use candles for daily household lighting, reserving scarce kerosene for special uses. Physical harm and loss of property as a result of household fires caused by candles are real and common threats.

Inadequate power supply and dependency on inferior sources create high demand for alternatives. However, isolation and conflict limit the supply of products to the state, with cheap, low-quality devices representing the majority of those that do find their way to end users.

#### BOX 1. TECHNOLOGY

### *Thrive Accendo™ Solar Home Light*

#### SERVICES: BASIC ELECTRICITY



**ENERGY HARDWARE**  
SOLAR PHOTOVOLTAICS  
(3 Wp)

SLABATTERY  
(4.5 Ah)

**UNIT OPERATING LIFE**  
18-24 MONTHS



THE HARDWARE ©FWWB-I 2011

The Accendo™ is a portable, multi-purpose solar lantern that can be used as a tabletop light, wall-mounted light, or floodlight. Low, medium and high lighting modes enable different output for each of these uses. On the highest mode the Accendo™ can operate continuously for 17 hours on a full-day charge.

An AC charging adaptor is included with the device that enables users to supplement solar charging with grid charging during the winter months when hours of sunlight decrease.

## AFFORDABILITY MECHANISM: MICROCREDIT

Globally, "energy microfinance" takes a variety of forms and individual MFIs play a range of roles in the overall delivery of energy products and services. This diversity is manifested in the internal operational and mission characteristics of institutions; client attributes and circumstances; the types of energy technologies financed; the maturity of local energy markets and suppliers; and a vast array of other contextual factors. The activities of the MFI may be narrowly restricted to the core competencies of risk mitigation, credit disbursement and payment collection, or may include provision of additional functions along the value chain, including distribution, marketing, sales and after-sales service. VVD and WSDS can be categorized as highly involved "nodal" institutions that fulfill a number of critical

activities that enable end users to both access and afford solar lanterns. Importantly, FWWB-I's leadership and support have allowed these small organizations to take on such broad responsibilities. This level of involvement is largely an unavoidable outcome owed to the many barriers that characterize the operating environment. In short, conflict, isolation and poverty curtail market activity and access to a great range of essential goods and services, including energy. In the absence of public and private providers, VVD and WSDS are required to fully or partially fulfill distribution, marketing, sales, and after sales service functions. FWWB-I and the product partner, Thrive Energy, are also actively involved in jointly supporting a number of these key functions.

VVD and WSDS are two of five small microfinance institutions that offer loans for solar lanterns with support from FWWB-I. The approaches of both organizations share many similarities, reflecting both contextual factors and the influence of FWWB-I; however, some important operational elements do differ.

## Product Distribution

From the program's inception in 2009, Thrive Energy, a Hyderabad-based solar product company, has served as the sole provider of solar lanterns to VVD, WSDS and other FWWB-I supported institutions.

Thrive's involvement is the direct result of FWWB-I's intervention. In 2009 FWWB-I convened managers from each of its five partner institutions, including WSDS and VVD, with representatives from several manufacturers of small solar portable lighting devices at a forum in Hyderabad. The purpose of the forum was to introduce partners to the range of products available on the market, and to facilitate relationships with potential suppliers. Thrive Energy presented its award winning Accendo™ Home Light. Partner representatives judged the "Solar Home Light" to be appropriate for their members based on price and performance, but more importantly, Thrive demonstrated the greatest willingness and commitment to serving the challenging Manipur market.

*"Nobody was willing to come to the Northeastern Region. There are many products, but if they won't come, what's the use? Only Thrive took the chance."*

— Mangboi Kipgen, Director of WSDS

FWWB-I acts as a central intermediary in the product ordering, transaction and payment process. WSDS and VVD place orders directly with FWWB-I, which then pays Thrive for the full shipment. FWWB-I's initial

source of capital for inventory was a loan provided by the Small Industries Development Bank (SIDBI), but currently the organization draws from its own accumulated reserves to purchase new shipments. FWWB-I is compensated at a declining interest rate of 12 percent per annum as end users repay loans. Therefore, neither organization is required to pay cash to the supplier up front for shipments. Rather, payments made by FWWB-I to Thrive are shown as loans to the MFI partners on FWWB-I's books. As such, the partners are able to source equipment up front but pay for it over time, with FWWB-I acting as intermediary and principal risk bearer.

Product distribution is jointly carried out by Thrive and VVD and WSDS. Thrive coordinates order shipments from its warehouse in Hyderabad to Imphal via a third party transportation company. VVD and WSDS are responsible for distributing lanterns to their members from the capital city. To promote commercial sustainability, transportation costs incurred by both Thrive and the two partner MFIs are passed on to members in the total loan amount. VVD and WSDS get products to their members in slightly different ways, which vary more in style than in operational substance. Products are delivered to a main branch location that serves clusters of nearby communities. When shipments are delivered to the branch, WSDS notifies by mobile phone one or more members of the group of the shipment's arrival.

Members are required to come to the branch location at the agreed upon time to collect their lanterns. Group members reside no more than 10 to 15 kilometers from branch locations, though more commonly they live much closer. Members frequently need to travel to the branch towns for other reasons, so making the trip is not a burden. WSDS distributes lanterns directly from its branch office. VVD takes a more ceremonious approach, organizing a public event attended by community leaders in the local community center to celebrate the newly gained access by members. These 'small functions' — as they are referred to by staff — are seldom very small. On average 400 to 500 lanterns are distributed at any given event, though volumes have been as high as 900.

## Solar Loan Disbursal

Loan officers are responsible for promoting lanterns and soliciting orders from members at monthly group meetings. Group members are encouraged to place

Diagram: Coordination of Product and Financial Flows Between Partners

DIAGRAM KEY



DIAGRAM ORDER PROCESSING

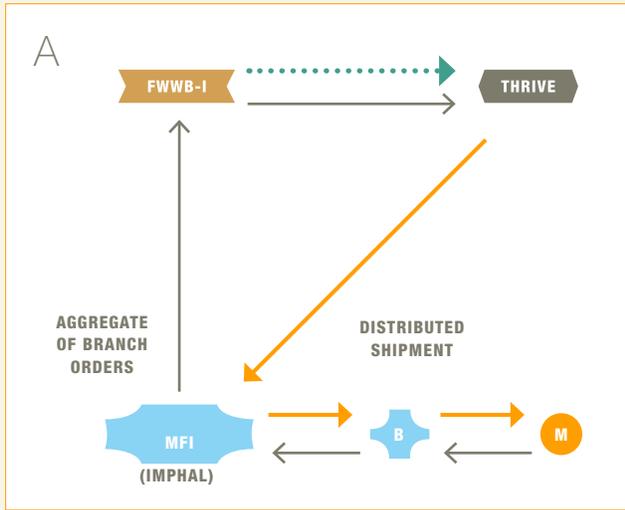


DIAGRAM PRODUCT DISTRIBUTION

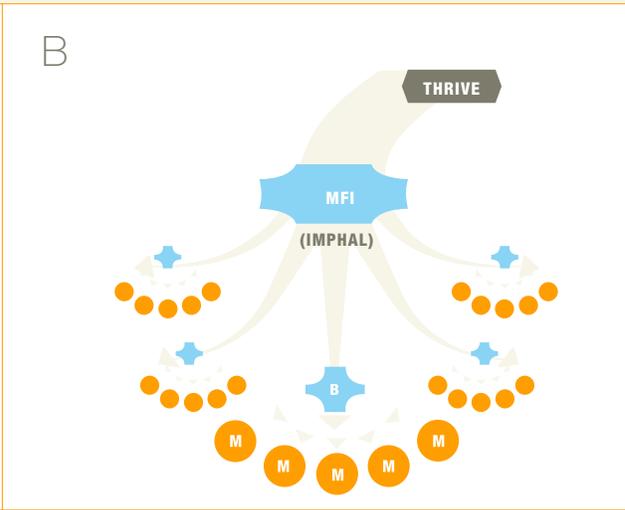
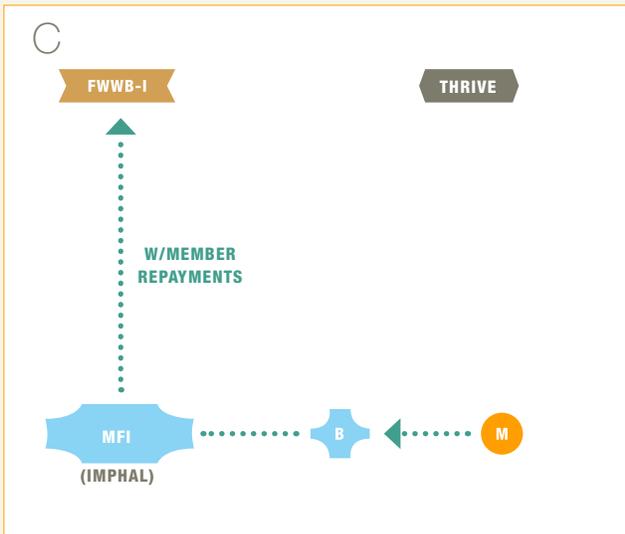


DIAGRAM LOAN REPAYMENTS



Product Processing, Distribution and Payment

(A) At group meetings, MFI members submit lantern loan applications to loan officers. MFIs submit shipment orders to FWWB-I, which then places the order and pays Thrive for shipment. A transportation company delivers shipments from Thrive's warehouse in Hyderabad to MFIs in Manipur's capital, Imphal. (B) The MFIs repay FWWB-I with the loan repayments coming from individual members. Members repay MFIs over a 6-month loan term. Members never receive a loan as cash, but rather receive the lantern directly. (C) The MFIs then transport lanterns to branch locations, where group members come to pick them up. Because Thrive is supplying lanterns to a number of FWWB-I's partners in Manipur, product can be delivered at a scale large enough to be fairly cost efficient, both for the supplier and the end user.

orders at the same meeting so that product can be delivered in batches, achieving across the board economies of scale for distribution. It is worth pointing out that because demand has been so consistently high among members from the outset, there have been very few instances of clients having to wait for other group members to place orders in order to receive lanterns.

Both WSDS and VVD offer six-month loans at a declining interest rate of 24% per annum. With financing, clients pay a total of Rs 1950 (\$36). In both cases, the principal loan amount of Rs 1750 includes the wholesale cost of the product, VAT taxes and the full transportation costs incurred by both Thrive and the MFIs. Solar lantern loans are issued solely as “top up” loans, meaning they are only approved for members that have other existing loans with the MFI, thereby minimizing what would be the high relative transaction costs of servicing a small solar loan by itself.

Solar loans are not disbursed as cash. Rather, as described above, a member receives the light directly from WSDS, and repays the loan over a six-month period. This approach reduces the possibility of the loan being used for other purposes.

**FIGURE 1. COST COMPARISON  
THRIVE ACCENDO™ VS. CONVENTIONAL SOURCES**

ENERGY TYPE	PER MONTH	PER YEAR
Electricity GRID CONNECTION	\$4.40 U.S. DOLLAR	\$52.40 U.S. DOLLAR
Candles 1 TO 1.5 PACKS	\$18.20 U.S. DOLLAR	\$218.20 U.S. DOLLAR
Kerosene	\$14.50 U.S. DOLLAR	\$175 U.S. DOLLAR
<b>TOTAL</b>	<b>\$37.10</b> U.S. DOLLAR	<b>\$218.20</b> U.S. DOLLAR
	<b>6-MONTH LOAN (PRINCIPAL + INTEREST)</b>	
Thrive ACCENDO™	\$36.00 U.S. DOLLAR	

On average, members will receive their lanterns within four to six weeks of loan application approval. At the same time, they are required to begin paying loan installments immediately, usually before they have received their lanterns. However, long turnaround times and pre-payment have not affected demand. It is difficult to determine why this is the case, when delays have suppressed demand in other areas, but

it appears to be a function of local expectations and living standards. Isolation and years of conflict have made Manipur's poor communities accustomed to delayed gratification. The value of gaining reliable lighting evidently exceeds the inconveniences of both long turnaround times and advanced payment.

## After-Sales Service

The importance of after-sales service to a program's success and sustainability in the context of microfinance cannot be understated. If large numbers of products fail in the field, demand will be spoiled. From the perspective of the MFI, this obviously represents a risk to reputation and portfolio quality, as clients with malfunctioning lanterns will be less likely to repay loans. However, from a supplier perspective, providing after-sales service in remote areas on an ongoing basis adds to overhead costs, while not directly generating revenues. To prevent failure in the field without imposing high costs on the supplier, WSDS and VVD divide the burden of after-sales service.

VVD has appointed a service technician in its main office in the district of Ukhrul, and WSDS has done the same with two technicians, one based in Imphal and the other in the district of Saikul, to address failures as they occur. Technicians were trained by Thrive at the company's offices in Hyderabad over a period of several weeks. Most technical problems arise from overuse of the Accendo™ battery, but some originate with errors in the device itself. Regardless, all faulty lanterns are sent by local branch staff to the technicians for repair, and then returned to users at group meetings. Lanterns that cannot be repaired by technicians are replaced by Thrive. The company offers a one-year warranty for all products. Both WSDS and VVD have experienced incidents of faulty shipments during the course of their programs, and have also experienced delays in replacements from the supplier. VVD amended its service agreement with Thrive in order to establish a reserve inventory of lanterns so that malfunctioning devices can be replaced more quickly. In spite of these challenges loan repayment and demand have not been affected.

The processes in place have facilitated high volumes of loan disbursements, and indeed members often take out loans for multiple lights over time in order to fully illuminate their homes, room by room, potentially extending their use to entrepreneurial purposes. As of July 2012, WSDS has facilitated the ownership of 12,128 lights – a number slightly higher than its total membership. Between April 2010 and December 2010, in less than one year, VVD disbursed 4,000 loans to a membership of 3,500.

# ANALYSIS: KEY DRIVERS & SUPPORT FACTORS

## FWWB-I's Vision, Leadership and Support

FWWB-I's role in the solar credit programs of WSDS, VVD and other MFIs in Manipur was indispensable to their realization and success in several ways. The apex organization facilitated access to low-cost loan capital from SIDBI and other sources. Capital was offered on a consignment basis, which enabled the MFIs to disburse thousands of loans without needing to put up their own capital to purchase lantern shipments. FWWB-I also organized and co-sponsored a forum that linked the MFIs to solar product suppliers, leading to the partnership with Thrive. Throughout the program, FWWB-I has served as an intermediary between Thrive and its partners, helping coordinate product orders and distribution. Finally, the organization's operational and program design experience directly influenced the development of the solar loan product.

Another significant impact of FWWB-I's involvement as an apex organization, from a supply stimulation point of view, is that it was able to simultaneously initiate solar programs with multiple small MFIs. This created a market — and economies of scale — that was large enough in size to incentivize a supplier to join as a product partner. Without FWWB-I's coordination and close client relationships, it is unlikely that any single small MFI would have constituted a sufficiently attractive opportunity for suppliers.

## Challenges and Opportunities of Manipur

Poverty, conflict and economic dislocation make Manipur one of the most challenging states within India for energy providers to penetrate. However, these very conditions also contribute to intense levels of demand for basic electricity services. The fact that only limited national kerosene subsidies are available further bolsters this demand. FWWB-I, WSDS and VVD have been able to overcome many supply challenges sufficiently enough to tap a broad underserved population widely thought to be inaccessible on a commercial basis.

## Broad Development Mission of MFIs

WSDS and VVD are community-based organizations that seek to improve the quality of life and economic conditions of their constituencies on a number of different fronts, not just through access to financial services. The major barriers that prevent the microfinance sector in India and globally from engaging in energy are both operational and ideological in nature. In the latter category is the belief among many MFIs that microfinance should remain narrowly focused on the delivery of credit for “productive uses.” Many MFIs continue to resist the notion that the sector should leverage its presence and relationships to incentivize a product supplier to engage in the initiative. Given the organizational histories and broad development mandates of WSDS and VVD, this conflict did not materialize as a barrier to participation.

## FACTORS INFLUENCING SCALE

### Access to Capital

The Indian microfinance crisis that began in 2010 continues to leave the sector as a whole in an uncertain position. The most significant consequence of the crisis has been a sharp reduction in the availability of loan capital from commercial banks, with small institutions facing the greatest challenges. The impact of the crisis was directly absorbed by FWWB-I and its MFI partners in Manipur. In April 2010, FWWB-I was forced to dramatically reduce its loan fund for the Manipur institutions, including WSDS and VVD. Plunged into

survival mode, the MFIs were unable to maintain focus on their solar programs. As a consequence, loan disbursements for lanterns were brought to a virtual halt. Capital shortage is a general existential threat facing scores of MFIs, and is therefore a significant barrier to future scale.

In the absence of capital from commercial sources, both MFIs have managed to secure capital from a few large donors in order to sustain their general operations and lending portfolio. However, solar loan disbursement rates have not returned to pre-2010 levels, in

spite of enormous demand. Currently, FWWB-I and its MFI partners are actively seeking additional sources of capital to restore the solar programs and reach additional members.

## FWWB-I's Wider Network

As an apex organization, FWWB-I maintains relationships and provides direct support to scores of Indian MFIs at

various stages of development. Provided that capital constraints can be resolved in the near future, FWWB-I has the potential to replicate its success by supporting groups of small MFIs in other parts of India where energy poverty is significant. FWWB-I can also leverage its influence and relationships with larger, more established institutions and push for mainstream acceptance of energy microfinance, pointing to the success that it has facilitated in a high-risk context such as Manipur.

### *Closing: Lessons Learned*

#### *Small community-based MFIs play an important role in advancing energy access for the poor*

VVD and WSDS are small institutions committed to improving multiple dimensions of the lives of their clients through a variety of interventions beyond credit. This multi-faceted approach contrasts with the narrower focus on credit common to many larger MFIs, enabling small institutions to experiment with energy programs as part of their mandate. As a result, small organizations are becoming

"early adopters" at the grassroots level, experimenting with and adapting different methods of incorporating energy into their portfolios. What they continue to discover will influence the larger sector as a whole. As a leading apex organization within the microfinance sector, FWWB-I is well positioned to transmit the learnings gained in Manipur to a wider audience of larger, more established institutions.

#### *Understanding client needs is an important first step*

FWWB-I's mission is focused on women's economic empowerment and most of its partner organizations have a 100 percent female client base. The apex organization has a strong track record of helping its partners understand their clients and the specific interventions these women require in order to improve their lives. FWWB-I began its solar program partly because of the

differentiated impact on women of lack of access to electricity. FWWB-I's deep understanding of the key role of energy access in terms of improving the lives of poor women has ensured that it has continued to support energy lending even during difficult times.

*Thank you to the FWWB-I team for their collaboration in writing this case study*

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