



2009 SEED Winner Nafore and Afrisolar Energy Kiosks

Burkina Faso - Nafore and Afrisolar Energy Kiosks (2009)

Overview

MicroSow is a community based electro-technical commercial enterprise created in 1998 and located in Ouagadougou, Burkina Faso that specialises in Information Technology maintenance and rural electrification through Solar Energy.¹ It is a sole-proprietor business founded by Mr. Souleymane Sow in a society where access to the national power grid is significantly unavailable to a majority of the population. About 87% of the total population and 98% of the rural population do not have access to electricity (Table 2). The period of 2006-2010 evidenced significant growth in the proliferation of mobile phones: from 7 mobile phones per 100 persons to 35 per 100. Both rural as well as urban dwellers have acquired mobile devices for their communication needs, and the trend shows that they will increasingly continue to do so.

With 2025 as the scheduled target date for a national electrification plan, any form of energy generation to power devices such as mobile phones will significantly contribute to growth that impacts on economic and social aspects of its beneficiaries. However, until then, alternative sources of energy will have to be explored to meet the needs of both rural and urban communities.

The Nafore and AfriSolar Energy Kiosks (see image above) were created to address rural electrification challenges. These kiosks are charging stations for mobile telephones that are powered on solar photovoltaic modules and distributed through a franchising scheme to the rural communities. Solar panel installations are also distributed to schools and health centres in these communities.

Table 2: Mobile cellular subscription per 100 persons and percentage of population with access to electricity (source: World Bank²)

Indicator Name	2006	2007	2008	2009	2010
Mobile cellular subscriptions (per 100 people)	6.95	12.33	19.49	23.92	34.65
Access to electricity (% of population)				14.6	

¹ Seed (2009). Nafore and AfriSolar Energy Kiosks: Burkina Faso. Retrieved from: http://www.seedinit.org/index.php?option=com_mtree&task=att_download&link_id=65&cf_id=42

² Nafore and Afrisolar business plan

Origins

MicroSow started in 1998 as a small community-based, sole proprietor technology business that offered electronic equipment, computer and phone repair services to community members and local NGOs in Ouagadougou. Subsequently, solar panels that had installation or service related problems were referred to Mr. Souleymane Sow who worked out of his single room home to meet those repair requirements, and from which his business grew. On return from Germany in 1998, after his Electrical Engineering degree, Mr. Sow formed a commercial enterprise, which continued to manufacture the energy kiosks and then rented them out to suitable entrepreneurs. Thus was the beginning of MicroSow's focus of providing alternative sources of energy to rural communities. Since its inception, MicroSow has grown to an enterprise that currently employs 16 staff. It rents the kiosks it manufactures to franchisees and install solar panels in several schools, health care centers, and local communities. Franchisees are local entrepreneurs that deploy the kiosks in their rural communities and pay a premium to the enterprise.

How it has grown/current status/future prospects

MicroSow has experienced annual growth since its inception from a business run by an individual to a commercial enterprise with 14 employees. The business is currently worth between 200 to 300 million FCFA (about \$400,000 to \$600,000 USD), over 1000 per cent increase from its initial capital investment of 3 million FCFA (about \$6,000). Over 100 schools and 30 health centres benefit from the power generated by Nafore and AfriSolar Kiosks. With each school having between 400 to 600 students, MicroSow's solar rural electrification programme directly benefits more than 40,000 students. It is difficult to quantify the number of patients that visit the health centres and if they could be classified as direct beneficiaries. However, these centres cater to pregnant women thus extending its services to women and infants. Collateral beneficiaries, those who do not have these kiosks installed in their schools or villages often walk to schools and communities where they have been adapted to provide light in order to study. Likewise, parents of children tend to schedule community meetings and discussions around the evenings so that they could benefit from the electricity. Further, adult literacy classes are now held when they are most convenient and no longer limited to daylight.

MicroSow intends to provide electricity specifically to rural communities where it has the greatest impact. MicroSow has remained committed to creating access to renewable sources for a majority of the poor rural lower class peoples at a rate that is affordable. This community approach of sharing resources among a larger number of individuals makes this possible and the venture more worthwhile.

Social, environmental and economic benefits and outcomes

- a. **Social:** Kiosks are installed in communities characterized by significant changes in communication needs in recent times. The increasing rate of rural to urban migration is one challenge that threatens the social fabric of the rural communities, which can be mitigated through access to cell phones. But cell phones must be recharged, and this becomes problematic in off-grid villages. The project has provided an efficient way for family members to keep their cell phones charged through the kiosks and to stay in touch, check on each other's welfare, and receive and share news and information. It has contributed in addressing some of the health related challenges when phones charged using the kiosks have been used to call the hospital or ambulance for medical attention.
- b. **Environmental:** Nafore and AfriSolar Kiosks generate power without making use of fossil fuel or other non-renewable sources of energy. The enterprise has remained committed to providing only solar energy.
- c. **Economic:** For every kiosk deployed, at least one person and 5 other (spouse and at least 4 children) immediate family members directly benefit from the installation. The revenue generated supports their upkeep such as grocery and schools fees. An installation typically generates well above the poverty line of at least \$2 a day defined by the

World Bank. The kiosks provide employment to its owners. Further, rural farmers have been able to determine market prices of goods and as a result appropriately pricing their produce for sale in the urban markets when they communicate with their urban counterparts and family members.

Mapping MicroSow's stakeholders

MicroSow defines its stakeholders either as franchisees, those who rent the kiosks; organisations and communities that benefit from solar panel installations, or business partners, those who provide technical and financial assistance to it.

Franchisees are further categorized into establishments, such as schools and health centres where the kiosks are installed, and entrepreneurs that rent the kiosks, set up local businesses, use them to recharge community phones for a small fee, and pay MicroSow a premium. MicroSow's business plan is based on this franchising model.

Table 3: Stakeholder Mapping

Type of Stakeholders	Organisation Name/Quantity
Clients	
Schools	Between 100 and 120
Health Centers	30
Franchisees	28 (2009 figures). Current figures unavailable.
Organisations	10 NGOs that are clients to MicroSow's solar panel installations. Embassies (un-quantified) that benefit from solar panel installations.
NGO partners	
AfriSolar	A pan-African international NGO that aims to contribute to poverty reduction by fostering the use of renewable sources of energy on the African continent. It also allows MicroSow to participate in international conferences on renewables where it networks with others and builds its capacities on new solar and renewable technologies.
SEWA e.V.	An international NGO working closely with local communities and authorities in Burkina Faso to provide renewable energy to rural schools and medical centres.
Technical and commercial Partners	
Names not provided	Several providers of parts and solar products based in the UK, Germany, the US and Canada
ERM Foundation	Provided financial investments to AfriSolar and MicroSow to create the kiosks and to distribute them.

MicroSow's business partners are from the UK, Germany, The Netherlands and Canada, from which it receives technical assistance; for example, SEWA e.V. which helps it in maintaining high quality and long term contacts with local agents; or its Canadian companies from where it procures components such as battery parts and its German and partners where it procures solar panels. Partners such as ERM Foundation provide it with loans in order for MicroSow to produce more kiosks that could help it achieve some of the objectives defined in its four-year business plan. MicroSow currently does not partner with the government because initial attempts to establish relationships did not yield any positive outcomes.

Success factors

- a. **MicroSow's technical qualifications:** The Electrical Engineering academic qualification of MicroSow's proprietor is the single most important factor that has substantially contributed to the enterprise's success. In comparison to other technical service providers who provide similar services, MicroSow has been able to use this qualification both as an advertisement for its ability to provide quality service, and its technical knowledge in the service it provides. This gives it an edge over others as a "provider of good quality service" in a country where "everyone wants to do everything but in reality, nothing

gets done” (interview with Mr. Sow). For the enterprise’s competitors, knowledge is a barrier, especially when depth is required. Over the years, MicroSow has also perfected its profession and continues to improve it.

b. Advertisement by word of mouth: MicroSow’s popularity has been propagated mostly by word of mouth using the aforementioned qualification and service history as its key message.

c. Winning the SEED Award: In 2009 MicroSow received SEED support for the creation of a four-year business plan targeted at the scaling up of its activities and to addressing its immediate needs (See table 4, to follow). In addition, the SEED Award provided:

- training in management
- establishment of connections to potential partners such as the ERM Low Carbon Foundation.
- advertisement and promotion through the SEED Website
- finding new partners through participation in industrial fairs

Table 4: Scaling up activities and immediate needs addressed by the SEED Award

Scaling up activities

- Answer the growing demand for the Nafore (charging stations)
- Provide 72,000 rural dwellers and small businesses with access to the services through a network of 200 franchisees
- Extend the franchise model to a more complex model of energy kiosks
- Cover wide range of sustainable energy services tailored to existing and upcoming demand in local and regional markets
- Define services to be offered by the Energy Kiosks by involving local communities.

Immediate needs

- External support to develop and disseminate new products
- Assistance in acquiring technical know-how and the means to implement it
- Training about maintenance and management of the kiosks
- Assistance in networking to manufacturers of solar components
- Financial support to allow next phase of scale-up.

Source: www.seedinit.org/index.php?option=com_mtree&task=att_download&link_id=65&cf_id=42

The revenue model described in the business plan is based on a system of franchising through renting the kiosks to entrepreneurs in the local communities. Over four years, 192 stations would be rented out to 583 franchises that would have generated about \$234,720,000 (table 5). MicroSow has been unable to access the funds from local financial institutions as indicated in this plan; making it impossible for it to achieve the goals defined therein. However, the plan does provide clearly defined and achievable growth objectives which are achievable when access to financial resources become available.

Table 5: Revenue Model for MicroSow’s Kiosk

	Dec-11	% Annual Growth	Dec-12	% Annual Growth	Dec-13	% Annual Growth	Dec-14	% Annual Growth
Units rented	247	0	295	19%	391	33%	583	49%
Total	\$112,920,000	28%	\$130,320,000	15%	\$165,120,000	27%	\$234,720,000	42%
Annual Total	\$112,920,000		\$130,320,000		\$165,120,000		\$234,720,000	

Challenges and how they have been met

- a. **Access to financial resources to expand the business:** The major barriers for MicroSow are access to loans and investments. For instance, since 2006 and prior to winning the award in 2009 access to funds from local banks and financial institutions was impossible to acquire. Attempts have been made to seek loans using the business plan but the enterprise does not have the necessary sureties or securities that it can use to guarantee these loans.
- b. **Inability to stock parts and ready-to-deploy kiosks:** As a result of its inability to secure funding, it has been unable to maintain a local stock of parts and materials that it can use as needed to repair or assemble kiosks. Thus, the enterprise remains stagnant, assembling only to meet demand. For example, one recent client who had lost the battery cells for his personal solar panel installations was unable to quickly replace them. It took MicroSow six weeks to airfreight the 3-cell battery from a Canadian manufacturer through a US-based supplier at a cost of \$846 and an additional cost of \$840 for airfreight. With sufficient capital, MicroSow would have been able to stock these batteries and other supplies which would have been delivered via less expensive shipment thus cutting down its cost by close to \$600, and contribute in providing services to this client in a more timely and efficiently manner. In trying to overcome this challenge, MicroSow has explored options on how to best address the issue of maintaining local stock with its partners who are suppliers. However, none of this has yielded any positive response because the suppliers are mostly interested in the revenue they can generate from the sales of these parts.
- c. **Challenges in achieving organisational objective:** Due to financial and other constraints MicroSow's biggest challenge is in providing and distributing the kiosks and making power available at a cost that is affordable to the local communities that MicroSow intends to serve.

Current needs/types of support the enterprise requires now

- a. **Funding to develop the business, research and innovate:** MicroSow has indicated that its most pressing needs is access to financial support that it requires to install kiosks, stock them and maintain a supply of parts that are needed for on-demand service or repairs. Access to a loan facility will enable it accomplish the goals as defined in its business plan.

MicroSow also intends to innovate, and its inability to access funds for research and development makes this impossible.

- b. **Capacity building:** MicroSow also needs training to support current employees and franchisees in its enterprise and to meet the training demands of future employees and franchisees. This support may come in the form of a centralized training facility where a trainer from one of its partner institutions can build the capacity of staff locally on modern solar technologies; or internationally allowing them sufficient time such as one month to a year in order to grasp the new technologies that are used in their partner's countries.

Lessons Learned from the MicroSow Case Study

- a. Support for research and development is required to advance the use of alternative energy systems for local communities, including both off-grid villages and those with limited and unreliable power from the grid. With sufficient support for research and development, MicroSow would have been able to adapt solar technologies to meet very specific community and individual needs. As Mr. Sow suggested, "there should be the possibility to support smaller applications of solar energy to meet the commensurate demands of those who need them".

- b.** The role of government subsidies: Not all the members of the community can afford solar technology or afford the kiosks. The business plan did not consider carefully enough the limited ability of its target market to acquire the kiosks out-right or through the franchising scheme. Subsidies may be required to enable MicroSow's market to acquire the kiosks.
- c.** Alternative ways to secure loans and investments to expand operations are needed: Even with proven market potential and competent business plans, micro and small social and environmental enterprises need capital to grow. MicroSow's local financial institutions required a surety or a guarantee before loaning the funds for the enterprise to expand the number of installations and to build up a parts and service department. However, like many micro enterprises, MicroSow does not have any assets or resources to provide such loan guarantees.

References

Nafore and Afrisolar Business Plan (internal document)

Websites Consulted

- MicroSow home page: <http://www.microsow.com/>

Interviews

- Souleymane Sow – founder of MicroSow