

BEST PRACTICES ON DECENTRALISED RENEWABLE ENERGY

Introduction

The best practices¹ show how actors—SELCO India, Schneider Electric, and the Kenyan, Dutch and Nepalese governments—have contributed to the increase of energy access with decentralised renewable energy (DRE) and what measures were taken to deliver the results. Since the methods vary, the best practices cover a variety of solutions, ranging from financial investments to the involvement of diverse stakeholders.

Best Practices

1. SELCO India: *Meeting the financial realities of DRE customers*

About: SELCO India started in the early 1990s and is a pioneer around the concept of using an enterprise approach to solve energy poverty for the poor particularly in India. The company started as a solar light business, selling from 12 watt to 200 watt solar lights. They sell their products mainly to families, small businesses, communities, offering combinations of different light systems depending on needs. Over the years SELCO India has introduced water heaters, larger lighting designs for social welfare institutes such as hospitals and orphanages, and non-lighting systems powered by solar, including sewing machine motors.

Approach and insights:

- Blending the three aspects of technology, finance and suitable **delivery models** to provide a long-term solution is crucial. And the **delivery mechanism** has to be consistent with the needs and financial reality of the end user. You can have a great product but if you have no way of servicing it, it will fail.
- In delivering DRE, one of the key ways to enhance product/solution affordability for customers is to tap into **local financing** as a means to unlock cash flow-based financial models for customers. We matched needs to solutions, designed solutions that added value to the end user such that it increased expendable incomes, and developed cash flow-based financing among others in order to ensure that financing solutions we provided didn't drive our clients into more poverty. Cracking the financing space for the poor has been a critical aspect of our model, as local communities have their own ways of that are trusted and work.
- SELCO started by identifying a **champion banker** in their networks who signed an agreement with them to create consumer financing for solar products. You need to have **first movers** who understand the field.
- **Other financiers** could be cooperatives societies which are flexible, or community organisations, MFIs, commercial banks, independent self-help groups in villages—these are all very useful in rural areas where people live far away from financial institutions. It is about tailoring to the cash flow of the end user. Through SELCO's interventions more people are getting financial services that otherwise never would have had any access. Related benefits

¹ The best practices document is composed as a background document that gives a quick overview of approaches and lessons learned by SELCO India, Schneider Electric, and the Kenyan, Dutch and Nepalese governments in achieving access through decentralised renewable energy solutions.

include: improved practice of saving, better financial planning, and an increased capability to earn a living.

- SELCO has **dedicated staff members who build relationships** with financial institutions and local financiers. It circles back to local connections, as it is so important to have people from the areas who are invested in the communities themselves.
- Another strategy is to have **ex financial experts to be part of the team**, as sometimes when a banker hears it from another former banker or expert, they are more accepting of the models being proposed.
- SELCO also conducted a lot of **workshops and capacity building** with senior members of financing institutions because many banks didn't understand what the energy proposals entailed.
- It is important to work **through the policy- and decision- makers (i.e. senior managers) in banks** who make the lending policies. SELCO succeeded in getting them to create new solar lighting financing schemes.
- It proves more successful to work at a decentralised policy level at individual banks or associations, rather than at the national policy level. SELCO felt it was possible to **demonstrate successes first at a micro level** which can then be adopted at a national level as part of a wider reach (i.e. begin at village level and work up to the national ministry).
- SELCO went to banks and asked if the **loans—with preferential interest rates** offered to rural and slum households—could be used for energy products, so they could use social-inclusive schemes.
- You have to be a bit **creative**, sometimes borrowing concepts from other sectors. Every country will have certain sectors that are supported by the government and we can learn from them.

2. Schneider Electric: *Vocational training and a new delivery model*

About: Schneider Electric launched an Access to Energy programme that focuses on three activities: investing in start-ups and SMEs via impact investing funds; designing and commercially deploying adequate energy access products and solutions; and supporting the creation of training projects in electricity trades and in entrepreneurship for disadvantaged youth partnering with local organisations. The programme supports different means for energy uptake and enables Schneider Electric to leverage financing business models and build local competencies and skills.

Approach and insights:

- Schneider's first step is to **find a local partner** that is mission-driven and shares the willingness to build projects and partnership, and is able to launch and run a training course in the electricity trade. This might be NGOs, training centres, and sometimes universities and national ministries of education.
- After establishing joint commitments, Schneider **build the curriculum and key materials**, to make sure there will be enough practical courses beyond just theoretical ones, to guarantee that all the local partners have what they need. They **also provide equipment** to re-equip the educational establishments and **train their trainers**. So far they have close to 70 partners across 30 plus countries –more than 100 projects running and have trained more than 130,000 students.
- Schneider ensures **partners have their own budgets**, so that they are not only dependent on them.

- **90-95% of times the courses are free of cost** and the students are recruited by the local partners that are already embedded in local communities.
- In **India**, there is a lot of **potential for upscaling**. Sometimes partners come to Schneider, sometimes they find them to discuss these projects. India is a country where Schneider has replicated a lot –they have several partners that help to run the centres.
- Some **trainings** are shorter and focus on delivering basic skills on residential and commercial electrification that last 4-6 months. Some programmes last 1-3 years for senior technicians, and in this case Schneider **will try to link to a diploma to be recognised locally**.
- Schneider developed **entrepreneurship trainings** because some students were asking for support to start their own business.
- They are working on a **new model** that could be a good solution for advancing rural electrification and universal access. Their partner in **Benin** is importing **solar lanterns and Solar Home Systems** that can be **distributed via post offices** across the country. The Green Post project offers energy services to rural customers including green micro-credits. Schneider has helped with the training of the post office managers who are responsible for raising awareness of this offer among customers. So far the project has been deployed in over 200 post offices. Schneider has supported other activities such as promoting on community radios, thus increasing the distribution geographical footprint.
- Another positive component is the **subsidy scheme** set up by the ProMaBiP – a Result Based Finance programme developed by EnDev – which subsidises the import duties on the solar products that are being imported to make it cheaper for customers.

3. Republic of Kenya: *Multi-stakeholder involvement for off-grid clean energy access*

About: Kenya's energy strategy is to achieve universal clean energy access by 2020. The government is extending the grid, but where it cannot reach, it is promoting off-grid solutions. To move to an off-grid system, the country needs to be able to provide energy closer to rural areas using various means including mini-grids and micro-grids, as well as household scale lighting and cooking products.

Approach and insights:

- A lot of activities are focused on the **innovative photovoltaic (PV) market and using a mobile payment system**. This is a financing system that is done via mobile phones, which means that consumers of solar products can collect credits and pay via mobile phones. Rural populations that are far away from the national grid and banks, can have easy access to solar PV products for cooking, lighting as well as charging their phones. The Solar PV programme has reached over 1 million people in Kenya, Tanzania and Uganda. Kenya alone has reached almost 500,000 consumers through pay as you go systems.
- Since 2008, the government has had regular **inter-ministerial meetings which are attended by various stakeholders** including Government agencies, NGOs, manufacturers and financiers.
- NGOs have helped by supporting awareness around the potential of PV and educating consumers. **NGOs are the critical bridge to the local communities and financing institutions**. For instance they help to support communities by organising field days around the off-grid energy systems. In these forums they speak about the available solar PV products, and where and how consumers can access the products and financing.
- Private entrepreneurs and the manufacturers and retailers, are key in getting the products to the consumers. Solar development and dissemination in Kenya has been very well driven by the

private sector. The use of micro financing has developed **innovative financing funds, mix of both foreign banks and local finance institutions**. Various private companies, such as MKOPA have come with their own financing systems **such as pay as you go (PAYG)**, assisting many rural people by providing credits paid by via mobile phones. Other **progressive business models** include direct cash sales and mobile-aided credit delivery systems.

- **Initially the solar products were subsidised by the government** to ensure that micro-financing institutions charged lower rates making products accessible to the low income rural households. Under the PAYG scheme for solar home systems, the consumer was required to pay \$35 upfront and the balance to be repaid via their mobile phones.
- In the instances where the consumer could not afford the upfront initial payment, the government provided **soft credits** to enable the consumer to receive the product and pay in affordable instalments via their mobile phones.
- **Policies** have also been central to the success of the governments' solar strategy. Public sector institutions and various Ministries, including the Ministry of Energy, have drawn up strategies and policies to respond to the energy sector's changing needs. These include **fiscal incentives** as well as the issue of regulation, to make sure that the products entering the market are meeting **prescribed standards** so that consumers are obtaining **quality products**. Policies to stimulate the uptake of Solar PV include the **removal of taxes** (i.e. VAT and import duties), to make products more affordable for consumers.
- When products perform poorly, the technology can get a bad reputation, which in turn gives a negative signal to consumers. Hence there is a need for products to meet certain standards so the technology maintains a positive perception, **encouraging accelerated adoption**.
- **Standards and regulations** have also been prepared to **counter the emergence of counterfeit products**. The Ministry has done this together with the Kenya Bureau of Standards. The enforcement of the standards is done at the import inlets. Where possible, staff test products on a sample basis to determine their conformity to the standards and to identify counterfeits. Other times, the government receives **complaints from consumers** about poor product performance which then triggers the process of verifying claims and detecting whether there are counterfeits. They then subsequently order those responsible importers to remove the products from the market. The Energy Regulatory Commission has formulated and issued solar PV guidelines, which among other things, requires the regular use of standards and **labelling of products**.
- To **overcome the challenge of insufficient technical support** (quality and # of technicians able to install products), they hold training sessions for technicians via the regional Energy Centres. On-the-job training was covered systems sizing and maintenance for example. These trainings were, and still are, provided by government **free of charge**.
- The government has also set up programmes that offer **technical assistance** to support innovative entrepreneurs and business start-ups operating throughout the solar PV market value chain. The technical support is provided by government agencies, academia and other institutions.

4. The Netherlands: *Supporting energy access through dedicated multilateral funds*

About: The Dutch government's goal is to expand energy access to 50 million people or more by 2030. They have observed that the majority of energy projects focus on larger projects, such as central power plants and grid development, and that it has been difficult to include decentralised energy access. This is what they are seeking to change.

Approach and insights:

- The Dutch government has **mobilised field capacity via GIZ which has a network in a lot of countries**. They started **EnDev**, which is the biggest bottom-up programme, and have channelled money through GIZ (and later on other organisations) to see if field offices could develop meaningful energy access projects. This became a family of 26 countries, with a programme that was run in 3 phases with funding of EUR 200 million. They grew this as a multi-donor partnership for the last two phases. Through the first projects, **new markets were seeded, and capacity was built via organisations like EnDev, Hivos and SNV**.
- The **private sector** got involved by first opening a call for proposals under the RVO Daey Ouwens Fund to pioneer work around i.e. solar home systems. With FMO (Dutch Development Bank) the government set up the **Access to Energy Fund**, with the aim to cover the financing needs of private renewable energy projects. With the second strategy they saw that companies could be engaged in a market context and could scale up and attract investment and pilot new business models and innovation. The **involvement of the multilateral development banks succeeded in further scaling up energy access** efforts to the level of national government policy and investments. **Lighting Africa** for instance played an important role in strengthening the regulatory environment for solar lanterns.
- A third focus was to **support the multilateral development banks in the greening of their energy portfolios**. Work by AfDB and ADB was supported and had most success with the cooperation with the World Bank Group in ESMAP, ASTAE and AFREA. With IFC the government supported, for example, Lighting Africa/Lighting Global and Scaling Solar.
- **Engaging with all stakeholders is key if you want energy access to reach impact at scale**. The starting point is that energy access should be sustainable; you should not give things away for free. **Local ownership** is very important, especially with end-users and last mile entrepreneurs. There is a **hierarchy of stakeholders**: key ones include local field-based entrepreneurs and customers centred around markets in the field. The commercial markets can be supported by programmes and NGOs, supplied by international business, and funded and provided with policy support at the government level. What can be seen is that if you only had one of those elements, programmes would not get off the ground.
- Everybody should **go into the field** before starting an intervention to know how the market is being supported, talk directly to the customers and last mile entrepreneurs to **understand their realities**. Having an **open multi-stakeholder platform** is important to not upset fragile markets. An open mind, a listening ear and understanding and respecting local expertise and insights of customers and businesses, help create a good intervention. Policy makers cannot think out of an ivory tower—they must understand the challenges of the marketplace to have a meaningful impact.
- In our current policy, the government targets **exponential growth** to make sure that each year they are 7% more effective than the year before.

5. Nepal: Mobilising the government of Nepal through a multi-stakeholder approach in achieving universal access to energy by 2022.

About: The Nepalese Alternative Energy Promotion Centre (AEPC), an independent government entity, aims to make renewable energy mainstream through increased access, knowledge and adaptability contributing for the improved living conditions of people in Nepal. Their mission is to enable the transition to renewable energy by supporting the delivery of cost-effective, sustainable renewable energy to all. AEPC is shifting towards using credit, and replacing the subsidy gradually. For this, they

are focusing on mobilising the private sector banks in financing the projects which are reluctant to invest in rural areas where they feel their investment will not be recovered. AEPC acts as a national focal agency for promoting renewable energy, they collaborate with the ministry, national, bilateral, multilateral, regional, and global partners to achieve its objectives and plans.

Approach and insights:

- Over the last 2 years, AEPC has introduced a **new model** to engage the private sector to invest in rural projects, entailing creating a micro-utility at local level. They do not put projects out to tender such as for micro-hydro and solar mini-grids or biomass projects, but **rather auction off projects** in areas that need energy. The idea is to go to the field where there is already energy demand, then to build micro-utilities that are financed by the private sector—they refer to this as the **Energy Service Company (ESCO) model**.
- By establishing a **mini-utility at local level**, AEPC wants to attract energy service companies to invest, and run the project—the majority of the shares are owned by the private company. The energy generated is then sold to those micro-utility areas to make profit. The energy can be used for **lighting as well as for other power needs for productive end-uses**. This model **reduces the dependency on subsidies** that AEPC provides. The private investors make money out of this selling to the local communities and businesses. AEPC asks the company to auction how much they will charge for energy generation to generate funds from local consumers.
- The **tariff for the energy is decided by the stakeholders including local community** but it should not be more than the tariff of the state utility.
- AEPC is trying to motivate commercial banks (to provide loans in rural areas) by other means, via **risk sharing between us and the bank** and by providing technical assistance.
- For off-grid energy services, they attract private Nepalese companies by publishing advertisement notices in different media.
- To ensure the best available technology is used for the right geographic location, AEPC **helps to identify the energy source best suited and best available for the particular community**, using technical expertise, standards, guidelines, and project assessment capacities based on economic, social and environmental requirements. They introduced this new concept of “**Best Available Technology (BAT)**”. Once it is successful, AEPC will upscale in a bigger way.
- By the government giving responsibility to AEPC to help plan and implement energy solutions for the areas that are not/will not be served by the grid, helps to **provide local solutions for rural areas**, rather than if it were planned from the central level. AEPC is able to support climate-sensitive energy planning that **mainstreams the Gender Equality and Social Inclusion (GESI)**.
- AEPC is focusing more on how to **synchronise the implementation between on-grid and off-grid**. To achieve this, they are in regular coordination with respective government ministries as well as the national electricity utility. They have signed an **agreement to connect mini/micro electricity grid to the national grid** wherever possible. Their focus is to join the off-grid projects to the national grid for the sustainability of the projects.
- AEPC also supports **building the capacity of the local people** as well as helping to secure the finance and using the correct model for the communities in needs.