

Public private partnerships for accessing electricity in rural areas

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Introduction

Energy for Sustainable Development (ESD) Ltd has recently co-ordinated work in Ethiopia, Nepal, Sri Lanka and Uganda to investigate how public-private partnerships can lead to affordable electricity for the poor both at a community and household level in rural areas. This innovative study, funded by The UK Government Department for International Development, sought to resolve the following questions:

- How can development efforts widen access to electricity on a sustainable basis?
- How do livelihood impacts of electricity reach down to the poorest in society?
- What are the different roles for both private and public entities in achieving this?

Over a period of eighteen months, in the four project countries, the Partnerships for Access to Community Electricity (PACE) project has examined what has happened in a number of rural villages that have been electrified in the last 10 years or so. The work only looked at electricity as one of a number of energy services, and involved studies at village level to find ways of maximizing the benefits of electricity access. The study also involved interviews with the principal actors in national government and the private sector to determine the social and political framework in which public-private partnerships could operate most successfully in bringing benefits to the poor.

Background

Over the last 50 years, and particularly since the late 1980s, there has been a general global trend towards the private sector delivery of services that

had traditionally been delivered by governments. Although service improvements have been apparent in many sectors such as telecommunications, the electricity sector in developing countries presents developers with a new set of challenges. This is mainly due to the presence of large rural populations that are far from the grid, and to a relatively limited ability of those communities to pay for the service. Some of these issues are being addressed by the nature of decentralised generation, and by innovative ways of paying for electricity.

Another challenge is that the private sector will tend to target wealthier households, ignoring the poorest, most vulnerable parts of the population. Where there is a public-private partnership, the government, especially through the social agendas of local authorities, can focus on people's wellbeing and reduce this problem. Thus partnerships have an important role to play in addressing the concerns of both public and private entities engaged in financially viable electrification projects for the poorest rural communities.

Surveys on electrification projects

The project team surveyed a set of electrification projects owned: privately; by communities; and by local authorities. These included:

- diesel off grid generators;
- micro-hydro schemes; and
- solar photovoltaics (PV) home systems.

Information was collected about both successful and unsuccessful activities, and their impacts on livelihoods were measured through collection of primary research data. Livelihood impacts of the projects were compiled from interviews with consumers (both household and institutional) who were asked to provide feedback about how the introduction of electricity had affected their lives. Table 1 shows a summary of the projects surveyed, with a rating of their sustainability and their impacts on people's livelihood.

This categorisation was based on an assessment of each project in terms of access to electricity (direct and

Table 1 Summary of case studies carried out

	Livelihood benefits	Sustainability
ETHIOPIA		
Private diesel off-grid, Bonna Municipality	X	X
Owned diesel off-grid, Bonosha Municipality	X	X
Community owned off-grid micro-hydro, Yaye	XXX	XX
NEPAL		
Micro hydro scheme, Ghandruk	XXX	XXX
Small hydropower, Tehrathum	XXX	XXX
SRI LANKA		
Micro-hydro in Hettikanda and Athulauda Villages	XXX	XXX
Solar PV home systems, Uva Province	XX	XXX
UGANDA		
Mini-grid from diesel Genset, Magale Village	XX	X
Micro hydro system, Kisiizi	XXX	XXX

[KEY: X – weak, XX – medium, XXX strong]

indirect) and performance of the system (reliability, safety, etc.). These two characteristics must be considered jointly. Otherwise, even when projects deliver wide access to electricity, this can be counteracted by a project's overall failure.

The **sustainability** of the projects in the case studies was measured in terms of whether the projects were able to attract sufficient revenues to ensure that systems were well-maintained. Issues such as mismanagement leading to mistrust and thus failure to pay, or customer withdrawal as a result of an unreliable electricity supply.

Measurement of **livelihood impacts** was based on levels of access to electricity, taking into account both the uses of electricity and the numbers served. Those projects which received a high rating in terms of livelihood benefits were those that were able to supply electricity for communal use, such as for hospitals, schools and income-generating activities, rather than those that were restricted to the supply of electricity for lighting to a limited number of homes.

Lessons learnt

Among the projects analysed, the most successful case studies were those with a good balance of public and private partners since their inception. Both private and public entities have specific roles to play in delivering electricity. For example, the planned expansion of the micro hydropower plant in Kisiizi, Uganda (Box 1) sees the involvement of numerous partners including the Uganda Government, multilateral organisations like the Global Environment Facility (GEF), the local community and the private sector through the Kisiizi Power Company. Local authorities too, can play a leadership role in mobilising communities for sustainable energy planning, financially supporting projects that deliver social benefits, and monitoring private sector service delivery. This was seen in the case of Sri Lanka – Uva Provincial Council (Box 2). This helps to avoid the situation that arose in Bonna town, in Ethiopia (Box 3) where poor service delivery from the private sector led to mistrust and disillusionment of the community.

Box 1 Uganda – Strong public private partnerships can enhance project success

The Kisiizi Power Company, which is a partnership between the local community, the hospital, government and donors has attracted much interest and support from the different stakeholders, and is likely to be one of the first companies to receive a subsidy from the Uganda Energy for Rural Transformation (ERT) programme.

The company aims to upgrade the current 60KW capacity hydropower plant to 294KW so that there is enough electricity to supply the Kisiizi Hospital and the village community. Regular supplies of electricity are expected to accelerate development of local businesses. 194 small businesses will benefit from the micro hydropower upgrade, including milk and food processing, wood working and welding.

Box 2 Sri Lanka – The role of local planning in ensuring wide access

Uva Provincial Council has initiated an active solar home system programme but recognises that there are limitations for livelihood improvement. For this reason, the Council is also undertaking a strategic plan to assess local hydro, wind and biomass resources and identify potential sites for further electrification projects.

Combining the technical aspects of planning with consultation work on local needs and aspirations will be an important step to identifying appropriate systems that respond to the needs of individual communities.

In some cases, solar home systems prove to be the adequate way of meeting local energy requirements, whilst in other communities the need to improve education, health or employment opportunities may justify additional investment in higher capacity systems to bring electricity to schools, hospitals and local businesses.

A sustainable planning process is the first step in ensuring that the benefits of electrification reach the poorest in communities. Figure 1 shows a PV panel on the roof of a private house roof in Uva Province.



Figure 1 Solar panel on house roof, Uva Province, Sri Lanka

Box 3 Ethiopia – Lack of access to information can make finance availability purposeless

Bonna town is located in southern Ethiopia (Figure 2) and has little prospects of getting connected to the national grid due to its remoteness. Almost US\$18,000 was raised by the local population in the hope to finance a local electrification programme. Nine years down the line and the local community has not been able to make use of the money because of limited access to information on how to proceed. Despite this a short term solution was found when a local business man agreed to electrify Bonna using his privately owned diesel genset.

The people connected complain of the poor standards of the service they receive as well as of the lack of transparency in the way the tariffs are set. Although the original tariff was set in conjunction with the community at US\$1.4 per light bulb, the genset owner has subsequently almost doubled it without consulting its clients. Despite the involvement of both public and private sector the electrification process has mainly been dominated by the private party, leading to a very unsatisfactory situation for all, especially because the electricity available is barely enough to power light bulbs and nothing else.

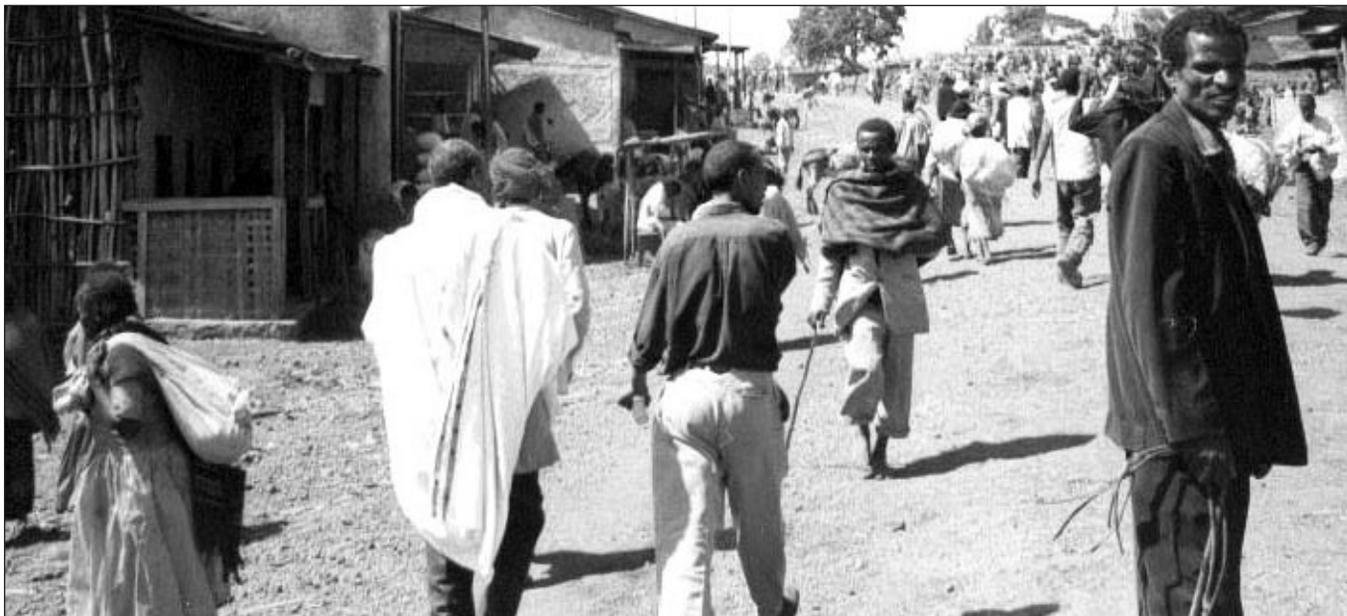


Figure 2 Street in Bonna town, Ethiopia

Other lessons include:

- Projects must first be sustainable before they can deliver significant livelihood benefits;
- Adequate planning is required if the economic and social benefits of electricity are to be maximised. Planners need to be aware that demand for electricity rapidly increases as users become more accustomed to the range of possible uses.
- Electricity can alleviate the pressure on local forestry resources for cooking and heating water. However, the shift from biomass to electricity must be supported by efforts to promote the appropriate end use technologies – described in Box 4;
- There needs to be a clear policy for rural electrification at country level to set common standards and regulations. A policy of ‘light-handed regulation’ (where the regulator leaves much of the decision-making powers to local authorities, and/or designated agencies etc.), would ease the uptake of rural electrification projects;
- A co-ordinated effort is required at national level to make rural electrification projects financially viable and thus able to attract private investors;
- Donors and other institutions should specify pro-poor measures when funding electrification projects. They should also support specific flagship projects that include public-private partnerships

that could be models for further replication.

International lessons

In addition to valuable country-specific lessons, by working in four such diverse countries as Ethiopia, Nepal, Sri Lanka and Uganda, the project team could identify some issues with trans-national implications.

- Key to a successful rural electrification programme is the political and administrative power of local authorities and their capacity to engage developers and investors. Increasingly public-private partnerships that develop are no longer initiated at national level, but increasingly at a local authority level.
- The most significant livelihood benefits were in projects that provided electricity for institutional and commercial use as well as to households, e.g. in the case of Yaye, Ethiopia – rather than limited to household electricity only.

This project has produced material that includes a set of useful case studies and a guidelines document entitled: ‘Partnerships for Community Electricity: Policy Guidelines’ (Dec 2003)

For more information see: <http://pace.energyprojects.net>

Box 4: Nepal – Strong institutional support made all the difference alongside community efforts

Electrification of Ghandruk village in Nepal was spearheaded by the NGO Annapurna Area Conservation Project (ACAP) which joined hands with local leaders in 1990 to mobilise financial resources for the construction of a 50KW hydropower plant. The organisation gave the community a loan for the project, and also provided training in the design and management of electricity projects. In general, ACAP provided technical, financial and administrative assistance to the project, and also contracted a resident engineer for two years to assist people when utilising electricity for cooking.

Apart from improving quality of life through providing private customers with electricity for cooking and water heating as well as lighting, the project was expected to boost ACAP’s efforts to combine tourism with sustainable resource management through reducing fuel wood consumption by tourists. Commercial users, especially hotels and restaurants were able to improve their services thanks to water heating and the use of low wattage electricity cookers which were promoted by ITDG.