

PACE

Public Private Partnerships for Access to Community Electricity

Case Studies: Micro Hydro System, Kisiizi, Uganda

Background

Kisiizi is a small rural village based in Rukungiri District, south western Uganda. Located 30km away from the national electricity grid, the village's most important feature is a hospital which was constructed in 1958. The hospital is owned by the Church of Uganda Diocese of North Kigezi, and is one of Uganda's most important rural health centers, serving about 150,000 people directly, and over half a million in its catchment area. It obtained its first main electricity supply in 1963 when a small 7.5 kVA hydropower plant was constructed. In the 1980s the hospital upgraded to a 60kW hydroelectric plant which remains the hospital's only source of electricity.

The micro hydropower plant was constructed by a British firm called Gilkes, and was funded by a UK-based non-governmental organization, Tear Fund. It serves the hospital, staff houses, a school and a grinding mill. However, over the years demand from both the hospital and staff members increased tremendously which required the hospital to ration supply in order to limit the load on the hydropower facility.



A ward in the Kisiizi hospital (Photo from Kisiizi hospital website)

With time, load shedding became the order of the day. A UK-based company, Econnect, was contracted to install a load management system which automatically disconnects a user when overloaded. This helps prevent the hydropower plant from breaking down. The hospital management also

advised against the use of heavy electric items such as cookers and kettles. The rest of the community in Kisiizi does not have electricity, as the original supplies were designed for the hospital, which serves the entire community. This will change with the planned expansion of the micro hydropower plant with the Uganda Energy for Rural Transformation (ERT) technical and financial support. The expansion will increase capacity to nearly 300 kW through the establishment of Kisiizi Power Company (KPC), a joint venture of the Hospital and the Diocese. KPC will build, own and operate (BOO) the entire system, and eventually sell to some 800 customers outside the Hospital in the area. The new investment will enable the hospital to meet its increasing electricity demand, and help the rest of the surrounding community to accelerate development.

Financing

Financing for the construction of the micro hydropower plant in the 1980s was by a UK-based NGO, Tear Fund. But finances for the planned expansion of the hydropower plant will be financed by multiple partners including commercial banks, the hospital itself, the community and donors. The hospital plans to take advantage of the World Bank funded ERT program which is a private sector-led project supported by the Uganda Government and donors.

Public-Private Partnerships

While the initial successful electrification of Kisiizi Hospital involved only a few players, the planned expansion of the plant will see the involvement of numerous partners including the Uganda Government through the Ministry of Energy and Mineral Development (MEMD), multilateral organizations including the World Bank and the Global Environment Facility (GEF), the local community, at least one commercial bank, and the private sector through the Kisiizi Power Company.

The table below is a brief summary of the partners that are involved in the project to expand the Kisiizi hydroelectric plant and the sectors they represent.

Table 1: Table showing partners in the Kisiizi hydropower plant expansion project

PARTNER / ACTOR	SECTOR
Ministry of Energy & Mineral Development	Public sector
The World Bank	Donor
Global Environment Facility	Donor
Kisiizi Power Company	Private sector
Commercial Banks	Private sector
Kisiizi residents	Community

Access to Electricity

Livelihood benefits – Direct Consumers

The livelihood benefits of electrification to the Kisiizi community have mainly been through the marked improvement in the services that the hospital offers. Uncharacteristic of most rural hospitals, Kisiizi offers a diversity of services to the community including immunisation, maternity, surgery, dentistry, HIV/AIDS prevention and treatment, and psychiatric services. Kisiizi Hospital has one of the developing world's most innovative rural health insurance schemes with over 9,000 rural Ugandan members covered by the scheme. It also implements a Community Based Health Care (CBHC) program which is funded by Tear Fund, as well as X-ray and eye-treatment services.

Example of benefits: *In addition to lighting for wards and homes, electricity allows the use of medical and surgical equipment and autoclaves.*

There is also a primary school that is run by the hospital, Kisiizi Hospital Primary School, which has 11 teachers and 238 pupils, most of them from the surrounding community (non-Hospital). According to the Medical Superintendent in his 2001/2002 end of year report, the school is an important part of the community partly because it is one of the reasons the hospital has been able to attract high quality staff, but mostly because it gives young people a chance at getting education. A crafts centre which was recently built will also help to impart practical skills to the youth.

Commercial use

So far there is no commercial use of the electricity from the hydropower plant since it was built to specifically meet the needs of the hospital. Apart from the medical functions, the hospital also uses the electricity to operate a maize grinding mill, a welding garage, a carpentry shop, electric water heaters and security lighting. The mill, garage, and carpentry shop specifically serve the hospital and are not for commercial use.



It is estimated that after the hydropower plant is expanded, it will supply electricity to at least 194 commercial users, most of them small businesses engaging in petty trade of agricultural products. The table below shows the estimated number of customers and the level of demand for expanded Kisiizi Hydropower Plant (KHPP).

Table 2: Estimated number of customers for the KHPP by 2005

CUSTOMER CATEGORY	NUMBER
Households	400
Small businesses	194
Light industry	14
Institutions	10
Total customers	618

Increasing the capacity of the hydropower plant from 60 kW to 294 kW will not only enhance the development of Kisiizi, it will also improve delivery of social services in the village and the surrounding areas.



A front view of the Kisiizi Hospital Complex (Photo from Kisiizi Hospital website).

Conclusion

The increased power capacity of the micro hydropower plant provides the opportunity to supply the Kisiizi community with reliable and affordable electricity, and will stimulate new economic investments and employment. The following are important issues to look out for:

- Affordability will be crucial to increasing access to electricity in Kisiizi.
- Regular supplies will accelerate development of local businesses, especially in milk and grain processing, wood working and welding.
- As one of the first projects to be funded under the ERT, its successful implementation will most likely spark more interest and enhance confidence in Uganda's rural electrification process.