

Case Study: Micro Hydro Projects in Hettikanda and Athulauda Villages, Sri Lanka

Background

The villages of Hettikanda and Handunella in Southern and Central Sri Lanka may be geographically separate, but their experiences in efforts to get electricity are quite similar. The two communities mainly survive on tea cultivation although there is also some trading and agricultural activity in Handunella.

The smaller of the two, Hettikanda, has a population of 210 people with just 35 households, 23 of which have access to electricity. The population of Handunella is a lot bigger at 650, and 50 of its 100 households have access to electricity. A summary of the two communities is provided in the table below.

Table 1: Electrification details for Hettikanda and Handunella villages

	Hettikanda	Handunella
Total Population	210	650
No. of households	35	100
Electrified households	23	50
Electricity tariff a month	Rs.700 (\$7)	Rs.485 (\$5)
Total cost of electrification	Rs.977,000 (\$10,072)	Rs.1,480,000 (\$15,257)
Capacity of hydro plant	7kw	10kw

Before electrification, both communities mostly relied on kerosene for lighting, while a few affluent families were able to use generators. Wet batteries for operating television sets and dry batteries for operating radio sets were also very much in use.

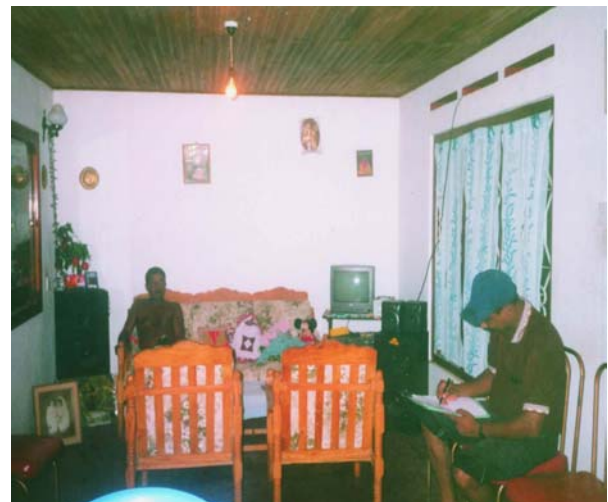
They each decided to build their own hydropower plants after realising that the national electricity utility, Ceylon Electricity Board (CEB) would not be connecting them to the national electricity grid any time soon because of the astronomical costs involved.

With guidance and assistance from local politicians and private sector companies, they each formed themselves into an Electricity Consumers Society (ECS), kick-starting and implementing the project

that would get electricity to their villages. The Hettikanda Village Hydro ECS and the Handunella Hydropower Company (in Athulauda) played a pivotal role in the electrification of their respective villages.

Financing

Electrification of both the Hettikanda and Athulauda communities was made possible by a combination of equity investment by the ECS, a grant from the Global Environment Facility (GEF), and a bank loan payable over a five-year period. The Hettikanda community contributed Rs.200,000, and this was topped up with a GEF grant of Rs.168,000 and a loan from the Hatton National Bank of Rs.609,000. The Athulauda community contributed Rs.408,000, and this was topped up with a GEF grant of 272,000 under the Energy Services Delivery (ESD) project, and a loan from Sampath Bank of Rs.800,000.



Survey being conducted in a house receiving electricity from the project

Public-Private Partnerships

The hydropower plants in Hettikanda and Athulauda are good examples of successful public-private partnerships. The banks, the local governments, the community and the private sector all made a tremendous contribution in constructing

the power plants. The residents of both communities contributed more than equity funds, they also contributed sweat equity because they carried out a lot of the preliminary construction work.



An example of a penstock at the source of the hydro intake. In Hettikanda and Handunella, this was built by the community

The private sector companies supplied construction materials, provided after-sales services and trained some members of the community in plant maintenance and other technical activities. The donors and the banks filled the funding gap by giving grants and loans, with favourable payment terms including a 5-year grace period. Both communities have already paid off their loans.

This is not to say, however, that there were not difficulties on the way.

Obstacles

- Inadequacy of government institutional policy guidelines for approving village hydro projects (registration of the CBO as a legal body, approval for use of waterways, permission to set up the project in the designated area, approval from the central environmental Authority etc.)
- Non accessibility of CEB (Ceylon Electricity Board) grid extension plans. (Developer has to be sure that the national grid will not be extended to the project area in the near future)

- Political interference (e.g. politicians promising grid extensions to the area, for short term political gains, when they genuinely know that it is not possible).
- Inadequacy of technical know-how in rural areas.
- Problems in obtaining loan finance from banks.
- Non co-operation by some members of the ECS in contributing their labour for project implementation.

Solutions

- In solving the above problems, intervention of the project consultancy company was obtained. The project consultants also intervened in solving other institutional and technical issues, which made an enormous difference to the ability of the community to develop these projects successfully.

Access to Electricity

Livelihood benefits – *Direct Consumers*

Electricity is always sure to help improve people's livelihoods, especially in facilitating the use of labour saving appliances, and in improving quality of life. The story is no different in Hettikanda and Athulauda where electrification has resulted in improvements to health and education, as well as better access to information through radio and television. Most importantly, injuries due to bottle lamp accidents have declined, and school children are studying longer hours at night.

Examples of benefits

- 1) Respiratory illnesses due to inhalation of kerosene fumes have been reduced. Some mothers said that before switching to electricity, the soft cotton they use to clean their babies' nostrils always came out black. That is no more.
- 2) Households revealed that when they used kerosene lamps, they painted their houses every year because the walls discoloured frequently due to kerosene fumes. With electricity, this is no longer necessary.

Commercial and institutional users

There are no institutional users of electricity in either Hettikanda or Athulauda villages, and only one commercial user in Athulauda – a grocery selling refrigerated foods.



Electricity is mainly use for lighting and entertainment

Livelihood benefits – *Indirect Consumers*

Although nearly all households in Hettikanda and Athulauda can afford electricity, only half of them actually have access. The experience of Athulauda demonstrates how misinformation and the subsequent inability to make adequate plans has restricted access to electricity in the community.

At the initiation of the project, all 100 households joined the management society and plans were designed for supplying electricity to all households. However, at a later stage, half the households abandoned the scheme following promises of electrification by politicians in an election campaign. Three years later, the grid has still yet to arrive in the area, and the capacity of the existing system is inadequate for extension to those unconnected households.

Despite this, many unconnected households, especially in Athulauda, said they have benefited from the electrification program in a variety of ways, including being able to have their batteries charged within the village instead of trekking to the nearest

electrified village and getting refrigerated drinks and food from the village grocery.

In addition, residents have benefited socially through the formation of strong networks in implementing and managing the electrification process.

As is to be expected with a project of this nature, there were a number of obstacles to be overcome.

- Overusage of electricity by consumers, and subsequent tripping of the system.
- Consumers buying equipment that consume more than the wattage allocated for a single household.
- Diminishing co-operation of all members of ECS in participating in maintenance activities of the project.
- Deterioration of wooden poles installed for the power distribution system at the inception.

These problems are gradually being overcome through a combination of awareness-raising by the project consultants and the ECS leadership.

Conclusions

Hettikanda and Athulauda villages demonstrate how successful public-private partnerships can be developed in order to provide rural communities with electricity. However, there is still much room for improvement if future projects are to be developed smoothly, and bring real benefits to all members of the community:

1. Central government should issue uniform guidelines and directives to divisional/local government authorities for issuing approvals for village hydro projects in all relevant provinces and for legal registration of ECS.
2. The CEB should assist projects by releasing information of their short/medium term grid extension plans to prospective village hydro project sites.
3. All relevant Provincial Councils should adopt a uniform and transparent scheme for assisting the village hydro projects.



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