

Rural electrification

A micro hydro case from Nepal

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This paper presents a case of the application of micro hydro technology for rural electrification in Nepal. It is based on a review of literature, as well as on the research and experience of Intermediate Technology Development Group (ITDG) Nepal, particularly its role and approach in technology transfer. This article discusses the impact of a 100kW micro hydro plant installed in the remote village of Sikles which lies about a half-hour drive followed by a 7-hour mostly up-hill trek from Pokhara, a town about 200 km west of Kathmandu. The purpose of the article is to share the experience of micro hydro technology development and transfer in Nepal with a non-technical audience that is interested in the process of technology transfer and development.

An appropriate technology

The level and kinds of energy consumed by a society often indicate its standard of living and livelihood. The energy consumption pattern of Nepal, particularly of the rural communities, displays excessive use of bio-mass for household energy needs. In rural areas, firewood, agricultural residue and animal dung represent the main source of energy for the majority of people.

Since about two-thirds of Nepal's area consists of high Himalayan and Mahabharat mountains, snow-fed and rain-fed rivers flowing downhill embody an enormous amount of hydro energy. More than 6,000 rivers flowing down the mountains carry an estimated 83,000 MW of hydropower, but harnessing only

about 42,000 MW is considered to be economically viable.

Hydro power has also been one of the main sources of electricity in Nepal. The first hydro electricity project was installed in Nepal as far back as 1911. However, given the large amount of hydro resources available in the country, Nepal currently has 253 MW of installed capacity, of which 248 MW is supplied through the national grid system. There are around 2000 units of micro hydro power plants (3-30 kW) used in the hilly parts of the country to generate electricity.

In Nepal, a micro hydro plant is defined as a hydro-powered unit that has the potential to generate up to 100 kW of electricity. A micro hydro plant basically consists of a turbine, a generator, a load controller and a ballast. The two

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