



Findings from the Nepal Smart Villages Workshop

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“A key aim for smart villages should be to look beyond the provision of lighting to enabling access to the full range of relevant modern technologies”

Abstract

The Smart Villages Initiative together with its local partner, Practical Action Consulting South Asia, held a workshop in Kathmandu on 10th April 2015 to consider off-grid energy systems in Nepal.

The workshop focused on Nepal's substantial experience of micro/mini-hydro schemes, and on initiatives to stimulate productive enterprises enabled by the availability of sustainable electricity supplies. This briefing note for policy makers and other stakeholders summarises key points emerging from the workshop.

Nepal has a very large potential for hydroelectricity across the country (around 84 GW) but while many thousands of micro/mini-hydro schemes have been installed, less than 1% of this potential capacity has so far been utilised. Upscaling continues to be a challenge. Subsidies from government and/or donors, typically around 30% of capital costs, continue to be required to enable micro/mini-hydro schemes to be established. Solar home systems are playing an increasing role but are generally limited to provision of lighting and mobile phone charging.

More needs to be done to attract private investment into rural electricity provision in Nepal, requiring streamlining of procedures for grant approval and enhanced availability of financing from the banking sector. Difficulties of access to remote communities in the mountainous terrain typical of Nepal exacerbate problems of high transaction costs of private sector funding.

Further initiatives are needed from government and donors to enhance the availability and affordability of credit to communities and companies for off-grid energy schemes. Such initiatives may appropriately include mechanisms for cross-subsidy between urban and rural communities.

Community ownership/management models for off-grid electricity schemes have provided for the necessary community buy-in, but have often lacked the required business discipline necessary for the effective operation of schemes, including revenue collection. This has impacted negatively on banks' willingness to support schemes with such ownership/management models. Hybrid models have been suggested as an alternative, combining community ownership with private sector management arrangements. More needs to be done on capacity building in rural communities for both technical and business skills.

Financial viability

The long-term financial viability of off-grid energy schemes can be much improved by the setting up of productive enterprises enabled by access to electricity. In order to have a positive impact, enterprises need to bring new income into the village by selling products to external markets. Otherwise, they may just lead to a redistribution of wealth within the village. Consequently, initiatives on energy access need to be complemented by actions to put in place other factors necessary to access

markets, electronically through information and communications technologies, and physically through improved transport connections.

Financial support is needed to enable the setting up of local enterprises. Also, support is needed for training in business skills, to enable the identification of market opportunities, and for networking and value chain creation. Value chain analysis is useful in identifying missing nodes and connections, and where there

are barriers. Care must be taken to identify business opportunities that will have a sufficient competitive advantage based on local resources and characteristics. In order to access national and international markets, more needs to be done to improve the quality and branding of rural products and to make the required market linkages. Rural industrial clusters potentially have a role to play in enabling the creation of a sufficient critical mass.

Conclusion

Experience to date in Nepal is that the creation of productive enterprises in rural communities enabled by energy access is challenging. But there are some promising signs: there has been a 20% increase in income of micro, small and medium-sized enterprises in renewable energy catchment areas, and a much broader range of enterprises is now being set up than the more traditional focus on support to agriculture. A key factor in achieving the long-term financial sustainability of off-grid energy systems is to achieve high load factors (50-70% or greater)

through an effective range and scheduling of local business loads.

The Alternative Energy Promotion Centre under the Ministry of Environment, Science and Technology plays a central role in coordinating the deployment of government and international donor funding for off-grid electrification schemes in Nepal, and importantly is also responsible for associated schemes to stimulate the creation of productive enterprises. But more needs to be done to integrate policy and planning for on-grid and off-grid electricity provision, and

to speed up project approval and implementation to ensure the effect participation of the private sector.

A key aim for smart villages should be to look beyond the provision of lighting to enabling access to the full range of relevant modern technologies, rather few of which are currently available to rural communities in Nepal. The aim should be to substantially improve living standards of villagers, building on their cultures and lifestyles rather than undermining them.

Notes

Smart Villages aims to provide policy makers, donors and development agencies concerned with rural energy access with new insights on the real barriers to energy access in villages in developing countries - technological, financial and political - and how they can be overcome. We have chosen to focus on remote off-grid villages, where local solutions (home- or institution-based systems, and mini-grids) are both more realistic and cheaper than national grid extension. Our concern is to ensure that energy access results in development and the creation of 'smart villages' in which many of the benefits of life in modern societies are available to rural communities.

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