

Evaluation of Sida financed interventions for increased access to electricity for poor people

Electrification interventions are necessary for development, and benefit not only households connected to the grid but the wider community as well. Electrification is, however, usually not sufficient, but needs to be seen as part of a larger effort to develop an area or region through an area-based multi-sectorial approach. These are the two main conclusions from the evaluation of Sida financed interventions for increased access to electricity for poor people, using case study fieldwork from Tanzania and Mozambique, as well as a review of global experiences.

The evaluation was commissioned to give input to further improvements of Swedish development cooperation in the energy sector and covers the period 2000-2012. It presents conclusions and lessons in respect to what works, under what circumstances and why, to promote poor people's access to electricity and thereby contributing to better living conditions. The evaluation is based on desk studies of key Sida documents as well as a review of global experiences from other development partners. Four country case studies of rural electrification projects were also conducted in Mozambique and Tanzania to feed in field related follow up information into the evaluation.

Outputs are achieved but impact on poverty is difficult to isolate and quantify

Electrification plays a crucial part in development and is essential for functioning public services and private sector investments. However, the impact of electrification on poverty is difficult to isolate from other factors and to quantify. The evaluation has shown that expected outputs are achieved and even surpassed. In Mozambique, the interventions in the specific case studies led to 9,894 new connections (419 % of the target number). In Tanzania, the number of new connections was 8,036 (350 % of the target). In addition, non-connected households benefit as well, through for instance public services, charging of cell phones, outdoor lights and increased employment as the productive sector is connected. However, frequent examples were found of missed opportunities in harmonisation with other sectors. The evaluation shows, for instance, that experiences from the case studies of connecting public institutions are discouraging, with only approximately 6 % of the education and health facility institutions in the electrified areas connected in 2011. Non-connected households are more likely to be poor households; in this sense improved access to public services – e.g. connecting health and educational facilities – and increased employment opportunities can do more to improve the lives of people living in poverty than focusing on maximising the number of household connections.

A coordinated, multi-sectoral approach for social benefits and productive activities

An area-based approach for planning new electrification and energy programmes is recommended. The energy agenda should be broadened to include all aspects of rural energy provision – including strengthening of institutions and generating capacity – and should be developed and coordinated with, for instance, forest resource management, development of small and medium-scale enterprises, access to credit, and the education and health sectors. Local authorities and key public institutions should be encouraged to plan for and prepare budgets for costs related to use of electricity for improved services. Better monitoring systems should be developed with a focus on outcomes and impacts while not neglecting better output monitoring.

Women's use of energy

Improved public services due to electrification are especially beneficial for women, in particular related to women's health, education and safety. Changed cooking and lighting practices in the households can also have major positive health impacts for women. However, there was little evidence that gender was seen as a factor when projects were planned. The evaluation confirms that electrification has little impact on biomass use at household level. Continued use of biomass and kerosene for cooking and heating has negative impacts on women's health as well as on the environment due to deforestation and greenhouse gas emissions. Parallel interventions, for instance to increase the use of improved cook stoves, would thus be recommended and have both gender, health, and environmental benefits.

Increasing the number of rural connections can be a blessing in disguise

Cost-effectiveness can be improved by creating conditions for significantly increasing the number of connections. The evaluation concludes that the cost per connection during the intervention period often was higher than estimated, but that cost effectiveness increased over time since households continued to connect after a project was ended. In Mozambique, 87% of all connections registered in the case studies were new connections occurred after the end of the projects. In Tanzania, new connections represented 67% of all connections in the studied area. The evaluation also noted the importance of not compromising quality for lower costs, but rather focusing on sustainable long term solutions. Grid extensions remain the most efficient design; however, there will be a cut-off point where it will become cheaper to use off-grid sources, such as stand-alone diesel- or solar photovoltaic (PV) systems, to reach remote communities. The evaluation shows that there have been difficulties in electrifying the poorest, many of them too far from distribution lines to be able to qualify technically for a connection. Subsidizing household connections and designing payment modalities for less well-off households can help to maximise the number of household connections in the areas along the distribution lines. In addition, tariffs were shown often being politically set instead of economically motivated – e.g. tariffs below production costs for everyone, not just poor households – which contribute to undermining the overall financial sustainability of the service providers. Rural electrification would need to be cross-subsidized by users at the higher end of the scale, such as higher and middle income and industrial users.

Lack of generating capacity and maintenance

The inappropriate tariff policies have implications on the operation and maintenance level. This has been found being one of the causes to the observed unreliability of the electricity provided, including power cuts as a recurring and regular phenomenon, creating a major barrier for the establishment of new productive enterprises and job creation. Also, it requires households and businesses to have a back-up system of alternative energy sources. Another reason for the unreliability is that the generating capacity remains behind demand.

For additional findings, lessons and recommendations for future rural electrification projects please see the synthesis report and the country reports in full at www.sida.se/publications.

Title:

Evaluation of Sida financed interventions for increased access to Electricity for poor people – Drawing on international experience and case studies in Tanzania and Mozambique.

The evaluation was commissioned by Sida and carried out by Dolf NOPPEN (team leader), Julie THAARUP, José VALENTE, Per KIRKEMANN, Anja NORDLUND, Adam SPLIID, Andrew MNZAVA, Maria Cecilia PED-RO, and Robert Le BLANC, from Nordic Consulting Group A/S between January and December 2013.

You can download the entire evaluation under www.sida.se/publications