

Rural Electrification in Ethiopia: Consumer Acceptance of Pico Photovoltaic Systems

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Introduction

When providing access to modern energy, to combat poverty and fight for the Millennium Development Goals, it is necessary to analyze the social acceptance of new technologies. Various experiences of development cooperation (GIZ, 2007) show that even extremely beneficial innovations do not diffuse on their own (Schweizer-Ries & Preiser, 1997, Rogers, 2003). The adaptation of Western development cooperation approaches to the cultural values of developing countries is often neglected. Incompatibility with cultural values leads to problems in terms of social acceptance. In order to make development cooperation more effective, it is important to find preliminary answers to the following question: What are the impacts and users needs when using PicoPV systems?

Method

In this socio-technical approach, nine different small PV systems, differing in appearance, function, price and way of use, were tested during a field study in a non-electrified village in Ethiopia. Each solar lamp was tested for a week by one of 24 families. 18 problem-focused interviews were conducted with villagers to explore the social impacts. A qualitative approach (interviews, focus groups, participant observation) was chosen in order to be open to the new field of users' perception of changes due to the use of PicoPV systems. Interview analysis was conducted based on Mayring's content analysis.

Results

Results show that the assumed contribution of access to modern energy services (GIZ, 2010) can partly be confirmed by this study: benefits in health, work,

education and economy were reported by respondents. People also noticed improvements in flexibility, child autonomy, stress levels and security in a sense of serenity as well as protection against animals and an otherwise dangerous environment. Improvements in family life, such as fewer conflicts were mentioned. Negative aspects were found in jealousy and mistrust (fear of theft) in social community and in the absence of possible activities. The quality of the solar lamps is measured by respondents on the basis of robustness, brightness, duration, color and cone of light. Furthermore, results show that even low-income households are willing to pay more for products of good quality. Thus, besides quality, maintenance services and warranty are important criteria.

Discussion

Early participation helps to improve the implementation of new technology: users skepticism turned into acceptance and companies could adjust lamp features to users' needs and preferences and local circumstances. Thus, described results confirm benefits of participation processes (Schweizer-Ries, Rau, Zöllner, 2010) and show that both partners –organization and users- benefit from an early involvement of users and attention to cultural values.

References

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