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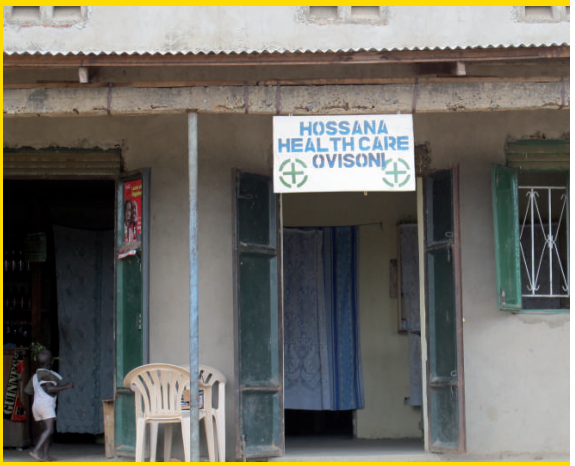

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Tracing the Impacts of Rural Electrification in West Nile, Uganda

A Framework and Toolbox for Monitoring and Evaluation

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SLE – Postgraduate Studies on International Cooperation

Study commissioned by Kreditanstalt für Wiederaufbau (KfW) Entwicklungsbank

Tracing the Impacts of Rural Electrification in West Nile, Uganda

A Framework and Toolbox for Monitoring and Evaluation

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Executive Summary

The Governments of Uganda and Germany are cooperating to improve the energy sector in Uganda. Within that sector, emphasis has been placed on establishing a reliable and efficient electricity supply in West Nile, a rural region in northern Uganda. The overall aim is to promote environmentally friendly socio-economic development in the region. To monitor and evaluate the results of the electrification programme, KfW Entwicklungsbank, a German development bank, has commissioned the present study. It will enable KfW and their partners to establish a sound, robust, state-of-the-art monitoring and evaluation system, and it may also offer useful suggestions to other development agencies active in the field of rural electrification.

Through KfW Entwicklungsbank, German development cooperation is investing in the construction of small hydropower plants and the extension of the electricity grid. About 40 trading centres[1] and towns will be electrified, permitting additional connections for about 6,000 households, 250 businesses, 60 schools, and 30 health centres.

In an electrified area the entire population could potentially benefit from the supply of electricity, for instance through the availability of refrigeration for vaccine storage in hospitals. However, at the individual level, the degree of access and benefit varies significantly. The ongoing debate on access to energy services thus proposes both qualitative and quantitative approaches to describe the extent of that access. However, these are difficult to adopt for a M&E framework.

The development of this M&E framework faced a threefold challenge:

- the conceptual challenge of providing a simple and practicable definition for access to energy services, defining beneficiaries whose access can be observed, and indicators by which access and its impacts can be measured;
- the methodological challenge of defining suitable units of analysis, capable of being sampled in a region with a population of 2.3 million spread over some 10,000 square kilometres, and against the background of very weak statistical base data;
- the implementation challenge of keeping the developed framework lean, manageable, and cost-efficient.

Tracking the mid-term and long-term results of rural electrification is challenging and requires a sound conceptual and methodological framework and a quantitative approach was developed. This focuses on access to electricity-based services, using the three access dimensions of availability, affordability and reliability. A set of indica-

1 Trading centres often stretch across several villages (the smallest administrative unit in Uganda) representing their local economic centres.

tors has been developed that describes all three dimensions of access in terms of the programme's Outcome for the connected and not connected households, businesses, schools, and health centres. These have been prioritised as the main beneficiary groups.

The four beneficiary groups have also been selected as units of analysis. Except for transportation businesses all types of businesses are included in the monitoring and also no restrictions are put onto households. For methodological reasons, and also in order to keep the framework practicable, only secondary schools have been selected for results-based monitoring. For the health centres, the lowest level establishments have been excluded, as their number is very large, while their potential use of electricity is limited.

For best result attribution, the double-difference approach has been applied predominantly. Health centres and secondary schools are surveyed by using 'not connected' institutions for comparison. Households and businesses are surveyed in connected and unconnected trading centres, while for six towns in West Nile a simple before-after comparison proved to be the only feasible option.

A full population survey is proposed for monitoring connected health centres and secondary schools, while unconnected ones will be sampled and monitored as a panel. However, the number of households and businesses is much larger, and no sampling frame is available. Therefore multi-stage sampling has been adopted, using trading centres and towns as preselected clusters from which households and businesses are randomly selected.

The study proposes a two-year M&E cycle, starting with the baseline survey in 2013, followed by three consecutive M&E cycles in 2015, 2017 and 2019. This will be completed by an evaluation, which will mainly use quantitative monitoring results and complement them with qualitative investigations. Each cycle includes a field survey, in which standardised interviews are conducted with 900 households, 825 businesses, and up to 170 secondary schools and 95 health centres. To complement this, an extensive data survey collects information from the electricity supplier in West Nile and from local and national authorities. In order to implement each M&E cycle, a consultant is required to supervise five survey teams, each consisting of a Ugandan coordinator and ten enumerators. A team of ten is also required for data entry.

Each element of the M&E framework and all the tools it contains have been repeatedly tested during their development. The practicability of the whole framework has been demonstrated through a pre-baseline in six trading centres and towns, during which 485 interviews were conducted. This data has also been used to illustrate theta processing and reporting routines.

Study results are presented in three parts. These are all built upon each other, but each can be used independently. Part I outlines the monitoring and evaluation

framework. Part II serves as a practical manual for the monitoring and evaluation process, whereas Part III sets out the reporting procedures.

Part I provides information on the background to and context of the electrification programme in West Nile. The results chain, together with its indicators, is presented and discussed. The formulation of the methodological approach to sampling and results attribution is explained.

Part II is written as a manual for implementing the monitoring procedures. As a step-by-step guideline, it describes in detail all the activities that need to be completed, and gives valuable information on the survey procedure. An extensive Digital Annex[2] provides numerous supporting documents to facilitate the implementation process.

Finally, Part III presents the tools for reporting. An indicator sheet has been developed for each indicator. This includes a brief description and discussion, and is complemented by easy-to-read charts. Part III concludes with recommendations on the analysis and a discussion of M&E results.

The following format is used throughout when referencing other sections: 'Part'–'Chapter'.'Section'. For example, 'I–3.1' denotes of Part I, Chapter 3.1. Accordingly, the abbreviation DA is used to refer to the Digital Annex.

2 The Digital Annex as a compressed data archive and the report as digital document are available from the SLE website (http://www.sle-berlin.de/index.php/de/studium/publikationen/studien).