DIFFUSION OF SOLAR ENERGY TECHNOLOGIES IN RURAL AFRICA: TRENDS IN KENYA AND THE LUAV EXPERIENCE IN UGANDA

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Overview

- Introduction
- Approach
- Findings
- Recommendations & Conclusion
Introduction
Global Solar Radiation Levels

Ondraczek et al., 2013
Challenges facing diffusion of Modern Energy Technologies - METs

- Access to Finance
- Awareness
- Access to Technical Support Services
- Enabling Environment
Approach
Approach

- Study identifies major challenges of solar technology diffusion in Africa as well as highlight some factors driving the adoption of the technology.

- A comparison of diffusion patterns of mobile telephony technology (MTT) and the Modern Energy Technologies (METs) in East Africa was undertaken.

- Further, a review of a successful MET business model in East Africa was carried out.

- Success factors were identified, highlighted, and recommendations made on key factors that would arguably drive rapid adoption of METs.
Findings
MET vs MTT penetration (Yr 2013)

<table>
<thead>
<tr>
<th>Country</th>
<th>MTT penetration</th>
<th>MET penetration</th>
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<tbody>
<tr>
<td>Kenya</td>
<td>93%</td>
<td>16%</td>
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<tr>
<td>Uganda</td>
<td>46%</td>
<td>12%</td>
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- Minimal government intervention noted in MTT penetration
- Significant variances noted in entrepreneurial capacity of MTT firms vs MET firms (Batte & Da Silva 2013)
- Recruitment and retention of trained personnel was higher in MTTs firms than METs firms
Light-Up a Village (LUAV) Model Structure

C. B. O
- Participant Recruitment;
- Management of Payments;
- Awareness Creation

Energy Company
- Seed Capital
- Return on Investment
- Energy
- Technology, Training, Vetting, SHS
- Awareness Creation; System Installations

Local Technical Team
- Technical Training
- Technical Services; After sale Support

Financing Body
- Monthly Payments

LUAV
- Solar Home System
- Monthly Instalments
Features

- A LUAV consists of at least 100 households organized into a CBO
- Energy company sets up a revolving fund for each CBO through a financial intermediary
- Management of the revolving fund and collection of payments is done by CBO
- Households access the SHS at 130 USD payable over 12 months to the CBO.

Success to date

- Over a 12 month trial period,
  - 18 LUAVS set-up to date
  - 3000 households have accessed SHSs
  - Low delinquency rate noted - Only one CBO defaulted

- BFP Connect 600
  - 6 Wp Polycrystalline Panel
  - 4 Ah AGM Sealed Battery
  - 4 LED lights
  - 2 USB Output Slots
  - One 12V Output Port
Recommendations
& Conclusion
Recommendations & Conclusion

- Frequent review of national policies in line with the ever reducing cost of solar PV modules Ondrazcek, (2014)
- Proximity to operational solar technology solutions increases uptake. Lay et al., (2013)
- Leveraging the collaborative efforts of Energy Companies and local CBOs increases levels of trust and reduces the risk of delinquency
- Local collaborations improve the effectiveness of awareness campaigns
Recommendations & Conclusion

- Training of technicians and entrepreneurs in the community ensures continuity and assures end users of quality support services which eventually results in low levels of delinquency.

- Facilitates the set up of a **revolving fund** that allows end users to pay for the technology in **installments** of up to 12 months to be managed by the prequalified local partner **CBO** at a marginal cost.

- Creates awareness with campaigns run through the CBO and proximity of participating households in the community.

- Ensures continuity by signing up at least 100 households per project. This number ensures a sustainable market for the technician.
References


