

Solar Home Systems in rural sub Saharan Africa – A case of Frugal Innovation? And (why) does it matter?

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**Solar Home Systems in rural sub Saharan Africa –
a case of Frugal Innovation? And (why) does it matter?**

07-07-2021, EADI Conference, Frugal Innovation Panel Session

Henny Romijn / Aleid Groenewoudt

Frugal innovation: *“Doing more, for more, with less”* (Bhatti, 2012; Rajou and Prabhu, 2014). But two contrasting perspectives (e.g., Bhaduri and Talat, 2020; Knorringa et al., 2016):

Top down

- TNCs / corporates in the lead
- Local actors as receivers of innovations and in supply-chain roles
- Profit & combating poverty is a win-win
- Professional organization
- Negotiates price-quality trade off *for* the BoP context
- Impact through venture upscaling



Bottom up

- Domestic SME, communities, etc
- Local initiators, local users
- Livelihood focus
- “Good enough” quality, low price
- Improvisation, jugaad, informality
- Innovation reflects *the experienced* BoP context
- Dispersed impacts

The rise of small-scale solar in Africa: what does the evidence tell us?

- 117 own face-to-face interviews among SHS actors in Uganda. Focused on market development patterns in sustainability transitions
- Extensive literature review on solar in sub Saharan Africa; scientific and grey policy documents (GOGLA, Lighting Global, etc)

-> Neither source employed an explicit frugal innovation lens

Two distinct market models (based on Groenewoudt et al., 2020)

International private sector-based

Local entrepreneurship-driven

Features

- Global-North affiliated firms
- Branded, standardized, closed systems, use of PAYGO
- International quality standards
- Top-down implementation, upscaling required to drive down costs

- Small local vendors
- Non-affiliated, informal
- Systems assembled from generic parts
- Unregulated quality, but often perceived as “good enough”
- Decentralized distribution



Benefits

- Installation, maintenance, and repair services
- Good jobs for sales force & installers
- 2-year warranties
- Organized waste management (by some firms)
- Supports basic local livelihoods
- Easy basic repair, but lacking in advanced capabilities
- Low cost
- Fast adoption, esp. across rural and poorer households

Downsides

- Lower repairability (closed systems, centralised service, non-generic parts)
 - Premature waste generation
 - Rather pricey, not reaching the poorest, migration to Top of BoP in frantic pursuit of Break Even Point
 - Certification still no guarantee to good performance
 - Low quality, ‘no quality’ and fake solar parts segment
 - Unreliable businesses and problems with honoring warranties
 - Frequent breakdowns
 - Waste and environmental contamination (acid lead)
-

So, a case of frugal innovation?

Both segments have beneficial frugal features, but neither is ideal. *Scope for complementarity.*

(How) does this matter?

Support directed at the top-down model. Local actors neglected, even suppressed. It breeds continued external technological dependence, and misses opportunities for local livelihood stimulation.

Donors & venture capitalists prefer scalable ventures with quality products and verifiable sales targets, they cannot handle support to many small dispersed players.



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