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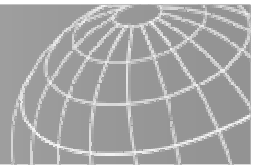


(Challenges of)
Productive use promotion in Senegal

Gunnar Wegner

Introduction

- ERSEN in Senegal
  - PERACOD – energy focal area
  - technology: SHS, hybrid minigrids (~750 inhabitants), solar streetlights
  - operators receive concessions from the state (fee-for-service model)
- Productive use promotion
  - target under EnDev
  - begin with minigrid villages, plan to move on to SHS villages
  - study (available on energypedia)
  - try to contact IMFs, but they are hesitant

Productive use promotion

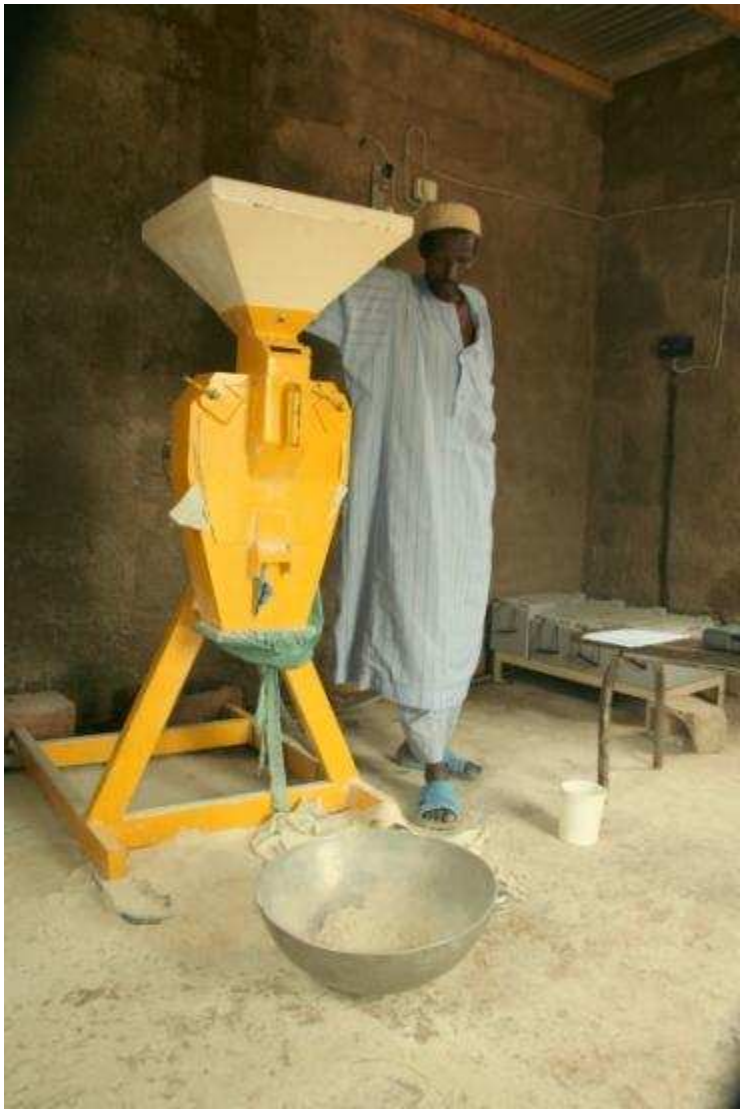
- rationale for PU promotion
  - reliable consumption of electricity
    - stable income for service provider
    - more income for service provider
  - value added in the village
  - more direct impact on poverty alleviation than light only („Armut bekämpfen, nicht nur beleuchten“)
- Why don‘t productive uses flourish by themselves (without promotion)?
  - access to electricity
  - access to finance
  - access to know-how (entrepreneurial / technical)
  - technological barriers

Senegal experience

- productive uses do not spring up on their own
- access to finance seems to be single most important constraint
- study shows that all productive uses are highly profitable endeavours :
  - agriculture: milling, de-husking
  - service sector: sowing, mobile charging, hairdresser
  - cold chain: ice, water
- IMFs barely interested in financing:
  - generally not familiar with energy (focus on agriculture)
  - market too risky, too small (village size), geographically too difficult for the bigger IMFs (very remote villages)

Case study: solar grain mill (or: „How not to ...“)

- pilot project to gather experience
- grain milling is a commonly found and frequently demanded productive use
- technology
  - DC motor
  - 2 × 150W panels
  - charge controller (bypassed for load)
- financing of the pilot project:
  - investment
    - energy side: PERACOD 100%
    - mechanical side: village association + MFI (credit)
  - operation cost
    - fees for milling



Case study: solar grain mill (or: „How not to ...“)

- technology
  - purchase on local market, but first supplier suddenly not able to deliver
  - grainmill uses much more electricity than predicted, disappointing performance
  - starting resistor had to be exchanged
  - villagers manipulating the system, requiring repairs
- MFI
  - did deliver, but is now bankrupt
- One begins to understand people‘s hesitations:
  - Why invest with an institution in which I have no confidence?
  - Why invest into technology which I do not know?

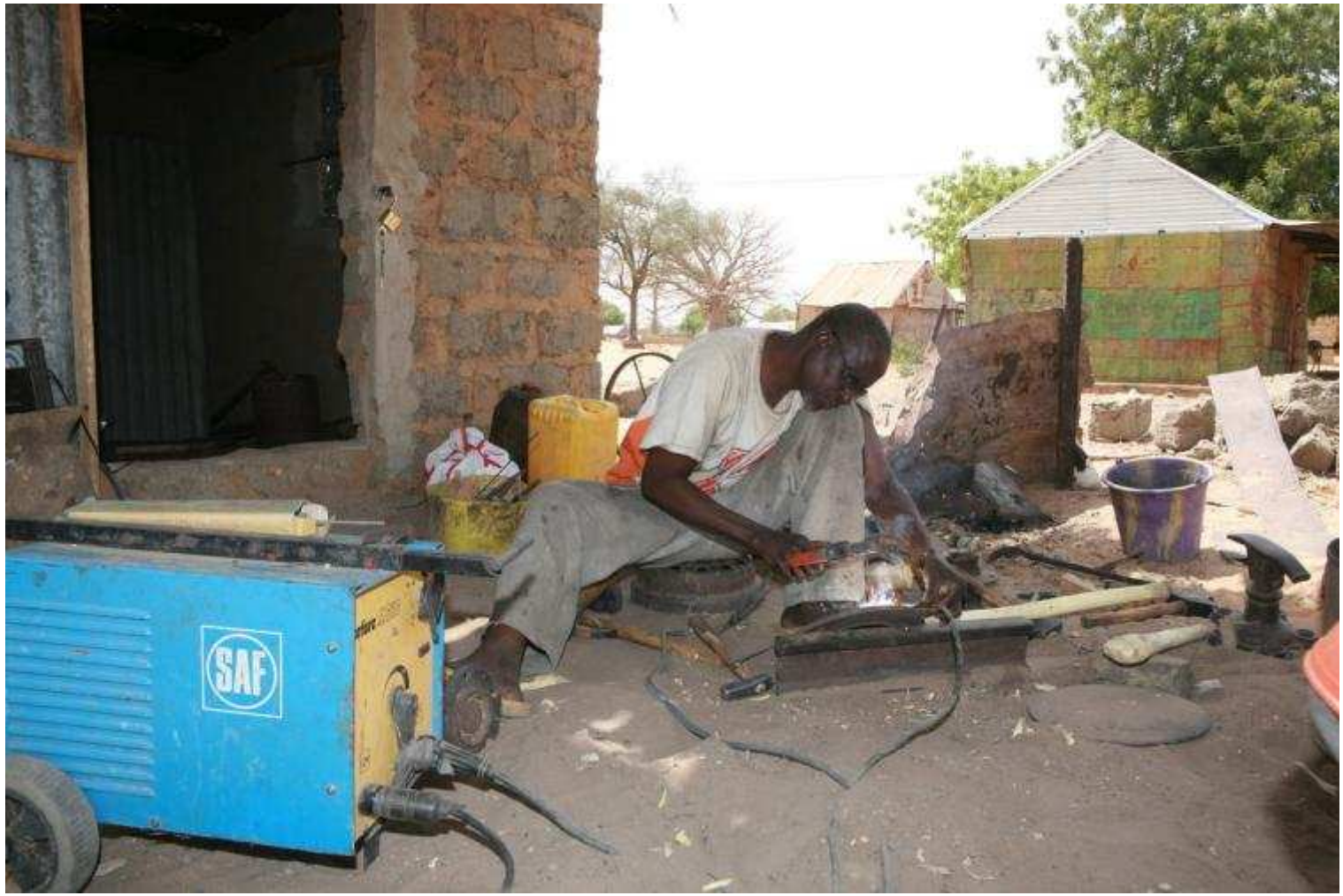
If the mill does not work ...

Surprise, surprise

- field trips for other purposes
  - one is offered a cold coke in a village
  - someone proudly says : „Hey, I‘m on skype, want to look?“
  - sowing machines, freezers ...
- productive use equipement from villager‘s initiative
- no IMF involved in financing
- only in minigrid villages
- procurement
  - equipment often second hand
  - from relative in town or abroad

Sales of ice cream

Welding



Where is research needed?

- pilot projects
  - Question: What to do a pilot project for?
  - pilot project requires A LOT of attention
- We want to prove: PU is attractive business opportunity for IMFs.
  - PERACOD to provide equipment and monitor technical performance
  - IMF for financing, payment collection etc.
- Which equipment does actually work?
  - under circumstances we find: heat, humidity, dust
  - in production / under active development
  - with DC power / in SHS villages

Outlook for activities in Senegal

- better investigation of productive uses that originate from local initiative
  - consumption: dataloggers
  - impact on economics
- productive use promotion in SHS villages
  - 3 fridges
  - 3 freezers
- find better equipment
  - for mills
    - more efficient
    - less error-prone / more robust
    - probably AC-coupled
  - in general: efficiency, robustness

Some pitfalls / difficulties

- tariffs setting
  - must be cost-recovering for operator
    - tariff is regulated to be ~0.20€ per kWh for productive use applications
    - not cost recovering for solar, wind or diesel-based minigrids
    - operator should be against selling electricity to productive use clients
  - must allow profitable operation of productive use
- technology not ripe
- equipment is inefficient: no A, A+ or A++ fridges in any of the shops in Dakar
- access to quality equipment is difficult for villagers
- don’t know how to choose from different choices

Kommentare aus Bolivien

- mit lokalen Akteuren arbeiten, lokale Ressourcen mobilisieren um Subventionsanteil niedrig zu halten
- nur Produkte fördern, für die es auch einen Markt gibt; wichtig dafür: niedrige Verkaufspreise
- die echten Bedürfnisse der Zielgruppe kennenlernen, anstatt das Problem für die Lösung zu suchen
- Mit Mikrofinanzinstitutionen arbeiten.

Conclusion

- promotion of productive uses is a difficult business
- requires a lot of work
- no more studies needed – we need practical experience
  - well-documented
  - well-monitored
- Workshop in Senegal this year!

Thank you!

Contact & more information

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