African Rural Energy Entreprise Development (AREED)

Outcomes and Lessons

Gordon Mackenzie
Head of Programme
Cleaner Energy Development
UNEP DTU Partnership

UNEP DTU Partnership

- Centre at DTU, Copenhagen
- Governance:
  - UNEP + DTU + Danida = Management Policy Committee
- International staff, 70 scientists and economists
- ~20 nationalities
- 4 programmes with partially overlapping agendas
  - Cleaner Energy Development
  - Low Carbon Development
  - Climate Resilient Development
  - Energy Efficiency

UDP Activities

Approaches

Research based consultancy

- Research
- Supervision of Masters and PhDs
- Methodology development
- Capacity building
- North-South collaboration
- Network of collaborating centres, particularly in the south
- Coordination of large multi-country projects

Activities

Large projects over time

- Economics of CC mitigation studies (1990s)
- Capacity Development for CDM (from 2002 on)
- Facilitating Implementation and Readiness for Mitigation (FIRM)
- Support for Nationally Appropriate Mitigation Actions (NAMAs) in Developing Countries
- Technology Needs Assessment (from 2009)

African Rural Energy Enterprise Development (AREED)

Outcomes, barriers and prospects in Ghana, (Mali), Senegal, Tanzania and Zambia

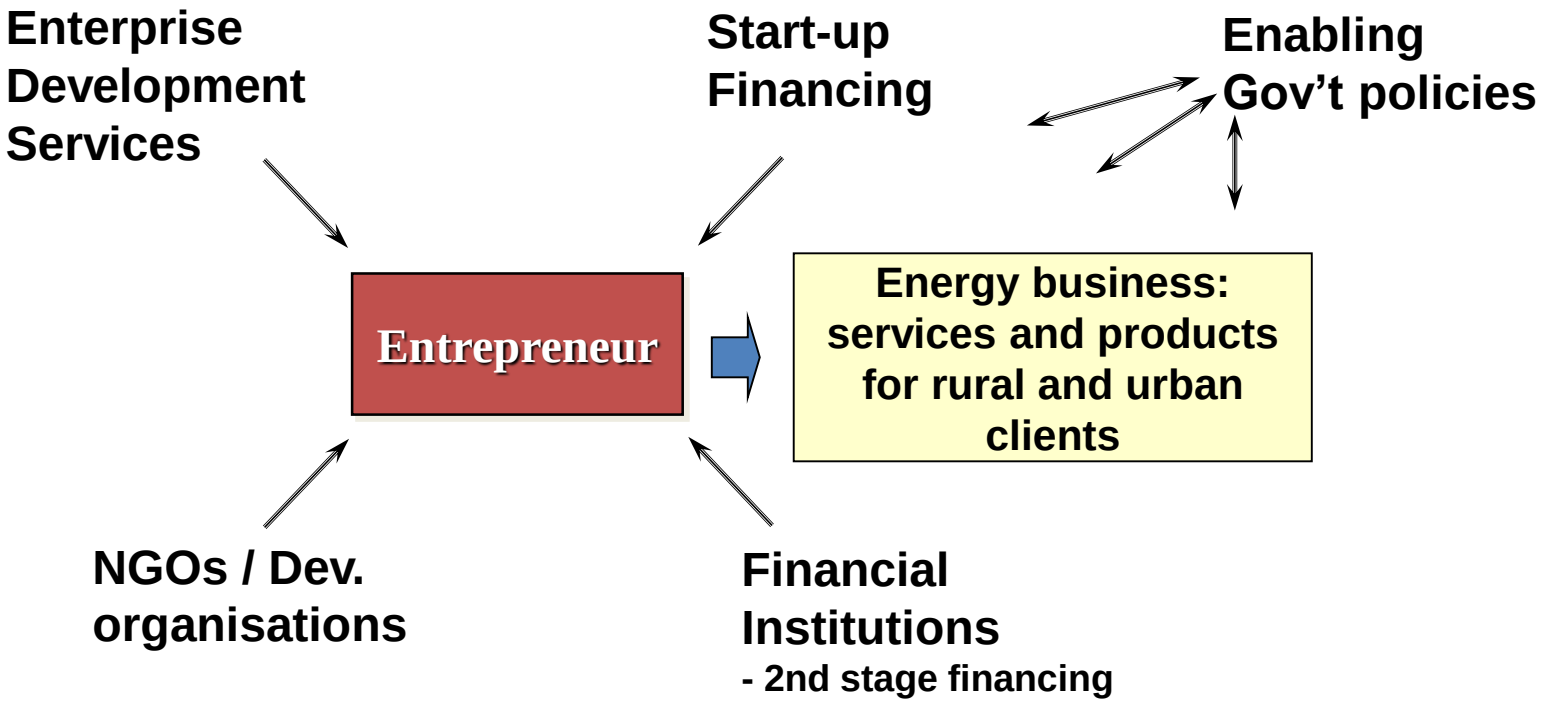
Background / basic facts

- Low levels of access to modern, clean energy in SSA
- 1999: UNEP / E+Co present a proposal to the UN Foundation on an “enterprise-centered” energy supply model in Africa
- Total financing under AREED I (2002-2007): approx US$ 8 m
- AREED II (2008-2012): US$ 2.3 m
- Operating in 5 SSA countries since 2002: Ghana, Mali, Senegal, Tanzania and Zambia
- 2012 Film: https://www.youtube.com/watch?v=hp28yo-A6tg

Why energy SMEs?

- Failure of ‘big business’ development model
- Assumption that SME entrepreneurs know and understand the needs and desires of local consumers
- Assumption that SMEs are more able and willing than larger companies to supply rural markets where transaction costs are higher
- However banks don’t lend to energy SMEs due to (assumed) ignorance of the market opportunities, hence need for AREED

The AREED model



Enterprise development costs: $0.20 - $0.50 per $1 invested

Partners

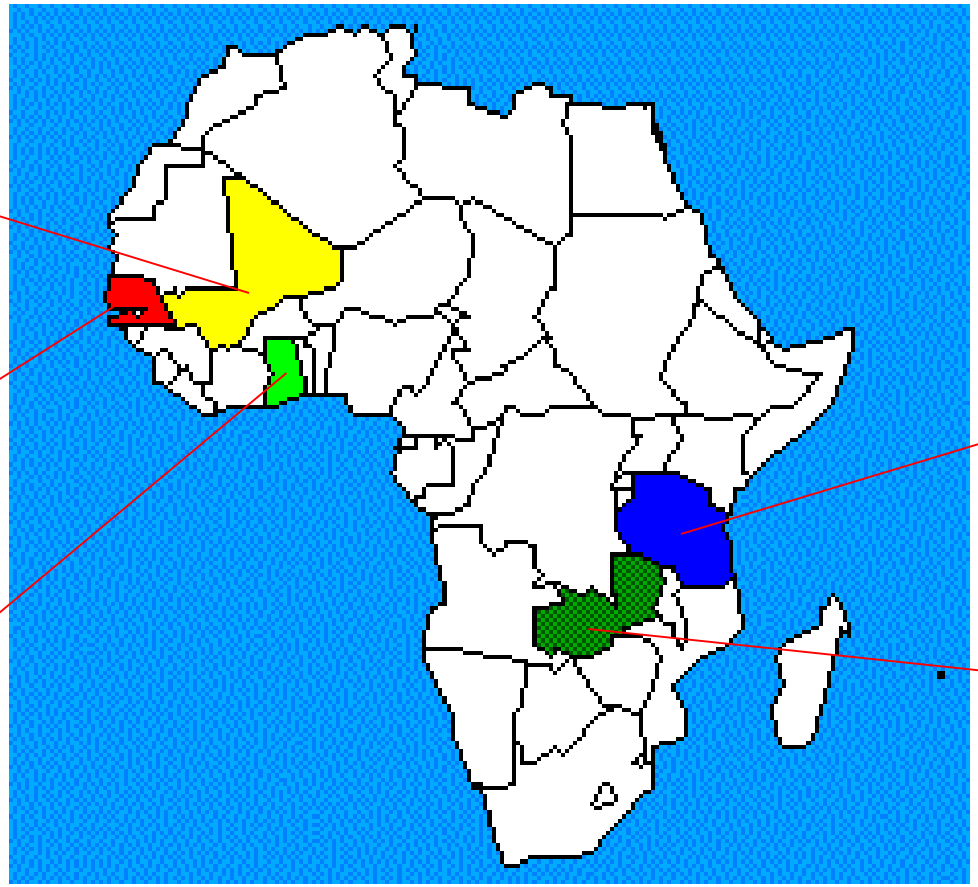
- UNEP + UNEP Risø Centre (now UDP): Initiator and facilitator, fund mobilization
- Donors: UN Foundation, Sida, BMZ, NL Govt.
- E + Co: Seed Fund Manager
- In-country African partners: CEEEZ, TaTEDO, KITE, MaliFolkecenter, ENDA

5 African Partners

MFC, Mali

ENDA, Senegal

KITE, Ghana



TaTEDO, Tanzania

CEEEZ, Zambia

Project process

- Country partners advertise AREED in local media
- Initial screening of applicants
- Enterprise Development Services (EDS)
- Review of final business plan
- Decision to invest
- Soft / flexible loans
- Enterprises supported (financed) under AREED I:
  Zambia (7) Tanzania (6) Ghana (15) Senegal (15) Mali (18)


M38
Gas
Energy to rely on


nergy to rely on
GE
9936


AVERY


EUCALYPTUS
CHARCOAL
OT Nº 1


3S MODULTEC

Outcome Analysis 2012 research questions

- To what extent have specific businesses demonstrated that energy SMEs are a viable means to provide scalable access to modern energy sources?

- What are the key factors that have determined the success or failure of specific energy SMEs in the identified countries?

- What are the main, persistent, barriers facing entrepreneurs when setting up, operating and expanding energy SMEs in the identified countries?

UNEP RISØ CENTRE
ENERGY, CLIMATE AND SUSTAINABLE DEVELOPMENT

UNEP

Energy SMEs in sub-Saharan Africa

– Outcomes, barriers and prospects in Ghana, Senegal, Tanzania and Zambia –

KITE
.....Innovating clean energy solutions.....

enda

TaTEDO

CEEEZ
Centre for Energy, Environment and Engineering Zambia Limited

Main findings / conclusions

1. Access to, and the cost of, financing is still the #1 barrier to the establishment and/or expansion of energy SMEs

2. BUT…There is either limited evidence of a 'demonstration effect' or of limited *impact of the demonstration effect*

Where there is an absence, or weak presence, of a demonstration effect a number of explanatory factors can be identified. These include:

1. Lack of an entrepreneurial culture
2. An SME ‘dependency syndrome’
3. Persistent shortcomings in business skills capacity
4. Lack of clearly defined markets
5. Demand-side barriers to purchase relatively high capital-intense energy products

Other reasons include:

1. Relatively high transaction costs of investing in SMEs
2. Inherently complicated nature of energy sector SMEs with longer supply chains and slower pay-back periods for capital-intensive technologies such as solar PV
3. Rigid rules regarding the need to secure collateral

Further reading

Energy SMEs in sub-Saharan Africa: Outcomes, barriers and prospects in Ghana, Senegal, Tanzania and Zambia. James Haselip, Denis Desgain and Gordon Mackenzie

UNEP Risø Centre, Denmark, May 2013, 116 pages

(available at www.unepdtu.org)

Haselip, J., Desgain, D. and Mackenzie, G. (2014) **Financing energy SMEs in Ghana and Senegal: outcomes, barriers and prospects.** Energy Policy, Vol. 65 (1) pp. 369–376

Epilogue

- Remaining funds from AREED I and II about US$600k
- New facility being set up by the 5 partner centres, led by ENDA
  - support establishment of social enterprises for provision of sustainable energy in the 5 host countries through enterprise development services
  - as well as facilitating financial support through MFIs
  - contacts to government agencies concerned with energy access and enterprise development
- Details of the new AREED set up are expected to be worked out in the coming months.

Thank you!

www.unepdtu.org