Investing in sustainable energy access in the development of commodity value chains

By

Mr. Andrey Kuleshov
Common Fund for Commodities

The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.
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Presentation by the Common Fund for Commodities
The Common Fund for Commodities

- International financial institution
- Headquarters: Amsterdam, The Netherlands
- Secretariat established in 1989
- 101 member countries, 9 institutional members
- Technical competence in commodity sector:
  - 25 years of project experience
  - > 520 projects
  - Total cost over USD 770 million
Commodity dependence

- Countries with commodity endowment rely on commodities as instrument to participate in global trade
- Reliance on commodities makes countries vulnerable to market volatility, governance issues, environmental degradation, poor investment climate etc.
- To make countries less vulnerable need investment in diversification of production and trade
- Economic sustainability - re-circulating the resources generated from commodities to other sectors
Energy access as key to unlock development

Figure 1: Speed of progress toward electrification goal 2012-14

Source: Global Tracking Framework (2017)
Technology needs energy

- Juice manufacture project
- High efficiency, high added value
- Constrained mainly by energy access
- Grid not feasible, generator not economical
- Co-generation would be best
Sustainable generation and storage of energy

• Sustainable vs renewable
• Any agriculture potential renewable source
• Energy as heat, gas or electricity
• Mineral commodities – important input to energy storage: lead, zinc, lithium
Remote Area Power Supply pilots

• Tested in early 2000s
• High volume generating centre/grid charging gel batteries which are transported by motorbike 1/week to villages off-grid
• Sponsored by Lead and Zinc study group
• Suitable as emergency measure, not economical compared to solar
• Also tested with zinc-air fuel cells; potentially viable as solar storage but technology not ready
Biofuels study
Biogas co-generation: Katani

- Sisal fibre production: 100,000 jobs
- Sisal fibre: 4% of leaf
- 25,000 MT fibre => 0.5mln MT waste
- Turn waste into energy feedstock
- 700kW potential in Katani
- 45-50 estates in Tanzania >500kW
Katani project

- CFC financing USD1.5mln
- Technical services by UNIDO
- Collection, hydrolysis, digester, biogas storage and afterstorage built
- Pilot plant designed for 300 kW
- Power sisal production factory
- Supply local villages off-grid
Learning from experience

• Technology modified to reduce water use
• Steel tanks require a lot of maintenance, lagoon storage for biogas preferred if land available
• Electrical generator a weak link
• Can install biogas pipes for nearby villages
• Finding investment/financing still challenging because need long term commitment
Learning from experience
Biogas co-generation from coffee waste

• Biodigester
• Small scale
• Cooking gas
• Replication proved difficult: economics, regulations
Biogas for household use: SimGas

• A small scale solution without electricity conversion
• Off-grid farms with three or more cows
• Gas for cooking, gas lamp
• Slurry used as fertilizer
• USD250/year saving energy cost
• Biodigester, virtually maintenance free
• Installation cost recovered in 2 years
SimGas biogas system

1. Manure from livestock
   Each day a farmer feeds the digester with manure from livestock and water.

2. Anaerobic digestion
   Inside the digester, micro-organisms work symbiotically to convert the manure into biogas and slurry through the process of anaerobic digestion.

3. Piping
   Biogas flows through piping from the digester to the farmer’s house, where the pipe is connected to a cookstove and other biogas auxiliaries.

4. Milk chiller
   Biogas can be used to power off-grid milk chillers to keep milk fresh.

5. Cook stove
   Biogas stoves allow farmers to cook their meals using a clean fuel.

6. Biogas lamp
   Biogas can fuel gas lamps used for both task and ambient lighting.

7. Organic fertilizer
   Slurry that has been fully digested exits the system onto the farmer’s land where it is used as an organic fertilizer.

Source: SimGas
Milk chilling with biogas

- Side application of biogas from waste
- Suitable for small-scale farm
- Use any source of heat via absorption cooling technology, well established
- Potentially investable, viability to be proven within real life commodity value chain
What project investable

• Deriving value from commodity value chain
• Needs energy to operate the technology
• Can integrate energy generation into the value chain
• Economically viable e.g. by reducing energy costs, selling energy, reduction in carbon footprint, sustainability branding
• Clearly defined impact indicators linked to the SDG7

Open Call for Proposals – please apply by 30 Oct
Thank you!

Presentation: Andrey Kuleshov, Common Fund for Commodities
andrey.Kuleshov@common-fund.org

Research credit: Roger Bymolt, Royal Tropical Institute of the Netherlands
r.bymolt@kit.nl