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

By

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Common Fund for Commodities

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Presentation by the Common Fund for Commodities

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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

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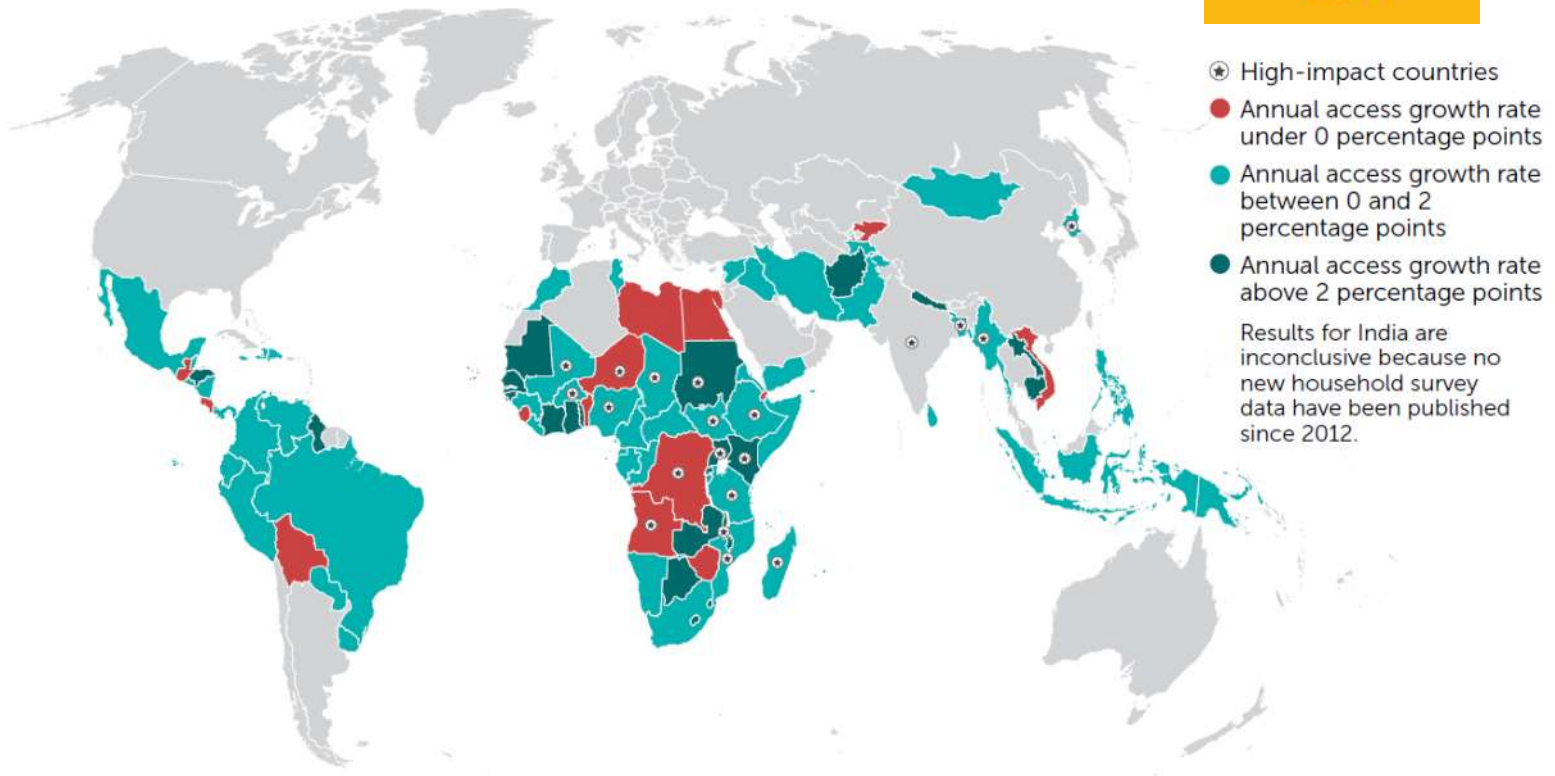
Commodity dependence

- 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

7 AFFORDABLE AND CLEAN ENERGY

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



Source: Global Tracking Framework (2017)

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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

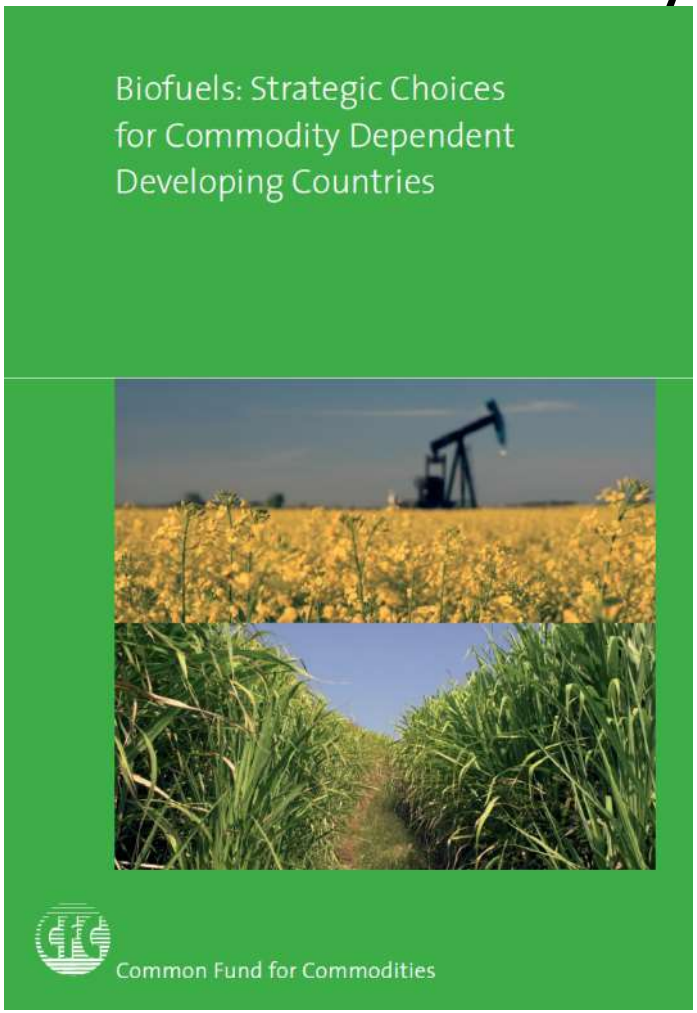
Sustainable generation and storage of energy

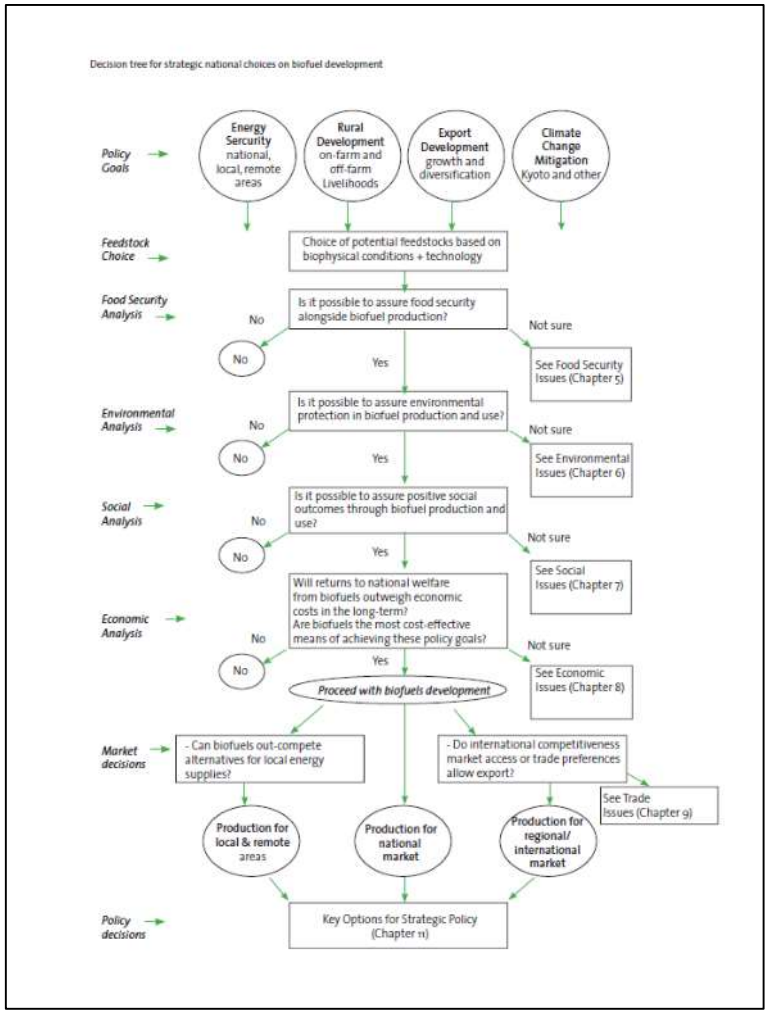
- Sustainable vs renewable
- Any agriculture potential renewable source
- Energy as heat, gas or electricity
- Mineral commodities – important input to energy storage: lead, zinc, lithium

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





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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

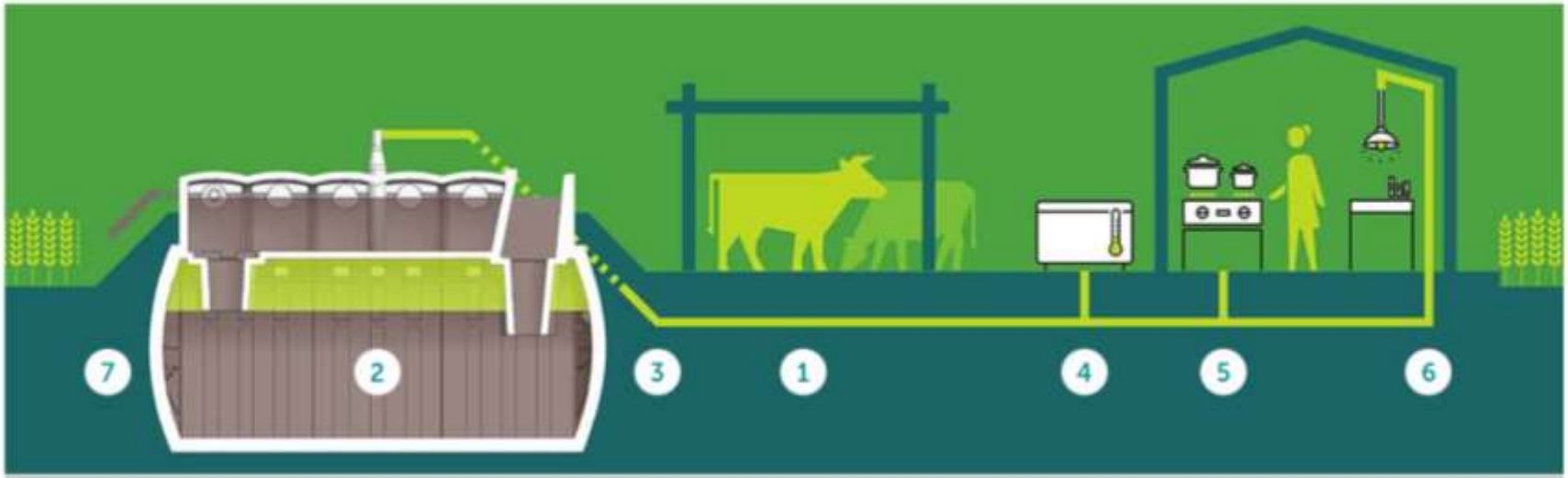
Biogas co-generation from coffee waste

- 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 sym-biotically 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 to 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!

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