UNITED REPUBLIC OF TANZANIA

The Milk Cold Chain Technologies in Tanzania

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INTRODUCTION

Basic information of the Tanzania Dairy Industry

- Approximately 37% of the 1.68 million households in Tanzania own cattle and approximately 60% of rural households derive 22% of their income from livestock.
- About 70% of the milk produced comes from the traditional herd (indigenous cattle) kept in rural areas, 30% comes from improved cattle mainly kept by smallholder producers.
- Dairy value chain studies have revealed that generally 10% of raw milk produced reaches both formal and informal markets, of this only 3% is formally traded and enters the processing industries.
- This low traded volumes are due to losses in milk that arise from poor access to markets and poor milk handling practices resulting in spoilage and spillage.
Spoilage can be partly attributed to non cooling of milk since most households do not refrigerate milk on farm.

In the rural setting of Tanzania, raw milk cannot be cooled at dairy farms due to lack of access to (reliable) electricity. About 11% of small-holder farmers have access to grid electricity in rural areas.

This compromises in particular the quality of evening milk. Quality of (evening) milk is lost because it doesn’t survive the heat overnight.

Low quality (evening) milk is rejected by collection centers. Current estimates of post-harvest milk losses at farm level in Tanzania are estimated at 30-40% creating a lost income opportunity for farmers and a growing gap between milk supply and milk demand.
Milk cooling Technologies in Tanzania include:

- SimGas biogas milk chillers**. Simgas’ idea was to create a user-friendly, affordable household milk chiller that runs off-grid, using biogas. Tested in small-scale farms in Tanzania, and through interviews carried out by SNV staff with dairy cooperative representatives and their members.

- Production of biogas from sisal waste by Katani Ltd in Tanga.

- TDDP Biogas project funded by a Food For Progress grant from the United States (dairy cold chain in 85 milk collection and processing facilities (biogas).

- Off grid Solar milk coolers by Mueller (**SimGas in collaboration with SNV, Mueller, and BoP Inc).
Barriers (negative influence) to energy technology uptake include:

- Lack of Quality Based Payment System (premium prices to quality milk). Clean cooling technologies can improve milk quality and add value along the milk value chain, but farmers have little incentives to improve milk quality and hygiene, as there is no price premium).
- High initial investment costs versus volumes cooled (20 lts plants) and maximum about 600l which is too small for a collection centre
- Drudgery in manure collection
- Knowledge gap (issues of gas emissions etc)
Successful policies that facilitate investments in energy sector in Tanzania:

- **The National Energy Policy (2003)** focuses on market mechanisms and means to have affordable and reliable energy supplies in the whole country (allows:
  - Promotes the development and utilization of indigenous and renewable energy sources and technologies
  - The 2009 Electricity Act opened the Tanzanian electricity sector for private companies and ended 40 year monopoly held by TANESCO in the national power sector. Independent power producers (IPP) penetration so far has been limited, but is steadily increasing
Food security policy

- Its goal is to accelerate Tanzania’s adoption of more effective policies and programs to drive broad-based agricultural sector growth, improve household food security and nutrition, and reduce poverty.

- **National Livestock Policy**
  - This is a blueprint that guides the development and commercialization of the livestock industry in Tanzania. In Dairy it asserts the will of government to promote investment in dairy production, processing and marketing.

As regards to INVESTA findings.
As regards to INVESTA findings, Tanzania Dairy Board believes that:

- There is strong case for public sector to support renewable energy initiatives (Govt, WB) in form of subsidies where financial net benefits may be significantly be different from economic net benefits.
- Adoption of these initiatives will depend on **reliability** and **affordability of the technology**.
- These initiatives contribute towards reduction of the emission of greenhouse gases and the climate change.
- The initiatives lessen the vulnerability of energy dependence and the financial burden of oil imports.
- There is increased competitiveness.
THE END

MWISHO

Thank you for listening
Ahsanteni sana
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