FROM 'DANGEROUS GOOD' TO 'PRIME PRODUCT' – THE VALUE OF QUALITY-BASED PAYMENT FOR MILK

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CHALLENGE

An SNV client (Tsega & Family Dairy Enterprise; milk collector and processor) identified a new business opportunity – marketing of "prime quality" milk and milk products - and designed a simple 'quality payment' system based on two different ranges of milk density, i.e. fat contents. The implementation of the system required capacity development of stakeholders, which was done under contract with SNV.

CLIENTS

A Sudanese PhD student, who will in future be involved in his country's dairy sector development, secured a scholarship from his government and payment for the field work of his PhD project, which he undertook with SNV's client **Tsega & Family Dairy Enterprise**. In summary, the following actors collaborated:

- SNV, 'Support to Business Organizations and their Access to Markets' (BOAM), Addis Ababa, Ethiopia (*Value Chain Development, private sector support, field supervision*)

- Sudan University of Science and Technology (SUST), Khartoum, Sudan (*secondment, support*)

- Tsega & Family Dairy Enterprise, Addis Ababa, Sululta and Chacha, Ethiopia – Greater Addis Ababa milk shed (*system development and application, field support*)

- International Livestock Research Institute (ILRI) Addis Ababa, Ethiopia; Capacity Strengthening Unit (CaSt) and Improving Productivity and Market Success (IPMS) of Ethiopian farmers project (*administrative procedures, co-supervision*)

- Ethiopian Meat and Dairy Technology Institute (EMDTI), Debre Zeit, Ethiopia (*bacteriology*)

- Land O'Lakes Inc. (*technical support, methodology*)

METHOD / SNV INTERVENTION

A step-wise approach was (and is in fact being) used for transforming a **'dangerous good' into a 'prime product'**, it involved the above named research and development institutions in determining milk quality parameters and translating this research into a practical approach to be applied on a routine basis, at a national and regional scale.

- **Step 1**: Identify markets that value improved quality of raw milk and selected milk products, such as butter and soft cheese.
- **Step 2**: Design a user-friendly, simple and economical quality control and price determination system that allows rejection of unsuitable milk on the spot. This comprises systematic alcohol and specific gravity checks at each milk delivery. Passing the alcohol test is a prerequisite for acceptance. A semi-automated field testing equipment system: the EKOMILK Analyser (Box 1 - Annex) determines important and price relevant physico-chemical parameters on the spot
- **Step 3**: Undertake (un-announced) regular bacteriological examinations, which would allow to grade the milk into 'good', 'very good' and 'excellent' using total bacterial counts as the decisive indicator (absence of pathogens, antibacterial substances and contaminants is required). Total bacterial count is

the decisive factor and would over-rule coliform count and somatic cell count in case they diverge. Grading is based on national standards for raw milk.

- **Step 4**: Review and regularly adjust the base price for accepted 'good' – and above - milk on the basis of the current butter price. Using the fat content as the important criterion for payment makes sense in the Ethiopian context as butter is the prime milk product; at the same time, it discourages milk adulteration or skimming.
- **Step 5**: Implement tested and fine-tuned quality payment system with the client.
- **Step 6**: Disseminate the system to other actors in the sector.
- **Step 7**: Support the establishment of new business models, such as prime milk products, new collection approaches that preserve quality, private quality assurance service including extension.

Steps 1-3 have been taken, 4-5 will be implemented in early 2010, 6&7 are in progress and include "dairy business hub" developments in two major Ethiopian milk sheds (Sellale and Assela).

OUTCOME

While the programme has yet not yielded measurable impact, a number of important outcomes have already been observed. Thus, better markets for milk that has been subjected to a basic and systematic quality check have been identified, enabling Tsega & Family to increase the daily collection from 200 to over 1000 litres. Income increased at the levels of the collector/processor as well as on farm.

Tsega & Family intends to refine the approach in order to source and market prime milk and milk products, targeting the upper market segment and contributing to import substitution. The enterprise is re-investing part of the income gained, complemented by a bank loan, in the establishment of a first class, containerized medium-sized dairy processing plant.

First results of the ongoing study indicate that the greater part of the producers' milk would fall into category 'Grade 3 - good' in consequence of the high bacterial count. Fat content of the collected milk is usually high, and adulteration (water addition) appears to be modest. The relatively high price paid by Tsega & Family is therefore justified. The follow-up to be started now will focus on hygiene, so that milk can be graded 'very good' and 'excellent' and further payment increases can be made. Such increases appear justified as grade 1 milk can be transformed into high value, higher priced products.

Of far greater importance is the establishment of a regional network of research and development institutions which, under SNV's guidance, focuses on this important topic. By mid-2010 we will dispose of a proven system for routine milk quality control and quality-based payment, which, by rewarding quality, will tackle the core constraint of the sector.

LESSONS LEARNED

Opportunities for adding value along the milk chain are far greater than so far exploited. Many (Ethiopian and foreign) consumers reject local milk and milk products because of quality defects, short shelf life, etc. and instead revert to imported products that are 2-3 times more expensive and require millions of US$ annually for their importation. Winning these critical consumers over, making them buy local products and thus replacing imports, requires a systematic approach towards quality, quality measurement, the design of a practical routine quality measurement system including feedback to producers and embedded services, and an economically viable payment structure based on chemical and bacteriological grades of collected raw milk. SNV and its partners in research and development designed such a system and began to implement it with Tsega &

Family. A new payment structure has been suggested; other sector operators are ready to implement the system. This situation presents a new opportunity for more income and employment along the chain, and at the same time a major step forward with regard to consumer protection. The system can be implemented in East African smallholder milk collection and dairy marketing systems.

Conclusion

The combination of i) response to a market opportunity, ii) advisory service and capacity development, and iii) implementation of a simple quality-based payment for raw milk created enthusiasm among raw milk suppliers. It enabled an SNV client to source and market much larger quantities of raw milk and a limited range of products at a better price.

SNV's BOAM programme profiled itself as a strong value chain development actor, capable of partnering with world class research and development institutions in order to address value chain development issues in a holistic manner. The system piloted and presented here will be implemented by a second operator from January 2010 onwards.

The Ultrasonic Ekomilk Ultra Pro Analyser

The Ultrasonic Ekomilk Ultra Pro Analyser is a perfect tool to identify adulteration on site (figure 1). It is produced by EKOMILK ULTRA PRO in Bulgaria and designed for fast (30 seconds) and cost-effective analysis of fat contents, non fat milk solids (SNF), pH and temperature, conductivity, protein, milk density for cow, sheep and buffalo milk, and added water.

Figure 1. The Ekomilk Analyser

Un-adulterated   *Adulterated (water added)*

The picture on the left hand side shows the display after measuring an un-adulterated sample; the one on the right shows the addition of water.

The price of an Ekomilk Analyser is around 2000 US$. The system is used at the moment a producer delivers the milk to the collection point. He/she can observe the testing and should actually do this. At the same time, a sub-sample is taken in front of the producer, labeled with his/her name and sent for bacteriological examination. This procedure is carried out twice a month, at random, without prior information of the producer.