UGANDA DAIRY PROCESSORS ASSISTANCE PROJECT
FINAL TECHNICAL REPORT

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1.0 EXECUTIVE SUMMARY

This three year project, extended by a further four month period, was completed on 31st December 2005. Field activities ended on the 8th December 2005 and ensured that all remaining financial disbursements were completed before the 31st.

The overall purpose of this project was to ***improve the accessibility of [safe] milk in order to positively affect the health of children and better utilize idle dairy capacity in Uganda.***

To achieve this purpose, the key goals of this project were to:
- ***Increase the demand of UHT (long-life) milk by 50% at the expense of raw milk.***
- ***Decrease the price of UHT (long-life) milk from 30 cents US to 20 cents US per 250 ml.*** *[a price reduction target of 33%]**.***

To achieve these objectives, these key project outputs were targeted:
- Expanding UHT processing capacity of dairies.
- Improving dairies production and product quality standards.
- Support brand or 'quality approved' UHT product advertising.
- Promote increased supply of UHT products to school nutrition programs.
- Mobilize a dairy processors' industry association.

Project outputs achieved included:
- UHT processing capacity of participating dairies increased by approximately 20% to 3,600,000 litres per month;
- One of the four dairies that started the HACCP certification program (Alpha Dairy) under this project saw it through to completion and obtained HACCP certification by the time this project activity ended. The other three dairies continued thereafter to work towards HACCP and ISO certification with the parallel assistance of the USAID-funded Land O' Lakes project.
- Utilizing a cost-share approach, this project supported the branded UHT advertising activities of two dairies, Alpha Dairy and Dairy Corporation Limited, for a combined investment of US$ 132,000.

The projects attempt to increase the supply of UHT to school nutrition programs was not achieved. Reasons for this are discussed in this report. In short, a project design flaw and uncontrollable external events prevented the project from achieving this objective. The Uganda Dairy Processors Association has been established, but this is largely attributable to the efforts of the aforementioned Land O Lakes project and this project was not involved in this effort.

This project has satisfied its' key goals, accomplishing the following:
- Domestic UHT demand increased by 337% during the last 20 months of the project to an average of 24,780 litres daily over the last 6 months. Demand has climbed as high as 39,500 litres daily.
- An effective, inflation-adjusted reduction of 35% of the price of 250ml UHT brick packs has been achieved since project inception.

In relation to USAID's strategic objectives in Uganda, this project contributed to:
- Its' Economic Growth Program through expansion of total quantity of seasonal raw milk

supplies that can be processed for domestic and regional markets, establishing new domestic consumer demand for safe, high quality, higher value UHT milk products and by stimulating increased competition amongst dairies to bring UHT products to market.

- Its' Improved Reproductive, Maternal and Child Health Program by establishing new and safe, nutritious, high quality UHT milk products packaged in single serving sized 250ml packaging suitable for distribution to rural areas and for use in schools-based and other nutrition programs.

The project has also contributed to resolving key problems, identified during the project design, in the domestic dairy industry:

- Raw milk is widely consumed in rural areas without any processing, a practice that is associated with short-term gastro-intestinal maladies and may lead to significant longer-term risks to health especially for children. By expanding domestic UHT production capacity and assisting dairies to establish an expanding domestic consumer market for UHT products, the project has enabled dairies to purchase significantly larger quantities of raw milk on rural markets and thereby contribute to a reduction in available supplies of raw milk that may be consumed in unprocessed form.
- Informal markets for raw milk combined with consumers' lack of knowledge concerning the health risks of consuming raw milk undermines the capacity of dairies to scale up their processing operations (eg: turning raw milk into higher priced, safe processed product that cannot compete on price with raw milk). This project has assisted dairies to overcome this in two ways. First, by assisting dairies to acquire capacity to produce a long life UHT product, dairies are able to buy and process milk for UHT when raw milk prices are at their seasonally lowest point. This purchase timing and production scheduling flexibility enables dairies to price UHT products to best advantage. Second, the project has defrayed 50% of dairies' eligible UHT product advertising and promotion costs aimed at building urban consumer awareness and demand for their branded products and on educating such consumers about the health risks of consuming raw milk. Dairies are finding that UHT enables them to avoid the price-competition constraints imposed by raw milk markets on their perishable processed milk operations and enables them to grow their markets in a new direction.
- The lack of quality standards for raw milk handling and for processed milk, the latter partly a function of dairies' use of outdated processing equipment, was addressed through this project by assisting dairies to upgrade their processing lines with current technology. In this regard, HACCP guidelines were adopted as the acceptable standards for this project and the project also assisted dairies to work towards HACCP certification, one dairy - Alpha Dairies – achieving this.

More generally, the newly established UHT milk processing capacity has helped to stabilize milk prices for consumers and to improve prices earned by milk producers. The capacity to produce a long shelf life product (UHT) to inventory during the rainy season enables dairies to increase the volume of raw milk purchased when prices are at their lowest, the effect of this being to reduce average input costs paid by processors for raw milk. Dairies later release inventorized UHT product into the market during the dry season when raw milk supplies are tight. Despite cyclical raw milk price fluctuations and general price inflation, consumer prices of UHT have remained relatively stable (at around Ush 1,600/litre pack and Ush 1,300/litre pouch) over the last 18 months of the project. Raw milk producers are benefiting from the new UHT milk processing capacity as well. The dairies' ability to produce and sell a new milk product (UHT) is expanding the total size of the consumer milk market (relative to the available supply of raw milk). Dairies' higher demand for raw milk bids up the average prices paid for raw milk to producers. This past year, the lowest prices paid (e.g.: during the rainy season) by dairies has

been Ush 180/litre well above the price lows of approximately Ush 150/litre over the previous two to three years.

With quite modest resources, this project has made a significant contribution to the development of the dairy industry in cooperation with the various programs in the dairy sector including the initiatives of the Dairy Development Authority, the Ministry of Agriculture, and other dairy sector development initiatives funded by USAID and managed by Land O' Lakes, Heifer Project International and World Wide Sires. In summary, this project set out to influence the activities of the dairy sector to create a competitive environment that can benefit Ugandan consumers and the indications are that it has succeeded in doing so.

2.0 PROJECT ACCOMPLISHMENTS AGAINST GOALS

The main goals of the project were:

- to increase consumer demand and production of long-life (UHT) milk products in Uganda by 50%.
- to decrease the price of UHT (long-life) milk from 30 cents US to 20 cents US per 250 ml. *[a price reduction target of 33%]**.***

As explained and illustrated below, the project has satisfied these goals and put the dairy industry's UHT sales on a solid growth path in a difficult consumer market.

2.1 Increase in Consumer Demand for UHT

Growth in domestic market demand for UHT is approximated by dairies' UHT production pattern. In July 2004, the three month moving average (TMA) of UHT produced and released onto the domestic market over May to July was 156,667 litres monthly. By the end of the project, the TMA had climbed to 685,000 litres monthly, a 337% increase in 19 months that comfortably exceeds the project goal of 50%. This is portrayed in Figure 1.

Figure 1

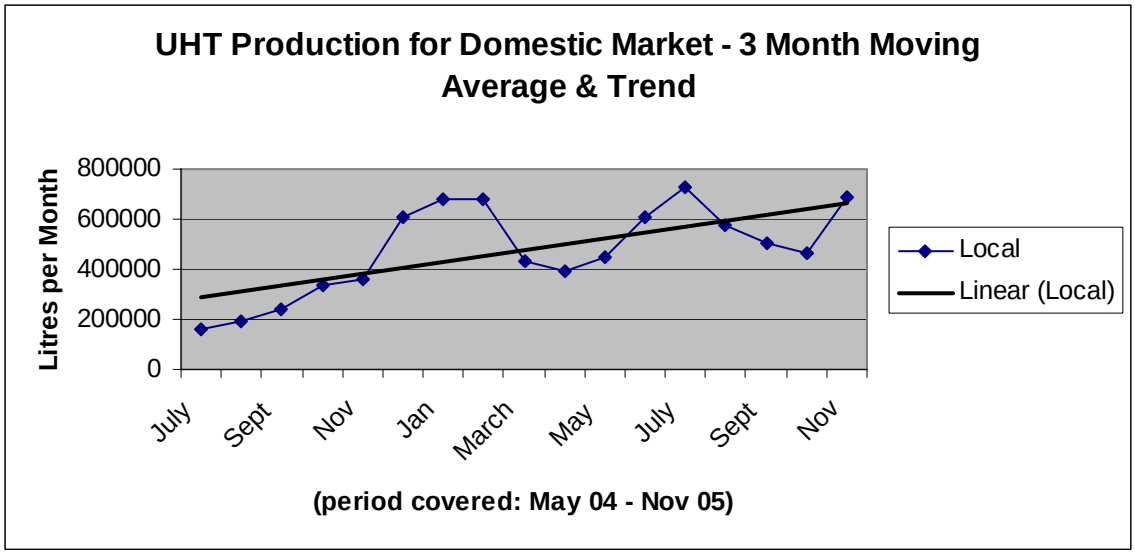
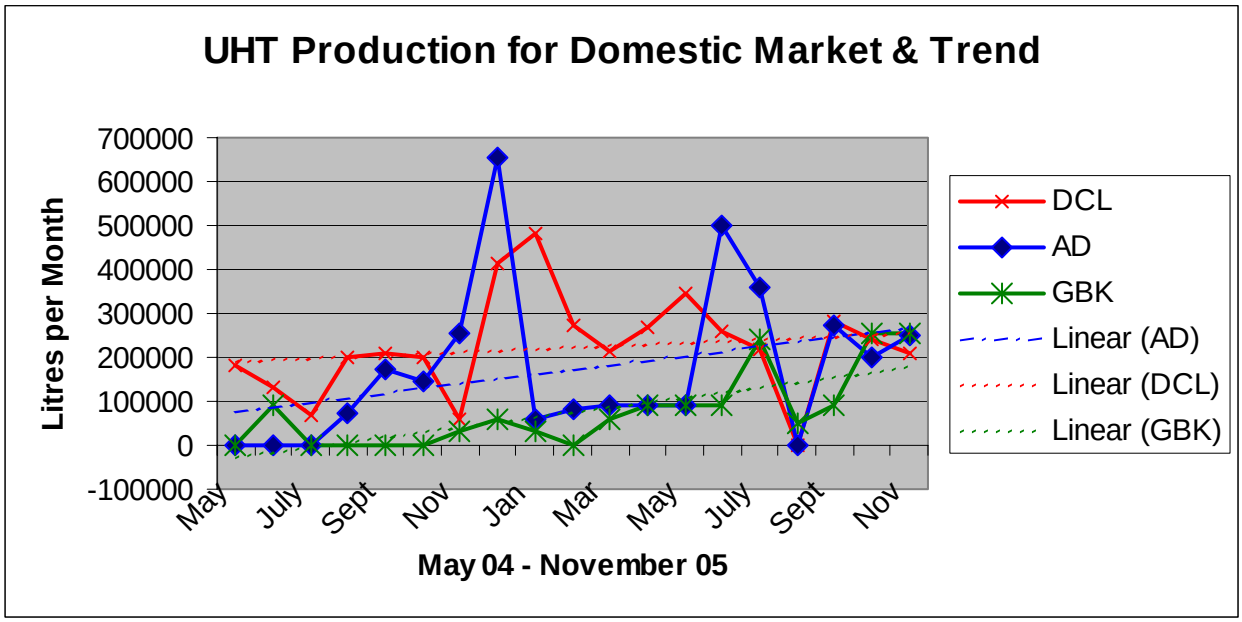


Figure 2 shows individual dairies' monthly UHT production dating from May 2004 when UHT production by Alpha and GBK commenced. Trend lines for Alpha and GBK show steady increases in UHT production, this accounting for the bulk of industry UHT production growth discussed above. GBK dairy recently began ramping up UHT production to benefit from Alpha's UHT promotion activities and capture a share of the growing UHT market. DCL's slow rate of UHT production growth stems from its' delayed and uncertain privatization process. December 2004's spike in UHT reflects stockpiling by processors ahead of the then anticipated start of the schools milk program (still yet to begin). The August 2005 drop in UHT production reflects raw milk shortages, producers anticipating this with above-trend production in June and July.

Figure 2



UHT producers assisted by this project have recognized the opportunity to develop domestic UHT demand for their products and their UHT promotion efforts are paying off. Consumer demand for UHT products can reasonably be expected to continue to grow in the near term.

2.2 UHT Retail Pricing Trends

At the beginning of this project, the retail price of a 250ml brick pack of UHT was US$0.30 and fell to US$0.27 by the end of the project. Adjusted for inflation during the life of this project, the baseline price of US$ 0.30 would now be approximately US$ 0.375. An inflation-adjusted price reduction of 35% has been achieved compared to a price reduction goal of 33% for the project. These data were tracked over the life of the project and are summarized in Tables 1 and 2 below. Table I shows changes in the nominal retail price and Table 2 shows the cumulative effect of consumer price inflation on the US$0.30 baseline price.

Table 1

Period; supplier	Retail price per 250ml brick UHT, US$
Oct 05 - Nov 05; DCL	0.27
Sept 05; DCL	0.28
May 05 - Aug 05; DCL	0.28
Apr 05; DCL	0.28
Nov 04 – Mar 05; DCL	0.29
Oct 04; DCL	0.26
June – Sept 04; DCL	0.28
March – May 04; DCL	0.26
Dec 03 – Feb 04; DCL	0.26

Table 2

Period	Impact on 250ml UHT brick retail pricing, US$
Project start, 01 September 2002	0.3
01 Sept 02 – 30 Aug 03; 10.5%	0.332
01 Sept 03 – 30 Aug 04; 4.7%	0.347
01 Sept 04 – 28 Feb 05; 2.9%	0.357
01 Mar 05 - 30 April 05; 4.8%	0.374
01 May 05 - 31 Aug 05; -0.9%	0.368
01 Sept 05 - 30 Nov 05; 2.0%	0.375

3.0 PROJECT ACCOMPLISHMENTS AGAINST OBJECTIVES

The section of the report briefly reviews the project's achievement, or not, of key project objectives.

3.1 Expanding UHT Processing Capacity Of Dairies

By the end of this project, UHT was available in the retail market in 250ml packaging but supplied solely by DCL, a 250ml brick pack product. Although the project assisted Alpha Dairy to acquire 250ml pouch and brick pack packaging capabilities, Alpha Dairy had yet to introduce 250ml sized products to the market when the project ended. The delay was initially attributed to technical problems with the line. Most recently, Alpha Dairy has indicated that it intends to launch its' 250ml brick pack UHT product in January 2006 in addition to the 500ml pouch UHT product it has supplied to the local market since August 2004. GBK is supplying only a 500ml pouch UHT product to the local market.

MEDA also suspects that Alpha's slowness to introduce its' smaller volume packaging, whether paper pouch or brick pack, is also partially attributable to the price per unit volume penalty of smaller packaging and the difficulties of lunching a more costly product in a young, price sensitive and still quite small UHT market. For example, Alpha Dairies 500ml pouch UHT product, on which its' current UHT campaign is based, was priced at US$0.35 in November compared to the US$0.27 and US$0.43, respectively, of DCL's 250ml and 500ml brick pack UHT products. The cost per 100ml of Alpha's product is 7 cents against 8.6 and 10.8 cents for DCL's products. It may well be that Alpha is using this price advantage to capture market share and establish its' UHT brand before introducing higher cost per unit UHT products in 250ml quantity packaging. This pattern is revealed in Table 3 which breaks down UHT milk production by package size by dairy over the last three months of the project.

Table 3

Package Size (ml)	lpm	lpm	Lpm	Percentage
	September	**October**	**November**	
DCL:				
Brick 250 Local	140,000	120,000	105,000	40%
Brick 500 Local	140,000	120,00	105,000	40%
Brick 250 export	---	---	----	0%
Brick 500 Export	20,000	60,000	45,000	20%
Sub-total	**300,000**	**300,000**	**255,000**	100%
GBK:				
(Brick 250 (Champ)	----	----	----	0%
Brick 500 (Champ)	30,000	75,000	75,000	30%
Pouch 500 (Classic)	60,000	180,000	180,000	70%

Sub-total	**90,000**	**255,000**	**255,000**	100%
Alpha:				
Brick 250 local	----	----	----	0%
Pouch 250 local	----	----	----	0%
Pouch 500 local	275,000	200,000	250,000	83%
Pouch 500 Export	100,000	100,000	50,000	17%
Sub-total	**375,000**	**300,000**	**300,000**	100%
TOTAL	**765,000**	**855,000**	**810,000**	

Thus, although this project has assisted Alpha Dairy to double its' UHT production capacity (and thus that of the three participating dairies combined by roughly 20%), this added production capacity has yet to be used. The total production capacity utilization, shown in Table 4, of the three participating dairies was 23% at the end of the project. On the plus side, the dairies have ample surplus short term UHT production capacity with which to respond to growing market demand.

Table 4

Company	Installed Capacity lpm	Production in litres during the month			Capacity Utilization		
		September	**October**	**November**	**Sept**	**Oct**	**Nov**
Alpha	1,200,000	375,000	300,000	300,000	31%	25%	25%
DCL	1,200,000	300,000	300,000	255,000	25%	25%	21%
GBK	1,200,000	90,000	255,000	255,000	8%	21%	21%
Total	**3,600,000**	**765,000**	**855,000**	**810,000**	**21%**	**24%**	**23%**

3.2 Improving Dairies' Production And Product Quality Standards

After consultations with diaries, consultants and standards authorities, HACCP guidelines were adopted as the standard for product and process quality improvement activities of this project. One of the three dairies that started the HACCP certification program, Alpha Dairy, completed the certification process during this project activity and obtained HACCP certification. The certification was carried out by QAM, a local consulting firm QAM, led by Dr. Eve Kasirye-Alemu. The other dairies subsequently continued their efforts to acquire HACCP certification with the support of the Land O Lakes dairy industry development project funded by USAID.

Alpha Dairies' acquisition of improved UHT milk packaging equipment also contributed to improvement of product quality standards.

3.3 Support Brand Or 'Quality Approved' UHT Product Advertising

The main intervention of this project consisted of providing financial incentives to encourage dairies to commit their own resources and time to promoting UHT products to consumers to build retail demand for UHT. This aspect of the project worked very well. MEDA utilized a US$70,000 fund earmarked in the project budget to defray 50% of dairies' eligible UHT promotion expenses in the domestic market. MEDA structured this on a competitive basis both to give dairies an equal opportunity to benefit from the support, to reinforce and encourage healthy competition amongst dairies generally, and as a way to ensure that the funds would be utilized by the most aggressive dairies. Just over US$60,000 of this fund was utilized, leveraging an equal investment by the dairies supported. This substantially accelerated and increased the public exposure of the UHT brands of Alpha Dairy and DCL (GBK did not resume production of UHT until after this incentive program was drawing to a close). Promotional activities supported included media placements in radio and newsprint in the national press and tailor made road shows taken to dozens of smaller urban centres around the country. Overall,

the project has stimulated and supported successful promotional interventions by key dairies in the domestic UHT market and significantly increased public exposure to brand name UHT milk product advertising. The growth in UHT production by the dairies reported above attests to the effectiveness of this project intervention.

3.4 Promote Increased Supply Of UHT Products To School Nutrition Programs

The project initially attempted to address this interest by linking dairies to rural schools and working with them to try and formulate a workable UHT school milk supply schemes. However, this quickly proved unworkable on cost grounds. Schools lacked the financial means to subsidize UHT milk and the dairies were unwilling to do so. As the project itself lacked the budgetary means to sponsor or subsidize such initiatives, it became quickly apparent that there was little that the project could accomplish in this area beyond continuing to play an advocacy role. From the dairies' perspective, it does not make much sense to subsidize the market that one is interested in selling to. Without subsidies by government or donor financial support for a schools milk program on childrens' nutritional health grounds, there is no little short term potential to get UHT into schools. A much anticipated tender by WFP to supply UHT and milk powder to schools in Northern Uganda was derailed by political considerations. Dairies have, predictably, voted with their feet and are limiting their interventions to schools in the commercially viable urban centres where family income levels are high enough to sustain UHT consumption by school children without public subsidy support.

3.5 Mobilization of a Dairy Processors Association

As reported in MEDA's first interim progress report on this project, shortly after this project commenced, MEDA learned that the USAID-funded Land O Lakes project had already initiated efforts to rejuvenate a then inactive and still informal association of milk producers. Land O Lakes assistance then included drafting a membership charter and registering the Uganda Dairy Processors Association with government. There has not been a need for MEDA to contribute directly to this initiative.

4.0 FINANCIAL

Project field activities ended on the 8th December, 2005 to enable financial and administrative operations to wind down and be completed by the project's 31st December, 2005 completion date. At the end of the project, the total project costs remained within the budget of $413,261 in USAID funds contributed. MEDA and its partners exceeded their match contribution to the project by 46%.

Actual costs for most of the budget categories landed close to the original budget amount. Cost variances occurred with Travel Costs and North American Direct Overhead costs. Actual travel costs were significantly under budget, particularly international travel, as we were able to share travel costs with other MEDA programs operating in Uganda at the time. Total actual direct overhead costs were higher than expected as the resources necessary for the implementation and management of this project were greater than originally anticipated.

5.0 MANAGEMENT ISSUES, CONCERNS

By and large, few project management issues have arisen. At project commencement, MEDA housed the project's field presence at Sunshine Dairy, a decision that quickly proved unpopular amongst other dairies. In response to a bitter and public legal battle between Sunshine shareholders, MEDA moved quickly to disassociate itself from Sunshine Dairy and relocate the

project's offices to a neutral institution acceptable to other dairies. MEDA's decision to leverage a host institution in this manner enabled economized substantially on project administrative and overhead costs.

A key shortcoming of project design became quickly apparent early in the project. It was not possible to make significant progress towards establishing school UHT milk programs because it quickly emerged that this would not be possible without some form of subsidization and the project did not have the financial resources to support this even on a limited pilot basis.

More generally, it proved challenging and, in fact beyond MEDA's control, for the project to ensure that participating dairies took full advantage of project resources in a timely manner. This applied to product and process quality control training and certification, to equipment upgrades an, in the latter stages of the project, to bringing newly acquired equipment into use and to product promotional support. Although project resources were potentially accessible to all dairies, only a handful responded to MEDA's invitation to participate. Amongst those that did, company management and often financial constraints hampered their responsiveness and ability to take advantage of project resources. This is part of the reality of working with the private sector in countries where business operating environments may be unpredictable. In recognition of these challenges, MEDA structured project interventions on a competitive access basis in an effort to best ensure that project resources were directed to the most enterprising and responsive firms. This tactic paid off especially well in the area of UHT production promotion. At the end of the project, Alpha Dairy had captured an 'early mover' advantage and established a leading role for itself in the young domestic UHT market. Recognizing that it was missing out on a short window of opportunity, GBK, which was not producing UHT and had chosen not to take advantage of the project's matching grant facility for eligible UHT promotion expenses, entered the UHT market with its' own brand and is now benefiting from the impact of Alpha Dairy's (and to some extent DCL's) continuing UHT product promotion investments. These developments are reflected in Figure 2 foregoing.

Most recently, MEDA sought and obtained a four month no-cost time extension to this project in anticipation that Alpha would commission its' new Combi-bloc production line and launch its' new 250 ml brick pack UHT product in the market during this period. MEDA hoped to witness the initial impact of this on Alpha Dairies' UHT sales. However, this had not occurred by the end of the project. The time extension also enabled MEDA to maximize the dairies' utilization of that the matching grant facility for UHT promotion activities.

6.0 CONCLUSION

Despite the limited influence over the business decisions of dairies that participated in this project and the foregoing design constraint, the project substantially satisfied the project objectives that proved workable and achieved key project goals. Taking into account consumer price inflation trends, the goal of a 33% price reduction for a 250ml packet of UHT milk has been exceeded by 2 percentage points: a 35% price reduction was achieved. The goal to increase consumer demand for UHT by 50% has also been achieved and exceeded: a 337% increase realized. Overall, this project has achieved significant impact at relatively modest cost to USAID.