APPENDIX 6: INSTITUTIONS

STUDY TO IDENTIFY VIABLE BUSINESS PROPOSITIONS FOR THE DAIRY INDUSTRY TARGETING LOWER INCOME CONSUMERS

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EXECUTIVE SUMMARY

Milk plays an important role in enhancing food security for communities living in Kenya. Milk provides high animal protein and is a good source of vitamins A, B complex and Riboflavin, hence contributes to the health of the consumers. It also provides significant amounts of other nutrients necessary for body growth such as magnesium, phosphorus, potassium, zinc and Calcium.

Quite a number of studies on milk and milk products have been conducted in Kenya and are particularly concentrated in major urban centres such as Nairobi and Mombasa. However, there is limited information available for milk and milk products consumption patterns of institutions. Available knowledge on the latter can provide valuable information for the key stakeholders involved in production, processing and marketing of milk and milk products. Consequently, there is a need to document the consumption of milk and milk products for the institutions. This could contribute to the development of specific measures to capitalise on market opportunities in this market segment.

SNV commissioned Research Solutions Africa (RSA), an independent Social and Market Research firm that conducts research studies in Africa, to conduct a survey to identify opportunities to increase the consumption and sales of processed milk (-products) among institutions. The survey was conducted in January 2013 in Nairobi. This report describes the procedures used in carrying out the survey, the outcomes and the recommendations by RSA.

The study analyzed consumption of milk and milk products for 33 institutions of the following three categories: schools, hospitals and universities/colleges. Both the institutions and the respondents in the study institutions were purposively sampled. The study involved the collection of quantitative data through the use of a key informant questionnaire; the data collected was analyzed using a descriptive technique of analysis.

The study results show that the most commonly used products are pasteurised milk, raw milk and - to some extent - UHT milk. These three products are commonly used by the institutions because of attributes such as low prices, nutritive value and good availability.

The main motivating driver identified for the consumption of milk and milk products across the institutions is nutritional value and associated health benefits. However, due to the limitations posed by the price of milk (-products), the institutions do not serve the recommended quantities (at least three servings in a day), but rather serve only what they can afford.
Other products are known, but they are rarely or never consumed by the institutions. The main reason for this was the issue of cost and lack of knowledge on their nutritive value or other attributes.

The results also show that among the three most used milk products, processed milk is consumed across the institutions, with the highest use in hospitals. It is safe to assume that hospitals consider food safety and hygiene as the most important factors for choice of product. In schools the use of raw milk is more common and exceeds that of processed milk. As much as schools and colleges indicated that product

safety and hygiene are important drivers, price still seems to be the overriding factor. However, as there is a high preference for quality and safety, and in general a growing awareness amongst a well-educated urban population of the risks of raw milk, there seems scope for processors to increase their market share in schools. This assumption is based on insights in trends and consumer behavior in other studies or reports, but cannot be directly derived at from this study due to the small sample size.

Another limitation that the institutions faced - next to price limitations - is the unreliable supply of milk.
A number of distribution channels were identified to be useful for the institutions. These channels included milk bars, supermarkets, dukas, middlemen and milk traders, direct sourcing from processors or own dairy farm. All have shortcomings and advantages and hence different institutions have different preferences for the marketing channels for milk and milk products. Although a number of factors determine which channels an institution can use, the major determinant is price next to food safety.

Less than 30% of the interviewed institutions knew about milk dispensers. For the institutions that are aware of milk dispensers, they agree it is a good innovation in that it encourages healthy behavior and improves on hygiene. However, the current models available in the Kenyan market are rarely used in the institutions since they are perceived as expensive and can only serve a small number of people at a time.

School milk programmes have a high potential to be the driver of increased consumption of processed milk and milk products in schools. Chapter 3 of this study reports on the current state of affairs and past experiences with school milk programmes.

To increase the consumption of milk and milk products among institutions, a number of issues can be considered:

- There is need for more reliable supply and distribution networks, which gives opportunities to have open tenders for the direct supply of milk (-products) by processors.
- There is room for awareness creation on benefits of processed milk and for milk products that are not commonly used by the institutions.
- There is opportunity to look into introduction by institutions, processors or distributors of affordable manual operated milk dispensers for processed milk.
- School milk programmes are a sure way to increase supply and sales of processed milk to institutions. Their design should assure sustainability of operations to ensure continuity.

1. INTRODUCTION AND METHODOLOGY

Quite a number of studies on milk and milk products have been conducted in Kenya and are particularly concentrated in major urban centres such as Nairobi and Mombasa. From these studies, it is clear that milk and milk products play a useful role in enhancing food security in Kenya. However, there is limited information available for milk and milk products consumption patterns of the institutions.

Available knowledge on consumption patterns, needs and preferences can provide valuable information for the key stakeholders involved in production, processing and marketing of milk and milk products, to increase market share. Consequently, there is a need to document the consumption of milk and milk products for the institutions. This could contribute to the development of specific measures to capitalise on market opportunities in this market segment. The objective of this study was to determine the consumption of milk and milk products in some of the institutions in Nairobi.

STUDY AREAS

The study was carried out in Nairobi Province and it involved interviews with 33 institutions. The institutions were mainly of three categories namely schools, hospitals and universities/colleges. For the schools, the target was public and community primary schools in low income areas of Nairobi such as Kariobangi, Kawangware, Kayole and the lower income areas of Westlands. This was also the case for hospitals: public hospitals in selected low and middle income areas of Nairobi were selected for interviews. For universities, both the public and private universities were selected for interviews regardless of where they are located.

SAMPLING METHOD AND DATA COLLECTION

The sampling frame was drawn from three categories of institutions: schools, hospitals and universities. 33 institutions were interviewed within Nairobi province and all these institutions were purposively sampled.

For schools, the major consideration was that these were public or community schools and were located either in low income or middle income areas. This was also the case for hospitals: the sampled hospitals had in-patient wings and are also located in either low income or middle income areas of Nairobi. For the universities, both private and public were interviewed regardless of the location with in Nairobi. Most of the schools in the sample had been involved in a school milk programme in the past, or were involved in such a programme currently. Two schools had no programme previously.

The survey was carried out between 3rd and 9th January, 2013 using a pre-tested key informant questionnaire. Information collected included type of institution, type of milk and milk products that are consumed, quantities consumed, motivations for consumption, barriers to consumption, future considerations for consumption, and technology awareness related to milk and milk products. The respondents were mainly the available staff of the institutions who occupy managerial positions. They were interviewed and information was recorded. The data collection technique that was employed was direct questioning of the respondents.

DATA ANALYSIS

Data was entered in a spreadsheet and descriptive analysis was applied.

DATA LIMITATIONS

The major limitation with the data set is that comparisons are made across the institutions without considering the sizes of the institutions as well as the nature of the institutions. Some of the institutions offer education services while others offer health services. For all the institutions, the difference in size was not corrected for during the data analysis.

Another limitation of the dataset obtained from the study is that the study duration under consideration was a typical week for the institutions. For some institutions a typical week has 5 days while for other institutions a typical week has 7 days. But for the analysis of this data the reporting is done for a week regardless of the number of days that an institution considers to be in a typical week for them.

2. RESULTS AND DISCUSSIONS

2.1 INSTITUTIONS CHARACTERISTICS

Three categories of institutions were interviewed: schools, hospitals and universities/colleges.
The sample size for the study was 33 and the distribution of the interviews was as below:

Institution	Count	%
School	18	55
Hospital	11	33
College	4	12
Total	**33**	**100**

TABLE 1: DISTRIBUTION OF THE INTERVIEWS PER CATEGORY OF AN INSTITUTION

The sampled schools were mainly public and/or community schools. Except for two, these schools are or have been under a school milk programme supported by different donors/organisations. Some of the sponsors for school milk programmes mentioned during the survey were New KCC, WFP, Brookside, Nyayo, Tetra Park and UNICEF. The schools are located in the low and middle income level areas of Nairobi province, in Kariobangi, Kawangware, Kayole and a few schools in Westlands where the middle income children attend. For all the schools that mentioned Nyayo milk programme as being the milk programme, they no longer have the programme running. There are other schools that had milk programmes which stopped. The main reason given for this was that the programmes were not sustainable.

For the hospitals, the sample was also drawn from both the low income and middle income areas of Nairobi province. The sampled hospitals comprised of those hospitals with in-patient wings. These hospitals differed in size and bed capacities. The survey tool did not have a question on the bed capacity, but some of these hospitals are known to accommodate many inpatients, for example Kenyatta National Hospital which is a referral hospital and hence expected and actually known to accommodate many inpatients. In other hospitals the in-patient wings are only maternity wards like the

Kasarani Hospital Maternity and Nursing Home. These hospitals included both private and public hospitals that are known to give services to patients in both low and middle income groups.

The list of the institutions that participated in this study is attached in this report as Annex 1.

2.2 AWARENESS AND USAGE OF MILK PRODUCTS

There is some basic knowledge on milk products by all the institutions that were under the study. Table 2 shows the levels of awareness for milk products by type of institution. Pasteurised milk, raw milk and UHT milk are the products that the institutions are aware of mostly.

Awareness of Various Dairy Products				
Dairy Products	**Total (%)**	**School (%)**	**Hospital (%)**	**College (%)**
Pasteurised Milk	97	100	91	100
Raw milk	70	72	64	75
UHT	70	78	55	75
Mala	64	56	73	75
Yoghurts	61	56	64	75
Cheese	36	17	55	75
Butter	27	22	27	50
Cream	27	28	18	50
Powder	24	22	27	25
Flavoured milk	12	6	18	25
Ghee	12	11	9	25
Ice cream	6	0	9	25
Chocolate	3	6	0	0
Whey	3	0	0	25

TABLE 2: AWARENESS LEVELS FOR SPECIFIED DAIRY PRODUCTS AMONG THE INSTITUTIONS

The table above summarises the levels of awareness of various milk products by the interviewed institutions. Beware that the scores for the colleges are least meaningful due to the small sample size of four. Empirically, this is of very limited use and should not be used for strategic purposes. The values are unprompted awareness and therefore only reflect what people mention top of mind.

The Total Column summarises the overall awareness by the institutions while the other three columns give the levels of awareness by institution category. The table shows that pasteurised milk, which is in the form of packed milk, scores highest on awareness. Raw milk scored slightly lower on unprompted awareness as people might not have associated with it as a valid dairy product in the context of the interview.

The survey also sought to find out what are the dairy products that the interviewed institutions have ever used. The responses in table 3 indicate that schools have the lowest range of products, followed by hospitals and colleges. The wide range of products actually used in colleges is surprising.

For all the institutions, pasteurised milk, UHT and raw milk have been the dairy products they have all used. For schools, the three are the only dairy products that they have been used. For hospitals all have been used except cheese, ice cream and whey, while for colleges flavoured milk and margarine have never been used. Beware that some products might be over- or underreported. The sample sizes are too small to correct for such a reporting error.

From the table below, the totals column gives a summary on the use of these particular dairy products. Again a higher percentage on use is for pasteurised milk across the interviewed institutions, but especially for hospitals. Though high percentages were recorded for the use of pasteurised, raw and UHT milk, pasteurised milk had a higher percentage than the other two.

Dairy Products Ever Used				
Dairy Product	**Total (%)**	**School (%)**	**Hospital (%)**	**College (%)**
Pasteurised Milk	76	67	91	75
UHT	70	83	55	50
Raw milk	58	50	64	75
Yoghurts	15	0	27	50
Mala	12	0	27	25
Butter	9	0	18	25
Powder	6	0	18	0
Cream	6	0	9	25
Flavoured milk	3	0	9	0
Cheese	3	0	0	25
Ice cream	3	0	0	25
Whey	3	0	0	25

TABLE 3: DAIRY PRODUCTS EVER USED ACROSS THE INSTITUTION

It is also clear from the table that the schools interviewed, have only used the first three milk products which are mostly in form of liquid milk, but have never used any of the other milk products that were considered under the study. Another important issue to be established was to find out the dairy products that the institutions are currently using and what are the motivating factors for their use. The responses were as shown below:

Dairy Product	**Total (%)**	**School (%)**	**Hospital (%)**	**College (%)**
Pasteurised Milk	64	50	82	75
UHT	48	56	36	50
Raw milk	39	39	36	50
Butter	12	0	18	50
Mala	9	0	18	25
Yoghurts	6	0	9	25
Cream	6	0	9	25
Cheese	6	0	0	25
Ice cream	3	0	0	25
Whey	3	0	0	25

TABLE 4: DAIRY PRODUCTS CURRENTLY IN USE IN THE INSTITUTIONS

Among the three types of institutions that were interviewed, they still use pasteurised milk, UHT milk and raw milk. Again, the numbers for the colleges should be dismissed due to an insufficient sample size. There is a reduction though across all the three types of institutions on the use of pasteurised milk, UHT milk and raw milk. The reasons that were given for the decrease in the consumption of these dairy products were:

Reasons for a decrease in consumption	Dairy products
Expensive	Pasteurised milk, UHT milk and powder milk
Unreliable supply	Raw milk
The school milk programme stopped	Pasteurised milk, UHT milk
Used for special diets	Yoghurt, mala

TABLE 5: REASONS FOR DECREASE IN CONSUMPTION OF SPECIFIC DAIRY PRODUCTS

These consumption patterns for the various dairy products by the institutions are motivated by different attributes found in each of the dairy products that they use. Across the institutions, the major factors that influence the consumption of pasteurised milk are nutrition and hygienic packaging. The major factors that influence the consumption of UHT milk are that the milk is nutritious, has good taste and that it is readily available. The high preference and use of processed milk (pasteurised or UHT) in hospitals can be attributed to health and hygiene issues.

Raw milk is least preferred by the institutions. Though it is cheap, the supply is very unreliable and delivery in bulk is associated with low hygiene and raises health concerns. These are the major reasons for the decrease in the consumption of raw milk across the three types of institutions that were considered for the study.

2.3 BARRIERS TO CONSUMPTION OF MILK (-PRODUCTS) IN THE INSTITUTIONS

A number of issues were identified as hindrances to the sufficient provision of milk and milk products for pupils, students, patients and staff. These are the cost of milk (-products) and the high number of populations to be served in the institution. Thus the amounts bought are usually not sufficient to cover the daily needs. Another challenge identified was that the supply is unreliable.

In order to increase the consumption level of both pasteurised and UHT milk in the institutions, the prices for these products may need to be decreased or even subsidised. An open tender system between the suppliers and the institutions could be a way to both reduce prices and to increase reliability in supply. However, from our survey we are not sure how exactly milk is delivered to the schools, whether in bulk or packed, nor can we deduce the quantities of each.

2.4 FUTURE CONSIDERATIONS FOR CONSUMPTION OF MILK AND MILK PRODUCTS

Table 6 shows the future considerations for the consumption of milk (-products) by the surveyed institutions. It is clear from the table that pasteurised milk is the dairy product that all the 3 categories of institutions interviewed consider using mostly in the future. Other products that are likely to be considered across the three types of institutions interviewed are mala and raw milk. Generally, the dairy products with least considerations for use in the future across the interviewed institutions are ice cream, cheese and flavoured milk.

Dairy Product	Total (%)	School (%)	Hospital (%)	College (%)
Pasteurised Milk	76	72	82	75
Mala	67	78	55	50
Raw milk	52	50	55	50
Yoghurts	33	28	36	50
UHT	30	28	27	50
Butter	15	0	27	50
Powder	9	11	9	0
Ice Cream	9	0	18	25
Cheese	9	0	9	50
Flavoured milk	3	0	9	0

TABLE 6: FUTURE CONSIDERATIONS FOR USE OF SPECIFIC DAIRY PRODUCTS BY THE INSTITUTIONS

Table 7 below summarises the reasons given by the institutions for their future considerations to use specific milk products:

Dairy Product(s)	Reasons For Future Considerations
Pasteurised milk	Hygienic pack Nutritious Available in plenty Good taste
Raw milk	Affordable Nutritious Available in plenty

TABLE 7: REASONS FOR FUTURE USE OF SPECIFIC DAIRY PRODUCTS BY THE INSTITUTIONS

For the dairy products that have least considerations for use in the future the reasons are as given below:

Dairy Product(s)	Reasons For not considering the use of the product(s)
Ice Cream	Expensive Low demand
Flavoured milk	Expensive Low demand Low nutritive value
Cheese	Expensive Not good for health Low demand

TABLE 8: REASONS FOR NON CONSIDERATION OF USE FOR SPECIFIC DAIRY PRODUCTS BY THE INSTITUTIONS

2.5 MARKETING CHANNELS

Marketing channels for dairy products are clearly defined. The table below shows the percentage of institutions buying milk products from different sources. The supermarkets dominate as the source of dairy products across the institutions. Other sources of milk products across the institutions are middlemen and milk bars. The specific supplier-institution arrangements were not detailed in this survey.

Source	Total (%)	School (%)	Hospital (%)	College (%)
Supermarket	24	22	18	50
Middlemen/vendor/hawker	39	39	45	25
Milk bar/shop	21	22	18	25
Processor	18	11	27	25
Duka	12	17	9	0
Own dairy	6	0	9	25
Kiosk	3	6	0	0
School milk programme	8	25	0	0

TABLE 9: SOURCES OF MILK AND MILK PRODUCTS FOR THE INSTITUTIONS (MULTIPLE ANSWERS POSSIBLE)

Four of the 18 schools interviewed are currently on a (sponsored) school milk programme. Apart from giving milk to the pupils, the school milk programmes also educate both the pupils and the parents on the health benefits of consuming milk and milk products.

Sixteen of the 18 schools have been part of a school milk programme at some point in time. The sponsors identified for those school milk programmes are as shown in the figure 1 below.

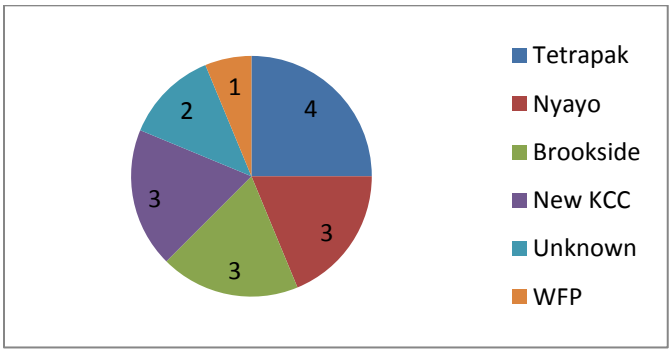

FIGURE 1: SCHOOL MILK PROGRAMMES SPONSORS

The figure shows that Tetrapak dominates as a sponsor for school milk programmes in our small sample, followed by New KCC, Brookside and earlier the famous Nyayo school milk programme.

It is also important to note that most of the school milk programmes launched in the past are no longer in operation, which is mainly due to the fact that the programmes were not sustainable. Only 25% of the identified milk programmes are operational to date the rest (75%) have stopped.
Currently two new school milk programmes are in operation for selected schools, and the Government is planning to launch a nationwide programme in 2013 or 2014. This is reported upon in the following chapter.

2.6 QUANTITIES AND PRICES OF MILK PRODUCTS CONSUMED BY INSTITUTIONS

The quantities of liquid milk used in an institution varies from one type of institution to another while the prices vary depending on the type of milk consumed by an institution, either raw, pasteurised or UHT. The table below shows quantities consumed by channel, product and institution type.

PRODUCT	SOURCE	TOTAL (ltrs)	SCHOOL (ltrs)	HOSPITAL (ltrs)	COLLEGE (ltrs)
PASTEURISED	Processors	7,700	.	7,700	.
	Middlemen/vendor/hawker	3,3437	138	644	2,655.
	Supermarket	67	40	17	10
	Kiosk	-	.	.	.
	Duka	30	10	20	.
	SUB TOTAL	**11,234**	**188**	**8,381**	**2,665**
RAW MILK	Processors	2,010	10		2,000
	Middlemen/vendor/hawker	575	425	150	
	Milk bar/shop	165	75	65	25
	Own dairy farm	3,210	.	210	3,000
	SUB TOTAL	**5,960**	**510**	**425**	**5,025**
UHT MILK	Processor	880	600	280	.
	Supermarket	130	20	6	104
	Kiosk	25	25	.	.
	Duka	60	50	10	.
	Milk bar/shop	60	60	.	.
	Other suppliers	60	20	40	.
	SUB TOTAL	**1,215**	**775**	**336**	**104**
	TOTAL	**18,409**	**1,473**	**9,142**	**7,794**

TABLE 10: QUANTITIES CONSUMED IN A TYPICAL WEEK BY SOURCE, PRODUCT AND INSTITUTION TYPE

The quantities are averages consumed by the institutions in litres and are figures given for a typical week. The college data should be treated with care for its small sample size. In addition, the college sample contains an agricultural college with itsr own dairy farm, producing about 3,000 litres per week. It is unclear whether all that milk is consumed within the college or also sold to third parties.

It is also worth noting that a typical week has different meanings for different institutions. For instance in schools a typical week has five days that is Monday to Friday, while for hospitals a typical week has seven days that is Sunday to Sunday.

The quantities and varieties of milk and milk products consumed by each category of institution are determined by different factors. For instance, in schools that have a school milk programme which is sponsored, volumes are determined by the funding of the sponsor, and are not necessarily need-based. These schools also are supplied with processed milk (UHT or pasteurised).

Table 10 shows that the bulk of consumption of liquid milk is in the form of processed milk, in particular pasteurised milk. However, the hospitals are largely responsible for this.

The figures on consumption of raw milk increase in the schools and colleges. However, this needs further qualification. First, these data are heavily influenced by the own dairy farm of one of the colleges in the sample and there is no information whether the 3,000 litres produced on a weekly basis is all consumed by the students, or that part of it is sold.

Second, the sample of schools had a bias towards those schools that participated in a school milk programme, which would explain the relatively high volumes of UHT milk in Table 10 (which exceeds the figure for raw milk!). Although in table 10 the total of pasteurised and UHT milk is higher than total raw milk bought, this is likely to be due to the participation of a number of the schools in the sample in one of the school milk programmes (see the 600 litres of UHT from processors). If corrected for this, the share of processed (UHT/pasteurised) milk and raw milk is 363 litres and 510 litres respectively.

Schools and colleges indicated that product safety and hygiene are important drivers for buying behavior, although price still seems to be the overriding factor. Yet, and in view of this, there seems scope for processors to increase their market share pegged on this concern for food safety and hygiene. It was for example established in other studies (i.e. DSM Nutrition, 2011) that families – if they can afford – tend to buy processed milk for their infants and young children. It can be expected that with growing levels of education, awareness and importance of food safety in buying behavior will increase. Processors can capitalise on this if they are able to bring dairy products in the market that are consistently of higher quality and attractively priced.

The price of liquid milk varies based on whether the milk is raw or pasteurised; it also varies according to the outlet bought from. Across the sample the prices of raw milk are lower than the prices of both pasteurised and UHT milk. UHT milk is the most expensive with high prices across the institutions. This is one of the major barriers for buying pasteurised and – especially - UHT milk in the institutions. The variations in prices per litre from different channels are as summarised below:

Source	Raw	Pasteurised	UHT
Processor	59	60	64
Middlemen	56	70	
Milk trader	50	66	70
Own dairy farm	50		
Milk bar	48	66	60
Duka		71	87
Supermarket		70	97

TABLE 11: VARIATION OF PRICES FOR RAW, PASTEURISED AND UHT MILK ACROSS THE DIFFERENT SOURCES

The prices above are given per litre of milk as reported by our respondents in January 2013. These are the prices given for the different milk types used in the institutions one week prior to data collection. There are variations in the number of days in a typical week for different institutions. The price for raw

milk reported under the “own dairy” source is an approximate based on what the milk would fetch if sold to third parties.

Prices for raw milk range from Kshs. 48 in the milk bars to Kshs. 59 from the processors, while prices for pasteurised and UHT range from Kshs. 60 to Kshs. 97 across the market channels. The exact manner in which the milk is procured was not explored in this largely quantitative questionnaire.

However, the price table above shows that in some channels prices for pasteurised milk and UHT milk match those of raw milk. Milk processors have made pasteurised or boiled milk available in bulk to selected outlets and often this is done by processors using distribution vehicles bearing a different name than their core brand. In some cases the milk is packed in cheaper packaging material. The milk marketing system is innovating as players jostle for market share and increased volume.
From Chapter 3 it will also become clear that in the current school milk programmes (Pacoh and Brookside/Sameer), UHT milk is sold by the participating processors significantly below the market price.

2.7 DECISION INFLUENCERS IN BUYING MILK AND MILK PRODUCTS

Decisions on the type of milk and milk products that are used across the institutions are mainly influenced by the cateresses. The attributes that they mainly look at are price, quality, taste, packaging and convenience in terms of delivery as well as accessibility of the products.
As stated above it is likely that within the institutions quality, safety and hygiene are increasingly gaining importance as factors determining the choice of product and of the supplier. This may explain the high prevalence of processed milk in these institutions.
In the case of school milk programmes for the schools, the institutions have no influence on the milk and milk products to be used. Most of these milk programmes are sponsored and hence the sponsor decides on the type and quantities of these particular products.

2.8 TECHNOLOGY AND MILK USE

Out of the 33 interviewed institutions only 8 are aware of milk dispensing units. Those who were aware of the milk dispensing units were of the opinion that the units are advantageous in that they promote healthy behavior and hygiene. Though most felt that milk dispensing units are a good innovation, the respondents saw as the main shortcoming they were not fit to be used in populous areas such as in schools and other institutions.

3. OVERVIEW OF SCHOOL MILK PROGRAMMES

The following overview of school milk programmes is not based on the survey, but on consultant insights.

3.1 CURRENT SCHOOLMILK PROGRAMME

School milk is currently being provided in a number of private schools and a few public ones. The milk is paid for by the parents through the school fees. The processors deliver milk directly to the schools twice a month and the schools retain a certain percent of the cost of the milk.

The milk is long-life served in 200 ml thrice a week and retails at between Kshs. 15-18, which is lower than the commercial price of Kshs. 25.

Currently three processors are in the programme: Brookside, NKCC and Sameer. Githunguri is scheduled to start in September 2013. The Kenya Private Schools Association is currently pitching to the processors to expand the programme.

Processor	No. of schools	Price point	No. of servings per week	Launch Year	Packaging
Brookside	230 (112,00 children)	KES 18	2 to 3 times weekly	2008	Commercial pack design
New KCC	49 (13,200 children)	KES 15	2 to 3 times weekly	2009	Different pack design called Pacoh brand
Sameer	22 (6,400 children)	KES 20	2 to 3 times weekly	2011	Commercial Pack design

TABLE 12: CURRENT SCHOOL MILK PROGRAMMES

School milk programmes have a potential of reaching 27 million consumers (see Table 13 below). Processors are planning to claim that market with the support of parents, donors and the government.

A way forward on the topic of school milk is currently being discussed in the context of a School Milk Trust Fund. The Board of Trustees of this gazetted institution includes representatives of the following institutions and organisations:

- Ministry of Education
- Ministry of Health
- Ministry of Agriculture and Ministry of Livestock Development (now merged into one Ministry)
- Kenya Dairy Board
- Kenya Livestock Farmers' Association
- Kenya Dairy Processors' Association
- Kenya Private Schools Association
- Kenya Private Sector Alliance

Type of Schools	No. of students	Ownership	Funding	Remarks
Early Childhood schools	1,115,900	Private Entities	Parents	ONLY Through the Ministry of Education, which has created complexity
Private schools	2,814,350	Private Entities	Parents	Easy access through Kenya Private Schools Association
Community schools	3,200,000	Community	Donors	Needy kids rely on donor funding
Catholic Schools	600,000	Catholic Diocese	Parents	Catholic Diocese who run own feeding programmes
Public Schools	19,367,000	Government Owned	Government Parents Donors	Free primary education is a barrier
Total	27, 097, 250			

TABLE 13: TYPE OF SCHOOLS AND NUMBER OF POTENTIAL SCHOOL MILK RECIPIENTS

3.2 THE LARGEST SCHOOL MILK PROGRAMMES

THE NYAYO SCHOOL MILK PROGRAMME

The Nyayo School Milk programme was introduced in 1980, and was the first attempt by the Kenyan government to intervene and enhance the educational and health status of primary school going children. The programme was fully funded and run by the Kenyan Government. The programme targeted school going children (aged 5-13).

At its peak, the Nyayo school milk programme was delivering milk to more than 4.3 million litres of milk per year in over 11,000 primary schools.

The strategies employed by the Nyayo Milk Programme were based on several factors. Kenya Co-operative Creameries (KCC) was a monopoly in milk processing and distribution at that time. Processing and packing of the school milk was done solely by KCC. Approximately 80% of the milk was 200 ml long life and therefore could be sent to schools in far flung areas. About 20% of the milk was pasteurised 200 ml fresh milk and this was only delivered to schools in urban areas due to challenges with storage and access in rural areas. Education officers were offered three month training by KCC on milk handling practices.

Fresh milk was directly sent to schools by KCC, while the long life milk was sent to stores located at DEO's offices. The Education Office was responsible for delivering the long life milk to schools. The distribution was carried out twice a week. The milk packets were designed differently from those for commercial use.
The programme failed due to the fact that it became too costly and unsustainable for the government especially for the long life milk. Specific challenges included the following:

- A poor road infrastructure that led to high transport costs to distant rural areas
- Heavy losses were accrued through spoilage and lack of experience in milk handling in DEO's go-downs
- Inadequate personnel to handle the huge stocks of milk delivered to the Ministry of Education; and
- Poor accountability by the same Ministry

Several important lessons have been learned from the Nyayo School Milk Programme, they include the following:

- Provision of free milk is not sustainable in the long-term;
- Management challenges will always come if a programme is launched on a large scale without proper planning, and therefore, it should start on a small scale and develop capacity for growth;
- A milk programme can only be effective if all handlers are educated on proper milk handling;
- Preferably milk delivery to schools should be carried out by processors as they are experts in milk handling.

PACOH SCHOOL MILK PROGRAMME

The Pacoh School Milk Programme is currently running on a design based on the lessons learned with the Nyayo School Milk Programme. The programme is run by a committee that is made up of various stakeholders including public institutions, producers, processors, input suppliers and development partners. The objective of the programme is to use proper planning to promote nutritional benefits of milk to primary school going children (aged 5-14). The following strategies are employed by the Pacoh School Milk Programme:

- Production of lowly priced long life and nutritious milk through negotiation between stakeholders on lower costs
- Attractive and easily designed package for school distribution only
- The cost of running the programme is incorporated in the school fee structure for all schools in private and public institutions
- Parents are able to meet the reduced cost of Pacoh milk
- Milk processing is done by NKCC, packets are produced by Tetra Pak, and marketing and communication is done by Orion Marketing Solutions.

The programme is mainly available to private primary schools as they can readily pay for the milk and currently has about 250 schools. With increased marketing activities and ongoing negotiations between different stakeholders, the programme is projected to achieve tremendous growth in following year.

However, there are plans to include needy public schools through PTA, government and donor involvement.

THE BROOKSIDE/SAMEER SCHOOL MILK PROGRAMME

This is the newest school milk programme that runs parallel to the Pacoh School Milk Programme. The design and strategies employed by the Brookside and Sameer model are similar to those used by the Pacoh School Milk Programme. The only difference is that stakeholder support for the Brookside and Sameer model is limited due to an existing MOU with Pacoh. However, there is a large market potential for both programmes.

4. CONCLUSIONS AND RECOMMENDATIONS

The study found that the institutions are aware of milk products and their nutritious value. However, they restrict themselves to the use of a few products whose prices are considered to be friendly. Next to price limitations there is, however, also lack of awareness of other milk products and the fact that the supply chain or distribution channels are considered as unreliable and inefficient.

- As for distribution channels, there is scope for creating more regular and steady supply channels or systems for milk (-products), both as a means to increase market share by processors and to reduce costs for institutions. A suggestion given by most of the interviewed institutions is the use of open tenders for processors who would be interested to directly supply them. Schools or other institutions could also group together and engage in a joint tender procedure to attract processors and negotiate more favourable conditions as a result of larger volumes, combined with end-of-month payment arrangement through a joint milk account.

- There is also scope on the side of processors and distributors for awareness creation on availability and benefits of processed milk products that are in the market, both with respect to the milk products that are currently used, and with regard to products that are not (yet) consumed in significant quantities by the institutions.

  The survey revealed that price is key in determining what type of milk product is used by the institutions. However, there also is a high concern for food safety and hygiene. This is likely to explain the high use of processed milk in hospitals, as well as schools (even if accounting for the fact that some participate in a school milk programme). This could therefore be an entry point for processors, especially if combined with awareness raising campaigns for food safety, reduced prices and reliable supply.

- There may be scope for expanding the use of products that are in the market but not yet widely used by institutions – or to introduce new ones – and appeal to consumers on the merit that they are perceived as substituting a meal or part thereof, especially yoghurts and mala. This was one of the findings of the consumer study that was carried out by RSA and is included as Report 5 of the

bigger BoP study. It may also apply to schools and parents who enroll their children in these schools, although this was not validated by the study.

- School milk programmes have great potential to increase market share of processors, provided they are sustained. One way to achieve this is to incorporate the costs in the fee structure and launch awareness programmes at the schools on food safety, hygiene and nutrition. Equally important is that processors and/or other suppliers sell consistently at lower prices - and even margins - to schools, which should be possible given the volumes involved and the direct supply channels.

- Use of milk dispensers as a new technology in assessing milk is still not widely known and used. This is mainly due to scanty information on the technology and the types available in the Kenyan market. The current models are expensive and fully automated and not aligned to the needs of caterers. Based on findings by SNV regarding dispensing models in other countries, there could be scope to introduce more simple - but hygienic and easy-to-operate - dispensing devices by both institutions and especially processors. Processors could introduce these on a hire-purchase basis or in a franchise model, in particular the types that come with disposable or refillable 10-20 litre hygienic plastic bags or containers filled and distributed by the processor. This is a model that is widely applied in the Netherlands by Friesland Campina.

ANNEX 1: LIST OF INSTITUTIONS THAT PARTICIPATED IN THE SURVEY

SCHOOLS
BUSARA PRIMARY SCHOOL- KARIOBANGI
NDUMBUINI PRIMARY SCHOOL- UTHIRU
RABAI ROAD PRIMARY SCHOOL
KARIOBANGI NORTH PRIMARY SCHOOL
GATOTO COMMUNITY PRIMARY SCHOOL
DHAWABU PRIMARY SCHOOL
WESTLANDS PRIMARY SCHOOL
TUMAINI PRIMARY SCHOOL
DANIEL COMBONI PRIMARY SCHOOL
MUREMA PRIMARY SCHOOL
MUTHAIGA PRIMARY SCHOOL
THIKA ROAD BAPTIST PRIMARY
SIFA EDUCATIONAL CENTRE
WORLD HOPE CENTRE SENIOR SCHOOL
RENS COMMUNITY SCHOOL
KAWANGWARE PRIMARY SCHOOL
MILIMANI PRIMARY SCHOOL
KABIRU PRIMARY SCHOOL
ST MARYS LANGATA
COLLEGES
COLLEGE OF AGRICULTURE AND VETERINARY STUDIES- UNIVERSITY OF NAIROBI
STRATHMORE UNIVERSITY
KCA UNIVERSITY
KENYA MEDICAL TRAINING COLLEGE
HOSPITALS
WESTLANDS HEALTH CENTRE
NEEMA HOSPITAL KASARANI
JAMAA HOSPITAL
MAMA LUCY REFERAL HOSPITAL
MBAGATHI DISTRICT HOSPITAL
KENYATTA NATIONAL HOSPITAL
ST FRANCIS COMMUNITY HOSPITAL
KASARANI HOSPITAL MATERNITY AND NURSING HOME
UZIMA DISPENSARY AND MATERNITY