

# Milk collection, processing and marketing



## *Introduction*

Most milk in Kenya is produced and consumed in the highly populated central and western parts of the country. Map 1 shows the milk surplus and deficit areas. As milk production occurs in the countryside away from the urban consumption centres, the ability to deliver milk quickly and at minimal cost and spoilage to the urban market is of utmost importance to the dairy farmer (DANIDA 1991). The farmers' major concern in milk marketing is, therefore, the development of marketing channels that minimise losses and maximise returns.

## *Milk collection*

In the rural areas farmers resort to a wide range of transport means including hired vehicles, matatus, bicycles, carts and even donkeys. In many cases, they deliver the milk on foot over long distances of up to 10 km or more to a collection point, cooling plant, co-operative society, processing factory or directly to consumers.

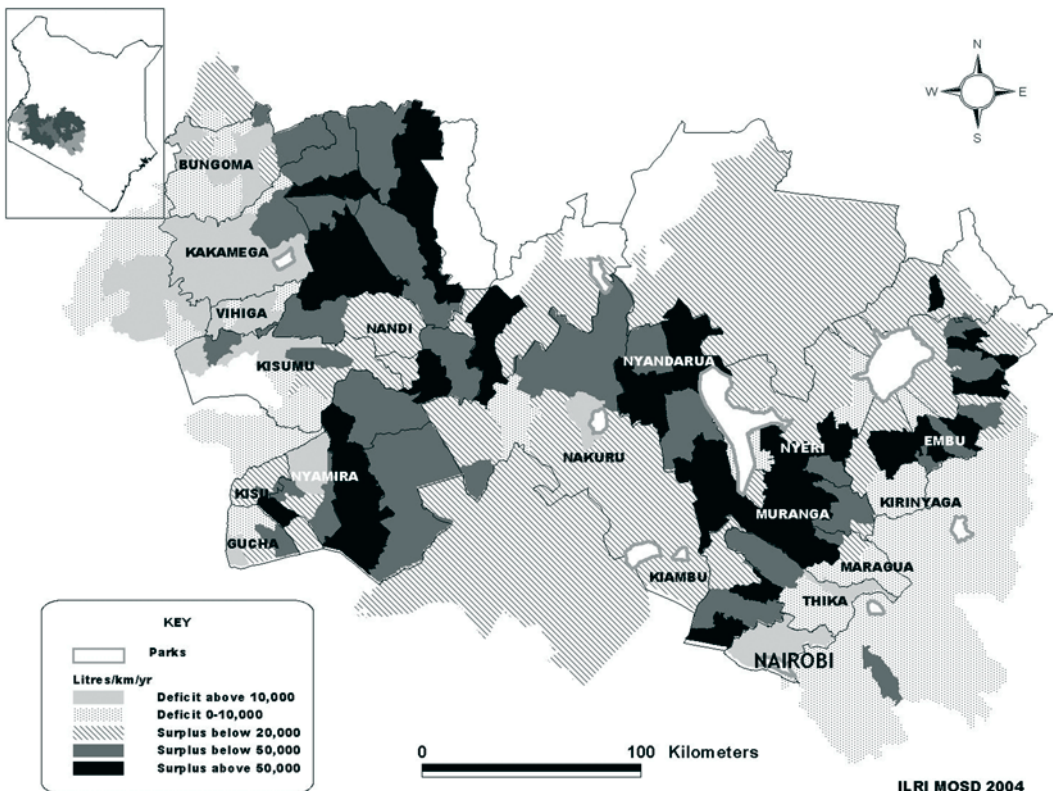
The constraints imposed by the technical characteristics of milk determine the nature of the entire milk collection and delivery infrastructure, including road quality, length of the milk collection routes, and location of milk collection centres and cooling facilities.



It is inevitable that infrastructure plays a critical role in milk collection. The perishable nature of milk imposes the need for adequate and clean water for cleaning equipment such as milk cans, while the long distance (often on rough roads) to the collection centres, cooling plants and processing factories creates the need for sound feeder road network that is also well maintained. Similarly, the requirement for cooling milk in the rural areas particularly the evening milk requires availability of electricity to run the cooling equipment and machinery, in the absence of which only morning milk is typically collected. Milk coolers are important in ensuring that milk quality is maintained between the time of

collection and final processing, but may not be viable in many areas due to power supply, maintenance requirements, or simply economics. It is estimated that there are over 70 milk coolers in Kenya including 11 major cooling plants belonging to KCC, most of which are not utilised or under-utilised. Dairy co-operative societies own a further 60 milk coolers that were supplied by the Kenya Rural Dairy Development Project (RDDP) between 1980 and 1989 (DANIDA 1991). Most of these milk coolers, however, are non-operational either because they are uneconomical or they have not been properly maintained (Makhapila, personal communication). In the recent past, private milk

**MAP 1. Milk surplus and deficit areas in Kenya.**



Source: ILRI-MOSD(2003)



processors have been setting up additional coolers in strategic locations. Before market liberalisation, elaborate procedures for setting up milk coolers had to be followed, including reference to the District Development Committee. But now these have largely been lifted.

#### *Role of dairy co-operatives in milk collection*

Dairy co-operative societies are registered under Section 11 of the Co-operative Societies Act Cap (490). In addition, the KDB issues various categories of license to dairy co-operative societies depending on the predominant activity and products sold. Some are licensed as milk bars while others are licensed as producers or mini-dairies.

Over the years, the co-operative movement has played an important role in agricultural production and marketing. They have been particularly instrumental in the main milk surplus areas of Central Kenya (Map 1) in collection, bulking and sale of farmers' milk, either to processors or local consumers. Through bulking, the co-operatives have been able to reduce the cost of milk marketing and have thus realised higher returns for farmers, but perhaps more importantly, provide a stable and reliable outlet for milk. Currently, it is estimated that over 200 dairy co-operatives and self-help groups are actively engaged in milk marketing.

#### *Development and maintenance of roads*

Feeder roads play a key role in the efficiency of milk collection. The overall responsibility for development and maintenance of rural access roads lies with the government. The Kenya Roads Board (KRB) has been established to

oversee the development, rehabilitation and maintenance of all roads including the feeder roads in the country, on behalf of the Government, and acts through various agencies.

Although the District Development Committee (DDC) is responsible for overall development within the district, most of its development programmes are prepared by and implemented through its various sub-committees. The District Roads Committee (DRC) is directly responsible for road development within a district. The DRC prepares and, subject to DDC approval, implements the district's road development programme. The Roads Department at the Ministry of Public Works has the responsibility to provide the DRC with personnel and equipment to execute works until such a time that the DRCs are able to procure similar services. Local authorities are responsible for feeder roads in their jurisdiction but are required to pass their programmes through the DRCs.

The Government is responsible for funding the development of feeder roads both through the exchequer and funds from donors. It has been estimated that over 90% of road construction is financed through donor support, with maintenance of the roads on completion (including machinery and equipment) being the responsibility of the Government. However, allocations from the exchequer for road maintenance are only 2-5% of the actual requirements of the Ministry of Public Works. The result is that most roads whose surface was once classified as bitumen or gravel have now worn out and are in worse condition than many earth roads. The cess collected from milk sales is not used for maintenance of feeder roads,



unlike the case for cess charged for cash crops such as tea and coffee.

In a number of cases, failure by government to meet project objectives and methods of implementation has led to disruption in donor funding for roads development and maintenance. For example, feeder roads in Eastern Province were intended to be maintained with funding from the EU using low-cost labour-intensive methods that offered the potential for employment generation and poverty reduction. However, at implementation stage, the government chose to engage a contractor instead of using local labour. This led to a suspension of funding for the project.

### *Milk processing and marketing*

The history of milk processing in Kenya dates back to 1920s when the first creamery of the Kenya Co-operative Creameries (KCC) was opened at Naivasha. With active post-independence Government support KCC rapidly expanded to become the nation's foremost milk processor with 11 milk processing plants and another 11 milk cooling plants, and with a combined installed capacity in excess of 1 million litres per day by the 1980s. Although there were other smaller milk processors<sup>7</sup> operating in the country KCC was, until 1992, the dominant milk processing company in Kenya.

Following the liberalisation of dairy processing and marketing in 1992, a number of significant developments have taken place in milk

marketing. Currently, there are over 45 registered milk processors, up from only 15 in 1992. Of these, the most prominent ones are: Brookside Dairies, Spin Knit Dairies Ltd, Limuru Milk Processors, Meru Central Farmers Union, Kilifi Plantations, Premier Dairies Ltd, Aberdare Creameries Ltd and Delamare Estates. These major processors have formed a lobbying group known as the Kenya Dairy Processors Association (KDPA) in conjunction with Tetrapak Ltd. Of the registered processors, only about half are currently in operation, and more recently, there has been a trend towards consolidation in milk processing. The four leading processors (Brookside, Spin Knit, Premier and Meru) had some 80% of market share in 2001. Of these, two (Brookside and Spin Knit) had 65% of market share between them (Karanja 2002). Although the active milk processors produce a wide range of products including yoghurt and long-life milk in many flavours, fresh milk is still the predominant product. However, on average, the milk processors are operating at only 26% of capacity and their sales account for only some 12% of fresh milk sales in the urban centres. The main reason for this is the low demand for pasteurised milk, mainly due to relatively high price compared to the price of raw milk (SDP 2003a)

#### *The collapse of Kenya Cooperative Creameries*

Prior to 1992, KCC used to receive the bulk of its milk from dairy co-operative societies and individual farmers. At the onset of liberalisation in 1992, some 318 dairy co-operatives and 27,527

<sup>7</sup>. Kitinda (Bungoma), Meru Central (Meru), Kilifi Plantations (Kilifi) plus numerous small-scale processors of dairy products such as cheese, yoghurt etc.



individual dairy farmers were supplying it with milk. By 1996, this had dropped to 205 dairy co-operatives and 21,765 farmers (Table 5). This drop was due to reduced deliveries by farmers who, frustrated by late and irregular payments, found more attractive outlets through informal traders (Owango et al. 1998). Currently, only one of KCC's 11 processing factories and two of its milk coolers are in operation.

**TABLE 5. KCC membership trend (1992 - 96).**

Year	Dairy co-operatives	Dairy farmers
1992	318	27,527
1993	283	26,732
1994	282	28,888
1995	256	25,991
1996	205	21,765

Source: KCC (1996).

Attempts to revive KCC through a newly incorporated company named 'KCC 2000', in which farmers bought shares, have not yet had noticeable effect.

#### *Effects of policy on farmer-processor linkages*

The positive developments in private milk processing indicate that the pre-reform policy environment, typified by interventions and controls by the regulatory authorities, had depressed the market. The changes in milk processing coincided with major changes in dairy co-operative societies. Significantly, the liberalisation of the co-operative sector and the review of the Co-operative Societies Act

accorded dairy co-operatives more autonomy to pursue economic interest of the members (GOK 1997a). Instead of selling milk to KCC and other private processors, most co-operative societies opted to sell their milk directly to the traders/middlemen, milk bars or consumers, who paid more for the milk. This has been shown to be because of high consumer preference for raw milk, which is seen to be more wholesome, have a better taste and is better priced. Even dairy farmers, frustrated by years of delayed and poor payment by the processors took advantage of the liberalised marketing environment and opted to sell in the alternative raw milk markets. These farmers actually consider the alternative markets to be more reliable and pay higher prices, although they too are often subject to risk of non-payment. In addition, low per capita income<sup>8</sup> levels have contributed to depression of effective demand for high-cost packaged dairy products.

Following liberalisation of the dairy markets, the bond between farmers and their co-operative societies, and that between the societies and the processors were weakened considerably. Increasing numbers of farmers started diverting their milk away from the co-operative society and selling directly to consumers in the immediate neighbourhood, particularly schools, hotels, restaurants and shops. This has had the effect of reduced milk intake by the co-operative societies. The co-operative societies themselves also took advantage of the liberalised market, and started selling the bulk of their milk directly to consumers in the local townships, sometimes

<sup>8</sup>. Approximately 14 million Kenyans are currently unemployed and some 57% of its population are living below the poverty line, on income of less than US\$ 1 a day.



going as far as Nairobi, the main market for the majority of the processors.

The liberalisation of the industry had another effect: co-operative societies and other middlemen began to pay higher prices to farmers. This was attributable to the increased competition from raw milk vendors and direct sales. Owango et al. (1998) have demonstrated that real milk prices in the formal sector increased dramatically between 1992 and 1995 especially in districts like Kiambu where raw milk markets were highly developed.

The diversion of milk into the raw milk market by farmers and co-operative societies has denied the processors both the raw milk and the market for their finished products, especially during dry periods. Many of the processors operating around Nairobi are currently having to source raw milk from as far as Bomet, Nakuru, Eldoret and Nyeri. This has had the overall effect of increasing their milk collection and product distribution costs, a situation exacerbated by the poor state of roads. Many processors realise very low intakes in the dry season. On the other hand, during the wet season, the low demand for pasteurised milk limits the quantity that may be processed. Together, these factors contribute to the low capacity utilisation levels, which often average no more than 30%, and to the low overall share of only 12% of marketed milk. Significantly, consolidation in milk processing is continuing,<sup>9</sup> while 18 factories that previously processed milk are either closed or have reduced their operations to milk cooling only (Table 6). Most of the 'failed' processors blame incomplete investment information for their failure.

<sup>9</sup>. Brookside and Ilara Dairies recently merged.

## Taxation

Apart from registration and licence fees, there are direct taxes that processors pay. These are a major cause of concern to them, especially because most informal milk traders who compete with them do not pay these taxes. These are Value Added Tax (VAT) and Cess fees.

VAT is charged on a number of dairy processing inputs such as packaging material for ultra-high temperature treated (UHT) milk, fuel, and certain equipment. It is also charged on dairy

**TABLE 6. Share of regulated and unregulated markets for dairy products consumed by sampled households in Coast Province.**

Milk product	Market share(%) (Regulated)	Market share (%) (Unregulated)
Raw	<1	99
Pasteurised	99	1
Fermented	98	2
Powdered	100	-
UHT	100	-

Source: Staal and Mullins (1996).

products such as fermented milk (maziwa lala), cheeses, yoghurt and butter. Up to 1997, the dairy industry was zero-rated for VAT which meant that if over the same period the total amount of VAT paid on inputs by a processor exceeded the VAT collected from output sales, then the processor could claim the difference as tax refund. On the other hand, the processors would have to remit the difference of VAT if they collected more from sales than they paid on inputs. However, from 1997, the status changed and the dairy sector became exempt from



payment of VAT. This means that processors cannot recover the VAT paid on inputs from the VAT received on sales. The processors object to this status and are lobbying for a reversal to the former position when they were zero-rated. In addition to VAT, milk processors, milk bars, traders and co-operatives pay cess. Cess-payers expect the KDB to use the cess to repair and maintain feeder roads and promote activities and products of the processors. Many processors also expect cess to be used to remove the untaxed itinerant traders from the market. However, those traders currently not paying cess represent an important potential source of revenue for the development of the industry, if mechanisms can be worked out to collect it.

#### *Effects of infrastructure on milk processors*

Besides poor roads discussed earlier, other infrastructure critical to processors are water and electricity. Water is needed not only for cleaning the equipment but also for normal processing operations while electricity is critical for nearly all the operations of a milk processing plant. Problems are often encountered in availability of adequate quantities of clean water and 24 hour supply of electricity, mainly due to excess demand in most urban areas and poor maintenance of existing systems. Kenya has a high cost and unreliable power sector that contributes to the high cost of milk processing.

Most milk processors currently operating in Kenya are compelled to source their raw milk requirements from more distant places as the immediate milk shed area is increasingly being dominated by the itinerant trader. The leading milk producing areas also happen to be relatively

high rainfall areas. Given the poor conditions of the roads, incidents of breakdown by milk collection vehicles tend to increase in the rainy season, when milk production also reaches its peak. During these seasons, route coverage for milk collection tends to be low, implying that not all the milk intended for sale can be collected from farms. At other times, the milk collection vehicles take too long to reach the factory. In such instances, milk fails the quality test when delivered at the factory, and is rejected. In the event that the farmer had been paid for the milk, this represents a direct loss to the processor. If they had not paid for the milk, as is often the case, the milk is returned to the producer.

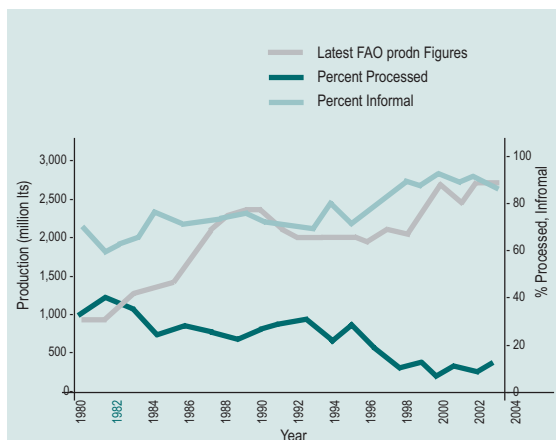
#### *Raw milk markets*

The most significant post-liberalisation development in milk marketing is the rapid growth of the raw milk sales in urban areas. Prior to the deregulation of milk markets, sales of raw milk were restricted to the rural areas that were largely unregulated. In that period, the regulatory authorities ensured that urban areas were inaccessible to the sellers of raw milk (Staal and Mullins 1996, Table 6).

Over time, the share of processed milk in the urban markets has declined while that of raw milk has increased (Figure 1). Omore et al. (2004) estimated that raw milk accounts for 86% of the fresh milk market and that processed milk accounts for about 14%.

The rapid growth of raw milk markets has been attributed to: a) preference for raw milk by consumers (mainly due to lower cost and taste), and b) the relative higher price paid to producers



**FIGURE 1. Processed Vs Informal, trends for 1980-2003.**

Source: FAO (2002).

by informal milk market agents (SDP, 2003a). Figure 2 illustrates the different channels of the liquid milk market that currently exist, and their relative shares of the market. Following are brief descriptions of specific cadres of informal milk market agents and the institutional environment in which they operate.

### *Milk bars*

According to the KDB, there are more than 300 licensed milk bars currently operating in major towns in Kenya and jointly selling more than 150 thousand litres of milk per day. A further 500 or more are believed to be operating without licences, as they do not meet the minimum requirements for licensing by the KDB. Nairobi city alone accounts for more than 120 milk bars selling more than 60 thousand litres per day. Unlike unlicensed raw milk sellers, licensed milk bars pay a monthly cess to the KDB.

In most cases, the milk bars are operated in premises that have utilities such as water and electricity. The unpasteurised milk is sold

alongside snacks such as sweets and cookies. The milk bars often conduct some tests to the raw milk to ascertain quality before accepting it, including organoleptic (sight and smell) tests, 'clot-on-boiling' tests and the use of lactometers to test for adulteration (Omore et al. 2002). Virtually, all milk bars in the urban areas operate in or near the middle- to low-income residential areas. In Nairobi, for example, most milk bars are to be found in Kibera, Kayole, Githurai, Kawangware and Kariobangi.

There have been recent moves by the KDB to encourage milk bars to sell only bulked pasteurised milk from processors, or milk that has been batch pasteurised at the premises. This effort has not been successful, mainly because the increased cost of pasteurised milk does not match consumer-demand.

During the survey for this review, only a few milk bars were found to have registered their businesses with the Registrar of Companies. Others were operating without registration certificates, this caused some problems with KDB and municipal officials, who are reported to demand 'protection fees' or bribes from them.



*A typical milk bar in Kenya*

