Review on Potential of Small Scale Cooperatives on Milk Marketing and Processing in Ethiopia

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Abstract

Ethiopia holds a substantial potential for dairy development mainly due to its large livestock population. The objective of this senior seminar is reviewing on potential of small scale cooperatives on milk marketing and processing in Ethiopia. The seminar reviewed on the major emphasis of milk production systems, small holder dairy developments, small scale milk collection, processing and marketing, potential of small scale cooperatives on milk marketing and processing and current situation of its practices in Ethiopia. The milk production system in Ethiopia, in respect to marketing situations, can be broadly categorized into urban milk production system, the peri-urban milk production system and the rural milk production system. Smallholder farmers in Ethiopia represent 85% of the country’s population. In all the systems, the liquid milk and milk products markets are dominated by informal marketing systems. The market groups are conceptualized and framed to operate as profitable milk units where smallholders organize themselves in collecting, processing and marketing of milk and value-added milk products. Small-scale milk collection, processing and marketing operations of an introduced output-oriented model for dairy development. Moreover, it outlines a story, which helped the initiative to improve rural milk marketing and processing systems in Ethiopia. Market-oriented agricultural production (milk and milk products) would secure food supply to the rapidly growing non-farming community; create employment and promote economic development in rural societies. Marketing services are critical to rural as well as to urban food security.

Keywords

Small Scale, Cooperatives, Milk Marketing and Processing

1. Introduction

Ethiopia holds a substantial potential for dairy development mainly due to its large livestock population [1]. Despite the large cattle population and the prevailing favourable climatic conditions and resources for livestock Production, current milk production is low which is reflected in the low per capita milk production and increasing trend in import of milk and milk products [2]. Like most developing countries, Ethiopia’s increasing human population, urbanization trends and rising household incomes are leading to a substantial increase in the demand for dairy products.

Ethiopia is believed to have the largest livestock population in Africa with more than 59.5 million cattle, 30.70 million sheep, 30.20 million goats, 2.16 million horses, 8.44 million donkeys, 0.41 million mules, and about 1.21 million camels [3]. Recent figures indicate that the livestock sector contributes about 12%-16% of national GDP, 30%-35% of agricultural GDP [4], 15% of export earnings and 30% of agricultural employment [5].

However, milk production is very low and is estimated at about 1.2 million tons per annum, increasing at a rate of 1.2% for milk produced from indigenous stock and 3.5% for milk produced from improved stock.
To this effect per capita consumption of milk is 19 kg/year this value is lower than African and world per capita averages, which are 27 kg/year and 100 kg/year [6], respectively. Accordingly, about 495 thousand tones and 5 million tonnes of milk are required annually to feed the Ethiopian population as per the African and world averages, respectively. This indicates the probability of a wide gap between the current supply of and the demand for milk in Ethiopia.

The highlands of Ethiopia, which are very well suited for dairying, represent almost 50% [7] of the total highland regions of sub-Saharan Africa. A country endowed with such enormous livestock resources and climatic situations conducive to livestock production should not be allowed to continue importation of dairy products. Self-sufficiency in dairy products should be encouraged to optimize the use of available resources to fill the gap between demand and supply.

The Ministry of Agriculture has formulated a strategy to improve milk marketing and processing in the villages. The strategy is to develop an environment for smallholder dairy farmers, which enables farmers to immediately respond to the market demand. That is, at village level, to develop the market for the existing sellable surplus, regardless of the quantity, so that the producers will be stimulated gradually to satisfy the market. It is believed that, development of a marketing structure will create the incentive to improve production [8].

This topic presents small-scale milk collection, processing and marketing operations of an introduced output-oriented model for dairy development. Moreover, it outlines a story, which helped the initiative to improve rural milk marketing and processing systems in Ethiopia.

Objective

The primary objective of this paper is to review the importance of potential of small scale cooperatives on milk marketing and processing and current situation of its practices.

2. Literature Review

2.1. Milk production system in Ethiopia

The milk production system in Ethiopia, in respect to marketing situations, can be broadly categorized into the following three systems: The urban milk production system (the city, Addis Ababa, and regional towns), the peri-urban milk production system (proximity to Addis Ababa and regional towns) and the rural milk production system (farmers in the villages). In all the systems, the liquid milk and milk products markets are dominated by informal marketing systems.

2.2. Urban milk production

One of the largest sources of milk in Addis Ababa/regional towns is that from intra-urban milk producers. A total of 5,167 small- medium- and large-scale dairy farmers exist in and around Addis Ababa (Region 14 Addis Ababa Agricultural Bureau survey report quoted by [9]. Total milk production from these dairy farmers amounts to 34,649 million litres/annum. Of this total, 73% is sold, 10% is left for household consumption, 9.4% goes to calves and 7.6% is processed, mainly into butter and ayib [9]. The producers deliver milk to consumers or consumers may collect it at the producer’s gate. Studies indicate that in terms of volume 71% of intra-urban producers sell milk directly to consumers [10]. Payment to producers is generally on a monthly basis. This house-to-house milk marketing system is traditional, but it poses risks to consumers.

2.3. Peri-urban milk production

This includes smallholder and commercial dairy farmers working in the proximity of the city of Addis Ababa and other regional towns. Most of the improved dairy stock in Ethiopia is used for this type of production. Until recently, formalized milk marketing of standardized and pasteurized milk to the city was monopolized by the Dairy Development Enterprise (DDE). However, contribution to the total domestic milk supply for Addis Ababa remained at only 14% [10]. Currently, smallholder farmers’ milk marketing units, the DDE, Mama agro-industry and private dairy farmers in and around Addis Ababa are supplying dairy products to the city market. There is a lack of information to explain the milk-marketing situation in other regions. Nowadays, many investors are interested in participating in the development of the dairy industry through the peri-urban milk production system.

2.4. Rural milk production

This subsistence type of production is the predominant milk production system accounting for over 97% of total national milk production [11]. In this system, there are pocket areas where crossbred dairy stock is distributed, but largely the system is based on low producing indigenous breeds of zebu cattle. Livestock are kept under traditional manage-
ment conditions and generally obtain most of their feed from native vegetation, aftermath grazing and crop residues.

In these areas, milk is processed on farm using traditional technologies to produce products like butter, ghee, ayib and sour milk, which can be sold. Such techniques have long been used for processing the supply of milk; they seem to provide the only option for conversion of milk into stable marketable products. The bulk of butter and ayib in the highlands is channelled through the informal market.

2.5. Traditional milk and dairy product markets

Traditional/informal milk markets have apparently played a key role in dairy development in most countries. In countries with the strongest growth, such as Pakistan, India, Sudan and Uganda, traditional small-scale markets control over 80% of marketed milk; there is no evidence that this basic structure will change significantly in the next few decades. These facts, which are often overlooked because traditional markets are generally not reflected in national dairy industry statistics, pose several important implications for dairy policy and development.

One of the countries with the strongest growth, Pakistan, displays a negligible formal market share. In East Africa, the analysis suggests a negative association between formal market share and dairy development, as measured. This is likely to be because formal market share in that region was less a result of market forces but rather due to public investment decisions. Also, poorly managed formal market institutions provided a much less effective link between farmers and consumers than the traditional informal market.

Traditional informal markets have clearly provided an effective, functional link between farmers and consumers which responds to consumer demand: they should not be regarded as market failures. Moreover, such markets are generally those most often serving the needs of small-scale farmers and resource-poor consumers.

2.6. Dairy co-operative development in some countries

The two countries where co-operatives have played a significant role in dairy development: Kenya and India. In Kenya, evidence suggests that dairy co-operatives played a significant role in fostering dairy development, primarily by providing a stable market environment and delivering services to farmers. In India, there was no empirical evidence that co-operative development was associated locally with dairy development as measured, although it was found to be associated with genetic improvement in dairy animals.

According to [12] organizing farmers through dairy co-operatives can have many advantages over individual farming. First, co-operatives can improve or facilitate access to market information, reduce costs of marketing and can increase producers’ access to technology, extension and related services, and thereby enhance efficiency in the process of production and marketing of dairy. Second, dairy marketing co-operatives can help to decrease transaction costs and price risks, and enhance bargaining power of dairy producers. Dairy co-operatives may play an important role in providing a base for service delivery to farmers, stable agricultural knowledge systems for uptake of improved technology and increased management skills among farmers.

Investment in dairy co-operative development can be effective—if it is well managed, placed outside strong police forces and is linked to strong demand. Because of these constraints, dairy co-operative development should not be the primary focus of dairy development efforts; rather it should be part of a mix of market channels, including formal private sector and small-scale traditional.

2.7. Smallholder Dairy Development in Ethiopia

Smallholder farmers in Ethiopia represent 85% of the country’s population. Recognising this indisputable fact and the role that smallholder farmers could play in the development of the dairy industry in Ethiopia, the government is being assisted by bilateral donor agencies. This is evidenced by the realisation of pilot projects that included the promotion of village level small-scale dairy processing units in their programmes. The Food and Agriculture Organization of the United Nations (FAO) and the World Food Programme (WFP) assisted such projects that ran from 1990 to 94, and the Finland Government funded the Smallholder Dairy Development Project (SDDP) implemented from 1995 to 2000.

SDDP has the following six components, which have different strategies of implementation:

1) Fodder production and animal feeding
2) Dairy cattle breeding and management
3) Animal health
4) Milk marketing and processing
5) Agro-forestry and water management
6) Appropriate technology.

The project is addressing and implementing the component activities integrally as a package. The project is co-ordinate by the Ministry of Agriculture and implementation of the field activities is being carried out through the
regional agricultural extension network, and the zonal and wereda agricultural offices.

2.8. Farmers’ milk marketing groups

The market groups are conceptualized and framed to operate as profitable milk units where smallholders organize themselves in collecting, processing and marketing of milk and value-added milk products. This approach aims at maintaining and enhancing the groups so that they become independent entities at the community level [13]. In the context of SDDP, a milk marketing group can be defined as a group of smallholder farmers who individually produce at least one litre of saleable milk/day, and are willing to form a group in order to collectively process and market their milk. The milk marketing groups are named following their locality’s or peasant association’s name.

The idea of group work and formation of a group is not new to Ethiopia or, for that matter, to Africa. Different traditional local groups can be identified. For example, women organize themselves voluntarily into groups known as ‘milk equb’, ‘butter equb’, ‘Edir’ and ‘debo’. Under these arrangements, individuals gather either their milk or butter and contribute it to other members in turn. When the turn of receiving comes, each member gets in a single bulk the amount that she has contributed bit by bit to the others. In this way, instead of going daily to market with her own small amount of produce, the individual will go once weekly or fortnightly to market with a larger volume of produce to sell [13].

The farmers’ milk marketing groups, though based on strict business terms, are witnessed by the producers to be more development oriented, long lasting and reliable market outlets. The element of sustainability is more firmly built into this group approach than into the approach of the private milk traders’ rural collection scheme. In the latter scheme, farmers are persuaded to sell milk to these traders but often the purchasing is not reliable. Disappearance or undue delay of payments by these traders is not uncommon. The major reasons that the milk groups are successful is that farmers need only to transport milk over short distances to sell it and are marketing high-value and compacted products such as butter.

2.9. Milk collection

A one-tier structure was adopted under this model (Figure 1). Each centre serves both as a milk collection and processing site. Milk is collected from nearby farmers and processed at the centre. Manually operated milk equipment and machines such as milk separators, butter churns etc. are used in handling the milk. Products are marketed at the same place or transported to outlets elsewhere. The advantages of these centers to producers include not only the creation of market outlets and transformation of milk into items with a longer shelf life, but also facilitation of the production of value-added products. This model requires no electric power supply and cooling facilities. All that a milk collection and processing unit requires is a functional building to shelter the utensils and equipment and a capacity to handle 500 liters of milk every day.

Figure 1. The model for village milk units.

Total amount of milk delivered by farmers to a single unit varies from 60 to 700 liters/day. The quantity of milk delivered to the milk units has increased over the years, as more farmers join the units. The increase in quantity is the re-
sult of more farmers choosing this outlet for their milk and long periods of fasting observed by followers of the Coptic Orthodox church, during which no milk is consumed. There are over 200 days each year during which followers of the orthodox faith abstain from the consumption of any food of animal origin.

At the beginning of the project, the units were able to take all the milk delivered by farmers; however, after three to four years of service the units did not have the capacity to receive all the milk supplied, especially during fasting days. This indicates that at some stage the model requires modification or changes to its approach. Nevertheless, most of the units have developed the capacity to secure market outlets for such overflow. In short, the units have the following features:

- they are readily accessible to farmers due to their location in the community/villages
- they are a secured market outlet for milk
- they secure regular income to smallholder dairy farmers
- the system is simple and farmers can handle it easily
- electric power supply and cooling facilities are not required
- they reduce labour demand on women.

2.10. Milk processing and marketing

In the highlands of Ethiopia, milk produced by smallholders is used for family consumption and for the production of butter and a cottage-type cheese [14]. According to [15], market was found to be the driving force of dairy development. Unless milk and milk products find a market outlet, they are retained for household consumption and the level of production is kept low.

Milk received by the unit is processed into various milk products (see Figure 2), namely, cream, skim milk, sour skim milk \((\text{ergo})\), butter and \(\text{ayib}\) (soft curd-type cottage cheese) made in many parts of Ethiopia). Butter is the major value-added product produced at the units.

Different Studies indicate that butter making is an ancient practice that goes back as far as 2000 BC to the time of Egyptian civilization. Butter making may have begun at a similar time in Ethiopia. The traditional Ethiopian practice is to accumulate the milk for two to three days until it is sour. A clay pot or calabash is then used to churn the sour milk. Butter is used for cash generation, cooking Ethiopian dishes, and medicinal and cosmetic purposes (e.g. application to the braided hair of women). In almost all societies of Ethiopia, women are responsible for butter. In general, husbands or men do not decide what is done with butter produced at home. The contribution of dairy products to the gross value of livestock production is not known but in peri-urban areas about 20% of average income was derived from dairy products [7].

The buying and selling prices of milk and milk products have seasonal variations and have no fixed price as such. The change in prices is normally decided at a meeting held by the group members.

It is clear that processing at the units transforms milk into items with a longer shelf life and into value-added products.

![Flow diagram showing products from fresh milk.](image-url)
Nonetheless, the units can also be regarded as canters in a cycle of smallholder dairy development because creating a market outlet for available milk precipitates sales. The subsequent boost in sales stimulates farmers to be more responsive in accepting advice given relating to cattle and milk management (improved feeding, nutrition, breeding, health and hygiene). Improved management then brings about increases in milk yield. Increased milk yields lead to increased incomes and more flow of milk into the units. Increased flow increases the amount of milk available to consumers at a competitive price. The resultant increase in consumption results in increases in demand and consequently the development cycle continues.

3. Conclusion

Market-oriented agricultural production (milk and milk products) would secure food supply to the rapidly growing non-farming community; create employment and promote economic development in rural societies. Marketing services are critical to rural as well as to urban food security.

In the past, we have seen many interventions for increasing production, but much less focus on marketing services. Government engagements have focused on input oriented systems aimed at tackling problems that restricted milk production and not on output and the issues of milk market and milk disposal. For increased milk production, development of appropriate milk marketing and processing systems is now recognized as an overdue issue. Unless firm and steady steps are taken immediately and on a wider scale, output will be frustrated further. In general, the introduction of improved marketing is pivotal to an increase in production.

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References


