

**DAIRY DEVELOPMENT THROUGH COOPERATIVES:
Alternative approaches for innovation and market-orientation**
The case of Arsi Zone, Oromia Region, Ethiopia

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Abstract

Dairy cooperatives in Ethiopia remained to be passive in changing the livelihood of most Ethiopians despite the fact that the legal framework was found back in 1960. Dairy cooperatives all over the country are allowing the small dairy farmers to take initiative in molding their own destiny. Ethiopian dairy cooperative has undergone drastic changes and transformation in the past. With all the demerits it has paved the way for the current development of dairy sector. The nature of milk production as an agricultural activity, and of milk as an agricultural product, is the main reason for the dominant role played by producer owned co-operatives in milk marketing. The key principles underlying the establishment and operation of marketing co-operatives are to do with bargaining power and economies of scale in providing processing and transport facilities. Dairy cooperative improve access to market information, reduce marketing costs and can increase members' access to technology, extension and related services, whereby it enhances efficiency in the process of production and marketing of dairy products. In addition, dairy cooperatives decrease transaction costs and price risks which lead to increased return from commercial dairying whereby it stimulates innovation in the sector. Discussion on the contribution of cooperatives to innovation in dairy development and market-orientation in Ethiopia has quite often been based on their potential role rather than the actual impact, partly due to the dearth of empirical studies. This paper provides evidence on the contribution of cooperatives to dairy development through stimulating innovations and market-orientation in Arsi zone, Oromia region, Ethiopia. This study adopted survey method. Three-stage sampling was used in which both purposive and random sampling procedures were followed to select 211 respondents from the population. Structured interview schedule, and Focus Group Discussion was used to collect the data from the members and officials of coops. The data were analyzed through descriptive statistical tools and X^2 - test, Cramer's V, and Person's Correlation coefficient, Multiple Linear regression. Dairy Cooperatives enhanced innovations from three dimensions namely: technological, institutional and organizational innovation in the dairy sector. They provide access to marketing, services and information sharing culture. The cooperatives are promoting market-orientation approaches through creating different linkages with urban and peri-urban subsystems. The model indicates that household demographic characteristics,

human and physical capital endowment, distance to markets, institutional, support services, and socio-economic factors influence market-orientation behaviour of dairy farmers. The findings suggest that policy makers should stress in the adoption of integrated, plural and participatory approach for dairy development. Moreover, cooperative policy makers and practitioners should make sure that participatory cooperatives are promoted and ignited to increase the motivation, sense of ownership and shared responsibility among all cooperative stakeholders.

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A paper to be presented in ICA research conference

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Abstract

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1.INTRODUCTION

Background of the Study

Co-operatives which are commonly defined as "an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through jointly owned democratically controlled enterprise"(ICA,1995) play key role in the poverty reduction and sustainable development of a nation (FCA, 2008). In a subsistence agriculture, where smallholders are engaged in uneconomic and fragmented production, the role of co-operatives in improving the agricultural marketing system has been fully recognized. Based on the fundamental principle of "the future belongs to the organized" expanding and strengthening co-operatives is the underlying approach of the government in improving the marketing system (NEPAD, 2005).

Co-operatives in Ethiopia remained to be passive in changing the livelihood of most Ethiopians despite the fact that the legal framework was found back in 1960. Ethiopian co-operative movement has undergone drastic changes and transformation in the past. With all its demerits, it paved the way to the foundation of the modern co-operatives. According to report by FCA (2008), there are 23,167 primary co-operatives with Birr 835 million capitals, 4.66 million individual memberships. In order to strengthen the bargaining power of primary co-operative societies, 143 co-operative unions having Birr 143.6 million capitals have been established (FCA, 2008). In Oromia region, there are 3011 primary co-operatives with a capital more than Birr 126 million. On top of this, there are 96 primary dairy co-operatives in the region, out of which 21(20%) of them are found in six woredas¹ of Arsi Zone with a capital of Birr 324, 437 and membership of 856 individual members (OCC, 2007).

The Dairy Sector:

For many people, dairy production is the most important income generator. Dairying provides a regular income to farmers in different parts of Ethiopia. Different authors confirmed that the smallholders' dairy package production system is a powerful means of raising farm incomes and welfare (Ahmed *et al*, 2003). The marketing and management of dairy, knowledge and awareness are vital. Given the considerable potential for smallholder income and employment generation from high-value dairy products (Staal, 2001), development of the dairy sector in Ethiopia can contribute significantly to poverty alleviation (Mohamed, et al., 2004). Per capita consumption of milk in Ethiopia is as low as 17 kg per head while the average figure for Africa is 26 kg per head (Gebre wold et al., 1998). In fact, the existing excess demand for dairy products in the country is expected to induce rapid growth in the dairy sector. Factors contributing to this excess demand include the rapid population growth, increased urbanization and expected growth in incomes (Mohamed, et al., 2004).

As said by Staal (2001), dairy co-operatives have typically been formed in response to a fundamental farmer problem: the inconvenience of small quantities of milk to market. Milk is perishable which requires special handling to insure quality and shelf life.

¹ Woredas are the third level of administration, in Ethiopian Governance system, are also called *district*.

Holding milk where infrastructure may be lacking can be costly and risky. Conversely, the rapid delivery of small quantities of milk to market may not be practical or economic; some smallholder producers may market no more than 1-2 liters of milk on a given day. The practical collection and transport of milk to market therefore usually requires some bulking, and the need for speed and reliability requires good organization of that bulking. Consequently, there is strong incentive for smallholder producers to try to form collective organizations to meet these needs, which are dairy cooperatives.

Collective action is commonly supposed to assist smallholders' engagement in markets, contributing to improvements in rural economies. Like in many other developing countries, this perception is largely shared also amongst policy-makers in Ethiopia, who do not hesitate to express their overwhelming confidence in cooperative organizations as a driving force for rural development. The perception that collective action may contribute to boost the Ethiopian rural economy also holds true for the dairy sector.

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. These lead to increased return from commercial dairying which, in turn, stimulates innovation in the sector. Hence, the focus of this study is to investigate the role of dairy cooperatives in stimulating innovation and market oriented smallholders' development by giving special emphasis to Ada'a dairy marketing cooperative.

The Problem Statement

In Ethiopia, dairy production system is not market oriented and milk produced by smallholders is primarily used for household consumption purpose. The surplus is processed into butter, ghee, cheese and sour milk and sold through informal market (Redda, 2001). The primary reason among others seems to be the inefficient dairy and dairy products marketing characterized by high margins and poor marketing facilities and services.

Market-oriented dairy production is one of the promising avenues to improve food security and livelihood of rural households in Ethiopia. The opportunity for increasing income, employment, and improving food and nutritional security of rural households through smallholder commercial dairy development arises from many factors: 1) the expected increase in demand for milk and milk products in the country with increasing population, increasing urbanization, and expected increase in consumers income, 2) it is estimated that 50% of households in the highlands own cattle of which 56% are dairy cattle (Ahmed *et al.*, 2004), 3) the availability of technological and institutional options to deal with production and market related challenges, 4) the opportunities provided by the policy and institutional reforms being implemented, including liberalization and market orientation of development policy, decentralization, and pluralism in service

delivery. The policy change has encouraged increased involvement of the private sector in dairy production, processing, marketing and in service delivery such as animal health and artificial insemination services.

Market oriented smallholder dairy development in Ethiopia offers a great opportunity to improve food security and livelihood for the rural majority, including for the poorest of the poor and women. However, the sought transformation of the subsistence oriented dairy production systems to that of productive, market oriented and dynamic systems calls for technological and institutional innovations.

Agricultural knowledge and information are key components in commercial smallholder dairy development. Knowledge and information play a significant role in improving productivity, linking producers to remunerative markets, improving competitiveness in markets, and thus leading to improved livelihood, food security and national economies (Tesfaye *et al.*, 2008).

A number of key ingredients are necessary for achieving market orientation and also making this process inclusive. Innovation which emphasizes on putting available knowledge from multiple sources to economic use is critical for this to happen. Innovations such as the cultivation of high-yielding crop varieties, adoption of sustainable natural resource management techniques, sharing of indigenous knowledge and practices, using communication technologies to access market information, the development and use of new products, the involvement of new entities to support collaborative pursuit of specified goals, or changes in rules of the game, all have far-reaching impacts throughout the agricultural sector. Although these improvements operate through indirect, often complex, pathways, they can ultimately translate in higher incomes, greater food consumption, better nutrition and more sustainable resource use (World Bank, 2006).

The study was conducted in Arsi Zone, where two potential dairy producers' *woredas* were selected. In Arsi, the cooperatives has been providing different services to its members including AI, concentrate feed, animal health care and marketing related activities. However, information is lacking on the role played by this cooperatives in enhancing innovation and market orientation with related to introducing new or existing technologies, change in the habit or norms of the dairy producers, creating marketing and service provision linkages with multiple actors and in sharing knowledge and information; among policy makers, development practitioners and the community at large.

Therefore, the focus of this study is to generate information on the role of dairy cooperatives in enhancing innovation and market orientation smallholder producers and towards stimulating innovation, enhancing linkages and knowledge and information sharing.

2. General Objectives:

The general objective of this paper is to examine the contribution of cooperatives to dairy development through stimulating innovations and market-orientation in Arsi zone, Oromia region, Ethiopia

2.1. Specific objectives:

- To assess the role of dairy cooperative in promoting innovation in Arsi Zone Oromia region, Ethiopia,
- To examine the activities of dairy cooperative in promoting linkages for access to services and marketing, and
- To assess the impact of dairy cooperative in enhancing knowledge and information sharing.

3. METHODOLOGY

This study employed survey method with field orientation. In essence, precision of facts is better from a census. However, due to financial and time constraints, total coverage of the entire population is not practical and not necessary. Sampling allows the researcher to study a relatively small number of units representing the whole population (Sarantakos, 1998). For this study, *probability-sampling technique* was used.

Sampling method

One of the potential dairy producer's Zone in Oromia regional state is Arsi, where the first dairy development project was launched and preceded by North Shoa. So, Arsi zone was purposively selected for the study. In the Arsi zone, there are 21 dairy co-operatives. In this study, three stage random sampling method was adopted for the selection of the respondents. In the first stage, from 21 woredas, two woredas (*Tiyo* and '*Limu & Bilbilo*') were selected at random. These woredas have high concentration of co-operatives; Performance of dairy co-operatives, membership size, dairy production per year and market access is high in these woredas. There are 14 dairy co-operatives in the two selected woredas. In the second stage, from the 14 dairy co-operatives, seven dairy co-operatives were selected at random for the study. In the third stage, using random sampling procedure and probability proportionate to size of the population (PPS), 176 members of dairy co-operatives were selected as respondents for this study.

Sample size

The respondents for the study were selected using probability proportionate to size of the population (PPS). A total sample size of 211 respondents was included in the study, which consists of 176 members' respondents, and 35 officials and employees (Table 1).

Table 1 Sample size of the study

Name of selected woreda	Total No of DairyCo-operativess	Name of Sampled Dairy Co-operatives	Individual members			Sample size of the study**
			Mal	Female	Total	Individual Members
Limu & Bilbilo	6	Lemu Dima	24	7	31	16
		Bokoji	50	5	55	27
Tiyo	8	Lemu Mikael	47	8	55	27
		Wagi Bilalo	5	84	89	45
		Dosha	42	6	48	24
		Gara Chillalo	41	11	52	26
		Gora Fana	22	-	22	11
Total	14	7	231	121	352	176
Grand Total Sample size						176

Source: AZCPB: ** From secondary data, 2009

Method of Data Collection

This study used both primary and secondary data to gather the required data for achieving the stipulated objectives. The study used structured interview schedule to collect information from member respondents and a questionnaire to collect data from officials and employees in the sampled dairy co-operatives. In addition, Focus Group Discussion (FGD) was conducted with key communicators for getting in-depth information about their situations and issues with respect to dairy marketing. Focus group discussions (FGD) were conducted on specific topics with small groups of people (that consists 7 to 8 experts) who have intimate knowledge about the topic under consideration. The interview schedule prepared in English was translated to Afaan Oromoo before final administration.

Method of Data Analysis

In this study, descriptive statistical tools were used to analyze the quantitative data. The descriptive statistical tools that were adopted are means, percentage, frequencies, and standard deviations, as well as Chi-square test, (goodness of fit) test were employed. . For this study, Karl Pearson's Coefficient of Correlation(r) was applied to analyze the data. The degree of association or correlation between the variables was tested by the use of correlation analysis (Gomez, 1984; Kothari, 2003).

On the other side, Multiple Linear Regression (MLR) analysis was another statistical technique used to analyze the influence among variables with the object of using the independent variables whose values are known to predict the single dependent value (Hair et al, 1998). .

The conceptual framework of the study is presented here under:

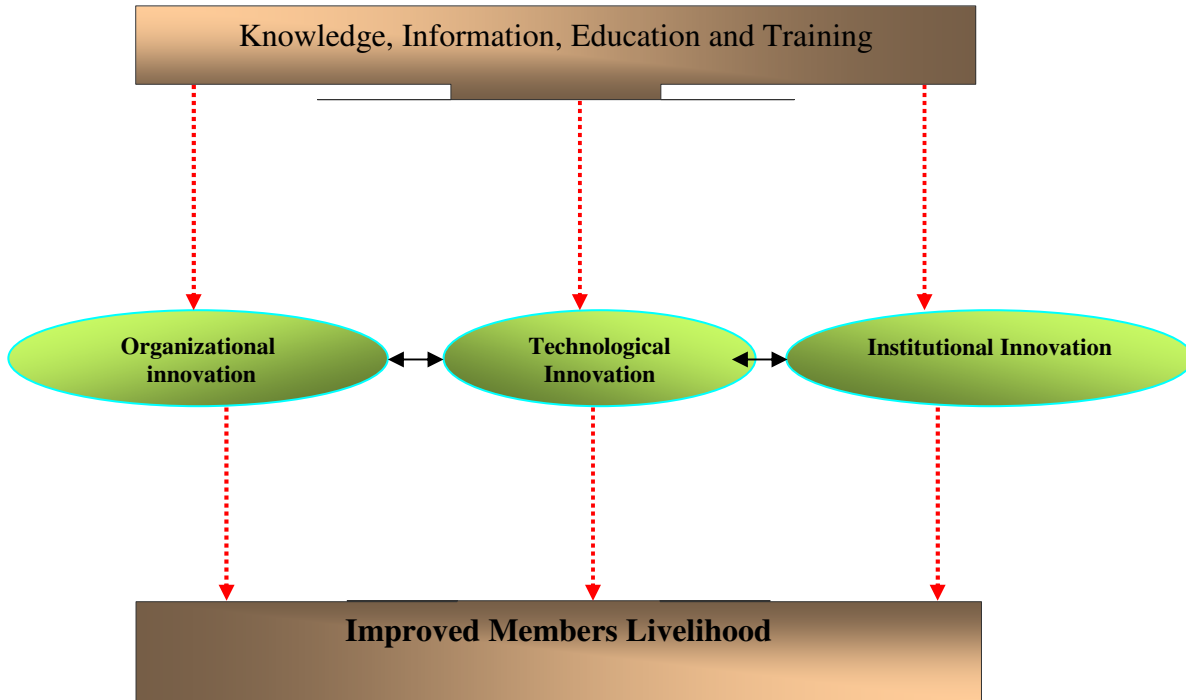


Figure 1. Conceptual frame work of the study



Figure 2. Map of the study area

Source: Accessed and modified from www.unocha.org on September 1, 2008

4. RESULTS AND DISCUSSION

4.1. Concept of Cooperatives: A Synopsis

A cooperative is a democratic organization engaged in the market place, providing goods and services. It is based on people, not capital or government direction. As a source of credit, food, social protection, shelter and employment, cooperatives play an important role. According to *Stirling* (2006), the United Nations estimated (in 1994) that the livelihood of *three billion* people was made more secure by cooperatives. At least 800 million are members of cooperatives and 100 million are employed by them (*ibid*). ILO Recommendation 193 states: "The promotion of cooperatives should be considered as one of the pillars of national and international economic and social development." (*ibid*). In his early writing, Robert Owen has undoubtedly mentioned the soul of cooperatives as follows, '*There is but one mode by which man can possess in perpetuity all the happiness which his nature is capable of enjoying – that is by cooperation of all for the benefit of each*'² Cooperatives were originally established as a practical means whereby people could meet their everyday needs, as a route to building a better society. Their vision was not simply about credit or retailing, but about *how*, through self-help, they could improve their working and living conditions, and their communities. The 'Rochdale Principles' modernized and adapted over the years, still define the purpose of cooperatives. These are the values and principles, as defined by the International Cooperative Alliance and codified in the *Statement of Cooperative Identity* adopted by the ICA's³ Centenary Congress held in Manchester in 1995, and accepted today by cooperatives all over the world. A cooperative is defined as follows:

A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (ICA, 1995)

As per ICA (1995), Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others. The cooperative principles are guidelines by which cooperatives put their values into practice. These are;

1. Voluntary and Open Membership
2. Democratic Member Control
3. Member Economic Participation
4. Autonomy and Independence
5. Education, Training and Information
6. Cooperation among Cooperatives
7. Concern for Community

² *Smith Stirling, 2006, Let's organize*, A SYNDICOOP handbook for trade unions and cooperatives about organizing workers in the informal economy: A joint publication of the International Labour Organization (ILO), the International Cooperative Alliance, and Geneva.

³ ICA (International cooperative alliance) is a non-governmental organization engaged in the promotion and advancement of cooperatives worldwide through advocating and protecting cooperatives identity.

4.2. Cooperative Movement in Ethiopia

4.2.1 Cooperatives under the Imperial Regime

Co-operation as a way of life has been and continues to be, a traditional means in finding solutions to socio-economic problems of Ethiopians. Examples of such cooperation can be found in the mutual aid institutions such as *Equb*, *Eddir*, *Wonfel* or *Jigii*, *Senbete* and many others. However, realizing that these traditional institutions did not meet the requirements of credit services and means needed for productive purposes in full, the program for co-operative development was included in the second Five-year development plan (1962-67) of the country (Zerihun, 2002).

In the second Five Year Development plan the role of co-operatives was stated:

"In an economy planned with the objective of increasing production, raising saving potential, improving living conditions, providing social services, and offering all the citizens an equal opportunity of contributing to the economic and social progress of the country, the co-operative form of organization can play a very important role"(Zerihun, 2002).

The principles were clearly stated as one of the prerequisites in the formation of true and genuine co-operatives. It said "co-operatives must not be compulsory organizations; the members should have an economic interest and the desire to do business co-operatively. For this reason they must be strong and capable economic organizations and should be based on the principles of voluntary membership, democratic management, and shares according to contribution."

In this period, decree No 44/1960 was repealed and *Co-operative Societies Proclamation No. 248 of 1966* was issued. This proclamation gave a wider opportunity for the development of co-operatives in Ethiopia and the situation became favorable for the expansion of co-operatives. There were 14 workers in the co-operative department. All of them were trained in cooperatives of which two were trained abroad (Zerihun, 2002).

Besides the training of the personnel employed in the co-operative department, training in co-operatives was extended to address 150 community development workers at the Community Development Training and Demonstration Center, Awassa. To alleviate the financial problem, a National cooperative Investment Fund, administered by a special co-operative credit section in the Development Bank of Ethiopia was planned to be set up (Zerihun, 2002). Most of the cooperatives organized during this period were inputs suppliers.

4.2.2. Cooperatives under the Derg Regime

The Military Government that came into power had a very different political inclination. The government issued a land reform proclamation followed by another proclamation on the formation of Peasant Association. The peasant associations were given legality by proclamation No. 711/1975 (Zerihun, 2002).

It was during this time that a number of *Ye' irsha Mahber*⁴ were unwillingly organized in most of the then provinces (Zerihun, 2002). The proclamation no. 138/1978 was issued later in order to include other types of cooperatives like Housing, Thrift and Credit and Handicrafts, dairy marketers etc. All the efforts made to restructure the co-operative movement based on these proclamations were essentially geared towards direct control of co-

⁴ *Ye' irsha Mahber* are those agricultural cooperatives performing all agricultural activities. Technically, are called Farmers cooperatives working in a collective ways.

operative and turning them into government and political tools rather than socio-economic developments.

From the very beginning full confidence and willingness were lacking in the co-operative members. Co-operatives faced organizational, operational, leadership as well as production and distribution problems. In a situation where member participation was so passive and leadership appointed by the political cadres, wastefulness and embezzlement were inevitable. In addition to that, the resettlement program by coercion, which lacked proper studies and the willingness of the people created a devastating effect to the development co-operatives.

According to Zerihun (2002), 1989-90 co-operative members in Arsi demonstrated and urged the high-ranking pout bureau officials to allow them to dissolve their producers' co-operatives. It was only one sentence of the Derg mixed economic policy which said "Any cooperative can legally dissolve itself if its general assembly decides." that contributed to total dismantling of almost all producer co-operatives and some of the services of rural Ethiopia.

4.2.3. Cooperatives under the present status

The experiences of the past have shown that the development effects, which cooperatives were supposed to achieve, have not been realized to the desired extent. This current state of affairs has paved the way for a process of rethinking among circles associated with co-operative development in Ethiopia. It becomes more necessary to create favorable climate and conditions for the development of co-operatives in Ethiopia.

In this context creating a favorable climate means to change the bureaucratic rules partly inherited from the Derg Regime and reduce the role of the state in economic affairs and to enhance the development private entrepreneurship of individuals and groups or co-operatives, make deliberate efforts for improving of the available human resources by investing in information, *education, training* and advisory services, create an adequate institutional framework for improving supply and marketing channels, financial systems; and set up a legal and administrative system which guarantees the protection of private property.

The Ethiopian co-operatives movement thus, after passing through three phases, finds itself in a totally new and challenging position. The country has introduced a New Economic Policy based on democratization of the system and decentralization of the economy. The co-operative society's proclamation No. 147 of 2002 was issued at the right time to create a favorable condition for the development of all kinds of co-operatives in both urban and rural areas (Zerihun, 2002). Replacing the former socialist model of organizing co-operative, this proclamation has based itself on the principles of global convention of co-operatives. The proclamation is clearly recognizing the specific character of co-operatives as private organization, managed, financed and controlled by their members. However, the government emphasis on training and education was not adequate in all types of cooperatives.

According to FCA (2008), there are 23,167 Primary cooperatives with a membership of 4.66 million and 143 secondary level cooperatives have entered in to the market. The market share of cooperatives in fertilizer import has reached 70% of the distribution network. According to OCC (2007), there are 4803 primary cooperatives. In Oromia, the evolution of modern cooperative emerged in 1987. As per, Proclamation 147/2002, 4316 primary cooperatives, 49 unions, with a membership of more than a million and a capital of Birr 152.6 million are registered and operating in the market in Oromia Region.

4.3. Dairy Development in Ethiopia

According to Heskias (1998), the development of modern dairying in Ethiopia dates back to the *post II World War* time. Ethiopia was then able to get its first batch of dairy cattle through the UNRRA, under the Marshal Plan set to rehabilitate the war torn countries of the Allied forces. These animals served as the core for the start-up of the Holleta dairy farm and the former Shola dairy farm in Addis Ababa. The founding of agricultural High Schools followed by Alemaya College of Agriculture and then the Holleta Research Station, contributed to the initiation of research on dairying and producing personnel trained in agriculture and livestock.

The establishment of Shola milk processing plant in Addis Ababa and importation of Holstein Friesians from Kenya by the College and government organizations are also other benchmarks in the process of the development (Abaye and Teffera, 1989). The introduction of improved dairying into the peasant sector was first made by the CADU later on called ARDU. The Minimum Package Programme (MPP), financed by the International Development Association (IDA), was a countrywide agricultural Programme launched by the Extension and Projects Implementation Department (EPID) of the then MoA. Addis Ababa Dairy Development Project was the beginning of commercial dairy development projects in Ethiopia. It commenced well on schedule in 1972 with a loan obtained from World Bank but ended in 1981 after 8 years of *halfhearted* operation under the Socialist Government.

Selale Peasant Dairy Development Pilot Project (SPDDPP), a bilateral project financed by the Ethiopian and Finish governments, fostered privately operated smallholder dairy farming approach in 1987. SDDPP recognized *marketing* as the major constrained to dairy development in the potential areas for fluid milk production and aimed at addressing the issue at the Stallholder level, but the project covered only two woredas, one in Oromia and the other in Southern Nations, Nationalities and Peoples region.

Under various agricultural development programmes and projects, the dairy sector of Ethiopia has been addressed for nearly the past half century. The extent and intensity under which it has been addressed may vary from one program to another and from project to project. However, it puts into question the whole effort of these past years if one is to seek for a significantly measurable and lasting impact recorded. Although it may not be compared with what was spent or is being spent on crop agriculture, funds spent in the development and research endeavors of the dairy sector of Ethiopia cannot be taken very lightly (Abaye and Teffera, 1989).

However, in the components of most of these projects, *processing and marketing activities* were areas neglected in the designing, formulations and implementation stages of the projects. Focus was made more on the husbandry, feeding, breeding and health aspects while clearly ignoring organizing and developing marketing and processing aspects. Producers need to get the best in marketing out of their produce to be motivated and continue to hold on to the job (Heskias, 1998).

Dairy Development in Arsi

Arsi is one of the zones in Oromia region where the first dairy development program started next to North Shoa Zone of Oromia region. The existence of cooperatives and group milk marketing goes back to three decades. The study focused on the two potential woredas of dairy producers from the zone. Around 70% of the milk produced in zone is found in the two research areas.

Dairy Development through Cooperatives in Arsi

There are 476 cooperatives in the Arsi Zone. In Arsi zone, there are 21 dairy cooperatives in six districts with membership of 856 individuals with total capital of Birr 324,437(AZCPB, 2008). The dairy cooperatives are engaged in marketing members' dairy products to zonal traders. Some of the cooperatives are engaged in processing the produces. Cooperative has started to enhance innovations in the dairy sector in Arsi which include technological, institutional and organizational innovations, promoting linkages for access to marketing and services and in sharing knowledge and information. With regards to technological innovation the cooperative introduced milk processing using its own processing machine and started to produce quality products as pasteurized milk, butter and cheese. The cooperative had many activities with regards to institutional innovation, which include: provision of dairy inputs, marketing, creating employment opportunities, having well designed organizational and financial systems and addressing development issues. Organizationally there was weak interaction among members and board members of the cooperative. The cooperative is performing well in promoting market oriented dairy development through creating market link to the urban and peri-urban subsystems, collaborating with other dairy associations, public organizations, NGOs. The cooperative has been sharing dairy related knowledge and information by providing training and advisory services.

4.4. Personal Characteristics of Members

Table 2: Distribution of Personal characteristics of members

Personal Characteristics of members	Attributes: N=176	Frequency	Percent
Age Mean: 46.98 Std: 11.30 Min: 15 Max: 65 $\chi^2 = 77.38^{***}$	(15-29) Younger	7	4.0
	(30-49) Middle	99	56.3
	(50-65) Older	59	33.5
	Total		
Education Level $\chi^2 = 21.59^{***}$	< Grade 4	82	46.6
	Grade 5 - Grade 8	62	35.2
	Grade 9- Grade 12	32	18.2
	Diploma	-	-
	Degree	-	-
	Total	176	100
Sex	Male	157	89.2
	Female	19	10.8
	Total	176	100
Marital Status $\chi^2 = 436.82^{***}$	Single	7	4.0
	Married	164	93.2
	Divorced	3	1.7
	Widowed	2	1.1
	Total		
Family Size Mean: 6.73 Std: 3.03 $\chi^2 = 55.17^{***}$	1-3 person	19	10.8
	4-6 person	89	50.6
	7-9 person	50	28.4
	>9 person	18	10.2
	Total	176	100
Experience in dairy marketing $\chi^2 = 12.02^{***}$	< 2 years	65	36.9
	3-5 Years	111	63.1
	>5 years	0	0
	Total	176	100

Source: From own survey data, 2009

*** Significant at less than 1% significance level

It is visualized from Table 2 that the age of members of the dairy co-operatives ranged from 15-65. The mean age of the members in this study was 46.98. The study revealed that most of the members of dairy cooperatives were economically active (15- 41 age group). Among the members 46.6% of them were below grade 4, 35.2% between grade 5 to grade 8 and 18.2% lies between grade 9 to grade 12. Out of 176 members, 89.2% of them were male and 10.8% were females.

Accordingly, 169 (93.2%) of the members were married, followed by seven single (4%), three divorced (1.7%), two widowed (1.1%) members of the dairy co-operatives. In this study, members experience in dairy marketing was measured as duration of membership that was spent in transacting with the dairy co-operatives. The members experience in dairy marketing was placed in three categories i.e. with < 2 years, 3-5 years, >5 years with 36.9%, 63.1% and 0% of members respectively.

It is observed from Table 3 that, the average of milking cows owned was found as 2.19 Tropical Livestock Unit (TLU). Hence, it was assumed that the higher the land size, the higher will be their training need in dairy marketing. Out of 176 members, 25.6% of them having land holding from 0.04 – 1.75 hectare followed by, 1.76 -3.44 hectare (49.4%), and 3.45 -7 hectare (25.0%). The average land size of the members of dairy cooperatives was 2.56 ha, with the minimum of 0.04 hectare and a maximum of 7 hectare.

4.5. Socio-Economic Characteristics of Members

Table 3. Distribution of Socio- Economic characteristics of members

Socio-economic Characteristics	Attributes	Frequency	Percent
Size of land holding in hectare Mean: 2.56 Max: 7 Min: 0.04	0.04-1.75 ha	45	25.6
	1.76-3.44 ha	87	49.4
	3.45-7 ha	44	25.0
	Total	176	100
$\chi^2 = 20.53$ ***			
Total annual income from dairy activities $\chi^2 = 45.93$ ***	< =1000 Birr	65	36.9
	1001-2000 Birr	39	22.2
	2001-3000 Birr	24	13.6
	3001-4000 Birr	11	6.3
	> 4000 Birr	37	21.0
Total	176	100.0	
Milk production in liters per day Mean:7.30 Max:0.5 Min: 24	0.5- 5 liters /day	58	33.0
	6 -10 liters/day	97	55.1
	11-24 liters/ day	21	11.9
	Total	176	100.0
$\chi^2 = 49.23$ ***			
Milk sold through coops in liters Mean:4.66 Max:12 Min:0.5	0.5-3 liters/day	44	25.0
	4 -6 liters/day	104	59.1
	7-12 liters/day	26	14.8
	Total	174	98.9
$\chi^2 = 57.51$ ***			
Indebtedness $\chi^2 = 135.31$ ***	No debt	75	42.6
	>500 Birr	24	13.6
	500-1500 Birr	52	29.5
	1501-2500 Birr	11	6.3
	2501-3500 Birr	5	2.8
	< 3500 Birr	9	5.1
Total	176	100.0	
$\chi^2 = 135.31$ ***			
Milking cows owned	Mean 2.19 TLU	SD SD: 1.51	
TLU for livestock ownership	16.32	13.56	

Source: Computed from survey data, 2009 *** Significant at less than 1% significance level
1USD = 11 ETB, 2009

The annual income of the members from dairy can significantly influence their training need in dairy marketing. Members' annual income from dairy activities was classified into five categories. Based on this 36.9%, 22.2%, 13.6%, 6.3%, and 21% of the members annual income fall within a range of ≤ 1000 ETB, 1001-2000 ETB, 2001-3000 ETB, and 3001-4000 ETB respectively (Table 3).

The mean milk production of the members were found to be 7.30 liters of milk per day in full lactation period with minimum of 0.5 liters and maximum of 24 liters per day. The mean milk sold to the dairy cooperative was 4.66 liters per day with minimum of 0.5 liters and maximum of 12 liters of milk per day.

The relationship between milk produced by the members, milk consumed by the members and milk sold to the cooperatives was illustrated in Figure 3.

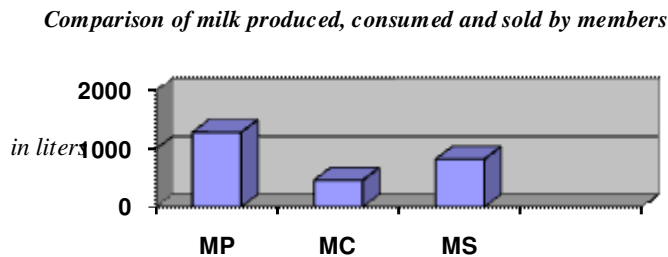


Figure 3: Comparison of milk produced, consumed and sold by members

(Source: From survey data, 2009)

Where MP is Milk produced, MC is milk consumed and MS is milk sold through cooperatives. It is visible from the table 3 is that 42.61% of the respondents had no debt and only 5.11% of the respondents had a debt greater the ETB 5000. As evident from Table 5, out of 176 members of dairy cooperatives, 175 (99.4%) of the members participated in different type and forms of formal and informal organization.

Table 4: Participation of members in types of organizations

S.N	Organization	Never (0)		Sometimes (1)		Whenever conducted (2)		Total	Rank
		N	%	N	%	N	%		
1	Peasant Association	4	2.3	105	59.7	67	38.1	239	3 rd
2	Farmers Cooperatives	97	55.1	49	27.8	30	17.0	109	5 th
3	Informal associations	8	4.5	51	29.0	117	66.5	285	1 st
4	Religious organization	5	2.8	95	54.0	76	43.2	247	2 nd
4	School Committee	81	46.0	58	33.0	37	21.0	132	4 th
5	HIV club	152	86.4	20	11.4	4	2.3	28	6 th

Source: From own survey data, 2009

Table 4 shows that the type of organization in which members participated indicates that majority of the members (Score=285) participate in informal associations like *ekub*, *edir*, etc, which is in agreement with the studies of Zerihun (2002).

4.6. Situational Characteristics of Members

Table 5: Distribution of Situational characteristics of members of dairy cooperatives

Situational Characteristics of members	Attributes	Frequency	Percent
Social Participation ***	Yes	175	99.4
	No	1	0.6
	Total	176	100
Sharing of available information with others $\chi^2 = 18.14$ ***	Share to low extent	49	27.8
	Share to medium extent	85	48.3
	Share to high extent	42	23.9
	Total	176	100.0
Information seeking behaviour $\chi^2 = 19.4$ ***	Low score	48	27.3
	Medium score	86	48.9
	High score	42	23.9
	Total	176	100.0
Extension participation ***	Yes	169	99.4
	No	1	0.6
	Total	176	100.0
Access to credit $\chi^2 = 11$ ***	Yes	153	86.9
	No	23	13.1
	Total	176	100
Purpose of borrowing	Construction of Houses for the cattle	11	6.3
	For procuring milking equipments	25	14.2
	For procuring Hybrid Cows	93	52.8
	Marketing finance	17	9.7
	Total	176	100.0
Frequency of contact with DA's	Once in a week	113	64.2
	Once in two weeks	33	18.8
	Once in three weeks	13	7.4
	Once in four weeks	8	4.5
	Once in five weeks	9	5.1
	Total	176	100.0

Source: computed from own survey data, 2009

*** Significant at 1% level of significance

Table 5 shows that, 27.8% of the members share available information to a lower extent and 48.9 percent of the members were found to have medium information seeking behaviour respectively. As evident, from the findings of the study, 86.9% of the members had access to credit where as 13.1% of the members had no access to credit during 2008 production year from different sources).

The major constraints to access credit were lack of collateral and high interest rate of the lenders. The majority of the members resort to microfinance institution and a few credit co-operatives to access loan. Among 176 members, 52.8% borrow with the purpose of purchasing hybrid cows, for improving their dairy development at the farm level, followed by 14.2%, 9.7%, 6.3%, for procuring milking equipments, marketing finance, and construction of cattle barn respectively).

It was assumed that members' extension participation in dairying can improve their knowledge and skills in due time. Majority (99.4%) of the members of dairy cooperatives participate in extension activities, while only 0.6% of the members did not participate in any extension activities in the previous production plan. Conversely, 64.2%, 18.8%, 7.4%, 4.5%, 5.1% of the members had contact with DA's once in a week, once in two weeks, once in three weeks, once in four weeks, and once in five weeks respectively. This is in concurrence with the findings of Deribe (2007). As per the perception of the members, the majority of the extension service provided by DA's concentrates on technical aspect of dairy farming and input supply.

4.7. Psychological Characteristics of Members

Table 6: Distribution of Psychological characteristics of members of dairy cooperatives

Psychological Characteristics	Attributes	Frequency	Percent
Economic Motivation $\chi^2=67.13^{***}$	Low score	46	26.1
	Medium score	108	61.4
	High score	22	12.5
	Total	176	100.0
Level of awareness $\chi^2=7.36^{***}$	Low level	98	55.7
	High Level	78	44.3
	Total	176	100.0
Perception about dairy cooperatives $\chi^2=10.78^{***}$	Low level	78	44.3
	Medium level	55	31.3
	High level	43	24.4
	Total	176	100.0
Communication skills $\chi^2=31.17^{***}$	Low	47	26.7
	Medium	93	52.8
	High	36	20.5
	Total	176	100.0
Training undergone in dairy marketing NS	Yes	82	46.6
	No	94	53.4
	Total	176	100.0

Source: From own survey data, 2009

*** Significant at 1% level of significance: NS: Non significant

It is evident from Table 6 that majority (61.4%) of the members had medium score of economic motivation to undertake dairy activities (Table 6). It is also apparent from table that 55.7% of members had low level of awareness while 44.3 % of the members had high level of awareness in dairy marketing. It is clear from Table 6 that, 44.3%, 31.3%, 24.4% of members had low, medium, and high level of perception in dairy marketing respectively. 60% of officials had low level of perception about dairy co-operatives, while 40% of officials had high level of perception. The communication skills of the respondents were categorized into three-communication skill levels. Accordingly, 26.7%, 52.8%, 20.5% of the sample member respondents were categorized into low, medium, high level of communication skills respectively. As a matter of fact, training increases the knowledge of participants about farm practices (Rao, 1969). The majority of the members 53.4% had no exposure to training in dairy, while 46.6% of the members had undergone training in dairy.

4.8. The Role of Dairy Cooperatives in Arsi in Promoting Innovation

These innovations can be categorized into three viz technological, organizational and institutional innovations.

4.8.1. Technological Innovation

Dairy cooperatives in introduced technological innovations starting from its inception time till the present to its members. The role played by the cooperative to introduce milk processing technologies and milk handling equipments is part of technological innovation.

- **Processing of milk to milk products:** One of the technological innovations introduced was the introduction of centralized processing of milk in to milk products after separating the cream using the butter churning machine. They were using electrical cream separator and butter churner for milk processing. Refrigerator was being used as preservation practice after processing.
- **Introduction of milk handling and quality testing equipments:** One of the major factors affecting the quality of dairy products is related to milking utensils. The type and quality of milking utensils used as well as methods and frequency of cleaning milking utensils affect the quality of milk and its products (Sintayehu *et al.*, 2008). Unlike plastic utensils which is susceptible for microorganisms and which was adopted by all sample members before, the cooperative introduced an aluminum cane for the handling, storing and supplying of milk. The milk supplied by members was tested for quality using lactometer to see fat content, whether cream is separated or not and adulteration of water into milk.

4.8.2. Institutional Innovation

Cooperatives have been enhancing marketing activities and provision of dairy inputs for the dairy producers. Many farmers never considered dairy as a business before they joined the cooperative; but they sold their milk only to individual consumers, hotels and cafeterias which all didn't provide them a sustainable market for their product. All members of the cooperatives who have the dairy cow/s are selling their milk to the cooperative, but there are some farmers who are selling their milk to both the cooperative and other buyers or milk processing industries. On the other hand, the cooperative is providing dairy inputs which may include AI, concentrate feed, fodder seed and animal health services to its members.

- **Provision of concentrate feed and forage seed:** Since the objective of establishing the cooperative was to supply feed (hay and wheat bran) to members, the cooperatives have been supplying feed. The cooperatives are supplying balanced concentrate feed processed from Niger-seed cake, corn (maize), straw, bole (salty soil), and calcium (gypsum), and wheat bran; at a reasonable price and proper quality by establishing new feed processing plant. The cooperatives was selling for birr 173.00 for a quintal of feed compared to private feed suppliers

- selling at BIRR 200-230 per quintal during the survey time. Molasses is also supplied as a supplementary feed.
- **Provision of AI service:** The other dairy input which has been supplied by the cooperatives is AI service, which is currently provided by the cooperative through its part-time AI technician.
 - **Provision of Animal health care service:** The cooperatives were providing animal health arranging to its members by its part-time veterinarian for routine and emergency services.
 - **Milk products marketing:** The cooperatives collect milk two times a day, in the morning and evening time. One of the institutional innovations introduced by the cooperative in milk collection is the establishment of milk collection centers.
 - **Man-power and organizational structure of the cooperatives:** The board members of the cooperatives were educated with diversified experience and knowledge; moreover, there are significant numbers of educated and diverse experienced staff members who were working in the office, processing plant and milk collection centers.
 - **Financial and facility perspective of the cooperatives:** From financial perspective the cooperative uses standard accounting system that reflects transparency and accountability along with structured and convenient financial pool system; to ease financial transactions and management.
 - **Cooperative on development issues:** One of the internationally accepted guiding principles of cooperatives is that, “cooperative societies have to work for the sustainable development of their communities through policies approved by their members.” To this end, dairy cooperatives in Arsi have started different developmental initiatives

4.8.3. Organizational Innovation

According to the World Bank (2006), organizational innovation refers to entities created to support collaborative pursuit of specified goals. In Arsi dairy cooperatives have different types of external relation with a multitude of actors from governmental, non-governmental and private organizations as well as other cooperatives and dairy associations to achieve their specified objectives.

On the other hand, cooperatives have developed their internal linkage with members, by which members are the major entities to support the specified goals and objectives of the cooperatives. To achieve the entire objectives and goals of cooperatives, the internal communication and relation among members, executive committee and staff members of the cooperative have to be strong.

4.8.4. Promoting Linkages for access to services and marketing

Linkages enable actors to exchange resources such as information, money, labor and other materials; or immaterial assets, such as power, status and goodwill. Interactions between actors and organizations are central to an effective innovation system.

- **Actors and their roles in marketing and dairy service delivery:** dairy cooperative has different types of relation (such as technical, financial assistance, experience sharing, banking service, input supply, marketing etc) with a multitude of actors. Cooperative are performing good in promoting market oriented dairy development through creating market link between the urban and peri-urban sub systems, collaborating with other dairy associations, public organizations, NGOs, projects and donors affiliated on Market Oriented Dairy Development (MODD) nationally, regionally and internationally to enhance dairy development. Moreover, members are supplying milk to cooperatives and cooperatives provides marketing, dividend, dairy inputs and training and advisory services to their members. There was also member-to-member interaction which helped members of cooperatives to share dairy related innovations; by which the cooperative played a significant role in facilitating the interaction.

4.8.5. Linkage of dairy cooperatives with the public sector

Dairy Cooperatives in Arsi do have linkage with the following actors and institutions:

- Cooperative promotion offices at different levels (Federal, Regional and District)
- Agriculture and Rural Development offices at different levels (Federal, Regional and
- Woreda Administration
- Linkage of dairy cooperatives with Non Governmental Organizations.
- Cooperative relation with LAND O'LAKES
- Cooperative relation with VOCA Ethiopia
- Linkage of dairy cooperatives with Milk customers
- Linkage of dairy cooperatives with Credit Organizations
 - Cooperative relation with Oromiya Cooperative Bank
 - Cooperative relation with Commercial Bank of Ethiopia
 - Linkage with Private dairy input suppliers
 - Cooperative relation with private feed suppliers
 - Cooperative relation with Private Animal Health Service providers
 - Linkage of Ada'a dairy cooperative with other dairy cooperatives

4.8.6. The role of the cooperative in knowledge and information sharing

Linkages among actors and the related linkage mechanisms are a quite significant part of a knowledge and information system: they show how actors communicate and work together. Cooperatives have been giving continuous training on improved dairy husbandry (milk processing, hygiene, handling and quality in milk processing, feeding and feed formulation, on farm forage, animals waste management, small scale silage making, breed improvement and animal health care) in collaboration with different organizations. Cooperatives have immense role in providing market oriented training to members. In addition they provide advisor services to members with regard to dairy improvement and quality.

4.9. Constraints in Dairy Marketing

In this study, constraints are those factors adversely influencing stakeholders in dairy marketing. This sub-section will cover many different constraints in dairy marketing.

Table 7: Rank order of constraints obtained from members

S.N	List of constraints	Sum	OMS	Rank
1	Very low quality of milk to the standard	79.00	0.4489	6 th
2	Traditional and informal grading practices	71.00	0.4034	10 th
3	No access to credit service from the dairy cooperatives	84.00	0.4773	5 th
4	Low access to market information	79.00	0.4489	6 th
5	Lack of storage and transportation	70.00	0.3977	11 th
6	Inefficiency and lack of speedy operation in collection of milk	72.00	0.4091	9 th
7	Unsatisfactory payment system	69.00	0.3920	12 th
8	Long fasting days	107.00	0.6080	2 nd
9	Long distance from the collection center	73.00	0.4148	8 th
10	Low access to inputs	78.00	0.4432	7 th
11	Absence of training in dairy	89.00	0.5057	4 th
12	Unavailability of modern transport facility	93.00	0.5284	3 rd
13	Cultural taboos	13.00	0.0739	13 th
14	Irregular supply of milk	169.00	0.9602	1 st

Source: computed from own survey, 2009

One of the major constraints, hindering the members' regarding dairy marketing was irregular supply of milk. Mostly, due to the long fasting days, members were not able to supply milk regularly to the co-operatives.

Determinants of Market Orientation in Dairy Cooperativesⁱ

Using Multiple Linear regression model, the researcher has analyzed the determinants of market orientation in the study area. The model indicates that household demographic characteristics, human and physical capital endowment, distance to markets, institutional, support services, and socio-economic factors influence market-orientation behaviour of dairy farmers.

5. Conclusion and Recommendations

Ethiopia adopted an Agricultural Development-Led Industrialization (ADLI) strategy, which highly emphasizes on the expansion and development of market-oriented co-operatives at great stake. Dairy co-operatives are among different type of co-operatives, which are entering the Ethiopian dairy market after prolonged dominance of the state owned DDE. Arsi Zone was the first to launch dairy development package through CADU, though has not achieved sustainable dairy development in the area due to many factors, it has made undeniable effort to transform the life of the dairy producers in the area. In this zone, dairy co-operatives were established based on the fundamental problems of the farmer; however, they were not able to adjust their operation with current market oriented environment. In fact, most of co-operatives operate with production concept, which neither satisfies members' and consumers' nor develop dairy co-operatives capacity with competitive edge. Apparently, the gap reveals the need for inculcating new skills and techniques to all stakeholders within dairy co-operatives fold. At present, there is greater necessity than usual '*need for training*' as dairy co-operatives strive to lift-up their operation into market-oriented concept. A study was undertaken to expose the gap amid the knowledge, awareness and training needs of stakeholder in dairy marketing.

The results of the study revealed that the average members' age, family size, landholding, milk production, milk sold through co-operatives, milking cows owned were found to be 46.98 year, 6.73, 2.56 ha, 7.30 l, 4.66 l and 2.19 TLU respectively. Conversely, average age of officials was 40.97. Though most of the members share information to others on a medium extent, their information seeking behaviour was found to be medium too. Majority of the members have access to credit and participate once in a week in extension activities. Unfortunately, officials' information seeking behaviour and extent of sharing information to other including members was found to be low. In effect, majority of the members participate in informal associations whenever it is conducted. Despite the fact that members get dairy supply information from local traders, for price and demand of dairy products still they tend to visit the local market.

In addition, the study revealed that cooperatives has immense role in igniting dairy development in the area through various types of innovation and promotion of market oriented production. They provide access to marketing, services and information sharing culture. The cooperatives are promoting market-orientation approaches through creating different linkages with urban and peri-urban subsystems. The model indicates that household demographic characteristics, human and physical capital endowment, distance to markets, institutional, support services, and socio-economic factors influence market-orientation behaviour of dairy farmers. The findings suggest that policy makers should stress in the adoption of integrated, plural and participatory approach for dairy development. Moreover, cooperative policy makers and practitioners should make sure that participatory cooperatives are promoted and ignited to increase the motivation, sense of ownership and shared responsibility among all cooperative stakeholders.

The following recommendations are made to enhance the role of cooperatives in dairy development in the region:

1. In order to improve the local marketing service and making local producers more market oriented and competitive, organizational innovation is needed to organize more milk marketing cooperatives in accessible urban, rural and peri urban areas and link them with milk collectors and processors.
2. Dairy production and marketing research system has to be concentrated on the institutionalization of agricultural innovation system perspective that gives a room to create network and partnership among actors in knowledge generation, diffusion and utilization and more user-orientation, responsive to demand and improving both the management of existing resources and the efficiency of service provision and marketing in the dairy sector.
3. Cooperative offices established at different levels (Federal, Regional and District) have to provide equal services to all cooperatives in terms of monitoring their activities, evaluating their performance, in giving up to date market information and in the provision of technical support with respect to cooperative marketing and management.
4. Innovation has to bring a socially inclusive and environmentally sustainable economic growth, to this end, the cooperative has to create close linkage with the different organic associations to take appropriate measures and looking for alternative uses of animal and industrial wastes like by installing biogas digesters at household and organizational levels which has double advantages of using as an alternative energy sources and in making the environment safe, healthy and clean.
5. Cooperatives had been using training and advisory services to share knowledge and information to its members together with that, cooperatives should expand knowledge and information sharing using different medias.
6. To use the opportunities of dairy marketing, the cooperative has to fulfill both the needs of members and customers.
7. Organizational innovation is required by the financial institutions to serve the dairy producers in terms of providing credit for the cooperatives and members and include additional services like livestock insurance as one option to improve the finance services.

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ⁱ I put the summarized version because of space limitation. If the organizers deem it is important in the paper. I will immediately include it in the final version.