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MILK MARKETING AND VALUE CHAIN CONSTRAINTS

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Milk provides several essential dietary components for humans of all ages. In Pakistan, milk production during 2007-08 has been reported to be 34 million tonnes (about 58% from buffaloes, 35% from cattle) and the rest from camel, sheep, and goat). Per capita availability of milk is 169 litres/annum. However, it varies from place to place both in quality and quantity. At present, Pakistan is acclaimed to be at 4th position in the world in milk production. Pakistan is said to be surplus in milk production; but due to lack of proper planning, collection and distribution facilities, a major portion of the total production about 97% is consumed, per force, by the producers in the far flung areas and only 3-4% of the total milk is being processed and marketed through formal channels. Milk and milk products represent 27% of total household expenditure on food items in Pakistan. The neglect about this valuable commodity appears highly undesirable in view of the fact that milk production despite its very low yield, is even today far ahead of the major cash crops such as wheat, cotton, rice and sugarcane. There is a huge demand for both powdered and packed milk in the neighboring countries of Iran, UAE, Saudia Arabia besides Malaysia, and Philippine, which Pakistan can successfully harness to its advantage. Unlike other progressive countries where sale of raw milk is disallowed by law and processing is mandatory due to milk being one of the two major carriers of diseases (water being the other), Pakistan continues to allow 97% milk to be distributed through the traditional Gawala system. To the bacteria of tuberculosis and hepatitis that naturally occur in milk, the Gawala adds many more varieties through the addition of contaminated water for its dilution. The contractors who collect milk in Punjab through the Dodhis-the middlemen, and sell it to the urban consumers, go a step further. They add unhygenically produced ice slabs, soda bicarb and sometimes formaline to the milk they collect to prevent it from going bad due to intense heat in summer. All the people involved in the milk trade should be trained in the skills of efficient marketing of hygienic milk and value chain knowledge. Along with all the basic principles of clean and hygienic milk production, on farm value addition should also be emphasized. Both the provincial as well as federal governments should play their active role to improve the situation. This paper discusses all the possibilities to improve the marketing of milk to harness its tremendous potential for the betterment of national economy and also to know the constraints that hamper the availability of this essential food stuff in terms of both quantity and quality.

Keywords: Marketing, constraints, hygenic milk, value addition, yield, Gawala, economy

INTRODUCTION

It is acclaimed that Pakistan is at 4th position in milk producing countries of the world. Pakistan is 2nd in buffalo milk production and 12th in cattle milk production (Khan, 2008). Changing production trends, availability of hygienic milk, high prices and increasing demand of this commodity are prime factors which lead towards the formulation of policies for milk value chain. Milk and milk products represent 27% of total household expenditure on food items in Pakistan. Per capita availability of milk in Pakistan is 169 litre/annum. About 80 thousand tonnes of dry milk, worth rupees 1213.5 million was imported to Pakistan during 1999-2000 to meet local demands of milk. The quantity of imported milk varies during different years. Improper marketing channel is one of the major constraints of dairy sector in Pakistan. Although Pakistan was ranked fourth among the five leading milk producing countries in the world, with an estimated 24 million animals having produced about 34 million tonnes during 2007-08, its yield per animal is only one-fifth to one-seventh of that of Western Europe, USA.

Milk plays a vital role in building a healthy society and can be used as vehicle for rural development, employment and slowing down the migration of the rural population. Milk and milk products provide nearly one third of world's intake of animal protein (FAO, 1998). This may not be true for Pakistan where milk provides more than half of the 17.4 g of animal protein available for each person daily. The total milk yield in Pakistan is 33.20 million tonnes and entire dairy processing industry was using only about 15% of it (Hemani & Khan, 1997). The importance of milk as a cash crop is always neglected in the past. While comparing the value of milk with other cash crops, it has been stated that milk has a value about 60% higher as compared to wheat and cotton together (Tanvir, 2007).

If per capita availability of milk (169 litres) is right then it should be visible in our daily food items. Point to understand is whether our common man is consuming such amount of milk or he is striving for minimum milk quantity needed for daily requirement. It indicates that we are still not self-sufficient in milk. Furthermore, quality of available milk is still a big question.

Milk production and marketing in Pakistan: Situation analysis

Milk production and marketing in Pakistan is dominated mainly by the informal private sector, consisting of various agents, each performing a specialized role at a particular point in the supply chain. These consist of producers, collectors, middlemen, processors, traders, and consumers.

Only 3-5% of total production in the country is marketed through formal channels. The remaining 95-97% is produced and marketed in raw form by informal agents in the marketing chain (Umm e Zia, 2006).To get a comprehensive understanding of the opportunities and problems associated with the dairy enterprise in Pakistan, it would be important to give here an overview of the role being played by both the informal and formal channels.

Prime factors affecting milk marketing

Theses factors include: Traditional production and marketing channels, milk production practices, unorganized farmer community, seasonal fluctuation, financial aspects of dairying, role of middlemen, infrastructure, price fixation and role of government agencies.

Traditional production and marketing channel

Most of the dairying process exists at subsistence level in Pakistan and are responsible for 70% of the milk produced. Subsistent farmers maintain 1-5 milk producing animals on his farm (Raja, 2003). These animals produce milk which is used to fulfill daily household requirements and excessive amount is sold to run daily household activities.

Milk production practices

Due to lack of proper management practices and poor breeding, animal production tends to be very low. This results in low farm profitability and reduced national productivity. For instance, when compared with Germany, Pakistan houses thrice as many dairy animals, but milk yield is one fifth of Germany (IFCN, 2003).

Unorganized farmers community

Most of the dairy farming is running at traditional level regarding production and marketing process with no professional and commercial touch. Both of these activities are mostly carried out in isolation from each other. Theses factors particularly hamper the profitability of farm produce. On the other hand, organized marketing can enable individual farmers to fetch out maximum revenue.

Seasonal fluctuation

There is great seasonal fluctuation hampering both production and consumption of milk in Pakistan. Milk production is associated with the availability of green fodder and is at its maximum between January and April and hits a low from May to August (Umm e Zia, 2006). Alternatively, milk consumption is low during the winter and is at its peak during the summer due to higher intake of consumer intake of milk products such as lassi, yogurt, and ice cream. *Figure below* demonstrates the seasonal fluctuation in supply and demand.

Financial aspects of dairying

For small scale dairy farmers, sale of milk is a regular source of cash flow and the livestock owned by them constitutes an invaluable asset. They also minimize the loss due to crop sector and act as a blank check in the time of need. Smallholders do not have ready access to financial services such as insurance and credit. In the absence of these services they do not have a financial recourse in times of emergency such as livestock disease or mortality.

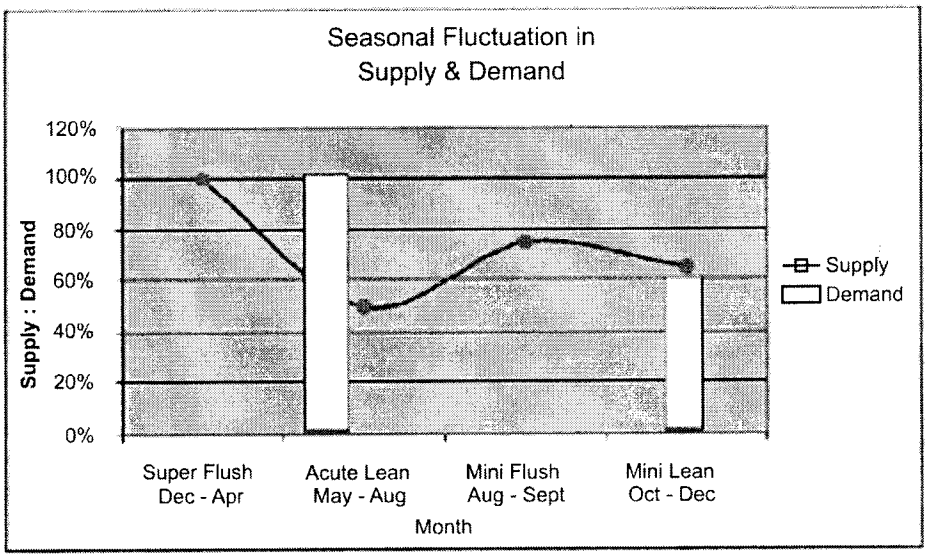
Role of middlemen

Milk marketing in rural areas is mainly exploited by middlemen and smallholders have to rely on middlemen to market their produce. Middlemen always have a monopolistic approach and can exploit farmers by paying low prices, executing binding sales contracts and not passing on gains when prices are seasonally high in response to lower supply.

Table 1. Gross annual milk production (billion litres) between 1986-1996 & 1996-2006

Milk production per annum	Between 1986-1996 and 1996-2006				
Type of animal	Gross Annual Production ** (billion litres)				% change between
	1986	1996	2006	1986 & 1996	1986 & 1996
Cows	9.36	9.36	13.33	32.4	42.4
Buffaloes	14.82	18.90	25.04	27.5	32.5
Total	21.89	28.26	38.37	29.1	35.6

***Worked out by using average annual lactation length of 250 and 305 days for cows and buffaloes, respectively*
Source: Economic Survey of Pakistan, 2007



Source: Analysis of Milk Marketing Chain-Umm e Zia, 2006

Source: Market information

On the other hand, in their capacity, middlemen also gives the advantage of providing support services in the form of credit, health care and other necessary services to the farmer community to strengthen their contacts.

Infrastructure

The infrastructure of milk marketing is insufficient to ensure product quality; proper transportation of milk also requires an interconnected cold chain to maintain its quality. But, cold storage facilities are inaccessible and a large proportion of milk is lost. According to an ADB report, milk losses due to unavailability of cold storage are estimated at about 15-20 percent of the total milk production in some areas.

Main reasons behind unavailability of cold chain facilities are the high costs for cold chain operations. Another great problem is of electric power if available, it is supplied at high rates by the government as dairy farmers do not get subsidies similar to the ones given to agricultural farmers on equipment such as tube wells, etc

Price fixation and role of government agencies

As the law generally gives broad authority to the local government in setting of foodstuff prices, through regulating the price of milk, the government can play a significant role in milk marketing. The specific law followed can be different from one place to another within a province.

The Provincial Food Department can declare various commodities, including milk, to be foodstuffs. After the issuance of the notification by the Food Department and/or the Ministry of Industries & Production, a District Price Review Committee is set up by the District Coordination Officer (DCO) to regularly review and set the price of milk. The committee is comprised of various stakeholders in the milk trade, including representatives from the livestock department, dairy farmers, milk retailers, and consumers. The Committee may fix different prices for different localities in the district. For example as prices has been fixed in Karachi.

Once the decision of the DPRC is finalized, a notification pertaining to the new price is circulated to relevant stakeholders, including various government agencies. These may include Provincial Secretary, District Nazim, District & Session Judge, Chief of City Police, Information Department, Food Department, Department of Agriculture, Rationing Controller, Town Nazims, TMOs, Official Gazette, and President Sheer Farosh in the city (Umm e Zia, 2006).

Constraints of milk supply

'Dodhees' collect milk from small holders situated in far flung rural areas of Punjab. This has led to saturation

of supply in the province. The competition has resulted in price wars in collection zones and establishment of additional processing units by some of the major corporations such as Nestle.

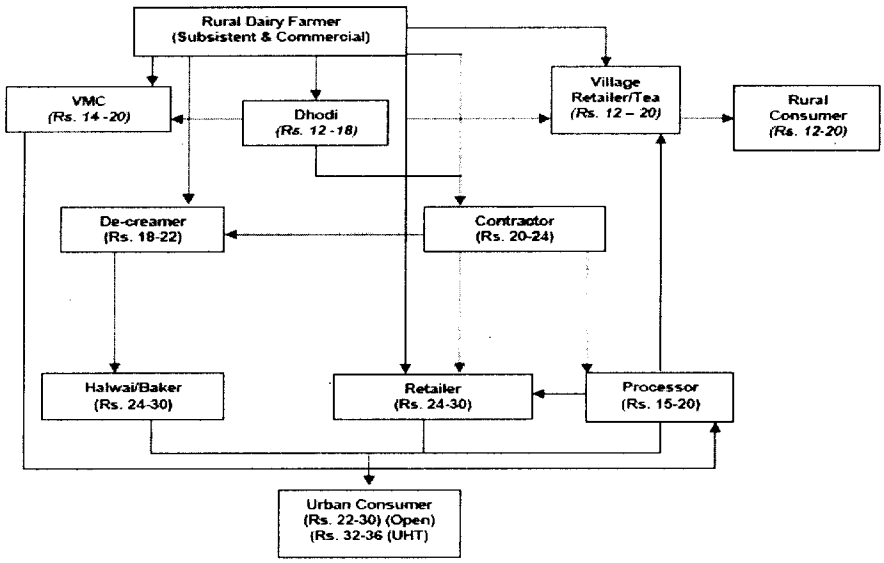
Moreover, factors such as lack of cold chains, adulteration, unhygienic on farm production, fragmented farm base and distance to dairy farmers affect processing operations. Consequently none of the processing units is operating at optimal capacity.

Hence, many processors have been eying options to reduce or eliminate their reliance on individual small holders for their supply. Two of the favored options being mulled are i) vertical integration of activities by piloting corporate farming, an idea new to the national dairy practices; and ii) providing additional support services to medium and large farmers in return for selling bulk quantities of fresh milk to the processors. Large corporations have had no choice but to rely on small farmers.

Milk marketing and milk price

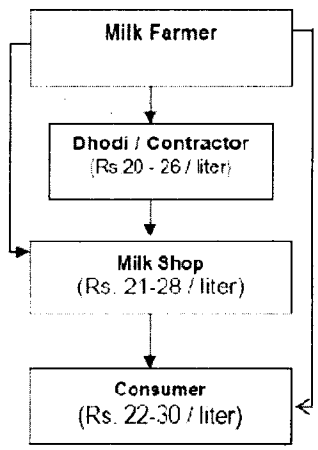
As a result of a complex collection and distribution system, the current milk quality in Pakistan is below international standards. The average farm gate price of

Rural milk marketing chains



Source: Market Information, 2007

Peri -urban milk marketing chain



Source: Analysis of Milk Marketing Chain, Pakistan - FAO, 2006

milk is Rs 25 per liter. It varies from Rs 30 to Rs 35 per liter depending upon the season. Variation of farm gate price is not linked to the quality of the milk. It is rather determined by two factors. One is the financial arrangement between the buyer and seller. The second factor is the geographical location. In areas where livestock rearing is difficult due to very hot weather or scarcity of fodder like in Rawalpindi, farmers get a better price for their milk. But when the price of the fodder is taken into account, the net income of these farmers is not significantly higher than the income of farmers from other areas of Punjab. Currently, there are no policies to regulate milk prices at the farm level. The middlemen, contractors, *Gawalas* (local milk collection, transportation, and distribution people) processors, processed unpacked milk, loose milk, and processed milk are the segments of the dairy value chain. The processed packed milk costs Rs. 48 per litre whereas the loose milk costs Rs 30-35 per liter (Tanvir, 2007).

Around a third of the total milk produced by the rural families flows out to urban consumers and processing industries. More than half of the milk collected by urban traders and processing industries comes from small herd families. The family's decision to sell milk and the amount to sell is clearly poverty driven. Small farmers sell milk only because they have no other source of cash income. Milk in urban areas is accessible to common consumers in two ways: loose, unprocessed milk and packed, processed milk. Each has its own price regime.

The unprocessed milk passes through the middle persons before it reaches the urban retailer. The price of milk increases by one rupee per litre at every stage of sale. The ***'Dodhees*** (*Gawalas*)' generally have undocumented contracts with farmers for regular milk supply. They pay farmers an average price of Rs. 17 per kg. Some *'dodhees'* have milk storage and chilling system and transport system. Transportation generally costs Rs.2.5 to Rs.4 per liter. *'Dodhees'* make one rupee per liter.

Large dairy shops also produce *Desi ghee* and butter. Processing plants have also introduced a number of dairy products like yogurt, drinking yogurt, flavored milk, cream, butter, ghee, cheese, ice cream etc. The quantities sold however are small except for yogurt & butter. Industrial processing units in addition to the traditional traders of sweetmeats, milk, yogurt, ghee and other dairy products have been set-up. Most of processing capacity is concentrated near larger markets and away from potential sources of milk. More than 53 modern milk processing facilities were established before 1974. By 1974 less than half were operating after the introduction of the first UHT, long-life milk plant came into operation.

Legislative and regulatory measures

Pure Food Rules of 1965, Cantonment Pure Food Rules of 1967 (for military areas), and parts of the Pakistan Penal Code of 1860 are applicable to the dairy industry along with the other food items. Legislative and regulatory measures that affect the milk market in Pakistan are dictated primarily by the salient features of laws that govern the milk industry

How to get maximum advantage out of this precious commodity

The government has directed the concerned departments that the export earnings from livestock products be increased. However, there are certain constraints that hinder growth of this sector. In an ideal world in which markets are allowed to operate freely, unhindered by local and international control mechanism, market forces would regulate production. For industrial goods, free trade has been encouraged by World Trade Organization (WTO), which benefits the industrial countries standards for export purposes. However, unfortunately, the current international trading system for agricultural products, and for livestock in particular, works in different ways; for example, livestock products cannot be exported to other countries if livestock diseases declared as 'A', prevail in the country. Also livestock items have to be processed and packed according to international standards. Although our livestock products are cheaper than those of Australia and New Zealand, but both these countries get major share of Middle Eastern market. To increase our livestock products export, we would have to develop industry for milk and meat processing and packaging. Hence following steps should be taken to boost export of these items: Use of processed milk may be encouraged through various means of media and use of raw milk may be discouraged, Time period be fixed for large milk producers and cooperatives to install pasteurized milk plants and later completely ban the sale of raw milk in large cities and district headquarters. Special service centers for dairy development be set up for milk collection and veterinary aid. For increasing the milk yield, the genetic potential of existing stock be improved through selection of best bull mothers, Milk collection be improved through collection points and better transport to encourage the farming community to raise better livestock following incentives may be considered: Credit facilities on easy terms be provided for export-oriented activities in this sector, Feed mills for livestock be set up and raw feed use be discouraged, Farmers be trained for modern commercial farming for high milk production and Livestock shows be organized at provincial and national levels.

Proposed future strategies regarding milk marketing

The National and Provincial governments have recognized these problems and proposed development strategies that will assist in progressive uptake of technologies for increased milk production and marketing. The authorities realistically should further emphasize on the following issues. The fundamental issues of food safety that must be addressed in the existing marketing system where milk from the peri-urban sector is mostly sold direct to households–it is un-pasteurized and it is not chilled. Food safety regulations and hygiene standards are major areas of government policy intervention because of public health considerations, improving the efficiency of management of the small holder production unit, involvement of participatory research bringing together discipline skills from a range of institutions,. the poor distribution infrastructure should be replaced by cold chains or chillers, development of commercial market outlets by government, a perishable commodity like milk requires a good road system and a cold chain system that allows timely delivery to processing plants, depth analysis of current systems; improved feed supply; nutritional management of the dairy buffalo/cow in a whole farm systems context; analysis of the current marketing system and opportunities to form community cooperatives thorough analysis of the socio-economic and biophysical features leading to effective transfer of technologies, there should be a better coordination between the Dairy Development and Animal Husbandry Departments, The on farm processing and marketing of milk and milk products is a segment of the dairy industry that has recently received significant consideration by farm families through out the world and the price should be fixed realistically-the cost of production and a decent margin should be kept in mind.

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