



Value Chain Analysis of Dairy Industry: A study in Bikaner District of Rajasthan

Dr. Vijay Sharma

Asst. Professor,
Department of Management,
Engineering College Bikaner
Vijaysharma07@gmail.com

Dr. Rakhi Pareek

Asst. Professor
Department of Management
Engineering College Bikaner
rakhipareek@gmail.com

Dr. Ankur Goswami

Asst. Professor
Department of Computer Application
Engineering College Bikaner
ankurgoswami2006@gmail.com

Abstract—: Operation White Flood in 70s paved the way of a new revolution in milk industry of India making it the largest country in milk production. This first wave was a result of collaboration of all stakeholders i.e. Government, milk cooperatives and Agricultural scientists. It also gave farmers their first exposure of understanding core of milk production.

But private players were conspicuous by their absence in this first wave. Due to the minimal involvement of private players in the industry, approximately 80% of the retail price of the liquid milk went back to the farmers leading to low operating margins (4-5%).

But the second wave in this revolution is just around the corner as over the past decade, there is a perceptible change has come in consumer behavior with regard to dairy industry. This change is more visible in VADP (Value Added Dairy Products) industry where margins are in double digits.

As per the industry estimates, the share of VADP in the milk and milk derivatives segment is growing currently at around 25% every year and is expected to grow at the same rate until 2019-20.

Rajasthan occupies second space in milk production in India whereas Bikaner district is one of the highest milk producing districts in India.

The state overall process only 10% of the total milk produced, which is quite surprising given the excellent track record as the state has registered 28% growth in milk production in the country, becoming the second highest after Andhra Pradesh from 2006 to 2010.

The state and particularly Bikaner district can get a leverage in VADP industry provided it get support from all the stake holders.

Main objective of the study is to evaluate the current status of Value Chain of Dairy Industry in Bikaner district of Rajasthan and explores the opportunities and challenges of this value chain. The study also aims at analyzing the strengths of each value chain actor and participators and suggesting a framework to leverage this strength in value chain.

Keywords: Value chain, Dairy Industry, Milk Processing Industry, White revolution, Green Revolution

I. INTRODUCTION

India has the maximum livestock population in the world, most of which consists of milk yielding animals (cow, buffalo and goat). India has a large livestock population base constituting 278 million livestock including 180.5 million cattle, 82.8 million buffaloes, 4 million sheep and 9.2 million goats. The livestock population is projected to increase to 322 million by the year 2015 and its white revolution is considered one of the most successful result oriented program of world. Punjab is the leader among states with 937 grams of milk available per person per day, followed by Haryana (679 grams), Rajasthan (538 grams), Himachal Pradesh (446 grams) and Gujarat (435 grams) but rest states didn't performed well and fall below 200 grams.

In India dairy industry witnessed three stages

The first phase began around just after independence in which government monopolized the milk supply and distribution of milk through milk control board but due to this, the milk producer's profit declined significantly and this further resulted in decline in per capita milk availability. Needless to say that this policy failed to achieve its objectives.

The second phase began when government finally realized the importance of milk producers and started operation flood. The aim of the operation flood was to establish dairy cooperatives and increase milk production. The positive impact of good governance coupled with incentives from scientific field resulted increased milk production and milk availability.

The third phase is closely linked with globalization wherein government and other stake holders are now realizing the importance of value chain in dairy milk industry.

India's dairy industry is unique in its design as 70% of the milk is produced by small, marginal and landless farmers keeping up to 3 adult dairy animals. Even households supplying private dairies have an average herd-size of only about 10 animals. Out of 70 million milk producers of country, only around 11 million farmers are enrolled in milk cooperatives.

Dairy Cooperatives account for the major share of processed liquid milk marketed in the India. Milk is processed and marketed by 170 Milk Producers' Cooperative Unions, which federate into 15 State Cooperative Milk Marketing Federations. Uttar Pradesh, Punjab, Haryana, Rajasthan, Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Tamil

Nadu are the milk surplus states in India. The manufacturing of milk products is obviously high in these milk surplus States. Exports of dairy products have been growing at the rate of 25% per annum in the terms of quantity terms and 28% in terms of value since 2001. Significant investment opportunities exist for the manufacturing of value-added milk products like milk powder, packaged milk, butter, ghee, cheese and ready-to-drink milk products

This low enrollment also results in short supply of milk as 50% of the milk that is produced is retained by the milk producer for his domestic consumption and remaining part is available for market consumption. This is in contrast to other milk producing countries where more than 80 percent milk is available to market.

Out of the milk which is available to the market around 35 percent is being processed and the rest of the milk is consumed as fresh, non-pasteurized milk either through unorganized or organized channels.

This low availability of milk reaching to market and coupled with low convertibility of milk into processed milk products led to significantly higher prices of milk and milk dependent products

The higher price consequently lowers the affordability of milk among people; critically affecting lower strata of population and making India the home to one third of the world's undernourished children.

Regrettably there is a significant gap between demand and supply of milk. Though milk is the single most important agricultural commodity and per capita availability of milk in India is 290 grams per day, which is slightly more than the world average which is around 285 grams per day yet this availability is not equally spread.

Moreover even in the states where milk availability is very good, the availability is restricted to only affluent families, making the nourishment availability difficult for families which are living below poverty line.

According to ICDS (Integrated Child Development Services) report, around 2.5 crore (approximately 25 million) children in India suffers from malnutrition resulting in around 2 billion US dollar economic losses every year.

The proportion of underweight children in India might have declined from 45.1 per cent in 2005-6 to a historic low of 30.7 per cent in 2014 but even so, India still has the highest number of underweight children under five in the world and 70% of children are undernourished children.

The situation becomes graver as significant amount of population is pure vegetarian leaving only milk and milk related product only viable source of obtaining protein and other essential nutrition.

The solution of this major problem lies in increase in not only milk production per capita but also increase in milk processing.

Rajasthan achieved 28% growth rate in milk production in 2010-11 which is second highest in India yet the milk processing industry is in the nascent stage in the state. Bikaner district is one of highest milk producing district of Rajasthan and the district can provide significant contribution to milk processing industry.

II OBJECTIVES OF THE STUDY

The present study tries to evaluate the current status of Value Chain of Dairy Industry in Bikaner district of Rajasthan and explores the opportunities and challenges of this value chain with a view to find out key factors influencing the value chain. The study also aims at analyzing the strengths of each value chain actor and participators and suggesting a framework to leverage this strength in value chain.

III METHODOLOGY

For the present study, Bikaner district was selected after careful examination of secondary data available to the researcher as Bikaner is one of the biggest supplier of milk in Rajasthan state and arguably largest milk producer in northern Rajasthan region. One plant from co-operative sector URMUL (Uttari Rajasthan Sahkari Dugdhd Utpadak Sangh Limited) and another plant from the private sector in Bikaner district were selected to compare the procurement, processing and marketing aspects of both the co-operative and private dairy plants. FOR THE PRESENT STUDY RESPONDENTS WERE CATEGORIZED IN FOUR TIERS

Cow Feed Suppliers: included retail shop owners who were providing cow feed products

Milk Producers: - farmers who were supplying milk to the dairy industry

Persons engaged in Milk Processing: Managers who were actively involved in milk processing

Other Stakeholders: included veterinary scientists and marketing personnel

IV VALUE CHAIN ANALYSIS

According to local industry's sources, Bikaner district produces around more than 20 lakh litter milk every day. Out of this around 6.5 lakh litter goes to URMUL and around 7 lakh litter to private dairy companies respectively and rest goes to open sale route.

URMUL is connected with 32 cooperative societies connecting more than 5000 villages whereas private dairies are connected with around 2500 villages.

This data has a significant value as it clearly shows the reason of Bikaner's high yield of milk collection.

Suppliers' perspective of Dairy Value Chain Industry of Bikaner: - 20 cow feed suppliers were included in the study on random basis and a significant number of them were highly optimistic with reference to dairy processing industry.

More than 70 percent attributed this to increased participation of private industry in the district. They also felt that cooperative based model is nonfunctional in providing value addition but on the other hand it provided a framework on which farmers are in the position to negotiate with private dairies.

Almost unequivocally they were concerned about the growing incidents of infiltration among cow breeders and milk producers.

Their concerns centered on lack of credit facilities from banks and lack of proper platform to connect with farmers.

Milk Producers' perspective of value chain: - 54 producers were selected for the study. Out of 54, 35 were connected with cooperative movement and 12 were connected with private dairies and rest were selling their milk through open.

All of milk producers were optimistic about opportunities that are emerging in the district.

Most of the producers remarked categorically that they are not getting their desired price of milk and many opined that government intervention is necessary time and again. Also one of the concern was lack of transparency in both modes viz. cooperatives and private dairies.

They also criticize lack of public transportation infrastructure as this hampers their access to the open market making them vulnerable to middlemen.

Persons engage in Milk Processing: - 17 persons who were directly involved in milk processing were selected for this study.

Out of 17, 9 were from cooperative industry and 8 were from private dairies.

Majority of them were quite enthusiastic regarding prospect of dairy processing industry in Bikaner.

They were also concerned and found to be in agreement with the issues raised by the farmers

Moreover they opined that lack of airport facility is one of the bottlenecks that are impeding the growth of this value chain in Bikaner.

Perspective of other stakeholders: - 3 veterinary scientists and 8 government servants who were directly involved in the dairy industry were also selected to gain holistic view of the prospect of value chain of dairy industry.

While scientists expressed their concern of lack of educational platform and curricula especially designed for milk producers, government servants provided their valuable feedback about government initiatives given to the farmers and dairy industry and they also shared their distress about lack of public support in their initiatives.

V FACTORS IDENTIFIED

Table-1

Stage	Factors identified	Opportunities Identified	Challenges Identified	Solutions Suggested	
1	Raw Material Supplier	Lack of Support from Banks and other Financial Institutions	Growth Opportunities available locally	No Support from Local administration	Involvement of Financial Institutions
2	Milk Producers	Milk preservation facilities are not available	Local Production of Milk, Strong presence of Dairy Industry	Lack of proper infrastructure like Roads	Government Initiatives for milk processing
3	Milk Processing Industry	Low involvement of big companies in milk processing	Local strong supply in Milk Procurement	Lack of Airport facility and poor connectivity with other metro	Government intervention for infrastructure
4	Other Stake Holders	Lack of educational material for milk producers	Strong presence of Milk cooperative	Low level of government initiatives	Creating a common platform.

The table shows the opportunities and challenges ahead for the growth of value chain of Dairy industry in Bikaner. The study highlights the fact that Government sectors and non-government organizations should focus on the not only feeding and water resource management in dairy but also creating proper curricula focused on milk producers.

The study also highlights the lack of proper coordination among government offices, academic institutions and milk producers which results in poor supply chain of milk creating unnecessary bottlenecks.

One of the outcome of the study was stakeholder's focus on lack of airport and other transportation facilities available in Bikaner district.

Farmers also criticized poor condition of roads and argued that this is one of the reason of low milk supply to the dairy industry.

Also industry faces low cash inflow which doesn't allow the industry to purchase necessary heavy machinery.

VI CONCLUSION

Over the past decade Dairy development has assumed significant importance in the rural economy of India due to the Immense potential for supplementing income and employment generation for the rural people. Accordingly it must be understood in the context of not only poverty alleviation, but also to increase milk supply in abundance so as to lower the gap between demand and supply.

The later objective and purpose is utmost essential if India wants to supply proper nutrition to it's under privilege children. Bikaner can harness its true potential by adopting rightly guided policies towards dairy industry.

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