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Challenges before Co-operative Dairy Industries

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Abstract

Dairy industry is of crucial importance to India. The country is the world's largest milk producer, accounting for more than 13% of world's total milk production. Dairy products are a major source of cheap and nutritious food to millions of people in India and the only acceptable source of animal protein for large vegetarian segment of Indian population, particularly among the landless, small and marginal farmers and women. And milk production and productivity were enhanced by ensuring the availability of veterinary services, artificial insemination (AI), feed and farmer education.

Dairying has been considered as one of the activities aimed at alleviating the poverty and unemployment especially in the rural areas in the rain-fed and drought-prone regions. The slowdown is attributed to the decline in investment in the dairy sector since the end of the Operation Flood initiative. Central and state government allocation for dairy development has diminished in the past two five-year plans. The paper focuses on challenges before dairy industry and suggests some remedies and conclusion on it.

Key words: Indian population, poverty and unemployment, rural areas, Dairy development, Emerging situation.

“The industry's major contribution in providing newer avenues for employment, both direct and indirect, and its role in improving the nutritional standards of our people also add to the importance that needs to be attached to this sector during the 21st century.”

Introduction

Dairy industry is of crucial importance to India. The country is the world's largest milk producer, accounting for more than 13% of world's total milk production. It is the world's largest consumer of dairy products, consuming almost 100% of its own milk production. Dairy products are a major source of cheap and nutritious food to millions of people in India and the only acceptable source of animal protein for large vegetarian segment of Indian population, particularly among the landless, small and marginal farmers and women. Over the span of three decades, India has transformed from a country of acute milk shortage to the world's leading milk producer, with production exceeding 100 million tons in 2006. This phenomenal

success is attributed to a Government initiative known as Operation Flood (1970–1996) and its intense focus on dairy development activities. In that initiative, rural milk shed areas were linked to urban markets through the development of a network of village cooperatives for procuring and marketing milk. And milk production and productivity were enhanced by ensuring the availability of veterinary services, artificial insemination (AI), feed and farmer education.

Dairying has been considered as one of the activities aimed at alleviating the poverty and unemployment especially in the rural areas in the rain-fed and drought-prone regions. In India, about three-fourth of the population live in rural areas and about 38% of them are poor. In

1986-87, about 73% of rural households own livestock. Small and marginal farmers account for three-quarters of these households owning livestock, raising 56% of the bovine and 66% of the sheep population. However, that growth has slumped to less than 3 percent in recent years, raising cause for concern. The slowdown is attributed to the decline in investment in the dairy sector since the end of the Operation Flood initiative. Central and state government allocation for dairy development has diminished in the past two five-year plans.

Objectives of Research Paper

- 1.To identify the challenges before dairy industry.
- 2.To know the overall situation of dairy industry in India.
- 3.To examine the factors affecting competitiveness of dairy industry.
- 4.To analyze the role of governments for dairy industry.
- 5.To suggest some remedies and conclusion on dairy industry in India.
- 6.To explain the future of dairy industry.

Challenges before Dairy Industry

1. Competitiveness cost of production, productivity of animals etc.

The demand for quality dairy products is rising and production is also increasing in many developing countries. The countries which are expected to benefit most from any increase in world demand for dairy products are those which have low cost of production. Therefore, in order to increase the competitiveness of Indian dairy industry, efforts should be made to reduce cost of production. Increasing productivity of animals, better health care and breeding facilities and management of dairy animals

can reduce the cost of milk production. The Government and dairy industry can play a vital role in this direction.

2. Production, processing and marketing infrastructure

If India has to emerge as an exporting country, it is imperative that we should develop proper production, processing and marketing infrastructure, which is capable of meeting international quality requirements. A comprehensive strategy for producing quality and safe dairy products should be formulated with suitable legal backup.

3. Focus on buffalo milk based specialty

Dairy industry in India is also unique with regard to availability of large proportion of buffalo milk. Thus, India can focus on buffalo milk based specialty products, like Mozzarella cheese, tailored to meet the needs of the target consumers.

4. Import of value-added products and export of lower value products

With the trade liberalization, despite the attempts of Indian companies to develop their product range, it could well be that in the future, more value-added products will be imported and lower value products will be exported. The industry has to prepare them to meet the challenges.

5. Provisions of SPS and TBT

At the international level, we have to ensure that provisions of SPS and TBT are based on application of sound scientific principles and should become de facto barriers to trade. Operation Flood Era Dairy sector witnessed a spectacular growth in 1971-1996, i.e. Operation Flood era. An integrated cooperative dairy

development programme on the proven model of Anand pattern was implemented in three phases. The National Dairy Development Board was designated by the Government of India as the implementing agency. The major objective was to provide an assured market round the year to the rural milk producers and to establish linkage between rural milk production and urban market through modern technology and professional management.

Milk production grew from 21 million tons in 1970 to nearly 69 million tons in 1996 - more than threefold, at the compound growth rate of 4.5 per cent. Some ten million farmers were enrolled as members in about 73000 milk cooperative societies. By 1996, milk cooperatives attained a dominating share of the Indian dairy market - butter 96%, pasteurized liquid milk over 90%, milk powder 59% and processed cheese 85%. India was reckoned as a major threat in the dairying world. In retrospect, it was by no means an easy task. Let us all salute the visionary and the architect of the white revolution in India, Dr. Verghese Kurien, without whose dynamic leadership this cannot possible. The dairy cooperative movement has continued to grow in the post Operation Flood-era.

6. New Challenges of Globalization and Trade Liberalization -

The NDDB has recently put in place Perspective 2010, to enable the cooperatives to meet the new challenges of globalization and trade liberalization. Like other major dairying countries of the world, the Indian cooperatives are expected to play a predominant role in the dairy industry in future as well. However, India is in the mean time, attaining its past

glory and is once again becoming .DOODH KA SAGAR. But, what percentage of this SAGAR is handled by the cooperatives - just a little over 7%. Since liberalization of the dairy sector in 1991, a very large number of private sector companies / firms have, despite MMPO, established dairy factories in the country. The share of the total milk processing capacity by private sector is 44% of total installed capacity of 73 MLPD (Million Liters per Day) in the country. Therefore, the total share of the organized sector, both cooperatives as well as the private sector is barely 12%. What is, therefore, disquieting is that as much as 88% share of the total milk production is commanded by the unorganized sector - who specializes in selling sub-standard, unpasteurized milk more often than not adulterated with harmful chemicals Besides, growth in milk production is likely to continue at the present rate of 4.4% in the near future. Who is going to handle this incremental milk? We must bear in mind is both income and price what we must bear in mind both income & price elasticity account for approximately 15% of the total expenditure of food. Demand for milk, at current rate of income growth is estimated to grow at 7% per annum. Interestingly, demand for milk is expected to grow steadily over the next two decades as the low income rural and urban families who have higher expenditure elasticity would also increase their income due to new economic environment. Let us now look at some other economic indicators. According to the World Bank, India is the fourth largest economy in the world going by the purchasing power parity estimates. Further, India has been identified as among the first 10 emerging markets in the world. India has the vastest domestic

market in the world with over one billion consumers - a majority of whom are vegetarians with drinking of milk as habit. The untapped potential of the dairy sector is immense and opportunity to set up a new dairy venture is great. In the works of Dr. Amrita Patel, Chairperson, NDDDB, there is enough place under the scheme for both private and cooperative sectors. Notwithstanding the above potential it is cautioned that, entering dairy sector is not going to be a cakewalk.

Emerging situation

Dairy is currently the top-ranking commodity in India, with the value of output in 2004 at 1.179 billion rupees (US\$39 million), which is almost equal to the combined output value of rice and wheat. Despite the importance of the dairy sector in overall GDP, it receives less government budgeting than the agriculture sector. Further, there has been no concentrated investment in the development of value-added or innovative products, nor any serious effort to support and modernize the informal sector.

In light of the increasing demand driven by the growing population, higher incomes and more health consciousness, the slowdown in dairy industry growth is severely worrisome. Based on estimates by the National Dairy Development Board (NDDDB), the demand for milk is likely to reach 180 million tons by 2022. To supply the market, an average incremental increase of 5 million tons per annum over the *next* 15 years is required – a doubling of the average incremental rate achieved over the *past* 15 years. In the absence of sufficient increased production, India will need to rely on the world market for imports. And because of the huge volume

required, it will affect global milk prices. Thus, focusing on areas for local dairy development is critical.

Traditionally, the policy environment has favored the expansion of cooperatives, which ultimately crowded out the private sector. However, liberalization of the sector in recent years has encouraged private investment in dairying. In 2002, the Milk and Milk Products Order (MMPO) ushered in major policy changes friendly to the private sector and a momentum of activity that is likely to increase dramatically in the coming years. Large Indian and multinational corporations, such as Reliance, Pepsi and Coca-Cola, are planning significant investments.

Nowadays, both the private sector and the cooperatives drive the value chains. Because of the many unsuccessful cooperatives in the country, other models of dairy farmer organizations are being explored, such as Mutually Aided Cooperative Societies (MACS) and producer companies.

Millions of small and marginal farmers in dairying who own two to three animals and produce an average of 5 liters comprise a critical portion of India's dairy industry. Livestock development in general and dairy development activities in particular are key components of pro-poor development strategies because livestock distribution is much more equitable than land distribution. Thus, changes in the dairying environment have important implications for the smallholder farmers and for poverty reduction.

The following characterizes India's dairy farming and its relevance to inclusive growth:

- Small and marginal farmers own 33 percent of land and about 60 percent of female cattle and buffaloes.
- Some 75 percent of rural households own, on average, two to four animals.
- Dairying is a part of the farming system, not a separate enterprise. Feed is mostly residual from crops, whereas cow dung is important for manure.
- Dairying provides a source of regular income, whereas income from agriculture is seasonal. This regular source of income has a huge impact on minimizing risks to income. There is some indication that areas where dairy is well developed have less incidence of farmer suicide.
- About a third of rural incomes are dependent upon dairying.
- Livestock is a security asset to be sold in times of crisis.

Factors affecting the competitiveness of the dairy sector

To assess the dairy sector's competitiveness, a performance analysis looked at five factors: demand conditions, market structure, factor conditions, related supporting industries, and government and the enabling environment*

Demand conditions

Demand for dairy products in India is likely to grow significantly in the coming years, driven by more consumers, higher incomes and greater interest in nutrition. Consumption of processed and packaged dairy products is increasing in urban areas. Because of the increasing competition from the private sector, several national and international brands have entered the market and expanded consumers' expectation of quality – although only among a small proportion of the population. In many parts of the country, people still prefer unpacked and unprocessed milk delivered by a local milkman because of its taste and the perception of freshness. The price elasticity for milk is high, thus demand for milk is very sensitive to price changes.

Market size and growth	Market growth is due to high per capita consumption, increasing population and health consciousness
Consumption patterns	Consumption of processed and packaged dairy products is increasing in urban areas
Consumption patterns	Unpackaged milk is still preferred because of taste and price
Sophistication of consumers	Consumer awareness on product quality is increasing but in a very small portion of the population
Receptivity to new products	Mostly urban consumers have a very low but increasing interest in new products
Price elasticity	Price elasticity is high
Impact of market opening on demand	Consumers now have a variety of quality products

Market structure

Until 2002, cooperatives traditionally were the dominant players in the formal sector. With liberalization of the dairy industry, private investment has increased quite significantly. However, the organized sector's share in milk procurement is very low because a large proportion of the milk and milk products are sold through the

informal channel (Table 3). The informal demand absorbs approximately 41 percent of the milk and milk products produced in the country, accounting for about 75 percent of the marketable surplus of milk. The formal channel, with its packaged milk and dairy products, accounts for only about 25 percent of the marketable surplus, which is about 15 percent of production.

Table 2: Market Structure

Performance	Still large share of produce; 85% of marketable surplus goes through informal channel
	Quality of milk through informal channel is an issue and to some extent in formal channel as well
Competitive structure	Little competition to cooperatives because private sector was not allowed in the sector until recently
	Entry of supermarkets in retailing of milk is increasing the competitive structure
Governance (value chain type)	Governance of cooperative structures is constraining efficiency and expansion
Role of "lead" or organizing firms	Role of lead agency has been hampered by government interference in cooperatives
Farmer organization	Immense scope for improving management and governance through farmer organizations
Marketing chain capacity and efficiency	Scope for enhancing efficiency of distribution
Distribution channels	Cooperatives have a well-developed distribution channel in urban areas
How market signals are conveyed or distorted	Government and political interference in price setting, limits prices being determined by market forces.

The informal sector consists of the village milk vendors who procure loose milk from farmers and sell it in urban and semi-urban areas directly to consumers, small private processors or hotels. The milk vendors

also may sell processed products, such as paneer or separated cream. The quality of the vendors' milk and milk products is not guaranteed. Largely sold in loose form, it is often adulterated with several additives to control spoilage.

Table 3: Flow of milk through different channels

Share of marketable surplus	% of production	Total production (million tonnes)	Use
	100%	100	
	45%	45	Home consumption
	55%	55	Marketable surplus sold in urban and rural markets (informal and formal)
34.5%	19%	19	Sold in urban markets as loose unpackaged milk
40%	22%	22	Sold as processed products through informal markets
14.5%	8%	8	Sold as packaged milk through formal markets
12.7 %	7 %	7	Sold as packaged milk products through formal markets

Cooperatives are the central players in the formal dairy sector. The cooperatives have a three-tier structure – i) primary societies at the village level, ii) unions at the district level and iii) federations at the state level. Currently, there are 14 federations in India.

The success of the Gujarat Cooperative Milk Marketing Federation (GCMMF), known for its Amul brand and its Amul model of cooperative, is acclaimed. However, there is a perception that cooperative organizations generally have failed in other parts of the country. A less recognized fact is that the cooperatives in other states are organized differently than the GCMMF cooperatives. The GCMMF cooperatives operate as a true representative of farmers and are run by professionally qualified managers. In most other states, the cooperatives are

managed by civil servants, function more as government bodies and are weak representatives of farmers.

Of the 14 major state cooperatives in the country, 10 have state government equity, of which 6 have government equity in excess of 51 percent. Twelve of the 14 cooperatives have government officers as managing directors who are appointed by the state government. It is not uncommon for these officials to change up to three times a year. Because of such governance, cooperatives are mere parastatals and do not work in the true spirit of cooperatives with elected farmer representatives and professionals who run the organization. This governance structure influences the functioning of the entire chain, from the state federation to the village societies and thus significantly impacts farmers' involvement in the chain.

The primary differences between the GCMMF cooperatives and other state cooperatives are price and services. In Gujarat, the price paid to farmers is based on fat content; there is regular testing of milk each farmer supplies. In most of the other states, there is hardly any testing of milk. In other state cooperatives, the village society president wields a lot of power and typically decides the prices paid to farmers. Reportedly, farmers with some degree of influence receive higher prices while those without receive lower remuneration. Being the lead organizations, the cooperatives also set a benchmark for prices paid by other buyers, such as local vendors and private dairies, who tend to pay 50 paise or 1 rupee (\$.02) more than that paid by the cooperatives. Thus, if the farm gate price paid by the cooperative is low, other players also pay a low price.

For most of the private dairies, agents procure the milk from farmers. Some private dairies have established village societies for milk collection that follow the cooperative model. However, this model requires much larger investment and is not economically feasible, considering that cooperatives receive considerable development support from the government (such as feed subsidies). It is not uncommon for private dairies to make loans to farmers, which is a key reason for the somewhat large share of milk directed to this channel.

Factor conditions

Factor conditions for dairying entail the quality of animals, human resources and technical skills, land availability, capital, credit, infrastructure and other inputs

relevant to the value chain, as the following explains.

The quality of animals is critical in determining its milk productivity and hence overall production. Currently, low productivity per animal hinders development of the dairy sector. Despite being the world's largest milk producer, India's productivity per animal is very low, at 987 kg per lactation, compared with the global average of 2 038 kg per lactation.

The low productivity is a result of ineffective cattle and buffalo breeding programmes, limited extension and management on dairy enterprise development, traditional feeding practices that are not based on scientific feeding methods, and limited availability and affordability of quality feed and fodder. In addition, the limited supply of quality animals is exacerbated by policies limiting interstate movement of animals. Indigenous cattle and buffalo make up 45 percent of the country's total milch population, in contrast to the cross-bred cows at 10 percent.

The Animal health and breeding services provision, veterinary infrastructure development and vaccinations are the responsibility of the state government. These services have traditionally been provided for free or at a very subsidized rate. In the past few years, there has been increasing awareness that the state pays heavily to offer these services, which are easily available to farmers (Ahuja *et al.*). Consequently, many states have instituted partial or full-cost recovery fees for providing the services.

Table 4: Factor conditions	
Herd	
Herd inventory	Very large number of indigenous animals with low productivity and a small portion of cross-breeds
Breed	Lack of policy focus on strengthening indigenous breeds
	Very poor awareness of quality feed, which hinders productivity
Feed	Farmers not interested in quality feed because of the low price of milk
	Increasing feed costs
Veterinary medicine	Availability is not an issue
Veterinary medicine costs	Duplicate or cheap medicines
Human capacity	
Farmer technical capacity	Knowledge and new techniques are not accessible
Support services technical capacity	Accessibility to good quality veterinary services is an issue in many parts of the country
Organization and managerial capacity	Organizational and managerial capacity of farmer cooperatives is very poor
Entrepreneurial capacity	Entrepreneurial capacity is hindered by a low capacity to take risks
Credit or finance market	
Formal credit mechanisms	Access to formal credit mechanisms is very poor
Informal credit mechanisms	Accessible but at very high interest
External economies	
Transmission of learning	Very poor extension support services, leading to very poor knowledge transfer
Social capital and trust	Strong social capital and trust in the villages, which can sustain dairy farmer organizations if properly managed

In addition to the State Department of Animal Husbandry, Dairying and Fisheries, the milk cooperatives and NGOs (BAIF, JK Trust) provide services in many states. So do trained private sector AI technicians, although for a fee. As well, state livestock development agencies are being set up as autonomous bodies to offer services in animal breeding in the form of procurement, production and distribution of breeding inputs (such as semen and liquid nitrogen), training and promotional activities.

Despite these initiatives, the availability of services remains limited. Currently, AI services cover only 15 percent of the breed able animals. Cattle and buffalo breeding programmes have been initiated but have not had the desired impact because of a lack of coordination between the different state departments. And extension activities in dairy management are woefully lacking. Farmers have not been able to take advantage of the potential of their animals because they lack information on feeding and management practices. Extension, especially for women involved in livestock rearing, would enhance dairy production considerably.

Crop residues are the single largest bulk feed material available to farmers for feeding livestock, specifically ruminants. They include coarse straws, fine straws, leguminous straws, pulses straws and sugarcane tops. Fodder from common property resources is another major source of feed for animals. But lack of efficient management of common property resources is a major constraint in availability of these resources for fodder.

The area under cultivated fodder production is limited only to 5 percent of the total cultivable land. In the states of Haryana, Punjab, Gujarat and some parts of Rajasthan, land use for green fodder production is estimated at 10 percent or more. There is a need for restructuring the land use strategy to elevate the overall proportion of cultivable lands for fodder production.

Concentrates used for fodder include coarse grains, such as maize, sorghum, bajra and other millets, and other cereal by-products, such as rice bran/polish and various oil meals, including groundnut cake, mustard cake, coconut cake, soybean meal, cotton seed meal and sesame cake. The escalating price of feed ingredients is a major cause for concern. In many states, cooperatives are involved in producing feed concentrate and selling to farmers at subsidized rates.

Scarcity of fodder resources is likely to be a major constraint in the development of the dairy sector unless adequate measures are undertaken to augment them. Another important issue regarding feed is the lack of regulations to ensure quality. In the absence of a coherent policy, all kinds of substandard feeds are available in the market.

Formal/informal credit: Lack of access to credit to expand the herd is a critical problem for farmers. There is little access to formal credit through the cooperatives. Informal credit is available from private traders and agents of private companies, but the interest rate is very high. And these loans may or may not be linked to dairy activity. When taking a loan from a trader, the farmer is then tied

to selling the milk to that trader, often at a low rate. The *Working Group Report on Animal Husbandry* emphasizes the low or non-availability of credit as a primary constraint in livestock sector activity, indicating that: "Public sector lending is abysmally very low. The commercial banks are not favorably disposed to providing credit to livestock farmers and the cooperative credit system is very weak, resulting in excessive dependence of livestock farmers on informal sources [and] usually at exorbitant interest rates. Efforts should be put on correcting these distortions and ensure timely availability of inputs and services, including credit to livestock."

Vaccines/medicines: The Government and the private sector are involved in producing medicines and

vaccines. However, quality control is a critical issue. An important policy question is whether the government should be involved in the manufacturing and production of vaccines or should it instead take on a regulatory role to ensure quality and availability at a reasonable price.

Related supporting industries

Strong supporting industries are critical for the development of any industry. In the case of dairying, the National Dairy Research Institute pursues research and education in all aspects of dairying: microbiology, chemistry, technology, engineering, animal genetics and breeding, livestock production and management, animal nutrition, animal physiology, dairy economics and dairy extension education.

Processing capacity	Lack of processing capacity in the country, including primary processing by bulk chilling
Processing capacity	There are government subsidies on bulk chilling and processing infrastructure
Transportation and distribution	Because of low productivity, transportation costs for procurement are high
Dairy farmer services	Availability of health and breeding services could be enhanced; extension is almost non-existent
Specialized finance and credit	Exists on paper but is very difficult to access
Relevant research capacity and use	Good research capacity

Processing capacity: At present, there are 678 registered dairy processing units processing 12–15 percent, or 26.63 tons, of

the milk produced in the country each year. Of the total units registered under the MMPO, 403 are private dairies processing

around 11.83 tons per year, whereas 212 cooperative dairies process 10.36 tons per year. The remaining 63 government plants process 4.44 tons per year. These dairy plants are registered in the different states of India. There is immense scope to increase the processing capacity and direct a greater share of milk and milk products through the formal channel.

Primary processing is another factor in need of critical attention to ensure the quality of milk through the supply chain. In addition to the Clean Milk Programme and other rural development schemes, the Government has provided subsidies for bulk chilling and processing infrastructure to support the dairy industry. But credit remains a problem; specialized credit exists on paper but is difficult to access for dairying. There is significant private sector investment in feed manufacturing and the manufacturing of medicines and vaccines.

Government and the enabling environment

The dairy sector in India has traditionally been highly regulated. The government projects and programmes in place for enhancing dairy development include subsidies for developing infrastructure for milk processing and testing. The Clean Milk Production Programme is a centrally sponsored scheme that is being implemented by the State Department of Animal Husbandry, Dairying and Fisheries with several objectives: i) the creation and strengthening of necessary infrastructure for the production of quality milk and milk products at the farm level up to the points of consumption; ii) improvement of milking techniques; and iii) training to enhance awareness on the importance of

hygienic milk production. Several other rural development initiatives support dairying, such as through the District Rural Development Agency and women's self-help groups.

An area of government support that has not been capitalized on so far is the investment in promoting the nutritional aspects of milk, particularly pasteurized milk versus loose milk. Detailed information about policy regulations regarding the dairy sector in India is available online at www.indiandairy.com.

Conclusion

Globalization and Liberalization are the Mantras of the new economy today, which is now on the fast track. Industrial production is rapidly moving forward. The dairy industry is no exception. With the World Trade Organization (WTO) coming into effect, from 01 April 2001 and the imports and exports getting liberalized in the global economy, the dairy industry, which includes dairy products, faces both an opportunity for growth as well as a threat for its growth. There is no doubt that there is tremendous scope for the growth of the dairy industry in the new millennium.

There is vast potential for the export of dairy products, the cost of milk production in India being the lowest. The major factor influencing production of by-product is the newer uses that may be developed through R & D support. Milk proteins are being utilized increasingly replacing animal and vegetable proteins in special bakery products and instant foods. Through the application of membrane proven process, milk proteins isolates are being produced. These are being utilized

for ice milk mixes and other such applications.

Most of the dairy plants in the Government, Cooperatives and Private Sector produce almost similar dairy products like varieties of milk, butter, ghee, skimmed milk powder and whole

milk powder. There are 7 large-scale cheese manufacturers and 14 manufacturers are producing infant foods and malted milks. There is immense scope for the broadening of the products range and some of the products, which are likely to have considerable demand in the coming decade, have been identified.

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