

## The Growth and Development of Dairy Industry in India



### Social Science

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### ABSTRACT

*India with the total milk production of 146 million tones is the world's highest milk-producing country for the past one decade now and accounted for about 18.5 per cent of the world milk production in 2015-16. The importance of dairy enterprise in the national economy can be gauged from the fact that the value of output from milk group is highest among all the agricultural commodities, accounting for nearly one fourth of the value of output from agricultural sector. Dairying is one of the most important means of providing livelihood and nutritional security to the rural masses. The livestock activities, among which dairy farming predominates, employ about 10 million workers in the country. Milk and milk products account for 10.5 and 15.4 per cent of protein intake in rural and urban areas, respectively, which is higher than the protein intake through non-vegetarian animal products. This paper highlighted that the growth and development of dairy industry in India.*

### INTRODUCTION

India with the total milk production of 146 million tones is the world's highest milk-producing country for the past one decade now and accounted for about 18.5 per cent of the world milk production in 2015-16. The importance of dairy enterprise in the national economy can be gauged from the fact that the value of output from milk group is highest among all the agricultural commodities, accounting for nearly one fourth of the value of output from agricultural sector. Dairying is one of the most important means of providing livelihood and nutritional security to the rural masses. The livestock activities, among which dairy farming predominates, employ about 10 million workers in the country. Milk and milk products account for 10.5 and 15.4 per cent of protein intake in rural and urban areas, respectively, which is higher than the protein intake through non-vegetarian animal products.

Growth in milk production is likely to continue at the present rate of 4.4 per cent in the near future. Who is going to handle this incremental milk? We must bear in mind both income and price what we must bear in mind both income & price elasticity account for approximately 15 per cent of the total expenditure of food. Demand for milk, at current rate of income growth is estimated to grow at seven per cent 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, NDDB, 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.

The increased production of milk has improved the per capita milk availability to 250 grams per day. The demand of milk and milk products in India is projected to increase

to 142.9 million tones in 2015 and further to 191.3 million tones in 2020. At the existing rate of growth in milk production, in next ten years, supply will fall short of the demand. Together with the increase in domestic demand of milk, at the international level, particularly in developing countries, the three drivers of demand - population growth, urbanization and income growth- are very strongly in operation. For instance, the import demand of milk and milk products has shown tremendous increase in several developing countries notably China, South Korea, Singapore, Srilanka and several other Asian countries many of whom have become buoyant economies after opening up of the world market. Thus, buoyant markets and trade liberalization have opened new vistas of international trade for the Indian dairy sector. However, for tapping the economic benefits of growing demand of milk and milk products and to compete with the traditional milk exporting countries viz; Australia and New Zealand the Indian dairy sector has to gear itself to meet the following challenges:

Increase the milk production at the rate that is higher than the existing growth

Increase the production of value added dairy products and Provide complete quality assurance.

### Livestock in India

During the year 2015-16 the country had nearly 22.50 million crossbred (CB) cows, 30.45 million indigenous (Ind.) cows and 35.47 million buffaloes (Buff.) in milk. The milk production of the corresponding categories was 22.34 million tones (CB), 25.41 million tones (Ind.) and 52.07 million tones (Buff.). The average milk production of the respective categories was 8.44 kg/d (CB), 3.97 kg/d (Ind.) and 6.3 kg/d (Buff.) thereby indicating that the focus should continue towards better milk yielders viz. crossbred cows and buffaloes and the strategy for increasing milk production should focus on increasing animal productivity rather than animal population. This is particularly important as in relation to recommended feeding standards by animal nutritionists, the current feed and fodder shortage in terms of crude protein, digestible crude protein and total digestible nutrients is estimated to be 39.8, 44.3 and 39.6 per cent, respectively. With the increase in feed and fodder production the requirement availability gap is projected to narrow down, but in 2020, 35.2 percent shortfall in DCP and 26.6 percent in TDN is likely to persist.

### An Instrument of Social and Economic Change

In India, dairying is recognized as an instrument for social and economic development. The nation's milk supply comes from millions of small producers, dispersed throughout the rural areas. These farmers maintain an average herd of one or two milch animals, comprising cows and/or buffaloes. The animals' nutritional requirements are largely met by agricultural waste and byproducts (Gupta, 1987). Ample labour and a small land base encourage farmers to practice dairying as an occupation subsidiary to agriculture. While income from crop production is seasonal, dairying provides a stable, year-round income, which is an important economic incentive for the small farmer to take to dairying.

Milk production in India is dominated by small and marginal landholding farmers and by landless labourers who, in aggregate, own about 70 percent of the national milch animal herd (Gupta, 1983). As crop production on 78 percent of the agricultural land still depends on rain, it is prone to both drought and floods, rendering agricultural income uncertain for most farmers. Shackled to subsistence production as a result of a shortage of finance and credit facilities, these farmers become entangled in a strangling debt cycle. The combination of an unfavourable land: person ratio and fragmented landholdings makes it difficult to support large families on crop income alone. It is not surprising that the small farmer and the landless labourer are more often than not victims of moneylenders (Zuvakis, 1979) and of natural calamities. Dairying, as a subsidiary source of income, is a real relief to most of these weaker groups in society. Often one or two milch animals enable these farmers to generate sufficient additional income to break the vicious subsistence agricultural-debt cycle.

### Indian Dairy Industry

The emergence of India as a premier dairy nation of the world could be attributed mainly to the intensive cross-breeding programmes implemented throughout the country over the last few decades. The population pressure and emerging global opportunities further necessitate that the efforts for enhancing animal productivity are accelerated. This calls for continuance of well-proven technologies such as crossbreeding with superior germplasm coupled with improvement in the productivity of vast population of generally low producing cattle and buffaloes at faster rate using emerging reproductive and molecular technologies. In this context National Dairy Research Institute (NDRI) Karnal has also set the target of enhancing its semen production from the present level of about 0.1 million doses annually to about 2.5 million doses per year by 2020 A.D. In all interactive programmes involving field recording, progeny testing and data bank should be taken to supply information on availability of semen, bulls, females etc. for consistent genetic improvement of livestock. To effectively monitor these programmes, there is an urgent need for linking them with bio-informatics centres at state, national and international levels. There is also an urgent need to develop national animal production and health information system and disease free zones in the country.

### Future Challenges of Dairy Industry

Housing management aspect of the new breeds / strains of high yielding dairy animals developed in the country also needs to be addressed adequately as it is essential to realize the high milk production potential. Animal's shelter requirement varies according to the agro-climatic conditions of the region and the socio-economic condition of its farmers. The pattern of traditional animal, shelters also varies

from region to region. In order to make specific recommendations it is essential to take into consideration the physiological, behavioural and other related aspects of the animal comfort. It is, therefore, essential to carry out the detailed investigation on type and system of housing required for different agro-climatic regions and suggests ideal shelter systems based on these objective criteria.

The Indian dairy industry is poised for dramatic growth in the coming decades. The population growth, urbanization, income growth, high income elasticity of demand, and changes in food habits that fueled the increase in milk consumption are expected to continue well into the new millennium, creating a veritable Livestock Revolution. As these events unfold, not all the changes are good, and they have major implications for poverty alleviation, environmental sustainability, public health, and ethical concerns about the treatment of animals as sentient beings. The rapid increase in demand for dairy products in developing countries has led to the growth of milk-production activities in peri-urban areas, which are essentially detached from their supporting land base. The demand for milk and dairy products is increasingly being met in urban and peri-urban areas by industrial dairy farms, which often generate large amounts of waste.

The performance of the Indian dairy sector has been quite impressive. Milk production in India increased from 17 million tones in 1950-51 to over 146.3 million tones by 2014-15. During the past one and half decades (2000-2015), milk production has grown at a rate of nearly five per cent per annum vis a vis world growth rate of 1.5 per cent. The exports of dairy products increased from Rs. 13.98 million tones in 1990-91 to Rs.66,424.34 million tones in 2014-15. The per capita availability of milk per day has been increased from 178 grams/day in 1991-92 to 322 grams/day in 2014-15. Hence, as the net trade balance of dairy products has changed from negative to positive and the country is now a net exporter of dairy products.

**Table-1**  
**Milk Production and Per-capita availability in India**

Years	Production (Million Tones)	Per Capita Availability (Grams/Day)
1991-92	55.6	178
1992-93	58.0	182
1993-94	60.6	187
1994-95	63.8	194
1995-96	66.2	197
1996-97	69.1	202
1997-98	72.1	207
1998-99	75.4	213
1999-2000	78.3	217
2000-01	80.6	220
2001-02	84.4	225

2002-03	86.2	230
2003-04	88.1	231
2004-05	92.5	233
2005-06	97.1	241
2006-07	102.6	251
2007-08	107.9	260
2008-09	112.2	266
2009-10	116.4	273
2010-11	121.8	281
2011-12	127.9	290
2012-13	132.4	299
2013-14	137.7	307
2014-15	146.3	322

**Source: Various issues of Basic Animal Husbandry Statistics, MoA, GoI**

### Revolution of Operation Flood

The successful Indian dairy development programme Operation Flood has shown how food aid can be used as an investment in building the type of institutional infrastructure that can bring about national dairy development. Programmes like Operation Flood, with similar policy orientations, may prove to be appropriate to dairy development in other Asian as well as African countries since the conditions that prevail in dairying today in a number of developing countries are comparable to those that once were found in India. In the early 1950s, India was commercially importing around 55,000 tonnes of milk powder annually to meet the urban milk demand. Currently, many developing countries either commercially import dairy products on a large scale or rely on donations to meet the gap between demand and supply of milk products. Together, developing-country imports account for over 70 per cent of total world trade in milk products (FAO, 1993). As in India, the reliance on low-cost and often-subsidized commercial imports as well as gifts seriously affects the development of dairying systems in many developing countries as they increase domestic demand for milk products and erode domestic-price incentives. As low-cost imports from advanced dairying nations depress domestic milk prices, it becomes uneconomical for local milk producers to invest in dairying, causing stagnation in production. This hampers breed improvement efforts, fodder production programmes, the manufacture of quality feed and other endeavours to improve productivity. For any country seriously interested in exploiting the potential of dairying, therefore, it becomes imperative to review and seriously consider policies that would promote dairy development activities by helping to establish independent and self-sustaining dairying systems.

### Amul and the evolution of the Anand model

Milk procurement from the rural areas and its marketing in the urban areas was the major problem in Indian dairying at the time India gained independence. In one of the ear-

liest urban milk supply schemes, Polsons - a private dairy at Anand - procured milk from milk producers through middlemen, processed it and then sent the milk to Bombay, some 425 km away (Korten, 1981). Bombay was a good market for milk and Polsons profited immensely. In the mid-1940s, when the milk producers in Kaira asked for a proportionate share of the trade margins, they were denied even a modest increase. The milk producers went on strike, refusing to supply milk to Polsons. On the advice of Sardar Vallabhbhai Patel, a leader in India's independence movement, the milk producers registered the Kaira District Cooperative Milk Producers' Union, now popularly known as AMUL, in 1946. The Kaira union procured milk from affiliated village-level milk societies. This was the genesis of organized milk marketing in India, a pioneering effort that opened a new vista for dairy development in the country. Between 1946 and 1952, AMUL's policy was directed towards obtaining monopoly rights for the sale of milk to the Bombay milk scheme. In 1952, it succeeded in achieving its purpose after the Government of Bombay cancelled the contract with Polsons and handed over the entire business of supplying milk from the Kaira district to AMUL. In 1955, a new dairy plant was set up at Anand to produce butter, ghee and milk powder. A second dairy was built in 1965, and a product manufacturing unit was established in 1971 to cope with increasing milk procurement. In 1993, a fully automatic modern dairy was constructed adjacent to the original AMUL dairy plant at Anand.

The basic unit in this model is the milk producers' cooperative society at the village level. These cooperatives are organizations of milk producers who wish to market their milk collectively. Membership is open to all who need the cooperative's services and who are willing to accept the responsibilities of being a member. Decisions are taken on the basis of one member exercising one vote. No privilege accrues to capital, and the economic returns, whether profit or loss, are divided among the members in proportion to patronage. Each cooperative is expected to carry out the continuing education of its members, elected leaders and employees. All the milk cooperatives in a district form a union that, ideally, has its own processing facilities. All the unions in a state are normally members of a federation whose prime responsibility is the marketing of milk and milk products outside the state. There is also a fourth tier, the National Cooperative Dairy Federation of India (NCD-FI), which is a national-level body that formulates policies and programmes designed to safeguard the interests of all milk producers. Each tier of the Anand organizational structure performs a unique function: procurement and services by the cooperative; processing by the union; marketing by the state federation; and advancing the interests of the cooperative dairy industry by the national federation. Thus, the Anand Model has evolved into an integrated approach to systematic dairy development.

### Conclusions:

The analysis will also yield insights as to the relative importance of different kinds of transaction costs faced by producers. Small-scale producers in densely settled areas generate a lower negative environmental externality per animal than large-scale producers in the same areas, and smallholders expend a higher amount of effort/investment in pollution abatement per unit of output than large farmers, which creates a lower capture of environmental externalities per unit of output by small farms. Operation Flood may be considered the central event of twentieth-century dairying in India. An analysis of the lessons learned through the implementation of the programme should be useful for those involved in formulating dairy development

policies and programmes for the nation. The performance of the Indian dairy sector has been quite impressive. Milk production in India increased from 17 million tones in 1950-51 to over 146.3 million tones by 2014-15. During the past one and half decades (2000-2015), milk production has grown at a rate of nearly five per cent per annum vis a vis world growth rate of 1.5 per cent.

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