

DAIRY INDUSTRY IN INDIA – An Overview

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Dairy development in India has been acclaimed as one of modern India's most accomplished development programmes. The State like Gujarat, Maharashtra, Uttar Pradesh, Haryana, Rajasthan, Andhra Pradesh, Karnataka and Tamil Nadu are surplus in milk production. The consumption pattern indicates that 45 per cent of milk is consumed in liquid form, while butter milk/separated milk (butter and ghee) constitutes 34 per cent. The balance is in the form of milk powder, ice creams, cheese and other products. Indian dairying is emerging as a sunrise industry. India represents one of the world's largest and fastest growing markets for milk products due to the increasing disposable incomes among the 250 million strong middle class.

The world dairy is zooming on India for its rapidly growing markets that promise the 'moon'. The changing international dairy trade pattern, following General Agreement on Tariff and Trade (GATT) and the emergence of the World Trade Organization (WTO), offer to the Indian dairy industry an opportunity to take its bow as an exporter. India's enthusiasm to integrate with the world economy is reflected in technological upgradation, professional excellence and cost-effective approach.

The dairy sector provides 70 million farm families triple benefits of nutritive food, supplementary income and employment for family labours who are mainly women. Dairy industry is one of the fastest growing sectors in India. It has seen incredible growth for the last several years. India holds number one position in the world in milk production – 88 MT (2003-2004). The global milk production in the year 2003 was reported at 600 million tonnes (FAO, 2003). Indian dairy industry is growing very rapidly at 4.5 per cent per annum. The world milk production by 2020 is expected to rise to 350-700 million tonnes. India's share to world milk production at that time would substantially increased 175 MT and 200 MT of milk by the year 2015 and 2020 respectively. From the present production figure of 108 MT, India's dairy sector is expected to triple its production in the next 10 years in view of expanding potential for export to Europe, Middle East and South East. India's dairy export share is less than one per cent. The cost of production of milk per litre in India is the lowest in the world. In order to take the advantage of lowest cost and increasing production of milk in India, MNC's are planning to expand their activities in India.

Dairying before Independence

Dairying before independence was in a very primitive and old form. Private persons collected milk from the rural farmers twice a day and sold it door to door in cities and towns by bicycle in raw conditions. This business was generally practiced around the city at a walk able distance, so that fresh milk would reach within two to three hours of milking. Village grazers collect the animals, cows and buffaloes from the backyards, take them out for the whole day for grazing and bring them back in the evening. A member of the family may do the feeding and milking. The farmers bring milk to the milk

shop by carrying it on head and shoulder. “A concept of movement of milk for long distance started in India in 1945. Before 1947, there were some 60 dairy farms with thousands of crossbred cows in them. The female ones were the best North Indian breed viz., the Sahiwal, Siondhi and Tharparker. India had a large number of Princely States, known as native states, ruled over by the Rajas, Maharajas and Nawabs. Some of these had state dairies called Palace Dairies and as a hobby, the princes maintained excellent herd of Indian cows and buffaloes. The Hindus, the Jains and the Persians’ are strictly against the killing of old animals like cows.

Government of India has established ‘Indian Agricultural Research Institute’ at Delhi. The cooperative sector is involved in dairy farming activity along with the private and public sector. The Cooperative Credit Society’s Act was passed in 1912 and first cooperative dairy society was established at Allahabad (U.P) in 1913. Till 1938, there were 19 union societies with 264 primary societies of 11,600 producer members. Only one cooperative dairy in Calcutta was pasteurizing small quantity of milk for local distribution around in 1925. Initially people were unaware of purity, hygiene and quality of milk. In 1916, Bombay Municipality’s analyst Dr. L. Joshi for the first time exposed publicly about unsatisfactory conditions of quality (Purity and hygiene).

The Government of Bombay was the first in the country to take steps to prevent adulteration of food and by early 1930 every province had food adulteration laws, analytical laboratories, standardized system of testing, sampling and punishing offenders. During the Second World War, rationing of food grains had become very critical and vague for the citizens of Bombay. Milk had also become scarce and expensive for them. Then the government introduced in the city of Bombay a subsidized milk distribution scheme from 17th August 1944. The registered customers had to fetch milk in their own vessels from the milk center in the morning and afternoons. This was the starting point of public milk distribution under a Milk Commissioner from 1st April 1945 who coordinated various activities under the new department.

Post Independent Dairy System

From the beginning of the first plan on 1st April 1951, there was cattle colonization project for removal of 15,000 buffaloes with their owners and attendants from Bombay city stable to Aarey milk colony. The largest processing and bottling plant with 25,000 liters per day capacity was erected at Aarey milk colony, which went into operation on 15th December 1950. Dairy cooperatives are in existence in the country since 1913; Most of them are collecting and selling raw milk to the local consumers. But the first large scale and systematic break-through in dairy cooperatives in India was made in 1948 by Kaira District Cooperative Milk Producers Union, Anand, initially it was processing and dispatching milk for distribution in loose form in Bombay.

Later, it built its own new dairy at Anand in which it was processing, manufacturing and packaging milk products in its own brand name “Amul”. During the first five years plan, the Milk Schemes at Bombay, Calcutta and Delhi were on the way. Projects for collecting milk from villages, processing and distribution were started in other states like Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Tamil Nadu and Uttar Pradesh. In 1945 Dr. H.D. Kay of the Dairy Research Institute, Shinfield (England) visited India to advise the Government of India on dairy research. On his recommendation the National Dairy Research Institute (NDRI) was set up at Karnal (then in Punjab, now in Haryana).

During the first five year plan, an allotment of Rs. 78 million was made for dairy development. In second five-year plan, dairy development began to take shape on an organized basis. The expenditure during this plan amounted to Rs.120 million.

A number of states created separate dairy development departments to give exclusive attention to development of dairying. The programme envisaged establishment of thirty six fluid milk handling plants at large consuming centers, six milk product factories and expansion of facilities for salvage of dry animals from city stables. In addition to the existing one at Bangalore, two additional Regional Dairy Research Stations were established at the Aairy Milk Colony, Bombay and Kalyani near Calcutta. Training to personnel in quality control issues was also undertaken. Seven additional fluid milk handling plants were set up as pilot milk projects. It was during this period that a gift of rail and road milk tankers from New Zealand was received under Bombay Milk Scheme for transportation of milk between Anand and Bombay. This was for the first time that bulk transport of milk was started in India. The setting up of fifty five fluid milk projects for the cities having population of 1,00,000 each, eight rural creameries, six milk product factories, two cheese factories and four cattle feed compounding factories were taken in hand during third five year plan. A Modern feed compounding mill was set up in Anand area from the funds gifted by the United Kingdom. Some more states established separate dairy departments. The National Dairy Development Board (NDDB) was set up in September 1965 with headquarters in Anand in Gujarat State.

Today, India is 'The Oyster' of the global dairy industry. It offers opportunities galore to entrepreneurs worldwide, who wish to capitalize on one of the world's largest and fastest growing markets for milk and milk products. A bagful of 'pearls' awaits the international dairy processor in India. The Indian dairy industry is rapidly growing, trying to keep pace with the galloping progress around the world. As he expands his overseas operations to India many profitable options await him. He may transfer technology, sign joint ventures or use India as a sourcing centre for regional exports. The liberalization of the Indian economy beckons to MNC's and foreign investors alike.

India's dairy sector is expected to triple its production in the next 10 years in view of expanding potential for export to Europe and the West. Moreover with WTO regulations expected to come into force in coming years all the developed countries which are among big exporters today would have to withdraw the support and subsidy to their domestic milk products sector. Also India today is the lowest cost producer of per litre of milk in the world, at 27 cents, compared with the U.S' 63 cents, and Japan's \$2.8 dollars. Also to take advantage of this lowest cost of milk production and increasing production in the country multinational companies are planning to expand their activities here. Some of these milk producers have already obtained quality standard certificates from the authorities. This will help them in marketing their products in foreign countries in processed form.

India with 134mn cows and 125mn buffaloes has the largest population of cattle in the world. Total cattle population in the country as on October'00 stood at 313mn. More than fifty percent of the buffaloes and twenty percent of the cattle in the world are found in India and most of these are milch cows and milch buffaloes. Indian dairy sector contributes the large share in agricultural gross domestic products. Presently there are around 70,000 village dairy cooperatives across the country. The co-operative societies are federated into 170 district milk producers unions, which in turn has 22 state co-

operative dairy federations. Milk production gives employment to more than 72mn dairy farmers. In terms of total production, India is the leading producer of milk in the world followed by USA.

While world milk production declined by 2 per cent in the last three years, according to FAO estimates, Indian production has increased by 4 per cent. The milk production in India accounts for more than 13% of the total world output and 57% of total Asia's production. The top five milk producing nations in the world are India, USA, Russia, Germany and France. Although milk production has grown at a fast pace during the last three decades, milk yield per animal is very low. The main reasons for the low yield are

- Lack of use of scientific practices in mulching.
- Inadequate availability of fodder in all seasons.
- Unavailability of veterinary health services.

Fresh milk

Over 50% of the milk produced in India is buffalo milk, and 45% is cow milk. The buffalo milk contribution to total milk produce is expected to be 54% in 2000. Buffalo milk has 3.6% protein, 7.4% fat, 5.5% milk sugar, 0.8% ash and 82.7% water whereas cow milk has 3.5% protein, 3.7% fat, 4.9% milk sugar, 0.7% ash and 87% water. From the year 2000 the price of Buffalo milk is ruling at \$261-313 per MT that of cow is ruling at \$170-267 per MT. Fresh pasteurized milk is available in packaged form. However, a large part of milk consumed in India is not pasteurized, and is sold in loose form by vendors. Sterilized milk is scarcely available in India. Packaged milk can be divided according to fat content as follows, Whole (full cream) milk-6%fat Standardized (toned) milk-4.5% fat Doubled toned (low fat)milk-3%fat another category of milk, which has a small market is flavored milk.

Demand for certain dairy products in India

India's domestic market has created huge demand of milk and milk products. The trend of market demand for certain milk products portray highly optimistic and positive scenario. The demand for chocolates has doubled in 7 years from 22.1 to 44.2 thousands metric tonnes in 2000- 01 and 2007-08, respectively. This fast growing market size and demand pattern has been followed aggressively by other products such as ice cream and processed cheese as shown in table 3.8. Cheese market demand of Rs. 3 billion has reached to 6.6 billion from 2000-01 to 2007-08. But when it comes to the issue of future demand of dairy products in India, the evidence from study by Jesse (2006) shows 6.7% growth per annum. The forecasts of market demand of dairy product shows that the demand for the Ice cream in year 2014-15 will be 330 million litres which is almost double to 167.2 million litres in year 2007-08.

TABLE: 1
DEMAND FOR CERTAIN DAIRY PRODUCTS IN INDIA

Year	Demand pattern				
	Baby foods MT	Chocolates MT	Dairy Whiteners/ Creamers MT	Ice Cream (mnltrs)	ProcessedCheese (Rsbn)
1990-91	155	10.5	80	12.5	0.5
1991-92	160	11.3	83	14.4	0.6
1992-93	165	12.5	85	16.5	0.69
1993-94	185	11	86	19	0.8
1994-95	195	13.2	89	21.9	0.9
1995-96	212	14.4	91	25.2	1.05
1996-97	229	15.7	99	32.0	1.35
1997-98	247	17.1	95	41.2	1.65
1998-99	266	18.6	135	56.1	2.1
1999-00	285	20.3	183	63.3	2.5
2000-01	302	22.1	147	70.4	3.0
2001-02	320	24	160	81.0	3.45
2002-03	340	30	175	92.6	3.9
2003-04	363	32.7	190	105.3	4.45
2004-05	387	35.5	206	119.1	4.95
2005-06	413	38.4	224	134.0	5.5
2006-07	440	41.3	243	150.0	6.0
2007-08	470	44.2	263	167.2	6.6
2008-09	503	47.2	284	185.5	7.2
2009-10	538	50.2	307	205.0	7.75
2010-11	580	53.2	321	221.0	8.20
2011-12	610	56.3	340	238.0	8.76
2012-13	649	61.2	370	265	9.50
2013-14	690	63.0	412	297	10.48
2014-15	755	67.2	450	330	11.10

Source: India Stat (<http://www.mdJastat.com>),

Further, the future demand for baby foods in year 2014-15 is likely to reach 755 thousands metric 5one5 from 503 thousands metric 5one5. The growth is 50% over a period of six years that is equivalent to average 8.3% per annum. In case of processed cheese, the demand would reach to a value of Rs 11.1 billion by year 2014-15. It is 7.2 billion in year 2008-09. This period shows a market demand growth of more than 54% which is equivalent to 9% per annum. On the other, chocolates likely to have a demand of 67.2 thousands metric 5one in year 2014-15 that is 42.40% growth from 47.2 thousand metric 5one5 during 2008-09. The annual demand for chocolate is likely to growth at 7.7% between 2008-09 and 2014-15.

Milk Powder: Milk powder is mainly of 2 types such as Whole milk powder and Skimmed milk powder. Whole milk powder contains fat, as distinguished from skimmed milk powder, which is produced by removing fat from milk solids. Skimmed milk powder is preferred by diet conscious consumers. Dairy whiteners contain more fat than skimmed milk powder but less compared to whole milk powder. Dairy whiteners are popular milk substitute for making tea, coffee etc. The penetration of these products in milk abundant regions is driven by convenience and non perishable nature (longer shelf life) of the product.

Dairy sector of advanced nations export milk products with a subsidy of \$ 1000 per 6one with a level of subsidy more than 60 % of the price of milk powder produced in India, this has led to large scale imports of milk powder both in whole and skimmed form. Table 2 Milk productions and per capita availability of milk in India from the year 1991- 1992, the milk production 55.6 million tones per capita per day 178 followed that year by year increasing trend in the upcoming year milk production as well as the per capita availability per day. 2011 – 2012 per day 127.9 million tones and the per capita availabilities per day 290. It is always in increasing trend more than 12 years. Due to milk demand in the country as well importance of the milk and milk products in India

TABLE: 2

MILK PRODUCTION AND PER CAPITA AVAILABILITY OF MILK POWDER IN INDIA

Year	Production (Million tones)	Per Capita Availability (gms/day)
1991-92	55.6	178
1992-93	58.0	182
1993-94	60.6	186
1994-95	63.8	192
1995-96	66.2	195
1996-97	69.1	200
1997-98	72.1	205
1998-99	75.4	210
1999-00	78.3	214
2000-01	80.6	217
2001-02	84.4	222
2002-03	86.2	224
2003-04	88.1	225
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	NA
2013-14	137.7	NA
2014-15	139.0	NA

Source: Various issues of Basic Animal Husbandry Statistics

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Major Players

Milk Powder/Dairy Whiteners: Major skimmed milk brands are Sagar Gujarat Co-operative Milk Marketing Federation (GCMMF’s) and Nandini (Karnataka Milk Federation), Amul Full Cream milk powder is a whole milk powder brand. Leading brands in the dairy whitener segment are Nestle'sEveryday, GCMMF's Amulya, Dalmia Industry's Sapan, Kwality Dairy India's KreamKountry, Wockhardt's Farm Fresh and Britannia's MilkMan Dairy Whitener.

**TABLE 3
MAJOR DAIRY PRODUCTS MANUFACTURERS IN INDIA**

Company	Brands	Major Products
Nestle India Limited	Milkmaid Cerelac, Lactogen, Milo, Everyday	Sweetened condensed milk, malted foods, milk powder and Dairy whitener
Milk food Limited	Milk food	Ghee, Ice cream, and other milk products
SmithKline Beecham Limited	Horlicks, Maltov, Viva	Malted Milk food , ghee, butter, powdered milk, milk fluid and other milk based baby foods
IndodanIndustries Limited	Indana	Condensed milk, skimmed milk power, whole milk powder, diary milk whitener, chilled and processed milk
Gujarat Co-operative milkMarketing Federation Limited	Amul	Butter, cheese and milk products
H.J. Heinz Limited	Farex, complain, Glactose, Bonniemix, Vitamilk	Infant Milk food, malted Milk food
Britannia	Milk man	Flavored milk, cheese, Milk Powder, Ghee
Cadbury	Bournvita	Malted food

SWOT Analysis

The dairy industry has its own strengths and weaknesses to build on present scenario for future growth. Strengths and weaknesses are the internalities of the present situation of dairy industry within the country. Opportunities and threats are the externalities of the future situation, not only within the country, but also expected from outside the borders. The analysis attempts to identify the strengths to meet the opportunities and the threats of the future and weaknesses are going to be challenged or shown up by these threats and opportunities. The following table of strengths, weaknesses, opportunities and threats is to be used as a guide for the analysis that follows.

TABLE: 4
SWOT (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Largest milk producer • Fast growing economy • Annual highest milk production growth • Emerging competent regulatory system and authority • New Food safety and standard law • Trained S&T human resource • Research and Educational Institutes • 'Strong successful cooperative movement in particular parts of India 	<ul style="list-style-type: none"> • Low milk productivity Poor • veterinary services • Lack of data on dairy sector • Weak organized retailing and established cold chain • Large unorganized dairy sector • Poor raw milk quality • Lack of Good dairy practices • Weak financial services • Low dairy plants efficiency • Inappropriate milk collection system in certain areas
Opportunities	Threats
<ul style="list-style-type: none"> • Large rural market • Increasing quantity of available milk for processing • Fast growing economy • Diversification • large market and investment opportunity • increasing income of consumers, changing life style and preference for milk and milk products, • more number of adult consumers, • untapped indigenous milk products market • low cost human resource and employment generation 	<ul style="list-style-type: none"> • Food safety • Unhygienic practices by farmers at farm • Uncontrolled use of antibiotics and medicines on milch animals • Unfriendly WTO regime and Imports from other countries • Drought and flood

Conclusion

As standards of living in the importing country rises, exporting countries will increasingly concentrate on whole milk powder and cheese with the assistance of butter and skimmed milk powder. 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 products 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.

References:

1. Marketing Management – N.Rajan Nair
2. Hand Book of Dairy Farming
3. Hand book of Milk and Milk Products
4. Hand book of Milk Co- operatives
5. All India SMVS Dairy Business Directory
6. The Small Scale Dairy – The Complete Guide in Milk Production