

Culture's Consequences: Dairy Market Opportunities in India

Suku Bhaskaran

Public policy dictated by food security and food self-sufficiency objectives have contributed to rapid increase in India's milk output. However, domestic production cannot match increasing demand. The opposition to culling non-productive animals, and constraints in feed and fodder production limit India's capacity to expand milk output. Milk and dairy products are important in the Indian diet, and the social and cultural life of the predominantly Hindu population. The socio-cultural features of India provide an interesting scenario - religious and cultural practices limit the capacity to increase domestic output but religious and cultural practices also contribute to increasing consumption. The reduction in tariff barriers and changes to public policy strategies (on food-security and food self-sufficiency) provide significant market opportunities in the Indian dairy sector.

Keywords: India, export, New Zealand, dairy market, cultural factors

Introduction

India, with a land mass of 3.16 million square kilometres and a population of approximately 900 million people, of whom approximately 240 million live below the poverty line, evokes images of a large, populous and poor country offering limited trade and investment opportunities. However, this image has changed dramatically in the last three years. A review of recent articles in international business periodicals such as *Fortune*, *Forbes*, *Time* and *International Business Review* suggests that a new business perception of India is emerging. The *new* India is characterised as having: a middle income population of about 200 million people; the ninth largest manufacturing economy in the world; the second largest exports (after the United States) of sophisticated computer software in the world; substantial trained and skilled human resources; established and highly profit-orientated business organisations; thriving financial institutions; active and relatively sophisticated capital markets; and transparent administrative and legal structures.

In addition, the inequitable income distribution in India has created a sizeable and lucrative market for consumer products. Fuhrman & Schuman (1994), for example, describe the size and buyer behaviour of affluent Indians as follows:

Some 40 million Indians...live in households with annual incomes of over 900,000 rupees, or \$30,000 [USD]; in purchasing-power terms, that approximates an income of \$600,000 in the U.S. These families travel and educate their children abroad, drink Coke and will storm the gates of McDonald's ..

Down the rung is India's middle class: the 150 million people who live in households with incomes of 30,000 rupees (\$1,000) and up. In local purchasing power, \$1,000 is the equivalent of around \$20,000 in the U.S. Most of these middle-class Indians can get by in English and can afford 20 - inch colour

televisions, washing machines, motorcycles and mopeds. This huge group is increasing by 5% to 10%, and so should grow to households accounting for 400 million people within a decade.

To a large extent, the *old* images of India were a result of its inward-looking trade and investment policies. India was not a significant player or achiever in international trade, sports, politics or other activities and its pursuit of self sufficiency meant that there was limited foreign interest in Indian development. Nevertheless, India's economic achievements since 1947 have been significant. Although India has not achieved the level of expansion in Gross Domestic Product (GDP) which have characterised some ASEAN and East Asian economies, India has produced sustained and consistently high expansion of its GDP for considerably longer periods than several other Asian countries. The World Bank (1991) reports that India's gross domestic product has expanded by an average of 5.6 per cent per year from 1980 to 1990.

Causes and Effects of Changes to Indian Public Policy

Two events in the period 1990/91 contributed to India liberalising its economy. These were Iraq's occupation of Kuwait in 1991, which stopped approximately US\$2 billion in annual remittances from Indian guest workers in Kuwait, and the collapse of the Soviet Union. The Soviet Union was India's second-largest export market and the source of cheap oil.

Table 1. Foreign investment trends in India

	1991	1992	1993	1994*
	(S\$million)			
Foreign Direct Investment:				
Actual	134	220	569	708
Approvals	204	1,266	2,824	3,425
Foreign Portfolios Net Purchases	-	-	837	2,190
Euroissues by Indian Companies	-	240	874	3,603
Total Foreign Investment (Actual)	134	460	2,280	6,501

Source: Indian Investment Centre, Securities and Exchange Board of India (1995)

Note: Up to 31 October 1994

These two events caused a major foreign exchange crisis in India. It appeared that India might not be able to import even essential energy and capital equipment. This forced India to look for new international alliances. These alliances with Western liberal economies such as the United States and requests for assistance from multilateral organisations such as the World Bank meant that India had to accept changes to her trading and investment regimes.

What began as a necessity has now gained popular acceptance, and there is increasing domestic pressures for privatisation and public austerity, including a reduced role for the State in business.

India generated a fast response from foreign investors when it liberalised its economy. The introduction of the *New Industrial Policy* in 1991, and the signing of several bilateral and multilateral investment guarantee agreements with its major trading partners witnessed a surge in foreign investment into India. As shown in Table 1, foreign investment increased substantially from US\$134 million in 1991 to US\$6.5 billion in 1994. In the last few years, India has been among the principal destinations for foreign investment from countries such as the United States, Netherlands, Germany and Britain.

Some of the principal changes in the post 1991 period are as follows:

- a) Approved Indian firms were authorised to raise funds from overseas through convertible debentures and equity issues
- b) Foreign institutional investors were permitted to operate in India's capital markets
- c) The Foreign Exchange Regulation Act (FERA) was amended to remove constraints on firms with foreign equity which were operating in India
- d) FERA was amended to remove constraints on Indian firms operating in foreign countries
- e) India signed the Multinational Investment Guarantee Agency Convention
- f) India signed several bi-lateral investment guarantee agreements with its trading partners such as Great Britain
- g) Customs duties on specified food processing machinery were reduced from 40 per cent to 25 per cent in the 1993/94 budget.

These changes appear to be creating excellent opportunities for partnering arrangements with Indian firms which want to source improved technology, better quality raw materials, international brand franchises, and management and marketing expertise to meet the needs of a relatively affluent and sophisticated consumer market. There is a discernible preference for foreign brand names among Indian consumers. For example, the Indian operations of foreign companies such as Unilever, Proctor and Gamble, and Colgate Palmolive enjoy significant market share both in urban and rural India.

This bias for foreign brand names among Indian consumers is also evident from the recent proliferation of branded retailing by exclusive apparel stores. Franchise stores selling branded apparel such as Arrow, Benetton, Louis Philippe, Lacoste, Pierre Cardin, Mexx and Wrangler have sprung up in all major Indian cities. The free availability of good quality and competitively priced goods is encouraging a larger segment of the Indian population to believe that an open economy is to the public good. Politically motivated nationalist self-

sufficiency programs and interest-group pressure by Indian industrialists for a protected market appear to have decreased.

The liberalization program attracted substantial interest in the dairy sector from both Indian entrepreneurs and multi-national firms based in India. For example, from 1991, the Indian government approved more than 250 milk processing and dairy manufacturing licences (Abichandani 1994). In addition, multi-national firms such as Nestles and Unilever increased equity in Indian subsidiaries, expanded production capacities and widened product offerings. The surge in investment in the Indian dairy industry, prompted this study. The objectives of this paper are to explore the developments in the Indian dairy industry, analyse the characteristics of the market for dairy products in India, and evaluate the implications of these on trade and investment opportunities.

Development of the Indian Dairy Industry

Milk production in India increased from 17.1 million tonnes in 1951 (Acharya & Yadav 1992) to 61.2 million tonnes in 1994 (FAO 1995). Therefore, from being a recipient of massive material support from the World Food Program and the European Community in the 1950s (Doornbos & Gertsch 1994), India has rapidly positioned itself as the world's second largest producer of milk. Milk output in the world's 10 leading dairying countries are shown in Table 2.

Table 2. Leading producers of milk (cow and buffalo) in the world (million tonnes)

Country	1989	1990	1991	1992	1993	1994
United States	65.5	67.3	67.3	68.4	68.3	69.7
India	48.4	51.4	55.2	58.7	61.0	62.2
Russia	55.7	55.6	51.9	47.2	46.4	44.0
Germany	21.9	28.7	26.4	28.0	28.1	28.2
France	23.7	24.1	23.4	25.7	25.3	24.9
Ukraine	24.4	24.4	22.3	19.0	18.2	17.9
Other CIS	21.7	22.3	21.2	19.2	18.0	17.2
Pakistan	13.2	14.3	15.4	16.1	16.9	16.6
Brazil	14.5	15.0	15.3	15.8	15.7	15.8
United Kingdom	14.3	14.6	14.0	14.7	14.8	15.0

Sources: FAO (1995); Bhaskaran and Irwin (1995); Australian Dairy Corporation (1993); Australian Dairy Corporation (1995)

This expansion of the industry was achieved through extensive intervention by the Indian government. Until 1991, the Indian dairy industry was highly regulated and protected. *The Milk Manufacturing and Procurement Order* classed dairy processing and manufacturing as a small-scale industry and restricted the industry to small firms and co-operatives. High import duties, non-tariff barriers, restrictions on exports, and stringent licensing provisions provided incentives to Indian-owned small enterprises and co-operatives to expand production in a protected market environment. By 1993, milk was ranked as the most important rural produce in India (Aneja 1994). The development of the dairy industry was seen by Indian policy makers as a measure to create supplementary employment and income in the *small and marginal farming house-holds and landless wage earners* (Government of India 1994). This is a significantly important segment of the Indian population. A survey conducted by the National Dairy Development Board of India in 1984 found that 35 per cent of rural households were landless and a further 45 per cent had holdings of less than 5 acres (Khanna 1994), suggesting that 80 per cent of Indian rural households worked on farms of less than 5 acres. Therefore, the development of small-scale dairy farming was seen as being important in improving rural incomes.

Economic Reforms and the Indian Dairy Industry

The New Industrial Policy of 1991 and the Milk Manufacturing and Procurement Order 1992 (amended 1993), streamlined activities in the Indian dairy industry. Recent changes which have been introduced include the following:

- a) Restrictive regulations on foreign-owned brand names and trade marks were relaxed,
- b) Import duties on dairy products and ingredients were reduced,
- c) Large firms, including foreign-owned firms, were authorised to establish processing and manufacturing facilities for all dairy product categories except ice-cream and non-chocolate confectionary.

Features of the Market for Dairy Products in India

The key features of the dairy market in India can be summarised as follows:

High Per Capita Consumption of Milk and Dairy Products

As shown in Table 3, the per capita consumption of dairy products in India (66.1 kg per annum) is among the highest in Asia. This high per capita consumption is particularly significant because India's per capita GDP is substantially lower than that of the other countries listed in Table 3.

Table 3. Per capita consumption of dairy products in selected Asian countries, 1990

Country	Population (millions)	Per Capita GDP (US\$)	Per Capita Milk Consumption (Kg/annum)
India	834.7	241	66.1
Taiwan	20.2	7,663	14.1
Singapore	3.0	11,752	10.2
Hong Kong	5.7	12,068	9.1
Malaysia	17.9	2,270	6.8
China	1,133.7	365	6.3
Indonesia	179.3	572	1.8

Sources: FAO (1995); Asian Development Bank (1995); Asian Productivity Organisation (1993)

Continued Expansion in Demand for Milk and Dairy Products

Consumption of milk and dairy products in India has continued to expand substantially. For example, the per capita annual consumption of milk and dairy products in India increased from 39 kg in 1985 to 66 kg in 1990. However, in several other Asian countries the per capita consumption of milk and dairy products have matured at relatively low levels. For example, the per capita consumption in some of the higher income Asian countries such as Taiwan, Singapore and Hong Kong have matured at approximately 10 kg to 14 kg per annum. This is evident from the data in Table 4 which show per capita consumption trends (in kg) for Taiwan, Singapore and Hong Kong for the period 1985 to 1990.

Table 4. Per capita consumption of milk (kg/annum)

	1985	1986	1987	1988	1989	1990
Taiwan	13.2	15.2	11.5	13.2	13.0	14.1
Singapore	18.8	18.5	20.5	26.6	17.5	13.1
Hong Kong	9.6	8.4	9.3	10.25	9.6	9.1

It would appear that consumption in these countries are affected by the high levels of lactose intolerance, dietary preferences and the extensive use of dairy substitutes by the predominant Chinese population.

Cultural Significance of Dairy Products in Indian Diet

Approximately 82 per cent of the population of India are Hindus. Significant numbers of Hindus (approximately 210 million) are lacto-vegetarians (Hull, Evans & Gupta 1993). As such, milk and dairy products are an important source of protein to a significantly large segment of the Indian population. Dairy products have considerable symbolic value in Hindu religious and social life. The importance of dairy products in the diet of the Hindus has been highlighted by Khanna (1994) as follows:

The tradition of cattle keeping and milk consumption is as ancient as the civilisation and culture of India. Ancient Indian history is replete with praise for cattle wealth, high quality milch animals, and India being a land of milk, butter and plenty. Reference to cattle as the symbol of prosperity and wealth appears in all the Vedas, epics and Puranas. Our folkloric [folkloric] figures depict Lord Krishna disporting with playful milkmaids. Cow's milk has been variously referred to as the elixir of life. Property in cows was offered as dowry or as gift signifying love and reverence ... until the Mahabharata period (5,000-6,000 years ago) fights were more often for securing animals rather than occupying land.

Milk and dairy products continue to be important in the cultural life of modern Hindus. Hindus offer *mitais* (dairy sweets) at weddings, birthdays and all religious occasions. Offerings of milk are very symbolic in all Hindu temples. Leading Indian dairy firms were observed to use religious symbolism in promoting dairy products. An example of the use of Hindu religious symbolism in a promotional brochure is shown in Figure 1.

High Income Elasticity of Demand for Dairy Products

In addition to the 210 million Indians who are lacto-vegetarians because of religious and cultural reasons, it is estimated that a further 300 million Indians cannot afford meat products and would, therefore, have to depend upon milk and milk products for their dietary protein requirements. Nair (1987) estimated that of the 30 per cent animal protein consumed in India, 70 per cent comes from milk. It is estimated that 10 per cent of the Indians with the highest per capita incomes consume 30 per cent of all milk produced in India and that 30 per cent of the Indians with the lowest income consume 10 per cent of all milk produced in India (Ganguli 1995).

The significance of dairy products in Indian diet can be illustrated by examining the milk utilisation pattern in India (Table 5). Approximately 48 per cent of milk output in India is used to produce a variety of indigenous dairy products such as ghee, curd, makkhan and khoa.

Introducing

Indiana FARM FRESH
Whole cow's milk

A long time ago, Lord Krishna, whom we know very well, grew up on whole cow's milk. It obviously did Him a whole lot of good. Whole cow's milk was a favourite of the Gods. Now, let science show you why you should make it your favourite too!

One-of-its-kind food
Whole cow's milk contains most of the nutrients required for all-around growth and development of the human body. Body-building proteins, bone-forming minerals, energy-giving lactose, easily-digestible fatty acids and health-giving vitamins. Besides minerals, vitamins and organic compounds.

A brain-boost
70% of the human brain formation is achieved at term birth. Development in terms of cell division occurs within the first few months. The human brain uses arachidonic acid - an essential unsaturated fatty acid - in its cell membranes for the growth and development of the nervous system. Whole cow's milk fat contains 0.4% arachidonic acid. But, there's more. Only milk contains lactose or milk sugar. Lactose, in turn, contains galactose - a constituent of the central nervous system. Lactose is scientifically considered a brain food.

Slimmer's delight
Inside every overweight person is a slim one crying to get out. Whole cow's milk is the ideal steaming aid that does away with the tears. Packed with nourishment to counteract strict diet regimes, and with low molecular fatty acids to keep weight in check. This milk fat is very easily digestible and is absorbed into the body at a faster rate than any other food. Whole cow's milk contains less fat than any other milk.

The milk of kindness
In a new-born, plasma and tissue levels are low. The vitamin carotene, present in whole cow's milk, is the ideal substitute for natural fortification. Whole cow's milk contains higher % carotene than buffalo milk. Whole cow's milk has higher concentration of carotene (250-270 mcg/ml) than even human milk (130-80 mcg/ml).

Nutrient	IU/100g	% RDA		
		1-3 yr	4-13 yr	Adult
Carotene	72 IU/100g	14.4	28.8	57.6
Protein	3.9 g/100g	7.8	15.6	31.2
Calcium	120 mg/100g	24.0	48.0	96.0
Vitamin A	412 IU/100g	82.4	164.8	329.6
Phosphorus	37 mg/100g	7.4	14.8	29.6
Iron	0.3 mg/100g	0.6	1.2	2.4
Vitamin B1	0.03 mg/100g	0.6	1.2	2.4
Vitamin B2	0.1 mg/100g	2.0	4.0	8.0
Vitamin B6	0.01 mg/100g	0.2	0.4	0.8
Vitamin C	0.1 mg/100g	0.2	0.4	0.8
Vitamin E	0.1 mg/100g	0.2	0.4	0.8
Vitamin K	0.1 mg/100g	0.2	0.4	0.8
Vitamin D	0.1 mg/100g	0.2	0.4	0.8

Figure 1: Hindu religious symbolism in dairy promotional material

On the basis of this high propensity to consume dairy products, Bhaskaran (1995) suggests that per capita consumption of dairy products (in similarly tiered higher income households) would be greater in India than in the West.

Evaluation of Market Opportunities

The dietary habits and cultural significance of milk and dairy products in the diet of the predominant Hindu population in India suggests that the demand for milk and dairy products in India should increase as incomes increase. The rapid increase in India's milk production and dairy manufacturing capacity suggests that India could meet this increasing demand and become self-sufficient in milk and dairy products. However, the prospect of India becoming an efficient dairy producer and, therefore, meeting the needs of an increasingly affluent market seems remote. The principal barriers to India developing an efficient dairy industry are as follows:

Constraints in Capital Reinvestment

Dairying is a secondary activity for most farmers in India, the principal activity is agriculture. Farms in India are small, and they generally operate at subsistence levels. Therefore, efficient dairy farming cannot be practised unless agriculture is sufficiently well developed to provide income and investment capital for dairy cattle (Vaidyanathan et al. 1982 as cited in Nair & Dhas 1990).

Table 5. Milk utilisation pattern in India, 1951-90 (%)

Product Category	1951	1961	1984-85	1989-90
Liquid Milk	39.3	45.1	46.0	46.0
Ghee	39.3	31.8	28.0	28.0
Curd	8.8	8.1	7.0	7.0
Makkhan	6.0	6.4	6.5	6.5
Khoa	4.4	4.7	5.5	5.5
Milk Powder	-	-	3.0	3.8
Cheese	-	-	2.0	2.0
Others	2.2	3.9	2.0	1.2
Total	100.0	100.0	100.0	100.0

Source: Patel (1991)

Difficulty in Increasing High Yielding Milch Animal Population

Investment in high yielding exotic breeds or crossbreed cattle would also seem a difficult option because of the limitation of feed and fodder. India is a low cost producer of milk primarily because cattle are fed crop residues and natural herbage. The introduction of hybrid or mixed breed milch animals will require larger quantities and a better quality of fodder and concentrates. India faces significant constraints in increasing feed and fodder production, because it has 15 per cent of the world's population but only 2.5 per cent of its land mass and 0.5 per cent of global pastureland (Parisot 1990 and George 1985 as cited in Doornbos & Gertsch 1994).

Difficulty in Expanding Population of Milch Animals

Increased milk production in India has been achieved through increases in animal population. While the animal population (cow and buffalo) has increased substantially, grazing land has not increased. India has 17 per cent of the world's cattle and 50 per cent of its buffaloes but

produces only 6 per cent of global milk output (George 1985 as cited in Doornbos & Gertsch 1994). Overstocking the land with livestock degrades the land and further diminishes fodder.

Opposition to Culling Non-Productive Milch Animals

The cow is revered by the majority Hindu population and, therefore, the culling of cows is banned in most parts of India. The consequent increase in cattle population results in the demand for scarce feed outstripping supply. This could result in Indian dairy farmers being caught in a vicious cycle of low milk yields per head of milch animals.

Conclusions

This paper argues that although India's achievements at dairy self sufficiency have been commendable, its potential for further significant expansion of milk output is limited. The cultural and dietary habits of Indians (particularly the predominant Hindu population) should result in substantial increases in consumption as incomes increase. Milk and dairy products are extensively used in Hindu diet and in religious and social festivities. There is a high positive income elasticity of demand for dairy products in India. Empirical evidence indicates that per capita consumption of dairy products in Indian households could exceed that in similarly tiered Western households. As such, it would appear that there is potential for per capita dairy consumption in India to more than double as incomes improve. India's large population base and the significant number of people who are becoming upwardly mobile could initiate substantial expansion in demand for milk and dairy products.

However, the prospects of India being able to meet this demand from domestic output appears to be limited. This paper contends that factors such as inefficient dairy farming methods, shortage of grazing land, constraints in increasing feed and fodder production, and overstocking of livestock as a result of the opposition to culling non-productive animals would limit India's capacity to expand milk production.

In addition to the increasing per capita consumption, the more affluent Indian consumers are also demanding better quality goods and value for money. As evidenced by the proliferation of branded goods in India, international brand franchises seem to be the benchmark for quality goods.

The liberalisation of the Indian economy has created a rethinking on public policy strategies regarding food security and food self-sufficiency. It would appear that a rapidly modernising and internationalising India would direct its productive resources into areas where it has greater competitive and comparative advantages. There is evidence that these policy changes are already underway. The dairy industry has been deregulated and this has resulted in greater private sector participation. It seems inevitable that further reduction of barriers to market entry would ensue. Therefore, India seems to offer excellent medium-term opportunities for international dairy marketers.

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- Suku Bhaskaran is Executive Director, Australian Food Marketing Centre, Victoria University, Melbourne, Australia.**