Indian Dairy Sector -Status and Policy Options

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INTRODUCTION

Agricultural development has been associated mainly with an increase in the production of cereals. In India, majority of the people have less than one hectare of land. Due to small holdings, these cultivators are unable to meet the basic requirements for their livelihood. Here the development of livestock plays an important role in terms of providing basic necessities. It acts as an important source of supplying nutritious food along with supplementary income and employment for rural poor. Key village scheme, Intensive cattle development project in 1965 and operation flood in support and collaboration with World Bank and EU are the major livestock development programmes being launched in India so far (Amulya et al. 2003).The share of live stock in GDP has shown an increasing pace from 1980-81 with 4.82 per cent and touched the mark of 6 percent annually till 1996-97. But from 5.89 percent during 1997-98 it declined slightly and in the year 2000-01, 02 and 03 it was 5.74 percent, 5.68 percent and 5.37 percent respectively. Moreover, the share of livestock in agriculture was 13.88 percent in 1980-81 and touched the figure of 26.51 percent in the year 2002-03 (appendix 1). The increased availability of the farm level crop residues, green fodder due to intercrop cultivation and the mill-level residues of the processed products strengthened the base for a diversified animal feed and eased supply position that might have reduced the cost for rearing the animals. While on the other hand, growing urbanization and income levels resulted in an increased purchasing power, higher literacy; thereby health and nutrition concerns and changes in life style might have provided an impetus to an increased demand for this sector. Thus, both the supply and demand side dimensions seem to have provided an impetus for the development of livestock sector. Of the various livestock enterprises, dairying is the most important and plays a crucial role in our economy. It occupies an important place in the overall development of the country's economy such as employment generation and income earning potentiality, particularly for rural households (Singh, 1981). Now-a-days, dairying in India has changed its definition from business and is being considered as a profession. As a profession it is directly linked with the production and marketing of milk and milk products. Production and marketing of milk is undertaken by wide variety of producers located in different parts of the country. Its production and marketing is undertaken by both organized and unorganized sector players fighting in the global dairy arena. After the emergence of more liberalized and globalized policies, the face of Indian dairy sector has totally changed. Keeping in view the above facts, this study throws light on following issues:

i) Performance of Indian Dairy Sector over the years.
ii) Emerging Global scenario vis-à-vis Indian dairy scenario.
iii) Challenges and policy options.

PERFORMANCE OF INDIAN DAIRY SECTOR OVER THE YEARS

During the early decade of 50s and 60s, milk production in the country was stagnant and these scarcities of resources in terms of livestock lead to the need for major Policy reforms in the dairy sector. The strategy for organized dairy development in India was actually conceived in the late 1960s, within a few years after the National Dairy Development Board (NDDB) was founded in 1965. NDDB began its operations with an objective of making dairying a means for a better future for the millions of milk producers at the grass root level with its consistent efforts. It rested on the Operation Flood Program (OFP). The OFP was a major policy development designed to develop dairying by replicating the Anand model for dairy development so as to provide the missing market link in the formal milk sector between the urban milk consumer and the rural producer through a network of cooperatives (Martin et al. 2002).The OFP was instrumental in creating strong linkages among millions of smallholder producers and urban consumers. Prior to OFP, the link between the producer and consumer was completely missing. OFP in India helped to bridge the gap between formal dairy sector and rural producers by developing gradual and concrete slabs of co-operatives and plants in India. It was the first ever step being taken toward dairy infrastructure development in the country. OFP for the first time recognized the need of rural milk producers and paid attention towards their thorough development. It played the key role in bringing about the

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transformation in dairy development in the country. The OFP established milk producers' cooperatives in villages and made modern technology available to them. The broad objectives were to increase milk production ("a flood of milk"), augment rural incomes, and transfer to milk producers, the profits of milk marketing. (Sharma, 2004). With the successful implementation of the OFP in 1970 and other dairy development programs implemented by the State and Central governments, increased demand driven by increased population, higher incomes and urbanization, milk output increased substantially in the country. As a result, India has emerged as the world's largest milk-producing nation. Milk production has increased by about 4% a year, and it has increased from 22 million tones in 1970-71 to 100 million tonnes in 2006-07.Hence, the per capita per day milk availability increased from 107 to 245 grams during this period (India Stat.com).

Table 1: Growth Rate of Indian Dairy Sector (Milk Production)

Year	CGR (%)
1950-51 to 1960-61	1.64
1960-61 to 1970-71	1.15
1970-71 to 1980-81	4.51
1980-81 to 1995-96	5.21
1995-96 to 2004-05	4.42

The performance of Indian dairy sector during the 50s and 60s was not remarkable. However with the successful implementation of OFP during the 70s, the dairy sector achieved four fold growth rate by touching the mark of 4.51 during a single decade from 1971-81.Since then a gradual increase in growth rate has been observed with 5.21 till 1996 in an era which acknowledged the emergence of more globalized and liberalized policies in world trade. Soon after this, the growth of Indian dairy sector declined by the end of the year 2005 and moved down to the mark of 4.42 (Balaraman, 2003). To sum up, we can infer that the Indian dairy sector during the past 6 decades has shown consistent growth trends which in turn resulted in its best ranking in world dairy scenario. Moreover, after globalization, the milk production in India has increased but even then it is yet waiting for land mark achievement in world milk trade which could only be possible with balanced growth of livestock and proper dairy infrastructure development throughout the country. India has a sound base for infrastructure development with an existing 1.9 lakh of dairy plants and co- operatives. In spite of all hypes and publicity being projected towards two vital segments of Indian dairy sector vis organized and unorganized, the contribution of both is 14: 45 percent respectively. This clearly shows an increase of three folds in productivity by the latter segment. What is needed at this stage is to bridge the gap between these two sectors on a moderate basis in order to get the desired output. The detailed information about the Dairy plants, Dairy population, and co-operatives along with per capita availability of milk is given in (Appendix 2).

EMERGING GLOBAL SCENARIO-VIS-À-VIS INDIAN DAIRY SCENARIO

In the global context, the production of cow milk is highest though its share has declined from 85.54 per cent in 1996 to 84 percent in 2006; while the share of buffalo milk increased from 10.54 percent in 1996 to 12.5 percent in 2006. The share of sheep and goat milk also declined to the marginal level during the same period. However, gap in production rate do exist between developing and developed countries. Over the last 24 years, total world milk production has increased while the per capita has declined that can be attributed to falling production in the developed countries (Rutherford 1999). India's status in world scenario could be acknowledged with the fact that it has become the leader in milk production. The share of India in the world milk production has increased over the years as is discernible from Table 2.

Table 2: Trends in World Milk Production (million tonnes)

Year	World milk Production	Developed countries	Developing countries	India
1981	469.7 (100.00)	352.46 (75.04)	117.24 (24.96)	34.3 (7.3)
1991	533.3 (100.0)	369.74 (69.33)	163.56 (30.61)	54.0 (10.12)
2001	585.7 (100.0)	345.8 (59.04)	246.97 (40.99)	84.1 (14.36)
2004	620.2 (100.00)	365.73 (58.97)	254.47 (41.03)	91.0 (14.67)
2005	632.2 (100.00)	372.61 (58.93)	259.69 (41.07)	96.0 (15.18)
2006	644.0 (100.00)	379.51 (58.93)	264.49 (41.07)	100 (15.53)
CGR (%) (1981-2006)	**3.2918**	**0.7022**	**9.2075**	**11.6710**

Source: - FAOSTAT& INDIASTAT.COM

World milk production has shown an upward movement in its growth from the figure of 469.7 million tons during 1981 to 644.0 million tons by the end of year 2006. The shift in its compound growth with 3.2918 million tons

between the periods of (1981-2006*)* has shown a moderate upward tack. It is important to note that the growth of world milk production has been marginal soon after the inception of more globalized policy reforms. Average growth of developed countries in total world milk production was near about 65 percent. But its compound growth rate has shown a marginal increase in its production between the periods of 1981-2006 (Vijayalakshmi et al. 2000). Tremendous growth trend has been observed for developing countries during the same periods. With only 24.96 per cent share in world milk production during 1981, it reached 41.07 per cent by the end of 2006, showing a compound growth rate of 9.2075 per cent. India's share in total world milk production during 1981 was 7.3 percent and 15.53 per cent in 2006 respectively with a constant growth rate of 10-15 per cent. Its compound growth has touched the mark of 11.6710 per cent. From the above table it has been observed that in the past three decades, the percentage share of developed countries in world milk production have gone down while the percentage share of developing countries has shown positive results. However, the Indian dairy sector has shown marginal shift in its production during the same period. The six major milk producers of the world are India, EU, Russian Federation, Pakistan and Brazil. Major thrust in production has been seen during 1980-2003 with remarkable growth of 176% in India .In 1980, the share of six biggest milk producers were 57 percent of global market and reached 63 percent in 2003.It is interesting to note that during the past three decades, the total milk production has increased but per capita milk production declined from 105 kg in 1980 to 96 kg in 2004, showing the decline rate of 9 percent.

Table 3: Trends in Production of Milk Products (million tonnes)

Year	Butter	Cheese	SMP	WMP
1998	4.14	25.1	2.88	2.72
1999	4.13	23.7	3.12	2.41
2000	4.15	26.7	3.05	3.10
2001	4.23	27.4	3.00	3.09
2002	4.21	27.9	3.17	3.21
2003	4.22	28.2	2.31	3.76
2004	4.23	28.5	2.84	3.51
CGR	0.4366	2.7983	-2.1359	6.2193

SMP: - Skimmed milk powder
WMP: - Whole milk powder

Shift in total WMP has been observed after globalization for various milk products which is clearly defined in Table 3. Staring from 4.14 metric tones in 1998, the production of butter reached the mark of 4.23 metric tones by the end of year 2004, showing an insignificant compound growth of 0.4366. At the same time, the world cheese production from 25.1 metric tones in 1998 reached 28.5 metric tones with a significant compound growth rate of 2.7983 metric tones. SMP has performed very poor in world milk production starting from 2.88 in 1998 .It declined to 2.84 metric tones by the end of the year 2004 and it has shown negative shift in its compound growth (-2.1359) during the past 8 years. However, positive upward growth in production for WMP has been observed from 2.72 metric tones in 1998 to compound growth mark of 6.2193 by the end of the year 2004. World dairy export market is highly concentrated with New Zealand, EU, Australia and US forming major source of milk products. There has been an insignificant increase in the world trade for milk products, with a marginal increase in trade for milk powder and cheese. Biggest global producers like SMP, EU have cut production by 66 percent from 2.8 million tons during 1983 to 0.96 percent in 2004, is now being replaced by New Zealand and Australia by 2.3 percent and 4.4 percent respectively. Among the major milk powder exporters EU, US, New Zealand, Australia and Argentina, the share of EU during1990-2002 has gone down to 29 percent from 51 percent. At the same time, New Zealand has switched to the top position followed by EU and US respectively. Major trade is among developed countries. Share of developed countries in imports is 62% and in exports is 93%.Value added products are traded from developed to developed countries while the bulk products are traded from developed to developing countries.

TRENDS IN EXPORTS OF MILK PRODUCTS FOR BIGGEST EXPORTERS

Country	Overall % change in exports		
	Dry milk exports	CHEESE	BUTTER
1.EU (1986-1995)	-12.2	24.3	-47.4
(1995-2003)	31.9	-8.7	-1.4
2.USA (1986-1995)	-63.8	-7.4	200
(1995-2003)	-20	-20	-66.7

3.Australia (1986-1995)	110	100	100
(1995-2003)	76.2	60	40
4.New Zealand (1986-1995)	52	55	8.6
(1995-2003)	81.6	101.6	64.5

Source: - FAOSTAT

There has been a tremendous shift in the export of milk products after globalization. Earlier, upto 1996, the overall percentage share change in exports for EU was highly negative with (-12.2 per cent) and soon after, with the emergence of more subsidized and globalized policies, it touched the mark of 31.9 per cent. At the same time, extremely poor performance has been observed for USA with negligible change in its export growth for milk products. On the contrary, Australia and New Zealand have been seen with positive growth in their export rate during the same period. Production of cheese for Australia during 1986-1995 was 100 per cent and declined to 60 per cent in 2003.At the same time, New Zealand doubled its export from 55 per cent in 1995 to 101.6 per cent in 2003. Overall % change in exports for butter was insignificant for EU and competition between Australia and New Zealand has been observed at the same time. The biggest dairy exporters are EU and New Zealand but have remarkable differences in export orientation.EU produces about 23 per cent of WM but only 15 per cent of its total production is traded. Whereas New Zealand produces 3 percent of WM and 90 per cent of it is being traded of. The Dairy sector remains the most distorted and highly regulated particularly in EU, US, Canada and Japan. Government intervention plays a significant role in formulating the world dairy policies and trade flows. The details of producer's subsidy equivalents in the major countries are shown in Table. 4.The table clearly depicts the monopoly of US with 48 per cent followed by EU with 44 per cent and Australia with 14 per cent just because of high subsidy being enjoyed by them which is highest as compared to any other country and restricting the others to enter the world market due to strong tariff and trade restrictions. As EU market price is higher than the world price for dairy products, exports in these countries takes place with the aid of export subsidies. However, multilateral trade agreement of WTO has put restriction on subsidies. Both the quantity traded and the amount of total subsidy being paid is strictly restricted. The EU dairy policy operates in three areas vis internal market support, using trade instruments and making direct payments to farmers (SPS). At the same time, it put forth restrictions on imports by high tariff on dairy products to sustain the EU market price. However, minimal imports at full tariff along with tariff rate quotas (TRQs) do exist.

Table 4

Country	Producer subsidy equivalents (%)
Australia	14
EU	44
US	48
New Zealand	1

Source: - OECD, (2003)

INDIA'S POSITION IN GLOBAL DAIRY MARKET

Despite being the largest milk producer in the world, in terms of productivity, India's performance is very low whereas indigenous cows yield 1.89 kg, crossbreed cows yield 6.46 per cent and buffalo yield 3.91 kg. Dairying accounts for nearly 65 percent to country's livestock by showing a significant role in socio-economic development of the country. During 1995-96, India was net exporter for SMP and again became net importer in 1998-99.India has shown inconsistent growth for SMP being a net exporter in 2001-02 to net importer in 2003-04.This shows the zigzag growth pattern being followed by India for SMP .However, after globalization, India has been net importer for Ghee and butter oil, the details of which are given below in Table 5. India has been the net exporter for butter from 1995 to 2002, and became net importer in 2003 by showing a gradual decline in its productivity. The main cause behind the underproduction in India is an improper utilization of intensive commercial systems and this has become a matter of serious concern now - days. Being the second most populated country in the world, the share of India in world dairy trade is negligible. India has been the net importer of dairy products as is discernible from Table 5.

1. N.I. → Net importer
2. N.E.→ Net exporter

Table 5-Imports and Exports of India (Thousand metric tonnes)

Year	SMP			Ghee/Butter oil			Butter		
	Imports	Exports	Position	Imports	Exports	Position	Imports	Exports	Position
1995-96	1103	2794	N.E.	3855	-	N.I.	-	38	N.E.
1998-99	1424	655	N.I.	2608	538	N.I.	51	180	N.E.
2001-02	48	1143	N.E.	3243	1425	N.I.	1	259	N.E.
2003-04	9112	3070	N.I.	3653	906	N.I.	40	197	N.I.

Source: - Sharma, (2004)

CHALLENGES IN THE EMERGING SCENARIO

- Increasing competition from national and multinational companies.
- Dumping of cheap dairy products by developed countries.
- Non tariff barriers to exports-SPS issues and TBT issues.

OPPORTUNITIES IN WORLD DAIRY TRADE

SHIFTS TOWARDS VALUE ADDED PRODUCTS

International dairy trade accounting for about five percent of world milk production is confined mostly to manufactured products such as butter, cheese, dry milk powder and whey. The composition and pattern of trade has changed over the last two decades. Though export of basic products such as butter and skim milk powder remain substantial, trade is now increasingly based on sales of high value added products .Despite the elimination of various trade and non tariff barriers, elimination of tariff rate quotas, reduction of export subsidies and expansion of import access are yet to be resolved.

DAIRY MARKET

India is the largest producer of milk with 90.7 million tones in 2004-05. There are only two countries India (14%) and USA (12%) that account for more than ten per cent of milk production. The per capita milk availability in India has increased to 231 gm per day during 2004-05 from 202 gm per day in 1996-97. Organized dairy accounts for nearly 13 % of milk produced. The rest of milk is either consumed or sold as fresh through unorganized channels. The share of organized dairy is expected to rise rapidly in urban regions. The overall growth rate of dairy sector is 4% which is almost 3 times the average growth rate of dairy industry in the world. Milk processing level is 35%-13% in the organized and 22 % in the unorganized sector. Major markets for Indian dairy products outside Asian region include UAE, Bangladesh, Nepal, Bhutan, Yemen and Kuwait.

MARKET POTENTIAL

Dairy markets are among the most distorted worldwide especially among OECD countries. Japan and Korea typify these highly distorted markets which have a complex system of tariff barriers and domestic support measures. Globally, 50000 tones branded butter market valued at $ 133 million (Rs. 598.5 crore) is estimated to be growing at 8-10 percent per annum. The cheese market is estimated to be $ 110 million (Rs. 495 crore) in value and 54000 tons in volume has been growing at CAGR of 8-9 percent during 1999-03. Since Asia continues to be the net importer of dairy products, India could be a competitive exporter if Asian countries liberalize their trade. India could have a good export market in Indonesia, Malaysia, Thailand and Philippines which are net importer of the product. In India, investment pattern have changed during the last decade. Total investment in dairy during 1991-2002 was 3.3 billion (Rs.14850 crore) of which foreign investment was $ 245. 5 million (11074.75 crore).The growth in urban areas is about 15 percent per annum. India's total milk production is projected to increase by 108 million tons by the end of year 2007 as per the estimates of the tenth five year plan.

MARKET DEMAND

World demand for skim milk powder is increasingly being replaced by whole milk powder which is preferred for the reconstitution of liquid milk and by powdered whey, which is used in the manufacture of other dairy products or non-dairy food stuffs and particularly animal feed. The ingredients market in general is a highly buoyant sector based on high value added products whose extraction ensures a higher return on the original raw material return.

EXPORT POTENTIAL OF DAIRY PRODUCTS

India's traditional dairy sector is poised for rapid expansion. Besides to enhance exports, India can leverage on its two competitive advantages vis:

1. Low Farm Gate Price: Although Argentina, New Zealand and Australia have slightly lower farm gate prices than India, these accounts for 10 % of the global milk production. Hence, the competitive advantage of low milk prices gives better export potential for India.

2. Proximity to Milk Deficit Markets: India has a location advantage to cater to milk deficit of neighboring countries. The markets of these countries are considerable import dependent. In addition, demand for milk products in these markets is expected to be strong and increasing.

POLICY OPTIONS (REFORMS TO BE UNDERTAKEN BY INDIA)

- Develop effective and efficient market intelligence system to monitor developments in the world markets (Price, subsidy level demand and supply).
- Link import tariff to world prices (variables tariff within bound rates of duty).
- Enhance milk productivity by efficient delivery of inputs/services.
- Negotiate for reduction of subsidies in dairy sector by developed countries particularly EU and US.
- Modernization of supply chain starting from producer to consumer is required.
- Development of dairy export zone in the pattern of free trade zones and special economic zones.

BIBLIOGRAPHY

- Amulya et al. (2003), An Indian village agricultural ecosystem- case study of Ungra village. *ASTRA, Indian Institute of Science*, Bangalore ,India
- Balaraman (2003) Status and Prospects- Milk production system *Indian Dairyman **29**: 29-:32*
- Martin et al. (2002), Operation flood: impacts and issues. *Indo-Dutch Programme on Alternatives in Development (IDPAD)*, the Hague, the Netherlands
- Rutherford (1999), Meat and milk self-sufficiency in Asia: forecast trends and implications. *International Livestock Research Institute*, Nairobi, Kenya
- Sharma (2004) Liberalizing Global Dairy Trade: Will it Help or Hurt Indian Dairying *Indian Dairyman **56 :**141-:152*
- Singh B, Singh R and Bal H S (1981) Production and Pattern of disposal of milk in rural areas of Punjab. *Agric Mktg. **24***: 21:26.
- Vijayalakshmi et al. (2000), Rationalization of milk procurement, processing and marketing in southern India. *Winrock International Institute for Agricultural Development, Morrilton, Arkansas*, USA
- http://ec.europa.eu/agriculture/index_en.htm

Appendix 1

Group	1951-52	1961-62	1971-72	1981-82	1991-92	2001-02	2002-03
Milk group	11399	12866	14864	24301	40018	60340	62891
Meat group	4290	5031	4890	6356	10702	14876	12289
Poultry meat	927	1354	1066	2027	4172	5902	5506
Eggs	269	386	543	1041	2045	3149	2714
Total Livestock	20586	23421	25571	39010	60889	88330	91557

Source: CSO, Department of Statistics, Ministry of Planning, GOI, New Delhi

Appendix 2

Dairy plants	Number	Capacity	Product	Annual Production	Per capita availability
Co-operatives	2121	28394	Milk	84.5 millions	224 ml/d
Private	403	32415	Eggs	34034 millions	34 /annum
Others	63	12170	Meat	4694000 tonnes	4700g/annum
Total	678	72979	WOOL	50.7 m/Kg	51 g/annum