CHAPTER - III

Dairying in India

Milk is the largest crop in India and its contribution is highest to total output of the agricultural sector. In this chapter an attempt has been made to present a perspective view of Dairying in India. This will provide a backdrop for the study as it overviews the Dairying Industry in India.

3.1. Introduction

Dairying is considered as a way of life amongst the Indian farmers. Farmers generally keep one or two milch animals to meet the family requirements for milk and milk products. Whatever becomes surplus after meeting the family needs is offered to the consumers, making a small income by the sale of milk and milk products. In the remote rural areas where facilities for selling liquid milk are limited, surplus milk is generally converted into ghee by the traditional methods. This situation existed in our country for almost centuries; until recently farmers have realized that Dairying could be adopted as a means of living.

3.2. Overview of Dairying in India

Around 1500 to 2000 B.C., the Aryans were first to domesticate cattle, use them for tilling their land, and obtain milk to be consumed as food. Again, the Aryans who priced the milk of a cow more than its meat, forbade its slaughter, created legends about it and even worshipped it. Hindus even to
this day consider cow as sacred. Besides it was only the East (India/China) which domesticated buffalo as milch animal and succeeded so well that today, more than half the total production of milk in India, is obtained from buffalo. ‘The Dairying in India has passed through several phases’, both in the pre and post independent period

3.3. Pre-independence Era

India under the British rule had a Board of Agriculture (1914) and its recommendations were implemented on a limited scale with limited scope to achieve the following objectives:

a. Establishment of Dairy farms by the Defence department to ensure supply of milk to British troops,

b. Preliminary study on composition of milk produced by indigenous cows and buffaloes, and

c. Establishment of pedigree herds of Indian breeds.

The major milestone events in Indian Dairy during the pre independence era are listed below:

1886 - The Department of Defence established Dairy farms for supply of milk to British troops stationed at Allahabad as advised by the Board of Agriculture.

1914 - As advised by the Board of Agriculture, a preliminary study concerning the composition of milk produced by indigenous cows and buffaloes was conducted and attempts were made to establish pedigree herds of Indian breeds.

1916 – Impressed by tremendous potentiality of milk in India, the Board advised the Government to appoint an Imperial Dairy Expert.
1919 – The first livestock census was carried out as a preparatory action for planned development.

1920 - Mr. William Smith, the Dairy Expert, planned for enhancing milk production on long-term basis and recommended: Scientific breeding, feeding and management practices to be followed at Military Dairy farms and Establishment of a training centre to meet the manpower requirements for managing the farms on scientific lines.

1923 – The military farms at Bangalore, Wellington (Ooty hills) and Karnal were transferred to Agriculture Department. The farm at Karnal was developed as a Cattle Breeding Farm and Bangalore farm as the Imperial Institute of Animal Husbandry. Diploma/Post-Graduate Diploma in Dairying and other short courses were started at Bangalore.

1929 – The Imperial Council of Agriculture Research (now Indian Council of Agricultural Research, ICAR) was established. Shri Pestonji Edulji Polson, established Polson Model Dairy at Anand with the latest available technology and went into manufacture of sophisticated products like famous Polson Butter. In 1950, he also established a pilot plant in Patna.

1931 – The Institute at Bangalore was transferred to Central Government’s Department of Education, Health and Lands, renamed Imperial Dairy Institute.

1936 – Dr. N.C. Wright, Director, Diary Research Institute, Scotland, arrived here to review the progress of Dairying in India. He made some important observations and recommendations during his 4 year stay in India which formed the basis for the development of Dairy Industry. His observations were: The milk industry is not organized properly and hence there is no ready and remunerative market for rurally produced milk in India. In the absence of a ready and assured market the chances of proper impact of developmental inputs were very remote and his
recommendations were - India had to develop its own technology and technologists to solve the problems of Indian Dairy Industry and being a country of villages, inhabited by marginal farmers and landless labourers the Dairy development should be promoted on co-operative lines only, to cover wide areas/rural pockets.

1937 – The first milk union ‘Lucknow Milk Producers’ Co-operative Union Limited’ was established followed by organization of such Unions in the other districts and States.

1941 – The Bangalore Institute was again renamed as Imperial Dairy Research Institute. Subsequently, it was named as Indian Dairy Research Institute. The training and research activities were accelerated at the Institute and State-level programmes were encouraged.

1945 – The Aarey Milk Colony was established by Bombay Government under Greater Bombay Milk Scheme.

1946 – The first farmers integrated Dairy co-operative was established in Kaira District at Anand which later came to be known as AMUL. Thus, after independence, both Amul and Greater Bombay Milk Scheme set together a faster pace of Dairy development with emphasis on developing techniques of processing and marketing under Indian conditions.

3.4. Post Independence Phase – Pre Operation Flood Programme

After the ‘Grow More Food Campaign’ in 1944, efforts by Central Government materialized only after the country achieved independence. Eleven Five Year Plans and three annual plans have followed one after another beginning in 1951. Weighed individually, each plan had a laudable set of objectives for Dairy development. However, lack of integration of the various activities was the major cause of poor return on investment in Dairy development during the plan period.
3.5. Development under Operation Flood Programme (OF)

Development under Operation Flood Programme (OF): Launching of OFP in 1970 was the first step taken to check this adverse trend by ensuring remunerative milk production at the rural level through the Anand Pattern of milk co-operative. Milk was efficiently processed and channelized to the consumers in the far flung cities.

**Operation Flood – Phase I:** Operation Flood - Phase I, involving an investment of Rs.95.4 Crores, was formally launched on July 1, 1970. This was at the time the largest Dairy development programme launched anywhere in the world.

The project was originally formulated for five years, but it suffered delays and was, therefore, extended. It was completed on 31\textsuperscript{st} March 1981. The revised final allocation was Rs. 116.4 Crores. The objectives of Operation Flood Phase-I were: 1. Expansion of existing Dairies in 4 metropolitan cities, 2. New Dairies in 4 metropolitan cities, 3. Storage and long distance transport of milk, 4. Milk collection/chilling centers, 5. Feeder/balancing Dairy plants, 6) Resettlement of city-kept milch animals, 7. Increasing milk production, 8) Development of improved milch animals, 9) Co-operative organization, 10) Project planning, manpower development.

The modern Dairies in the four metropolitan cities increased their production throughout from 9.02 lakh liters per day in 1970 to 23.40 lakh liters per day in March 1981. By 31\textsuperscript{st} March, 1981, a total of 1779 personnel were trained for farmers organizations against the target of 1287
under Phase-I. In addition to these, 2860 farmers from the rural milk sheds had been trained at Anand in improved Dairy practices.

**Operation Flood Phase – II:** The success of Operation Flood Phase-I clearly demonstrated the replacability of Anand pattern in milk sheds. Thus, Operation Flood Phase II launched on October 11, 1979 was designed to create, on the foundation built by Phase-I, a viable Dairy industry to serve the nation’s need for milk and milk products during the 1980’s. To achieve this, the programme of work was set out in two parts: July, 1978 to September 1979 was used to carry out the pre-programme actions required prior to launching of Phase-II. The programme itself was to be implemented subsequently.

The original Operation Flood Phase – II project proposal with an outlay of Rs. 485.5 Crores was finally approved by the Planning Commission and the Government of India with the revised targets and outlays of Rs. 273 Crores. The overflow of the amount between Rs.485.6 Crores and Rs.273 Crores was to be carried over to phase-III. The Phase –II was implanted during the 6th Five Year Plan (completed on 31st March 1985)

In addition to the appreciable achievements in milk procurement and processing fronts, the National Milk Grid (NMG) the national milk marketing network, has consolidated its role. The transportation network commissioned 92 rail milk tankers (64 broad gauge and 25 meter gauge), with a capacity of 32 lakh / and 664 road milk tankers (capacity 74.9 lakh). With the increased manpower development facilities, many training programmes have been organized for trainees of different categories.
Nearly 11644 persons were trained upto March 1985 under OF programme.

**Operation Flood Phase – III:** Operation Flood was a continuous programme. The Operation Flood Phase-III during the 7th Five Year Plan period is for a period from April 1986 to March 1990.

Thus, India’s Dairy industry is progressing well. The tremendous strides taken toward modernization of Dairying provided effective boost to indigenous manufacture of Dairy equipment, veterinary equipment including that required for semen banks, veterinary medicine and vaccines and long distance transport vehicles for milk. Development of trained manpower suitable to function at all levels provided backbone for sustained and self reliant growth of Indian Dairy industry. Its achievement during the past two decades is an example which can be followed by other developing countries of the word.

### 3.6. Dairying in Five Year Plans

The National Development Council in its Eleventh Plan document titled “Towards faster and more inclusive growth”, directed the Planning Commission to assess the resources required before the implementation of the plan. The detailed version of the Eleventh Five Year Plan (2007-12) was approved in December 2007. From first plan to tenth plan with the increase in the total plan outlay there is a substantial increase towards Dairying. Out of the 14.8 per cent made to agriculture, 5.5 per cent was reserved for Dairying. A detailed data pertaining to outlay on animal husbandry and Dairying is presented below in the table no 3.1.
### Table-3.1
Plan Expenditure on Animal Husbandry and Dairying between 1950-51 and 2006-07

<table>
<thead>
<tr>
<th>Plans</th>
<th>Expenditure (Rs in million)</th>
<th>Agriculture and Allied Sectors</th>
<th>Animal Husbandry and Dairying (AH&amp;D)</th>
<th>Dairying</th>
<th>Agriculture as percentage of Total Plan</th>
<th>AH&amp;D as percentage of Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Plan (1951-56)</td>
<td>Total Plan 19,600.00</td>
<td>2,900.00</td>
<td>160.00</td>
<td>77.80</td>
<td>14.80</td>
<td>5.50</td>
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<tr>
<td>Second Plan (1956-61)</td>
<td>46,720.00</td>
<td>5,490.00</td>
<td>334.70</td>
<td>120.50</td>
<td>11.80</td>
<td>6.10</td>
</tr>
<tr>
<td>Third Plan (1961-66)</td>
<td>85,770.00</td>
<td>10,890.00</td>
<td>770.00</td>
<td>336.00</td>
<td>12.70</td>
<td>7.10</td>
</tr>
<tr>
<td>Annual plans (1966-69)</td>
<td>66,254.00</td>
<td>11,071.00</td>
<td>597.00</td>
<td>257.00</td>
<td>16.70</td>
<td>5.40</td>
</tr>
<tr>
<td>Fourth Plan (1969-74)</td>
<td>157,790.00</td>
<td>23,204.00</td>
<td>1,542.00</td>
<td>787.50</td>
<td>14.70</td>
<td>6.60</td>
</tr>
<tr>
<td>Fifth Plan (1974-79)</td>
<td>394,262.00</td>
<td>48,665.00</td>
<td>3,189.80</td>
<td>944.50</td>
<td>12.30</td>
<td>6.60</td>
</tr>
<tr>
<td>Sixth Plan (1980-85)</td>
<td>1,092,917.00</td>
<td>136,203.00</td>
<td>8,025.10</td>
<td>4,362.90</td>
<td>12.50</td>
<td>5.90</td>
</tr>
<tr>
<td>Seventh Plan (1985-90)</td>
<td>2,202,163.00</td>
<td>279,611.00</td>
<td>12,033.90</td>
<td>5,887.90</td>
<td>12.70</td>
<td>4.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outlay (Rs in million)</th>
</tr>
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<tbody>
<tr>
<td>Eight Plan (1992-97)</td>
</tr>
<tr>
<td>Ninth Plan (1997-2002)</td>
</tr>
<tr>
<td>Tenth Plan (2002-07)</td>
</tr>
</tbody>
</table>


With the help of the above schedule the contribution of Five Year Plans towards dairy can be summarized as:

a) Dairying acquired national level recognition and a concept of planned approach for overall development from first plan to tenth plan. Expenditure incurred for the development of dairy in the first plan was Rs.77.80 millions which increased to Rs.3610 millions by the end of tenth plan.
b) The contribution of animal husbandry and dairy as percentage of agriculture in the first plan was 5.50 per cent and by tenth plan it reached to 8.40 per cent.

c) The total plan outlay towards animal husbandry and dairying was Rs.19,600 millions in the first plan which increased to Rs.3,988,900 millions in the tenth plan.

The impact of five year plans on dairy is far reaching and significant and it is instrumental in bringing the following changes in the dairy scenario of India.

a) Dairying acquired national level recognition and a concept of planned approach for overall development was introduced at all levels in the Government structure.
b) Organized marketing of milk and milk products started getting due attention by the private, public and co-operative sectors.
c) The multi national companies introduced new milk products for the common consumer,
d) An innovation to overcome economic hurdles of marketing brought-forth formulation of toned milk,
e) The concept of the need for intensive cattle development was driven home,
f) India progressed in developing its own cadre of trained technical personnel.

The Indian Dairy industry, however, suffered the following setbacks during this period which nullified their major contributions. The Indian Dairy industry became consumer oriented with little or no involvement of millions of small milk producers. All activities connected with enhancement of milk
production was left in the hands of State-level veterinary animal husbandry departments which had no avenues of synchronizing these inputs with efficient marketing of the output i.e. milk. Consequently, production of milk remained as an unattractive proposition for the rural milk producers who had to shoulder the entire burden of sustaining farm animals. On the other hand, heavy industrialization of the cities increased the consumer demand which was exploited by the private city dwelling milkman. The ‘dudhias’ in Bombay and Calcutta brought thousands of higher yielding milch animals from rural areas usually along with a calf was allowed to starve because it did not pay to rear calves in cities. After one or two lactations, the milch animal was sold to the city butchers because it did not pay to rear a dry milch animal and a new cow/buffalo was obtained from rural areas.

3.7. Dairy Development under Central Government Schemes

India ranks first among the world’s milk producing nations. Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities. The per capita availability of milk was 252gm per day during 2007-08. The growth rate of milk production over the past three decades till X Five Year Plan was around 4% against the growth rate of about 2% of India’s population. This was possible because of various milk production enhancement schemes undertaken by the State as well as the Governments.

During the post-independence period, progress made in this sector has been spectacular. Milk production has increased more than six folds from a mere 17 million tones during 1950-51 to 124.8 million tonnes in 2007-08. Dairying has played a prominent role in strengthening India’s rural
economy. It has been recognized as an instrument to bring about socio-economic transformation in rural areas.

Dairying farming in India is pursued as an adjunct to agriculture. It is managed largely by utilizing crop residues and engaging family labour. Approximately 70 million rural households in the country are engaged in milk production. About 70 percent of cattle in the rural areas are owned by small and marginal farmers and landless labourers, who derive a substantial part of their household income from sale of milk.

The Government is actively supporting Dairy sector by implementing various schemes. It all started with the White Revolution under the title ‘Operation Flood’ launched in 1970, which has been instrumental in helping the farmers mould their own development through co-operative Dairying and to help milk reach the consumers in about 700 towns and cities through a National Milk Grid. It has also helped eradicate the need for middlemen thereby reducing the seasonal price variations. As a result of the co-operative structure the whole exercise of production and distribution of milk and milk products has become economically viable for farmers to undertake on their own. This programme covered 170 milk sheds falling under 22 State Co-operative Federation and benefited more than 12 million farm families. By the end of ‘Operation Flood’ the milk production reached the level of 66.3 million tonnes per annum from about 21.2 million tonnes per annum at the beginning of the programme. About 265 districts were covered under this programme.

Subsequently Government has been implementing various Dairy development schemes like National Project for Cattle and Buffalo Breeding, Intensive Dairy Development Programme, Strengthening Infrastructure of Quality and Clean Milk Production, Assistance to Co-operative, Dairy/Poultry Venture Capital Fund, Feed and Fodder
Development Scheme and Livestock Health and Disease Control Programme to cover left out areas and to popularize Dairying as a source of livelihood.

3.8. National Project for Cattle and Buffalo Breeding

Under the National Project for Cattle and Buffalo Breeding (NPCBB) programme initiated from October 2000 for a period of 10 years, in two phases each of five years, genetic upgradation is encouraged with a focus on development and conservation of important indigenous breeds. The project provides 100% grant-in-aid to Implementing agencies to arrange delivery of vastly improved artificial insemination service at the farmers door step, bring all breedable females among cattle and buffalo under organized breeding through artificial insemination or natural service by high quality bulls within a period of 10 years and undertake breed improvement programme for indigenous cattle and buffaloes so as to improve the genetic makeup as well their availability. At present 28 States and one Union territory are participating in the project. Financial assistance to the tune of Rs.504.73 crore has been released to these states upto 31st July 09. Semen production in the country has increased from 22 million straws (1999-2000) to 46 million straws (2008-2009) and the number of insemination has increased from 20 million to 44 million during the same period. As per the impact analysis report submitted by NABARD, overall conception rate has increased from 20% to 35%.

In order to fill up the gaps left after the implementation of operation flood a new scheme ‘Integrated Dairy Development Programme (IDDP) in Non-Operation Flood Hilly and Backward Areas’ was launched in 1993-94 on 100 percent grant-in-aid basis. The main objectives of the scheme were; development of milch cattle; increasing milk production by providing
technical input services; procurement, processing and marketing of milk in a cost effective manner; ensure remunerative prices to the milk producers generate additional employment opportunities: improve social, nutritional and economic status of residents of comparatively more disadvantaged areas.

Since the inception of the scheme, 86 projects have been approved. Out of these, 55 projects are under implementation and 31 projects have been completed. 207 districts are covered in 25 States and a UT with a total outlay of Rs.501.84 crore till 31.03.2009. These projects have benefited about 18.79 lakh farmers in 26844 villages in various States procuring over 20.08 lakh liters of milk per day and marketing milk of about 16.20 lakh liters per day. Milk chilling capacity of 18.49 lakh liters per day and processing capacity of 23.96 lakh liters per day has been created under this scheme.

3.9. Feed & Fodder Development Programme

Feed and Fodder development plays an important role in Dairy development as greater percent of the cost of milk production is on account of feed and fodder. According to the report of Working Group on Animal Husbandry and Dairying for X Five Year Plan of Planning Commission available fodder can meet the demand of only 46.7 percent of livestock. Hence, the department is implementing two schemes namely,

1. Central Fodder Development Organization and
2. Centrally Sponsored Scheme for Assistance to States for Feed and Fodder Development.

Under Central Fodder Development Organization Scheme, seven Regional Stations for Forage Production and Demonstration located in different agro-climatic zones of the country and one Central Fodder Seed
Production Farm, Hessarghata, Bangalore have been established to administer the feed and fodder issues. Besides this, a Central Mini kit Testing Programme on Fodder Crops is being funded under this scheme. These stations are catering to fodder related requirements of the states in their respective regions. These stations also carry out extension activities through field demonstrations and farmer’s fairs/field days. During 2007-08, these stations produced 264.42 tonnes of fodder seeds, conducted 5,241 demonstrations, organized 91 training programmes and 81 farmer’s fairs/field days. During 2008-09, these stations produced 278.52 tons of fodder seeds, conducted 6,854 demonstrations, organized 122 training programmes and 128 farmer’s fairs/field days. While efforts are made to ensure better livestock health in the country, efforts are also made to prevent ingress of diseases from outside the country, and maintaining of standards of veterinary drugs and formulations.

Under the centrally sponsored scheme for Assistance to State for Feed and Fodder Development, central assistance is provided to States to supplement their efforts in feed and fodder development. The scheme has four components; namely, Assistance to Fodder Block Making Unit, Grassland Development including Grass Reserves, Fodder Seed Production Programme and Biotechnology Research Projects.

A Centrally Sponsored Scheme called ‘Livestock Health and Disease Control’ is being implemented throughout the country to provide Assistance to States for Control of Animal Diseases (ASCAD), for Rinderpest Eradication (NPRE), Professional Efficiency Development (PED), for Foot and Mouth Disease Control and for monitoring Rinderpest disease freedom. The two new initiatives are National Dairy Plan and Rashtriya Krishi Vikas Yojana (RKVY)
3.10. National Dairy Plan

Government of India in order to meet the future demands, is examining launching a National Dairy Plan with an outlay of more than 17,300 crores to achieve a target of 180 million tonnes of milk production annually by 2024-25. Milk production is expected to grow at 4% with an annual incremental output of 5 million tonnes in the next 15 years. Under this plan, the Government is contemplating to enhance milk production in major milk producing areas, strengthen and expand infrastructure to produce, process and market milk through the existing and new institutional structures. The plan envisages breed improvement through Artificial Insemination (AI) and through natural service, setting up plants to augment cattle feed, by-pass protein (cooked food) and mineral mixture. The plan also proposes to bring 65 per cent of the surplus milk produced under the organized sector for procurement as against the present 30 per cent. Efforts are on to tap for World Bank funding for this project.

The Government has launched a new scheme called Rashtriya Krishi Vikas Yojana (RKVY) with a massive investment of Rs.25,000 crores during Eleventh plan to promote agriculture and allied sectors. All activities that can further the development of AHD & F sectors are provided 100 per cent grant under State Plan, provided that the State Government makes necessary budgetary allocation for agriculture and allied sectors. This is expected to stimulate greater involvement in this sector and help achieve the target of 6 to 7 per cent per annum for AHD & F sector as a whole with Dairy sector contributing 5 per cent and meat sector contributing 10 per cent in the Eleventh plan. All these activities are expected to help India emerge as a major player in the world Dairy sector.
3.11. Key issues in Indian Dairying

Production
The key issues in production include low productivity of milch animals and lack of quality control and monitoring mechanisms across the supply chain.

1) **Low productivity of milch animals**: India has the largest cattle and buffalo population in the world. While the average productivity of Indian cows is among the lowest in the world, the productivity of Indian buffaloes is among the highest in the world.

2) **Lack of quality control and monitoring mechanism**: There is a strong correlation between the quality of raw milk and the quality of the processed product. The bacteriological quality of raw milk in India at the time of milking is comparable with that in leading milk exporting countries (including EU, Australia and New Zealand). However, there is significant deterioration in milk quality from farm to factory.

Processing Capacity
Key issues in processing include lack of availability of milk in the lean season, limited diversity in product mix, regional demand-supply imbalances, lack of scale and lack of commercialization in Indian ethnic milk products.

A. **Lack of availability of milk in the lean season and limited flexibility in altering product-mix**: Despite potential for processing, the capacity utilization of Dairy plants is about 60 per cent (assuming 300 working days in a year). The reasons for low capacity utilization are the lack of availability of milk, particularly in the lean season, and lack of diversity in the product mix of companies.
B. **Regional demand-supply imbalances:** Further, there are regional imbalances in production, capacity growth and consumption. For example, Rajasthan has 8 percent share in production and 11 percent share in consumption of milk products. However, its share in processing capacity is 4 percent. This implies that farmers in the state are losing out on the potential for value addition. A similar situation prevails in Bihar.

C. **Lack of Scale:** The largest Dairy player in India is Gujarat Co-operative Milk Marketing Federation Ltd (GCMMF) with an annual turnover of over USD 0.5 bn (financial year 2002-03). The largest international Dairy company is Nestle with annual turnover of USD 18 bn (year 2003, turnover from the Dairy business). The average milk processing capacity of India’s leading Dairy co-operatives is in the range of 0.1 to 0.35 million liters per day. Lack of scale is a significant reason for the inability to invest in procurement infrastructure, quality control, and controlled temperature transportation on the one hand, and market development on the other.

D. **Lack of commercialization in Indian ethnic Dairy products:** India has huge potential in ethnic Dairy products, which has not been realized. Of the total milk produced in India, 46 percent is used as liquid milk, 4 percent for processing western Dairy products and as much as 50 percent for processing into traditional Dairy products. Despite the attractive inherent profitability, manufacturing and marketing of ethnic products has largely been the domain of unorganized sector, which offer short shelf-life-products.
E. Taxation: Various taxes increase the price of end products. These taxes include purchase tax on milk (e.g. 4 per cent in Punjab), entry tax (e.g. 3 percent in Kerala), octroi and sales tax on milk and milk products (e.g. 4.5 to 7 percent octroi and 10.3 to 15.6 per cent sales tax in Maharashtra), etc. The state level taxes on manufactured product create a non-level playing field with the unorganized sector, which can price its products lower as there is no outflow on account of such levies.

3.12. Sustaining the Dairy Industry

The Indian Dairy industry needs to overcome some of its major problems. The Dairy industry is governed by a plethora of Acts and regulations e.g., the Milk and Milk Products order 1992; Prevention of Food Adulteration act, 1954; the Agricultural Produce (grading and marketing) Act, 1937 as amended in 1986 (AGMARK); Standards of weight and measures (packed commodities) Rules, 1977; Consumer Protection Act 1986; Insectized Act, 1968; Infant Milk substitute, feeding bottles and infant foods (Regulation of Production, Supply and Distribution) Act, 1992 and rules, 1993 amended in 2003: Bureau of Indian Standards Act (BIS) 1986; Export (Quality Control and Inspection) Act, 1963. The multiplicity of laws and regulation in the food sector leads to overlapping regulation and lack of co-ordination among implementing agencies. They are confounding the confusion in the minds of manufacturers and traders and complicating the task of harmonization with international standards. Therefore, initiative is needed from the central government to amalgamate these Acts and minimize the number of enforcing agencies.
3.13. SWOT Analysis of Dairy Industry

As is well known, any industry in its final analysis is subjected to its Strengths, Weaknesses, Opportunities and Threats (SWOT). This analysis is subject to change from time to time. But in the case of the Indian diary industry, this analysis looks very hopeful as it is vibrant.

**Strengths**
Demand profile: **Absolutely optimistic** with the growth in population and increased incomes.
Margins: **Very reasonable**, even on packed market milk. For milk products, especially traditional milk products, higher margins are possible for those who ensure quality.
Flexibility of raw materials: **Tremendous**, Milk is known for generations to offer variety of products. The potential is yet to be fully exploited. A Dairy enterprise can keep on adding to its product line.
Availability of raw material: **Abundant**. There exists a vast scope to procure more milk in the organized sector.
Technical man-power: Professionally-trained managers and technicians available to meet the challenges.
Technology transfer: Newer technologies for product and process know-how available with national-level institutions.

**Weaknesses**
Perishability: Within hours after milking the animal, milk has to be processed. Mechanical chilling, pasteurization, UHT processing overcome
this weakness partially. Surely, many new processes will follow to improve milk quality and extend its shelf life.

Low productivity: In spite of various programmes implemented to raise the productivity of milch animals, we continue to have millions of cows and buffaloes which have very low yields. Theoretically, there is little control over yields. However, increased awareness of ET, AI, genetic improvement, scientific feeding and properly managed animal husbandry practices, coupled with higher income to rural milk producers, should automatically lead improvement in milk yields.

Procurement Logistics: Smaller quantities of milk being available over a wide area with woes of bad roads and inadequate transportation facilities make milk procurement problematic. But with the overall economic improvement, these problems would get solved.

Problematic Distribution: Yes, all is not well with distribution. The ever-rising cost of diesel has increased the distribution costs alarmingly. As a result, milk and products are distributed in that are uneconomical to cater. But then if ice creams can be sold virtually at every nook and corner, why can’t we sell Dairy products? Moreover, it is only a matter of time before we see the emergence of a cold chain linking the producer to the refrigerator at the consumer’s home! Milk products can be transported over long distances by plying large capacity-fully used-vehicles, preferably refrigerated or at least insulated, which can also carry other products which are compatible with milk.

Competition: Competition is becoming tough. But then competition has to be faced as a ground reality on merit. The market is large enough for newcomers to carve out their niche.
Opportunities

It requires a visionary to see the opportunities of not only today but tomorrow. As Dr. Kurien, the greatest of our Dairymen, has observed. “Failure is never final and success never ending”. He entered the industry when there were no opportunities, only threats. If Indian Dairying entrepreneurs are looking for opportunities, the following areas must be tapped:

Value addition: Innovation is the key word to add value into a product-in its composition, health benefits, packaging and presentation. Following are potential areas of value addition:

- Products like shrikhand, paneer, khoa, lassi, ice creams, flavoured milk, Dairy sweets, etc offer good flexibility in the market place along with opportunities in brand building.
- Mass production of indigenous milk-based sweets in Dairy plants can tap the growing demand for them.
- Cultured products like dahi, yoghurt and cheese lend further strengths.
- There are opportunities in milk proteins through casein and caseinates and other dietary or nutraceutical grades of proteins for domestic marketing and exports.
- Infant foods, geriatric foods, designer milk or milk products for a niche market like low calorie low fat, cholesterol free, sugar free etc.,

Export potential: Efforts to exploit potential are on. Already several organizations in the co-operative and private sectors are successfully exporting to Bangladesh, Sri Lanka, Nigeria and the Middle East. As world trade is opening up, opportunities will increase tremendously for the export of Dairy products if quality standards are met.
Threats

The non-organized sector: It occupies a pride of place in the industry. An organized consumer awareness campaign is required to tackle this threat and educate consumers about safety of milk and milk products they consume. This should see a steady decline in the importance of milk vendors.

At the Government level, strict vigilance is required to curb the import of substandard, low-priced milk products as well as precautions against their dumping which can otherwise create a big threat.

The study of this SWOT analysis shows that ‘strengths’ and ‘opportunities’ far outweigh ‘weakness’ and ‘threats’. Further, strengths and opportunities are fundamental and weakness and threats are transitory. Any investment idea can do well with three essential ingredients: entrepreneurship (ability to take risks) innovative approach (in product development and marketing), and values (quality, service, ethics).

The Indian Dairy industry has been attracting a large number of entrepreneurs. Their success in Dairying depends on factors such as an efficient yet economical procurement network, hygienic and cost-effective processing facilities and innovativeness in the market place. All the time keep reminding yourself, “Benjamin Franklin discovered electricity, but it was the man who invented the meter who really made the money”.