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CHAPTER- 1
INTRODUCTION TO CO-OPERATIVE SECTOR & DAIRY INDUSTRY

1.1 INTRODUCTION

India is basically an agricultural country and depends upon the weather. Agriculture is the main occupation of our rural area. The growth of agriculture still holds the key for economic and social uplift of the rural people. The economic development of the country is largely linked with its rural development because majority of her population live in the villages. The rural people depended directly or indirectly on agriculture for live hood. Indian dairy sector contributes a large share in Agricultural Gross Domestic Product. At the present, India is the largest producer of milk in the world with a share of around 16 per cent of world total milk production. Globally, livestock production accounts for about 40 per cent of the gross value of agricultural production; more than half in developed countries, and almost a third in developing countries (FAO 2000). The importance of dairying in a country like India hardly needs emphasizing. India has vast resources of livestock, which play an important role in the national economy and also in the socio-economic development of millions of rural households.¹

Finally, Dairying is a very significant sector to generate employment with lower unit cost of employment for the target groups of the rural India. For example it is found that one rupee investment in the dairy sector could generate three rupees.

According to the research topic, we are more concerned with milk-producer’s co-operative societies and their federation which is also co-operative society. So let us first have a view of the co-operative and co-operative movement itself.
1.2 OVERVIEW OF CO-OPERATIVE SECTOR

1.2.1 CONCEPT OF CO-OPERATIVE

Since the times human-beings started sharing the common pursuits of life, the concept of co-operation emerged as a strong instrument of interlinking and living people together. The co-operation in the modern form took birth during the industrial revolution when working class felt exploited and helpless. Today, the co-operation occupies a vital position as a form of organization in all the countries of the world. It is rightly remarked that co-operation is perhaps more widely distributed geographically than any other modern form of organization. The co-operative are the best instruments for improving the socio-economic lot of poor people in general and uplifting them to the standards of the main stream of national life. Before the defined definition of co-operation first know the origin of word co-operation.²

The term co-operation is derived from the Latin word ‘cooperari’, where the word co means ‘with’ and operari means ‘to work’. Thus, co-operation means working together. So those who want to work together with some common economic objective can form a society which is termed as “co-operative society”. It works on the principle of self-help as well as mutual help.

Co-operation has been defined in slightly different ways in various sciences and by various scholars. This is due to its flexible nature which can lend itself to a variety of purposes, and adapt itself to widely divergent economic and social systems. In order to have a thorough understanding of the concept, some well-known definitions are discussed below:

“A co-operative is an autonomous association of persons united voluntarily to meet their common needs like economical, social and cultural needs and aspirations through jointly owned and democratically controlled enterprises.”

According to Hubert Calvert:“Co-operation is a form of organization wherein persons voluntarily associate together as human beings on a basis of equality, for the promotion of economic interests of themselves.”

2
According to C. R. Fay, another protagonist: “A co-operative society is an association for the purpose of joint trading, originating among the weak and conducted always in an unselfish spirit, on such terms that all who are prepared to assume the duties of membership may share in its rewards in proportion to the degree in which they make use of their association.”

From the above definition it may be conclude that co-operation has been defined in different ways to suit the individual requirements of a country. However, the above definitions indicate the basic principles of co-operation essential for the movement. They are enumerated as below.

1.2.2 CO-OPERATIVE PRINCIPLES

The needs of co-operation various type various countries according to different historical circumstances and difference environments. There has been something common which has held them together through the times. The co-operative principle has provided the common atmosphere.

International Co-operative Alliance (ICA) reviewed the Co-operative Principles, three times in the years 1937, 1966 and 1995. These reviews modernized the idea of Co-operation, maintained its relevance and provided an up-to-date test of whether an organization qualified to call itself a co-operative. In the year 1966, ICA attempted to make a statement on Co-operative identity which included a formal definition, explained the core values and also brought out the essence and traditions of co-operatives enshrined in the Principles of Co-operation. After considering and analyzing the traditional principles, ICA adopted the following principles which are considered as essential to the genuine and effective co-operative practices today. These principles are discussed below:

1. Voluntary and Open Membership

Co-operatives are voluntary organizations, open to all people able to use its services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination
2. Democratic Member Control
Co-operatives are democratic organizations controlled by their members those who buy the goods or use the services of the co-operative who actively participate in setting policies and making decisions.

3. Members' Economic Participation
Members contribute equally to, and democratically control, the capital of the co-operative. This benefits members in proportion to the business they conduct with the co-operative rather than on the capital invested.

4. Autonomy and Independence
Co-operatives are autonomous, self-help organizations controlled by their members. If the co-operative enters into agreements with other organizations or raises capital from external sources, it is done so based on terms that ensure democratic control by the members and maintains the co-operatives autonomy.

5. Education, Training and Information
Co-operatives provide education and training for members, elected representatives, managers and employees so they can contribute effectively to the development of their co-operative. Members also inform the general public about the nature and benefits of co-operatives.

6. Co-operation among Co-operatives
Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures.

7. Concern for Community
While focusing on member needs, co-operatives work for the sustainable development of communities through policies and programs accepted by the members.
1.2.3 SIGNIFICATION OF CO-OPERATION

The importance of co-operatives in India was largely due to certain insufficiencies in the functioning of private enterprise as well as public enterprise in certain sectors of development. With the primary aim of making maximum profits, private enterprises were not much attached with social justice, self-reliance and a balanced development. It was unable to undertake the development of neglected sectors which had low investment returns on capital. The private sector emphasized on the concentration of wealth in few hands. Similarly, in the developing country like India, the public sector organizations, which were set-up to stop the concentration of wealth in few hands and to augment resources for economic growth of the country, could achieve tangible results in only a limited number of sectors.

Because of the above limitations of private and public sectors, the administrators and the planners felt that co-operatives could play a very useful role in certain fields of productive activities, distribution of goods and services and allied activities. Henceforth, associations of the workers themselves should operate “useless exploiters”. Co-operative mainly aims at flow of ownership and participative dedication making. This aim shows the values of democracy and socialism. Keeping the infrastructure of India in view, it is noticed by Jawaharlal Nehru that co-operatives are not omitted a free choice but also a necessity. The co-operative sector supports integrated rural development to raise the standard of living of people. Co-operative can contribute to the raising of agricultural production through supplies of credit, marketing, services facilities and the processing of the agricultural commodities.

Moreover, it gives wide employment opportunities through labour intensive activities like day forms, poultry forms, fisheries, weaving, piggeries and rural industries, co-operative organization like “to the people, for the people and by the people” would certainly have to play an important role.

Dairy Co-operatives are more potent than the other types of co-operatives because they give triple benefit like rural employment supply men-terry to small and marginal at farmers and equitable distribution of income or nutritive food. Dairy co-operatives
provide not only inputs at reasonable price but milk process and market milk and milk products at remunerative prices so as to free the farmers from the clutches of the middlemen. The present study is an outcome of co-operative dairies of Gujarat state.

1.2.4 VARIOUS TYPES OF CO-OPERATIVES

➢ AGRICULTURE CREDIT SOCIETY

India is an agricultural Country and Majority depends upon the weather. Agriculture is an important field in the developing countries like India. Its development helps in decreasing poverty creating employment and getting prosperity in the entire country especially in the rural region. So, co-operative credit structure has helped in the economic and social development of the country and has been the instrument for “Green Revolution”.

India has three tier structure of agricultural credit. At apex level, there are state co-operative Banks with District co-operative Banks. And at the bottom level, primary Agricultural co-operative societies (PACS) are working. These are the service co-operatives and multipurpose co-operatives. Farmer service co-operatives (F.S.C.) and Large sized multipurpose co-operatives. (LAMPS) are also in action in Adivasi areas of the country for the upliftment of their standard of living. These co-operatives provide short term and medium term credit to them. While for long term credit, there are state level Agriculture and Rural Development Banks. This credit loan is given for production purpose as well as for ancillary activities such as poultry, fisheries, rural craftsmen etc.

At the national level National Federation of state co-operative Banks Ltd. (Mumbai) was set up in the year 1965. It helps to save the interests of the state co-operative Banks and to improve their banking activities. In reference to that, the central Government in collaboration with Reserve Bank of India (RBI) has started the NABARD in the year 1981. It is the apex organization which looks after all the finance activities of the credit co-operative societies working in India.
NON-AGRICULTURAL CREDIT

Urban Co-operative Banks

Urban co-operative Banks are self-sufficient, self-reliant and contented. These banks which are the only co-operative Institutions have neither the equity nor take any type of financial help from the Government. So, it can be stated that the Urban Banks are the common man’s bank. These banks provide finance to their members who are the main persons of limited means such as retail traders transport operators, salaried persons, self-employed small business, small scale industry owner etc.

Employees Co-operatives Societies

The workers or employees can get credit for their various needs from this type of co-operative Society credit co-operative societies and Employees co-operative societies are working on a large scale in India. Simply, then should be member of such co-operative societies and they can get credit on a lower rate of interest from them.

Agricultural Marketing

The co-operative Marketing structure is of 3 tier or 4 tier for different types of marketing activities. At the state level, there is a one marketing federation. And there are commodity wise different federation like cotton, vegetables, milk, poultry, fisheries, oil seeds, food grains, fruits, salt, tobacco etc. majority of these federations are in action in distributing the agricultural inputs. Some of these are engaged in processing activities also. Then, at District and Taluka level, there are purchase and sale unions dealing with the state level marketing federation, and at the grass root level, primary level marketing co-operative dealing with district or Taluka level union.

Marketing co-operatives are the most powerful organizations to help small farmers in improving their financial position through increased food production, collective bargaining and orderly marketing, with the supply of chemical fertilizer, improved variety of seeds, pesticides and other production requested they have stably increased and converted their operations to marketing of agricultural produce and distribution of
consumer items in the rural regions. They are also doing a complementary role in the price support measures adopted by the Government.

At national level, there is an apex body which is known as National co-operative marketing federation. Its head quarter is at Delhi and it works for the benefit of Farmers with the help of their branches. In this reference, in the year 1963, National co-operative Development Corporation (NCDC) was set up by the Government of India. It constructs warehouses for storage of agricultural produce.

➤ PROCESSING CO-OPERATIVES

It is quite certain that if the farmers want to get sufficient prices for their product, they should establish processing co-operatives to convert their production into finished goods. Such processing co-operatives can be described as under:

❖ Dairy Co-operatives

India is basically an agricultural country and depends upon the weather. So, animal husbandry and Dairying are helpful as a supplement to the agriculture farmers, milk producers can protect their right from exploitation by making the milk co-operative society. Moreover, the production of individual farmer is extremely small and so it has to be marketed. Before the advent of “Amul”, there was no organized marketing for milk in India. But with the birth of “Amul Dairy” Anand in 1946, the co-operative Revolution comes into the action. And finally, it emerges as “White Revolution”. In its initial stage, about 250 liters of milk per day was collected through two co-operative societies. It turned today, into annual turnover (2013-14) US$ 3.0 billion of milk, being collected from 17025 village co-operative societies with the help of 3.23 million milk producer members. The main aim is to increase milk production with good quality, procurement, processing, distribution and selling in such a way that it gives sufficient and fair reward to the farmer members-milk producers and good quality milk to the consumers at a lower price.6

There is a 3 tier structure of Dairy Co-operatives for Milk purchase, processing and sale, at the top level, there is a co-operative milk marketing Federation. It works as an apex body with the prime responsibility of marketing the milk and milk products
manufactured by its district level union members. Then, at district level, there are
district unions in action. Their main function is to process the milk which is collected
from the village co-operative societies. They also provide technical input services to
them. And at the bottom level, village level milk co-operative societies are working
which collect milk from the milk producers – farmer members. They are connected
with the district level unions.

Moreover at National level, National co-operative Dairy Federation of India (NCDFI)
has been established at Anand to form the milk co-operatives and to offer financial
and technical assistance to them. The government of India has also set up National
Dairy Development Board (N.D.D.B.) and National co-operative Development
Corporation (NCDC) to support the co-operative culture throughout India based on
“Amul Patten”.

❖ Sugar Co-Operatives

To save the sugar producing farmers from the clutches of middlemen sugar co-
operatives were started as early as in 1930-31 and today, they have done tremendous
progress in the country. Here, it should be pointed out that major part of production of
sugar comes from co-operative sector.

There is a two tier structure of sugar co-operatives viz. primary level sugar co-
operative society and state level sugar co-operative Federation. Primary level sugar
c.co-operative societies collect sugarcanes at reasonable and sufficient price; provide
necessary inputs such as quality seeds pesticides, fertilizer etc., and modern system
and technology. They gave fair reward to farmer members. Make sugar available to
the customers at a fair price and carry out various activities to help weaker people of
the society. While state level Federations are working as an apex body. They provide
financial and technical support to primary societies, face also the problems of sugar
industry and facilitate the smooth working of the societies.
OTHER CO-OPERATIVES

Housing Co-operatives

Every person desires to have a sweet home. But presently the scenario is changed. Due to scarcity of land, rising cost of construction and urbanization, it is not possible to make the house with an individual effort. So, co-operatives sector is the best way for middle class and weaker people of the society. Housing co-operative fulfill their members dreams of sweet home in real sense.

There is a two tier structure of housing co-operatives viz. housing co-operative Federation at state level and primary level housing co-operative societies. State level housing co-operative Federations work as an apex body, they provide financial and technical assistance to the primary co-operative housing societies. And at the grass root level, primary co-operative housing societies are working. They credit loan to their members to fulfill their needs of sweet home in real term. They provide credit facility to their members at lower rate of interest. At national level, National co-operative Housing Federation was established in 1969. The Housing and Urban Development Corporation also gives financial assistance to the housing societies.

Consumer Co-operatives

Consumer co-operatives give the protection to their members against the inflation; eliminate the evils of private market and exploitation. Here, it should be necessary to state that co-operative movement in the world was started in the year 1844 with the consumer co-operatives to give essential commodities at no profit-no loss basis.

There is a three tier structure of consumer co-operatives. At the top level, state level consumer co-operative Federations are working. Then, at district level, wholesale consumer’s co-operative stores are in action. And then, at the bottom level, Urban Primary consumers’ co-operative stores are working. Moreover, some service co-operative societies are working under the public distribution system and some fair price shops are also functioning.
Industrial Co-operatives

Industrial co-operatives come into the picture to give employment to the Aadivasi and other Weaker People of the society in the rural and urban areas. They give the raw Material and other technical inputs to their members for the manufacturing activities on one hand and set the proper channel for marketing the products on the other hand. There is a three tier structure of Industrial co-operatives. At the top level, state level co-operative Industrial Federations are functioning. They are working for the development of the primary level Industrial co-operative societies and for District level unions also. Then, District level Industrial unions are in action. They help in the arrangement of marketing facilities. They also make available raw-material. And at the grass root level, primary industrial co-operative societies are working. They give employment to their members. They also provide facility for manufacturing activities to their members also.

1.2.5 THE GENESIS AND EVOLUTION OF CO-OPERATIVES

A co-operative is a form of organization that is widely prevalent in developing countries including India. It has great potential as an instrument of rural development. Co-operation as an ethical norm has been eulogized all over the world since time immemorial. As a mode of social behavior, it is manifest in countless activities of people performed for the purpose of achieving a common goal. From the philosophical perspective, co-operation and its opposite, competition, are two basic tendencies of human behavior and both co-exist in every individual. Co-operation can emerge under highly diverse situations and accordingly there are several theories, propositions that seek to explain why people do and do not co-operate.

The origin of formal co-operation in the form of a co-operative organization is traced to Europe particularly, England, France and Germany, in the mid-nineteenth century. Robert Owen of England, Charles Fourier of France, and Herr F.W. Raiffeisen and Herr Franz Schulze of Germany are considered as the founding fathers of the modern co-operation. In 1844, a group of people in Rochdale, England, formed the Rochdale Society of Equitable Pioneers to obtain higher wages from their employers and to set
up a co-operative store. The Rochdale Society became the model for similar stores and related enterprises throughout the world. Around the same time, Fourier established phalanxes in France and Raiffeisen and Schulze pioneered and implemented the idea of co-operative banks in Germany. Subsequently, in other European countries also, co-operatives emerged primarily as people’s response to their exploitation by moneylenders and traders. With the emergence of co-operative movement in Europe, the International Co-operative Alliance (ICA) was established in 1895. Its main responsibility was to co-ordinate the activities of affiliated co-operative federations in various parts of the world. Establishment of communism in USSR and subsequently in other countries was instrumental in promoting government directed co-operatives.

Some co-operatives failed and some others succeeded. Despite their failures and weaknesses, co-operatives have survived over time and now control significant shares of markets in many developed and developing countries including market-oriented economies.⁷

In most developing countries including India, co-operatives were promoted by their governments as instruments of rural development. In India, thanks to the British legacy, the co-operative form of organization was born in 1904 consequent upon the enactment of the Co-operative Credit Societies Act. Subsequently, a more comprehensive act, the Co-operative Societies Act, was enacted in 1912. This Act provided, inter alia, for the creation of the post of Registrar of Co-operative Societies, registration of co-operative societies for various purposes, and audit. Under the Montague-Chelmsford Reforms effected in 1919, co-operation became a Provincial Subject and the provinces were authorized to make their own co-operative laws. Under the Government of India Act 1935, co-operative societies were treated as a State Subject. In order to facilitate the establishment of co-operatives having membership from more than one Province, the Government of India enacted the Multi-Unit Co-operative Societies Act, 1942. Later a more comprehensive Central legislation, the Multi-State Co-operative Societies Act, 1984, was enacted by
Parliament with a view to consolidate different laws governing the same types of co-operative societies.

After India attained Independence in August 1947, co-operatives assumed greater significance as an instrument of socio-economic development and became an integral part of India’s Five Year Plans. The All India Rural Credit Survey Committee Report, 1954 recommended an integrated approach to co-operative credit and emphasized the need for viable credit co-operative societies by enlarging their area of operation, encouraging rural savings, and diversifying their business. The Committee also recommended that the government should contribute to the share capital of the co-operatives. In 1958, the National Development Council (NDC) adopted a Resolution on National Policy on Co-operatives. Subsequently, in January 1959, the Working Group on Co-operative Policy set up by the Ministry of Food and Agriculture, Government of India, recommended a blueprint for implementing the NDC’s Resolution. The Government of India has since provided massive financial, technical and administrative support to co-operatives both directly and indirectly through State governments.

India recently celebrated the centenary of the establishment of co-operatives in the country. The first of these societies were started on the initiative of colonial officials essentially as the best way of enabling farmers to get out of the clutches of usurious moneylenders seen as the major cause of widespread rural poverty. Gradually, the scope got extended beyond agricultural credit to cover numerous other activities including production, finance, marketing and processing in a wide range of sectors, as well as trading of several important farm products, consumer stores and housing. The scale of operations of co-operatives in India has grown enormously in these one hundred years.

In 1951 the country, it is reported, had 1,81,000 co-operatives of all kinds with a total membership of 15.5 million. In 2007-08, according to the National Co-operative Union of India, there were some 1,50,000 primary credit co-operatives with a membership of 180 million, which disbursed over Rs 2,000 billion in that year. There were some 2,60,000 non-credit primary societies of all types with a reported
membership of nearly 250 million and an annual turnover in 2004-05 of approximately Rs 700 billion.\textsuperscript{8}

The expansion in the scope and reach of co-operatives as a whole and in the volume of their activity is impressive. But the process has been highly uneven across activities and regions. Its growth has been, and continues to be, driven by government actions rather than as a mass grass-roots movement motivated by the basic ethos and spirit of co-operative enterprise. The manners in which they are organized and function are not conducive to efficient and prudent use of the vast resources at their disposal. Mechanisms to ensure accountability for efficient conduct of business and for benefiting sections of the population that they are expected to provide to are weak and ineffective. With few significant exceptions, their finances are in a chronic state of sickness and prone to recurrent crises.

\textbf{1.2.6 OVER VIEW OF CO-OPERATIVES AROUND THE WORLD}

Co-operatives are a major economic force in developed countries and a powerful business model in developing ones, according to the International Co-operative Alliance.\textsuperscript{9}
Worldwide more than 1 billion people are members of co-operatives.

Co-operatives provide 100 million jobs worldwide, 20% more than multinational enterprises.

The economic activity of the largest 300 co-operatives in the world equals the 10th largest national economy.

In India and China combined, more than 400 million people are part of co-operatives.

In Germany and the United States, one in four people are co-operative members while in Canada that number is four in 10.

In Japan, 1 out of every 3 families is a member of co-operatives.

In Indonesia, co-operatives provide jobs to 2,88,589 individuals.

In Kenya, 250,000 people are employed by co-operatives.

Canadian maple sugar co-operatives produce 35% of the world's maple sugar production.

In Colombia, the 8,124 co-operatives were responsible for 4.96% of the GDP in 2009. They employ over 1,37,888 people - 46% of which are men and 54% women.
In Kenya, co-operatives are responsible for 45% of the GDP and 31% of national savings and deposits. They have 70% of the coffee market, 76% dairy, 90% pyrethrum, and 95% of cotton.

In Poland, dairy co-operatives are responsible for 75% of dairy production.

In the UK, the largest independent travel agency is a co-operative.

In Vietnam, co-operatives contribute 8.6% of the Gross Domestic Product (GDP).

Costa Rica counts over 10% of its population as members of co-operatives.

In Germany, 20 million people are members of co-operatives, 1 out of 4 people.

In Singapore, 50% of the population (1.6 million people) are members of a co-operative.

Around the world modern co-operatives have developed for over 200 years.

1.2.7 GROWTH OF CO-OPERATIVE SECTOR IN INDIA

India has basically an agrarian economy with 72% of its total population residing in rural areas. The rural people need lot of services in daily life which are met by village co-operative societies. The seeds of co-operation in India were sown in 1904 when the first Co-operative Societies Act was passed. Since then, the co-operative movement has made significant progress. Co-operatives have extended across the entire country. The co-operative credit system of India has the largest network in the world and co-operatives have advanced more credit in the Indian agricultural sector than commercial banks. The village co-operative societies provide strategic inputs for the agricultural sector, consumer societies farmer to get remunerative prices and co-operative processing units help in value additions to the raw products etc. In addition, co-operative societies are helping in building up of storage go-downs including cold storages, rural roads and in providing facilities like irrigation, electricity, transport and health. Various development activities in agriculture, small industry marketing and processing, distribution and supplies are now carried on through co-operatives. In fertilizer production and distribution the Indian Farmers Fertilizer Co-operative (IFFCO) commands over 35 percent of the market. In the production of sugar the co-
operative share of the market is over 58 percent and in the marketing and distribution of cotton they have a share of around 60 percent. The co-operative sector accounts for 55 percent of the looms in the hand-weaving sector. Co-operatives process, market and distribute 50 percent of edible oils. Dairy co-operatives operating under the leadership of the National Dairy Development Board and through 17 state co-operative milk marketing federations has now become the largest producer of milk in the world. The groundwork for this was laid in the early 1970's when the largest dairy development programmed in the world Operation Flood - was launched. Operation Flood was a national marketing strategy linked to a dairy infrastructure development programmed that created a chain of dairy processing plants, collection stations and a national milk transportation grid. With the passage of the Insurance Act, co-operatives have been allowed to entry into the insurance business. Insurance is a field where the immense potential of co-operatives still remains untapped. The Indian Farmers Fertilizer Co-operative has recently teamed up with a Japanese company and formed a joint venture for undertaking general insurance business in India. This signifies that Indian co-operatives have come of age in formulating strategic alliances.

Thus the co-operative societies in India in fact are playing multi-functional roles both in rural and urban areas. An Expert Group constituted by the Government of India in 1990 recommended i) to facilitate building up of integrated co-operative structure; ii) to make the co-operative federation organizations responsive towards their members; iii) to minimize government interference and control in the functioning of co-operatives and iv) to eliminate politicization from the co-operative sector. Based on the recommendations, the central government enacted the Multi State Co-operative Societies Act, 2002 which provided for democratic and autonomous working of the Co-operatives, which came into force with effect from August 19, 2002. Various development activities in agriculture, small industry marketing and processing, distribution and supplies are now carried on through co-operatives. The co-operatives in India have made an all-round progress and their role in, and contribution to agricultural progress has particularly been significant.
1.2.8 CO-OPERATIVE MOVEMENT IN INDIA

Co-operation is as old as humanity and co-operation is older than the co-operative movement. The co-operative movement is only one example of human co-operation among others. The co-operative movement brought overall improvement in the economic condition of its members. In other word, Co-operative movement explain as a “Voluntary movement of the people, carried out democratically by pooling together their resources or carrying on the given activity, with the purpose of achieving or securing certain benefits or advantage which given to people cannot get individually and with the purpose of promoting certain virtue and values such as self help, mutual help and general goods of all.”

According to E.R. Bowen, “Co-operation is the universal instrument of creation.” The history of co-operative movement in India is about a century old. The movement was started in India with a view to encourage and promote thrift and mutual help for the development of persons of small means such as agriculturists, artisans and other segments of the society. It was also aimed at concentrating the efforts in releasing the exploited classes out of the clutches of the money lenders.

After independence first 3 years i.e. up to no significant development could be made. It was mainly due to the problem created by partition and absence of concrete programme for national re-organization. However, the leaders of free India could the importance of co-operative movement for a successful democracy importance was given to strengthen co-operative structure of country and various provisions were made through different Five Year Plan.

❖ CO-OPERATIVE MOVEMENT IN PLANNED ECONOMY

After India attained Independence in 1947, co-operative development received a boost, with co-operatives being given a vital role in the various plans formulated by the Planning Commission. Indian planners considered co-operation as an instrument of economic development particularly in the rural areas. India adopted a socialistic pattern and pursued the policy of a mixed economy with features of both capitalism
and socialism. The Planning Commission which was established in 1950 set the social and economical targets based on equity and justice.  

1. The First Five Year Plan (1951-56): 

Outlined in detail the vision of the co-operative movement in India and the rationale for emphasizing Co-operatives and Panchayats as preferred organizations for economic and political development. It recognized co-operation as an instrument of planned economic action in democracy. The Plan emphasized the adoption of the co-operative method of organization to cover all aspects of community development. It provided for setting up of urban co-operative banks, industrial co-operatives of workers, consumer co-operatives, housing co-operatives, diffusion of knowledge through co-operative training and education and recommended that every government department follow the policy of building up co-operatives. In 1953, the Government of India and the Reserve Bank jointly constituted a Central Committee for Co-operative Training to establish necessary training facilities for co-operative personnel. The plan set for the provisions of co-operative credit thus; Short term loan Rs.100 crore, Medium term loans Rs.25 crore and Long term loan Rs.5 crore.

2. The Second Five-Year Plan (1956-1961): 

Emphasized “building up a co-operative sector as part of a scheme of planned development” as being one of the central aims of National Policy. It aimed at enabling co-operatives to increasingly become the principal basis for organization of economic activity. The Plan drew up programmes of co-operative development based on the recommendations of the All India Rural Credit Survey Committee (AIRCS). It was envisaged that every family in a village should be a member of at least one co-operative society. Linking of credit and non-credit societies to provide better services to the farmers was also targeted. The Plan recommended the establishment of a National Agricultural Credit Long-term Operations Fund. The Industrial Policy Resolution of 1956 emphasized the need for State assistance to enterprises, organized on a co-operative basis for industrial and agricultural purposes, and “to build up a large and growing co-operative sector”. Co-operative marketing and processing of
agricultural produce formed an important part of the Integrated Scheme of Co-operative Development in the Second Plan. About 1900 primary marketing societies were set up and State Marketing Federations were established in all the States, as well as the National Co-operative Marketing Federation at the Centre. A sum of Rs.52 crore was earmarked in the plan for the implementation of the schemes. Besides, the RBI was also provided money to strengthen the capital structure of co-operatives.

3. The Third Five Year Plan (1961-1969):

Stressed that “Co-operation should become, progressively, the principal basis of organization in branches of economic life, notably agriculture, minor irrigation, small industries and processing, marketing, distribution, rural electrification, housing and construction and provision of essential amenities for local communities. Even the medium and large industries and in transport an increasing range of activities can be undertaken on co-operative lines.” The Agricultural Refinance Corporation was set up in 1962 by the Government of India to provide long-term loans to co-operatives, through Central Land Mortgage Banks. In 1963, the National Co-operative Development Corporation (NCDC) was established as a statutory corporation by an Act of Parliament. The main provision in the Plan was to cover all the villages and 60 percent of the agricultural population by 1965-66; to revitalize Primary Agricultural Societies to make them economically viable, to develop Co-operative Marketing Processing and link credit with marketing; to develop non-credit co-operatives; to strengthen co-operative personnel at all levels; and to provide Rs.530 crore for short and medium term credit; and Rs.150 crore for long term credit during the plan period. A provision of Rs.80 crore was made for the development of co-operation.


Gave high priority to the re-organization of co-operatives to make co-operative short-term and medium-term structure viable. It also made necessary provisions to provide co-operatives with management subsidy and share capital contribution, as well as for the rehabilitation of Central Co-operative Banks. It also emphasized the need to orient policies in favour of small cultivators. The Mirdha Committee in 1965 laid down
standards to determine the genuineness of co-operative societies and suggest measures to weed out non genuine societies; to review the existing co-operative laws and practices to eliminate vested interest. The recommendations of the Committee resulted in amendments in the co-operative legislation in most states, which destroyed the autonomous and democratic character of co-operatives.

5. The Fifth Five Year Plan (1974-1979):

Took note of the high level of over-dues. In its recommended strategy for co-operative development, the correction of regional imbalances and reorienting the co-operatives towards the underprivileged was to receive special attention. Based on the recommendations of an Expert Group appointed by the Planning Commission in 1972, structural reform of the co-operative set-up was envisaged. The Plan recommended the formulation of Farmers Services Co-operative Societies as had been envisaged by the National Commission on Agriculture and stressed the need for professional management of co-operatives. The major objective of the Fifth Plan was to build up a storage and viable co-operative sector with special emphasis on the need of cultivators, workers and consumers. The co-operative development has four specific objectives, viz. to strengthen the network of agriculture co-operative credit, supply, marketing and processing so as to bring about agricultural development.

6. The Sixth Five Year Plan (1979-1985):

Emphasized the importance of co-operative efforts being more systematically directed towards ameliorating the economic conditions of the rural poor. The Plan recommended steps for re-organizing Primary Agricultural Credit Societies into strong and viable multipurpose units. It also suggested strengthening the linkages between consumer and marketing co-operatives. Consolidation of the role of Co-operative Federal Organizations, strengthening development of dairy, fishery and minor irrigation co-operatives, manpower development in small and medium co-operatives were some of the planned programmes. The National Bank for Agriculture and Rural Development (NABARD) Act was passed in 1981 and NABARD was set up to provide re-finance support to Co-operative Banks and to supplement the
resources of Commercial Banks and Regional Rural Banks to enhance credit flow to the agriculture and rural sector. With the objective of introducing a comprehensive central legislation to facilitate the organization and functioning of genuine multi-state societies and to bring uniformity in their administration and management, the MSCS Act of 1984 was enacted.

7. The Seventh Five Year Plan (1985-1990):

Pointed out that while there had been all round progress in credit, poor recovery of loans and high level of over dues were matters of concern. The Plan recommended amongst others development of Primary Agricultural Credit Societies as multiple viable units; realignment of policies and procedures to expand flow of credit and ensure inputs and services particularly to weaker sections; special programmes for the North Eastern Region; strengthening of consumer co-operative movement in urban as well as rural areas and promoting professional management. For the agriculture and rural development the seventh plan provided Rs.22233 Crore (12.4 Percent of Plan outlay). The opening up of the economy in 1990, and the liberalized economic policies followed by the government since then, led to increasing pressures for various governments, state and central, to bring about changes that would provide co-operatives a level playing field to compete with the private sector.

8. The Eighth Five Year Plan (1992-97):

Emphasized the need to follow the Narsimham committee report and tried to make co-operative banking more strong. It was formulated when the country was passing through difficult circumstances, viz.-drastic curbs on imports, high rate of inflation and recession in industry. The Eighth Plan laid emphasis on building up the co-operative movement as a self-managed, self-regulated and self-reliant institutional set-up, by giving it more autonomy and democratizing the movement. It also spoke of enhancing the capability of co-operatives for improving economic activity and creating employment opportunities for small farmers, laborers, artisans, scheduled castes, scheduled tribes and women and emphasized development and training of co-operative functionaries in professional management.

Onwards, there has been no specific mention about co-operatives as a part of the Plan. The Multi-State Co-operative Societies (MSCS) Act, enacted in 1984, was modified in 2002, in keeping with the spirit of the Model Co-operatives Act. The Ninth Plan put a targeted annual growth rate of 4.7 percent, in order to achieve the objective of removing the incidence of poverty and unemployment and ensuring food and nutritional security. The targeted growth rate of agricultural output was expected to reach at 3.82 percent per annum and that of agriculture at 4.5 percent and co-operatives expected to contribute optimum level in sustaining economy. In 2002, the Government of India enunciated a National Co-operative Policy. The objective of the Policy is to facilitate an all round development of co-operatives in the country. The policy promises to provide co-operatives with the necessary support, encouragement and assistance, to ensure their functioning as autonomous, self-reliant and democratically managed institutions, accountable to their members, and making a significant contribution to the national economy.

10. The Tenth Five Year Plan (2002-2007):

To achieve high-targeted annual agricultural growth rate and export, massive expansion and up gradation of agricultural marketing, storage and distribution infrastructure are given priority. Facilities for packaging, grading, and certification of agricultural commodities and development of future agricultural markets would be given special attention with adequate funds. To nurse the rural co-operative credit system back to health, to ensure that the rural credit doubled over three years and that the coverage of small and marginal farmers by institutional lending was expanded substantially, the Government of India in August 2004 set up a Task Force to suggest an action plan for reviving rural co-operative credit institutions and legal measures necessary for facilitating this process.


During the Eleventh Five Year Plan many important schemes, especially in co-operative credit sector, computerization, human resource development and public
awareness were formulated and implemented to facilitate the public in general, especially the farmers.

12. The Twelfth Five Year Plan (2012-2017):

Revitalization of PACS/LAMPS and ensuring their viability and profitability with a view to making them financially strong to provide greater assistance of rural credit to the farmers by increasing their loan business and increasing the resource base through mobilization of rural small savings. Encourage micro credit groups and women co-operatives to inculcate the habit of small savings in the rural areas as a sub system of co-operatives. The co-operative credit institutions are required to function as facilitators for linking these small groups and women co-operatives with credit institutions.

1.2.9 CO-OPERATION AND CO-OPERATIVE MOVEMENT IN GUJARAT

The co-operative movement in Gujarat is similar to the mild Dairy co-operative movement of Gujarat. Due to the exploitation of the middlemen called the “Bhatiya”, the farmers decided to form their own association to save their interest. So, the first co-operative society was started in 1939 in Surat and that was the beginning of new era of co-operative Movement in Gujarat. Before the birth of Amul Dairy, Anand, there was no systematic marketing for milk in Gujarat and in India also and then, with the birth of “Amul” in 1946, the co-operative movement began as a revolution and then it emerged as a “White Revolution”. And in this reference, further it is described.

1.3 DAIRY DEVELOPMENT IN INDIA

1.3.1 INTRODUCTION

From the time immemorial, the cow has been regarded as the ‘sacred mother’ in India and hence, the name ‘Kamadhenu’ (the bestowed of every wish) is used for the celestial cow. In the Rigveda it is started that cow is the mother of Rudras and in the Mahabharata also cow is described as the mother of all beings. The cow word is considered to be the greatest all over the worlds and Shri Krishna is the Lord of that World. So it is considered to be an empty house in which there is not even a single
cow. Even from the pri-vedic period, cows were a valuable Asset for the Aryans. In the Rigveda times and before, cattle rearing was said to be the predominant occupation of primitive races. Since Rigveda times, the milk of the cow and its bye-products have been held highly use full for the human subsistence. It is a very healthy food, nutritive and hygienic and gives energy, health and strength. In early days cows were tamed but, thereafter other animals like buffalo, goat and sheep etc. were also tamed domestic animal and used for milk purposes.

In the early days, these milch animals were domesticated for the fulfillment of household’s needs and purposes, but with the passage of time, growth of population and development of business and commerce, people started using these animals as a source of their earning. In the first instance, the surplus milk was collected, stored and out in the open market with a limited number of persons, but these activities gradually swelled and assumed a complete form of business. Until 1850, a very little change took place in the method of producing milk and milk products and people used to produce and sell them on a small-scale basis. These operations, in the beginning were conducted in the form of ‘dairy farming’ and were regarded as a part of agriculture. However the activities were not carried on any scientific lines nor were they taken as an industry. People generally used to live in agricultural farms and kept their animals there. Families depended mostly upon their own cattle for the supply of milk. Gradually, people started supplying milk over regular in the nearby places within easy driving distance. Because of inadequate transportation facilities, the area of coverage was limited. Actually, the period prior to 1850 was a primitive period for the ‘dairy industry’ and the stage was set for running the industry on modern and more scientific lines.

The actual beginning of modern dairy has been in the middle of the nineteenth century. Significant changes in the structure of dairy have been marked during the past hundred years or so. However, it was in the second quarter of the twentieth century that the creamery, ice-cream factory, fluid-milk bottling plant, and dry-milk plant were established and dairying was run on modern lines and dairying assumed a form of full-fledged industry.
1.3.2 DAIRYING PRIOR TO OPERATION FLOOD

The earliest attempts at dairy development can be traced back to British rule, when the Defence Department established military dairy farms to ensure the supply of milk and butter to the colonial army. The first of these farms was set up in Allahabad in 1913; subsequent facilities were established at Bangalore and Karnal. These farms were well maintained and, even in the early stages, improved milch animals were raised. As animals were reared under farm conditions, some herd improvement was made using artificial insemination. This approach did not have any impact on the supply of milk to urban consumers, which was of major concern to civilian authorities but less important to the military.

With the growth of the population in urban areas, consumers had to depend on milk vendors who kept cattle in these areas and sold their milk, often door-to-door. As a result, several cattle sheds came into existence in different cities. This was not an environmentally sound approach. As the main objective of the milk vendors was to maximize profit, they started increasing the lactation period by using the focus system. In the process, these high-yielding cattle developed sterility problems, which considerably reduced the number of carvings. Once the cattle became unproductive, they were sold to slaughter houses. This practice systematically drained the country of its genetically superior breeds.

To some extent, the Second World War gave impetus to private dairies with modestly modernized processing facilities. In the cities of Bombay, Calcutta, Madras and Delhi, and even in some large townships, processed milk, table butter and ice-cream were available, though not on a large scale. Polsons, Keventers and the Express Dairy were some of the pioneer urban processing dairies. These dairies were not concerned with improving the breed of milch animals reared in rural pockets but instead were content with contracting milk supplies through middlemen or their own staff. Milk producers as well as consumers were exploited. These early modern systems did not bring about significant shifts in milk production, nor did they develop quality milch animals. To a large extent, despite modernized processing facilities, dairying remained unorganized.
With the initiation of India's first Five-Year Plan in 1951, modernization of the dairy industry became a priority for the government. The goal was to provide hygienic milk to the country's growing urban population. Initial government action in this regard consisted of organizing "milk schemes" in large cities. To stimulate milk production, the government implemented the Integrated Cattle Development Project (ICDP) and the Key Village Scheme (KVS), among other similar programmes. In the absence of a stable and remunerative market for milk producers, however, milk production remained more or less stagnant. During the two decades between 1951 and 1970, the growth rate in milk production was barely one percent per annum, while per capita milk consumption declined by an equivalent amount.

During the 1960s, various state governments tried out different strategies to develop dairying, including establishing dairies run by their own departments, setting up cattle colonies in urban areas and organizing milk schemes. Almost invariably, dairy processing plants were built in cities rather than in the milk sheds where milk was produced. This urban orientation to milk production led to the establishment of cattle colonies in Bombay, Calcutta and Madras. These government projects had extreme difficulties in organizing rural milk procurement and running milk schemes economically, yet none concentrated on creating an organized system for procurement of milk, which was left to contractors and middlemen. Milk's perishable nature and relative scarcity gave the milk vendors leverage, which they used to considerable advantage. This left government-run dairy plants to use large quantities of relatively cheap, commercially imported milk powder. The daily per capita availability of milk dropped to a mere 107 gm during this time. High-fat buffalo milk was extended with imported milk powder to bring down the milk price, which resulted in a decline in domestic milk production. As the government dairies were meeting barely one-third of the urban demand, the queues of consumers became longer while the rural milk producer was left in the clutches of the trader and the moneylender.13

All these factors combined left Indian dairying in a most unsatisfactory low-level stability. The establishment and prevalence of cattle colonies emerged as a curse for dairying in the rural hinterland as it resulted in a major genetic drain on the rural
milch animal population, which would never be replaced. City dairy colonies also contributed to environmental degradation, while the rural producer saw little reason to increase production.

1.3.3 OPERATION FLOOD PROGRAMMES

Operation Flood (OF), the world’s largest dairy development programme ever undertaken, aims at setting up of a modern dairy industry to meet India’s rapidly increasing need for milk and its products and making it viable and self-sustaining growth. The project undertook the huge task of upgrading and modernizing production, processing and marketing of milk with the assistance provided by the World Food Programme (WFP). The aim was to create a “Flood” of rurally produced milk, assuring the farmer of remunerative price and ready market, and the urban consumer of whole some milk at stable and reasonable prices by linking the main producing areas to the main consuming centers in urban areas.

OPERATION FLOOD-I (1970-81):

The programme laid emphasis on setting up of “Anand Pattern” rural milk producers’ co-operative organizations to procure process and market milk and to provide some of the essential technical input services for increasing milk production. OF-I was launched in 1970, following an agreement with the WFP, which undertook to provide 126,000 tonnes of Skim Milk Powder (SMP) and 42,000 tonnes of Butter Oil (BO) as aid for financing the programme. The programme involved organizing dairy co-operatives at the village level, providing the physical and institutional infrastructure for milk procurement, processing, marketing enhancing services at the union level and establishing of city dairies. The main thrust was to set up dairy co-operatives in the milk sheds, so as to link them to the four metro cities of Mumbai, Calcutta, Delhi and Chennai, in which a commanding share of the milk markets was to be captured. The overall objective of Operation Flood-I was to lay the foundation of a modern dairy industry in India which would adequately meet the country's need for milk and milk products. Funds for Operation Flood-I were generated by the sale of SMP and Butter Oil. A total of Rs. 116.54 crore was invested in the implementation of the programme.
By the end of OF-I about 13,300 DCS, 39 milk sheds were organized, enrolling 18 lakh farmer members. It achieved a peak milk procurement of 34 lakh liters per day (llpd) and marketing of 28 llpd.

**OPERATION FLOOD-II (1981-85):**

The background of the institutional framework of OF-II essentially comprised of the successful replication of the Anand Pattern three-tier co-operative structure of societies, unions and federations. OF-II was designed to build on the foundation already laid by OF-I and the Indian Dairy Association (IDA) assisted dairy development projects in Karnataka, Rajasthan and Madhya Pradesh. The programme was approved by the Government of India, for implementation during the Sixth-plan period, with an outlay of Rs.273 Crores. About US $ 150 million were provided by the World Bank and the balance in the form of commodity assistance from the European Economic Community (EEC). OF-II helped to market milk in about 148 cities and towns with a total population of 15 million through a national milk grid, linking these towns and cities to 136 rural milk sheds. The project was extended Crores 34500 village co-operative societies, covering 36 lakh farmer members. The peak milk procurement increased to a level of 79 llpd and milk marketing to50 llpd.

**OPERATION FLOOD-III (1985-2002):**

The third phase aimed at consolidation of the gains of earlier two phases. The main focus of the programme was on achieving financial viability of the milk union state federations and adopting the salient institutional characteristics of the “Anand Pattern” co-operatives. The OF-III programme was funded by a World Bank with a loan of US $ 365 millions, Rs.222.6 Crores of Food-Aid (75,000 tonnes of milk powder and 75,000 tonnes of butter/butter oil) by the EEC and Rs. 207.7crores by NDDB from its own resources. The programme covered some 170 milk sheds of two countries by organizing 70,000 primary dairy co-operative societies. The World Bank granted provisional extension of OF-III credit up to April 30, 1996. Its major emphasis was to consolidate the achievements gained during the earlier phases by improving the productivity and efficiency of the co-operative dairy sector.
and its institutional base for its long-term sustainability. Investments in OF-III were focused on strengthening the institutional management aspect of dairy co-operatives at various levels to establish financially strong, farmer owned and managed organization.

The OF-III also had provision for productivity enhancement inputs and institutional strengthening in the form of training, research, market promotion, monitoring and evaluation. Particular emphasis was placed on institutional and policy reforms. Efforts were made to expand infrastructural facilities in all major markets, linking them to milk sheds through the National Milk Grid (NMG) to ensure year-round stable milk supply. Marketing thus, becomes the linking force to improve procurement and strengthen the financial viability of the Unions. The role of NMG is crucial in ensuring the availability of milk to consumers and a remunerative price to milk producers by leveling out regional and seasonal imbalances in supply and demand. Marketing indigenous milk products forms an important part of the overall marketing strategy.

1.3.4 GROWTH OF DAIRY SECTOR

Dairy sector in India has acquired substantial growth momentum from 9th Plan onwards as a result of which we now rank first among the world’s milk producing nations, achieving an annual output of about 127.9 (anticipated) million tonnes of milk during 2011-12 compared to 121.8 million tonnes in 2010-11. This represents sustained growth in the availability of milk and milk products for our growing population. 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 particularly for marginal and women farmers. The per capita availability of the milk has reached a level of 281 grams per day during year 2010-11, but it is still lower than the world average of 284 grams per day. Most of the milk is produced by small, marginal farmers and landless labourers. About 14.46 million farmers have been brought under the ambit of 1,44,168 village level dairy co-operative societies up to March 2011.
Government of India is making efforts for strengthening the dairy sector through various development schemes like Intensive Dairy Development Programme, Strengthening Infrastructure for Quality & Clean Milk Production, Assistance to Cooperatives and Dairy Entrepreneurship Development Scheme.

In order to meet the rapidly growing demand for milk with a focus to improve milch animal productivity and increase milk production, the Government has approved National Dairy Plan Phase-I (NDP-I) in February, 2012 with a total investment of about Rs.2242 Crores to be implemented from 2011-12 to 2016-17. NDP-I will help to meet the projected national demand of 150 million tonnes of milk by 2016-17 from domestic production through productivity enhancement, strengthening and expanding village level infrastructure for milk procurement and provide producers with greater access to markets. The strategy involves improving genetic potential of bovines, producing required number of quality bulls, and superior quality frozen semen and adopting adequate bio-security measures etc. The scheme will be implemented by NDDB through end implementing agencies like Dairy Co-operative Federations/Unions. NDP-I would focus on 14 major milk producing States - Uttar Pradesh, Punjab, Haryana, Gujarat, Rajasthan, Madhya Pradesh, Bihar, West Bengal, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Orissa and Kerala which account for over 90 per cent of the country’s milk production. Coverage of NDP-I will however be across the country in terms of benefits accruing from the scheme.15

1.4 GOVERNMENT OF INDIA’S INITIATIVE FOR THE DAIRY DEVELOPMENT IN THE PLAN PERIODS

The Government of India realized the growth potentiality of dairy industry and visualized the need for proper plan of action for the growth & development of dairy for the country as a whole. Thereafter the growth in this direction was positive and action oriented. Detailed major developments of dairy as co-operatives industry in different plan periods are provided.
Table No.1.1
Plan Expenditure on Dairy Development in India
During Five Year Plan (1951-2013)

(Rs. Crore)

<table>
<thead>
<tr>
<th>Plan Period</th>
<th>Total Plan</th>
<th>Animal Husbandry</th>
<th>Dairy Development</th>
<th>Total (AH&amp;DD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Plan (1951-56)</td>
<td>1960.00</td>
<td>14.19</td>
<td>8.22</td>
<td>7.81</td>
</tr>
<tr>
<td>Second Plan (1956-61)</td>
<td>4600.00</td>
<td>38.5</td>
<td>21.42</td>
<td>17.44</td>
</tr>
<tr>
<td>Third Plan (1961-66)</td>
<td>8576.50</td>
<td>54.44</td>
<td>43.4</td>
<td>36.08</td>
</tr>
<tr>
<td>Annual Plan(1966-69)</td>
<td>6625.40</td>
<td>41.33</td>
<td>34</td>
<td>26.14</td>
</tr>
<tr>
<td>Forth Plan(1969-74)</td>
<td>15778.80</td>
<td>94.1</td>
<td>75.51</td>
<td>139</td>
</tr>
<tr>
<td>Fifth Plan(1974-78)</td>
<td>39426.2</td>
<td>-</td>
<td>178.43</td>
<td>-</td>
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<tr>
<td>Sixth Plan(1980-85)</td>
<td>97500</td>
<td>60.46</td>
<td>39.08</td>
<td>336.1</td>
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<tr>
<td>Seventh Plan(1985-90)</td>
<td>1800000</td>
<td>165.19</td>
<td>102.35</td>
<td>302.75</td>
</tr>
<tr>
<td>Annual Plan(1990-91)</td>
<td>-</td>
<td>43.71</td>
<td>36.18</td>
<td>79.67</td>
</tr>
<tr>
<td>Annual Plan(1991-92)</td>
<td>-</td>
<td>57.97</td>
<td>43.28</td>
<td>97.49</td>
</tr>
<tr>
<td>Eighth Plan(1992-97)</td>
<td>434100.1</td>
<td>400</td>
<td>305.43</td>
<td>900</td>
</tr>
<tr>
<td>Ninth Plan(1997-2002)</td>
<td>1677.88</td>
<td>772.02</td>
<td>445.84</td>
<td>251.95</td>
</tr>
<tr>
<td>Tenth Plan 2002-2007</td>
<td>2500</td>
<td>1425.87</td>
<td>1421.89</td>
<td>289.54</td>
</tr>
<tr>
<td>Eleventh Plan(2007-11)</td>
<td>8174</td>
<td>3056.72</td>
<td>2330.8</td>
<td>625.61</td>
</tr>
<tr>
<td>2007-08</td>
<td>910</td>
<td>350.92</td>
<td>338.13</td>
<td>885</td>
</tr>
<tr>
<td>2008-09</td>
<td>1000</td>
<td>481</td>
<td>444.54</td>
<td>98</td>
</tr>
<tr>
<td>2009-10</td>
<td>1100</td>
<td>558.29</td>
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<tr>
<td>2010-11</td>
<td>1300</td>
<td>792.15</td>
<td>669.90</td>
<td>87.76</td>
</tr>
<tr>
<td>2011-12</td>
<td>1600</td>
<td>874.36</td>
<td>442.38</td>
<td>250.25</td>
</tr>
<tr>
<td>Twelfth Plan(2012-17)</td>
<td>14179</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2012-13</td>
<td>1910</td>
<td>1063.1</td>
<td>619.35</td>
<td>392</td>
</tr>
<tr>
<td>2013-14</td>
<td>3025</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>


The investment on animal husbandry and dairying programmes shows the importance given to this sector by the government for the increasing production and products. The investment pattern of animal husbandry and dairying during different plan periods is given in the table. Above table shows the allocations total plan expenditure to Dairying, Animal Husbandry, Agriculture and other heads during five year plans in...
India. The investment pattern of animal husbandry and dairying during different plan periods (1951 to 2013) is given in the above table.

The plan outlay (at current prices) of central and centrally sponsored schemes under animal husbandry and dairying has increased from Rs. 22 Crores in the First plan to Rs. 3682.33 Crores in the Eleventh Plan. The outlay for dairying has increased from Rs. 7.81 Crores in the First Plan to Rs. 900 Crores in the Eighth Plan and then declined in the Ninth Plan to Rs. 251.95 Crores and further increased in Eleventh Plan to Rs. 625.61 Crores. The allocation to animal husbandry and dairying as a percentage of total plans Expenditure has increased to 34.63 per cent in the Eleventh Plan. Although the dairy sector occupies a pivotal position and its contribution to the agricultural sector is the highest, the plan investment made so far does not appear commensurate with its contribution to future potential for growth and development.

1.4.1 First Five Year Plan (1951-56):

In the first five year plan the programme for dairying development was initiated in a relatively small way. Initially, the programme during this plan period was related to the supply of milk under hygienic conditions to big cities supported by the procurement of milk from rural areas. Work on dairy development was undertaken in the state of Andhra Pradesh, Bihar, Madhyapradesh, Orissa, Tamilnadu and Uttarpradesh. Establishment of the 146 key village blocks with artificial insemination centers, 650 veterinary Hospitals and 25 Gosadans also took place. The milk supply schemes in Bombay and Calcutta were also taken up. In 1955, the National Dairy Research Institute (NDRI) and its headquarters were shifted from Bangalore to Karnal. The southern regional station of this institute was also opened in Bangalore in the same year.16

1.4.2 Second Five Year Plan (1956-61):

The second five year plan laid down certain specific objectives relating to production, marketing and consumption of milk. At first, emphasis was laid on quality control. Secondly, it stressed on paying remunerative price to milk producers and a reasonable price to the consumers. Thirdly, it favoured the organization of village level milk
producers’ co-operatives to supply milk to the city dairies, creameries and milk dairying plants. During this plan, establishment of milch cattle sheds in metropolitan cities on the Anand pattern was initiated.

1.4.3 Third Five Year Plan (1961-66):

The policy of the third five year plan was to develop dairy projects with emphasis on milk production in rural areas linked with plans for marketing surplus milk to urban centers. The plan emphasized the need to collect milk by a network of the producers’ co-operative societies in villages and to organize the distribution of milk and manufacture of milk products on co-operative lines. The major problem confronting the dairy industries was the option of public participation. Hence, the plan felt the need of co-operatives and establishment of separate dairy development in each state.

During the third plan period, a major step was undertaken in the annals of dairying in India by establishing National Dairy Development Board (NDDB) at Anand (Gujarat) in 1965. The NDDB is a programme launching body and provides technical service on a non-profit basis which the implementing agencies require in the field of dairying.

1.4.4 Fourth Five Year Plan (1969-74):

The physical targets under fourth five year plan envisaged setting up of 49 milk supply schemes, 17 milk product factories and 43 rural dairy centers. Of these 6 milk supply schemes, 2 milk product factories and 32 rural dairy centers were commissioned. The cross-breeding in cattle with exotic dairy breeds was taken up on a large scale during the plan by establishing Frozen Semen Stations. During this period most of the dairy units were running at a loss. The project ‘Operation Flood’ was conceived during this plan period.

1.4.5 Fifth Five Year Plan (1974-78):

In the fifth five year plan it was intended to develop dairying as an important economic occupation for small and marginal farmers and agricultural labourers by extending facilities to these people to improve breeding stock and provide reasonable prices for their products. The programmed of animal husbandry and dairying received
considerable attention. In pursuance of the recommendations of the National Commission on Agriculture (1976) assisting the rural poor, 96 projects for rearing of crossbreed heifers was taken up. It was proposed to set up 64 liquid milk plants, 11 milk product factories, 127 rural dairy centers, and complete 36-spillover schemes and consolidate the existing liquid milk scheme and milk product factories.\textsuperscript{17}

1.4.6 Sixth Five Year Plan (1980-85):

The sixth five year plan intended to lay special emphasis on projects for increasing the productivity of various indigenous species of livestock through genetic improvement and better health care. Attention was also given to feed and fodder production. Another important consideration was the organization of producer-owned co-operative marketing systems. Necessary steps were taken to make available, reliable and timely livestock statistics to facilitate taking decisions on perspective planning, besides their implementation, monitoring and evaluation of projects on animal husbandry and dairying.\textsuperscript{18}

1.4.7 Seventh Five Year plan (1985-90):

The seventh plan recognized that the co-operatives were the vital source for India’s dairy development. Operation Flood - II Project would continue to be the major dairy development programmed under the Seventh Plan. It is proposed to give assistance for the conversion of fluid milk into traditional milk products. Dairy development and milch cattle distribution scheme under the IRDP could not create the desired impact in increasing milk production during the Sixth Plan period since the dairy cattle were distributed sparsely and there were no tie-up arrangement for marketing produce. Adequate arrangements for animal health care were also lacking. It is, therefore, recommended that remedial measures should be taken. These could comprise (i) distribution of milch cattle on a cluster basis, (ii) linking the potential milk producing areas with the nearest milk plants so that the farmers get remunerative prices, (iii) organizing the milk producers into co-operative societies (iv) providing animal health care facilities to the farmers and (v) making arrangements for training of farmers and their women folk. The work on embryo transfer technology will be taken up for the
first time in the Seventh Plan to bring quick improvement in the genetic structure of
the animals.

**1.4.8 Eighth Five Year Plan (1991-1996):**

The eighth five year plan intended the Operation Flood project continuance under the
Anand pattern of milk co-operatives and special emphasis was laid down for
consolidating the earlier achievements through:

- Enhancing productivity;
- Optimizing efficiency of milk co-operatives;
- Strengthening the institutional base/management and
- Ensuring the long term sustenance of the financially strong farmer owned and
  managed organizations.

During the 8th five year plan Rs.230 lakh have been provided for the development of
the dairy industries under the heads of Administration, Cattle Dairy Development and
Others.

**1.4.9 Ninth Five Year Plan (1998-2002):**

The realities of the post-GATT world are reflected in the report of the Working Group
on Animal Husbandry and Dairying for the formulation of the Ninth Plan. Animal
health takes the place of pride and for good reasons too. Effective animal health
disease management is critical not only from the point of view of livestock enterprises
in reducing the economic losses arising from diseases but also crucial to enlarge
exports of livestock products. The Ninth Plan has a very large programmed for
controlling major livestock diseases. Simultaneously, the focus of dairy development
would be shifted from its role as a source of supplementary income to a more positive
one as a viable enterprise to improve the quality of life of some 70 million farm
households with little or no land. The proposed outlay of the Ninth Plan on animal
husbandry and dairying is Rs. 19,650 million, of which Rs. 4,850 million (24.60%)
would be allocated for dairy development. Ninth plan would be encouraging research
in dairying.
1.4.10 Tenth Five Year Plan (2002-07):
Animal husbandry and dairying will receive high priority in the efforts for generating wealth and employment, increasing the availability of animal protein in the food basket and for generating exportable surpluses.\textsuperscript{19} The overall focus will be on four broad pillars viz. (i) removing policy distortions that is hindering the natural growth of livestock production; (ii) building participatory institutions of collective action for small-scale farmers that allow them to get vertically integrated with livestock processors and input suppliers; (iii) creating an environment in which farmers will increase investment in ways that will improve productivity in the livestock sector; and (iv) promoting effective regulatory institutions to deal with the threat of environmental and health crises stemming from livestock.

1.4.11 Eleventh Five Year Plan (2007-2012):
The Government was implementing following schemes for the development of dairy sector in the 11th Plan:

1. **Intensive Dairy Development Programme (IDDP):** A sum of Rs.373.82 Crores was released to various State Governments up to 31\textsuperscript{st} March, 2009 and 207 districts benefiting about 18.79 lakh farm families and organized about 26882 village level DCS.\textsuperscript{20}

2. **Strengthening Infrastructure for Quality and Clean Milk Production (CMP):** A total sum of Rs.128.11 Crores as a central share was to the concerned State Governments up to 31.03.09, the scheme has benefited 5,30,468 farmer members.

3. **Assistance to Co-operative:** To revitalize the sick Dairy Co-operatives Unions at the District level and Co-operative Federations at the State level, Rs.230.94 Crores with a central share, Rs.115.66 Crores was approved up to 31.3.09.\textsuperscript{21}

1.4.12 Twelfth Five Year Plan (2012-13):
In order to expand the artificial insemination programme to cover about 35\% of breed able bovine population by end of 12th Plan to improve productivity of milk by genetic improvement, the existing scheme relating to development of bovines and dairy
development are proposed to be merged to a new scheme of National Programme for Bovine Breeding and Dairy (NPBBD) which will be implemented along with the National Dairy Plan (Phase-I) (NDP-I) launched during 2011-12 as a World Bank assisted scheme. Efforts for conservation of quality indigenous breeds will be strengthened further in the 12th Plan under NPBBD and NDP-I.

1.5 CO-OPERATIVE DAIRY SECTOR IN INDIA

There are many forms of organizations such as public (government) agencies, sole proprietorships, partnerships, companies, co-operatives and charitable trusts that can and are, in fact, serving the needs of rural people in India. The co-operative form of organization is the ideal organization for economically weaker sections in the country. The great Indian leaders like Father of Nation Gandhiji, Pt. Jawahar Lal Nehru, the first Prime Minister of India and Sardar Vallabhbhai Patel, the first Deputy Prime Minister and Home Minister of India, had great faith in co-operation as a means of promoting farmers’ wellbeing.

In the forties, the dairy industry was dominated by one firm named Polson. Polson's business was to supply milk to Bombay. As Kaira district was an abundant source of milk, Polson had arranged a number of contractors who collected the milk and thereby Polson made a handsome profit. The contractors too managed to earn large margins by over-quoting the farmers. Realizing that the farmers in the Kaira district in Gujarat were being exploited by middlemen, this exploitation was put to an end by the start of dairy co-operative movement.

At the initiative and advice of Sardar Vallabhbhai Patel, the farmers stopped selling milk to Polson and formed co-operatives of their own. Thus, the Kaira District Co-operative Milk Producers' Union (Brand Name-AMUL) was born, in 14th December, 1946. Shri Tribhubandas Patel was the first Chairman who infused positive aspects of Co-operative values in the farmers. The Kaira Union began with a clear goal, to ensure that its producer members received the highest possible share of the consumers' rupee.
By the early sixties, the modest experiment in Kaira had not only become a success, people began to recognize it as such. Farmers came from all parts of Gujarat to learn. They went back to their own districts and started their own co-operatives. The result was the creation of Milk Producers Unions in the State of Gujarat and the State level federation namely Gujarat Co-operative Milk Marketing Federation which markets the milk and milk products manufactured by its owners.

Late Lal Bahadur Shastri, former Prime Minister of India who visited Anand on 31st October 1964, desired to replicate Amul model throughout the country to bring a great change in the socio-economic conditions of the people. In 1965, the National Dairy Development Board (NDDB) was established at Anand and by 1969-70; it came out with the Dairy Development Programme for India popularly known as “Operation Flood” or “White Revolution”. The Operation Flood programme, even today stands to be the largest dairy development programme ever drawn in the world. This model is referred to in the history of White Revolution as “Anand Pattern”. Replication of “Anand Pattern” has helped India to emerge as the largest milk producing nation in the world. Under the Anand Pattern structure; individual farmers join the village-level dairy co-operative societies (DCS), which are grouped to form a district-level union, which in turn join to form a state-level marketing federation.22

### 1.6 THREE - TIER “AMUL MODEL”

The Amul Model is a three-tier co-operative structure. This structure consists of a Dairy Co-operative Society at the village level affiliated to a Milk Union at the District level which in turn is further federated into a Milk Federation at the State level. The above three-tier structure was set-up in order to delegate the various functions; milk collection is done at the Village Dairy Society, Milk Procurement & Processing at the District Milk Union and Milk & Milk Products Marketing at the State Milk Federation. This helps in eliminating not only internal competition but also ensuring that economies of scale are achieved. As the above structure was first evolved at Amul in Gujarat and thereafter replicated all over the country under the Operation Flood Programme, it is known as the ‘Amul Model’ or ‘Anand Pattern’ of Dairy Co-operative
1.6.1 VILLAGE DAIRY CO-OPERATIVE SOCIETY (VDCS):

The milk producers of a village, having surplus milk after own consumption, come together and form a Village Dairy Co-operative Society (VDCS). The Village Dairy Co-operative is the primary society under the three-tier structure. It has membership of milk producers of the village and is governed by an elected Management Committee consisting of 9 to 12 elected representatives of the milk producers based on the principle of one member, one vote. The village society further appoints a Secretary (a paid employee and member secretary of the Management Committee) for management of the day-to-day functions. It also employs various people for assisting the Secretary in accomplishing his / her daily duties. The main functions of the VDCS are as follows:

- Collection of surplus milk from the milk producers of the village & payment based on quality & quantity.
- Providing support services to the members like Veterinary First Aid, Artificial Insemination services, cattle-feed sales, mineral mixture sales, fodder & fodder seed sales, conducting training on Animal Husbandry & Dairying, etc.
- Selling liquid milk for local consumers of the village.
- Supplying milk to the District Milk Union.

Thus, the VDCS in an independent entity managed locally by the milk producers and assisted by the District Milk Union.

1.6.2 DISTRICT CO-OPERATIVE MILK PRODUCERS’ UNION (MILK UNION):

The Village Societies of a District having surplus milk after local sales come together and form a District Milk Union. The Milk Union is the second tier under the three-tier structure. It has membership of Village Dairy Societies of the District and is governed by a Board of Directors consisting of 9 to 18 elected representatives of the Village Societies. The Milk Union further appoints a professional Managing Director (paid employee and member secretary of the Board) for management of the day-to-day functions. It also employs various people for assisting the Managing Director in
accomplishing his / her daily duties. The main functions of the Milk Union are as follows:

- Procurement of milk from the Village Dairy Societies of the District.
- Arranging transportation of raw milk from the VDCS to the Milk Union.
- Providing input services to the producers like Veterinary Care, Artificial Insemination services, cattle-feed sales, mineral mixture sales, fodder & fodder seed sales, etc.
- Conducting training on Co-operative Development, Animal Husbandry & Dairying for milk producers and conducting specialised skill development & Leadership Development training for VDCS staff & Management Committee members.
- Providing management support to the VDCS along with regular supervision of its activities.

1.6.3 STATE CO-OPERATIVE MILK FEDERATION (FEDERATION):

The Milk Unions of a State are federated into a State Co-operative Milk Federation. The Federation is the apex tier under the three-tier structure. It has membership of all the co-operative Milk Unions of the State and is governed by a Board of Directors consisting of one elected representative of each Milk Union. The State Federation further appoints a Managing Director (paid employee and member secretary of the Board) for management of the day-to-day functions. It also employs various people for assisting the Managing Director in accomplishing his daily duties. The main functions of the Federation are as follows:

- Marketing of milk & milk products processed / manufactured by Milk Unions.
- Establish distribution network for marketing of milk & milk products.
- Arranging transportation of milk & milk products from the Milk Unions to the market.
- Creating & maintaining a brand for marketing of milk & milk products (brand building).
Providing support services to the Milk Unions & members like Technical Inputs, management support & advisory services.

Pooling surplus milk from the Milk Unions and supplying it to deficit Milk.

The Amul Model of dairy development is a three-tiered structure with the dairy co-operative societies at the village level federated under a milk union at the district level and a federation of member unions at the state level. Below Figure reflected the current situation of co-operative dairy of Gujarat.

**Figure 1.1**  
**Three-Tiered Amul Model**

The Amul model has helped India to emerge as the largest milk producer in the world. More than 15 million milk producers pour their milk in 1,44,500 dairy co-operative societies across the country. Their milk is processed in 184 District Co-operative Unions and marketed by 22 State Marketing Federations, ensuring a better life for millions.
1.7 GLOBAL DAIRY SCENARIO

In the world about 2450 million people are involved in agriculture, out of which probably two-thirds or even three-fourths are completely or partially dependent on livestock farming. Until recently many countries have considered milk too bulky and perishable to make long-distance trade feasible. Therefore, they developed capabilities satisfying domestic liquid milk requirements through domestic dairy industries or depended on milk product imports, or a combination of both. For these vary reasons, most dairying nations have a complex mechanism to regulate their dairy industries through interventions, financial supports and physical controls.

Co-operatives dominate dairy industry. In the United Kingdom, all the milk produced by farmers is procured by co-operatives. There are no private sector dairy plants in New Zealand. A total of 90 per cent of the dairies in former West Germany are co-operative, and in Denmark, Netherlands and Sweden the entire dairy industry is organized on co-operative lines. In the USA, 70 per cent of the dairy industry is in co-operative sector. Dairy programmes are subject to significant government participation and regulation than most other domestic agricultural industries in the USA. There are several laws to encourage dairy co-operatives and protect the interests of the farmers. Below table present the milk productions in India has compared to other top ten Cow's Milk Producing Countries of the world for four year period, 2009 to 2012. It is heartening no note that India's share in total world milk production has kept upward trend, competing with USA for top position.
Table 1.2
World's Top 10 Cow's Milk Producing Countries (Tonnes)

<table>
<thead>
<tr>
<th>Country</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>85,880,500</td>
<td>87,474,381</td>
<td>89,015,235</td>
<td>90,865,000</td>
</tr>
<tr>
<td>India</td>
<td>47,825,000</td>
<td>54,903,000</td>
<td>53,500,000</td>
<td>54,000,000</td>
</tr>
<tr>
<td>China</td>
<td>35,509,831</td>
<td>36,036,043</td>
<td>36,928,896</td>
<td>37,767,991</td>
</tr>
<tr>
<td>Brazil</td>
<td>30,007,800</td>
<td>30,715,460</td>
<td>32,096,214</td>
<td>32,304,421</td>
</tr>
<tr>
<td>Germany</td>
<td>29,198,700</td>
<td>29,616,284</td>
<td>30,323,465</td>
<td>30,506,929</td>
</tr>
<tr>
<td>France</td>
<td>22,653,100</td>
<td>23,331,837</td>
<td>24,361,095</td>
<td>23,983,197</td>
</tr>
<tr>
<td>New Zealand</td>
<td>15,667,400</td>
<td>17,010,456</td>
<td>17,893,848</td>
<td>20,053,000</td>
</tr>
<tr>
<td>Turkey</td>
<td>13,236,500</td>
<td>12,418,544</td>
<td>13,802,428</td>
<td>15,977,837</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>11,583,300</td>
<td>14,071,000</td>
<td>13,849,000</td>
<td>13,884,000</td>
</tr>
<tr>
<td>World</td>
<td><strong>586,239,893</strong></td>
<td><strong>597,071,398</strong></td>
<td><strong>607,391,767</strong></td>
<td><strong>620,361,802</strong></td>
</tr>
</tbody>
</table>

Source: www.dairyco.org

Chart No.1.1
World's Top 10 Cow's Milk Producing Countries
World cow's milk production in 2012 stood at 620 million tonnes, with the top ten producing countries accounting for 56.6 per cent of production. The USA is the largest cow's milk producer in the world accounting for 14.6 per cent of world production, producing nearly 91 million tonnes in 2012, an increase of 2.1 per cent when compared to 2011.

India is the second largest cow's milk producer, accounting for 8.7 per cent of world production and producing 54 million tonnes in 2012. The UK is the 10th largest producer in the world producing nearly 14 million tonnes in 2012 and accounting for 2.2 per cent of world cow's milk production. Of the top ten largest milk producing countries, New Zealand and Turkey have shown the largest percentage growth from 2011 to 2012 at 12.1 per cent and 15.8 per cent, respectively.

1.8 PROFILE OF INDIAN DAIRY INDUSTRY

1.8.1 LIVESTOCK & DAIRY IN INDIA AND ITS ECONOMIC SIGNIFICANCE

India is the largest producer of milk in the world with a share of around 16 per cent of world milk production. Globally, livestock production accounts for about 40 per cent of the gross value of agricultural production; more than half in developed countries, and almost a third in developing countries (FAO 2000). The importance of dairying in a country like India hardly needs emphasizing. India has vast resources of livestock, which play an important role in the national economy and also in the socio-economic development of millions of rural households.

Milk production is the largest contributor in the agricultural sector and allied activities. Indian dairying is characterized by very small holdings compared to large commercial dairy farms of developed countries and is largely a rural based activity based on family labor crop residues and natural grasses. A large proportion of livestock owning households comprise of small and marginal farmers and landless laborers. The distribution of livestock holding appears to be more equitable than land holding, as small and marginal rural households of all milk animals leading to more equitable distribution of gains from the livestock sector.
Table No. 1.3
Share of Agriculture & Livestock sector in GDP

(At current prices in Rs. Crore)

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP (Total)</th>
<th>GDP(Agriculture)</th>
<th>GDP(Livestock sector)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs. Crore</td>
<td>% Share</td>
<td>Rs. Crore</td>
</tr>
<tr>
<td>2004-05</td>
<td>2971464</td>
<td>476634</td>
<td>119333</td>
</tr>
<tr>
<td>2005-06</td>
<td>3390503</td>
<td>536822</td>
<td>127518</td>
</tr>
<tr>
<td>2006-07</td>
<td>3953276</td>
<td>604672</td>
<td>142695</td>
</tr>
<tr>
<td>2007-08</td>
<td>4582086</td>
<td>716276</td>
<td>169296</td>
</tr>
<tr>
<td>2008-09</td>
<td>5303567</td>
<td>806646</td>
<td>200440</td>
</tr>
<tr>
<td>2009-10</td>
<td>6108903</td>
<td>928586</td>
<td>237059</td>
</tr>
<tr>
<td>2010-11</td>
<td>7266966</td>
<td>1132048</td>
<td>276105</td>
</tr>
<tr>
<td>2011-12</td>
<td>8353495</td>
<td>1268081</td>
<td>327838</td>
</tr>
</tbody>
</table>

Source: National Accounts statistics – 2013, GOI.

India is the 2nd largest in the emerging economies in the world, with a GDP growth rate of 6.5%, and also 3th largest economy in the world with a GDP of US $ 4.4 trillion. Agriculture sector play an important role in Indian economy. But, during the last several decades the contribution of agriculture and allied activities to the gross domestic product of the country has declined. Agriculture, which used to account for about 55 per cent of the gross domestic product in 1951-52, now accounts around 15.18 per cent of the GDP in 2011-12. However, livestock sector has been among the few growth sectors in rural India and its contribution to the GDP has increased from about 3.76 per cent in 2005-06 to 3.92 per cent in 2011-12 at current prices. According to the central statistical organization (CSO), the gross value of output from the livestock sector at current prices during 2011-12 was about Rs. 327838 Crore which was about 25.85 percent of the total value of output from agriculture.

Apart from increasing the availability of milk and milk products, dairying has been considered one of the activities aimed at alleviating the poverty and unemployment especially in rural areas in the rain fed and drought prone areas. The progress in this
sector will result in a more balanced development of the rural economy. Dairy products are a major source of cheap and nutritious food to millions of people in India and the only acceptable source of animal protein for a large vegetarian segment of Indian population, particularly among the landless, small and marginal farmers and women. Hence, dairying in India has a multifunctional role.

1.8.2 LIVE STOCK POPULATION IN INDIA

India owns one of the largest live stock populations in the world, which play important role in our rural economy.

| Table No. 1.4 |
| Livestock Population in India by Species (1951 – 2007) |
| (In million numbers) |

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>155.3</td>
<td>175.6</td>
<td>178.3</td>
<td>192.5</td>
<td>199.7</td>
<td>204.6</td>
<td>198.9</td>
<td>185.2</td>
<td>199.1</td>
</tr>
<tr>
<td>Adult Female Cattle</td>
<td>54.4</td>
<td>51.0</td>
<td>53.4</td>
<td>59.2</td>
<td>62.1</td>
<td>64.4</td>
<td>64.4</td>
<td>64.5</td>
<td>73.0</td>
</tr>
<tr>
<td>Buffalo</td>
<td>43.4</td>
<td>51.2</td>
<td>57.4</td>
<td>69.8</td>
<td>76.0</td>
<td>84.2</td>
<td>89.9</td>
<td>97.9</td>
<td>105.3</td>
</tr>
<tr>
<td>Adult Female Buffalo</td>
<td>21.0</td>
<td>24.3</td>
<td>28.6</td>
<td>32.5</td>
<td>39.1</td>
<td>43.8</td>
<td>46.8</td>
<td>51.0</td>
<td>54.5</td>
</tr>
<tr>
<td>Total Bovines</td>
<td>198.7</td>
<td>226.8</td>
<td>235.7</td>
<td>262.2</td>
<td>275.7</td>
<td>288.8</td>
<td>288.8</td>
<td>283.1</td>
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<tr>
<td>Sheep</td>
<td>39.1</td>
<td>40.2</td>
<td>40.0</td>
<td>48.8</td>
<td>45.7</td>
<td>50.8</td>
<td>57.5</td>
<td>61.5</td>
<td>71.6</td>
</tr>
<tr>
<td>Goat</td>
<td>47.2</td>
<td>60.9</td>
<td>67.5</td>
<td>95.3</td>
<td>110.2</td>
<td>115.3</td>
<td>122.7</td>
<td>124.4</td>
<td>140.5</td>
</tr>
<tr>
<td>Horses and Ponies</td>
<td>1.5</td>
<td>1.3</td>
<td>0.9</td>
<td>0.9</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Camels</td>
<td>0.6</td>
<td>0.9</td>
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<td>1.1</td>
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<td>1.0</td>
<td>0.9</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Pigs</td>
<td>4.4</td>
<td>5.2</td>
<td>6.9</td>
<td>10.1</td>
<td>10.6</td>
<td>12.8</td>
<td>13.3</td>
<td>13.5</td>
<td>11.1</td>
</tr>
<tr>
<td>Mules</td>
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<tr>
<td>Donkeys</td>
<td>1.3</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>0.9</td>
<td>0.7</td>
<td>0.4</td>
<td></td>
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<tr>
<td>Yak</td>
<td>NC</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Mithun</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
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</tr>
<tr>
<td>Total Livestock</td>
<td>292.9</td>
<td>336.5</td>
<td>253.2</td>
<td>419.6</td>
<td>445.2</td>
<td>470.9</td>
<td>485.4</td>
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<td>307.1</td>
<td>347.6</td>
<td>489.0</td>
<td>648.8</td>
</tr>
</tbody>
</table>

(NC: Not Collected, NA: Not Available)

Source: Livestock Censuses, Department of Animal Husbandry, Fisheries, Ministry of Agriculture, GOI.
In 2007 livestock census shows that there are 199.1 million cattle, 105.3 million buffaloes, 140.5 million goats and 71.6 million sheep in the country. India ranks first in cattle and buffalo population and majority of these animals, due to low economic status of livestock owners are reared under sub-optimal conditions. Among all livestock species in India, the bovine (cattle + buffalo) alone accounted for about 57 percent of the total livestock population of 529.7 million in 2007. India’s livestock population continued to grow steadily and the cattle population increased from 155.3 million in 1951 to about 199.1 million in 2007, and in the case of buffaloes it almost more than doubled from 43.4 million in 1951 to 105.3 million in 2007.

There has been a radical shift in the priority of farmers from work animals to milk producing animals in the case of cattle. The proportion of breed able cows in the total cattle population increased steadily since 1972.

1.8.3 MILK PRODUCTION IN INDIA

The performance of Indian dairy sector is remarkable during last three decades. Milk production in India has increased from 55.6 million MT in 1990-91 to 132.4 million MT in 2012-13, whereas per capita availability has increased from 178 grams/ day in 1990-91 to 291 grams/ day in 2011-12. The annually growth in milk production is shown in below table.
### Table No.1.5
Trends in Production and Per Capita Availability of Milk in India, 1990-91 to 2012-13

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Million Tonnes)</th>
<th>Per capita availability (gms / day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991-92</td>
<td>55.6</td>
<td>178</td>
</tr>
<tr>
<td>1992-93</td>
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<td>182</td>
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<tr>
<td>1993-94</td>
<td>60.6</td>
<td>187</td>
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<tr>
<td>1994-95</td>
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<td>192</td>
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<td>1995-96</td>
<td>66.2</td>
<td>195</td>
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<td>1996-97</td>
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<td>200</td>
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<td>1997-98</td>
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<td>205</td>
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<tr>
<td>1998-99</td>
<td>75.4</td>
<td>210</td>
</tr>
<tr>
<td>1999-00</td>
<td>78.3</td>
<td>214</td>
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<tr>
<td>2000-01</td>
<td>80.6</td>
<td>217</td>
</tr>
<tr>
<td>2001-02</td>
<td>84.4</td>
<td>222</td>
</tr>
<tr>
<td>2002-03</td>
<td>86.2</td>
<td>224</td>
</tr>
<tr>
<td>2003-04</td>
<td>88.1</td>
<td>225</td>
</tr>
<tr>
<td>2004-05</td>
<td>92.5</td>
<td>233</td>
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<tr>
<td>2005-06</td>
<td>97.1</td>
<td>241</td>
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<tr>
<td>2006-07</td>
<td>102.6</td>
<td>251</td>
</tr>
<tr>
<td>2007-08</td>
<td>107.9</td>
<td>260</td>
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<tr>
<td>2008-09</td>
<td>112.2</td>
<td>266</td>
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<tr>
<td>2009-10</td>
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<td>121.8</td>
<td>281</td>
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<tr>
<td>2011-12</td>
<td>127.9</td>
<td>291</td>
</tr>
<tr>
<td>2012-13</td>
<td>132.4</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source:** www.nddb.org
India, world's largest milk producer, accounting for more than 16% of world's total milk production is the world's largest consumer of dairy products. The annual compound growth rate in milk production dairying the first decade after independence, beginning from 1950-51 was about 1.59 percent and this growth rate declined to 0.21 percent during the decade of 1960s. Between the third and fourth five year plans (1966-69) the government of India made major policy changes in dairy development. Milk production in rural milk sheds through milk producer co-operatives and movement of processed milk to urban demand centres, became the cornerstone of government policy for dairy development. This single policy initiative of the government gave a boost to dairy development and initiated the process of establishing the much needed linkages between the producers and the consumers through a pricing, procurement and marketing system that resulted in the “White Revolution.”

Milk production grew at an average annual rate of 4.51% during 1970s, 5.48% during 1980s and 4.11% during 1990s. This growth was achieved through extensive intervention by the Indian government, as well as through increased demand driven by population growth, higher incomes, and urbanization.
Per capita availability of milk has also increased during last three decades: 1.93% during 1970s, 3.24% during 1980s and 2.26% during 1990s. During 2000-01 to 2007-08, marginal decline in growth of milk production as well as per capita availability is witnessed. In 2011-12, per capita availability of milk reached to 291 grams/day, which is more than double compared to pre-operation flood availability. Now, it is more than the world average of 285 grams per day and the minimum nutritional requirement of 280 grams per day as recommended by the Indian Council of Medical Research (ICMR).

1.8.4 REGIONAL MILK PRODUCTION STATE-WISE

Table No.1.6
State-Wise Milk Production in India, 2004-05 to 2012-13
(Figures in ‘000 tonnes per year)

<table>
<thead>
<tr>
<th>State</th>
<th>04-05</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
</tr>
</thead>
<tbody>
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<td>Andhra Pradesh</td>
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<td>8925</td>
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<tr>
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<td>6124</td>
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<tr>
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<td>6960</td>
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<td>7911</td>
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<td>8844</td>
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<td>6267</td>
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<td>7040</td>
</tr>
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<td>J &amp; K</td>
<td>1422</td>
<td>1400</td>
<td>1400</td>
<td>1519</td>
<td>1565</td>
<td>1592</td>
<td>1609</td>
<td>1614</td>
<td>1631</td>
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<td>7514</td>
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<td>8044</td>
<td>8469</td>
<td>8734</td>
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<tr>
<td>Punjab</td>
<td>8554</td>
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<td>9168</td>
<td>9282</td>
<td>9387</td>
<td>9389</td>
<td>9423</td>
<td>9551</td>
<td>9714</td>
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<tr>
<td>Rajasthan</td>
<td>8310</td>
<td>8713</td>
<td>10309</td>
<td>11377</td>
<td>11931</td>
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<td>6787</td>
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<td>116425</td>
<td>121848</td>
<td>127904</td>
<td>132431</td>
</tr>
</tbody>
</table>

Source: Department of Animal Husbandry, Fisheries, Ministry of Agriculture, Government of India.
State-wise milk production in India from 2004-05 to 2012-13 is given above. In 2012-13, Uttar Pradesh was the highest milk producing state (23330000 tonnes), followed by Rajasthan (13946000 tonnes), Andhra Pradesh (12762000 tonnes), Gujarat (10315000 tonnes) and Punjab (9714000 tonnes). During 2004-05 the top five milk producing states were, Uttar Pradesh, Punjab, Rajasthan, Andhra Pradesh and Gujarat accounting for more than half of the total milk production. However in 1997-98, Andhra Pradesh lost its position among the top five producers. The top five milk producing states in 2012-13 were, Uttar Pradesh, Rajasthan, Andhra Pradesh, Gujarat and Punjab. These states account for about 53 percent of milk produced in the country.

Table No.1.7
Percentage of State-wise Share of Indian Milk Production
(% Share of the state to total milk production)

<table>
<thead>
<tr>
<th>State</th>
<th>04-05</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
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<tbody>
<tr>
<td>Andhra Pradesh</td>
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<td>9.19</td>
<td>9.45</td>
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<td>Bihar</td>
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<td>5.36</td>
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<td>5.19</td>
<td>5.17</td>
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<td>7.60</td>
<td>7.57</td>
<td>7.68</td>
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</tr>
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<td>5.16</td>
<td>5.14</td>
<td>5.21</td>
<td>5.32</td>
</tr>
<tr>
<td>J &amp; K</td>
<td>1.54</td>
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<td>4.64</td>
<td>4.73</td>
<td>4.61</td>
<td>4.31</td>
</tr>
</tbody>
</table>

Source: Computed from the report of Department of Animal Husbandry, Fisheries, Ministry of Agriculture (Government of India).
Percentage of State-wise Share of Milk Production in India from 2004-05 to 2012-13 is given above. In total milk production, the share of Punjab, West Bengal, Maharashtra, Jharkhand, Haryana, J & K and Kerala declined during 2004-05 to 2012-13, while the share of Rajasthan, Uttar Pradesh, Andhra Pradesh, Gujarat and Madhya Pradesh increased.

1.9 TRADE IN DAIRY PRODUCTS

Despite having the world’s largest milk production, India is a very minor player in the international market. Prior to the 1970s, India was primarily an import dependent country and a hydrous milk fat, butter and dry milk powders were imported to meet the needs of urban consumers. However, with the implementation of Operation Flood Programme in 1971, the situation changed significantly and imports of dairy products reduced to very small quantities. In the 1990s imports and exports kept edging each other out, and from 2001, India has become a net exporter of dairy products. After 2003, India’s dairy import has dipped while exports have increased at a fast rate, yet the country’s share in global dairy trade still remains at minor levels of 0.3 and 0.4 percent for exports and imports respectively. This is due to the direct consumption of liquid milk by the producer households as well as the demand for processed dairy products that has increased with the growth of income levels, which have left little dairy surpluses for export. Nevertheless, India consistently exports specialty products such as casein for food processing or pharmaceuticals.

In 2009, around half of India’s total dairy import by volume consists of butter and other dairy derived fats, followed by lactose (33 per cent), and milk powder (eight percent). Import of milk and milk products is permitted without any quantitative limitations, although tariff rate quotas apply and import permits are required. On the other hand, in terms of exports, milk powders and baby food constituted more than 40 percent of India’s total dairy exports by volume, followed by casein, milk and cream, butter and other fats, and other processed dairy products in 2009. Almost all of India’s dairy exports are meant for Asian and African countries. In Asia, neighboring countries in South Asia and the Middle East are the main buyers. Around half of India’s exported dairy products are shipped to Bangladesh, the United States, U.A.E,
and Singapore. Despite many efforts, India has not been able to breach the European markets, while the market in South America remains untapped. Export figures clearly illustrate that the Indian dairy export is still developing and the surpluses are neither systemic nor consistent. However, there future outlook for export of Indian dairy products is rather positive, as indigenous milk products and desserts are becoming popular with the ethnic population spread all over the world and there is a strong likelihood that the export demand for these products will grow.

**Figure 1.2**

**Indian Dairy Exports by Product Types (2008/9)**

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1.10 **DAIRY SCENARIO IN GUJARAT**

1.10.1 **MILK PRODUCTION: GUJARAT VS. INDIA**

During the last 22 years ending 2012-13 data of total production of milk in Gujarat and all India has been provided in below table. It is found that there has been monotonous increase in absolute production of milk in both the cases. However, the increase in state contribution in national production is noteworthy, though it is slow yet steady. In 1990-91, Gujarat accounted for 6.5% of national production, increased to 7% around 1995-96 and finally, touched around 7.8% in 2012-13. Under a
perpetual growth in both the cases, steady increase in state share in national production is significant.

Table No.1.8
Milk Production: Gujarat vs. India

<table>
<thead>
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<th>Year</th>
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<th>Gujarat</th>
<th>Share In %</th>
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</table>

<table>
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<th>Year</th>
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<th>Share In %</th>
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</table>

Source: Various issues of BAHS, GOI.

1.10.2 PER CAPITA AVAILABILITY OF MILK: GUJARAT VS. INDIA

Milk is important components of food basket. As in absolute production of milk, the per capita availability of milk has been constantly increasing in the state and also nationally. The domestic availability of milk on per capita basis has always been higher than the national average. The state of Gujarat has been historically contributing to ensuring food security in the state but also elsewhere in the country. It is significant that in 1991-92, the difference in incremental availability of milk in the state was 60 grams compared to national availability, and the difference continued to favour the state over the years, and stood at 135 grams in 2011-12. This has been possible due to two factors (i) higher growth in milk production compared to growth in human population, and (ii) the rate of growing in milk production in the state
exceeding the national rate of growth. The finding therefore is that the consistency in increase in absolute growth in milk production is not only adding to food security but also ensuring employment and livelihood sustenance.

Table 1.9

Per capita availability: Gujarat vs. India

<table>
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</table>

Source: Various issues of BAHS, GOI.

1.11 CONTRIBUTION OF GUJARAT CO-OPERATIVE MILK MARKETING FEDERATION (GCMMF)

Gujarat Co-operative Milk Marketing Federation Ltd. (GCMMF) is India's largest food product marketing organisation with annual turnover (2013-14) US$ 3.0 billion. Its daily milk procurement is approx 13.18 million litters per day from 17,025 village milk co-operative societies, 17 member unions covering 31 districts, and 3.23 million milk producer members.
It is the Apex organisation of the Dairy Co-operatives of Gujarat, popularly known as 'AMUL', which aims to provide remunerative returns to the farmers and also serve the interest of consumers by providing quality products which are good value for money. Its success has not only been emulated in India but serves as a model for rest of the World. It is exclusive marketing organisation of 'Amul' and 'Sagar' branded products. It operates through 53 Sales offices and has a dealer network of 10000 dealers and 10 lakh retailers, one of the largest such networks in India. Its product range comprises milk, milk powder, health beverages, ghee, butter, cheese, Pizza cheese, Ice-cream, Paneer, chocolates, and traditional Indian sweets, etc.

GCMMF is India's largest exporter of Dairy Products. It has been accorded a "Trading House" status. Many of their products are available in USA, Gulf Countries, Singapore, Philippines, Japan, China and Australia. GCMMF has received the APEDA Award from Government of India for Excellence in Dairy Product Exports for the last 13 years. For the year 2009-10, GCMMF has been awarded "Golden Trophy" for its outstanding export performance and contribution in dairy products sector by Agricultural and Processed food export development authority (APEDA). In 2013-14, GCMMF took giant strides in expanding its presence in International markets. Amul’s presence on Global Dairy Trade (GDT) platform in which only the top six dairy players of the world sell their products, has earned respect and recognition across the world. By selling milk powders on GDT, GCMMF could not only realize better prices as per market demand but it also firmly established Amul in the league of top dairy players in world trade.24

For its consistent adherence to quality, customer focus and dependability, GCMMF has received numerous awards and accolades over the years. It received the Rajiv Gandhi National Quality Award in1999 in Best of All Category. In 2002 GCMMF bagged India's Most Respected Company Award instituted by Business World. In 2003, it was awarded the IMC Ramakrishna Bajaj National Quality Award - 2003 for adopting noteworthy quality management practices for logistics and procurement. GCMMF is the first and only Indian organisation to win topmost International Dairy Federation Marketing Award for probiotic ice cream launch in 2007. For the
innovations, GCMMF has received AIMA-RK Swamy High Performance brand award 2013 and CNN-IBN Innovating for better tomorrow award in 2014. For the tree plantation activity GCMMF has received seven consecutive Good Green Governance award from Srishti during 2007 to 2013. The Amul brand is not only a product, but also a movement. It is in one way, the representation of the economic freedom of farmers.

1.12 REGULATORY FRAMEWORK FOR THE DAIRY PROCESSING SECTOR

The Indian dairy industry has grown and diversified enormously in the last few years. To ensure proper development and growth of this industrial sector, the Government of India has instituted various law and regulations. The various regulations that govern the dairy processing industry can broadly be classified as under.

1.12.1 THE PREVENTION OF FOOD ADULTERATION ACT, 1954:

This Act is intended to protect the common consumer against the supply of adulterated food. This specifies different standards for various food articles. The standards are in terms of minimum quality levels intended for ensuring safety in the consumption of these food items and for safeguarding against harmful impurities and adulteration. The Central Committee for Food Standards, under the Directorate General of Health Services, Ministry of Health and Family Welfare, is responsible for the operation of this Act. The provisions of the Act are mandatory and contravention of the rules can lead to both fines and imprisonment.

1.12.2 THE STANDARD OF WEIGHTS AND MEASURES (PACKAGED COMMODITIES) RULES, 1977:

These Rules lay down certain obligatory conditions for all commodities that are in packed from, with respect to declarations on quantities contained. These Rules are operated by the Directorate of Weight and Measures, under the Ministry of Civil Supplies, Consumer Affairs and Public Distribution.
1.12.3 MILK AND MILK PRODUCTS ORDER, 1992:

Milk and Milk Product Order, 1992 has been formulated under the provisions of the Essential Commodities Act. The main objectives of the Act are to regulate the manufacturing and distribution of quality milk and milk products. This Order provides for setting up an advisory board to advice the government on the production, sale, purchase and distribution of milk and milk products. Units with an installed capacity for handling milk of over 10,000 litres per day (LPD), or milk products containing milk solids in excess of 500 tonnes per year, are required to obtain registration under this order. Units handling between 10,000 to 75,000 litres of milk/day are required to obtain registration from the State Government, while units handling more than 75,000 LPD milk are required to obtain registration from Department of Animal Husbandry, Government of India.

1.12.4 POLLUTION CONTROL:

(i) No Objection Certificate from the Pollution Control Board is a must.
(ii) Voluntary Standards.

There are two organizations that deal with voluntary standardization and certification systems in the food sector. The Bureau of Indian Standards look after standardization of processed foods and standardization of raw agricultural produce is under the purview of the Directorate of Marketing and Inspection.

1.12.5 DIRECTORATE OF MARKETING AND INSPECTION (DMI):

The DMI enforces the Agricultural Products (Grading and Marketing) Act, 1937. Under this Act, Grade Standards are prescribed for agricultural and allied commodities. There are known as “Agmark” Standards. Grading under the provisions of this Act is voluntary. Manufactures who comply with standards laid down by DMI are allowed to use “Agmark” labels on their products.

1.12.6 INDUSTRIAL LICENSE:

No license is required for setting up a Dairy Project in India. Only a Memorandum has to be submitted to the Secretariat for Industrial Approvals (SIA) and an
acknowledgement to be obtained. However, Certificate of Registration is required under the Milk and Milk Products Control Order (MMPO) 1992.

2.13 THE CHALLENGES FACED BY INDIAN DAIRY SECTOR

1. The Indian dairy sector is comparing mainly farmers with small landholding and having low productivity milch animals.

2. There are many milk producers clustered within a village. The villages are scattered and away from the urban consumption centres. The real challenge is to organize this scatter and to weave a network that can make the system work as an industry.

3. Every small milk producer is dependent upon income from the sale of milk produced daily. Default in the regular payment foils his family budget.

4. The milch animal, an asset of the dairy farmer, is under continuous threat from local and infectious diseases caused by poor sanitation, bad hygiene and ignorance of countering these problems. Infectious diseases can cause mortality and morbidity and the poor farmer can never afford such calamities.

5. There is lack of infrastructure facilities. The absence of road and telecommunications has delayed the growth of the rural poor.

6. In rural areas there are many producers but only a few buyers. Due to the lack of marketing facility, the prices depress and create loss for the dairy farmer.

7. In the era of globalization and liberalization, those who produce quality items in a cheaper manner should market it globally. The developing countries, though they produce milk in a cheaper way, suffer from non-tariff barriers to trade under the Sanitary Measures Agreement. The stringent food safety standards are beyond the reach of Indian dairy industry.

THE RESPONSES TO MEET THE CHALLENGES

1. Enhancement of Productivity through Breed Improvement

Cross breeding of low-yielding indigenous breeds with high yielding exotic breeds has been widely acknowledged as a valuable strategy to improve animal productivity.
The focus of crossbreeding research has been mainly on cattle because of their dual role of milk production and their use as draught animals in the crop sector. A number of cross breeds with improved production potentials have been evolved, some important cross breeds include Haryana x Friesian, Haryana x Brown Swiss, Rathi x Jersey, Gir x Jersey, Gir x Friesian and Sahiwal x Jersey.

2. High Rate of Productivity through Improved Feeding Practices

A large gap exists between requirement and availability of feed and fodder in the country. The problem of underfeeding can partly be overcome through technological interventions such as biological and chemical treatment of feed and fodder. For example, urea molasses treatment can improve the quality of dry fodders and straws of wheat and rice. Urea molasses mineral lick can be used as a supplement to straws. This can help to improve the digestion of cellulosic fodders and the efficiency of rumen micro-flora. Urea treatment has been reported to reduce green fodder requirement by about 20 to 40 percent and increases cattle milk yield by 10 to 20 per cent. Under experimental conditions, by pass protein technology has been found to reduce concentrate requirement by 40 per cent and reduction in dry matter requirement by 24 per cent. In addition it should be possible to increase productivity of crops that provide good quality byproducts. Some such crops are sugarcane, sun hemp, cowpea, carrot, cauliflower and turnip.

3. Increase of Productivity through Improved Health Services

Keeping of animals in unsanitary situations is a block to the full realization of the genetic potential of the milch animals. Proper health care management of the animals is possible through a three tier treatment system. First tier is the aid at the village level through a local resident trained as veterinary assistant enabled to diagnose and provide immediate relief to the sick animals. Mobile veterinary service, the second tier, should visit the villages on scheduled days and time. Third tier is the vaccination against the epidemics.
4. **Value Addition to Farmer’s Price Realization**

In the globalized era, value addition is possible by marketing branded milk products. Branded western and ethnic dairy products are witnessing rising demand and increased acceptance especially among urban consumers. Ethnic products viz. sweets, paneer, dahi (yogurt) etc. offer growing opportunity for the organized sector. The success of the branded dahi, yogurt, flavoured milk and traditional sweets such as gulabjamun, peda and burfi launched in India suggest the potential for introducing such products to the masses. A total quality management approach to improve in the quality of milk products has to follow the entire chain from milk production at the doorstep of the producer until the product arrive the consumer.

5. **Dairy Development through the Provision of Better Infrastructure Facilities**

Availability of good road infrastructure reduces poverty by saving travel time, enabling the poor to find better paying work, helping them to realize better price for their produce etc. In the dairy sector it is found that wireless communication can trace milk carriers for breakdown, enable the veterinarians to render emergency service to sick animals in remote rural areas.

6. **Application of Information Technology at Rural Level**

It helped the dairy co-operatives to change their rural face. It facilitates the computerized milk collection units to provide information of fat content of milk, its volume and calculate the amount payable on the spot. The process has increased the trust, transparency and efficiency of milk collection. Introduction of internet would link all e-transactions between the village co-operatives and the processing dairy.

7. **Production and Marketing of Milk through the Formation of Dairy Co-operatives**

The milk production in India is mainly rooted in the co-operative system. This system is the basis of ‘Operation Flood’, the world’s largest dairy development programme. It helped to create strong network and linkages among millions of small holder producers, processors and the urban consumers which proved an important instrument
in achieving this remarkable success. The co-operatives assured the marketing of milk from the small dairy farmers and offered them a reasonable price. The fixation of milk price on the basis of Solids-Not-Fat (SNF) encourages farmers to produce and supply quality milk. Co-operatives also provide various inputs to dairy farmers at reasonable prices. The co-operatives play the role in promoting co-operative spirit among the people which is very essential for mutual survival.

8. Initiatives at the Government Level

To increase the efficiency of the livestock sector and to make it competitive in the world market, in view of liberalization policy, the government of India has created the Department of Animal Husbandry and Dairying (DAHD) in the Ministry of Agriculture, in 1991. Its activities are primarily concentrated on supplementing and complementing the efforts of the state governments in enhancing productivity levels of livestock through genetic upgrading, increasing the availability of feed and fodder, providing veterinary care, processing facilities, strengthening the marketing infrastructure, improving the database for livestock products and so on. While formulating the 10th five year plan, the Government of India stressed certain new strategies in the field of animal husbandry. They include:

1. Conservation of native livestock to maintain diversity of breeds.
2. Immunization programme against important animal diseases and creation of disease free zones.
3. Enhancement of feed/fodder production and improvement of common property resources.
5. A transition from subsistent livestock farming to sustainable and viable livestock farming.
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