DAIRY DEVELOPMENT IN INDIA AND KARNATAKA

CHAPTER - II

DAIRY DEVELOPMENT IN INDIA AND KARNATAKA

2.1 DAIRYING IN INDIA:

There exists a close relationship between agriculture and animal husbandry and dairying in India. To most of Indians, Agriculture is the main stay of their living and animal husbandry and dairying are considered to be subsidiary to agriculture.

Growth of the Dairy Industry:

The growth of the Indian Dairy Industry has been studied in two phases:

1) Pre-Independence period, and
2) Post-Independence period.

I. Pre-Independence Period:

The rosy picture of ancient Indian dairy underwent a drastic change especially during the British regime. Rapid rise in population, migration of rural people to urban areas in search of jobs due to industrialization, etc., led to sudden spurt in demand for milk and milk products. Due to unorganized nature of dairy industry then, the milk production could not meet the demand of the urbanites for milk and milk products. Middlemen and private dairymen made use of this situation by supplying adulterated and high priced milk and milk-products. "The milk that was being sold by all the private traders in Bombay at that time had a bacteriological count higher than the sewage of London, was the comment by a Secretary of Milk Marketing Board of England who visited Bombay in 1944". It was this sharp comment that led to Government intervention in dairying activity in India.

Organized dairying, as understood in the West, started in an small way, when military dairy farms and creameries were established towards the end of the 19th century to meet demands of the armed forces and their hospitals. Some private dairies such as 'Polson Dairy' Anand, with more or less modern

processing facilities, were encouraged to make a pasteurized butter, primarily for use by the British Army.

The establishment of dairy farms by military authorities and private dairies necessitated organized training centres to acquire competence in the operation of modern dairy plants and in the handling of the processing of milk and milk-products. As a result, the "Imperial Institute of Animal Husbandry and Dairying" was established in 1923 at Bangalore, which was renamed as "National Dairy Research Institute" (NDRI) after Independence and was shifted to Karnal, Haryana.

In 1943, the Government of India decided to take measures to supply hygienic milk to major cities and a beginning was made in Bombay by launching 'Bombay MILK Scheme'. To meet the milk demand for this scheme, milk produced in rural areas of Kaira district, Gujarat, was collected in bulk, pasteurized and transported by rail to Bombay.

II. Post-Independence Period:

After Independence in 1947, the Government of India (GOI) launched a "Greater Bombay Milk Scheme", to supply milk to ever-growing demand of Bombay city. Initially, the scheme depended upon the milk supplied by Polson Dairy of Anand, (Gujarat), but later on "Aarey Milk Colony" was establishment in Bombay, which acted as the cattle shed for privately owned dairy cattle.

Likewise, a similar scheme, known as 'Greater Calcutta Milk Scheme' was started in Calcutta in 1950. Many Governments after Independence set up a Composite Dairy Development Department to ensure co-coordinated action by a number of concerned departments of the Government, such as the Veterinary. Co-operative and Agricultural Department to facilitate milk production, procurement, processing and marketing.

Towards the end of 1950, milk producers in Kaira District decided to organize themselves into a Co-operative Union and established Kaira District

Co-operative Milk Producers' Union Ltd., as a protection against the vagaries of milk prices offered by the private middlemen including Polson Dairy. Ultimately, this Union came to the known as the "Anand Milk Union Ltd.," (in short AMUL) due to the situation of processing plant of the Union at Anand Town.

The first ever pasteurized and bottled milk was supplied to the common man of India, in Bombay city on December 15, 1950 the same was done by the first large dairy set up at Aarey Milk Colony.

In the following pages, a brief analysis of dairy development under the Five Years Plans and under the Operation Flood Programmes has been made:

2.2 Dairy Development in India under Five Year Plans:

Dairy Development in India received an impetus after independence when the Government of India decided to organized dairying on modern lines by streamlining collection, processing and marketing of milk under the Five Year Plans.

Table 2.1
Plan Outlay and Expenditure for Animal Husbandry and Dairying in India (1951-2009)

(Rs. in Millions)

Five Year Plan Periods		Animal Husbandry		Dairying		Total of Animal Husbandry and Dairying	
		Approved Outlay	Expenditure	Approved Outlay	Expenditure	Approved Outlay	Expenditure
First Plan	1951-56	141.90	82.20	78.10	77.80	220.00	160.00
Second Plan	1956-61	385.00	214.20	174.40	120.50	359.40	334.70
Third Plan	1961-66	544.40	434.00	360.80	3360.00	905.20	770.00
Annual Plan	1966-69	413.30	340.00	261.40	257.00	674.70	597.00
Fourth Plan	1969-74	941.00	855.10	1,390.00	787.50	2,331.00	1,542.60
Fifth Plan	1974-78	3,095.60	1,783.30	1,279.80	540.3	4,375.40	2,324.60
Annual Plan	1978-80	NA	929.80	NA	1,157.90	2,460.60	2,087.70
Sixth Plan	1980-85	3,896.40	3,662.20	4,603.00	4,362.90	8,499.40	8,025.10
Seventh Plan	1985-90	6,411.70	NA	4,934.70	NA	11,346.40	-
Eighth Plan	1992-97	4,000.00	NA	9,000.00	NA	13,000.00	-
Ninth Plan	1997-02	4,792.00	NA	4,687.00	NA	9,479.00	13,788.49
Tenth Plan	2002-07	NA	NA	NA	NA	NA	-
Eleventh Plan	2007-12	NA	NA	NA	NA	NA	-

Source : Dairy India Year Book (Third Annual Edition), Priyadarshini Vihar, New Delhi.
Note : NA = Break Down Not Available.

The Table 2.1 provides plan outlay and expenditure for Animal Husbandry and Dairying during various Five Year Plans in India.

Dairy Development under each Five Year Plan is traced in the following paragraphs:

First Five Years Plan (1950-51 to 1955-56):

In the First Five Year Plan, the programme for dairy development was initiated in a relatively small way, as funds for dairy development were made available only out of savings from other sectors. Besides giving importance to the distribution of hygienic milk Bombay, Madras, Delhi and Calcutta Metropolis. The plan initiated work in dairy development in Andhra Pradesh, Madhya Pradesh, Bihar, Orissa, Uttar Pradesh and Tamil Nadu. During the

plan, schemes like Key village Schemes for improving the productivity of cattle, Gosadan and Gosala schemes for controlled breeding, disease control and better feeding schemes and schemes for fodder development were launched in the country.

Second Five Year Plan (1956-57 to 1960-61):

In addition to continuation of schemes like key village schemes, Gosadan and Gosala schemes, the plan started a more elaborate intensive cattle development project for co-ordinated provision of the aids to milk producers like improved feeding, breeding, etc., During the plan, seven liquid milk plants were completed as against a proposal of thirty six liquid milk plants for the supply of pasteurized milk to consumers and three milk creameries and two milk-product plants were also completed.

In additional to the expansion of Southern Regional Station of the NDRI at Bangalore, the plan established two additional regional stations at Bombay and Madras to meet the demand of trained personnel for the dairy industry. India's first ever Dairy Science College was set up in 1957 at the NDRI, Karnal, Haryana. "By the end of the plan period, milk production increased to 20.36 million tones per year".

Third Five Year Plan (1961-62 to 1965-66):

The Government of India established the National Dairy Development Board (NDDB) in 1965 with mandate to replicate the Anand or Amul pattern of Dairy Co-operative Societies in India.

The Third Five Year Plan proposed to establish fifty five milk supply schemes for cities, eight creameries, six milk-product factories, two cheese factories four cattle feed mills, and completion of spillover schemes of the 2nd plan. However, actually the plan was able to establish thirty milk supply schemes, four milk-product factories and three creameries.

"The plan was able to increase the milk production to 22.10 million tones per year from 20.36 million tones per year during the Second plan".

Three Annual Plans (1966-67 to 1968-69):

During the three annual plans (1966-69) attention was given to the completion of projects on hand and an expenditure of Rs. 257 million was incurred on dairy development.

Fourth Five Year Plan (1969-70 to 1973-74):

The plan placed emphasis on the extension of organized dairy industry to smaller towns and rural areas, with an emphasis on milk production in order to help small and marginal farmers and landless labourers. During the plan period, the Government of India established, India Dairy corporation (IDC), as a Government Company to handle commercial and financial transactions of 'Operation Flood' programme, which was launched in the plan period to ameliorate the conditions of milk producers by spreading the effects of Anand Pattern Dairy Co-operative Milk Societies.

Under this plan, six milk schemes, two milk-product factories and thirty two dairy centres were commissioned. "The plan was able to achieve a milk production of 23.20 million tones per year as against a target of 25.86 million tones".

Fifth Five Year Plan (1974-75 to 1977-78):

In pursuance of the recommendations of the National Commission on Agriculture, 1972, the fifth five year plan percolated the benefits of organized dairy industry to rural areas by commissioning ninety sex projects for rearing cross bred cows. Besides, it also completed work on three large dairy plants at Delhi, Bombay and Madras.

A special dairy development programme known as "World-Bank-Aided Dairy Development Project' was started during the pan period with the financial assistance from the World Bank in Rajasthan, Madhya Pradesh and Karnataka States on Co-operative lines.

"The plan achieved an annual milk production of 28.60 million tones per annum by the end of the plan period.

Sixth Five Year Plan (1980-81 to 1984-85):

During the sixth five year plan period, the Operation Flood-I Programme was launched with a projected total outlay of Rs. 4,855 million, with a explicit objective of providing increased and hygienic milk to four metropolitan cities, Bombay, Calcutta, Delhi and Madras and to 147 cities with a population of 1,00,000 or above.

The plan achieved a milk production of 42 million tones surpassing not only the target fixed at 35 million tones but also the achievement of the Fifth Plan.

Seventh Five Year Plan (1985-86 to 1989-90):

During this plan period, nutritional research was given more importance for developing feeding systems based on existing resources at farmers' level. Animal feed security system was developed to meet the requirements of live stock in famine and flood-prone areas.

The plan achieved milk production of 51 million tones by the end of 1989-90, which was lower than the target of 52 million tones fixed for the plan period.

Eighth Five Year Plan (1992-93 to 1996-97):

During the eight five year plan, Government of India promulgated Milk and Milk product Order 1992 making registration compulsory for all dairy plants processing more than 10,000 liters of milk daily. It also identified stringent requirement for hygiene and sanitation of equipment and premise where milk products are produced. It also includes, to maintain and increased supply of liquid milk of desired quality to the general public. It seeks to regulate the production, supply and distribution of milk and milk products throughout the country. Government of India opens up the import and export of milk products removing canalization of exports through the NDDB.

Ninth Five Year Plan (1997-98 to 2001- 02):

The strategies envisaged for ninth plan for dairy development were, motivating schedule cast and schedule tribe communities to adopt dairying and animal husbandry as one of the means of livelihood, consolidate the gains of Operation Flood Programmes, to help the co-operative milk unions and government milk supply schemes to become commercially viable institutions to face open competition.

Tenth Five Year Plan (2002-03 to 2006-07):

Several measures have been initiated by Government to increase the productivity of livestock, which has resulted in increasing the production significantly to the level of 100.90 million tones at the end of the tenth plan 2006-07 as compared to 53.90 million tones in 1990-96.

Eleventh Five Year Plan (2007-08 to 2011-12):

Now the efforts have been made for promotion of dairy activities in Non-Operation Flood Areas with emphasis on building up co-operative infrastructure, revitalization of sick dairy co-operatives/state milk federations and creation of necessary infrastructure in the states for the production of quality milk and milk products. For pursuing these objectives, governing is implementing the four dairy development schemes namely,

1) Intensive Dairy Development Programme (IDDP)
2) Strengthening Infrastructure of quality and clean milk production
3) Assistant to co-operatives
4) Dairy Venture Capital fund.

Milk situation in the country :

Considering the domestic demand for milk and its products during lean season (April to August) the following steps were taken :

Issued sanitary import permit for better oil import (23,494 MT) to balance its shortage during lean season.

Permission to import skimmed milk powder under Tariff Rate Quota at 5% duty upto 10,000 MT during 2009-10 and 2010-11 through NDDB has been granted.

Export incentives to milk products, cattle feed, buffalo meet has been withdrawn to increase its availability in the domestic market and also to discourage the slaughter of milk animals.

2.3 Dairy Development Under Operation Flood Programmes:

Operation Flood:

The Operation Flood Programme, the brain child of Dr. V. Kurien, Chairman, National Dairy Development Board, (NDDB), involves the use of donated dairy commodities for purpose of sale so as to generate financial resources for achieving dairy development on organized basis in India.

Dairy Development under Operation Flood Programmes in traced out in the following paragraphs:

Operation Flood-I:

The operation flood-I was launched in 1970 with the objective of laying the foundation for a modern dairy industry, which would meet the country's need for milk and milk-products. The project specifically aimed to take commanding share of the milk market of the four metropolitan cities – Bombay, Delhi, Calcutta and Madras. To achieve this, remove dairy cattle from cities where they represent a growing problem of genetic waste, social cost and are a public health hazard.

The programme was extended for six years and was terminated in 1981, partly due to delays in the implementation and partly due to delays in the delivery of commodities. "As of March 1982, the IDC had received 1,27,517 million tones of skimmed milk powder and 36,697 million tones of butter oil from WFP. The total funds generated through the sale of these commodities were Rs.1,166.25 million". This amount of Rs. 1,166.25 million was ploughed back in the form of investment into various action items agreed by the

Government of India with the aid-giving agencies. "The project has also received bilateral assistance through the Government of India to the extent of Rs. 278 million largely from Canada. Australia, Denmark, Sweden, West Germany and the United Kingdom".

Operation Flood-II:

Operation Flood-II was launched on Aprial 1, 1979 for seven years and ended on March 31, 1985.

Operation Flood – II : "Operation Flood-II is mainly an extension and intensification of the first phase to cover more cities and districts of India, without significant policy change in the basic approach to the country's dairy problem".

The Objectives of Operation Flood-II :

1. To extend the dairy co-operative structure to 155 districts covering 34,000 primary milk producer's co-operative societies with a membership of 10 million families.
2. To assist such producers to rear 10.2 million cross bred cattle and upgraded buffaloes to comprise the National Milk Herd.
3. To link rural producers and urban consumers by enabling regional milk grids to coalesce into a National Milk Grid.
4. To ensure a stable supply of milk to consumers by balancing lean and flush season production and increasing milk production facilities.
5. To strengthen breeding programmes by improving services to the farmers by developing a National Frozen Semen System, improved facilities for health, etc., and
6. To build an institutional structure, which support a viable national dairy industry.

Three sources of finance were used to attain the above objectives under Operation Flood-II. First, the EEC agreed to supply freely and directly 1,86,000.00 million tones of Butter Oil which were expected to realize Rs.2,352.00 million. Secondly, soft loan of Rs.1,930.00 million from the

International Development Association wing of the World Bank; and thirdly, Rs.754 million as repayment of loan advances to State Governments during the phase one.

Operation Flood-III:

Basically, the Operation Flood-III is an extension of the Operation Flood-II upto 1994, as many of the targets of Operation Flood-II remained unattained and much of the amount is left in the coffers of the NDDB/IDC. Rather than limiting the Operation Flood II targets, even more ambitious goals have been set, such as, the formation of an additional 15,000 village level societies, extension of milk sheds to 173 districts, etc.

"The Operation Flood-III is being funded by the World Bank's loan of Rs.360 million, money generated from dairy commodities, gifted by the EEC and from the internal resources of the NDDB". Under the programme, the EEC has agreed to donate 75,000 million tones of skimmed milk powder and 25,000 million tones of Butter Oil over the project period from 1985-86 to 1993-04. The total budget for Operation Flood-III is Rs.6812.90 million, which is more than two times the amount spent during Operation Flood-II.

Now we see a 'white Flood' flowing through all the corridors of the country. Hence, Operation Flood has rightly been described as 'White Revolution'. The credit for this White Revolution should go o the NDDB and to its Chairman Dr. V. Kurien. Undoubtedly, the effort to promote the milk production enhancement needs to be stepped up a great deal, but this does not detract from their overall performance".

Table 2.2 summaries the achievements of Operation Flood I and II and targets for Phase-III of Operation Flood.

Table 2.2
Achievements under Operation Flood I and II and Targets of Phase III

Sl. No	Particulars	Phase I	Phase II	Phase III
1	Investments (Rs. in millions)	1,165.40	2,771.70	6,812.90
2	Village Societies organized (Nos.)	13,270.00	34,523.00	50,000.00
3	Farmer Families covered (lakhs)	17.50	36.30	80.00
4	Number of milk Sheds (Nos.)	39.00	136.00	173.00
5	Average Milk Procurement (LLPD)	26.61	73.30	1220.20
6	Rural Dairy Plants Capacity (LLPD)	45.40	87.75	200.00
7	Peak Throughout (LLPD)	33.90	78.85	-
8	Urban Milk Marketing	29.95	49.54	124.20
9	Milk Powder manufacturing capacity (MT)	340.00	507.50	-

Source : Dairy India Year Book 1987 (Third Annual Edition).
Note : LLPD = Lakhs Liters per Day
MT = Metric Tonnes

"Operation Flood Project, initiated in 1970 has enabled India to increase its milk production, which was static around 20 million tones from 1950 to over 51 million tones in 1990". About 90 percent of this production comes from only 12 (out of the 26 states) viz; Uttar Pradesh, Punjab, Rajasthan, Gujarat, Tamil Nadu, Madhya Pradesh, Bihar and Karnataka in descending order of importance. "The per capita consumption of milk which had come down from 132 grams in 1950 to 107 grams in 1970 is now steadily going up and is currently estimated to be 173 grams day". Operation Flood is helping in replicating the organisation of dairy co-operatives on the Anand pattern in other parts of the country. "Before 1970, there were only five milk shed co-operatives. Today, 174 milk sheds are covered under the Operation Flood

programme. The number of village milk co-operative, which was around 2,000 in 1970, has steadily gone up to 61,000 in 1990. The peak procurement of milk from the dairy co-operative has gone up from 7,00,000 liters per day in 1970 to 12 million liters per day in 1990. Organized marketing of milk in India which was only 1 million liters a day in 1970 in now 7 million liters a day. Imports of milk powder which were around 50,000 tonnes in the mid-sixties have now been completely us milk powder production has gone up from 20,000 tonnes to over 1,65,000 tonnes a year".

In a period of 15 years, about 77 dairy plants have been newly constructed on modern lines and old ones expanded. There are 31 milk conservation plants for manufacture of milk powder. A National Milk Grid has been formed by deploying 875 road milk tankers, 148 rail milk tankers and 10 cold storage and warehouses in order to link deficit areas of milk production with the surplus areas. The longest distance in this grid is over 2,000 Kms from Anand region to Calcutta, in the eastern region of India. Besides, cattle feed factories, stud farms; animal vaccine units and extensive veterinary and social services have come-up".

"It is a fitting tribute to India's White Revolution performance that it is now being sought to be replicated at the international level. China, Pakistan, Indonesia, and the Philippines have decided to share India's experience in dairy development. Out technology and techniques of utilizing food aid, in a way that strengthened rather than undermined our own dairy industry are sought to be emulated by 86 countries of Africa, Asia and Latin America".

2.4 DAIRYING IN KARNATAKA

Growth of the Dairying in Karnataka:

Pre-Independence:

During pre-independence era, Dairying in the state of Karnataka was mostly unorganized. Some efforts were made by the Maharajas of Mysore to develop dairying on modern lines. However, these developments were restricted to particular regions of the state or were meant to supply

uninterrupted flow of milk to the palace. "Mysore Maharaja (King) Chikka Devaraja Wodeyar (1672-1704) established the Department of Administration to maintain the Amrit Mahal breeds and other breeds". This can practically be taken as the birth of Animal Husbandry Department. The Department was called "Benne Chawadi" (Butter Bunglow) in vernacular, the purpose of which was to maintain cows, both for breeding stud and to provide milk and butter for palace.

To ensure the development of dairying, Mysore Maharajas also introduced exotic breeds for the purpose of cross breeding in the State, by establishing the well known Rayankere Farm in Mysore. This was supported by the location of the Royal Dairy Research Institute at Bangalore. This institute became the premier institute in dairy research in India after independence when it was renamed as National Dairy Research Institute (NDRI) and was transferred to Karnal, Haryana. The Bangalore continues to be the Southern Regional Centre of NDRI.

Towards, the end of 19th century, a Military Dairy Farm was established in Bangalore to supply milk and butter to the British Army.

Thus, the pre-independence growth in dairying was marked by regional concentration of achievement. Especially, Southern part of the Karnataka, received much attention in dairy development, much to the negligence of other parts.

Post-Independence:

The Department of animal Husbandry was established after the Independence and reorganization of the State in 1956. It played a vital role in extending the dairy development programmes. Some Central Government programmes like Key Village schemes, Intensive Cattle Development Programme etc., were implemented to augment milk production. Milk supply schemes in cities/towns were initiated to meet the demand for milk; cattle development was given major thrust after the independence. The Animal Husbandry department encouraged Cross-Breeding of exotic breeds with local

breeds to produce cross breeds of high milk producing variety. For this purpose, a Red Dane Project was introduced in 1962 under the Indo-Danish Bilateral scheme. To the Regional centre of the NDRI at Bangalore, an artificial insemination centre was added in 1945 to play a significant role in cross-breeding of indigenous breeds with exotic varieties of cattle. "At present, the state has the largest number of cross breed cattle population in the country".

An integrated approach, on the lines of the Anand Pattern, was made for increasing the milk production by organizing milk collection, processing and marketing and by providing a set of technical inputs for animal health and breeding, since December, 1974, when the GOK entered in to an agreement with the World Bank to finance the dairy Development Activities. This world bank-aided Dairy Development Project covered only 8 districts in Karnataka. And after the completion of this project, development activities continued under the Operation Flood-II and III programmes covering the entire State.

Besides, these planned programmes, the GOK, under its Five Year Plans, made sincere efforts to alleviate the problems confronted by dairying in the State.

In the following pages, a brief analysis of dairy development, under the Five Year Plans, the World Bank Aided Project and Operation Flood Programmes is made:

2.5 Dairy Development in Karnataka under Five Year Plans:

The primary objective of the dairy development programme, under the Five Year Plans, has been to encourage the growth of dairy industry in the rural areas and to supply wholesome milk to cities and towns. The programme induces milk producers to look upon milk production as a remunerative business and provides incentives to them to make efforts to increase the production of milk by their animals by assuring them a steady market free from exploitation. A programme attempt has been made by the GOK under the various Five Year Plans to tackle these problems.

Table 2.3 shows plan outlay and expenditure for Animal Husbandry and Dairy Development in Karnataka under the various Five Year Plans.

Table 2.3
Outlay and Expenditure on Animal Husbandry and Dairying in Karnataka under various Five Year Plans (1951-2009)

(Rs. in Lakhs)

Five Year Plan Periods		Animal Husbandry		Dairying		Total of Animal Husbandry and Dairying	
		Approved Outlay	Expenditure	Approved Outlay	Expenditure	Approved Outlay	Expenditure
First Plan	1951-56	64.30	51.30	0.07	0.07	64.37	51.57
Seconds Plan	1956-61	134.00	80.00	84.00	23.40	182.00	103.40
Third Plan	1961-66	195.00	132.82	175.00	172.29	370.00	305.11
Annual Plan	1966-69	NA	99.18	NA	132.44	NA	231.62
Fourth Plan	1969-74	275.00	195.00	200.00	253.00	475.00	548.00
Fifth Plan	1974-78	1,500.00	278	1,000.00	429.00	2,500	707.00
Annual Plan	1978-80	NA	187.00	NA	388.00	NA	575.00
Sixth Plan	1980-85	1,400.00	965.00	855.00	1,328.00	2,255.00	2,293.00
Seventh Plan	1985-90	1,100.00	1,786.00	3,565.00	1,118.00	4,665.00	2,904.00
Eighth Plan	1992-97	NA	NA	4,410.00	NA	NA	-
Ninth Plan	1997-02	NA	NA	4,130.00	NA	NA	-
Tenth Plan	2002-07	NA	NA	NA	NA	NA	-
Eleventh Plan	2007-12	NA	NA	NA	NA	NA	-

Source : 1. Draft Fifth Year Plan, 1974-79, Planning Department, GOK, Bangalore.
2. Draft Sixth Five Year Plan, 1980-85, Volume 2, statistical Statements, Planning Department, GOK, Bangalore
3. Details of provisions for plan schemes for various years, GOK, Finance Department, Bangalore.

Note : NA = Break Down Not Available.

First Five Year Plan (1951-52 to 1955-56):

In the First Five Year Plan, no specific provision was made for dairy development. An amount of Rs.7,000/- was allocated for dairy development. This was meant for milk supply scheme of the Bellary city which was commenced during the plan. The plan allocated almost the entire outlay for animal husbandry.

Second Five Year Plan (1956-57 to 1960-61):

In the second plan, an increased allocation of Rs.48 lakhs was made for dairy development, with an addition of two milk scheme of Hubli-Dharwad and Kudige, consequent upon Reorganization of the State in 1956.

In the first two five year plans, emphasis was laid on the general improvement of Livestock through better breeding, feeding, animal health care and management". This importance to animal husbandry was due to low productivity of milch stock leading to low per capita availability in the State.

Third Five Year Plan (1961-1962 to 1965-66):

The objectives of the plan for dairying were to achieve an increased milk production to meet the growing demand for milk in the fast growing urban areas and to distribute milk and milk products to the cities with a population over one lakh. For the first time, it emphasized the creation of the Milk Producers' Co-operatives.

Annual Plans (1966-67 to 1968-69):

During the three Annual plans, an expenditure of Rs.231.62 lakhs was incurred on animal husbandry and dairying. The four new milk supply scheme sanctioned for Mangalore, Belgaum, Gulbarga and Mysore started working. Milk supply at Hubli-Dharwad and Kudige were expanded.

Fourth Five Year Plan (1969-70 to 1973-74):

The emphasis for dairy development during the Fourth Five Year Plan was to complete the spill –over Government Dairy Schemes. At the beginning of the plan, there were Five Government Dairies. Two Government dairies at Hubli-Dharwad and Kudige were expanded. Thus, at the end of the plan, there were nine Government Dairies in the State, at Hubli-Dharwad, Shimoga-Bhadravathi, Bangalore, Mysore, Belgaum, Mangalore, Kudige, Gulbarga and Davangere.

Fifth Five Year Plan (1974-75 to 1977-78):

The Fifth Five Year Plan laid stress on milk supply to urban population to meet minimum requirements. To achieve this objective, two additional dairies were added at Bijapur and Hassan and capacities (in terms of lakh liters per day) of then existing dairies were expanded. It was also decided to increase milk production through cross breeding programmes and by streamlining collection, chilling and marketing of milk. In the case of Animal Husbandry, the plan proposed to spend Rs.1,500 lakhs but actual expenditure was Rs.278 lakhs only.

During the period of annual plans for the year 1978-79 and 1979-80, Rs. 575 lakhs was incurred on dairy development and animal husbandry.

Sixth Five Year Plan (1980-81 to 1984-85) :

The Sixth Five Year Plan proposed to expand installed capacities of Government dairies. The plan also proposed to establish two rural dairy centres to meet the milk requirements of rural population.

Seventh Five Year Plan (1985-86 to 1989-90) :

During this plan, it was decided to streamline the Milk Co-operative and Unions by providing inputs facilities, provision of infrastructural facilities, milk processing facilities etc., It was estimated that by the end of the Seventh plan, almost 14 lakhs liters of milk would be marketed daily in 21 urban centres of the state. It was also decided to extend health care facilities, needed for animals other than Mitch cattle.

Eighth Five Year Plan (1992-93 to 1996-07) :

On 27th August 1993, The Milk and Milk Product Order (MMPO) was amended authorizing the state government to register the units handling less than 75,000 liters of milk per day or less than 3,750 MTs of milk solids per annum.

During this plan, two year National Dairy Diploma (NDD) course started at Southern Regional Station of NDRI at Bangalore.

In order to fill up gaps left after implementation of Operation Flood a new scheme 'Integrated Dairy Development Programme' (IDDP) in backward and non-operational flood area was launched in 1993-94 on 100% grant in aid basis. The main objectives of the schemes were development of milk cattle, increasing milk production by providing technical input services, procurement, processing and marketing of milk in a cost effective manner, ensure remunerative price to milk producers generate additional employment opportunities, improve social, nutritional and economic status of residents of comparatively more disadvantaged areas.

Ninth Five Year Plan (1997-98 to 2001-02) :

At end of 1998 the network of 8,023 District Co-operative societies have been established which are spread over 166 talukas of the total 175 talukas in all 27 district of Karnataka and 13 milk unions were existed.

After the close of Operational Flood-III project, Government of Karnataka and National Dairy Development Board (NDDB) signed up MOU during 2000, for further strengthening the dairy dairy development in the state with an outlay of Rs.250 crorers

Tenth Five Year Plan (2002-03 to 2006-07):

Karnataka has been catapulted to the second position from the eighth in milk production. State has second only to Gujarat in milk production, and achievement is on account of Rs.250 crores from the National Dairy Development Board (NDDB) for growth of dairy farms. Government utilized the funds to take up expansion of milk, milk poder and ice cream units. The KMF has been exporting to Sri Lanka, Indonesia Nepal, Bangladesh, Malasiya and the Philippines through other agencies.

Milk powder plant was commissioned in November 2005 with production of 30 tonnes of milk powder a day from 3.5 lakh liters of milk.

Eleventh Five Year Plan (2007-08 to 2011-12):

During the year 2009, 11542 were existed with 20,18,780 members. They procured 36,68,314 Kg of milk per day. The milk sales were 23,77,364 liters per day. Each District Co-operative societies consume 3,046 Kg cattle feed. The daily payment to farmers was Rs.449 lakhs. Total turnover were reached to Rs.3,135 crores.

The aim of this plan were to enable the dairy co-operatives to face the challenges of the increased demand for mil and milk products by focusing efforts in four major thrust areas of strengthening co-operatives, enhancing productivity managing quality and building a National Information network, plans are under implement the 4 milk union Dharwad, Tumkur, Bijapur and Gulbarga that were having accumulated losses were included for rehabilitation programme under centrally sponsored scheme "Assistances to co-operatives" which are also under implementation.

The Karnataka Milk Federation (KMF) is planning to increase production of Good Life packed milk given the increasing demand. It can be stored for 100 days. While the Indian Army namely, Northern and Western Commands are procuring 75 lakhs of this packed milk and Southern and Eastern Commands too have sent feelers to KMF. Dakshin Kannada Milk Co-operative Milk Producers Union Ltd. launched 6 kg curd packet. KMF has been supplying 25,000 a month of Good Life milk to Singapore and 35,000 liters a day of Good Life milk to Saudi Arabia.

The production capacity of this milk is increased from 1.25 lakh liters a day to 5 lakh liters.

KMF has chalked out a five year plan for the milk producers' union in northern Karnataka. Under this, KMF will provide helps to the unions to improve their infrastructure. The objective of this plan is to reach the number one position in milk production in coming years.

Table 2.4
Targets and Achievements of World Bank- Aided Dairy Development Project in Karnataka

Sl. No	Items	Targets as per Appraisal Report	Achievement as on Sept, 1984
1	DCS Registered (No.)	1,800	1,875
2	Unions Formed (Nos.)	4	4
3	Establishment of Bull Breeding farms (Nos.)	4	1
4	Cattle feed Plants (Nos.)	4	2
5	Establishment of Regional Diagnostic Laboratories (Nos)	2	4
6	Frozen Semen Bank Establishments (Nos.)	4	1
7	Training Centres (Nos.)	4	2
8	Incremental Milk Production (Million Tonnes)	1	0.107
9	Milk Processing Capacity Development (1000 ltrs/Day)	1,000	650
10	Feed Mill Capacity Development (MT/day)	500	200
11	Artificial Insemination done (Nos.)	-	5,78,500
12	Cross Breed Cattle Born (Nos.)	-	65,500
13	Members Per DCS (No.)	250	181
14	Milk Supplied per DCS (Tonnes / years)	200	67

Source : Katar Singh and Others, Project Completion Report, Op.cit., p.104.

2.6 Dairy Development in Karnataka under Operation Flood Programmes:

Dairy Development in the state of Karnataka, under the Operation Flood Programmes, is traced out in the following paragraphs:

Operation Flood-I :

The Operation Flood-I, launched at the National Level in 1970, was not implemented in the State. The Operation Flood – I programme aimed to meet the increasing need for milk and milk-products in four metropolitan cities, namely, Bombay, Calcutta, Delhi and Madras. The programme covered only 17 hinterland milk shed areas of these cities.

In the place of this Operation Flood – I programme, the Government of India launched in 1975 a Special Dairy Development programme, known as the 'World Bank Aided Dairy Development Project' in the States of Karnataka, Rajasthan and Madhya Pradesh.

Operation Flood – II:

Operation Flood-II was launched in 1979. The Indian Dairy Corporation provided 30% of financial assistant as grant and 70% as loan.

The Operation Flood – II programme covered the entire State and was implemented in two phases, the first phase covered Bangalore, Kolar, Mysore, Mandya, Tumkur, Hassan, Chikmaglur, Coorg, Belgaum, Dharwad, Eastern part of North Canara, Gulbarga, Bidar and Bijapur under the programme, new district level unions were established at Gulbarga, Belgaum, Dharwad, South Canara, Bijapur, districts. The second phase covered the remaining districts of the state, namely, Raichur, Shimoga, Chitradurga, Bellary and South Canara.

The objectives of the operation Flood – III programme for the state were as under:

1. To increase the number of DCS from 1,800 to 5,000 and Unions from 4 to 11;
2. To increase the dairy milk production to 7.82 LLPD by the end of the project period;
3. To create additional processing facilities to the extent of 10 lakhs liters per day (LLPD) by establishing new dairies at Raichur and Bijpur and to expand dairies;
4. To increase the sale of liquid milk in all urban centers with or above one lakh population, in order to increase the per capita consumption of milk;
5. To establish cattle feed plant with a capacity of 100 tonnes per day at Dharwad.

For the implementation of the operation Flood-II programme, the organizational set up was changed and the KDDC was reconstituted in to the KMF in January, 1983 under the programme, new district level unions were

established at Gulbarga, Belgaum, Dharwad, South Canara, Bijapur, Shimoga and existing unions at Bangalore, Mysore and Tumkar were bifurcated into Bangalore, Kolar, Mysore, Mandya and Tumkar unions.

Operation Flood-III:

The operation Flood – III was short closed by the end of September, 1989 and its activities were continued in the state under operation Flood – III programmes. This programme has been extended upto 1994 and it covers the entire state. The objectives of operation Flood – III in the state, are:

1. To establish 7,000 dairy co-operative societies in 13 unions, covering 12.11 lakhs number of farmer-members;
2. To increase milk procurement to 16.81 lakhs liters per day;
3. To increase the processing capacity to 26.40 lakhs liters per day the end of the programme;
4. To increase milk sales in urban centers so as to capture the widening milk market;
5. To increase additional 400 tonnes capacity per day of cattle feed;
6. To provide technical input facility; and
7. To continue the on-going activities of operation flood – II.

As at the end of March, 1990, a total of 5,446 DCS at village level and 13 unions at district level, namely, at Bangalore, Bellary, Belgaum, Bijapur, Dharwad, Gulbarga, Hassan, Kolar, Mandya, Mangalore, Mysore, Shimoga and Tumkar have been organized in the state. These unions have been federated into the KMF at the state level, for fulfilling the Amul pattern of co-operative Dairy Structure.

As at the end of March, 1990, there were 23 number of Farm coolers with a capacity of 1.07 lakhs liters per day, 16 number of chilling centers with a capacity of 4.15 lakhs liters per day, 14 number of liquid milk plants and 2 product dairies (capacity 8.95 lakhs liters per day) at Hubli-Dharwad and Gejjelgere, were functioning in the state. To supply balanced cattle feed to the

members of the DCS, 3 cattle feed plants at Bangalore, Tumkar and Dharwad with a capacity of 100 tonnes per day were functioning.

To ensure availability of liquid semen and frozen semen to DCS members for Artificial Insemination (AI), an integrated bill breeding and the frozen semen bank have been established at a total cost of Rs. 113 lakhs as a part of the World Bank-Aided Dairy Development Project at Hessarghatta. To impart training to the people associated with animal husbandry and dairy development, one Central Training Center at Bangalore and 3 regional Training Centers at Dharwad, Mysore and Tumkar have been established. These centers train the staff of the DCS, Extension, Veterinary, A.I Officers, DCS Committee members and Women members in AI programme.

In order to enable the storing of semen for artificial insemination, 3 liquid nitrogen plants have been established at Bangalore, Dharwad and Hessarghatta with a capacity of 25 liters per hour, 25 liters per hour and 5 liters per hour respectively. Four diagnostic laboratories at Bangalore, Mysore, Tumkar and Hassan are working for disease monitoring a the end of March, 1990. Four Fodder Demonstration farms at Rayankere, Kottanhalli, Channpatna and Kudige and one Heifer project at Shahpur (Gulbarga) are also operating.

2.7 Structure of Dairy Industry in Karnataka:

The international Development Association of the World Bank in 1975, under the World Bank Aided Dairy Development Project, Insisted on the emulation of Anand Pattern of dairy co-operative in the state. Since then, the state has been emulating the Anand pattern of Dairy Industry Structure. Aand or Amul (named after Anand Milk Union Limited, Gujarat) pattern is a three-tier structure consisting of primary village level dairy co-operative societies, Unions of these village level societies at district level and state level federation of these unions.

The Chart 2.1 shows the structure of dairy industry in the state on the pattern of Anand.

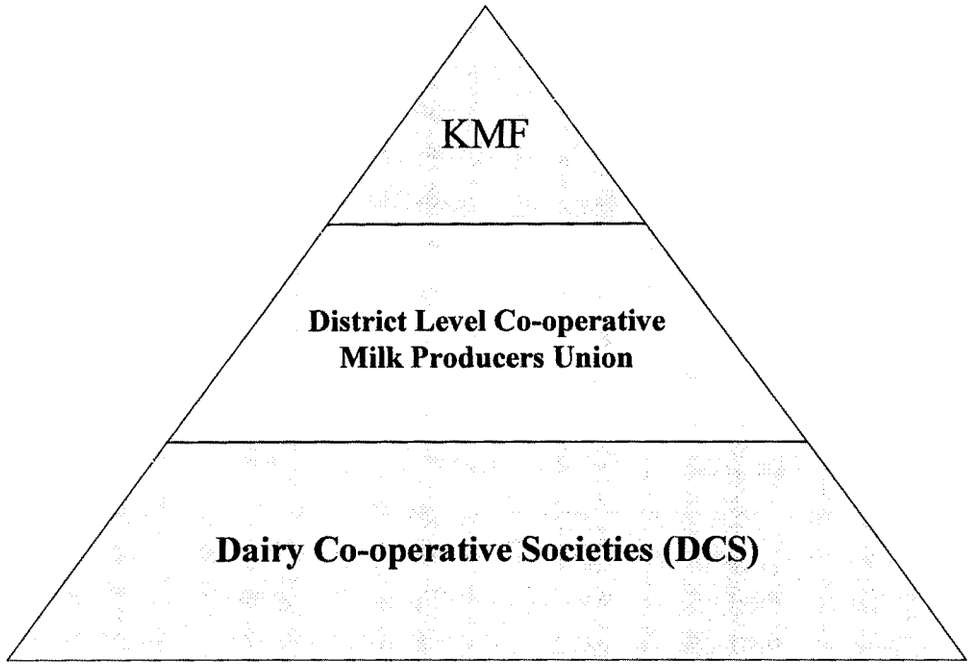

Chart 2.1 Dairy Industry Structure

Dairy Co-operative Societies (DCS):

Dairy Co-operative Society (DCS) is a basic organization unit functioning at the village level. "The Primary Dairy Co-operative are the organizations which function at the grass root level and which form the foundation of the whole superstructure of the Co-operative Dairy Industry". The village level dairy society has the functions of procurement of milk, marketing of milk to the union or to the chilling-centers run by the KMF, provision of input facilities, like cattle feed and fodder, provision of mobile and emergency veterinary services, artificial insemination, sale of fodder seeds, seedlings dissemination of know-how etc.,

District Level Co-operative Milk Producers Unions:

District Level Co-operative Milk Producers' Union is a second level institution in the three-tiered structure of Dairy Co-operative." As per Anand

Pattern Scheme, Unions are entrusted with the task of procurement, processing and marketing of milk and milk-products as well as the supply of inputs to the milk producers through primary societies". They are the connecting links between the milk producers and the consumers.

Karnataka Co-operative Milk Producers' Federation Limited:

The Karnataka Co-operative Milk Producers' Federation Limited, in short, is known as Karnataka Milk Federation (KMF). The KMF is the state level Federation of District level unions. A portrait of this KMF is given in the following chapter.

Conclusion :

The co-operatives play a eminent role in development of dairy industry. There is a tremendous improvement takes place in dairy industry due to implementation of operation flood programme and five year plans. But still there is a need to uplift the farmers as well as rural women economically and socially which leads economic development of the nation.