CHAPTER-II

DAIRY CO-OPERATIVE MOVEMENT - IN RETROSPECT

INTRODUCTION

Cattle have been playing a significant role in the economic life of rural India from ancient times. Their utility for the rural community is so high, that they are considered even now as embodiment of divinity. "Welfare be to our mother and father; welfare be to our cows", so said Athara Veda. Cattle have remained as the sole motive power. They provide much needed milk and milk products. Their overall contribution to the national income by way of milk, labour, dung, beef, hides, bones, etc., is estimated to be about 25 per cent.¹ According to NSS estimate, the national investment in livestock is nearly 39 per cent of total investment in all goods in the country.² Cattle rearing and milk production have been a source of livelihood to innumerable people in the sub-marginal level.


According to the livestock census 1972 India had 178.9 million cattle and 57.9 million buffaloes. Taking into account India's cattle population alone, it is larger than that of most continents except Asia and America. In buffalo population, India enjoys a pre-eminent position. About 98 per cent of world's buffalo population is concentrated in Asia; and India alone accounts for about 47 per cent of the world's buffalo population.\(^3\) There are about 24 breeds of cattle and 6 breeds of buffaloes in addition to large number of non-descripts.\(^4\)

Though India has a huge bovine population the per capita possession is one of the poorest in the world. The annual growth rate of cattle population (0.75\%) has also not kept pace with the growth rate of human population (2\%). There is also likely fall in the cattle and buffalo population from the present level to 167.79 million and 56.81 million respectively in 2000 AD.\(^5\)

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But the density of bovine population is high in India with about 150 bovines for every 100 hectares of cultivable area, which is among the highest in the world. In sheer figures India produces more milk than South America, Africa and Oceania individually and more than half of the total output of Asia. And yet an average Indian cow yields only about 450 kgs. per lactation which is among the lowest. Of the 432.8 million tonnes of world's milk production in 1977, India's share is only 24.9 million tonnes, which forms only 5.7 per cent of the world's milk production.

Unlike cattle which are kept for dual purpose of milk production and draught power, buffaloes are mainly kept for milk and ghee production. About 65 per cent of milk consumed in India comes from buffaloes, even though they form only about 25 per cent of the bovine strength. The percentage of breeding animals is also higher (50%) among buffaloes than among cattle (30%).


ECONOMIC SIGNIFICANCE OF DAIRY INDUSTRY

Apart from the concentration of huge bovine population, dairy industry has economic significance and social relevance in India. The economic compulsions which highlight the imperativeness of dairy industry are discussed hereunder:

Augmenting Milk Supply Base:

The per capita daily milk consumption is extremely low in India, when compared with the per capita daily milk consumption of 714 grams in Switzerland, 637 in New Zealand, 623 in United States and 509 in United Kingdom. Such a low level of milk consumption is far short of 283 grams advised by the Nutritional Advisory Committee. Even the low per capita availability has been on the decline, as the rate of growth of milk production (about 0.7%) has not kept pace with the rate of growth of population (about 2%). The demand for milk, on the other hand is expected to rise rapidly due to increase in income, as the milk is a commodity which is subject to income elasticity of demand. The elasticity of demand for milk and milk products during 1961-71 was 1.5 in the rural areas and 1.3 in the urban areas.

areas. This demand supply imbalance has lead to price hike of milk and milk products. The price rise for milk and milk products in India was as high as 7.8 per cent per annum between 1961 and 1973. Between January 1977 and January 1978 price of cow milk had increased by 4.7 per cent and that of buffalo milk by 5.6 per cent. For the same period the prices of ghee had gone up by 7.3 per cent.

Rising productivity in Small farms:

Dairying has great potentiality for increasing the productivity in small farms. According to the Agricultural Census 1971, out of the 7.05 crore operational holdings in the country half of them were less than one hectare.


The concentration of bovine population is more in small farms. The average number of bovine stock per unit of cultivated area in holdings with less than one acre carry over six times as many bovines per unit area of holdings of 30 acres and more. Again there is preponderence of adult females in very small holdings which suggest that they concentrate more on milk production. This resource pattern in small holding is suitable for mixed farming, where crop production and dairy development mutually contribute and would result in added income to the subsistence farmer. An investigation carried out by the Institute of Agricultural Research Statistics, on profitability of different systems of farming has shown that dairy farming and mixed farming if properly practised could be more profitable than arable farming. The average net return per Rs. 100 invested was found to be Rs. 16.6 in the dairy farming units, Rs. 16.4 in the mixed farming units and Rs. 13.3 in the arable farming units.

Another study has revealed that the net income was the highest in holding below 2.5 acres.\textsuperscript{16} The Asian Productivity Organisation has rightly recommended that high priority, must be given to those projects which are aimed at integrating livestock into small farmer system.\textsuperscript{17}

\textbf{Employment Generation:}

Mitigating widespread rural unemployment is also one of the objectives of dairy development. A study\textsuperscript{18} on the impact of white revolution revealed that mixed farming created 32 per cent of extra work as compared to arable farm. The dairy farming created 45 per cent of extra work as against mixed farming and 92 per cent of extra work as compared to arable farm. It was also estimated that an additional employment of 129 days as compared

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\textsuperscript{17} Livestock Production in Asian Context of Agricultural Diversification, op. cit., p.5.

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to mixed farming and 255 days as compared to arable farming were found by maintaining dairy farm. Yet another study has brought out that the milk production is more economical for small farmers and landless persons, as they have cheap labour, the opportunity cost of which is low.

Due to the economic significance and employment content in milk production the National Commission on Agriculture recommended as follows: "As cattle and buffalo raising involves intensive use of labour usually on the part of the members of the family more than any other enterprise, it offers very significant employment and income opportunities to small and marginal farmers and agricultural labourers. A large proportion of female labour force finds scope for fuller utilisation in several operations connected with cattle and buffalo rearing."


**EFFORTS UNDER FIVE YEAR PLANS:**

Systematic development of cattle and dairy industry started only after the launching of the country's Five Year Plans. The plans concentrated their efforts on certain specific programmes for cattle and dairy development such as Key Village Scheme, Gosadan and Gosala Scheme, Intensive Cattle Development Programme, Pilot Milk Scheme/Rural Dairy Centres, Bilateral Cattle Improvement Projects and the Operation Flood Project. The outlay for Animal Husbandry and Dairy Development has been increasing during the plan period. From a mere 15.8 crores in First Five Year Plan it rose to 38.4 crores in Second Plan and 90 crores in the Third Plan. From Fourth Plan onwards the resource allocation has been very substantial. From 233 crores in Fourth Plan, it went up to 438 crores in Fifth Plan and further to 825 crores in the current plan. The resources allocated under the plans have been diverted towards four major tasks as given below:

1. Programmes for modifying the pattern of use of land.
2. Programmes for building up the cattle to higher productivity.
(3) Programmes for the development of remunerative market for milk and milk products.
(4) Programmes for education of personnel to man the expanding dairy industry. 

PROBLEMS OF DAIRY INDUSTRY:

Despite the potentialities, prevailing opportunities and patronage extended by the Government through the five year plans, the progress and performance of dairy industry is far from satisfactory. The Indian Dairy Industry suffers from certain environmental and technical constraints which are discussed hereunder:

1. **Low Yield:** A vast majority of our dairy animals are poor milkers. The national average yield per cow per annum is about 175 kgs. and in the case of buffaloes, it is about 500 kgs. The yield is diplomatically low when compared to that of 4,933 kgs. in Israel, 4,300 kgs. in Japan, 4,130 kgs. in U.S.A. and 3,623 kgs. in Sweden. Low yield erodes the base of dairy industry. It becomes unremunerative to the producer which a disincentive for more production. The consequent high cost of milk renders

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the price of milk uneconomical for the consumers and curbs the effective demand. The vicious cycle of low yield operating in Indian milk production is depicted below:

![Cycle Diagram](image)

2. By-product nature of milk production: The Indian dairy industry is characterised as a by-product industry, the main industry being production of male calves for draught purposes. Males dominate the cattle population of India. Out of the 134.34 million adult cattle in India in 1972, 74.62 million were males.
The dairy animals are always in competition with draught animals for feeds. Besides, there are large number of old, invalid and sterile animals which cause continuous drain on fodder resources and lead to degeneration of the dairy industry.

3. **Absence of modernisation**: Dairy industry in India is less modernised at all levels - production, processing and marketing. Absence of commercialisation, absence of scientific management of herds and lack of investment funds are the key problems at producer level. At the marketing level market modernisation has taken place in a limited way in public sector and co-operative dairies because of their technical capacity and capital investment. Absence of modernisation causes high cost of operation, inefficient management of seasonal variation in production, uncertainties in demand and supply and wild fluctuation in price. Improvements in the techniques and technology of production, processing and distribution is the crux of the problem of dairy development in India.

4. **Unorganised marketing**: Dairy industry in India is highly unorganised. It has been estimated that only 10 per cent of the milk produced in the country is
channelled through the organised sector.  

A host of middlemen flourish in the unorganised sector at the cost of both the producers and consumers. A study conducted in Punjab revealed that the retail prices increased at a higher rate than the wholesale and procurement prices, which indicated that the middlemen were mopping up undeserved profit. The price offered to the producers did not even cover the cost of milk production, which was higher by Rs. 34.17 per quintal. This was so because the farmers had no organisation of their own and as individuals their bargaining power remained very low. There was no proper enforcement of statutory discipline. Thus, the traditional marketing system is a major impediment to the expanded consumption and also for the organised sector. Greater attention has to be bestowed in the productive innovation in marketing rather than in milk production.

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INSTITUTIONAL DIMENSION OF DAIRY DEVELOPMENT:

Of the different dimensions of dairy development, its institutional dimension is considered to be a prelude for the all-round and sustained development of dairy industry. Norman C. Wright in his report stressed that "the producer should be furnished with a more powerful bargaining weapon in disposing of his produce and could avoid the heavy toll on his income which is associated with the existence of numerous intermediaries between producer and consumer". The co-operative sector which balances the interests of producers and consumers is best suited for dairy development. In the opinion of Dr. V. Kurien the chief architect of 'Anand Model': "Only one institutional structure has proven effective in getting dairy development done; that is a unified organisation of producers which is responsible for procuring, processing and marketing of members' milk, owned and controlled by milk producers and therefore responsive to producers' needs". Co-operation has the distinct merit of

26. Kurien V. The larger Dimensions of Dairy Development (Lecture delivered during Sixth Lal Bahadur Sastri memorial lecture series at Indian Agricultural Research Institute), (mimeographed) p.3.
integrating the interests of small producers with the benefit of modern sophisticated tools and techniques of organisation and management. Co-operative institutions enjoy the goodwill, patronage and unstinted support from the community; harmonise the interests of all concerned - the primary producers, consumers, the community and the organisation itself; possess inherent potentialities and in-built provisions to serve the cause of rural development. The XIV Dairy Industry Conference held at Bangalore in 1978, considered co-operation as the basic tenet of Indian Dairy Industry. It felt: "a co-operative structure is the sheet anchor of India's dairy development, because the resources of our farmers are circumscribed and milk production consequently, is small and scattered." 

ADVANTAGES OF DAIRY CO-OPERATIVES:

The specific advantages that accrue to the producers and consumers through the co-operative form of organisation are listed below:

(1) It brings the rural producer and the urban consumer to direct contact eliminating middlemen.

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(2) It gives incentives to producers by providing assured market, remunerative price, regular payment and yearly bonus out of profit.

(3) It gives scope for functional specialisation and division of responsibility between primary societies and the federations, the former concentrating on production and the latter taking care of marketing.

(4) Payment made to producers on the basis of quality of milk ensures the supply of un-adulterated good quality milk.

(5) All the needs of the producers like cattle feed, forage seeds, veterinary aid and AI are met by co-operatives themselves at the doors of the producers.

(6) Producers can be educated in the latest knowledge on dairy farming through co-operatives.

(7) Government aid and aid from other agencies are easily routed through co-operatives.

(8) Milk producers, as members of co-operatives can get loan from the financial institutions easily for purchase of milch animals.
(9) Co-operatives ensure involvement of milk producers in the management and decision-making; and provide collective bargaining power to the producers.

(10) Co-operatives provide scope for leadership development among milk producers and are less susceptible for government interference.

DAIRY CO-OPERATIVES ABROAD:

Co-operation has made great progress in the field of milk production and distribution in western countries. Denmark has been the home of co-operative creameries and dairies, which handle 87 per cent of milk, 67 per cent of butter export and about 30 per cent of cheese marketing. In Holland 85 per cent of the milk produced goes to co-operative dairy factories for processing. In the U.S.A., in 1967 co-operatives were furnishing facilities for production of about 75 per cent of the non-fat dried milk, 65 per cent of the butter, 30 per cent of the American cheese, 10 per cent of the packaged fluid milk.

and 5 per cent of the ice cream. In Norway co-operatives handle 100 per cent sale of milk from the farmers. In Israel the milk marketed by Moshavim in 1969-70 was at the order of 56.7 per cent of all the milk marketed. In Ireland co-operation handle 80 per cent of the creamery milk production and 75 per cent of the processed and manufactured dairy products. In Switzerland next to purchasing and marketing co-operatives milk co-operatives are the most important and widespread.


33. ICA Year-book of Agricultural Co-operation 1968, p. 82.
EVOLUTION OF DAIRY CO-OPERATIVES IN INDIA:

Efforts for organising dairy industry on co-operative lines were made after the enactment of the Co-operative Societies Act of 1912. The Katara Co-operative Dairy Ltd., Allahabad is probably the oldest co-operative dairy organisation. The Talankeri Dairy Co-operative Society, Nagpur was registered in 1922. The Calcutta Co-operative Milk Supply Union came into existence in 1919 after two years of operating number of societies. The Madras Milk Supply Union came into being in 1927-28. The Lucknow Co-operative Milk Supply Union was registered in 1938 as a federation of primary societies. However, real progress in the dairy co-operative movement started only after the world war II. Phenomenal growth of towns and cities and their growing milk demand also created a favourable climate for the development of co-operatives. Many such societies and unions came into being thereafter. These societies and the unions were by and large, producers' organisations, owned and controlled by milk producers. The isolated cases of consumers and distributors organisations that we come across in this sector are nevertheless, uncommon. The growth of the milk co-operatives and their unions had

been impressive during the last two decades. There were 3,200 primary societies with a membership of 2.38 lakhs and a turnover of 544 lakhs in 1960-61; which had risen to 24,414 in 1976-77 with a membership of 19.93 lakhs and a turnover of 16,643 lakhs. Looking at the level of progress of dairy co-operatives in different states, one can understand the wide disparity among them. In certain States, this sector is well advanced and in certain other States it is lagging behind. Andhra Pradesh, Gujarat, Haryana, Maharashtra, Rajasthan, Tamil Nadu, Punjab and Uttar Pradesh are the States wherein there are large concentration of dairy co-operatives. These eight States account for 85.81 per cent of the number of dairy co-operatives in the country. Barring Tamil Nadu, Andhra Pradesh and Rajasthan, the other five States have developed a fullfledged co-operative structure with State level federations.

The performance of co-operatives in dairy sector is remarkable which has given new direction to dairy development. "The stimulation given to the development of dairy industry by the dairy co-operative organisation has been one of the most important landmarks in the history of dairy development."35

**POLICY PERSPECTIVE ON DAIRY CO-OPERATIVES:**

Organising activities connected with animal husbandry and/or similar related activities on a co-operative basis have long been the basis of official policy in this sector. Encouraging co-operatives have been the main plank of the recommendations of several committees. The Co-operative Planning Committee, among other things recommended the organisation of separate societies for producers and consumers, for the specialised tasks of production and distribution. The committee also recommended the setting up of milk marketing boards in larger cities and the organisation of primary milk producers' societies within a radius of 30 miles of every town with a population of 30,000.\(^36\) In 1947 Mr. R. Kothavalla the then Dairy Development Adviser to Govt. of India recommended that the only way to increase production was, to provide incentives to the rural producers in the form of assured market and profitable price for their labour. This can be achieved by organising the producers on the co-operative lines and enabling

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them to contact the consumers directly.\textsuperscript{37} The Milk Subcommittee of Policy Planning Committee on Agriculture, Forestry and Fishries (1944) recommended the organisation of milk collection from rural areas through Government, private or co-operative agency as one of the measures for dairy development.\textsuperscript{38} The Expert Cattle Committee of Bombay also recommended for the organisation of groups of co-operative cattle breeding and milk production societies in villages and their central agencies in cities for collection and distribution of milk.\textsuperscript{39}

\textbf{Policy Development under Five Year Plan:}

Planning era witnessed organised efforts for development of dairy co-operatives for the benefit of rural producers and urban consumers. The First Five

\begin{itemize}
\item \textsuperscript{37} Kothavalla Zal R, \textit{Proposals for Five Year Plan for Increasing Milk Production in the Provinces, with Proposed Targets}, Government of India, 1947, p.3.
\item \textsuperscript{38} India Government of, Directorate of Marketing and Inspection, \textit{Brochure on Marketing of Milk in Indian Union}, 1947, p.21.
\end{itemize}
Year Plan spelt out its policy regarding co-operative dairies. It recommended the setting up of statutory Milk Boards in cities, which would be responsible for organising milk production in sub-urban areas through co-operatives. The co-operative societies would take care of (a) milk production and other related aspects like supply of feed, advancing loans etc., and (b) the sale of milk through their own depots or through the licensed vendors. The plan thus did not envisage of two-tier arrangement for milk production and supply.

During the Second Plan more realistic policy regarding co-operative dairy development was framed. The general policy of the plan was to organise milk producers' co-operatives in villages to supply milk to urban milk supply schemes. The plan thus bifurcated rural milk production and urban milk supply. The plan also stressed the need for devising arrangements which would ensure the supply of adequate quantities of milk to urban areas: (a) under condition in which quality is guaranteed, (b) at prices which are remunerative to the milk producers and fair to the consumers.

Towards the end of the Second Plan the Ministry of Food and Agriculture took a policy decision against the
organisation of separate milk producers' co-operatives. The work of milk collection, it was suggested, should be entrusted to the service co-operatives by adopting supplementary bye-laws relating to milk business. This policy was a set-back to the growth of the milk co-operatives. The Working Group on Animal Husbandry and Dairy Co-operatives (1962) also endorsed the Government policy. The committee, however, favoured the organisation of separate milk societies wherever the village credit societies are ineffective and wherever there is concentration of milk producers, keeping in view the viability. The committee also recommended the organisation of state federations of dairy co-operatives and national federations for better co-ordination and technical guidance; entrusting of dairy development schemes to co-operatives; transfer of departmentally run schemes to co-operative fold on a phased manner; and giving preferential treatment to co-operatives in licencing additional capacities.

A marked shift in the policy was noticed in the Third Five Year Plan. This plan aimed at organisation of dairy

industry based on a system of rural milk production linked with urban marketing. It also stressed the need for strengthening milk production in rural areas besides ensuring supply of adequate and pure milk to urban centres.

During the Fourth Five Year Plan programmes were drawn to bring more and more cities and towns under organised dairies. It was intended to cover towns with a population of 50,000 and above, besides organising 64 rural dairy centres in pockets with potentiality for milk production. For the first time during this plan focus was laid on increasing the productivity of small producers. The plan took cognizance of the fact that most of the dairy plants were in public sector and recommended the entrusting of public sector projects to co-operative bodies. The plan also stressed the viability aspect of the dairy co-operatives; laid down criteria for the same and suggested a package approach towards streamlining and strengthening the co-operatives in the milkshed areas of dairy projects.

The All India Rural Credit Review Committee (1969) which dwelt at length the programmes for weaker sections, considered co-operative organisation as an ideal medium for channelling Government help to weaker sections and a best suited agency for organising smaller units
engaged in animal husbandry including the weaker sections. The committee felt: "It is possible to combine both the economies of scale and responsiveness to local needs and circumstances through co-operatives". The Operation Flood Programme, launched in July 1970, gave a great fillip to the co-operative dairy development in the country.

Development of weaker sections through dairying and other agriculturally related occupations was the major thrust of the Fifth Five Year Plan. The plan aimed at ensuring the traditional classes to get a major share in the animal husbandry programmes. Provisions were made in the central and state plans for giving assistance to small farmers, marginal farmers and other weaker sections for rearing cattle, sheep, pigs etc. The plan also aimed at adopting substantially the recommendations of the National Commission on Agriculture, which advocated the integrated approach developed by the co-operative union at Anand (Gujarat).

The Draft Five Year Plan 1978-83 recognised the labour intensive and labour distributive character of livestock productions and placed continued emphasis for the development of weaker sections through this sector. The plan

aims at adopting in large measure the strategy recommended by the National Commission on Agriculture which seeks to reserve a major share of this industry to weaker sections and adopt an integrated area approach mainly based on a system of producers' co-operatives. The plan has spelt out the approach to dairy development as follows: "Except in certain special areas dairying will be organised by and large, through the co-operative or corporate sector. However, the ultimate objective would be to foster the growth of dairying through a two-tier system of functional co-operatives with producers' societies at the village level and unions at the district level". 42

An overview of the policy development on co-operative dairying during plan period thus reveals: that only during second plan definite shape was given to the policy on dairy co-operatives which placed emphasis on rural milk production; the strategy evolved during the second plan was extended to the third plan also; the fourth plan witnessed a marked shift in the policy regarding dairy co-operatives as greater stress was laid

on milk production through small/marginal farmers and on package approach for stream-lining and strengthening the co-operatives; the fifth plan contemplated the development of weaker sections through dairying; and continued emphasis was placed under sixth plan for the development of weaker section through co-operatives and for the adoption of the integrated approach developed at Anand.

SHARE OF CO-OPERATIVES IN DAIRY BUSINESS:

In spite of the Government's commitment to the policy of dairy development through co-operatives the share of co-operatives had been declining. At the primary level, the performance is, nevertheless impressive. Co-operatives have yet to develop organisational and technical competence at higher level. Not more than one per cent of the total milk production is handled by co-operative dairies. Out of the 108 dairy plants in operation in June 1971, 32 (29%) were in co-operative sector. In 1973 out of the 193 plants in operation 55 (28%) were in co-operative sector. The public sector dairy plants grew rapidly under the operation Flood I programme. One of the disappointing features of the Operation Flood I programme is the frequent delay in the registration of milk producers' unions and anticipated hand over of processing and cattle feed
compounding factories. This lacuna is sought to be rectified under Operation Flood II.

OPERATION FLOOD PROJECT:

The Operation Flood Project, the world's biggest milk drive ever launched in any country was conceived and formulated by the National Dairy Development Board and executed by the Indian Dairy Corporation. The project was initiated in July 1970, with a broad objective of creating a basis for accelerated development of the country's dairy industry.

In accordance with the agreement signed between the World Food Programme (of the UN/FAO) and the Government of India the WFP will arrange to supply during the project period 1,26,000 metric tonnes of skim milk powder and 42,000 metric tonnes of butter oil, which the corporation will handle on behalf of the Government of India. Utilisation of these commodities over the project period would generate funds estimated at Rs. 954 million.

These funds are to be invested as scheduled in the plan of operation mutually agreed to between the Government of India and I/PP; and will finance the eleven action oriented items as given in Table-III.1.

The project aimed at improvement of milk marketing by enabling the organised dairy sector to obtain a commanding share of the markets in the four major cities of Bombay, Calcutta, Delhi and Madras and at speeding up dairy development by increasing milk procurement and production in the rural areas which supply milk to the four major cities extended over ten States namely, Punjab, Haryana, Rajasthan, U.P., Bihar, West Bengal, Tamil Nadu, Andhra Pradesh, Maharashtra and Gujarat. The programme intended to cover 2.1 million milch cattle and buffaloes spread over the 17 milkshed of the country in 10 States. During the period of July 1970 to December 1976, the total quantity of skimmed milk powder and butter oil received by the IDC was 80,661 tonnes and 28,330 tonnes respectively. With the sale of these commodities, the funds generated by the IDC have been Rs. 651 million. From the inception of the project until March 31, 1976 a total of Rs. 608 million was disbursed to the state agencies for carrying out the project.
### TABLE-II.*

**RESOURCE ALLOCATION UNDER 'OPERATION FLOOD':**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Action Items</th>
<th>Allocation of Funds (Rs. in Crores.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Expansion of the four cities existing capacity to obtain rapid increase in their distribution of liquid milk.</td>
<td>1.91</td>
</tr>
<tr>
<td>2.</td>
<td>Expansion of handling capacity by adding to existing handling facility and erection of new liquid milk plants.</td>
<td>14.00</td>
</tr>
<tr>
<td>3.</td>
<td>Storage and long distance milk transport facilities.</td>
<td>3.17</td>
</tr>
<tr>
<td>4.</td>
<td>Milk collection and chilling.</td>
<td>20.98</td>
</tr>
<tr>
<td>5.</td>
<td>Feeder balancing dairies.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Resettlement of city kept cattle.</td>
<td>15.40</td>
</tr>
<tr>
<td>7.</td>
<td>Increasing milk production by providing technical inputs including establishment of cattle feed mixing plants, breeding of cattle, veterinary services and calf rearing assistance.</td>
<td>28.50</td>
</tr>
<tr>
<td>8.</td>
<td>Development of improved milk animals.</td>
<td>4.00</td>
</tr>
<tr>
<td>9.</td>
<td>Organization of rural procurement of milk.</td>
<td>1.80</td>
</tr>
<tr>
<td>10.</td>
<td>Project planning implementation and manpower development.</td>
<td>3.58</td>
</tr>
<tr>
<td>11.</td>
<td>Miscellaneous including unloading, storing and transporting of WFP commodities.</td>
<td>2.96</td>
</tr>
</tbody>
</table>

**TOTAL:** 95.40

* TABLE-II. : 48
Under the 'Operation Flood' the existing city dairies at Bombay, Delhi, Madras and Calcutta have been expanded from their pre-project throughput, of about 900,000 litres per day to 1.45 million litres per day. The new dairies (mother dairies) have been commissioned at Delhi, Bombay, Madras and Calcutta. Setting up of a new feeder/balancing dairies was also completed. Steps are also taken to build the national milk grid and storage at Delhi, Calcutta and Madras and procurement of long distance transport facilities such as rail milk tankers.

An appraisal of the First Operation Flood showed that one million milk producers have joined the 5,000 village dairy co-operatives which are managed by the producers themselves. The incremental income received by the beneficiaries, is estimated to be between 50 to 100 per cent; and the distribution of milk to four metropolitan cities had risen from the pre-project level of 9.02 lakh litres to 17.67 lakh litres in November 1977.

The programme is not without defects. There has been significant lag between the target of the IDC and its actual performance. The programme is behind the schedule by two years. The programme, it is also felt
has not resulted in substantial increased in the indigenous milk production.

**OPERATION FLOOD SECOND PHASE:**

The operation Flood II Project is being launched from July 1978 with an outlay of Rs. 484 crores. It visualises a national milk grid linking 147 major urban centres comprising cluster federations in 156 districts. The project visualises the setting up of large number of new diaries, strengthening the existing ones and setting up of chilling centres in villages and tehsils. The number of cold storages will, therefore, be in proportion to this programme. The objectives of operation Flood II which will be implemented over a period of 7 years are:

1. To enable about 10 million rural milk producers to build a viable self-sustaining dairy industry by 1985.

2. To enable the milk producers to rear a national milch herd of some 15 million cross-bred cows and upgraded buffaloes by 1985.
(3) To erect a national milk grid which will link the rural milk sheds to the major demand centres with urban population totaling some 150 million.

As a result of the project the country's milk production is projected to increase from the present 68.7 million litres per day to 102.3 million litres per day in 1985. The modern dairies' share in the four metropolitan cities is to be increased from the present 29 per cent to 80 per cent in 1985 and in about 150 other towns their share will increase from the present 8 per cent to 70 per cent. The project is also designed to erect the infrastructure required to support a viable national dairy industry in the mid eighties, mainly on co-operative basis.

The first phase of 'Operation Flood II' will extend between July 1978 to June 30, 1981 and phase II from July 1, 1981 to June 30, 1985. It is estimated that at the end of the first phase some 5.7 million rural farm families will have joined 25 cluster federations and 8.6 million milch animals will come within the co-operative ambit. Operation Flood II will be a central sector plan for dairy development and the Indian Dairy Corporation will be the project authority. The total
investment in the first phase of the project would be Rs. 250 crores and in the second phase over Rs. 215 crores. The resources available for this massive project is estimated at Rs. 410 crores, which includes Rs. 206 crores worth of skim milk powder and butter oil, Rs. 129 crores given as credit by IDA and Rs. 75 crores raised by the Indian Dairy Corporation out of its internal resources.

In selecting the districts for implementing the project the degree of unemployment will be the major criterion. The project would be linked to other programmes like SFDA, MFAL, DPAP etc. The project is expected to create 367,000 person years of additional employment by 1982-83 and 3.95 million person years of additional employment by 1987-88. It is also expected to create an additional demand for skilled workers at the primary co-operatives and at the higher level at the order of 142,415 persons by 1982-83.44

DIMENSIONS OF DAIRY DEVELOPMENT IN TAMIL NADU:

Introduction:

Animal husbandry and dairying exerts a perceivable

44. Indian Dairyman, Vol. XXX No. 9, September, 1978, p.663.
influence on the Tamil Nadu economy. The very fact that 54 per cent of the operational holdings are of less than one hectare size speaks for the significance of a subsidiary occupation. The contribution of animal husbandry to the agricultural sector for the year 1972-73 had been estimated at 13 per cent; and its contribution towards state income worked out to 4.5 per cent for 1972-73. Out of the total income generated from animal husbandry sector milk and milk products account for a lion's share (50.3%).

**Bovine stock:**

According to the Twelfth All India Livestock Census 1977, Tamil Nadu had 10.55 million cattle and 2.95 million buffaloes. Tamil Nadu possesses about 5 per cent of the milch bovines of the country, which contribute only 4.3 per cent to the milk production. This is largely due to the low yield of milch animals. The daily milk production per milch animal in Tamil Nadu was 527 grams; whereas the corresponding figure for all India was 895 grams.

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46. Dairying in India - XIX International Dairy Congress India 1974, p.66.
Moreover, Tamil Nadu ranks first in the use of cows for work; and 16 per cent of them are used for work. Though cattle population is overwhelmingly larger than the buffalo population, buffalo remains as the dominant milk animal. While males dominate the cattle population (about 50%), buffaloes are kept only for milk. Buffalo is preferred for its higher yield and for the lactation efficiency. Only 36 per cent of the cows in Tamil Nadu are in milk whereas 54 per cent of the buffalo population is in milk. The above analogy would reveal the constraints imposed on the dairy industry in Tamil Nadu.

Milk Production:

The Milk Production of the state falls short of demand requirements. The estimated average of 2.3 million litres of milk produced per day meet only about one fifth of the daily requirements reckoned at 11.7 million litres for the year. 1973-74. (based on the minimum standards of milk consumption of 10 ozs. per day per person) Though the milk production as such is on the increase the productive efficiency of the bovine population remains constant. Milk production in the state has increased

from 6.58 lakh tonnes in 1951 to 9.49 lakh tonnes in 1971. Assuming that 50 per cent of the breedable cows and buffaloes are in milk the average yield per animal works out to 285 kgs. in 1951 and 291 kgs. in 1971 showing hardly any perceptible improvement in productivity in the last two decades. The daily per capita availability of milk is only 63 grams for Tamil Nadu as against 110 grams for the whole of India. The perspective plan identified the reasons for such a low per capita availability of milk as: (1) low productivity of animals and (2) lack of scientific processing and marketing system in urban areas.

Origin and Growth of Dairy Co-operatives:

The history of dairy co-operatives in the state started with the organisation of milk supply co-operatives in the outskirts of Madras city in the year 1926-27 with a view to supplying pure and wholesome milk to the consumers in the city and provide subsidiary occupation to the agriculturists. These societies formed themselves into a union known as Madras Co-operative Milk Supply Union in 1927-28 with the objective of pooling and distributing the milk

collected by member societies. The union came to be established firmly with its member societies spread-over in Chingleput and North Arcot districts. The success achieved by the Madras Co-operative milk supply union and its feeder societies encouraged the formation of similar unions and societies in and around other important towns in the State. The milk unions at Coimbatore and Madurai and the feeder societies to supply milk to them were started in 1937-38. More number of unions and societies were started during World War II with the financial assistance of Government to augment the milk production as large supplies were required for military personnel. Consequent on the introduction of prohibition, several milk supply societies were formed as a means of rehabilitating toddy tappers thrown out of employment. During the Third Five Year Plan, several milk societies came into being for the economic uplift of the scheduled castes and scheduled tribes, with substantial financial incentive, as loan and subsidy. At present most of the towns with a population over 30,000 have their own co-operative milk supply organisation. While in a majority of towns there are milk supply unions each having a good number of feeder societies affiliated to it; in the rest of them primary milk supply societies themselves have undertaken the supply of milk to public, alongside
production. With the increasing urbanisation and large demand for milk, the milk supply unions have been obliged to collect milk from more distant places. This position has brought with it problems of fast transport and pre-treatment of milk. Hence, Government have been assisting the unions for setting up of pasteurisation plants, chilling plants and bulk coolers, purchase of vehicles and production and distribution of balanced cattle feed.

In May 1964 the administrative control over the milk supply societies and unions in the milkshed areas of Madurai and Erode milk projects of the Government was transferred to the Commissioner for Milk Production and Dairy Development. The administrative control of the rest of the milk supply societies and unions in the State was transferred from 1-8-1965. The Commissioner for Milk Production and Dairy Development has been delegated with all the powers of Registrar of Co-operative Societies under the Tamil Nadu Co-operative Societies Act. The Government have also empowered the Milk Commissioner in 1965 to fix prices for the milk purchased from rural producers subject to certain ceilings. The societies sell the milk either to the union or to the government dairy projects directly at the rates fixed. This gave greater scope for the development of dairy co-operatives
in the State. The setting up of the Tamil Nadu Dairy Development Corporation on 1-7-1972 gave a fillip to the working of the milk co-operatives in the State. The corporation plays a crucial role in marketing of milk in Madras and Madurai cities.

Plan Efforts:

Efforts for dairy development was intensified during successive plans. The plan investment for animal husbandry and dairy development was ₹2.35 crores during Fourth Five Year Plan. The investment rose sharply to ₹14.74 crores in Fifth Plan. The allocation for milk production alone under this plan was ₹4 crores. The perspective plan envisaged an allocation of ₹12 crores, under Sixth Plan for dairy development. Planning for dairy development has so far put the emphasis on organising milk supply using co-operative infrastructure and on setting up milk processing plants rather than raising the quality of livestock and increasing the lactation yield of animals. These shortcomings are rectified and a balanced growth is aimed at by placing due emphasis on all aspects of dairy development. Out of the total budget allocation of ₹73.37 lakhs for dairy development in 1978-79, ₹58.40 lakhs were meant for developing co-operative infrastructure and ₹14.97
lakhs were allocated for dairy development which includes, programmes for enhancement of milk production.

**Anand Phenomenon:**

Under the operation Flood Programme, the Anand Pattern Milk Producers' co-operatives have been organised in Tamil Nadu. The entire milk production programme in the State under the 'Operation Flood' project is based on the Anand Pattern Co-operatives. These societies, with their producer orientation, incentive price system, effective market linkage and built-in input programme, fundamentally differ from the traditional milk supply co-operatives. First batch of the 'Anand Pattern' co-operatives were organised in Erode region by the spearhead team of the National Dairy Development Board in 1974.

Impressed by the success of these societies and encouraged by the response to the new type of organisation among farmers, the Tamil Nadu Dairy Development Corporation following the example of National Dairy Development Board, vigorously pursued the scheme in other areas. It stationed eight procurement teams in different parts of the State for organising milk producers' co-operatives.
These procurement teams organised new societies almost with a missionary zeal as a result of which the number of societies shot up within a very short span of time to 1,165 on 30-6-1977 and further to 1,317 as on 31-3-1978. Consequently the organisation of traditional type milk supply societies is slowed down; and the existing ones are in the process of conversion into producers' societies. It is proposed to organise more number of Anand Pattern societies so as to streamline the milk production base of the State in the ensuing years. Ultimately it is proposed to develop the co-operative organisational structure into a three-tier arrangement, primary co-operative milk producers' societies at village level, the union of producers' societies at district level and cluster federations.49

The district level milk producers' unions which are being organised, will take care of the formation of primary co-operatives, procurement activities, supply of inputs and services. The district unions will also operate the plants and cattle feed factories. In important towns separate consumer societies will be formed to get the milk from dairy plants and distribute

it locally. The existing milk supply unions will be either converted into district milk producers' unions or into consumers' societies. So far five district level milk producers' unions have been organised at Erode, Coimbatore, Salem, Madurai and Ooty.

**Operation 'Flood Project:**

Tamil Nadu is one of the ten States which were brought under the Operation Flood I Project. Eight districts namely, Madurai, Nilgiris, Coimbatore, Salem, South Arcot, North Arcot, Dharmapuri and Chingleput were benefitted by the scheme. With launching of the Operation Flood Project, the dairy co-operative movement in the State had a great leap forward. Of the allocation of Rs. 8.87 crores under the project a sum of Rs. 4.75 crores was received and a sum of Rs. 4.58 crores was expended. The Tamil Nadu Dairy Development Corporation is the implementing agency of the project. The corporation has evolved an integrated approach providing all necessary inputs in selected areas covering a total population of 2.5 lakh cows and buffaloes. The scheme aims at handling 50,000 litres of milk per day from each of the project areas except Nilgiris, where only 25,000 litres is programmed. Along with collection from non-project areas and from cattle colony at Madhavaram the total
receipt under the project would be of the order of
2,50,000 litres per day on an average. It is proposed
to purchase about 50 road tankers under 'Operation Flood'.
Village co-operatives and milk producers' unions for
increasing the production and marketing of milk have been
organised. The scheme was started in August 1970 and is
completed by June 1978. The activities proposed to be
undertaken under scheme are:

(a) Organising the small and marginal farmers
and agricultural labourers;

(b) Mopping up the surplus resources of
primary societies;

(c) Operating common ameliorative measures
like (1) cattle mortality fund, (2) feed
mixing unit, (3) heifer rearing farm,
(4) dairy product units and fodder farms
(5) arranging for short and medium term
credit for purchase of milch animals etc.,
to the members of the primary village dairy
co-operatives.

(d) Recognizing dairy farming as a small scale
industry for purpose of credit from the co-
operatives and banks.
Under the 'Operation Flood' additional processing facilities are provided in order to enable the organised sector to have a commanding share of the milk market. The capacity of the Madhavaram Dairy has been expanded from 50,000 litres to 1,25,000 litres. A new dairy at Ambattur (Madras) with a capacity of 2,00,000 litres per day started functioning with effect from 16-4-1976 at a cost of Rs. 3 crores. A sum of Rs. 86 lakhs has been spent for deployment of procurement teams, provision of veterinary health cover, establishment of A.T. centres etc. The Nucleus Jersey Farm and the Stud Farm at Ooty have been established at a cost of Rs. 19.41 lakhs. The project for establishing a feeder balancing dairy and a cattle feed plant at Erode involving a total outlay of Rs. 330 lakhs has been sanctioned and is in the process of implementation. Proposal is also under way for erecting another feeder balancing dairy at Salem.

Results of Operation Flood I:

One of the basic objectives of the 'Operation Flood' project is the replication of Anand Pattern Cooperatives in different milkshed of the country. The performance of Tamil Nadu in implementing the 'Opération Flood' project is enviable and it has a fair share in
the number of new societies organised, as also in the production enhancement programmes and input services. The following table gives a comparative picture of the progress of work done in replication of Anand Pattern in the whole of India and Tamil Nadu.

**TABLE - II.2:**

PROGRESS IN REPLICATION OF ANAND PATTERN (AS ON 30-6-1977):

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Items</th>
<th>All India</th>
<th>Tamil Nadu</th>
<th>Per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>No. of village milk societies organised.</td>
<td>5,825</td>
<td>1,076</td>
<td>18.5</td>
</tr>
<tr>
<td>2.</td>
<td>Quantity of daily milk procurement. (lakh litres)</td>
<td>11.12</td>
<td>1.27</td>
<td>11.4</td>
</tr>
<tr>
<td>3.</td>
<td>A.I. workers trained.</td>
<td>2,498</td>
<td>580</td>
<td>23.2</td>
</tr>
<tr>
<td>4.</td>
<td>Insemination carried out.</td>
<td>564,887</td>
<td>146,795</td>
<td>25.9</td>
</tr>
<tr>
<td>5.</td>
<td>No. of mobile veterinary units.</td>
<td>267</td>
<td>30</td>
<td>11.2</td>
</tr>
<tr>
<td>6.</td>
<td>No. of Emergency veterinary units.</td>
<td>73</td>
<td>9</td>
<td>12.3</td>
</tr>
<tr>
<td>7.</td>
<td>No. of animals treated.</td>
<td>973,240</td>
<td>323,852</td>
<td>33.3</td>
</tr>
<tr>
<td>8.</td>
<td>Area covered under fodder cultivation. (acres)</td>
<td>14,720</td>
<td>419</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Source: (1) NDDB, Replication of Anand Pattern
(2) Dairying in India - 1979 XV Dairy Industry Conference, Hyderabad.
As a result of the implementation of the programme there has been a substantial increase in the milk production from 912.5 lakhs litres in 1974-75 to 1,222.75 litres in 1975-76 and further to 1,576.8 lakh litres in 1976-77. To find out remunerative market for the enhanced milk production, urban markets are increasingly tapped. The Madras Milk Project and Madurai Milk Project marketed daily on an average 1.84 lakh litres and 0.42 lakh litres respectively during 1976-77 as against 1.42 lakh litres and 0.30 lakh litres during 1975-76. A new Dairy at Ambattur was inaugurated in 1976 with a capacity to handle 2 lakh litres a day. The Madurai Dairy has been supplying milk to some of the larger urban centres in south besides meeting the local needs.50

The per capita availability of the milk in the State has increased from 63 grams in 1964-65 to 104 grams in 1977-78, as a result of the increased milk production. The milk yield per cow has also increased from 1.33 kgs. to 2.44 kgs.51 The performance of the Operation Flood I

50. Tamil Nadu Government of; Tamil Nadu An Economic Appraisal 1977, Madras: Finance Department, p.20

project is on the whole satisfactory except in respect of the formation of district level unions. While commenting on the Tamil Nadu's performance in the Operation Flood I Project, Dr. Kurien said: "Tamil Nadu has done extremely well and it has created a very good base for dairy development". 52

Operation Flood II Project:

The Operation Flood II Project has been drawn for the State with an outlay of Rs. 36.54 crores, which will be implemented in 5 years from 1979-80 to 1984-85. The project envisages to cover 8-10 lakhs dairy farming families in eight districts by organising them into 4,550 milk producers' co-operative societies with nine district level federations and one State level federation. It constitutes nearly one tenth of the national programme in terms of cost as well as beneficiaries. The project will bring under its fold 12.8 lakh milch animals to enable the production of 34.8 lakh litres of milk by 1984-85, of which 10.9 lakh litres will be procured for the distribution in metropolitan cities.

52. The Hindu, October 17, 1978.
All the towns with a populations of 50,000 and above in the eight 'Operation Flood II' districts and all the cities in Tamil Nadu with a population of one lakh and above will be covered by the organised market. Out of the total project cost of Rs. 36.55 crores, Rs. 13.75 crores is earmarked for farmers' organisations and milk production and another Rs. 12.77 crores for installing new dairies and chilling centres. The remaining amount will be utilised for the expansion of dairies and bulk vending (Rs. 7.99 crores) can vending for cities (Rs. 0.23 crores) and cattle feed plants (Rs. 1.80 crores).53

The Government of Tamil Nadu in their G.O. No. 1000/Agricultural Department dated 2-6-1978 have clearly indicated that the Government's policy will be to strengthen the three-tier co-operative structure, convert the existing traditional milk supply societies into producers' societies and the milk supply union into consumer societies to undertake urban milk

distribution. The infrastructural net-work expected to come up at the completion of the 'Operation Flood II project will go a long way in establishing a viable and self-propelling dairy co-operative movement by mid 80s. in the State.