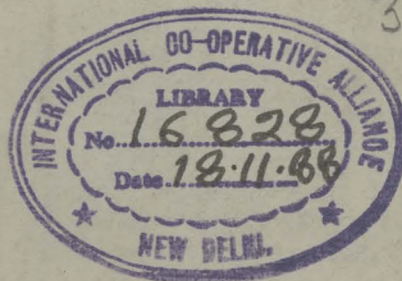




REGIONAL TRAINING COURSE
ON
COOPERATIVE DAIRY DEVELOPMENT
FOR
SOUTH-EAST ASIA

December 6th-19th 1987

Course Material



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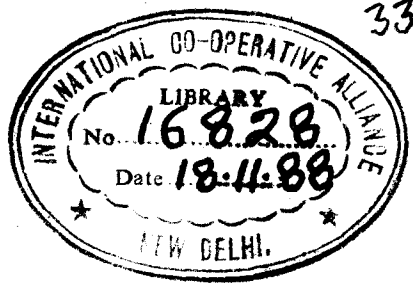
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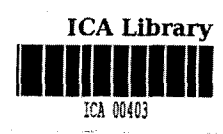
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DAIRY DEVELOPMENT IN INDIA

Introduction

Though India has been a traditional dairying country concerted efforts for dairy development is of relatively recent origin. Milk production in India remained a by-product of crop production for various economic and political reasons. Industrial development did not keep pace with increase in population. More and more people depended on agriculture for sustenance. Per capita income dwindled. For want of remunerative market for milk in the villages, attention to livestock was not possible. Productivity of milk animals declined. Milk production is characterised by large number of animals each producing small quantity of milk in small units. Production of milk per unit area was small. Although this is in general the overall picture, there were pockets, favoured by better agro-climatic and environmental conditions, where milk production per unit area was better. Meanwhile, due to development of trade and commerce, centres of urban areas developed where people thronged for better employment. In these areas per capita income was higher than the rest of the country. In these centres the demand for quality article in the diet like milk was much higher than the rest of the country, while in the rural areas due to lack of market demand and remunerative prices, there was no incentive for milk production. There was no effective linkage between milk surplus rural areas and urban areas of high demand for milk. Milk cattle were brought in cities creating health hazards and municipal problem. Cattle keeping in urban areas resulted in destruction of high yielding milk animals and their progeny, as maintenance of dry cattle and young stock was costly. Adulteration of milk in the cities was rampant. No wonder under these chaotic and appalling conditions, appropriate steps and stupendous efforts are necessary for bringing about improvement. For lack of adequate and reliable data and appropriate technology, initial efforts were sporadic and can best be described as groping in the dark.

Early attempts

Before India attained independence in 1947, foreign experts were brought in to suggest measures for improvement. These experts came from developed countries where social, economic and agro-climatic conditions differ radically from those of India. Although no

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significant improvement took place, these attempts resulted in the establishment of different institutions for training, research and proposing programmes for development of animal husbandry, veterinary and dairying. Attention was given to improvement of livestock by breeding and health coverage. The main thrust of breeding for cattle was development of dual purpose animals which would be good draught animals producing some quantity of milk. The breeding policy was selective breeding or grading up of non-descript cattle. Breeding bulls were procured from breeding tracts of established breeds and distributed in areas where cattle were not good.

As time passed, the problem of milk supply became acute in large cities like Calcutta, Bombay and Madras. The problems were aggravated further by the impending World War II. The Government of India, to look after the defence personnel - mostly British, strengthened the existing military dairy farms near the cantonments. In these military dairy farms high yielding European breeds of milk animals were maintained and cross breeding were resorted to with high yielding Indian cows like Sahiwal, Sindhi, etc. In other areas, where military dairy farms were not in existence, imported milk in the form of condensed milk, cheese, butter and milk powder were used. Encouragement was given to some dairy factories in India to produce table butter in India. Messrs. Polsons in Bombay and Keventers in Aligarh expanded their activities. A cremery was established at Anand, then in Bombay Province now in Gujarat, where buffalo milk was relatively abundant to explore the possibility of producing cheese from Buffalo milk. All these steps were taken to ensure that western type milk products like cheese and table butter can be made available to defence personnel in case the shipping lines are affected due to War.

Bombay Plan

In Bombay the Civil Supplies Department set up during the World War II in collaboration with the Municipality took up a milk supply scheme. Milk was procured from rural areas for distribution in the city. Polsons dairy in Anand- then in Bombay Province-was given the monopoly to procure milk from Kaira district to supply milk to the milk supply scheme in Bombay. The Bombay Government also prepared a scheme to set up a milk colony at Aarey, 21 KMS away from the city to shift the city cattle there. A modern dairy was also planned to process milk from the milk colony to supply to the city. The Bombay milk colony was originally planned to be a co-operative of the city cattle owners. As the co-operative efforts did not materialise, the colony was established and run by the government. The dairy was commissioned in 1947 and this dairy with its milk colony was the forerunner of modern dairies in India. It also paved the way for large scale link up between rural milk producing area in Kaira district with an urban market in Bombay nearly 430 KMS away. By this time war was over and

free import of milk powder and baby food was permitted and this import of cheap milk powder quickly expanded the milk supply scheme of Bombay. In order that fresh milk was available for liquid consumption, use of liquid milk was banned in hotels and restaurants where skim milk powder was supplied by the Bombay Government. There was adequate margin of profit in skim milk powder supply which helped to create a fund for the development of the Aarey colony.

The Milk Producers' Cooperative at Anand

The Polsons dairy at Anand which was given the monopoly to procure the milk from Kaira District for supply to Bombay milk supply scheme, usually reduced the procurement prices and stopped procurement for a day or two in a week when there was less demand for milk from Bombay. This happened frequently during the flush season of milk production. The milk supply scheme had also the option to use cheaper imported milk powder in place of fresh milk to prepare the toned milk. All these had a serious depressing effect on milk production and the milk producers at Anand suffered heavy financial losses. On the advice of the political leaders, who had the foresight, a milk producers' cooperative was formed with its head quarters at Anand. The Bombay Milk Supply Scheme was however not in a mood to deal with the milk producers' cooperative in place of the Polsons dairy. This resulted in a serious struggle for the cooperative which ultimately forced them to resort to stoppage of milk supply to Polsons dairy. Ultimately the Bombay Milk Supply Scheme was compelled to recognise the cooperative which very soon established a milk processing plant. With the establishment of the processing plant milk procurement increased significantly which again created a problem of dealing with the seasonal surplus. The proposal to establish a milk drying plant was opposed by the dairy department of Bombay on the plea that milk powder can not be made from buffalo milk. However, the cooperative succeeded in their efforts in establishment of the milk drying plant and since then the cooperative at Anand did not look back. The Kaira District Cooperative Milk Producers' Union grew from strength to strength as the farmers could sell all the milk they could produce, and there was no problems of surplus milk. The cooperative with its milk conservation plant was able to bargain with the Bombay milk supply scheme about price and quantity as even after the establishment of the milk colony, the Bombay Milk Supply Scheme was heavily depended on the fresh milk from Anand. The Cooperative diversified to produce milk powder, baby food, cheese and lately chocolate to deal with surplus milk. Furthermore, the milk powder also helped them to meet the shortage of milk during the lean production season. The cooperative established the cattle feed plant, stud farm,, semen station, artificial insemination service, veterinary health coverage and extension service. When the Intensive Cattle Development Project was introduced by the government, one such ICDP was managed in the Kaira District by the Co-operative and this ICDP in due course proved to be the most successful and most efficient ICDP in the country.

The name AMUL given to the Dairy and all the product it markets came from the name Anand Milk Union Ltd., originally thought to be given to the cooperative but not given. The Kaira District Cooperative Milk Producers' Union Limited, grew into a giant dairy complex not just because the producers formed a cooperative, but it got a combination of great rural leadership and professional expertise. These professional experts introduced and implemented proper marketing strategy, strict financial and administrative discipline and professional integrity which were ably supported by the rural and political leadership. Right from the beginning, the cooperative aimed at inherent economic strength so that it had not to depend on financial aid from the government. In this way it created true autonomy. This organisation gave birth to a distinctive cooperative structure which later came to be known as Anand Pattern. While the conventional cooperatives were being liquidated as fast as they were being registered, the Anand cooperative grew into a giant dairy complex paving the way for the most successful dairy structure in the country.

Incidentally it will not be out of the place to mention that the Bombay Milk Supply Scheme unwittingly helped the milk farmers to form the dairy complex to be owned and operated by them, free from the control of the government.

Other post independence dairy development plans

Immediately after independence in 1947, not very many dairy schemes were in operation, besides the Aarey milk colony, the Haringhata scheme near Calcutta, the Amul organisation at Anand and some cooperative dairies in other places. The first concerted efforts for economic development started with the launching of the First Five Year Plan in 1950. For livestock development, 146 Key Village Schemes, each covering 2000 breedable cattle (including buffaloes) were planned. Breeding policy centered around development of dual purpose animals. For metropolitan cities in Calcutta and Madras, milk colonies on the pattern of Aarey in Bombay were planned. The Second Five Year Plan (1956-1961) included cattle development work through Key Village Scheme, castration of scrub bulls and establishment of artificial insemination centres. Furthermore 75 milk supply schemes for cities with population over 1,00,000, 30 rural creameries and four cattle feed compounding factories were planned. During the Third Five Year Plan (1961-1966) emphasis was not laid on milk colony system for urban milk supply as inherent weakness of the system was getting revealed. This emphasis was laid on rural milk production linked with plans for marketing surplus milk for urban areas.

Intensive Cattle Development Project

After the three Five Year Plans, there were three annual plans (1966-1969). In order to lay emphasis on rural milk production, the Intensive Cattle Development Projects (ICDP) were planned. Each ICDP was to cover 1,00,000 breedable milk animals where the inputs for milk production enhancement like improved breeding, feed and fodder supply and health coverage were meant to be made available in a concentrated manner.

At the end of the three annual plans, there were 31 ICDP, 47 milk supply schemes, 7 milk product factories and 37 pilot milk supply schemes.

Fourth Five Year Plan (1969-1974)

During the Fourth Five-Year Plan, the number of ICDPs were increased. On the subject of breeding policy there was a major change as the emphasis shifted from development of dual purpose cows to development of cross bred cows by using European milk breeds. This emphasis was due to the realisation that unless the productivity of the cows are quickly increased it would be impossible to achieve appreciable improvement in milk production as, the rate of genetic improvement through selective breeding would be very slow. In case of buffaloes, the productivity was better than that of cows and as there are no better breeds available outside the country, selective breeding and grading up with improved buffalo bulls were kept on. It was also noticed that buffalo milk with its much higher fat content and higher solids-not-fat were being preferred by the dairies particularly the milk product factories most of which were in the private sector. The working group for the Fourth Plan emphasised the need for relative pricing of cow milk and buffalo milk so that cow milk can find a remunerative market in the organised dairy sector where buffalo milk with its higher milk solids content is preferred. It also suggested (i) a mixed farming approach for milk production, (ii) tapping of rural resources through better rural organisation and development of dairy extension and (iii) a proper administrative set up.

The Fourth Five Year Plan expected to take up 24 additional milk supply schemes, 4 additional milk product factories and 64 rural dairy centres. However, the approach and targets for the Fourth Plan changed drastically with the approval of the Operation Flood Project about which more will be said later.

The National Dairy Development Board (NDDB)

In 1964, the then Prime Minister of India late Lal Bahadur Shastri visited Anand. He spent a night in a village in Kaira district as a guest of a farmer and discussed at length for several hours about the functioning of the milk producers' cooperative. He came to the conclusion that even though the Kaira farmers had no special agro-climatic advantage nor outstanding milk animals, the cooperative prospered because it is owned and managed by the farmers themselves by hiring professionals. With their own milk processing and conservation plant, the milk they produce had the access to a large urban market nearly 430 KMS away and in the form of products through out the nation. He accordingly wrote to all the Chief Ministers of different States to emulate the Anand Pattern cooperatives to spearhead the dairy development programmes in the States. He decided that the Government of India would create a body whose job would be to accelerate dairy development programmes by replicating Anand Pattern Dairy Cooperatives through out India. Thus the National Dairy

Development Board was created in 1965 with the General Manager of the Kaira Cooperative as the Chairman and some other professionals from the same organisation as members beside some representatives from the Government of India and the State Government.

Canalization of Imported Milk Powder

On seeing that cheap imported skim milk powder, which was available then at price of about Rs.2200/- per tonnes, was affecting adversely production of milk and manufacture of indigenous milk powder, the NDDB approached the government for some regulatory measures. The proposal was to (i) canalize the import of skim milk powder through a public sector organisation, instead of issuing import licence directly to the "Actual Users", (ii) fix a floor price for indigenously produced skim milk powder at Rs.6,500/- per tonnes and (iii) to pool the imported and indigenous powder for issue to the allottee at a pool price, to be named by the government. The Government after due consideration decided to canalize the import of skim milk powder and agreed to the policy of pooling the imported and indigenous powder. The Government however, decided to fix a ceiling price of Rs.6,500/- per tonne. The fixation of ceiling price by the government discouraged indigenous manufacture of milk powder and therefore of conservation of seasonal surplus of milk. As it was not possible to procure indigenously produced milk powder for the central pool, the concept of pooling of indigenous and imported milk powder remained only in paper. The milk powder plants which were mostly in the private sector, remained underutilised. These plants produced mostly baby food for which imported skim milk powder was made available by the government. However, the canalization of imported skim milk powder quickly identified fake "Actual Users" and eliminated them. These fake "Actual Users" usually sold the imported powder at a very high price. As this source of clandestine sale of imported powder was eliminated, there was more demand for indigenous skim milk powder in the market which provided an intensive for the milk product factories with drying plant to manufacture skim milk powder. Milk powder production started rising. There was a temporary glut of milk powder in the market and the Government of India was persuaded by the milk powder manufacturers to remove the ceiling price of skim milk powder for the Central Pool of milk powder. The Indian Dairy Corporation, which was then the canalizing agent, was permitted by the government to buy indigenous skim milk powder by open tender. This gave a boost to manufacture of milk powder in the country and milk powder production and therefore milk conservation rose significantly since the work of canalization of milk powder started (Chart-1). The pooling of the skim milk powder helped the indigenous producers to sell milk powder at a price which meets their cost of production and at the same time the dairies get skim milk powder to meet their shortfall at a price lower than the market price of the indigenous milk powder.

Milk Pricing Policy

Another aspect which attracted the attention of NDDB is the milk pricing policy. Apart from the fact that most of the dairies with access to cheaper imported milk powder was paying low producers' price, the pricing was complicated by the existence of two types of milk with different composition, namely cow milk and buffalo milk, in the market. Buffalo milk with very high fat content and fairly high not fatty solids content was preferred by most of the dairies, as buffalo milk gives more product and permits larger volume of toned milk by the use of reconstituted skim milk. Procurement price usually is based on the fat content resulting in a very low price for cow milk. Thus all the efforts of increasing cow milk production was nullified by the low milk price it fetches. Purchasing of milk only on the basis of fat content ascribes a zero price for the non fatty solids. The NDDB came out with a pricing system ascribing price for both fat and SNF on the basis of relative price of SMP and ghee in the market. This pricing system-called Two Axis Pricing-has removed a serious bottleneck for increasing cow milk production.

Review of the Development Activities till the end of Fourth Five Year Plan

By the end of the Fourth Plan (ending 1973-1974), over Rs.3,500 million were spent on dairy and animal husbandry activities (excluding the investment on the Operation Flood Project which was off the ground some time in 1973) Yet milk production remained stagnant (Chart - II). As the population went on increasing the per capita availability sharply declined from 132 gm per day in 1951 to 112 gm in 1971-72. The total milk production increased to 22.5 million tonnes per annum in 1971-72 from 17.4 million tonnes in 1951.

Milk production in India is marked by high seasonal fluctuation. There is a flush season, when cows and buffaloes produce nearly two and half times more milk than what they produce in the lean season. This is due mainly to characteristic breeding cycle, feeding practices and climatic condition. In spite of poor production of milk, these seasonal fluctuation results in temporary annual gluts, depressing the prices. As the conventional animal husbandry and dairy development programmes did not pay proper attention to marketing strategy, the farmers were forced to fall into the clutches of middlemen and milk traders who exploited to their advantage the temporary gluts at the expense of the milk producers and consumers alike.

In an attempt to satisfy the consumers in the cities, modest sized dairies under the control of the government were set up for cities with population over 50,000. These dairies had capacities ranging from 10,000 lpd to 50,000 lpd. Even if these plants functioned efficiently and at full capacities, these plants could have had only 10 to 15 per cent share of the rural milk markets. This meant that the urban milk markets were dominated and controlled by the milk traders. Thus the middlemen and milk traders provided the link between the rural milk producers and the urban dairies. True some milk collection points and milk chilling centres were set up but here

also the middlemen and the milk traders, sometimes encouraged by the managers of the collection points, became the link between the producers and the collection centres. During lean season when market prices in the cities rise steeply, the middlemen who commanded a fairly large volume of milk, directly channelise the milk to the private traders in the cities to take advantage of the ruling high prices. During the flush season when the city milk prices fall, these middlemen dump all the surplus milk to the dairies which the dairies find hard to handle and sell. To mitigate shortfall in milk procurement, the dairies which are mostly in the government sector, resorted to the use of imported skim milk powder which was cheaper than locally produced milk. Administered low consumer price of milk sold by the urban dairies expanded the demand much more than it can cope with, resulting in the need for more imported milk powder. As most of these dairies were running with huge financial losses they were not only prevented from paying higher procurement prices but also encouraged to use more imported cheaper milk powder to reduce the financial losses to some extent. Thus the policies pursued by the urban dairies, set up and mostly run by the government, were having an adverse effect on the milk production in the country. While this was the general picture all over the country, the situation in Gujarat because of the Anand Pattern Cooperatives was totally different. These co-operatives at Kaira (Anand), Mehsana, Surat and Baroda districts were growing into viable dairy complexes.

UN/World Food Programme and the Operation Flood Project

When it became apparent that large stock of surplus milk powder and butter oil was accumulating in Europe and there was a possibility of these commodities coming to India as gift, there was apprehension that these free gift might cause further damage to milk production programmes unless properly regulated. This has happened in the past when such gift commodities affected production. The NDDB in order to regulate and utilise the gift commodities effectively to advantage proposed a scheme to the Government of India. The proposal was to receive a gift of 126,000 tonnes of skim milk powder and 42,000 tonnes of Butter Oil to be utilised in a dairy development programme. The Government of India after considering the proposal from all aspect approached the UN/WFP for approval. The UN/WFP in turn after thorough scrutiny and a lot of discussion agreed to the proposal. The Plan of Operation of the project, identified in FAO and UN/WFP as WFP 618, says "The project which has a duration of five years, aims 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 rural areas which supply milk to the four major cities." The total cost of this project was originally estimated at Rs.950 million (later revised to Rs.1160 million). This sum was planned to be generated by the sale of these gift commodities to the dairies at the four major cities and dairies linked to these four cities and situated in the area covered by the project. The selling prices of these commodities were fixed in such a manner that on the whole they were equal to the milk solids obtained from milk being received at the dairy docks. Thus the

pricing of these commodities was done in such a manner that the donated commodities did not impede milk production in the country. In fact the price of this gift SMP was higher than the SMP being supplied from the Central Pool at Pool price. Furthermore, there was provision in the project to raise the selling price as and when the procurement price of fresh milk increased. As a matter of fact price was increased once which resulted in the increase of the generated fund to Rs.1160 million and that permitted to increase the investment to that level. The total generated fund was much more than the national value of the gift commodities which were about 30 per cent of the project cost. Thus the rest of the fund was generated from the proceeds of the sale of the commodities and therefore by the consumers of milk without burdening the state exchequer.

The project covered the following aspects:

1. Major increase in the capacity and throughput of dairy processing facilities, including the establishment of new city milk plants;
2. Competitive transfer of the bulk of urban markets from the traditional suppliers of raw milk to the modern dairies;
3. Resettlement in rural areas of city kept cattle and buffaloes; which at present serve a large part of these city markets;
4. Development of the basic transportation and storage network to facilitate regional and seasonal balancing of milk supply and demand;
5. Development of milk procurement systems in appropriate rural areas in order to provide raw milk a channel which is more remunerative than the traditional channel;
6. Improvements in standards of dairy farming by improved programmes of feeding and management, of animal breeding, veterinary services, feed-stuff supplies and management and related extension services, thereby increasing milk yield per animal.

Unlike the previous aid programmes, this project aimed at creating a strong foundation for dairy development on the pattern of Amul Dairy Complex. It was visualised that as milk supply to the four cities are increased rapidly, less high yielding animals would move to the cities. These animals will be retained in the rural milkshed of the project areas and to continue to produce milk. As these animals would remain in their natural habitat they would produce more milk at less cost. The milk production enhancement programmes of the project will further increase the productivity of the milk animals. This was expected to generate a flood of milk in the rural milksheds of the project. Hence, the name "Operation Flood". The milk conservation facilities of the rural feeder/balancing dairies established under the project would mop all the milk and supply the milk to the city dairies. The marketable and seasonal surpluses would be conserved for balancing seasonal and regional shortages. Thus the need for imported milk powder would diminish.

Indian Dairy Corporation

The Government of India created a public sector organisation-Indian Dairy Corporation - to handle the donated commodities and to pilot the Operation Flood project (OF) on behalf of the Government of India. As this involved trading and financial transaction, it was not possible for the NDDB to handle the project since the constitution of NDDB did not permit these. However, the NDDB was named as the consultant for the OF project and the implementation of the project was done with the technical assistance from the NDDB. Under Indian Constitution, Dairying and Animal Husbandry are States' subject. The States are therefore responsible for devising and implementing dairy and animal husbandry programmes in the manner they like. With regard to Operation Flood project, the funds channelised by the IDC could only be used in the manner laid down in the project to achieve the objectives laid down. The aim of the NDDB and the OF was to create Anand Pattern Dairy Producers' Co-operative as that was the only proven institutional structure for dairy development. It may be recalled that it was this structure late Lal Bahadur Shastri, former Prime Minister of India, wanted to create outside Gujarat and it was for this purpose the Government of India established the NDDB. It took some time for the States' implementing agencies to appreciate the value of the characteristic Anand Pattern Co-operative and the inherent implications of the OF project. This caused delay and also some controversies. Even after acceptance in some of the States, there was opposition particularly by the departmental officers. In many cases the officials interposed their own ideas on the project details which caused serious aberration. As a result, besides delay there was imperfect implementation. In spite of all these handicaps, when Operation Flood ended in 1980, there was large increase in milk production, large increase in the throughput of the operation flood dairies and remarkable increase in milk conservation in the form of milk powder. The annual milk production in 1980-1981 was 31.50 million tonnes while it was 22.50 million tonnes in 1971-1972 an increase of 10 million tonnes over a period of 10 years. The per capita milk availability rose from 112 gm per day in 1971 - 72 to 128 gm per day in 1980 - 81 indicating that the rate of increase in milk production was more than the rate of increase in population. The throughput of the dairies in the four major cities increased from 0.99 million litres per day to 2.18 million litres during the same period. The milk powder production increased from 28,600 tonnes per annum to 76,500 tonnes over the same period.

The National Commission on Agriculture (NCA)

The Government of India in order to study the agricultural situation in the country appointed in 1970 the National Commission on Agriculture. The NCA made an indepth study of all aspects of the Agricultural situation and published its report in 1974. On the subject of animal husbandry and dairying, it gave a very useful recommendation which differ in many ways from the conventional approach for development of animal husbandry and dairying. It observed that the dairy plants should not be run by government departments. Some of the recommendations are worth mentioning and indicated below:

1. The task of cattle development, milk collection, processing and marketing in the shape of an integrated project should be entrusted to a single agency preferably a cooperative of milk producers.
2. A clear cut policy should be laid down by the Government of India for purchase of marketable surplus of skim milk powder for creating an adequate buffer stock of the product.
3. As dairy development programmes can best be organised by the cooperatives of milk producers, the producers should first be organised into primary village level societies and then federated into a district level union.
4. The dairy industry should accept the two-axis pricing policy for milk procurement as this is rationally based on evaluation of both the fat and solids-not-fat content of milk.

The NCA estimated that the demand for milk would be 44.17 million tonnes in 1985 and 64.4 million tonnes in 2000 A.D. In order to raise the milk production from its low level in 1974 to the target to be achieved in 1985 and 2000 A.D. 150 districts should be organised for milk production in a concentrated manner each covering 100,000 milch animals. The NCA anticipated that by adopting recommended measures, in a decade the milk production would be double than what it was in 1970 and therefore it would be necessary to process a large portion of rurally produced milk from these 150 centres for linking up with urban markets. This, according to NCA, meant creation of an additional milk processing facility by 1985 to handle annually 5 million tonnes or 15 million litres per day. The production of annual additional 22 million tonnes of milk should be concentrated around feeder/balancing plants with an installed capacity of 30 million litres per day. This meant of an additional rural feeder/balancing capacity of 25 million litres per day by 1985.

Extension of Operation Flood

The multidimensional beneficial effects of Operation Flood project attracted the attention of many developed and developing countries as well as bodies like the World Bank. The EEC and the World Bank came forward to assist India to expand the coverage of the Operation Flood project and thus Operation Flood II was born in late 1980. The total project cost was estimated at Rs.4,800 million. Part of the funds for this project was to be raised from the sale of 186,000 tonnes of SMP and 76,000 tonnes of BO committed by the EEC as gift. The project also expected to get a total of US \$ 150 million as a soft loan from the World Bank. The Government of India later approached the EEC and obtained from them a further gift of 105,000 tonnes of SMP and 35,000 tonnes of BO in lieu of part of the World Bank fund. The target under the OF II was to cover 155 milk sheds, 150 cities and 10.2 million farmer families. It also aimed at a procurement of 18.3 million litres of milk per day. The term of Operation Flood II has ended and Operation Flood III has been proposed with the proposed outlay of Rs,7,000 million. The NDDB will meet Rs.3,000 million from its own

resources for the outlay. At the conclusion of the Operation Flood III, the NDDB would be able to finance a dairy development programme costing Rs.1,000 million every year, entirely out of its own resources. (Source: "From Drop to Flood", NDDB).

Balancing Milk Supply and Demand: Milk Grid

To achieve an accelerated growth rate in milk production and supply it is necessary to maintain a balance between supply and demand. Milk production in India is characterised by high seasonal fluctuation. Consumer demand on the other hand is steady with an upward trend. It is, therefore, absolutely necessary to conserve market surpluses in the flush season for use in the lean production season. Without adequate conservation facility there is no escape from resorting to import to meet seasonal shortfalls. Production of milk is not equal in all parts of India. Some parts of the country produces milk more than that is required for the local market. On other hand in some other parts, due to various reasons, the production is not good and sufficient to meet the market demand. There should, therefore, be arrangements for long distance transport of milk connecting the surplus milk producing areas with the milk deficit consumption areas. The Operation Flood Project therefore envisaged establishment of milk conservation plants with each rural rural feeder dairies so that they can mop up the seasonal and marketable surpluses. In order to carry out the basic functions of long distance transport of milk, 542 road milk tankers and 76 rail tankers were fabricated and put into use 91 road milk tankers and 37 rail milk tankers more are under fabrication. The buffer stock planned under OF is 20,000 tonnes of milk powder and 7,000 tonnes of butter/butter oil and for this purpose storage capacity for 5,300 tonnes of milk powder and 1,200 tonnes of butter/butter oil has already been created. Today milk from various parts of the country are being transported by rail to consumption centres even at distances of over 2,000 km away. Thus an Milk Grid has been evolved where the surplus dairies can put their milk and where from the deficit dairies can draw the milk.

Disorderly Milk Market

Milk producers may sell milk in the liquid form or convert them into milk proeducts like cream, ghee, khoa or channa if these outlets prove to be more advantageous to them. The chain of intermediate functionaries, may they be milk traders, middlemen, private, government or co-operative rural dairies have also several options. If the price of edible oil and consequently of ghee rises in the market, ghee merchants start paying high prices resulting in diversion of milk for the manufacture of ghee. Such manufacture may take place at the source of milk production at the villages or by the intermediate functionaries at the dairies. As a result there is a shortfall in the supply of liquid milk with consequent pushing up of prices of skim milk powder. Many of the rural dairies with milk drying plant are tempted to produce milk powder and butter or ghee. Simultaneous manufacture of these products may cause a temporary glut of these products in the market with consequent fall in prices. Distress sale starts to liquidate heavy inventory. The rural dairies and therefore the milk producers suffer financially with an adverse

effect on milk production. This situation happened in the past and is likely to happen in the future. To save the producers and consumers and to save the milk development programmes from the vagaries of disorderly milk market, there is an urgent need to regulate the milk market. This can best be done by creating a buffer stock of milk solids of adequate size to take care of the market aberrations and speculations. The nucleus of the buffer stock created by IDC/NDDB should be expanded and controlled either by NDDB or by an autonomous apex body, sensitive to the needs of dairy development.

Present Status

While activities under OF are being expanded and intensified, other usual animal husbandry development programmes are going on. The Sixth Five Year Plan ended in 1984-1985 and the Seventh Plan started from the year 1985. The progress at the end of 1985-1986 is depicted in table-1. By the end of 1986-87, the annual milk production reached a figure of about 43 million tonnes. The annual milk powder production exceeded 120,000 tonnes. Although the Operation Flood project started and continued with imported gift milk commodities, the country is now producing more milk powder per year than it imported. In 1950-1951, the share of imported milk powder and butter fat to total throughput was 67.3 per cent. In 1970 - 71, the figure was 22.0 per cent. In 1983-84 the proportion came down further to 7.4 per cent. An annual import of about 35,000 tonnes of milk powder represent only 0.81 per cent of total indigenous production of milk. Nobody can infer that India by launching the Operation Flood project has made the country more dependent on imported milk. Consider the figure of 0.81 per cent of import in case of milk with import of vegetable oil which vary from 15 to 30 per cent of indigenous production of edible oil, it is expected that as the OF project progresses, as more feeder/balancing dairies are established and as the functioning of the milk grid is streamlined and strengthened, this import of milk solids will be further reduced.

Essential Supports

A dairy and animal husbandry programme requires adequate support in the form of trained manpower, various types of equipment, facilities for long distance transport of milk, veterinary biologicals and appropriate systems for collecting information and monitoring the activities. The target group the farmers need to be exposed and oriented to the type of dairying that can achieve self sustaining growth. The National Dairy Research Institute, the Indian Veterinary Research Institute and the Agricultural Universities are turning out various professionals. These institutes are also carrying out research in various subjects connected with dairying and animal husbandry. The Indian Institute of Rural Management was established by the NDDB/IDC to obtain trained personnel to man the various managerial posts in the dairy plants and in the rural organisations. Due to demand for large number of dairy equipment for various dairies simultaneously established under the OF programme, there was rapid increase in the capabilities of engineering firms. This has now resulted in the availability of over 95 per cent of the required machinery within the country. Thousands of liquid nitrogen containers

are required for the massive frozen semen programme and most of these containers are now made within the country. Rail milk tankers to transport 40,000 litres of milk each, are now fabricated within the country. As aseptic packaging requires millions of paper cartoons, the NDDB/IDC established special paper laminating plant in India. To reduce the cost of milk distribution, the NDDB designed bulk milk vending machines have been fabricated and successfully introduced.

A massive cross breeding programme require protection of cattle with exotic inheritance from various diseases particularly Foot & Mouth disease. The vaccine for Foot & Mouth disease requires identification of types and strains before manufacture. As these viruses vary from type to type there was need for establishing a large FMD vaccine manufacturing plant in the country. A public sector organisation, Indian Immunologicals, were established by the NDDB/IDC with facilities for manufacturing millions of doses of vaccines as the requirement is for millions of cattle. It is worth mentioning that the price of the vaccine, manufactured by some private firms, which were about Rs.10 per dose came down to about Rs.4 per dose after the vaccine from Indian Immunologicals came into the market.

As aim of the dairy organisation is to reduce the cost of procurement, processing and marketing, computer based systems have been introduced for efficient management and monitoring.

Conclusion

What has been said so far indicates that there is more to dairy development than just creating facilities for better breeding, nutrition and health coverage for cattle and establishing city dairies. These are essential infrastructure but there is also the need for creating an organisation which can utilise these infrastructure most efficiently. Unless a farmer gets a remunerative return for the product he produces, he will not be interested in these facilities. If the facilities for milk marketing are not in the hands of the farmers themselves, the farmers are not going to get benefitted. They are likely to be exploited by those who run these marketing organisations. An individual milk producer is too small to own and operate a marketing organisation. On the other hand if they join together to form the right type of co-operatives, it is possible for them to own and operate a marketing organisation which included the infrastructure for channelising the inputs for milk production enhancement. This has been ably demonstrated by the Amul dairy complex and other Anand Pattern Dairy organisations. One of the reasons for success of the farmers' own organisation is that the organisation is sensitive to the needs of the farmers. It is through the Anand Pattern Cooperatives, the farmers can fight against various vested interests and can guard against intrusion of the vested interests. In the States, where the administration has been sympathetic to the farmers' co-operatives and insulated them from political and bureaucratic interference and has nursed them, milk production has rapidly increased. In States where milk production has not appreciably increased and the dairy organisations have not become viable, it will be seen that the milk producers' co-operatives have not developed.

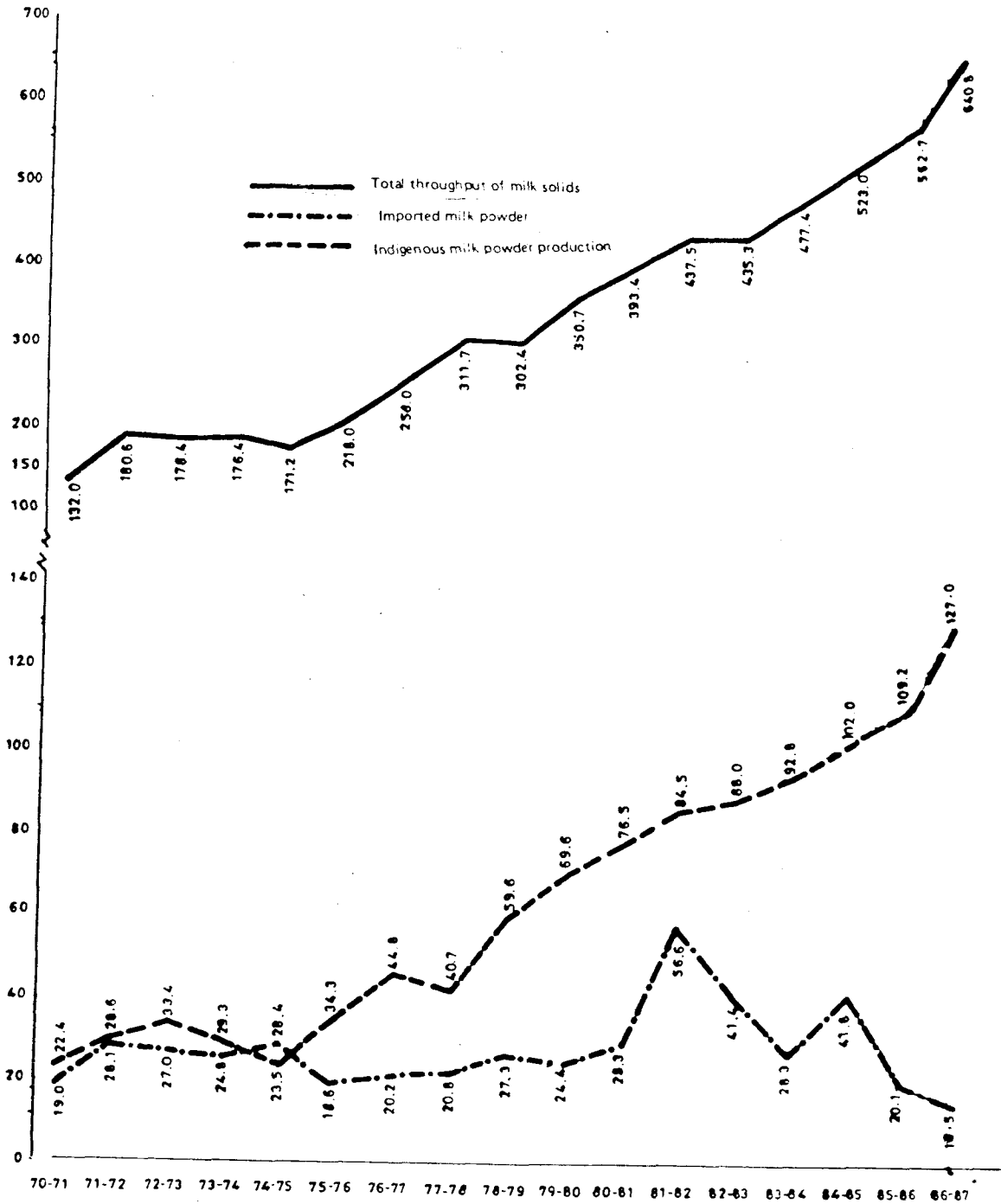
Table 1: Achievement in various spheres of dairy development and targets for the Seventh Five Year Plan.

Sl. No.	Particulars	1979-80	1984-85	1985-86 (estimated)	1989-90 (target)
1.	Milk Production (million tonnes)	30.33	38.80	41.00	51.00
2.	Throughput of metro dairies (in million LPD)	1.94	2.95	3.10	5.10
3.	Liquid milk plants (number)	142	166	NA	207
4.	Milk Powder including baby food (thousand tonnes)	59.60	102	120	NA
5.	I.C.D.P. (number)	110	122	120	NA
6.	Frozen Semen Station (Number)	28	48	NA	62
7.	Insemination with semen from exotic bulls. (million)	4.55	8.38	NA	12.75
8.	Exotic cross bred female cows (million)	NA	4.48	NA	8.00
9.	Milk sheds under Operation Flood. (number)	39	136	150	NA

This table has been compiled from figures published in the Seventh Plan document and given in NDDB documents.

Chart I

Indigenous milk powder production and share of imported milk powder in the throughput of the Indian Dairy Industry

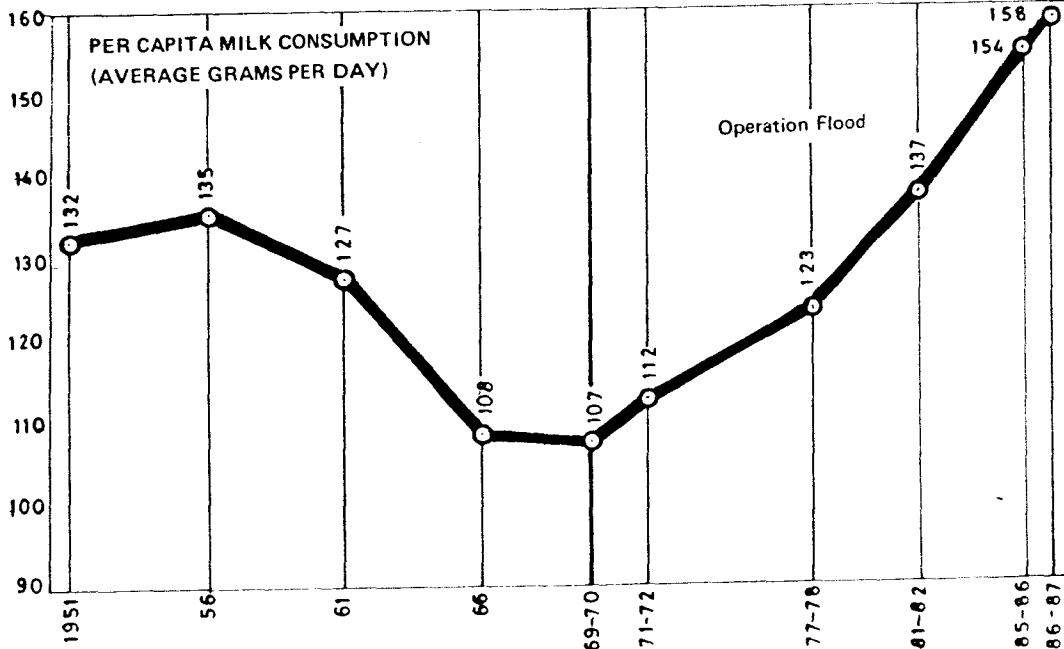
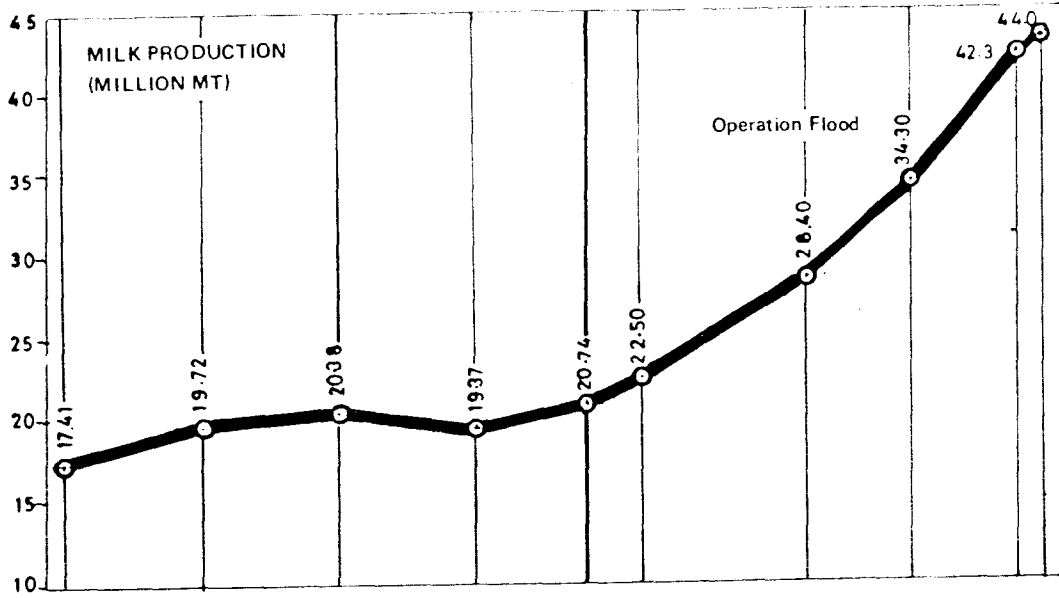


* Provisional

From:
Operation Flood A Progress Report by
Indian Dairy Corporation

Chart II

Milk Production and Consumption in India



Note: 1. Milk production for 1984-87 onwards are provisional.

2. Per capita figures are estimated.

Sources: Based on (or derived from) milk production data as published by the Ministry of Agriculture, Government of India.

From:
Operation Flood A Progress Report by
Indian Dairy Corporation

CONCEPT AND STRENGTH OF THE ANAND MODEL*

I. The Backdrop

Of India's nearly 800 million people, some 75 percent are classified as rural dwellers. They inhabit 576,000 villages spread over 145 million hectares of cropland. Average farm size is about 2 hectares and almost all draught power for farm operations and transportation is supplied by bullocks. Some 21 percent of rural families are without land and average incomes are extremely low.

The need for draught power is the pivotal element in farming operations and determines priorities in the type of livestock kept by farmers. Bullocks are indispensable.

Indian dairying is characterised by a small land - milch animals holding combination of rural producers who rear milch animals on crop residues primarily to raise bullock power for agricultural operations. This strong complementarity resulted in scattered milk production on small rural holdings. Crop residue availability and the near absence of a regular remunerative market for liquid milk were the two most important constraints for increased milk production. The small land - milch animal holding based milk production system continues to be the basic plank of India's dairy industry today.

It is estimated that (in 1984) of all the rural households owning milch animals, some 21% were landless and a further 51% operated less than 5 acres of land. These households accounted for some 60% of milch animals reared by rural households.¹

In the first half of the 1900s, dairying in the country was largely unorganised, except for military farms which were established and largely stocked with the European breeds. The plantation areas, pure-bred exotic bulls were randomly crossbred with local cows. Apart from the "pockets" of improved animals thus created, dairying was largely left in the hands of traditional producers, middlemen, product-makers and vendors.

1. Survey conducted by the National Dairy Development Board in the milksheds.

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The view expressed here are entirely of the author and in no way relate to the organization he is working with.

Some private dairies with more or less modern processing facilities were encouraged to make pasteurised butter, mainly for the British Army. In the early 1940s, one such firm also became the prime supplier of milk to the country's first official urban milk supply scheme "The Bombay Milk Scheme". Under it, chilled milk was transported in cans by rail to Bombay from Anand in Kaira District, some 425 kms. from Bombay.

When India became independent in 1947, one of the earliest projects of its type to be adopted was the Greater Bombay Milk Scheme, which consisted of a market milk plant in Bombay, supplied with milk by the Kaira District Cooperative Milk Producers' Union.

A Key Village Scheme (KVS) was started during the 1950s mainly to provide pure-bred bulls in selected villages. In the mid-1960s, a more elaborate Intensive Cattle Development Project (ICDP) was started for coordinated provision of aids to milk producers. These included improved breeding, feeding and management of their milch animals, all of which was to be coordinated with marketing of milk through a Government dairy plant. The livestock production infrastructure coverage included 130 ICDPs, 550 KVS, 150 cattle breeding farms, 44 exotic cattle farms and 50 frozen semen stations/banks. 2

Meanwhile, another approach to dairying was being developed in a number of cities, led by Bombay. Under this approach, good stable facilities were provided close to the urban dairy, and city cattle-keepers encouraged to move their animals into these premises, thereby helping to clear the city of cattle.

By this time, many state governments set up a composite "Dairy Development Department" to ensure coordinated action by a number of concerned departments of government, such as the Animal Husbandry, Cooperative and Agriculture Departments to facilitate milk production, procurement, processing and marketing. Thus, by the end of the 1960s India's dairy sector had four distinct kind of structure:

- A small number of private modern dairy plants, making specialised products (such as milk powder and malted milk foods), collecting milk privately or through cooperatives set up for the purpose,
- The traditional sector, with its complex network of middlemen, vendors etc.
- Departmental dairy projects, with Government-owned processing facilities, which procured milk sometimes from the traditional middlemen and sometimes from cooperatives,

- A sizeable number of vertically integrated producers' cooperatives.

The modern dairy sector was beset with problems, the more of which were as follows:

- State Government found it difficult to effectively organise milk production, procurement, processing and marketing;
- The urban dairies were unable to obtain more than a 30 per cent milk for share of their liquid milk markets;
- "Dairy Development" had often been treated as if it were synonymous with building dairy processing plants, and these plants frequently got built in the towns where the consumers were, rather than in the milksheds where milk was produced, and so they had found it difficult to organise rural milk procurement;

The urban orientation also led to the creation of urban "Cattle Colonies" as in Bombay, but milk from the cattle colonies was expensive because all feedstuffs had to be brought into the city (and the dung removed); and

- Cheap imported skim milk powder, easily available and increasingly used for urban milk supply, was utilised to blend with high-fat buffalo milk to make the urban milk seem cheap. In some cases, however, this discouraged economy and efficiency, and some urban dairies even refused milk from rural producers so that they could "balance their books" by the use of imported milk powder.

All these problems left a significant number of rural milk producers in the hands of money-lenders and middlemen, depriving them of the incentive and means of modernising their milk production.

II. Amul History

The Government of Bombay started the Bombay Milk Scheme in 1945. Milk had to be transported 427 kms. from Anand to Bombay. This could be done only if milk was pasteurised in Anand.

After preliminary trials, the Government of Bombay entered into an agreement with a private limited company to supply milk from Anand to Bombay on a regular basis. The arrangement was highly satisfactory to all concerned - except the farmers. The Government found it profitable; the company kept a good margin. Milk contractors took the biggest cut. No one had taken the trouble to fix the price of milk to be paid to the producers. Thus under the Bombay Milk Scheme the farmers of Kaira District were no better off than before. They were still at the mercy of

milk contractors. They had to sell their milk at a price the contractors fixed. The discontent of the farmers grew. They went in deputation to Sardar Patel, one of the freedom fighters, and local leaders, who had advocated farmers' cooperatives as early as 1942.

Conscious of these facts, and determined to salvage the situation, in the year 1946 a group of people in the Kaira District were engrossed in emancipating the farmers - the 75% population of the country. In the context of the time frame, these "liberating people" were probably unaware of the ramification of the simple-looking concept which will have a multitantacle growth to salvage many a socio-economic problems of the participating farmers - for their betterment, for their upliftment, for their growth.

Also what these people were probably engaged in was drawing strength from the farmers and giving them a fortified strength of unification to control their destiny; strength of concept, strength in operation, strength of achievement.,

Probably a hope for multitude of Indian farmers was rising - who knew then;

That was the birth of the cooperative which grew, established and proved to be an answer to many unsolved complex questions for not only to this country but probably to the third world. The Anand Pattern was born.

Sardar Patel reiterated his advice that they should market their milk through a cooperative society of their own. This cooperative should have its own pasteurization plant. His advice was that the farmers should demand permission to set up such a cooperative. If their demand was rejected, they should refuse to sell their milk to middlemen.

Sardar Patel then sent his trusted deputy, Mr. Morarji Desai, to Kaira District to organise a milk cooperative - and a milk strike if necessary. Mr. Desai held a meeting in Samarkha village, one of the many villages of the Kaira District, on January 4, 1946. It was resolved that milk producers' cooperative societies should be organised in each village of Kaira District to collect milk from their member-farmers. All the milk societies would federate into a union which would own milk processing facilities. The Government should undertake to buy milk from the Union. If this was not done, the farmers would refuse to sell milk to any milk contractor in Kaira District.

The Government turned down the demand. The farmers called a "Milk Strike". It lasted 15 days. Not a drop of milk was sold to the milk merchants. No milk reached Bombay from Anand, and the Bombay Milk Scheme almost collapsed. After 15 days the Milk Commissioner of Bombay and his deputy visited Anand, assessed the situation and accepted the farmers' demand.

This marked the beginning of the Kaira District Cooperative Milk Producers' Union Limited, Anand. It was formally registered on December 14, 1946. Its objective was to provide proper marketing facilities for the milk producers of the District. The Union began pasteurising milk in June 1948, for the Bombay Milk Scheme - just a handful of farmers in two village cooperative societies producing about 250 litres a day.

When AMUL started in 1946, the Kaira District had of course marketable surplus milk, but the whole area was dominated by private traders. The district was divided into three sections - each being the territory of a private trader who acquired the so-called milk purchasing right (monopoly) by making an annual payment to the village leaders for charity.

The milk producers were compelled to sell their surplus milk to the traders at a throw-away price. A large proportion of their milk was also converted into an uneconomical product, such as ghee, for sale to the same traders, who were also free to indulge in all kinds of malpractices, such as incorrect weighment of milk, dodging of payment, giving incorrect price of milk and so on which would add to the profit. The milk yield per animal was low and hence the cost of milk production was high. The income from milk being meagre, the producers had little incentive to follow scientific animal husbandry practices to improve the milk production of their animals. The vicious cycle thus continued to operate, and the farmers had lost all faith in this economic activity, as their realisation from milk was dwindling away day-by-day.

In the beginning, the Chairman, Shri Tribhuvandas K. Patel, and his colleagues had to move from village to village, to persuade those whom they knew closely to organise primary village milk cooperatives. The farmers in those days used to believe in a master and had no faith in the system of collective leadership of people with small means. It was difficult to establish a system to milk purchase based on cash payment and with proper consideration of its quality, especially in view of the shortage of funds and of facilities for cash purchase of milk from farmers, as well as the dominance of vested interests, such as private milk merchants and their associates in the villages and the area's poor road conditions for milk transport. The Union however, made a start from its meagre resources in 1946. It had only 8 milk cooperatives affiliated to it in 1947. Economic pressure was however so great that formation of milk cooperatives could not be resisted for long. Since then, the Union has continually grown from strength to strength. Practically each village in the district now has a milk producers' cooperative society. It has expanded the capacity of its dairy plant four times, to make sure that it will be able to handle all the marketable surplus milk from its farmer members round the year. Besides liquid milk sales, it has also pioneered the development of many new dairy products in India.

The milk producers' own elected representatives form the Board of Directors of the Union. The Board frames the general policies of the Union with regard to milk supply, pricing, pattern of distribution of funds, etc. It employs a Chief Executive who is responsible for the day-to-day working of the Union within the limits of the Board's policies and who is answerable to the Board for the Union's general progress. He employs competent managers, technicians and other supporting staff, who are available from any part of the country to ensure the most efficient progress of the union. The staff is always conscious of the fact that they are the employees of the milk producers and hence they must work with full zeal and devotion in the best interest of their masters. The results of their efforts are reflected by the overall price which the producers get for their milk each year - and also by the extent to which their milk production and productivity is increased by the technical inputs and services provided to them by the Union through their village cooperatives. The multi-dimensional progress of the villages, year by year, further reflects the socio-economic changes directly related to their general welfare and better living standards.

The Union has realised from the very beginning that it is the small and marginal farmers who have an increasingly greater dependence on milk production to maximise on their meagre resources. The privilege of milk collection and marketing must, side by side, carry the obligation of helping these producers to increase their milk yield. The viability of a milk producer depends on the difference between his cost of milk production and what he can get for his milk. While the prices realised from milk and milk products are governed by the national market, the producers' income can be directly enhanced by helping him increase his milk yield through the optimal technical input mix - which will substantially reduce his cost of milk production. With these aims in mind, the Union also has an Animal Husbandry Division (just like its production division and marketing division), to provide essential technical inputs and services to the producers at their doors. The total cost of these programmes, when included in the milk price structure, comes to about 6-7 paise per kg. of milk. Hence, the Union is not dependent on any outside agency to maintain this type of service in any case, such a service would be too expensive for the state government's budget to bear.

In the process of building a milk procurement system, the Union comes to process the input giving machinery as a complementary system, which is the cheapest and most effective way of providing technical inputs and services to the producers. If, as is often the case, a governmental milk department operates the milk scheme, then the cooperative department organises the village cooperatives and the animal husbandry department operates the input giving machinery and, with involvement of several government departments much duplication and wastage of funds and manpower inevitably occurs. This is not the case in Amul's operating area. There even the Intensive Cattle Development Project of the Government was implemented by Amul on behalf of the Government

and the project funds and personnel were pooled with those of the Union, to intensify further the level of technical inputs and services in the rural area covered.

The Union has always remained watchful in not allowing its management to be reduced to the level of a bureaucracy. A milk producer would talk to an officer working in field and if he was not satisfied, he could walk straight away to the top Executive of the Union, or to its Chairman, to get his grievance redressed. This helps in retaining his faith and loyalty towards his very own organisation. The Chairman/General Manager have trained their juniors to allow dissatisfied (dissident) elements to represent their case to the highest authority, so that either the officer making a mistake will correct his action or his position will be fortified by the argument put forward by the Chief Executive or Chairman to the complainant.

An assured market proved a great incentive to the milk producers in the district. By the end of 1948, 432 farmers had joined village societies, and the quantity of milk handled by the Union had increased to 5000 litres a day.

In the early stages, rapid growth brought in its wake serious problems. Their solution provided the stimulus for further growth. For example, as the cooperative movement spread in the district, it was found that the Bombay Milk Scheme could not absorb the extra milk collected by the Union in winter, when buffaloes yielded an average of 2.25 times their summer yield. Thus by 1953, the farmer members had no regular market for the extra milk produced in winter. They were again forced to sell a large surplus at low rates to middlemen.

The only remedy was to set up a plant to process the extra milk into products like butter and milk powder. The logic of this step was readily accepted by the Government of Bombay and the Government of India.

The new dairy in 1955 provided a further fillip to the cooperative movement among milk producers. The Union was thus enabled to organise more village cooperative societies and to handle more and more milk each year.

In 1958, the milk products factory was expanded to manufacture sweetened condensed milk. Two years later, a new wing was added for the manufacture of baby food and cheese. Another milestone was the completion of a project to make balanced cattle feed. It was formally commissioned on October 31, 1964.

To meet the requirements of the Defence Services for milk powder, the Kaira Union was asked by the Government of India in 1963 to set up additional milk drying capacity. A new dairy capable of producing 20 tons of butter and 40 tons of milk powder a day was completed in April, 1965.

Thus a change in the picture of the villages under the cooperative set-up of Amul emerged. The milk producers, were once heavily dependent on the middlemen for disposal of their milk; the resultant outcome was a stagnant economy. Farmers had lost all faith in enhancement of milk production. The Union re-established this faith. Today, villagers are motivated by neighbouring cooperatives to come forward to press their demand to form cooperatives in their own villages at the earliest. They now get immediate, tangible gains in the form of remunerative price for their milk, as well as all essential technical inputs and services at a nominal or reasonable cost, delivered to their doors, to optimise their milk production. The fatalism of the producers has been changed to optimism and dynamism. The growth of Amul is shown in Annexure-A.

III. The National Expansion:

Starting with two village cooperatives and procurement of 250 litres of milk daily in 1946, the Kaira District Cooperative Milk Producers' Union Limited developed into a fully farmers owned 2 tier cooperative structure. This model of dairy cooperatives has come to be known as "Anand Pattern" of dairy cooperatives. From operating its own dairy in 1950-51, when it handled 5.0 million kg. of milk annually, Amul grew dramatically.

In 1986-87 Amul had 877 district cooperative societies as basic constituent units to a position where it owns and operates a dairy plant with a capacity to handle 0.8 million litres of milk daily and convert it into a variety of products - butter, cheese, milk powder, baby food, chocolate, etc. Amul currently markets within its milkshed (District), 73,000 litres of whole-some pasteurised milk to the urban consumers. Based on the felt needs of its member producers, Amul began providing technical inputs ensuring that these inputs are provided to the member producers in the most economical manner possible.

Following Amul's example, similar milk producers cooperatives emerged in Baroda, Surat, Mehsana, Banaskantha and Sabarkantha Districts of Gujarat, one of the States of India. All these cooperatives aimed at providing the rural producers' direct access to urban demand centres obtaining the highest possible share of consumers rupee spent on milk. Amul set the example for inter-union cooperation by supplying to the Baroda Union some 25,000 litres of milk daily for liquid marketing in Baroda during lean periods, a strategy which was adopted while planning Operation Flood's first phase (utilising donated commodities for rapidly expanding milk marketing in metro-cities) - and set the example of inter-milk cooperatives cooperation. (Annexure B)

In 1974, these 6 Gujarat District Dairy Cooperatives joined hands to form the "third tier" of dairy cooperatives - the Gujarat Cooperative Milk Marketing Federation Limited with the objective to jointly market their dairy products produced under common brand names. (Annexure B)

Thus, the Anand Pattern Dairy Cooperatives have evolved a "3-tier" structure comprising of village dairy cooperatives, unions of village cooperatives and federations of dairy cooperative unions, with elected representatives of the producers setting each institution's policies at the level of each "tier".
(Annexure C)

The basic philosophy of the Anand Pattern is to combine India's greatest asset - the power of its people with professional management in a vertically integrated cooperative structure, thus establishing a direct linkage between those who produce a commodity and those who consume it. The structure transfers to the producer the largest share of the consumer's rupee, thus creating the incentive to increase production. And, most importantly, it places the farmer in command and involves him in his own development.

The Concept, Philosophy and Strength

Much has been said, written and professed of this pattern of cooperative. It has been debated, denounced, applauded by people on almost all occasions - meaningful or meaningless. This paper indulges in an exercise of bringing out some of the areas which provide strength to its philosophy, concept etc. For sake of convenience the subject has been dealt at four levels:

- The concept
- The Philosophy
- The operational level; and
- The plough-back level.

The Concept:

Under the Anand Pattern, a rural cooperative infrastructure is built in the villages where farmers live and produce the commodity. In each participating village, the producers form their own village cooperatives (VC), they elect the Board of Management of members which sets the cooperative's policies and they empower the Board to appoint a Secretary (a man from the village), who manages the VC who is paid out of the VC's earnings. (Annexure B)

Every morning and evening, the VC buys milk from all producers in the village who wish to sell their milk or commodity to it. The VC staff (all of them from the village) measure the commodity brought from each producer, and test them for the quality. In case of dairy cooperative, within twelve hours (usually when the producer returns to the VC to sell more milk), the VC pays for the milk sold earlier - and each payment is based on the tested fat content of that particular producer's milk. So the producer knows that he is getting a fair payment for the quality of the milk which he has sold to the VC (most of our milk producers' milk business is conducted by the women in the family) - and this quality-based system of payment also enables the VC to assure consumers of the quality of its commodity and their products.

A key element in the Anand Pattern of dairy cooperative is that the VC within a 50-75 km. radius are all members of a Dairy Cooperative Union which enables them jointly to own a processing factory. Each union organises the collection of milk twice daily from all its member-VC, milk so collected is then brought to the dairy factory and is pasteurised; some of the milk is thereafter sent in insulated tankers to the major cities, to be consumed as liquid milk, while the balance (which is especially large in India's cool post-monsoon season) is processed into valuable products such as baby food, butter, milk powder, cheese etc.

Every Dairy Cooperative Union (which typically processes and markets 100,000 - 500,000 litres of milk daily) has a Board of Directors who are elected by the producers themselves. This Board, in turn, appoints a professional, high-calibre Manager who is the Union's chief executive. The union not only processes and markets the members' milk, but also produces and markets the technical inputs which the poor rural milk producers need in order to increase their milk production. These inputs include mobile veterinary clinics, artificial insemination centres, supplies of balanced cattle feed concentrates etc. - all of which are made available to the producers at their door steps, through their own VC.

The system also believes that while it must ensure a remunerative market for the farmers' produce, it must reach the necessary production enhancement inputs as well to them at their door step.

Therefore, while in case of a dairy cooperative, it not only provides payment to the individual participating members twice a day, it also ensures that - Annexure D)

i) a mobile and an emergency veterinary services provide necessary health care to be animals of these members in their villages.

ii) the necessary training is imparted to the village society workers for artificial insemination in the animals so that the semen supplied by the Union (District Cooperative) is served free of cost to impregnate the animals and thus improve the breed.

iii) a balanced cattle feed is supplied to the village cooperatives and sold to the members at cost (usually such feeds are cheaper than the traditional feed besides being more nutritive).

iv) a strong farmers education is continuously imparted through appropriate extension methods (including farmer's magazine etc.);

v) farmers participation is activated and continued at all levels.

On similar footings the participating farmers in other sectors like oilseeds, fruits & vegetables etc. have been provided with appropriate and remunerative market, production enhancement inputs and education.

The Anand Pattern of cooperatives can thus be termed as a blend of their responsibility to provide an assured market for members' produce and their obligation to provide services to encourage increased production by the members.

The Philosophy:

The major philosophical strength of the system is the independent and yet cohesive character of each participant - individual, group or the organisation. The boundaries of operation of each of these components have been well defined, accepted and practised.

We will elaborate these at the three tiers of which the structure is composed of: the village level primary cooperatives; the district level affiliate of these primaries (Union); and the apex of these - the Federation.

The Village Level Primaries:

Each member participates voluntarily. The qualifications of a person to become a member is so defined that undesirable elements are avoided. For example, the bye-laws make it statutory that the person should be a resident of the village and that he owns one or two animals (cows/buffaloes) or grows a particular commodity on his land (in case of other agricultural, Anand Pattern Cooperatives); only two persons (the man and his wife) from one family can become members etc.

Similarly, the right to vote for elections or to contest for seat in the Management Committee of the society has been restricted to such members who have contributed a predetermined quantity of the commodity or have participated for a pre-determined number of days in a year (in case of milk it is 700 litres or 180 days in a year) towards the business of the society; that the elections be held by a secret ballot and not by a show of hands. Any defaulter to the society is also disqualified to contest or to vote.

With regard to the constitution of the Management Committee, one third of its members retire automatically each year and the vacancy so caused is filled by fresh election. The new committee thus formed will elect its Chairman every year.

The village level cooperative pays to the members for their supplies of the commodity as fast as possible - in case of milk it is twice-a-day: morning milk paid in the evening and evening, the next morning. The transactions are not very high, but large. These societies are therefore, subjected to and obliged to continuous and concurrent audit. Any society falling behind a

pre-set standard of audit is not only subjected to penalties, it is also debarred from voting for election and contesting a seat in the Board of the Union to which it is affiliated.

As for the people who manage the village cooperatives - the staff - is elected by the Management Committee and is paid. This is different from many other cooperatives where the workers are honorary resulting in a large scale misappropriation of funds or closure of the society. Persons so selected in the Anand Pattern cooperatives should not be, in any way, related to the members of the Management Committee and that these be preferably from the same village. They are then subjected to specific training by the District Cooperative Union as well as the State Cooperative (the State Unit of the National Cooperative Union of India - a body formulated by the Government specially to impart training to the persons employed/engaged in cooperatives) failing which the financial help to these cooperatives are qualified for, may be withdrawn.

At the operational level the members pool their commodity at a pre-determined frequency - twice a day in case of milk - which is subjected to strict quality control tests for acceptance or otherwise. The payment is made on quality and quantity both. The records maintained at these village level societies enable one to look into and find out the day-to-day transaction, profit or loss etc. Small items like sample taken from the member's supplies are accounted for. The members' records for the individual supplies; their benefits accrued to them, animal holding, land holding and other such details are maintained. This, besides giving a detailed information on the members' socio-economic status, also helps in determining any outstanding dues against him and thereby preventing such member in casting their votes or contesting the elections.

So far as the responsibilities are concerned, they are well defined. The moment, a member delivers the commodity to the village cooperative, and is accepted, his responsibility ceases and he is paid for. Similarly, when the village cooperative loads the commodity on the lorry, the responsibility goes to the transporter who has been hired by the Union. On delivery to the Union, mostly at its processing unit, the responsibility is taken over by the Union. Each one, therefore, is aware of its responsibility and the boundaries of operation.

One of the major dangers of the cooperative has been the possibilities of members tending to get away from the apex organisation for want of constant and effective communication and linkages. The delivery of mails through the transport lorries almost twice a day ensures an effective communication and immediate solution of the problems raised by the cooperatives. Further, the visit of the procurement and input personnels in the villages at a pre-determined frequency brings the members in live touch with the Union and thereby advance the sense of cohesion. The communication is not only one way from the top down, but also from bottom up. Members, their wives and children are brought to

the various processing units of the cooperative and are exposed to the activities in a way so that they feel the ownership of the total system.

The employment generated by these village cooperatives to the rural population has helped to a large extent in restricting the migration of the rural population towards the cities. One such district dairy cooperative has been able to generate job for nearly 4000 people.

The Union Level:

Since the units at the village levels do not justify to have processing units, mainly because of their small size of operation, and thereby, cannot guarantee a market of the produce of members all the year round, the Union (affiliate of these village cooperative), owns and manages such processing facilities. Indian agriculture, specially the dairying, is marked by uneven production pattern against a constant demand. Milk, for example, is produced as high as 3-4 times in winter than in summer. Other agricultural commodities are seasonal, fruits and vegetables being worst, this results in a glut in the market, depressed prices (mostly artificial) and the resultant exploitation of the producers. This excess production need to be conserved by application of high and appropriate technology to even out the shortages of lean (summer). Such plants are sophisticated, large and demand high capital investment. Besides, they need to be managed by high-calibre-efficient professionals.

The production has to be matched with demand and growing; it should have a well-balanced price-product mix; a product diversification suitable not only to market needs but also to the cultural satisfactions and yet commercially viable.

The operation of such a complex task of production, marketing and perpetuation of increased productivity by its member farmers demands an operation which is not only highly professionalised but is a right blend of policy formulation by the farmers (or their representative), its execution by the professionals, safeguard against common/uncommon threats and live upto the expectations of the common farmers.

We will try to discuss some of these features.

On policy formulation, the Board of the District Union (the affiliate of the village coop.) is constituted of the Chairmen of the village cooperatives which have contributed a minimum of business and have a clean record of audit for the last three consecutive years, some professionals and the Government policy makers are also included. The Board of the Anand Pattern Cooperatives (Union) then consists of:

- Majority of farmers
- Government representative
- A professional of repute
- A representative of the financing institution.

The representatives, other than farmers usually do not enjoy powers to vote but contribute a strong support system in directing the policies conducive to the farmers.

In this regard, these cooperatives have a major departure from the common European cooperatives where the Board consists of only the farmers and thus probably have no interaction with the Government policies makers.

Since the bye-laws provide the standard guideline in directing the operation and policy-forming of a cooperative, enough provisions have been made to enable its almost perfect operation. Some of these are:

- The Chief Executive of the Union can be appointed by the Board but can be removed only by the General Body by a majority of votes. This ensures free hand operation to the Chief Executive with almost no interference from the Board members whose role is confined only to policy formulation and ensuring its execution.
- Farmers representing on the Board are liable for retirement (1/3rd) every year, (the person getting least number of votes in his favour at the time of election goes first and in that order). Such vacancies are filled by election. Every three year a new Board is elected.
- Only those persons who have been the Chairmen of the affiliated village cooperative for three consecutive years and that this society has no adverse audit record for these years, can represent at the Board of the Union. This not only ensures committed persons to come on the policy making group but also ensures that the operation at the primary level are well attended to.

The role of the professional to meet the challenges and the understanding of the policy makers to allow the professionals to operate freely within the policy guidelines, has been one of the most important factors in the success of these cooperatives. The management and the employer relations has been well defined and each segment has endeavoured to operate within the constitutional and moral boundaries of understanding with each other. Some of the important criteria formulating these boundaries are as under:

Management:

- Respects staff as humans first and is eager to listen and solve genuine problems.

- Allows selective but wise access of people who matter in the betterment of the institution's policies/corporate image. However, such persons are restricted to become members of the kitchen cabinet.
- Demonstrate genuine willingness to dispel mistrust or fear.
- Ensures clear and well defined delegation of responsibility with authorities conducive to the growth of the organisation.
- Introduces effective non-management and human resources identification and development programme to get the best.
- Develops a two way, constructive information flow system.
- Allows constructive criticism with a spirit of development.
- Creates an environment for effective permeation and amalgamation of the management and staff.

The employees reciprocate through:

- a sense of belonging to the institution and not the individual,
- with mutual trust and fearless interaction,
- demonstration of being an integral part of the organisation,
- participate at various level as persons responsible for effective betterment of the institutions' operations.
- with effective vertical and horizontal communication in dispelling the misgivings and propagating institutions policies.
- Inculcation of a habit of collective effort to uplift the corporate image.
- ensuring that the carrying cost of people and material is not negative to the institution.

The auditing of the accounts is done at two stages; qualified Internal Auditors ensure running audit of all the transactions and the statutory auditors ensure a continuous and concurrent audit.

While these aspects are confined to operations at the Union level, the market and the fund control system of a group of cooperative which is not only complex and huge but also a very specialised operation, is being controlled by the State level federation.

The Federation has representation from the district unions on its Board which is only of their Chairmen. While this Board formulates the policies, a committee consisting of the Chief

Executives of the member unions - the Programming Committee - formulates the production and marketing policies. Each member union is given a production programme monthly in advance, depending upon its capacity and the facilities as well as market demand.

With a group of cooperatives for a similar commodity to start functioning they enter initially area of competition for marketing their produce. Occasionally, by oversight, such an exercise may result into unhealthy practices which is against a basic philosophy of cooperatives. To avoid such situations, the state level federation takes care of combined marketing of the various products manufactured by a group of cooperatives in their state.

Some of the needs of the district cooperatives (Unions) demand for centralised activity and they result in financing. Such large financing are, therefore, pooled and processed by and through the state Federation. Such arrangement not only reduces the burden on the smaller units but also ensures them of meeting their needs, if they so desire. Such areas of centralised action may be the owning of a large processing union for conservation, owning of centralised semen production system for scientific breeding programmes or owning of a large raw milk processing and distribution union.

Large amount of consumables in running the union's processing unit are of common nature. Individual purchases by each of these unions may not provide a strength to bargain. Therefore, procurement/purchase is looked after by the state federation.

In the initial stages of the growth of the cooperatives at district level, the federation has also acted as foster mother and have owned the responsibility of the payment of loans, the burden of expenditure on manpower and the operations till each of the unions have become viable and sustaining. The oilseeds cooperatives established on this pattern are other examples.

The entire system is, therefore, not top-down parachute effect but a bottom up participation where each individual, group or the institution interact with each other, formulate policies of common interest and grow together.

The village cooperatives guarantee a market to the individuals, the district unions guarantee market to the village societies and the federation guarantees for the district unions. Each one thus is a strong link of the give-and-take chain.

The Plough Back System:

The Anand Pattern of cooperatives have believed that the investments made by individuals or the organization should be paid back through a desirable dividend perpetuate the activities. The cooperatives, therefore, do not only pay a guaranteed price for the commodity, or a dividend on the shares but also a bonus

as per their bye-laws and in accordance with the contributions made towards the business. In fact, the price paid to the individual producer over the year is provisional and a final payment of the price is made by the union at the end of the year which is generally higher than the provisional. This price is determined on the value of milk each member has contributed over the year and not on its volume. So is the case with bonus. (Annexure D)

The cooperatives are supposed to be well-knit, social organisations and, therefore, they have the responsibility of meeting the social needs of the participants as well. The provision of profit distribution, therefore, have provisions where funds can be directly utilised for social upliftment of the participants. A village cooperative, for example, has provisions for the community development, the cattle development fund and the like. In most of the cases, the Community Development Fund, built over the years, have been used to establish schools, hospitals, health care centres, construction of approach roads, drinking water facilities etc. It might be worthwhile to mention here that even though such social responsibilities are within the purview of the local Government/Village Councils, the village cooperatives on Anand Pattern have demonstrated their effectiveness in bringing about a harmonial synthesis between a highly political body (village council) and an entire non-political social organisation like village cooperative to improve the general life of the villages.

The PERSPECTIVE of these cooperatives can be enumerated as:

- P for Politeness
- E for Enthusiasm
- R for Righteousness
- S for Sincerity & Sensitivity to the system
- P for Perseverance
- E for Easy accessibility
- C for Considerateness
- T for Trust and Tolerance
- I for Integrity
- V for Versatility
- E for Efficiency & Enterprise.

In concluding the paper, one can enumerate that the cooperatives organised on Anand Pattern are single commodity cooperatives and have proved successful. Nevertheless, besides being single commodity cooperatives, they have some basic departures from the other conventional cooperatives. These societies are:

- vertically integrated cooperatives which encompasses the areas of procurement, processing, marketing of end product as also the technical inputs for enhanced production into a package.
- responsive to the needs of the members, sensitive to their demands and as such not only provide a guaranteed market for the produce but also the necessary inputs for enhancing production.

- provide access to ready cash.
- unlike other primary cooperatives the Management Committee members and the employees of society are two different sets of people, each responsible to the members (society) as per the bye-laws. Similarly, at the secondary and apex levels there is a desirable blend of professionals and the Board Members; each operating within a clearly specified responsibilities as indicated in the bye-laws (unlike other cooperatives which are mostly managed by persons on deputation from the Cooperative Department of the Government).
- the bye-laws ensure non-participation of undesirable/vested interests enabling the societies to function true to their characters and maintain its business profile.
- undergo continuous and concurrent audit (everythree months) to avoid accumulations of audit of accounts for years and thus setting a chain; no audit - no annual meetings - no profit distribution - no member participation - loss of faith.
- the cooperatives under reference have ensured, through their extension wing that the apex institutions are in constant touch with members to understand/appreciate their problems and respond to their needs. This link between members and the apex organisation is a strategic difference between these cooperatives and conventional cooperatives. This link is possible because the field staff acquire expertise/understanding in a single commodity faster and feel confidence to promote them. This also ensures the cooperatives do not tend to be away from the members as they grow large.
- without undermining the credit needs of the members, the marketing functions of the cooperatives have not been linked with credit.
- the system has ensured that necessary and trained manpower is always available at all the levels of operation.
- it is said that the strength of a pyramid is in its base; broader and stronger the base, higher and stronger is the pyramid. Participation of some 10 million farmers in various agro and agro-based sector probably prove this dictum.
(Annexure E)

References:

1. Dairy India
2. Annual Report of the National Dairy Development Board (NDDB) March, 1987.
3. Operation Flood II - a NDDB publication
4. Participation of women in dairy development in South Asia; - an ESCAP publication.
5. The Amul Story - a Saga of cooperative effort.
6. Other papers by the author.

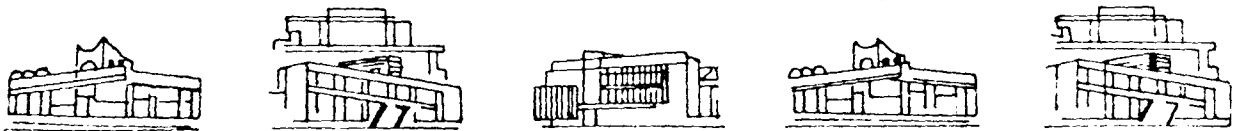
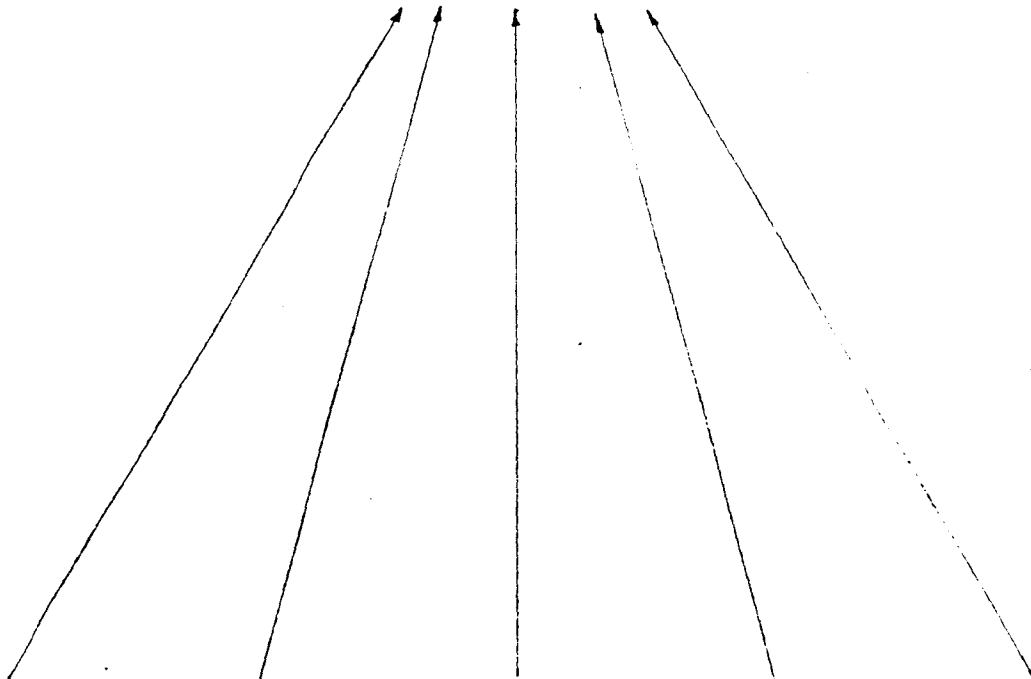
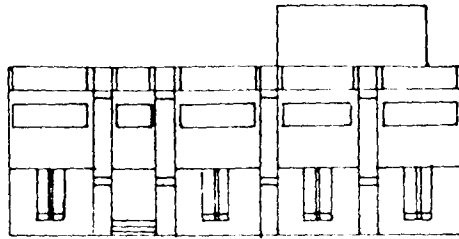
PROGRESS MADE BY AMUL FROM 1955-56 TO 1986-87

Annexure A

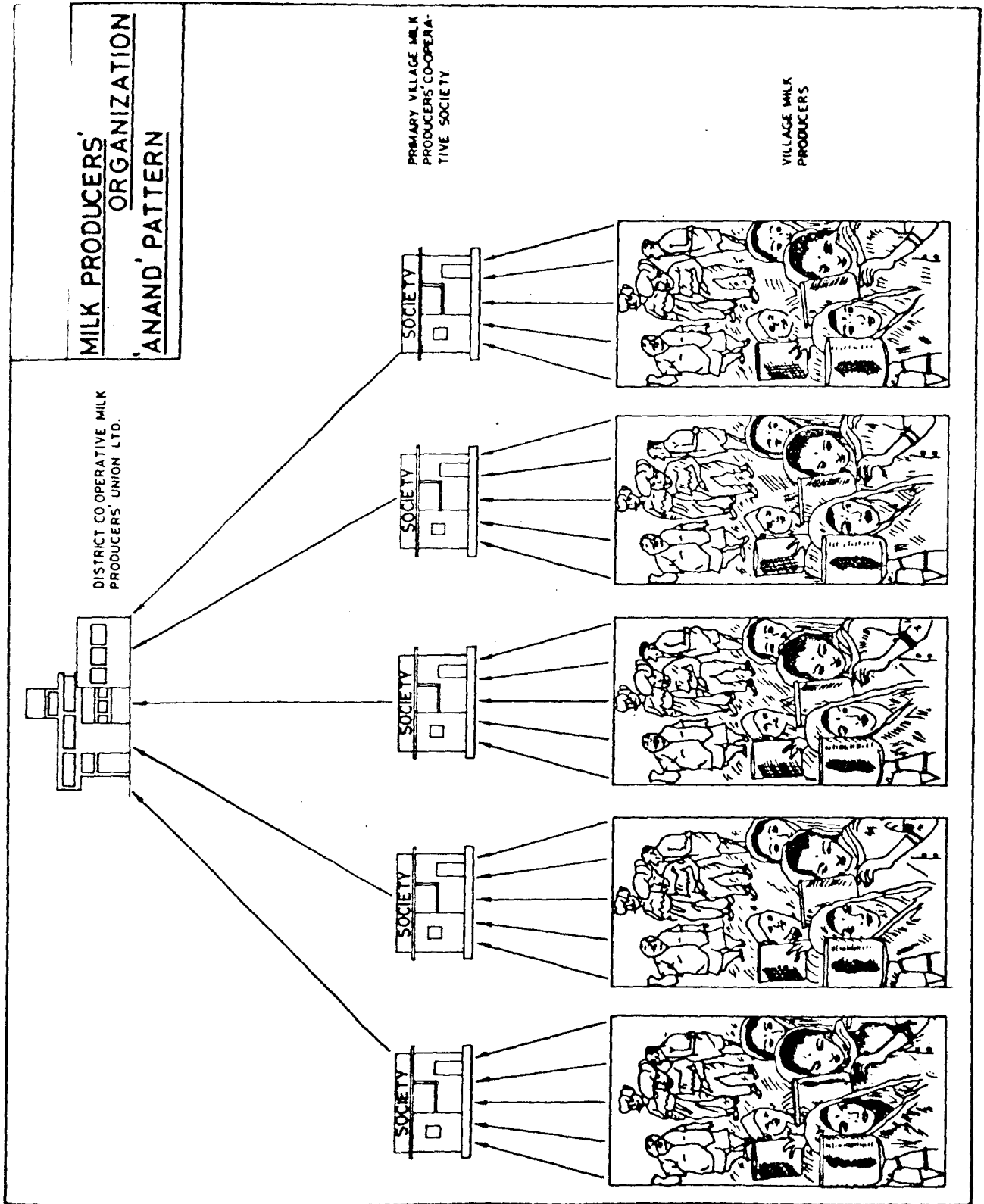
Year ending 31st March	Number of Societies	Number of farmer members of societies	Share capital of the Union Rs.	Quantity of milk collected from societies (Kgs.)	Sales Rs.
1955-56	64	22,828	3,17,400	1,11,36,363	74,36,000
			Position before the New Dairy was built		
1956-57	107	26,759	3,16,500	1,41,64,800	89,47,000
1957-58	130	29,003	3,93,900	2,11,56,400	1,34,14,000
1958-59	138	33,068	4,73,500	2,75,57,800	2,11,65,000
1959-60	167	40,181	5,67,100	2,29,27,000	1,82,16,000
1960-61	195	40,500	7,41,100	2,39,15,000	1,98,53,000
			Position after the Dairy was expended for baby food and cheese		
1961-62	219	46,400	7,48,700	3,53,98,429	3,15,23,820
1962-63	254	58,500	8,19,200	5,04,17,811	4,56,24,311
1963-64	378	65,000	10,14,000	6,23,02,000	6,03,62,000
1964-65	421	85,000	12,57,000	6,06,41,000	6,27,26,000
1965-66	518	1,10,000			
			Position after the second dairy was built		
1966-67	567	1,20,000	13,70,060	6,59,05,000	9,22,19,207
1967-68	592	1,35,000	16,51,100	7,16,08,691	11,76,41,988
1968-69	600	1,48,000	18,82,800	8,05,99,111	14,83,77,000
1970-71	610	1,75,000	23,35,400	11,31,56,188	24,19,10,137
1971-72	706	1,80,000	28,37,700	12,38,84,347	27,19,37,761
1972-73	744	2,15,000	34,71,800	11,82,25,273	27,39,41,845
1973-74	783	2,25,000	38,57,400	13,32,22,528	33,60,39,477
1974-75	794	2,35,000	41,48,000	14,78,11,128	39,22,38,718
1975-76	844	2,45,000	43,18,300	11,19,48,121	36,61,78,247
1976-77	831	2,55,000	44,18,000	13,09,52,349	44,64,63,322
1977-78	831	2,75,000	68,59,000	12,70,17,040	44,20,01,790
			68,67,400	14,11,97,710	53,55,29,340
1978-79	856	2,95,000	68,98,200	15,92,62,615	58,11,33,173
1979-80	895	3,08,000	79,73,500	16,93,76,542	66,42,42,138
1980-81	895	3,27,000	89,61,500	16,95,76,969	75,29,97,024
1981-82	894	3,39,000	89,63,500	16,00,18,395	78,56,65,255
1982-83	895	3,52,000	1,09,70,100	18,38,20,076	95,36,07,757
1983-84	880	3,59,000	1,26,01,200	18,20,22,754	1,03,04,81,506
1984-85	870	3,59,000	1,41,16,000	19,32,20,249	1,22,47,95,663
1985-86	872	3,65,000	1,56,53,400	22,72,61,712	1,33,41,82,316
1986-87	877	4,07,000	1,71,30,400	21,37,69,268	1,52,50,11,375

DISTRICT CO-OPERATIVE MILK PRODUCERS'
UNIONS AND FEDERATION

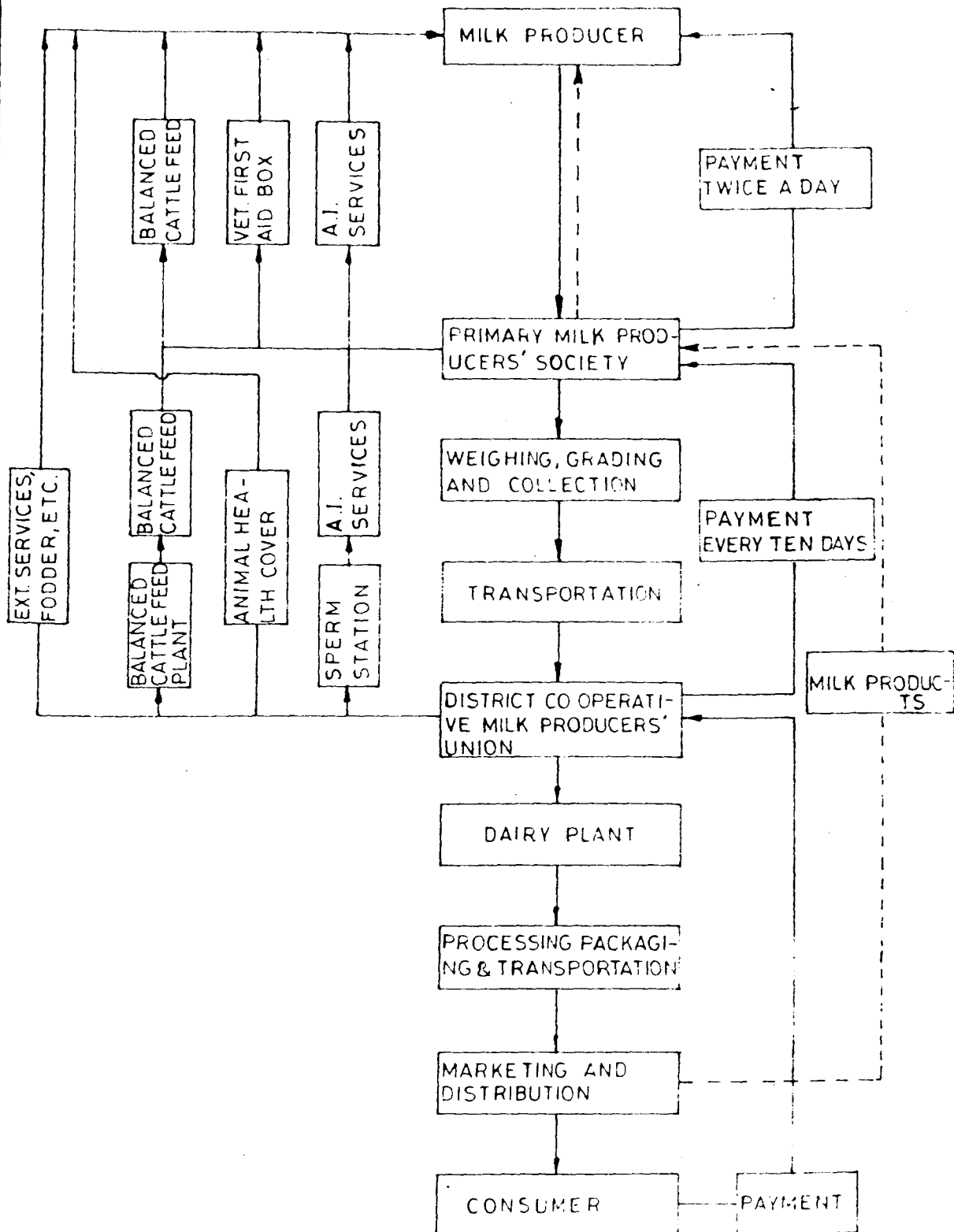
STATE CO-OPERATIVE MILK MARKETING FEDERATION LIMITED



DISTRICT CO-OPERATIVE MILK PRODUCERS' UNION



CO-OPERATIVE MILK PRODUCERS' ORGANIZATION ON ANAND PATTERN



STATUS OF MEMBERSHIP OF THE FEDERATIONS WITH NCDFI AS ON
30TH JUNE 1987

Sr No.	Name of Federation	No. of Milksheds	No. of Anand Pattenrn DCS (Functional)	No. of milk producers	*Average daily procurement (LKPD)
(A) Full Members					
1.	Andhra Pradesh	10	3633	381249	333740
2.	GCMF (Gujarat)	16	7102	131224	1484940
3.	Haryana	10	1063	156801	78260
4.	Himachal Pradesh	2	107	13405	15980
5.	Karnataka	11	3472	636116	435180
6.	Madhya Pradesh	7	1884	114115	110090
7.	Maharashtra	20	3043	695120	1377510
8.	Orissa	4	312	18777	30180
9.	Punjab	11	3722	255308	242560
10.	Rajasthan	16	3921	264906	159200
11.	Uttar Pradesh	28	4271	278699	190110
(B) Associate Members					
1.	Bihar	5	956	46192	65340
2.	Kerala	2	605	115601	148070
3.	Tamil Nadu	12	4963	859674	652230
4.	Tripura	1	70	4495	3230
5.	West Bengal	6	638	66633	41580
6.	Goa	1	87	8739	6850
7.	Pondicherry	1	64	12760	21460
(C) Non-members					
1	Assam	1	16	1441	3510
2.	Jammua & Kashmir	1	100	4015	6750
3.	Nagaland	1	8	362	-
4.	Sikkim	1	73	3031	2820
5.	A & N Islands	1	12	900	-
		168	38904	5249681	5409590

Full members 11 + NDDB + IDC = 13

Associate members = 7

Non-members = 5

* Milk procurement reported for the month of August, 1987

THE COOPERATIVE AS AN ORGANISATION STRUCTURE SUITABLE

FOR DAIRY DEVELOPMENT IN DEVELOPING COUNTRIES:

LESSONS OF INDIA'S EXPERIENCE*

I. Introduction

According to the International Encyclopedia of Social Sciences "Cooperation is joint or collaborative behaviour that is directed toward some goal and in which there is common interest or hope of reward" (2, P.384). As an ethical norm, cooperation has been stressed in all major religious and moral systems of the world. As a social structure, cooperation is manifest in countless organisations created by man for the purpose of joint action to achieve a given goal.

A cooperative is generally viewed as a socio-economic organisation that can fulfil both social and economic objectives of its members and that has its members' interest truly at heart. A cooperative is based on certain values and principles of its own which distinguish it from other forms of organisations. The International Cooperative Alliance prescribes the following six cooperative principles: (1) voluntary membership; (2) democratic decision making system; (3) limited interest on share capital; (4) equitable distribution of surplus; (5) cooperative education; and (6) mutual cooperation.

Cooperation has three dimensions; i.e. economic, social and moral which are equally crucial for its success. The very motto of cooperation, i.e., "each for all and all for each" signifies loyalty, trust, faith and fellowship. A cooperative is a perfect democratic institution of the members, for the members, and by the members and is based on the 'one-member-one-vote' system of decision making.

Given the failure of conventional western models of growth in many instances to bring large segments of rural population into the main stream of economic and social development, efforts to promote rural development, especially the development of under-privileged rural poor, through group action holds high promise in most of the developing countries of the world. Since cooperatives of various forms represent the most commonly

* Paper prepared by Professor Katar Singh, Institute of Rural Management, Anand, India. The views expressed in this paper are author's personal views and do not necessarily reflect those of the organisation with which he is associated.

occurring form of group action in nearly all developing countries, a clear understanding of the nature and potential of cooperatives as an organisation structure for promoting rural development seems necessary for policy makers, planners, administrators, managers, and political leaders. It has become all the more imperative by the renewed interest in cooperatives on the part of policy makers, planners and practitioners and many national and international organisations. This paper is a modest attempt at evaluating the effectiveness of the cooperative form of organisation structure in promoting dairy development in developing countries. In particular, in this paper, we shall analyse the India's experience with the Anand Pattern Dairy Cooperative (APDC) and distil lessons that might be useful for promoting dairy developing in other developing countries.

II. Cooperative Compared with Other Forms of Organisations

Cooperative as a business organisation is similar in many ways and different in many other ways from other forms of organisations. The similarities are in the domain of roles and functions and differences in the manner in which the roles and functions are performed. Cooperatives are expected to reflect in their day-to-day practices the principles and values of cooperation which emphasise, interalia, equality, equity, and mutual self-help.

Like any other business organisation, cooperatives are expected to ensure efficiency and profitability in their operations. But unlike other business organisations in the private and public sectors, the cooperative is both a social organisation and a business enterprise and, therefore, has a dual purpose; it serves both a social as well as an economic function. A cooperative manager must be concerned not only with the economic aspects but also with the social obligations of his organisation.

Cooperatives have higher comparative advantage over other forms of organisations in involving people in their activities, in mobilising people's resources and political power for achieving their goals, in identifying and developing local leaders through democratic process, in securing vertical and horizontal integration of production, procurement, processing, and marketing functions and in facilitating equitable distribution of benefits of development. All these advantages can help the cooperatives in improving their competitive position as a business organisation vis-a-vis their competitors.

Table 1 presents a comparative analysis of various forms of organisation structures in terms of goals and selected management practices. It is a summary only based on generalisations and over-looking variations between organisations within each category.

Table 1: A comparison of various forms of organisation structures in terms of their goals and selected management practices.

1. Primary goal	Service to members	Profit	Profit	Profit and/or service to public.	Service to public.
2. Whose aspirations count	Elected officials, active members and Managers.	Owner	Owners and Sr.Managers	People's representatives & Sr.Managers.	Sr.Govt. officers & people's representatives in Govt.
3. Decision making processes	Decisions made by elected representatives of members keeping members interests in mind, process not as quick as in companies but quicker than in Govt.	Decisions made by owner but advice from trusted advisers sought, decisions made and changed quickly. Process very quick and flexible.	Framework for decisions provided by dominant shareholders and action by Chief Exe., Process is quick and flexible.	Govt. officials involved in setting the framework and giving directions for action. Process is slow and rigid.	Sr.Govt. officers and people's representatives in Govt. set the framework and Govt. officials issue the directions and guidelines for action. Process is slow and rigid.
4. Management information	Open disclosure of aggregated financial and operational information.	No disclosure of financial or operational information.	Limited disclosure of financial information to investors (present and potential).	Open disclosure to the Govt. but limited to the public.	Open disclosure to the Govt. but limited to the public.

Table 1: Contd.....

Form of Organisation Structure

Management Practice	Cooperative	Proprietorship	Private company	Government Corpn.	Government Dept.
5. Who participate in planning	Active members, elected officials, management and employees	Owner and occasionally trusted advisors	Dominant shareholders and management	Govt. management and Sr. employees	Govt. and Sr. officers
6. Co-operation with organizations	Through elected officials and sr. management good with other co-ops.	Through owner, strictly on the basis of business interests	Through dominant share-holders & sr. management, strictly on business terms usually through investments	Through coordination by sr. management is encouraged to improve efficiency and effectiveness	Through orders by sr. officers is not sought and does not come by easily.
7. Degree of social responsibility	High	Low	Low	Medium	High

The economic rationale for a cooperative organisation lies in its endeavour to secure for its members advantages of modern technology and economics of scale. A cooperative organisation that does not want or cannot secure these two advantages is doomed to failure sooner or later. Theoretically speaking, there is hardly a better organisational structure than the cooperative for achieving the dual goal of social and economic development but final success depends on the level of operational efficiency achieved (1, P.189).

The major difference between cooperative management and management in other organisations is the greater need for cooperatives to involve directors, members, and staff in key positions in problem solving and decision-making. This is no small task. Managers trained in traditional management schools, when confronted with a difficult situation, feel they must think it through for themselves and find out a solution. That is what they have learnt in management courses. Cooperative theory requires a different response. Cooperative managers are expected to take the problem out to the members, and staff and involve various interest groups in the development of solutions.

III. Characteristics of Dairy Industry in Developing Countries

Production of crops and milk is a widely prevalent practice on the majority of farms in most of the developing countries of the world. Crops and milk are two complementary enterprises on most of the farms in India. Crop by-products are fed to milch animals and dung from animals used as manure for crops. To a certain extent, both crop and milk production can be increased simultaneously on many farms but eventually, due to limited resources available to the farmers, these two enterprises start competing with each other, i.e., increase in one can be achieved only at the cost of the other.

Dairy industry as a system has three interrelated sub-systems, namely, milk production, processing, and marketing. In India, milk is produced by millions of landed and landless households who are scattered all over the country. The majority of milk producers are illiterate, unorganised and small-scale operators having 1-2 milch animals each. The average milk yield per animal is very low and has been stagnant for centuries.

Although milk production has been an integral part of agriculture in India since time immemorial, modern milk processing and marketing technologies were introduced in the country during the British regime when military dairy farms and creameries were established in the early part of the 20th century. Before that, raw milk (without any processing) used to be sold to consumers either directly by the producers themselves or by middlemen. Most of the milk produced in the villages used to be consumed there in the form of liquid milk and traditional milk products like curds, khoa, ghee, etc. This was partly due to lack of all-weather roads linking rural milk producing areas to urban

consumption centres, and appropriate transport, processing, and marketing facilities, and partly due to the limited size of urban markets. Part of milk requirement of urban consumers used to be met by the dudhias (milk vendors) who would collect milk from nearby villages and sell it either directly to the consumers or to the middlemen - usually a halwai (milk sweets manufacturer) or a private dairy and part from supplies from the owners of city-kept milch animals.

There were private dairies all located in urban consumption areas. Without an efficient procurement system, the dairies could not collect much of the milk produced in the villages. Several rural milksheds were thus largely untapped and the quantum of milk collected was insufficient to meet the demands of the cities. So, many dairies had to depend partly on dudhias and contractors to procure the milk for them and partly on commercially imported milk powder to create milk. Yet, they could not meet the demand. The contractors' milk supplies were erratic. The dairies mostly functioned inefficiently.

There were long queues at the milk booths. In effect, milk was rationed. Milk scarcity bred even more middle-men, who exploited both village and city dwellers. They bought good milk produced in the villages at a very low price, adulterated it with water, extracted much of the cream, and sold the diluted milk to the city consumer at an exorbitant price.

In most villages, one middle-men had a monopoly. The villagers were forced to sell their milk, a highly perishable commodity, to this agent at the price fixed by him. In flush season, when the buffaloes produced the most milk, the price sank to rock bottom.

Milk being in short supply in the cities, people had no alternative but to buy their requirements from the go-between and pay the price he demanded.

On account of high prices and low quality, city milk availability stagnated. Thanks to increasingly poor returns, milk producers were not encouraged to invest in production, so milk produced in the villages failed to keep up with the growth in population, creating even more acute shortages.

To exploit the urban demand, private milk contractors took away the best milch buffaloes and cows from the villages and established milch animal herds in the cities. They not only fouled the environment by polluting land, air, and water but also starved the calves to death and sold the animals to butchers for slaughtering when they were dry, thereby, causing an immense loss of good genetic stock.

Modern dairy system connotes some degree of organisation and use of new (western type) technology in all the three sub-systems of the industry, i.e. production, processing, and marketing. The form of organisation could be public, corporate, cooperative, or proprietorship. India's dairy sector today consists of two sub-

sectors - a relatively large traditional sub-sector and a small but growing modern sub-sector. It is estimated that the traditional system handles nearly 90 percent of the total marketed surplus of milk and the remaining 10 percent is handled by the modern system. The traditional sub-sector is characterised by subsistence nature of milk production, use of traditional methods of procurement, processing and marketing of milk, lack of organisation of milk producers, low milk yields, low and often unremunerative producer price of milk, low producer's share in the consumer's price of milk and lack of incentive to the producer to increase milk production. The modern (cooperative) sub-sector is characterised by commercial nature of milk production, use of modern inputs and services in milk production, use of new technology in procurement, processing and marketing of milk, organisation of producers into cooperatives mainly APDCs, high milk yields, remunerative and stable producer price of milk, and high producer's share in the consumer's price of milk.

Although the process of modernisation of India's dairy industry, particularly processing and marketing sub-systems, started early in the present century, the real thrust came in 1970 with the launching of Phase I of Operation Flood (OF) in 18 selected milksheds in 10 states of the Indian Union. OF seeks to replicate the APDC in selected milksheds in India and thereby to modernise and develop the country's dairy industry.

IV. Requirements for Dairy Development

Given the characteristics of dairy industry in India and other developing countries described in the preceding section, we can identify the following basic requirements for its development:

1. Technological Innovations: In many ways, technological advance is the sine qua non of development, that is, it is development. Appropriate technology is necessary to obtain greater output from a given quantity of resources. This statement applies to production, procurement, processing and marketing sub-systems of the dairy industry. Transition from traditional to modern dairy industry requires that appropriate technology is accessible to all those who are involved in production, processing, and marketing of milk and milk products. In the short run, a country can import new technology and adopt/adapt it to suit the local conditions. But in the long-run, a country should have its own research base built-up to generate a continuous flow of new technology. Amul is a good example of adopting, adapting and developing modern technology for production, processing and marketing of milk and milk products. (4, pp. 154-156).

2. Access to Institutional Finance: Modernisation of dairy industry, like any other industry, requires a tremendous amount of capital. It takes over Rs.100 million per district to create the necessary infrastructure for procurement, processing, storage and marketing of milk and milk products, compounding of balanced cattlefeed, and provision of technical inputs and services to

milk producers. In its initial stage, no industry can meet all of its capital requirements from its own resources; dependence on external sources of financial support is a must. Hence, access to financial resources from both national and international sources, is a pre-requisite for modernisation and development of dairy industry. Amul had to depend on external assistance to meet its capital requirements. A lot of capital was needed to import modern dairy machinery and equipment and to construct buildings and other basic infrastructure. The main sources of funds included the Bombay Milk Scheme, the erstwhile Government of Bombay, the Government of India, the Government of Gujarat, UNICEF, the Government of New Zealand (under Colombo Plan), the Technical Cooperation Mission (TCM), PL-480, the World Food Programme (WFP) of F.A.O., and more recently the Indian Dairy Corporation (IDC), the National Dairy Development Board (NDDB), the Peoples Action for Development in India (PADI), CARE, and the Canadian International Development Agency (CIDA).

3. Horizontal and Vertical Integration: To realise economies of scale in transportation, processing, storage and marketing of milk and milk products, in compounding cattle feed, and in providing technical inputs and services to milk producers, to ensure regular supplies of raw milk to milk processing plants, and to have access to national and international markets, it is necessary to horizontally and vertically integrate various functions/activities of the agencies/organisations engaged in dairy development. This kind of integration is best achieved if the whole organisation structure is cooperatively owned and controlled by milk producers themselves. The Anand Pattern cooperative structure meets this requirement very well.

4. Access to Assured Markets and Producer-Oriented Pricing Policy: A rational producer always tries to maximise his profit from production. The milk producer is no exception to this general principle of micro-economics. It follows logically from this principle that if it is profitable to produce anything, the producer will produce more and more of it so long as it is profitable for him to do so. For profitable production of milk, it is necessary that the producer has access to year-round assured market at remunerative price - the price which not only covers the cost of production but also provides a margin to compensate the producer for his managerial inputs. India's experience shows that an year round assured market at remunerative price for milk can be ensured only by the Anand Pattern Dairy Cooperatives. Amul had access to the Bombay market and this explains to a large extent the success of Amul and hence the motto 'For every Anand, there must be a Bombay'.

5. Positive Government Policies and Programmes: Policies of both the national and state governments can significantly affect the growth and development of dairy industry. Government intervenes in the dairy sector in many ways which include fixation of producer and consumer prices of milk, control of import and export of dairy commodities, issue of licences for establishing milk processing plants and for import of dairy equipment and

machinery, funding of programmes of dairy development, research, education and extension, etc. A progressive and enlightened government can contribute a lot, through positive policies and programmes, to the development of dairy industry. Amul has had and still continues to have the benefit of favourable government policies and programmes.

6. Access to Professional Management: Dairy development programmes, like any other development programmes, need to be managed professionally. In most developing countries, dairy development programmes are managed by bureaucrats and technocrats most of whom are not good professional managers and as a result, the programmes fail to attain their objectives and government-owned and managed dairies incur huge operating losses year after year. Unfortunately, suitably trained rural managers are in short supply in most developing countries; in many cases they are not available at all. Amul has had the benefit of having access to professional management from its very inception. To meet the managerial manpower requirement of Operation Flood, the National Dairy Development Board and the Indian Dairy Corporation set up in 1979 the Institute of Rural Management, Anand (IRMA). IRMA has so far trained some 335 rural managers most of whom are working in the cooperative dairy sector and contributing substantially to its growth and development.

7. Milk Producers' Organisation: To have access to modern technology, institutional finance, national and international markets, professional management, and country's political system, it is necessary for milk producers to organise. The Anand Pattern cooperative structure may be called an organisational innovation in the field of dairy development. The structure consists of three tiers - milk producers' cooperative societies at the village level, cooperative milk producers' union at the district level and cooperative milk marketing federation at the State level. The structure permits vertical and horizontal integration of all dairy development activities in a state and makes it possible to realise the economies of scale in procurement, processing, storage, and marketing of milk and milk products through the use of modern technology.

V. Criteria for Designing an Appropriate Organisation Structure for Dairy Development

Considering the characteristics of dairy sector and the requirements for its development described in the preceding sections, the following criteria seem to be relevant in designing an appropriate organisation structure that can initiate and foster the growth and development of dairy sector in the developing countries of the world. (3, pp. 301-302).

1. It should provide for effective vertical and horizontal integration of dairy development plans with other sectoral development plans;

2. It should have an effective and dynamic mechanism built in it for establishing and maintaining close working relationship between planning and implementation;
3. It should be in a position to channelise the benefits of development programmes to the target groups, and should be strong enough to resist vested interests that have in the past stood in the way of these benefits reaching the poor;
4. It should have a high degree of technical and professional competence;
5. It should provide for the maintenance of direct and continuing relationship between the planners and the people and for the meaningful participation of the people in the process of development, planning and implementation;
6. It should provide for checks, balances and correctives so that target groups belonging to the weaker sections are not deprived of the benefits meant for them;
7. It should be economically viable and self-sustaining in the long-run;
8. It should be owned and controlled by milk producers themselves but should have support and patronage of the government;
9. It should be in a position to provide to its member-clients all necessary inputs and services at competitive prices and to assure remunerative and competitive price for their produce;
10. It should be in a position to secure for its member-clients the advantages of modern technology, economies of scale, institutional finance, and access to national and international markets, and national political systems.

VI. Anand Pattern Cooperative Structure

The Anand Pattern cooperative structure seems to be the most appropriate form of people's organisation for dairy development. The Anand Pattern dairy cooperatives formulate and implement their own policies and programmes for dairy development in their area and hire professional managers and technicians for these purposes. The role of the government is limited to assisting the cooperatives, financially, in implementing their own programmes. The government funds for dairy development are placed at the disposal of the cooperatives.

The Anand Pattern cooperative structure has the following salient features:

1. **Three-tier Organisational Structure:** This consists of a milk producers' cooperative society at the village level, a cooperative milk producers' union at the district level, and a cooperative milk producers' federation at the state level.

This structure permits the horizontal and vertical integration of all the dairy development activities in a state and makes it possible to realize the economies of scale in procurement, processing and marketing of milk through the use of modern technology.

2. **Producer-elected Leadership and Decentralised Decision Making:** Milk producers who are members, in good standing, of their village cooperatives constitute a pool from which policy makers are elected. Management Committees at the society level and Boards of Directors at both the union and federation levels have both powers and responsibilities for formulating their respective policies and appointing their chief executives who are responsible for implementing the policies. This democratic and decentralised policy making structure may well be called an organisational innovation which has evolved cooperative was founded.
3. **A Cadre of Professionally Competent Managers and Technicians:** Management is one of the crucial determinants of the success of a development programme. In the Anand Pattern cooperative structure, special emphasis is given on finding, attracting and retaining professionally competent managers, technicians and other supporting staff to ensure the most efficient functioning of the system. The staff is always conscious of the fact that they are the employees of the milk producers and hence they must work with full zeal and devotion in the best interests of their masters.

The Institute of Rural Management, Anand (IRMA) has been specifically established to meet the managerial manpower requirements of the Anand Pattern rural producers' organisations in the cooperative sector. IRMA was sponsored by the National Dairy Development Board and the Indian Dairy Corporation and is actively supported by the Government of India and the Government of Gujarat. All rural producers' organisations in the cooperative sector are eligible to become institutional members of the IRMA society and thereby benefit from its training, research, and consultancy services.

4. **Provision of all Necessary Production Inputs and Services:** The Anand Pattern cooperatives provide their members with all the necessary inputs and services for increasing milk production. Nutritious and well-balanced cattle feed is supplied by the unions round the year at a reasonable price and in adequate quantities through the village cooperatives, strictly on a cash basis. Artificial insemination to upgrade the local stock of milch animals, necessary animal health care and improved quality fodder seeds are provided by the unions to the members at a nominal cost.
5. **Integration of Production, Processing and Marketing:** These three functions are fully integrated to derive full benefits from the backward and forward linkages between them and to eliminate the exploitation of producers and consumers by

intermediaries. The year round assured market at remunerative prices for producers' milk provides the necessary incentive for the producers to increase their milk production.

6. Continuous and Concurrent Audit: The Anand Pattern cooperatives are subject to continuous and concurrent audit to ensure clean business and to minimise the chances of corruption.
7. Cash Payment for Milk Daily/Weekly/Fortnightly on the Basis of Fat Content: This has helped in meeting the day-to-day cash requirements of the members as also in maintaining their faith in the system.
8. Contribution to Village Amenities: The Anand Pattern village cooperatives set aside a considerable portion of their annual net profits to help provide basic village amenities and facilities like schools, health centres, libraries, panchayat ghars, roads and drinking water. These activities serve to win the loyalty and support of other villagers who are not members of the cooperative.

VII. Contributions of APDC to Dairy Development in India

Cooperative dairying in India now is over 40 years old; the Kaira District Cooperative Milk Producers' Union, popularly known as Amul (Anand Milk Union Limited), came into being in January 1946. Since Amul was head quartered in Anand, a taluka town in Kaira District of Gujarat, the dairy cooperatives affiliated to it became known as the Anand Pattern Dairy Cooperatives (APDC). To begin with, Amul had only two village milk producers' cooperative societies (VMPCS) affiliated to it. By the year 1986-87, the number of VMPCS affiliated to Amul had gone up to 877, annual turnover to over Rs.1525 million and membership to over 400,000. The achievements of Amul over the last 40 years have indeed been impressive. (4, pp. 147-52)

In 1964, after having personally seen what Amul was doing to promote dairy development in Kaira district, the late Mr. Lal Bahadur Shastri, the then Prime Minister of India, ordered the establishment of the National Dairy Development Board (NDDB) to repliate the APDC in other parts of India.

Consequently, the NDDB came into existence in 1965. NDDB formulated a comprehensive programme for replicating the APDC initially in 18 milksheds. This programme was christened 'Operation Flood' (OF) because it sought to create a virtual flood of rurally produced milk in India. Phase I of OF (OF I) was launched on 1st July 1970 by the Indian Dairy Corporation - a Government of India - owned corporation which was created to serve as a 'finance and promotion house' for the programme.*

* With effect from October 13, 1987 IDC has been dissolved and merged with NDDB through an act of Parliament. NDDB now is a Corporate body of national importance responsible for dairy development in India.

Originally, OF I was to conclude in five years but was extended till March 31, 1981. While OF I was still underway, Phase II of OF (OF II) was launched on 2 October 1979. OF II was concluded on March 31, 1985. Phase III of OF (OF III) has been underway since 1 April 1985 and will terminate on March 31, 1990.

The accepted policy of the Government of India now is to foster and promote dairy development on cooperative lines. OF III will continue to be the major dairy development programme in India's Seventh Five Year Plan (1985-1990).

Selected statistics about OF I, OF II and their achievements are presented in Table 2. By the end of the year 1984-85, OF II projects were well underway in 136 milksheds covering 198 districts in 22 States/Union Territories of the country. Except Meghalaya, Manipur, Nagaland and Mizoram, all the States/Union Territories originally envisaged for coverage under the programme

Table 2: Salient Features of Operation Flood I and II and their achievements

Particular	OF I	OF II
1. Date when launched	1 July, 1970	2 October, 1979
2. Date when closed	31 March, 1981	31 March, 1985
3. Total outlay (Rs. in million)	1164.00	4855.10
4. Disbursement as of closing date (Rs. in million)	1165.50	2771.70
5. Milksheds covered	18	136
6. Number of village milk producers' cooperative societies established (cumulative)	13270	34523
7. Number of milk producers' families enrolled as members (million) (cumulative)	1.75	3.63
8. Number of milch animals brought in the cooperative ambit (million)	2.1	5.5
9. Average milk procurement (million litres per day)	2.56	5.60

Source : Annual Reports of IDC and Operation Flood II proposal prepared by NDDB, Anand.

had been covered. Over 3.6 million rural milk producing families were participating in the programme and over 34,000 VMPCS had been established in the country.

By March 31, 1981 (end of Operation Flood I), rural milk procurement under Operation Flood had increased over four times the pre-programme level. Almost the same rate of growth continued under OF II as well. The average growth in procurement in the OF and IDA-assisted projects areas was over 31 percent per annum during the four-year period from the base year of 1980-81.

By the end of 1984-85, the total milk processing capacity in the Operation Flood milksheds had increased to 8.8 million litres per day. In many milksheds in States like Rajasthan, Maharashtra, Tamil Nadu, the capacity created fell short of the requirement, especially in the peak flush months when milk procurement had to be discontinued to contain the flow of milk to the plants. Altogether, the dairies under Operation Flood recorded an average capacity utilisation of over 90 percent during the peak flush season and 68 percent on an annual basis.

In 1984-85, Operation Flood dairies were marketing liquid milk in over 290 cities/towns (excluding metro cities). The average daily liquid milk sale in the metro cities during 1984-85 was 3 million litres. During the year 1984-85, Operation Flood projects produced nearly 71,000 MT of milk powder (including SMP, WMP, baby feed etc.), 32,000 MT of butter and 22,000 MT of ghee. Milk powder manufacturing capacity in the country increased from 58.50 MT per day in 1970 to 507.50 MT per day in 1983-84 and use of imported SMP came down from 27.40 thousand MT in 1970 to 26.30 thousand MT in 1983-84. The share of imported SMP and BO in India's total throughput of milk in 1950-51 was 67.3 per cent and in 1983-84 it came down to 7.4 per cent.

Total milk production in India increased from 20.74 million MT in 1969-70 to 39.87 million MT in 1984-85 registering an average increase of 6.15 per cent per annum. The per capital milk availability increased from 107 gm per day to 142 gm per day over the same period. The increase in milk production was due more to increase in milk yield per animal than to increase in the milch animal population which averaged 1.6 percent per annum over the reference period.

Not all the increase in milk production observed over the period, 1970-1985 can, however, be attributed to OF. Since most of the milk producers currently participating in OF were producing milk before joining OF, most of the increase in milk production in OF areas is merely a shift in production from non-participant to participant milk producers with no net increase in milk production. OF can be expected to increase milk production through its impact on (a) milk yield per animal; (b) size of milch herd; and (c) proportion of lactating animals. Very few

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scholars have studied the impact of OF on these three parameters using appropriate measurement techniques. Hence, no reliable estimates of incremental milk production due to OF are available at the national level.

VIII. Bottlenecks in Implementation

Although OF is generally considered to be a success story and rated as a high performer, there have been numerous bottlenecks in its smooth implementation. Some of the serious bottlenecks are as follows:

a) As per the Constitution of India, animal husbandry and dairying is a State subject and as such the State Governments are free to formulate and implement their own dairy development programmes. As a result, a few of the State Governments were rather reluctant, atleast initially, in signing the necessary loan-cum-grant agreement with the IDC, and many of the States which had signed the agreement wanted to have a bigger say and role in implementing the programme while the IDC/NDDB wanted to minimise, if not eliminate, any form of governmental interference in its working. This strained the relations between the IDC/NDDB and the State Governments concerned which adversely affected the implementation of the programme. However, over time, the relations have improved and the State Governments now have realised that the programme is better implemented directly by the producers' cooperatives with no government interference.

b) Because of the anxiety of many of the participating State Governments to cover more areas under OF availing themselves of IDC finance for the purpose, the scope of the programme was enlarged a little too much and a little too fast. This adversely affected the economic viability of the programme. Besides, in such milksheds, the expectations of milk producers were first raised and then crushed either by promises which were not fulfilled or by services which were well provided initially and then petered out. This led to erosion of milk producers' faith in the system.

c) With the top-down approach used in organising the village milk producers' cooperatives as opposed to the bottom-up approach of Amul in Gujarat, the cooperative structure initially did not have sufficient internal strength to fight against the vested interests and therefore succumbed to their tactics in many states.

d) In many milksheds, control of input delivery and procurement systems was not handed over to the milk producers' unions but continued to be either with the State Corporation or with the Animal Husbandry Department. This has adversely affected the efficiency of these systems.

e) In some milksheds, the ownership of feeder-balancing dairy (FBD) plants continued with the state government/Dairy Development Corporation rather than with the milk producers' union. They were often inefficiently managed.

f) Lack of proper representation of milk producers on the Boards of Unions and Federations in many milksheds led to the formulation and promulgation of policies that were not in the interests of the producers and their cooperatives.

g) In many states, the milk producers' unions and the village milk cooperatives faced stiff competition from private dairies, milk contractors and petty milk vendors. The private trade was usually encouraged by the government Dairy Development Department officials and the local politicians. Besides, the contractors, apart from paying higher prices, also provide credit facilities to milk producers to enable them to buy milch animals and meet their subsistence requirements. All these factors worked against the OF.

h) Lack of any provision for working capital in the project agreements and the system of state guarantees of IDC loans under OF necessitated the use of government funds and this inevitably led to some governmental intervention and control which was not always in the interests of the programme. The drawback has been removed in OF III.

i) In most of the states, the Federations, the FBDs, and the cattle feed factories are managed by the bureaucrats and technocrats most of whom are not good professional managers. Induction of professional managers at all levels is essential for successful and efficient implementation of OF. Unfortunately, suitably trained and experienced rural managers are in short supply; in many cases they are not available at all. IRMA has been set up primarily to meet the managerial manpower requirements of these farmers' organisations under OF.

j) The existing cooperative act has become irrelevant in the present socio-economic and political environment and is hindering the organisation and management of APDC. Under the existing legislation, government may, sue motto, amend the bye-laws of a cooperative, hold or not hold elections, annual or suspend a cooperative's decisions, appoint its own officers to manage cooperatives, nominate, suspend or remove management committees without cause etc. Such laws are inimical to the growth and development of APDC and therefore need to be replaced by a legislation which must ensure, inter alia, that cooperation becomes, and remains, a peoples' movement and the role of government is confined to registration, enforcement of the act and liquidation of cooperatives as prescribed by the law. Needless to emphasise, the new legislation should be drafted by a panel of cooperators, professional managers, and civil servants and not by civil servants alone.

IX. Summing Up

On the whole, the Anand Pattern cooperative structure seems to be the most appropriate organisation structure for dairy development in India and other developing countries. It is owned by the member-producers themselves, is professionally managed, and provides all necessary technical inputs and services to its members to enable them to produce more milk and thereby enhance their income. Besides, the Anand Pattern village cooperative societies also set aside a considerable portion of their annual net profit to provide and improve basic village amenities and facilities like schools, health centres, libraries, panchayat ghars, roads, drinking water etc. These activities contribute a lot to the improvement of quality of life in the villages served by the societies.

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MARKETING STRATEGY IN OPERATION FLOOD PROGRAMME-

CONCEPT OF THE NATIONAL MILK GRID

AND

THE MOTHER DAIRY.*

INTRODUCTION

Operation Flood programme is conceived on national scale by the National Dairy Development Board and executed through the co-operative State Dairy Federations and metro Mother Dairies. Marketing of milk and milk products has been given considerable priority and importance. The essential feature of the Operation Flood programme is that it is operated through milk producers' own organizations and therefore on one hand the strategy attempts at reaching the remunerative urban markets directly, acquiring as much maximum share as possible in order to finally enable the maximum part of the consumer rupee received by the milk producer and on the other hand enabling the consumer to receive regular supply at reasonable prices.

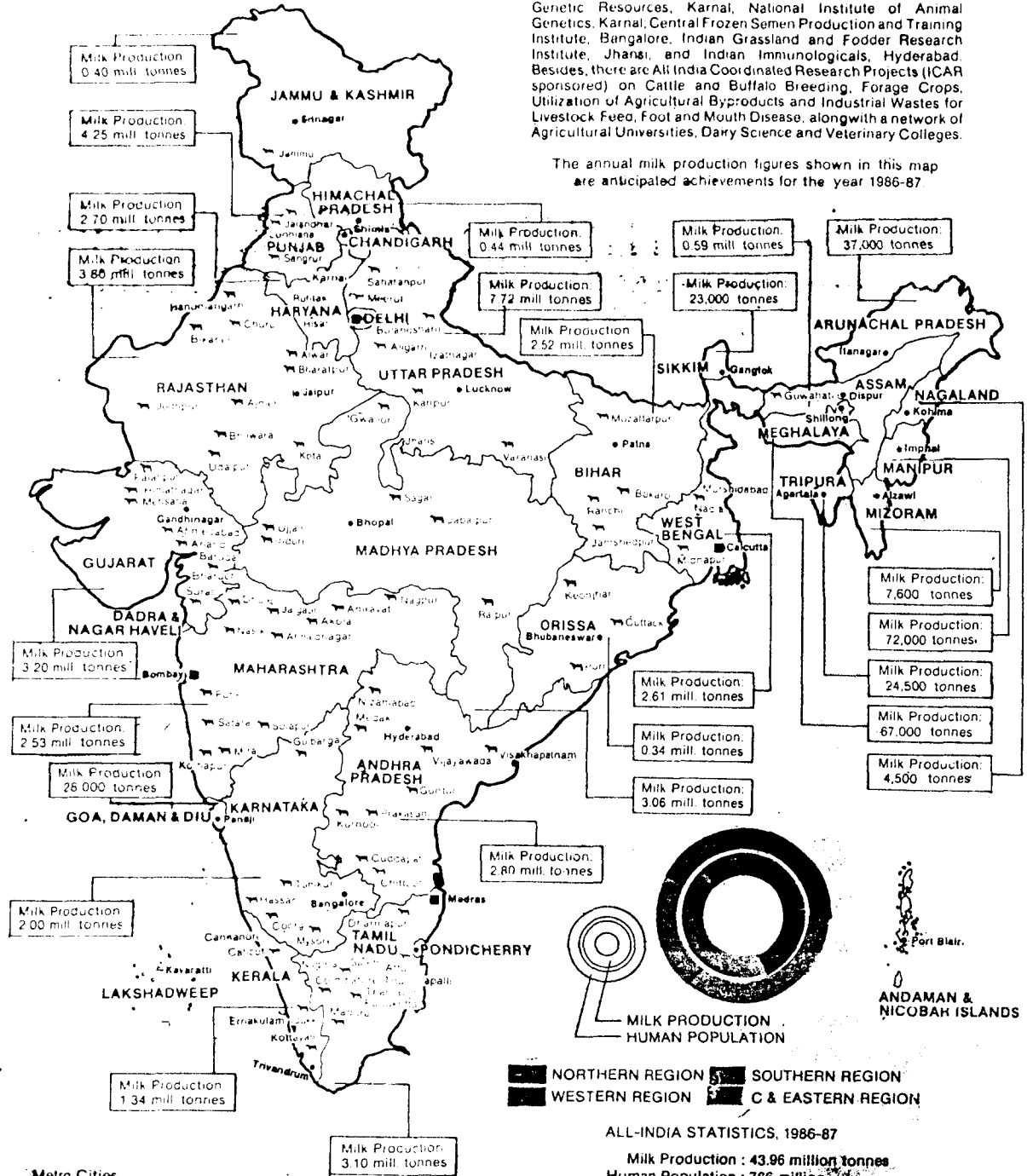
The novel feature of the marketing strategy lies in the fact that it is an integrated approach and executed by a large number of State and District Co-operative dairy organizations and yet shown a clear defineable sense of purpose. Strategies are largely advocated, planned and implemented by each based on the local conditions and adaption of various features successfully tried elsewhere.

*Background paper prepared by Shri J.J.Baxi, Managing Director, Gujarat Cooperative Milk Marketing Federation Ltd., Anand for the participants in the Regional Training Course on 'COOPERATIVE DAIRY DEVELOPMENT' to be held from 6th to 19th of December, 1987 at the Institute of Rural Management, Anand, conducted by the National Dairy Development Board, Anand in collaboration with the International Cooperative Alliance, New Delhi and the National Cooperative Union of India, New Delhi.

DAIRY MAP OF INDIA

Places significant to the development of dairying are shown in this map. Not indicated here are: National Dairy Development Board, Anand; Indian Dairy Corporation, Baroda; National Dairy Research Institute, Karnal, Bangalore & Calcutta; Central Institute for Research on Buffaloes, Hisar; Indian Veterinary Research Institute, Izatnagar, UP; National Bureau of Animal Genetic Resources, Karnal; National Institute of Animal Genetics, Karnal; Central Frozen Semen Production and Training Institute, Bangalore; Indian Grassland and Fodder Research Institute, Jhansi; and Indian Immunologicals, Hyderabad. Besides, there are All India Coordinated Research Projects (ICAR sponsored) on Cattle and Buffalo Breeding, Forage Crops, Utilization of Agricultural Byproducts and Industrial Wastes for Livestock Feed, Foot and Mouth Disease, along with a network of Agricultural Universities, Dairy Science and Veterinary Colleges.

The annual milk production figures shown in this map are anticipated achievements for the year 1986-87.



■ Metro Cities
 ○ State/Union Territory Capital
 ● Pockets of Milk Production

■ NORTHERN REGION ■ SOUTHERN REGION
 ■ WESTERN REGION ■ C & EASTERN REGION

ALL-INDIA STATISTICS, 1986-87

Milk Production : 43.96 million tonnes
 Human Population : 786 million
 Per Capita Milk Availability : 157 gms/day
 Milch Cattle (1982) : 50.71 million
 Milch Buffaloes (1982) : 28.32 million

1) DAIRYING IN INDIA - A BIRD'S EYEVIEW

Milk production - importance of milk in the overall economy.

The total milk produced in India in 1986-87 was 43.9 million metric tonnes. Milk and milk products are the second largest contributor to the Gross Agriculture Produce, valued at Rs.10,000 crores, second only to rice. 90% of this production comes from 12 out of the 24 States. Milk production in India is characterised by regional and seasonal imbalances. An overwhelming majority of the producers are small and marginal farmers who own just one animal per head. Thus the milk in this country is produced in trickles, trickles that are pooled together at the village society level, brought to the district dairies for processing and finally distributed to urban consumer pockets whether they be metro cities or small towns. The per capita availability of milk in India was 157 gms. in 1986-87 which is to be enhanced to 180 gms. in 2000 AD, a mighty task in the hands of the co-operative sector - a task which envisages massive technological and marketing efforts.

The need for consolidated marketing - the role of the co-operative sector.

The urban population of India reside in 3,245 towns of which 1,225 are considered to be large enough to sustain organised milk marketing. These towns, along with the 4 metro cities have a tremendous demand for milk in the form of liquid milk and milk products. The role of marketing is to pool together the vast number of trickles and channalise them to these pockets of demand. This is a major task which involves national level planning, cooperation between regions which should cut across barriers of language and culture, and an infrastructure to support this movement of flow for milk. It is here that the cooperative structure has played the vital role of national level coordination of milk movement.

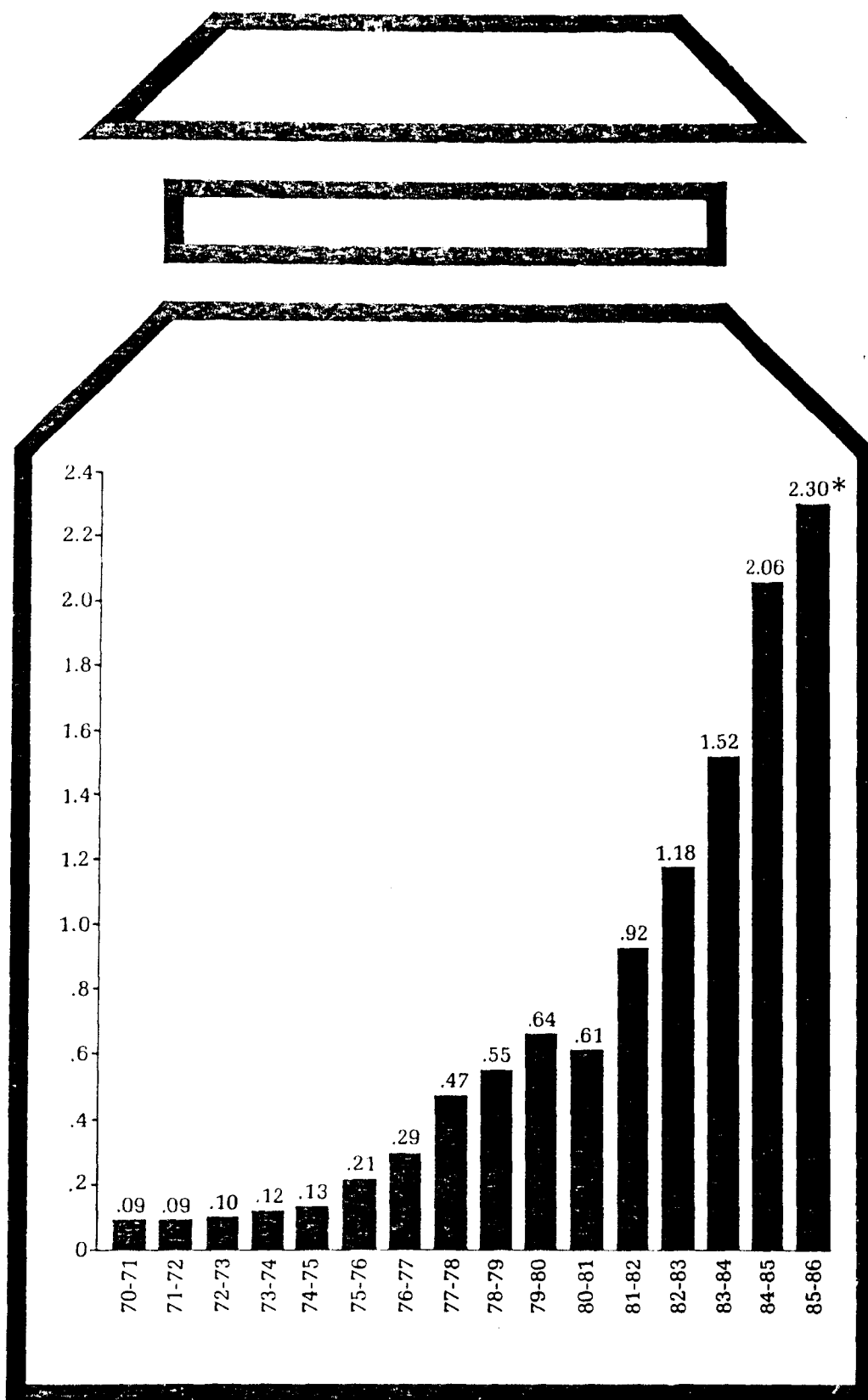
Status of milk marketing in India - Growth in the last decade.

The most significant contribution of the cooperative dairying in the last decade was to bridge the rural producer and the urban consumer through the National Milk Grid. It has been able to bring to the door step of the dairy farmer, the lucrative urban market which is otherwise inaccessible to him. This was made possible largely by adopting the concept of handling production, processing and marketing by the producers' own organisation, a major thematic thrust of Operation Flood plan. The major concern of the Operation Flood projects was to bring the marketable rurally produced milk to urban consuming centres. As mentioned above, the development of National Milk Grid on national scale made this possible.

OPERATION FLOOD

Milk Marketed in Smaller Towns

(average million litres per day)



Note: In the case of a few milksheds where data for 1970-80 were not available, estimated figures have been used. For the period 1975-83, the data include those of World Bank-assisted projects.

*Anticipated achievement.

Today milk and milk products are marketed in 496 towns including the 4 metro cities, 141 Class-I towns and 351 other towns under Operation Flood. Approximately 6 million litres of milk are sold daily to some 55 million consumers and the progress made in the last 7 years has been significant as shown in the following Table-I.

TABLE-I

Comparative statement of milk marketed by Operation Flood dairies in 1981 and 1987.

(Lakh litres per day)			
	Direct sale	Supplied to other dairies	Supplied to metro dairies
September, 1981	10.00	8.00	23.00
September, 1987	39.00	33.00	30.00

A major objective of Operation Flood was to obtain a commanding share of the liquid milk market in the 4 metropolitan cities. The progress made so far is as shown in Table-II.

TABLE-II

Demand and share of fluid milk market in metropolitan cities by Public Sector/Co-operative Dairies in 1984-85.

(Million litres per day)			
Cities	Estimated demand	Average throughput	Market share %
Bombay	2.26	1.14	51
Calcutta	1.11	0.42	39
Delhi	1.70	0.95	56
Madras	0.73	0.42	57
	5.80	2.93	50

Thus 50% of the market for liquid milk has already been captured by organised sector. This has been an impressive stride towards achieving a commanding market share of the metro cities.

2. MAJOR COMPONENTS IN THE MARKETING STRATEGY UNDER OPERATION FLOOD

The marketing strategies adopted in Operation Flood are of continuing nature with long term implications. The overall objective was to obtain a remunerative price for the rural producer for his milk by finding a market for him in the ever thirsty and lucrative markets of the metro cities and other urban habitats. All the strategies envisaged under Operation Flood were geared to attain this objective, keeping in view:

1. The interest of the consumer
2. Seasonal imbalances in milk supply
3. Regional imbalances in milk supply
4. Geographical constraints
5. Perishability of the product
6. Viability of the projects.

Traditionally, before the onset of co-operative movement and the concept of the National Milk Grid, milk from rural areas was procured by traders and middlemen and sold to urban households. Milk being a perishable commodity, the rural producer was in the clutches of the middlemen who exploited him, thereby stunting growth and economic independence of the rural producer. To break the monopoly of the middlemen, a commanding share of the urban market especially in the metropolitan cities of Bombay, Calcutta, Delhi and Madras had to be captured. Thus evolved the concept of the Mother Dairy, and the National Milk Grid.

The concept of Mother Dairy

Mother Dairy was envisaged to be a city supply dairy whose major function was to market liquid milk to the metropolitan cities. It is different from a feeder balancing dairy in that, it does not cater to the functions of procurement, technical inputs, artificial insemination and processing as opposed to the feeder balancing dairies. Thus the basic function of the Mother Dairy was to collect processed milk from feeder balancing dairies and market them suitably to the metropolitan markets.

"Mother Dairy" was envisaged to be an instrument of maximising marketing output, tailor made to achieve the objective of obtaining a commanding share of the liquid milk market in the shortest possible time, so as to create a permanent market for the rural producers' milk enabling him to obtain maximum returns, thereby promoting growth and economic independence.

The strategy of Mother Dairy is to set up outlets in all strategic points in the city and supply milk in the most suitable manner keeping overheads to a minimum so as to

National Milk Grid

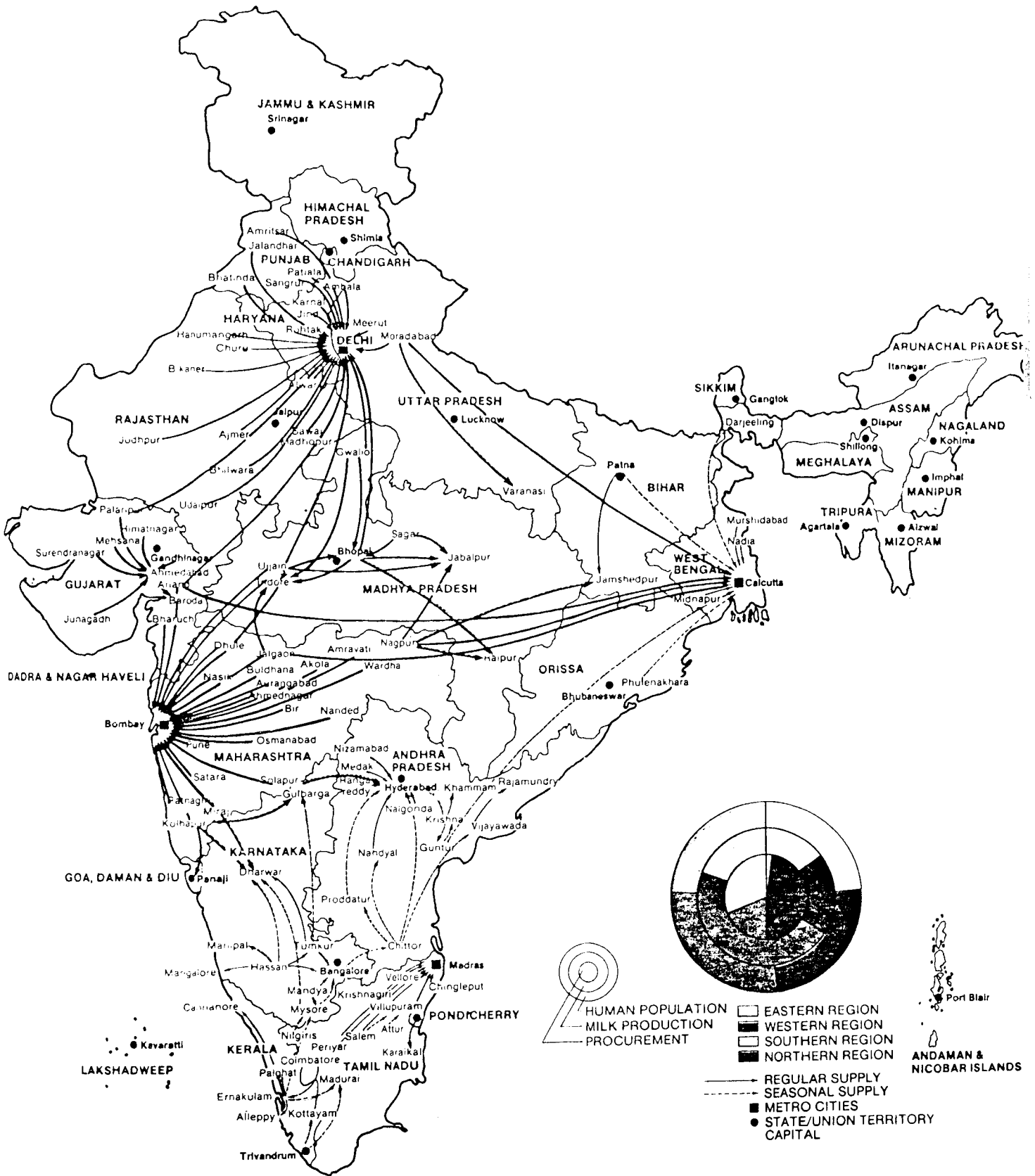
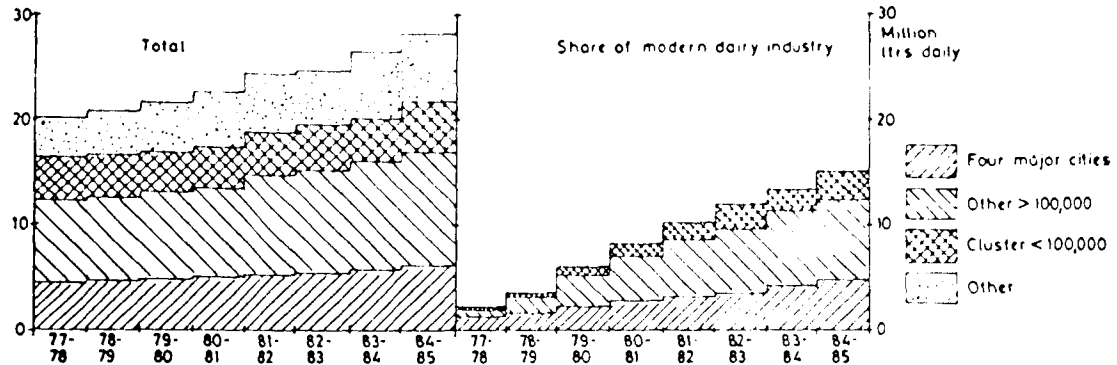
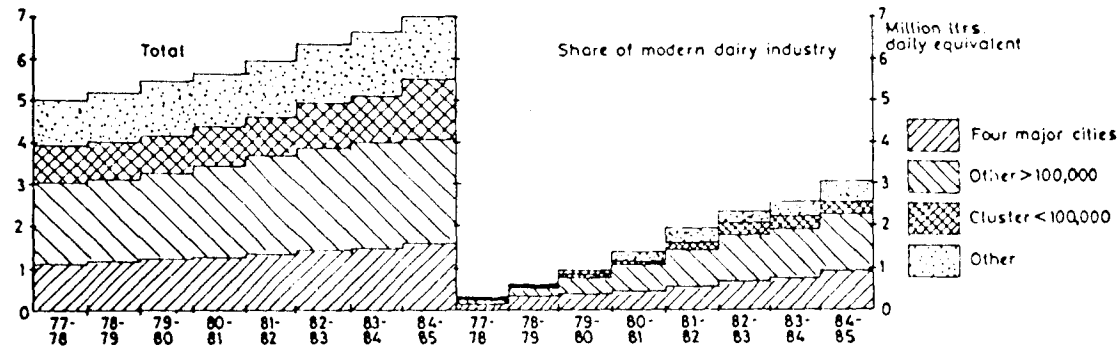


Figure IV.2: The role of the modern dairy industry, 1977-78 to 1984-85

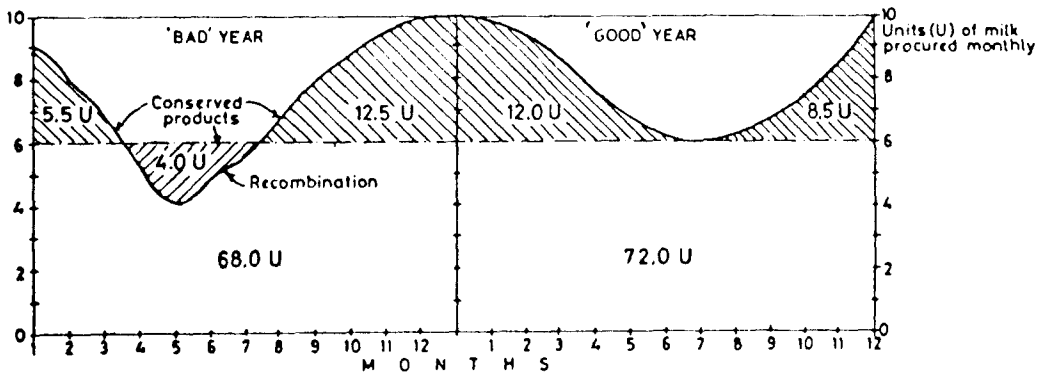
a. Urban liquid milk markets



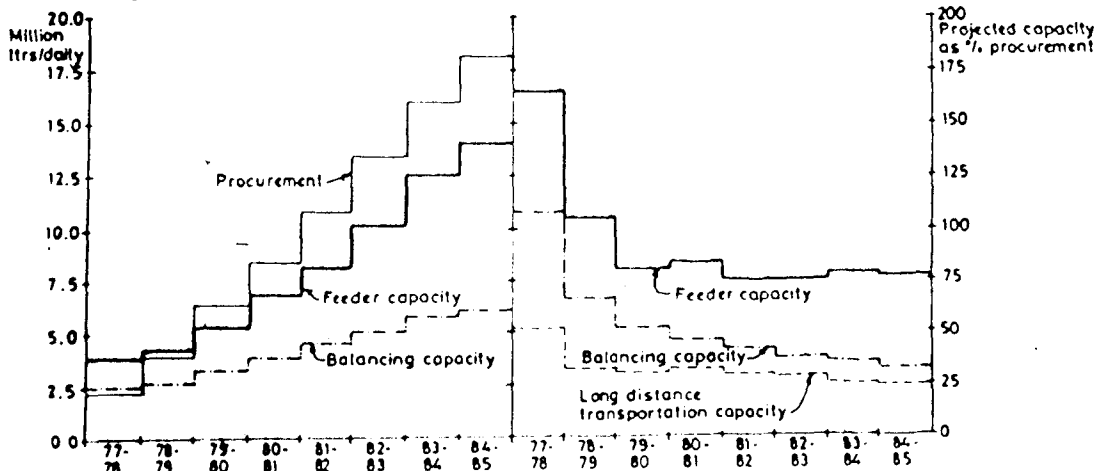
b. Urban milk product markets



c. The role of balancing facilities



d. Building of Grid and balancing facilities



enable maximum returns to the producer. Most advanced technology is used in processing, storing and distribution of milk so as to ensure supply of good quality milk with minimum losses.

Mother Dairies receive milk from all over the country by road and rail from places at a distance of 2,000 KM. to make this possible the National Milk Grid was established.

CONCEPT OF THE NATIONAL MILK GRID(NMG)

As mentioned earlier, the milk production in India is characterised by

1. highly dispersed and small quantities of production
2. seasonal imbalances in production
3. regional imbalances in production

Some states have surplus production of milk while other States face an acute shortage of milk. Within the States also there are areas of high production and low production. This necessitates movement/flow of milk within the states and between states. This enables the surplus dairies to dispose off their milk and the shortfall dairies to meet their market demand. Thus the regional imbalances of milk are evened out.

Coming to the seasonal imbalance, some regions face an acute shortage of milk in summer (buffalo areas) and surplus in winter, and vice versa in cow belt areas. Here also milk flows from surplus areas to the shortage areas to even out the imbalances.

When the overall demand for milk is less than the overall supply, then milk is to be conserved for future use when the overall demand is higher than the overall supply. Milk is conserved as powder and white butter, stored and reconstituted as liquid milk in the future.

When overall demand always exceeds overall supply, milk has to be imported in the form of solids as milk powder and white butter.

These are the problems addressed by the NMG. NMG strives to bring about a balance between demand and supply of milk created by the imbalances that have been mentioned above. Thus NMG symbolises an ideal balancing system which incorporates not only the movement of milk to even out regional and seasonal imbalances but also creation of buffer stock of conserved milk solids like SMP, WMP, Butter and Butter Oil to even out regional, seasonal and overall imbalances between the demand and supply.

Infrastructure required

The infrastructure required for such a nation-wide movement of milk are as follows:

1. Milk plants for processing milk
2. Long distance transportation arrangement by road and rail
3. Godowns and cold stores for storing conserved milk solids.

Today, there are 125 dairy plants scattered around the country in OF with a capacity to process 126 lakh litres per day. It should be emphasised that NMG seeks to ensure handling of maximum quantity of milk without creating excessive capacities. Latest technologies like glycol chilling has enabled long distance transportation without deterioration in the quality of milk.

Long distance transportation is arranged through insulated road and rail milk tankers. Rail milk tanker capacity (presently 4 million litres including 0.8 million litres equivalent on order) will be enlarged by an additional 1.8 million litres.

NMG has a commodity storage facility of 11,000 Metric tonnes of SMP and 2,200 Metric tonnes of Fat. During Phase-III, an additional 5,000 Metric tonnes of SMP and 2,000 Metric tonnes of conserved fat storage capacity would be created.

Modus operandi and pricing system

The function of NMG does not stop with merely long distance transportation of liquid milk or storage and seasonal supply of conserved commodities. These activities have to be organised in a commercial manner through a logical and fair pricing system.

In order that the benefits of the NMG equitably spread among different milksheds, the concept of pooling of prices is being experimented. In Gujarat, the pool price concept operates through State level Federation and pools the sales realisation in a common account. Supplying dairies receive initial payments on provisional basis and periodically the surplus (or deficit) in the pool accounts is distributed in proportion to the quantity of milk supplied by each to the grid. In this way each supplying dairy is assured of uniform prices irrespective of the differences in prices paid by different recipient dairies or the difference in seasonal prices.

Today, the National Milk Grid has extended its activity throughout the country as seen in the Map.

OTHER MARKETING STRATEGIES UNDER OPERATION FLOOD

1. Value-added products in addition to liquid milk

Today there is a considerable demand for milk products in the urban market. To meet this demand it is necessary that urban dairy organisations should diversify into manufacturing milk products, which are essentially value added products so that the viability of the organisation as such is safeguarded. As a long term commercial strategy it is essential for dairy organisations to retain atleast 20% of their milk for product manufacturing. The following table gives the milk utilization pattern in India:

TABLE-III

Milk Utilization Pattern in India

(Percentage)

Particulars	1951	1961	1984-85	1985-86
Liquid Milk	39.3	45.1	46.0	46.0
Milk Powder*	-	-	3.0	3.6
Ghee	39.3	31.8	28.0	28.0
Butter	6.0	6.4	6.5	6.5
Khoa	4.4	4.7	5.5	5.5
Cream	0.5	1.9	0.5	0.5
Curd	8.8	8.1	7.0	7.0
Ice-cream	0.7	0.7	0.7	0.7
Cheese	-	-	2.0	2.0
Others	0.4	1.2	0.8	0.2

*Includes Infant Milk Food.

2. Fresh products

Value-added products can be classified as:

- i) Long shelf life products
- ii) Short shelf life products

Long shelf life products include powers, ghee and butter. The marketing infrastructure required for long shelf life product is essentially different from that is required for short shelf life products.

Short shelf life products include milk, lassi, paneer, mawa, curds, pedas, Indian sweets, Shrikhand and others. These are locally marketable and existing infrastructure can be used to market these. These are called fresh products. These can be marketed with least possible costs as they are marketed locally.

3. UHT Milk

The concept of UHT milk revolutionised the liquid milk market. UHT milk has the combined advantage of availability throughout the day and enabling the feeder dairies to enter the urban city without development of additional capacities in major market centre itself. Thus, UHT milk can be expected to provide new dimension in competition to the urban dairy based on high quality milk and improve availability and convenience. Aseptically packed UHT milk will account for - about 10% of the bulk marketed by the cooperatives, as shown in table below:

TABLE-IV
Share of milk marketed by various systems

System	1985		1990	
	Quantity (Million lakh ltrs.per day)	%	Quantity (Million lakh ltrs.per day)	%
Sachets	2.53	50.0	6.20	50.0
Cans	0.94	18.5	0.66	5.3
Bottles	0.89	17.5	0.62	5.0
Bulk vending	0.72	14.0	3.72	30.0
Aseptic packaging	Negligible		1.20	9.7
	5.08	100.0	12.40	100.0

4. Umbrella branding programme

Today milk and milk products are marketed under about 25 brands by various Federations all over the country, under Operation Flood. It is envisaged to establish same linkage between the various components of Operation Flood to encourage identification of supply of milk and milk products with the integrated cooperative dairy development programme. One of the ways to achieve this is to encourage all recipients of Operation Flood assistance to display Operation Flood logo on advertisements of milk and milk products,

packaging, letter-heads, road milk tankers, rail milk tankers etc. The logo of OF "The drop" symbolises 'abundant availability of quality milk in Operation Flood' (see appendix I)

Another strategy that is being thought of is to market all milk and milk products in Operation Flood under one or a limited number of brands. This is the umbrella branding programme. This strategy has the following advantages:

- i) Substantial reduction in advertising and promotional costs
- ii) Capturing a large market share under a common brand
- iii) Transfer of technical know-how at no cost
- iv) Supply of standardised and consistent product
- v) Centralised planning for common marketing strategy
- vi) Development of weaker organisations through common branding
- vii) Sharing of costs for all centralised activities including research and development.

CONCLUSION

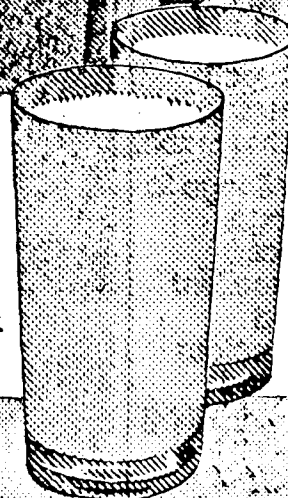
This paper attempts at outlining broad details of the thrust of marketing generally adopted by the co-operative dairy organisations, receiving Operation Flood financial assistance. Milk being India's second largest product contributes to the gross agricultural produce as stated above and due to its being produced in very small quantities by individual producers spread over thousands of villages, perishable in nature all combined to make the task of devising an integrated system of procurement, processing and in turn adopting a comprehensive marketing strategy a formidable and challenging one. The marketing strategy ought to be one, which necessarily is strong enough to meet the challenges of ever increasing production and must do so at the most economic cost. India's dairy development on modern lines has been of very recent origin stretching over last 30-35 years. Reliance on the model co-operative infrastructural system combined with the use of modern technology and application of marketing concepts seem to have combined extremely well whereby on one hand the impact on the milk producer had been quite remarkable in development of his social, economic life and also on the other hand has greatly helped in increasing the milk supplies to urban population at reasonable prices.

As we saw about, perhaps the most important components of the marketing strategy have been the development of the National Milk Grid and also conscious development of urban metro milk marketing system through the medium of Mother Dairies. While the NMG has been greatly responsible to act as a linkage of the rural producers with urban consumers, the Mother Dairies were responsible for an accelerated acquisition of the market share of liquid milk for the mutual benefit of the consumer and the rural producer.



**More milk.
It's a must
for healthy
growers.**

Milk is a must—at least
two glasses a day.
No other food brings
together so much
goodness, so conveniently.
Vital calcium for sturdy
bones and teeth.
Powerful proteins for



strong, well-toned
muscle. Essential
vitamins and energy
fuels for overall fitness
and alertness.
Remember, mother, in a
balanced diet there's
no substitute for milk.



Everybody's body needs milk.

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MANPOWER DEVELOPMENT UNDER OPERATION FLOOD:
TRAINING AND PROFESSIONALISATION OF DAIRY INDUSTRY*

Introduction

It is often deliberated that co-operatives either do not have the strength and support of professional management or they make any serious attempts to professionalise their managements. It is also stated that this state of affairs is partly on account of its history, nature and structure of co-operatives, but largely due to greater interference of government in their managements. Government machinery had involved in cooperative managements - be it for bailing out cooperatives, superseding elected representatives or to nominate its representatives, appointing deputationists and other government servants. Thus, cooperatives more often tend to depend on government and in turn attracted the attention and interference. In the process, cooperatives have lost their own initiative in organising and managing their affairs in the larger interest of their members.

Besides, the perception that co-operatives do not require the quality, discipline and sophistication associated with management elsewhere lead to resistance to induction of professional management within the ambit of the cooperatives on the plea that it is an unnecessary overhead and at the most is not relevant. Coupled with this, even if professional managers were inducted they had to leave for lack of proper work environment and the interference from both non-officials and officials. Nonetheless, there are few exceptions and one of such exception is dairy sector.

Cooperative dairying in India has turned to be a major instrument of large scale modernisation of dairy sector. It has offered number of social and economic changes through its institutional structure which is unique in the annals of the cooperatives. The unique institutional structure - its organisation and management are quite significant given the performance in general of several cooperatives in the country. It appears that since its beginning, cooperative dairying has been able to do differently from others and an attempt of that nature was no insignificant as such things were unheard in cooperatives

* Paper prepared by Prof. D. Nagabrahmam, to be presented and discussed in a programme "Co-operative Dairy Development in South East Asian Countries", 6-19 Dec. 1987 organised by NDDB/NCUI/ICA at Anand.

This paper is an attempt of understanding and analysing approaches and processes of professionalisation in the cooperative dairy sector, to draw lessons for greater replication and affecting improvements in the training and manpower development programmes. This is presented in three broad sections, the first one is an account of important features of such a programme and their operationalisation, the second is essentially a framework of manpower development and training programme aimed at professionalisation of a sector, and the third is to analyse the present programme given the frame work to draw lessons for improvements in the programme.

Manpower development programme:

It is now quite familiar that manpower development programmes and training have evolved out of a model of dairy development viz., 'Anand Pattern Co-operatives'. The model has been perfected over several years with great emphasis on professionalisation of management. It may be useful to draw some important features of a such model as it related to manpower development and training.

- it has the advantage of well-tested and viable model to manage the institutional structure as well as its organization;
- the emphasis has been on the organisation and its structure as a whole;
- it has sets its boundaries and worked out a clear identity;
- it has emphasised on recruitment of professionals for running a multi-functional organisation;
- such professionals are thoroughly inducted, oriented and trained and given greater opportunities and challenges for utilising their skills, and emphasis on the job, job-related and organisation oriented training;
- an unique professional and non-official leadership to support such an approach;
- emphasis has been on technological applications - and advances, new lines of activity, greater productivity; thus providing greater levels of motivation to professionals;
- emphasis has been to achieve excellence;
- offering growth opportunities to professionals with reasonable compensation packages;
- in sum, the belief that professionals could be utilised for modernising a rurally based industry.

Thus, the cooperative dairy organisation has been able to evolve

- a clear identity and boundary
- specificity of skills to be utilised
- clarity of objectives
- a set of beliefs, values operationalised as a workable mechanism and processes
- role of the chief executive (Please refer Appendix-1).

Application to larger programme

The well-tested and verified model of dairy development has been utilised to evolve a larger project. While drawing upon the project, the experience of 'Anand Pattern' has been used thoroughly at every level of operations. It has also been emphasised that to develop a programme at national level, multiplication of skills and well-equipped manpower is essential. Obviously, the first set activities of the programme has been on the manpower development. While evolving manpower development, organisation of primary cooperatives, farmers' induction, engineering and technical services have been given greater priorities. The first set of manpower development and training were around these areas. A central office with manpower division was setup in NDDB with the incorporation of professionals with 'line' experience. Several of them had adequate 'field experience' that made the training more relevant, practical and need-based. While the emphasis has been more experience-based, practically oriented, initially many of these professionals had directly worked in organisations to help develop manpower resources and build organisations. In this connection, the concept of 'spearhead team' is worth-mentioned. The multi-disciplinary teams had been sent to project areas to organise and develop cooperatives and to develop a local 'shadow team' ultimately to take over several functions of organisation of cooperatives, procurement etc. Similarly, engineering and technical services division had erected dairy and cattle feed plants and trained many in the process. Thus, the approach has been two pronged. The professionals had the advantage of learning while doing and in turn they helped developing and multiplying skills in the organisation. During OF-I, 17 districts in the country were taken up with the intensive support and involvement of professionals. Thus, the first national programme of replicating 'Anand Pattern' had the advantage of a scale which was manageable, opportunities for learning while doing, developing and multiplying skills which are relevant to the dairy programme.

OF-II was much larger in scale and dimension covering more than 150 districts in 17 states all over the country. By that time, the central Manpower and Training Division had been well-equipped and regional training centres started functioning. The

quantum and coverage of training could be seen in Exhibit I over these years. While several of these programme were specific skill oriented, technically biased, such skills and orientations are the pre-requisites for a dairy development programme using an institutional structure of co-operatives. To sum up, the thrust of man power development and training has been

- a separate agency for implementation
- clear cut objectives with a limited area to start with recruitment of essential staff and their orientation of tasks
- a specific set of tasks and a programme
- a project with emphasis on manpower development and training
- practical and on the job training
- learning while doing
- active involvement of learners in organisation building
- great specificity of training
- experience oriented
- technical and engineering services-turnkey and consultancy approaches
- a reasonable budget for manpower development
- task related, work related and job related
- applied learning
- appropriate to the needs.

The first stage of Manpower development programme in the process of professionalisation of dairy sector, no doubt, stabilised the programme to a great extent, in spite of shortages of skills in certain areas and regions.

Second stage of Manpower Development: The thrust of second stage has been on the development of managerial cadres with the professionals in the dairy industry and fresh hands who have the professional management training. Two developments are of interest to note. Firstly, OF II has worked out 'cluster approach' to professionalisation of dairy sector and setting an Institute of Rural Management (IRMA) at Anand - to train bright and young to take up managerial responsibilities. While the cluster approach is more organisation-oriented and a specific skills and orientations through interdisciplinary approach, IRMA has been considered to develop talents which are not only specific organisation oriented and skills oriented, but to develop talents and abilities which are general and functional

Manpower development activities undertaken from 1975-76 to 1986-87 (as on March 31st)

Training Programme	Programme year														Total
	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	86-87	Total	
Sr Dairy Plant Managers	21	8	16	5	—	—	—	4	6	4	19	7	7	90	
Sr Cattlefeed Plant Managers	8	4	5	3	—	—	—	—	—	2	12	—	—	34	
Jr Dairy Plant Officers	—	3	—	22	—	—	—	29	—	36	98	176	176	364	
Jr Cattlefeed Plant Officers	—	—	—	5	—	—	3	—	—	11	10	33	33	62	
Milk Procurement & Technical Inputs	218	265	228	190	183	102	453	579	612	766	750	610	100	4,956	
Oilseeds Procurement & Input	—	—	—	—	—	—	—	65	60	130	102	100	100	457	
Dairy Auditors	3	39	26	57	45	43	71	81	37	—	8	25	25	435	
Frozen Semen Technology	—	—	29	40	37	37	26	118	16	2	14	5	5	324	
Livestock Inspectors	—	—	—	—	—	25	29	—	—	—	—	—	—	54	
Dairy Plant Technicians	1	19	12	12	26	—	23	31	26	41	106	99	99	396	
AI & Vet'y First-aid	92	128	331	455	321	238	307	631	461	533	537	346	346	4,380	
Semen Laboratory Technicians	—	—	—	—	23	34	26	—	—	—	—	—	—	83	
Field/Extension Assistants	86	43	20	57	56	—	62	—	47	10	52	—	—	433	
Farmers' Induction Programme	382	1,418	2,700	2,608	4,079	3,961	3,307	3,484	5,186	6,558	8,261	9,175	9,175	51,119	
Farmers' Orientation Programme	—	—	970	1,727	805	—	—	—	—	914	967	1,013	1,013	6,369	
Induction Programme for Oilseeds Growers	—	—	—	—	—	62	165	347	1,086	848	944	877	877	4,329	
Cluster Federation Apprentices	—	—	—	—	34	65	150	52	—	55	37	13	13	406	
Programme for International Participants	4	16	12	51	16	61	42	46	32	10	50	39	39	379	
Workshop/Seminar	—	—	100	65	176	18	38	22	—	—	—	—	—	450	
Other Custom-made Programmes	47	24	36	46	262	437	468	163	475	332	255	316	316	2,861	
Orientation of NDDB/IDC Officers	6	97	9	53	12	118	137	113	164	77	45	51	51	882	
Total	868	2,064	4,494	5,396	6,075	5,201	5,307	5,765	8,208	10,329	12,267	12,916	12,916	78,890	

SOURCE : Annual Report, NDDB

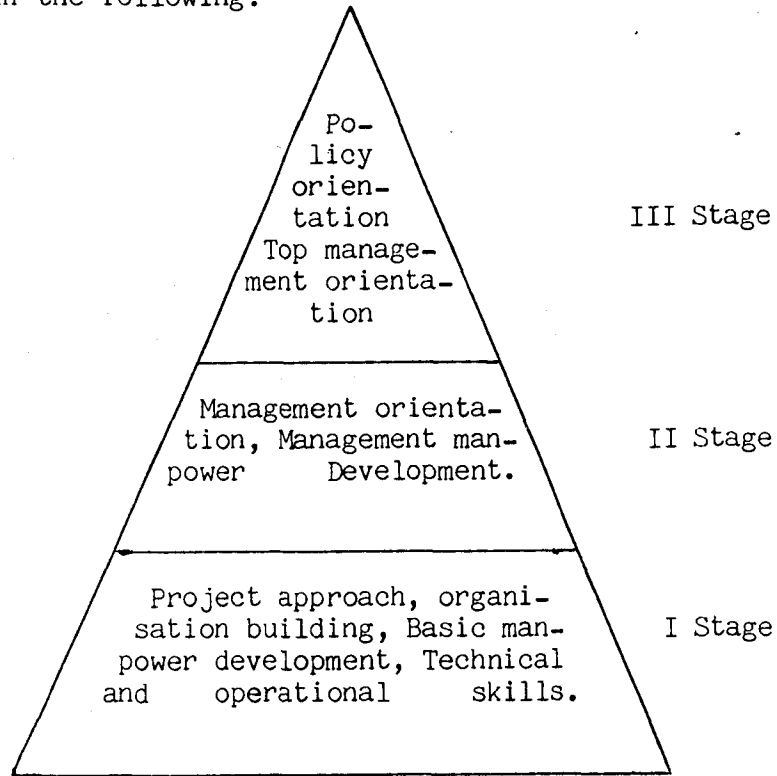
management oriented, but to develop great potential source of managerial cadres for the entire dairy sector and other rural producers' organisations and several other rural development agencies both in government and non-government sector. IRMA has also been considered to develop management cadres for practicing professionals in the dairy sector to support professionalisation. Thus, the setting up of IRMA is the culmination of efforts in professionalisation of dairy sector which is unique in the cooperative history of the country.

Thus, the manpower development through specific organisation and skill oriented complemented with general managerial skills have been completed towards the end of first decade of the dairy industry. Policy-orientation and top management orientations have already made their impacts on the dairy industry and programmes for such orientations have been conducted by IRMA in collaboration with NDDDB. Several such programmes are being planned to make top-managements oriented to cooperative dairying in the country. It is useful to note at this juncture that so far IRMA has turned out more than 260 graduates and out of them, more than 70 per cent are already working in the dairy sector, besides more than 200 professionals in the dairy industry both at senior and junior managerial levels have already undergone training at IRMA over the last five-and-a-half years. Thus, the efforts at profesionalising the sector have been systematic, sequential and stage-wise.

The third stage of manpower development is gaining ground i.e. that the industry itself is poised for growth and new demands for professionals are already very much in evidence. Demands are quite varied and involve high professional qualities - i.e. management services, marketing skills, information needs, long-term planning and strategic choice are some of them. Such talents are obviously not available given the thrust of cooperative sector so far, particularly at senior levels of the organisation. It is also quite familiar that chief executive positions are manned by Indian Administrative Service (IAS) cadres and the second line of defence is invariably not very strong. It is not very unusual to see that a number of vacancies exist at such levels, besides organisational and personnel policies are at a stage where it is not conducive for attracting professionals and for organisational growth (Appendix 2). Through a number of positions are being filled with IRMA graduates, the vacuum is still there at senior levels. Organisations on their own initiative take up managerial manpower development programmes and such approaches have filled up some important positions (Appendix 3).

OF-III has identified some of the problems areas and action has already been initiated to solve such problems. Thus, three stages of manpower development has by and large enhanced the strength of cooperative dairy sector in the country.

To sum up, the three stage model man-power development could be presented in the following:



The three stages could be seen in an organisational development context.

Stages of Organisation Development

Stage I Project	Stage II Organisation	Stage III Management	Stage IV Growth & Devpt.
Leadership	Recruitment of special personal	Efficiency	Long term planning
Personal touch		Output	Diversification
Comradarie	Definition of work/job	Standards	Expansion
Mutual trust	Responsibilities	Controls	Staff devpt.
Team spirit	Establishing formal relationships	Procedures	Welfare
Risk taking	Hierarchy	Norms	Training/under study
Flexibility		Staff help	
Completion of project	Communication channels	Training	Succession
Local people	Infrastructure Cadre Building	Understudy	Leadership
		New positions	
		Planning for development	

Exhibit 2

A Framework for Manpower Development

Parameters of the framework	Operational definition/description	Critical aspects	Functions
Leadership	Chief executive and Senior Managers/functional/Div./Dept. heads	-Identification, orientation and training -Fairly long stay(at least 3 years)	-Development orientation -Entrepreneurial orientation -Professional manager orientation (for eg.see Appendix 1)
Methods	-Project approach -Key person approach -Expert approach -Mobilisation approach -Management trainee approach -Training & Devp. approach	-Profitability of success -Right selection -Appropriateness -Availability and adequacy -Recruitment, induction and orientation -Suitability and utility,sustainability	Stages of organisation development(see page 81)
Departmental climate	-Exchange of ideas -Initiative -Sharing -Mutuality -Approachability -Experimentation -Result orientation	-Openness -Freedom -Tolerance of mistakes -Development orientation	-Facilitate feedback -Frequent performance appraisals and review -Watching the growth of individuals and their capabilities and potentials -Relatively no fear of facing superiors -Less defensiveness of subordinates
Mentor culture in the organisation	-Coach/counsellor -Reality oriented -Task master/result -People oriented -Visionary,-Planner, -missionary	-Demonstration -Practices and processes -Setting an example	-Multiplication of skills -Talents and abilities -Development of people -Values and norms

A Framework for Manpower Development

Manpower Development is a function of proper recruitment and induction of people into the organisation, opportunities to develop their skills and abilities, their perception and understanding of the organisation and environment, a culture that emphasises on qualities of fairness and openness, managerial processes which reinforces such qualities, personnel practices which are more akin to contemporary practices, links of organisational development to individual development in a larger sense, belief that individuals can grow and take up higher responsibilities.

It is shown that Manpower Development is not seen as a separate function but organically linked to tasks and responsibilities. In other words, each unit of work/function takes manpower development as an intergral part of its functioning.

Given the current practices of Manpower development in organisations and some understanding of the nature of the manpower as a resource, it may be necessary to draw an operational framework for manpower development. In viewing this framework, it is useful to keep in mind the present status of organisations in the cooperative dairy sector.

Conclusion:

A brief review of Manpower Development Programmes shows that what has been accomplished is significant enough, but given the changes and the need for organisation development, they need a new thrust and out-look. Such a thrust needs to have the strength of Human Resources Development (HRD), Organisation Development (OD) and a mentor culture orientations. To support and strengthen such orientations, top management continuity and committment is a pre-requisite. The review of manpower development identified several gaps (shown elsewhere) could be considered for action in the next stage of development for dairy sector as a whole.

ROLE OF CHIEF EXECUTIVES

(Based on effective functioning of chief executives)

Stage I: Development Orientation of a Chief Executive:

The chief executive undertakes to implement projects, however small they may be, with greater probability of success and puts greater emphasis on implementation and completion of projects in time. The success of projects is utilised to bargain for better resources and facilities. In this process, he attempts to identify dedicated groups of people and motivate them with the challenge of task, potential in the organisation, freedom to take operational decisions in the field. However, he himself takes the responsibility of the entire projects including its monitoring.

He emphasises the context and uses his judgement in deciding and initiating projects. He greatly relies on impacts of the project and utilises this "credibility" to manage the regulatory and other development agencies to obtain either concessions for the task completion or more resources. Thus, the chief executive takes up projects which have higher probability of success and greater impacts on the organisation and outside. He knows that failures have long term effects on the organisation and especially on his own effectiveness.

He emphasises the specificity of objectives and utilises them to gain a point either in bureaucratic circles or other agencies which may have some influence on the project's success. Through this approach of success building, he gets the support of non-official representatives of his organisation. By then, impacts are clearer to many of them. He utilises the non-official support in solving problems in project areas and to provide them a buffer between agencies and the beneficiaries. In this stage the chief executive generally assumes a multi-functional responsibility and puts greater stakes in the organisation's effective functioning.

Stage II: Entrepreneurial orientation:

In this stage, emphasis are shifted to the growth of the organisation. The chief executive utilises the opportunities presented in this stage and prepares to take calculated risks if he is convinced that the outcomes are going to have a greater impact on the organisation. During this phase, the two concerns of a chief executive are result-orientation and achievement of project's major objectives. Since the growth of the organisation and achievements are his primary concerns, he emphasises better planning and effective mobilisation of resources from within and from outside. He utilises also outside expertise, either in the country or elsewhere to achieve faster growth of the organisation.

The chief executive shows greatest concern for accountability of performance. In this process, he himself set the example for others in the organisation. The "achievement" syndrome is the basic thrust of Stage II. Nevertheless, actions and style of the chief executive are not very different from those in the first stage. However, he starts building the organisation with more professional and technical expertise. He emphasises frequent reviews of performance, monitoring of projects, giving clear-cut responsibility to people and making them accountable for performance.

During this stage, the chief executive influences the controlling groups of his organisation including the board of directors. His influence is restricted to not only keeping at bay any undue interference of controlling agencies but it grows beyond to forge a set of relations based on mutual trust and confidence.

Stage III: Professional management orientation:

As the organisation starts growing in terms of its activities, volume of operations, complexity and jurisdictional coverage, it becomes incumbent on the chief executive to recruit professionals for carrying out multifarious responsibilities and to systematise the work processes and flows in the organisation. This brings in the need for developing appropriate systems in the organisation.

With expanded business and activities of the organisation, a chief executive concentrates his energies on organisational development. Better systems for target orientation, planning and control systems, such as budgetary control performance evaluation, systematic monitoring and information systems, methods for compensation, organisation and methods for recruitment etc. Emphasis will be shifted to cost effectiveness, competitiveness, better product image, quality control and market expansion.

The greater emphasis on systems orientation is not only meant for systematic functioning of the organisation, but to lay the foundation for long-term orientation of the organisation and to help develop strategies of such orientation of the organisation. The systems approach is also utilised to bring in principles of equity for resolving conflicts to provide co-ordination among various constituents of the organisation.

The chief executive utilises not only systems for proper conduct of business, but used innovative processes in the organisation to involve various functionaries in the decision-making, policy formulation both formally and otherwise. He evolves a culture based on participation, performance, direct consultation, and openness. The three stages of the role of a chief executive are not mutually exclusive but reinforce each other. Within each stage and all the stages put together, chief executives have adopted their own styles of operation. For some, confrontation

in the early stages may prove advantageous, while others use more of low-key operations and buying time for taking decisions and affecting action. There were also occasions to use "common enemy syndrome" for fulfilling the goals of the organisation.

DAIRY FEDERATIONS AND UNIONSPerception of Strengths and Weakness

A major hindering factor of several of the Dairy Federations was shown to be the quality of manpower. The frequency of this factor indicated its importance. More than 200 participants from these federations attended Management Development Programmes (MDPs) conducted by IRMA in the last five-and-a-half years. They belong to senior and middle management cadres. Besides, majority had indicated other constraining factors like bureaucratic hurdles, deputationists, personnel policies and practices smack of departmental orientations etc. More importantly, they talked about lack of managerial orientation and a culture suited to development. The undermentioned were some of the specific weakness:

1. No uniform policy for recruitment
2. Improper placement of staff members
3. No well defined promotion policies
4. No proper training at all levels before placement
5. No scientific method for performance appraisal
6. No provision for further development and higher education
7. Deputation of personnel from various government departments.
8. Authorities and responsibilities are not well defined.
9. Shortage of qualified and experienced professional staff
10. Lack of uniformity in the service conditions including pay scales in different cooperative dairy organisations
11. Lack of requisite qualifications for staff in cooperative dairy organisations
12. Frequent changes in the top management particularly the chief executive .

A Case study of Management Development Programme for Middle Level Executives of a Federation

Mr. Sivaramu, Managing Director (MD) of a large cooperative Milk Producers' Federation (CMPF) in South India felt that there was an urgent need for managerial manpower to take up second line positions in the existing district milk unions and up-coming unions in other districts. The CMPF has been implementing a large dairy development programme called OF-II for the last three years which envisages a large-scale growth in the coverage of farmers, milk procurement, processing capacity, etc. The MD has had several years of experience in the Indian Administrative Service (IAS). Prior to joining the Federation, he had worked in various positions in the State, particularly in departments concerned with industrial development and small-scale industries. He was held in high esteem in his circle for his result oriented approach. Upon taking up the assignment with the CMPF, he felt that there were too many officers at the head quarters and very few at unions. In fact there were no middle level officers in the unions. Their staff strength was inadequate to discharge the responsibilities given to unions. He therefore, decided that unions should be strengthened with managerial-cadre staff for overall growth of the federation. There were of course a number of alternatives before him. One of the alternatives he thought of was that some of the existing personnel at the head quarters and with the unions could be the right people to become managers. He discussed the matter with the senior managers of the federation. Many advised him against any management training as they did not have a very favourable opinion about such training programmes. In his effort, to find out good training centres, he first contacted a new management institute which was set up to cater to rural producers organisations such as his. He had heard about this institute and its activities. He personally came to know the students of the institute as some of them worked with the federation for their management training. He had an occasion to see the reports prepared by the students and had talked to a few of them. He was satisfied with them and their training.

Mr. Sivaramu then pursued the matter with the institute. The institute had agreed to offer a training programme. After working out the details of the programme he spent considerable time in identifying potential candidates for training from both the federation and the unions. In total he identified 50 people who were in their late 30s or early forties who had considerable potential to become future managers,. They were drawn from various departments such as engineering, veterinary and animal husbandry, procurement, processing, finance and accounts. Most of them had more than 7-8 years of experience. Mr. Sivaramu felt that they would be ready to take up second line positions in unions if they had proper orientation and training in

management. He also felt that many of them had spent long years in one department and had developed narrow perspectives and therefore they must be exposed to broader interdisciplinary functions of management.

He requested the institute to offer them one-week programme in disciplines such as production, marketing, inventory control, costing, behavioural sciences etc. with teaching and case material drawn from dairy experience. He decided to divide 50 people into two groups for training. The first group was trained for seven days.

The training programme was very intensive and the level of motivation of participants was high all through the sessions of class room and group discussions. Each faculty member spent about 30 man-hours in the preparation of the teaching material and three and half man-hours per day during the training sessions. Two faculty members were always available throughout the programme and they actively participated in the group discussions. The level of group discussions was generally of high quality and on the concluding day of the programme participants' representatives presented reports on a problem-solving assignment.

The participants, on the whole, found the orientation programme new and useful. They felt that for the first time they had participated in the case discussions and group discussions without reservation and that it was due to the style of teaching adopted by the faculty members.

On the concluding day of the programme, Mr. Sivaramu addressed the newly trained officers and informed that they would be sent to unions either with promotion or without. He also hoped that the training would be of use in their managerial functioning. He said that the group was selected personally by him and desired that they fulfill his plans of action.

Mr. Sivaramu wrote to the institute's director expressing great satisfaction over the conduct of the training programme. He also wished that the Institute could take up more such programmes for them in future.