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A Handbook for Milk Procurement Personnel

CHAPTER – I
INTRODUCTION

1. Evolution of Dairy Cooperatives in India

1.1 Dairying in India and emergence of dairy cooperatives:

The origin of dairying in India can be traced back to 1500 BC. During 1500 to 2000 B.C., the Aryans were first to domesticate cattle, use them for tilling their land and obtain milk to be consumed as food. Dairying in India has passed through several phases. In the pre-independence era, in 1886, the Department of Defence, advised by the then Board of Agriculture, established the first dairy farm for supplying milk to British troops stationed at Allahabad.

The first dairy society - The Katra Cooperative Dairy Society, Allahabad was registered in 1913 in Uttar Pradesh, soon after that Cooperative Societies Act (1912) was enacted. Between 1914 and 1919, seven more such societies were formed. Impressed by the tremendous potential of milk in India, the then Board of Agriculture advised the Government to appoint an Imperial Dairy Expert. In the year 1920, Mr. William Smith, the Dairy Expert from Britain, planned for enhancing milk production on long-term basis on scientific lines. In the year 1929, Shri Pestonji Edulji Polson, established Polson Model Dairy at Anand to manufacture Polson butter.

Dr. NC Wright, the then Director, Dairy Research Institute, Scotland came here in 1936 to review the progress of dairying in India. He made some important observations and recommendations during his four-year stay in India, which formed the basis for future development of Dairy Industry. Two of his recommendations were:

i) India had to develop its own technology and technologists to solve the problems of Indian Dairy Industry.
ii) Being a country of villages, inhabited by marginal farmers and landless labourers, dairy development should be promoted on cooperative lines only, to cover wide areas/rural pockets.

During the year 1937, the first Milk Producer's Cooperative Union was registered in Lucknow. By the end of the decade there were 19 milk unions covering 264 societies with total membership of 11,602. The total milk handled by these societies was four million kgs per year – about 0.1% of the milk marketed in urban India

It was being increasingly realized that Dairy Development Programmes would be relevant only if the exploitation of the producers and the consumers by the middlemen is eliminated. Hence, a proper provision of necessary infrastructure should be outlined to balance the demand of production and consumption centre.

In the early forties, the British Government in India decided to improve the quality of milk consumed in Bombay city. The Municipal Corporation of Bombay city organized a scheme in November, 1945 (known as the Bombay Municipal Corporation Milk Supply Scheme) for bringing milk from Kaira District at a distance of about 400 Km from Bombay city, and selling it at subsidized rate to expectant mothers and children. The Bombay Municipal Corporation Milk Supply Scheme purchased a fixed quantum of milk from Polson Limited, a private enterprise located at Anand, then a sub-divisional headquarter of Kaira District. The price paid for milk by the Scheme to Polson was not related to the price Polson paid to the milk producers in the villages. Polson tended to maximize profits by minimizing the price paid to the milk producers. He created a strong network of milk contractors in the district.

The Bombay Municipal Corporation Milk Supply Scheme faced severe financial difficulties during the early days of its operation. In 1946, the Government of Bombay State took over the administration of the Scheme and established a statutory body known as the Bombay Milk Scheme. The Bombay Milk Scheme awarded a monopoly right for procuring milk in Kaira District to Polson, a decision that aroused strong political opposition in the district as the benefits of a relatively high purchase price paid by the Bombay Milk Scheme were not likely to be passed on to the producers. The arrangement was satisfactory to all concerned except the farmers. The Government found it profitable, Polson 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 met Sardar Vallabhai Patel (a prominent freedom fighter and first Home Minister of India), who had advocated farmer's cooperatives as early as 1942. He belonged to a village called Karamsad – 8 kms from Anand. On his advice farmers of Kaira District launched a campaign to organize dairy cooperatives, which paved way for the AMUL model of dairy development in India.

1.2. The ANAND PATTERN of Cooperative Dairying:

The cooperative dairying in India really came into reckoning from 1946 onwards. The first farmers' integrated dairy cooperative was established in Anand town of Kaira District of Gujarat in 1946, to fight against the exploitation of farmers by the private traders. This cooperative is popularly known as AMUL (Anand Milk Union Limited). AMUL emerged as a result of a powerful socio-economic movement, which shook British bureaucracy in this part of the country.

The AMUL cooperative movement began with organisation of two village level dairy cooperatives in June 1946. With five dairy cooperatives as its members, AMUL got registered in December 1946. The basic unit in ANAND pattern cooperatives is the village level milk producers' cooperative society - a voluntary association of milk producers who wish to market their milk collectively. All the dairy cooperative societies in a milk-shed are affiliated to an apex organisation -The District Cooperative Milk Producers Union. The milk union procures milk collected by the member dairy cooperative societies, processes the same and arranges marketing of liquid milk and milk products. Besides paying to the member dairy cooperative societies for the milk supply, the milk union provides inputs for productivity enhancement for the animals.

The salient features of ANAND pattern dairy cooperatives are:

- Effective governance by elected representative of farmers.
- Effective professional management.
- Availability of round the year market to the milk producers.
- Sharing of profits by members of the dairy cooperatives on equitable basis.
- Availability of inputs for enhancing milk production of milch animals of the members of dairy cooperatives.

So far AMUL has organised more than 1000 dairy cooperatives with 5.8 lakh farmer members, procuring on an average seven-lakh litres of milk per day. The turnover of AMUL is now about Rs.475 Crore.

The journey of dairy cooperatives beginning from organisation of Katra dairy cooperative society during 1907 in Allahabad District to the emergence of AMUL as a strong and vibrant dairy cooperative is a journey of untiring efforts of self-less leaders, committed milk producers supported by professionals, AMUL has proved to be an effective organisation which has been sensitive to the needs and aspiration of its members.

2. NDDB, Operation Flood (OF) and Perspective Plan

National Dairy Development Board (NDDB)

2.1. Emergence of NDDB:

During 1964 the then Prime Minister of India Shri Lal Bahadur Shastri visited Anand for inaugurating the cattle feed factory of AMUL. During that visit he saw the working of a dairy cooperative society in Ajarpura village, discussed with the members and office bearers and tried to understand the core of such a developmental movement. Impressed by the working of dairy cooperatives of AMUL, he desired that the AMUL model, which is popularly known as Anand Pattern, be institutionalized all over India to benefit the milk producers.

NDDB was set up under the aegis of the Ministry of Agriculture and Irrigation, Government of India in September 1965, under the Societies Registration Act 1860 and the Bombay Public Trust Act 1950 to replicate AMUL model in other parts of the country. During 1987 NDDB was declared as a statutory body by an Act of Parliament. An institute of national importance, NDDB promotes, develops and finances dairy development programmes through the cooperative structure. NDDB's creation is rooted in the conviction that our nation's socio-economic progress lies largely on the development of rural India.

Functions of NDDB:

NDDB has been instrumental in designing and managing the Operation Flood programme which in three phases strengthened the cooperative dairy network at multi-tier levels based on Anand model.

NDDB offers services in following areas through its Head Office at Anand, four regional offices (Mumbai, Bangalore, Delhi and Kolkata) and State Offices:

- Cooperative Development and Governance
- Marketing of milk and milk products.
- Animal Health, Breeding and Nutrition.
- Dairy plant installation and management.
- Improvement in milk quality and plant management.
- Information and developmental research.
- Financial and planning.
- Product and Process Technology.
- Research and Development- Biotechnology.
- Training and consultancy.

NDDB's strength lies in leveraging the capabilities of producers' cooperative unions and milk marketing federations to bring high quality services and modern technology to the services of rural India.

2.2. Operation Flood:

Genesis:

After its inception in 1965, NDDB spent time in convincing each state to agree to make funds available for dairy development on the Anand Pattern cooperatives. NDDB submitted a proposal in 1969 to Government of India regarding monitisation of gifted commodities under World Food Programme (WFP) and utilising the funds generated from monitising of these commodities for replicating AMUL model in ten states constituting 18 milk sheds in the hinterland areas surrounding four metro cities - Mumbai, Delhi, Kolkata and Chennai. The Government of India launched Operation Flood project in 1970. The infrastructure for procurement of rurally produced milk, its processing and marketing was developed. The Operation Flood project in its three phases revolutionised the cooperative dairying in India.

Operation Flood I (July 1970-March 1981):

The first phase of the Operation Flood programme implemented during 1970 to 1981 focused on building the dairy cooperative infrastructure, involving millions of small farmers. The objectives of the programme were:

- To establish milk producers dairy cooperatives in 18 hinterland milk shed areas of Mumbai, Delhi, Kolkata and Chennai.
- To enable the modern dairies in the four metropolitan cities to capture a commanding share of their milk markets.
- To establish milk processing facilities in the hinterland milksheds with sufficient conversion capacity for balancing lean and flush season supplies of milk.
- To establish a network of storage facilities and long distance transport facilities, as the basis for regional milk grids, which would ultimately coalesce into a National Milk Grid.
- To enable dairy cooperatives in the hinterland milk sheds to market technical inputs to their members for increased milk production and thereby establish the basis for a National Milch Herd of genetically improved milch animals.
- To set up sufficient Milch Animal Improvement Centres in the participating states to ensure an adequate supply of purebred bulls of high yielding milk index, to ensure a genetically satisfactory base for the artificial insemination systems established by milk producers' cooperatives.
- To ensure removal of city-kept cattle from four metropolitan cities and facilitate their resettlement in rural milk sheds.
- To develop information system and manpower development programmes required for modern dairy organisations participating in the programme.
- To identify the needs of milk producers and also of milk consumers and facilitate long-term productive investment in dairy development, so that country's dairy industry may grow to meet the needs of milk producers and consumers.

The financial outlay of Operation Flood I was to the tune of Rs. 115.54 Crores. The amount was generated by monitising WFP' gifted commodities (1,27,000 metric tonnes of skimmed milk powder and 40000 metric tonnes of butter oil). The funds so generated were channelised through Indian Dairy Corporation, a Govt of India body to NDDB for building new dairies and expanding the existing ones, infrastructure was established for handling and storing conserved milk products and long distance transportation of milk. Village level dairy cooperatives were organised which were assisted in activities aimed at improved breeding, feeding and health care of milch animals. Training of milk producers, managing committee members, board of directors and staff of dairy cooperatives and milk union was also an important activity initiated under the Operation flood I.

The achievements of Operation Flood I:

Sr.No	Variable	Number
1	Milk sheds Covered	39
2	Dairy Cooperatives Formed	13270
3	No of farmers families covered	17.47 lakh
3	Rural milk procurement (LKgPD): - Average - Peak	 25.6 33.9
4	Urban milk marketing (LLPD)	27.80
5	Rural Dairy Processing capacity (LLPD)	35.80

Thus Operation Flood I laid strong foundation for dairy development through cooperatives.

Operation Flood II (April 1981-March 1985):

The success of Operation Flood I clearly demonstrated the replicability of ANAND model in other milk sheds. Operation Flood II, officially launched on October 2, 1979 was designed to create on the foundation built by Phase I, a viable dairy industry to serve the nation's needs for milk and milk products during the eighties.

The objectives of Operation Flood II:

- To enable some 3.48 million milk producers' families to build a viable self-sustaining dairy industry by March 1985.
- To enable milk producers to rear the National Milch Herd (NMH) of some 15.28 million cows and buffaloes during the eighties for augmenting the country's milk projection to be 103.2 million litres per day by 1985. The target for milk procurement was set to 5.53 million litres of milk per day by 1985.
- To form a National Milk Grid (NMG), which would link the rural milk sheds, dairy plants and 148 urban markets each with a population of not less than 0.1 million, using long distance transportation and medium term storage facilities to even out seasonal and regional imbalances between supply and demand of milk. This would benefit a total population of around 1.5 million.
- To erect the infrastructure required to support a viable National Dairy Industry including:
  - A national frozen semen delivery system to support Artificial Insemination programme.
  - Vaccine production and delivery system to strengthen the animal health care programme.
  - Indigenous development of dairy processing and conservation methods (for traditional and modern dairy products) with enlarged facilities of design and manufacture of dairy equipment.

- Provision of manpower development services with special emphasis on professional, managerial and technical cadre for the dairy industry.
- Ad-interim programmes to supply butter oil as a moderately priced cooking medium and extracted foods as a basis for infant's supplement feeding programmes, especially in integrated rural development programmes based on Anand Pattern.
- Erection of national management service to provide timely information to local decision-makers responsible for development of the constituent part of the National Milk Grid.

The financial outlay of Operation Flood II was to the tune of Rs. 3,18.2 Crores. Much of the funds came through European Commission (EC) donated commodities of about 242,000 tonnes of skimmed milk powder, 68,000 tonnes of butter oil and 23,000 tonnes of butter. Impressed by the results of Operation Flood I programme, the World Bank extended a soft loan of Rs. 1,53.6 Crores. Part of the funding came from NDDB's internal resources.

The achievements of Operation Flood II:

Sr.No	**Variable**	**Number**
1	Milk sheds Covered	136
2	Dairy Cooperatives Formed	34,523
3	No of farmers families covered	36.63 lakh
3	Rural milk procurement (LKgPD): - Average - Peak	 57.80 79.0
4	Urban milk marketing (LLPD)	50.10
5	Rural Dairy Processing capacity (LLPD)	87.80

Operation Flood II besides the overall development of milch animal accounted for creating facilities for effective disease control, indigenous equipment manufacture and applied research. There was also emphasis on manpower training and development. A national Milk Grid to transport surplus milk from rural milk sheds to urban consumption centres was set up.

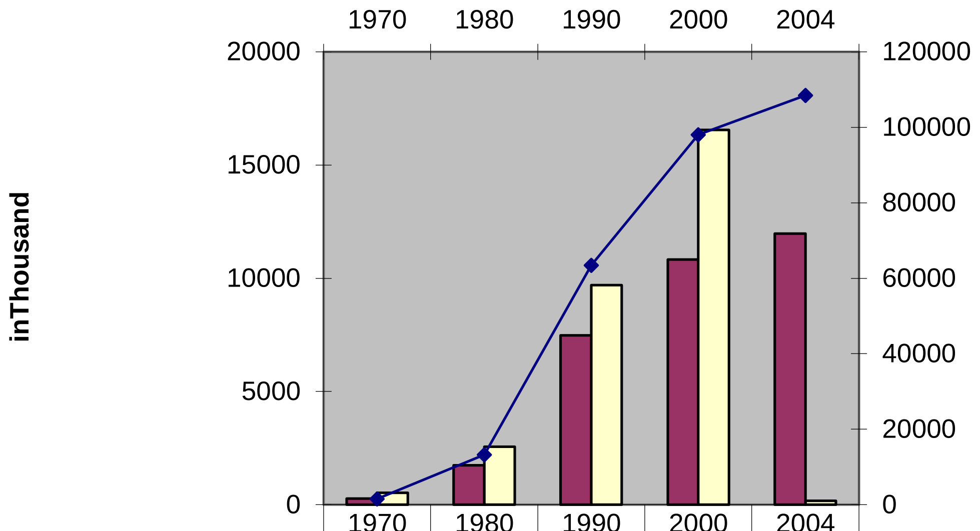
Operation Flood III:

The third phase of Operation Flood promoted measures to consolidate the achievements of Operation Flood I and II. The outlay of Operation Flood III was to the tune of Rs. 1303.1 Crores. The rise in milk production during the first two phases of Operation Flood led to a significant drop in commodity aid. About 60,000 tonnes skimmed milk powder and 11,000 tonnes butter donated by European Commission were used to generate Rs. 1,89.3 Crores. The World Bank funded Operation Flood III with a soft loan of Rs. 7,55.0 Crores. This was supplemented by the internal resources of NDDB obtained by recycling and reinvesting the initial commodity aid. .

The achievements of Operation Flood III:

Sr.No	Variable	Number
1	Milk sheds Covered	170
2	Dairy Cooperatives Formed	72,744
3	No of farmers families covered	93.10 lakh
3	Rural milk procurement (LKgPD): - Average - Peak	 110.10 133.6
4	Urban milk marketing (LLPD)	103.5
5	Rural Dairy Processing capacity (LLPD)	98.95

Growth of Dairy Co-operative in India



	1970	1980	1990	2000	2004
Membership in (000)	278	1747.4	7481.63	10827.35	11975
Proc.(TKGPD)	521	2562.12	9702.15	16546.66	174.8
DCS in No.	1588	13284	63415	97989	108436

Impact Of Operation Flood Programme

Encompassing 170 milk unions the Operation Flood programme was instrumental in enhancing the milk production in India from 22 million tonnes during 1970s to 88 million tonnes by 2003. India became the largest milk-producing nation in the world. Operation flood programme contributed for increasing per capita availability of milk in India from 106 grammes in 1970s to 226 grammes by 2002. The development of dairy cooperatives in terms of its magnitude can be assessed from the following graph:

It is evident that over the last 33 years there has been substantial growth in the number of dairy cooperatives organised. This has resulted into larger number of farmers coming into the fold of dairy cooperatives. This intervention of replicating Anand Model under Operation Flood has resulted in dairy cooperatives procuring around 175-lakh Kg of milk per day and there by an average amount of Rs. 18 crore being paid to the milk producer's daily on account of their milk supply. Operation Flood has been recognized as the biggest agriculture programme anywhere in the world.

Operation Flood has proved to be the largest dairy development project in the World.

2.3. Perspective 2010:

With the advent of liberalisation and globalisation it was felt necessary to strengthen the framework of dairy cooperatives for functioning with same autonomy and accountability as other forms of enterprise. Therefore in order to set goals for the year 2010, the dairy cooperative milk unions worked with NDDB to evolve a Perspective Plan. The plan emphasises four thrust areas namely:

- Strengthening the Cooperative Business (which includes milk procurement, processing infrastructure and marketing).
- Productivity Enhancement,
- Improvement in Quality and Plant Management, and
- Building a National Information Network.

By 2010 it is envisaged that growth of dairy cooperatives will increase as shown in following table.

Major Areas	**Status Year 2000**	**Expected Growth by Year 2010**
No. Of Dairy Co-operatives	84,289	1,29,480
Farmer membership in (lakh)	106.28	156.27
Women member (in %)	21.19	50
Milk Procurement (LkgPD)	157.8	488
Milk Marketing (LLPD)	129.16	365

The Perspective 2010 aims to make dairy cooperatives competitive and vibrant in the post liberalisation era. NDDB is providing financial and technical support to participating milk unions under Perspective 2010.

New Thrust and challenges before cooperatives

A new thrust is being given to

a) strengthen the farmers' owned cooperative institutional infrastructure and

b) increase the participation of rural milk producers in the development process.

Through a series of interventions at village level, it is envisaged to develop rural leadership with business acumen, which would enable smooth transitions of instruments required for the rural dairy sector's development into the hands of rural milk producers. The responsibility thus bestowed on the rural milk producers helps them identify inputs needed to expand the business, prioritize them and implement need based developmental activities as per their own needs. There is an additional emphasis on transfer of new technologies in related fields to the dairy cooperatives.

In the era of present economic liberalization, where competition is so intense, effective professional management and genuine democratic governance becomes the need of the hour for cooperatives. New millennium cooperatives not only require to consolidate gains from Operation Flood programmes, but also to evolve several rather innovative programmes/ interventions to make the institutions members owned and controlled vibrant organizations. These programmes while enhancing the institutional strength of cooperatives have to ensure the sustenance of their long-term growth.

Dairy cooperatives must realize that the quality of milk has become a key to meet the needs of the customers today – hence, ensuring high quality of milk procured and marketing the same efficiently is called for.

There is also an immediate need to amend the present cooperative laws to make them constituency oriented. This would enable the cooperatives to function as autonomous, democratic, members' owned and controlled institutions avoiding any outside interference. Presence of such progressive cooperative law will facilitate the practice of principles of cooperation and also the process whereby their members formulate their own business plan and implement it accordingly. Self-Reliant Cooperative Act enacted in a few states in recent years and Companies Amendment Act – 2002 (Producer Company Legislation) passed by parliament are a few of the progressive steps taken in this effect. The Producer Company legislation would enable cooperative form of enterprises to be registered as companies. The Producer Companies would enjoy the same liberalized regulatory environment as are available to the other business enterprises while having the unique characteristics of a cooperative organization. This would provide the producers organisations a level playing field for competing with other players.

Role of Women in dairying:

An important factor, which is of great concern and needs attention, is involvement of women milk producers in the affairs of dairy cooperatives. The role women will play in managing the dairy cooperatives during the next decade will be very decisive in sustaining the dairy cooperative movement. To understand the role women need to play in next decade, there is a need to look at their present role as women dairy farmers.

In general, it has been observed that a traditional division of labour exists within the Indian household with respect to dairying. Most women do the management and feeding of the livestock as part of the household chore. Rural women are not only engaged in routine household work, but also significantly contribute to family income through their productive family labour of looking after dairying. The number of hours spent by women in dairying work is so far in excess compared to that by men in most of the states in India.

In many parts of India, dairy farming has traditionally been a women's occupation and they also know much more about the care and feeding of dairy animals. It is the women who know the fodder that can be fed to animals during periods of drought. It is women who are able to identify the first signs of oestrous in cattle and buffaloes.

There have been a number of studies on who does what in Indian agriculture and animal husbandry. Though there may be some differences in the findings, most conclude that women are responsible for 60 to 80 per cent of the work involved with dairy animals in our country.

Despite their substantial role in the activities related to dairying, the patriarchal dominance of Indian family system and prevailing traditional social norms have severely limited women's participation in the cooperative system. Even today the women membership in dairy cooperatives across India accounts to barely 24%. Very few are involved in governance of dairy cooperatives.

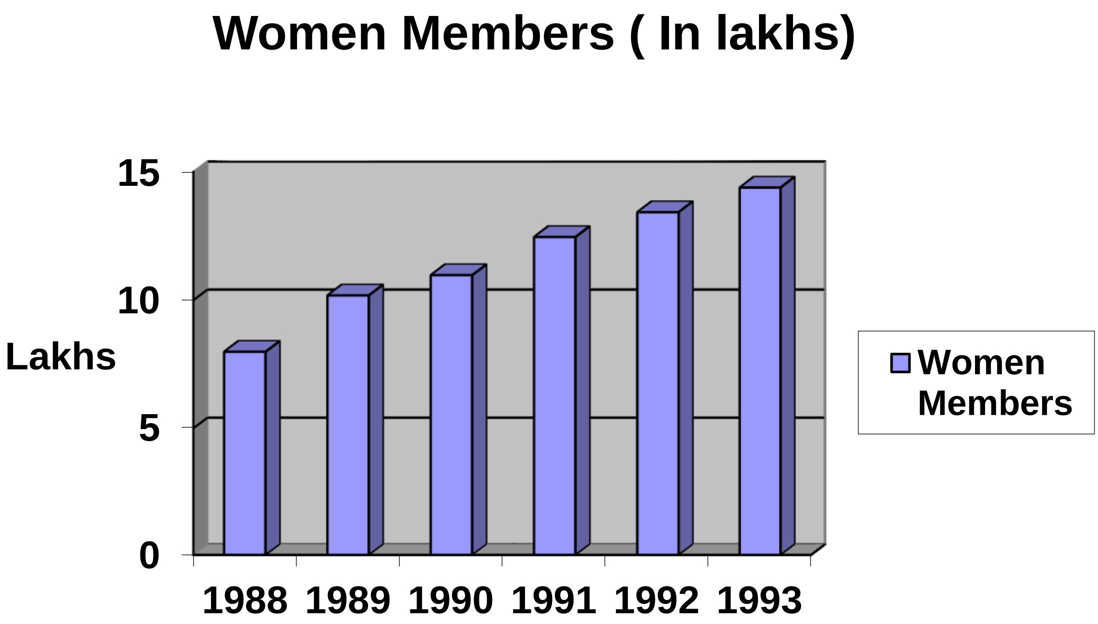
So, if our milk production has risen to 88 million tonnes and we are now the largest milk producer in the world then it is the Indian woman dairy farmer who deserves the major share of the credit. One can imagine what they could have achieved had they been literate, educated and truly, empowered. While there has been some participation by women in dairy cooperatives in India prior to 1980s, it is only during the last decade that the women are gaining access to membership and governance of dairy cooperatives

Efforts made by different organistions for enhancing women empowerment in dairy cooperatives:

Until 1988, the membership in dairy cooperative was predominantly of male members. Very few women were involved in governance of the dairy cooperatives. Redressing this imbalance was considered a critical step. Keeping in view the premise that "a dairy co-operative that is formed and led by users that is by those who actually rear, feed and manage cows and buffaloes - will prove far more successful than one that is formed and led by the relatives of such users", NDDB initiated different programmes for enhancing women participation in dairy cooperatives.

From 1988 onwards the National Dairy Development Board placed a major emphasis on women's education as part of the Co-operative Development (CD) programme, an activity designed to strengthen the role of members in the control and governance of the dairy co-operatives. The aim was to create a constituency of members to exercise their rights and responsibilities as owners of co-operatives. This included focus on women education in each village dairy cooperatives covered under the CD Programme, which was taken up in 87 milk unions across the country. The basic mass education activity for women provided information on their rights, roles and responsibilities as members of dairy cooperatives with a strong emphasis on women's role as milk producers as well as that of primary members of a dairy cooperative society.

Since woman can disseminate message to other women effectively, they were made aware of better breeding, better feeding, better husbandry, and better health care of animals. As a sequel to the CD Programme nearly 2.5 lakh women milk producers were made aware about different aspects of dairy cooperatives and their role in strengthening these cooperatives. The CD Programme provided the much needed impetus for enhancing women involvement in dairy cooperatives, as can be seen from the graph given below:



The Cooperative Development Programme had paved way for women involvement in dairy cooperatives. There after it was felt necessary to nurture women members of dairy cooperatives as future cooperators. Keeping this in view, NDDB during 1995, launched a programmed called the Women's Dairy Co-operative Leadership Programme (WDCLP) with a broad objective of increasing the involvement of women in day-to day decision making related to dairying, participation as members and elected leaders of dairy cooperative. The programme is being implemented in 76 milk unions of the country. A key component of the strategy to encourage and support women's involvement in dairy cooperatives is the training and positioning of a local woman as a Lady Resource Person (LRP) in the village. These LRPs have made a significant contributions in motivating rural women to join village cooperatives and in empowering them through awareness programmers, formation of self-help groups (SHGs) and conducting literacy training. The person has to be essentially a local woman so as to carry out the interventions with the women dairy farming community effectively.

A novel approach for mobilizing women force in villages was adopted in WDCLP in the form of organizing self-help/thrift groups. The groups start with women milk producers from the village saving some cash regularly on a monthly basis to create a local buffer for meeting their occasional credit needs and exigencies. These groups also provide an entry point to potential milk producers for joining the dairy cooperative society in their village. The SHGs provide a platform for carrying out extension activities, demonstrations of appropriate technologies and to facilitate development dialogues. Presently there are 6024 thrift groups in 55 milk unions having more than 1.0 lakh members with a thrift deposit of Rs. 9.43 crores, more than 70% of which is disbursed as loan to its members. The SHGs have proved to be effective in neutralizing the allurement by many of the private traders for supply of milk to them on pretext of giving loans.

We have found that the organisation of women's thrift groups often proves a fertile ground for leadership development. Women milk producers participating in the WDCLP exhibited sustained enthusiasm since they have been working together for a common goal over a period of time.

The findings of independent impact studies, which assessed the effectiveness of the interventions, aimed at enhancing women participation in dairy cooperatives, revealed that besides increase in women membership, there have been subtle qualitative changes in the attitude of women who have participated in various programmes/activities. Some of these changes include:

- Women have become confident, articulate and vocal.
- Women of the villages have become self-dependant and feel that they have a greater role to play in decision-making concerning the cooperatives and their families.
- Women feel economically self-reliant and are proud of the fact that they can contribute for education of their children.
- Women have started coming outside their home. They are able to interact with other people and widen their perspective on many issues.

Yet another facet for enhancing women members in dairy cooperatives is formation of all women dairy cooperatives. Some state dairy federations and milk unions have been also promoting formation of women dairy cooperatives exclusively owned and managed by women keeping in view the constraints such as:

- Hesitation on the part of women to join male dominated cooperative.
- Unwillingness of men managing the cooperative to give up place/positions for women
- Lack of confidence, social taboos.
- Lack of experience leading to inability of women to actively participate in the activities of dairy cooperatives.

Valsad Milk Union in Gujarat has taken the lead in formation of about 416 women dairy cooperatives out of 669 functional dairy cooperatives. Four women have been elected as the Board of Directors of the Milk Union.

Today there are two all women Milk Unions namely Mulukanur (AP) and Icchhamati (West Bengal). These unions have emerged as sequel to thrift cooperatives in Mulukanoor and Self Help groups in Icchamati milk sheds. These Unions are doing good job.

The Government of India realizing the need for increasing involvement of women milk producers in India initiated a scheme called Support for Training and Employment Programmes (STEP). The STEP is being implemented in major states of the Country. Under this programme financial assistance for formation of dairy cooperatives, initial financial support for recurring costs of these cooperatives, margin money for obtaining bank loan for purchase of milch animals, etc is provided. These cooperatives are also taking up various women developmental activities like personal savings, sanitation and literacy programmes.

The results of all these efforts have been modestly encouraging. More than 18,000 out of the 1.03-lakh dairy co-operative societies in India are all women's societies. The percentage of women members has risen from about 15 .9 per cent a decade ago to around 24 per cent today. There has been an increase in the numbers of women serving on managing committees of the dairy cooperatives as well as in the staff of these dairy cooperatives. But, when compared with the actual role performed by women in dairying these achievements still represent only a very small start.

By 2010, it is expected that women membership in dairy cooperatives will be about 50% of the total membership and at least fifty per cent of elected leaders of the district union and state federations will be women.

NDDB aims to support the development through training and programmes designed to enable women members, managing committee members and board of directors to play their role in planning, policy formulation, control and representation. These efforts will be built on the foundation of education, training and other empowerment programmes.

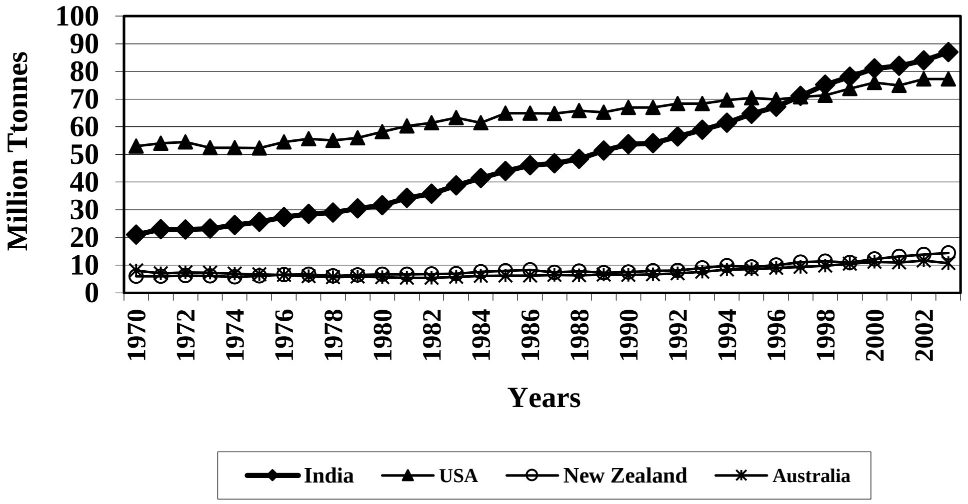
It must be explicitly understood that the change itself is generational and that what the NDDB seeks to achieve is a momentum that leads to sustained and self-sustaining long term shifts in the leadership and control of the dairy cooperative structure.

3. Dairying – Current Status and Challenges Before Dairy Cooperatives in India And International Dairy Scenario

India: The Highest Milk Producing Country

India today is the highest milk producing country of the world. During the year 2003-04 total annual milk production was estimated as 91 million tonnes (MT) against the total world production of milk as 604 MT. USA with 77mt production of milk per annum occupies the second position. The production of milk in our country during pre 1970 period was almost static around 20mt. The growth during the post seventies has been exponential and still it continues at a compounded annual growth rate (CAGR) of about 4.5%. The growth of milk production over the last three decade is shown in the graph below. The growth has been higher than most major milk producing countries of the world.

Milk production over years



Milk production in our country is not spread out uniformly in all states. The major milk producing states are only 16 out of total 28 states and they account for 94% of the milk production of the country. In these states cooperatives have contributed significantly in enhancing the milk production either directly or indirectly by affecting the prevailing prices.

Dairy Cooperatives in India

During July 1970 NDDB designed a project where in the gifted commodities (skimmed milk powder and butter oil) were monetised for generating funds to replicate Anand Pattern dairy co-operatives: The Operation Flood. The Operation Flood project in its three phases revolutionised the cooperative dairying in India. Encompassing 170 milk unions the Operation Flood programme was instrumental in benchmarking the milk prices in most part of the country leading to enhancing the milk production in India from 22 million tonnes during 1970s to 88 million tonnes by 2003. Actually the milk production in the country had stagnated in the sixties and seventies but due to better prices of the cooperatives the local private traders also were forced to pay higher prices, and farmers' interest in keeping milch animals was renewed. The feeding practices, health care and breeding were supported by the cooperatives in an extensive manner through its input services programmes.

Although the cooperatives did not procure a very large share of the marketable surplus but the prices and services it offered were the benchmark thus protecting the farmers interest and boosting milk production. The World Bank recoginsed in its evaluation study report the Operation Flood as the biggest agriculture programme anywhere in the world[1]. These efforts undoubtedly led India to become the largest milk-producing nation in the world. Per capita availability of milk in India increased from 106 grams in 1970s to 226 grams by 2002 thus contributing significantly to the nutritional need of the country's populace.

Coverage by the Cooperatives

Today the dairy cooperatives operate mostly in the 16 major milk-producing states. Though the expanse of the cooperative appears impressive in statistical numbers, but in terms number of villages that are served by the functional village level dairy cooperatives, it is limited to only 18% of the total villages. Consequent to limited coverage of villages, only 17% of the producer households have joined membership of the dairy cooperatives. Both these factors have contributed to mopping up of only about 15% of marketable milk surplus (during the year 2002-03 dairy cooperatives procured an average of 180 lakh kg of milk per day), which is about 7.5% of the total milk production.

According to Census of India 2001 there are 593 districts in the country and as many as 456 (77%) fall in 16 major states. The dairy cooperatives have some presence in only 313 (68%) out of 456 districts. Similarly, out of 5.12 lakh inhabited villages in 16 states, as many as 3.25 lakh villages are located in the districts where the dairy cooperatives have some presence. However, the effective coverage of villages by functional dairy cooperatives is only 92 thousand (28%). About 23% of the producer household and 17% of marketable surplus are mobilized from these 92 thousand villages.

Northern Region

Though 78% of the districts of the northern region fall under the project area, the coverage of villages is limited to only 28%, and only 11% of the producer families and 8% of the marketable surplus is mobilized under the cooperative network. In the three states of Punjab, Haryana and Rajasthan the geographical spread of the project has been extended to all the districts, while the village coverage differ in scale from a low of 29% in Rajasthan to a high of 55% in Haryana. In UP there are 30 districts, which are not covered

[1] World Bank evaluation report

under the dairy cooperative ambit. At the state level, in UP, only 10% of the villages are covered under functional DCS.

The penetration of the cooperatives across villages have less than proportionate effect in bringing the producer households into the ambit of the cooperative network and its consequent effect in mobilizing surplus. At the regional level though 20% of the villages are covered, only 8% of the producer households and 7% of surplus are currently accessed in the cooperative system. In the entire region, 395 LLPD of surplus milk is still available for mobilization, of which 162 LLPD is in UP and 119 LLPD is in Punjab. Therefore, the scope for incremental procurement of milk from the region is quite good.

Eastern Region

Of four major states of Bihar, West Bengal, Jharkhand and Orissa, the state of Jharkhand does not have any union for procurement, though there are three marketing dairies, created under Operation Flood, and located in the state. Only, 45% of the districts (103) of the region are covered. In terms of inhabited villages, the region has poor representation under the cooperative ambit. Only, 6% of the villages, 3% of the producer households and 6% of the marketable surplus are mobilized under the cooperatives. However, in the covered areas, the penetration is relatively better (14%, 6% and 9% respectively). Among the states, proportion of villages covered varied between a narrow range of 6-10%, and accordingly, the proportion of surplus that is mobilized under the cooperative ambit remained confined to 5-10%. The extent of gross surplus that is available, net of present procurement, is 144 LLPD. The state of West Bengal has an estimated 62 LLPD, followed by Bihar with 48 LLPD.

Western Region

Across the regions, the relative performance of the cooperative in the western region is better. More than two-thirds of the districts of the region are covered under the ambit of the cooperative. While 18% of the inhabited villages are covered at the region level, 26% of producer households and 28% of the marketable surplus have been procured by the cooperative institutions. However, within the covered areas, the performance appears brighter (28%, 36% and 36% respectively). It is only this region where the depth of penetration of the cooperative in the villages where they are operative, is better than all India average. Notable performance is however seen in the state of Gujarat. In the areas where the dairy cooperatives are present, 82% of the villages and 75% of the producers and marketable surplus are mobilized. This is by far the most striking performance of the cooperatives across all states. The performance of the dairy cooperatives in the states of MP and Chattisgarh is limited to less than 5-7%, while in Maharashtra it is 28-37%, among the major parameters. A total of over 200 LLPD of surplus is yet to be mopped up in the entire region, the largest of which is estimated in Maharashtra (84 LLPD) and MP (69 LLPD).

Southern Region

In terms of coverage of districts, as many as 80 (85%) out of a total of 94 are covered; however, in Karnataka and Kerala all districts are covered by the dairy cooperatives. At the region level, 40% of villages, 37% of the producer households and only 15% of surplus are captured in the cooperative system. In the areas where cooperatives operate, the performance indicators improve (46%, 43% and 17% respectively). That only 17% of surplus could be captured against 43% of the coverage in milk producer family could indicate that large proportion of producer family in the system are dormant, especially in Tamil Nadu and Kerala, who do not participate in cooperative business. The scope of surplus that remains out of cooperative system is estimated at 321 LLPD, largest volume is from AP with 120 LLPD, followed by Tamil Nadu with 96 LLPD and Karnataka with 61 LLPD.

Patterns of Successes and Failures

Over last three and half decades there has been substantial growth in the number of dairy cooperatives organized which has resulted into larger number of farmers coming into the fold of dairy cooperatives. Dairy cooperatives procure around 180-lakh Kg of milk per day (2002-03 average daily procurement) and thereby pay an average amount of Rs 18 crore to the milk producers daily as price of milk. However the number of defunct cooperatives in these years has also swelled to around 22,000. It is really a concern that merits serious thought not only by the milk unions or the NDDB but also by the various agencies affecting the working of the cooperatives.

There has been a high incidence of successful dairy coops in the western India (Gujarat and Maharashtra) and to some extent in Southern region (Karnataka and Kerala). The failures are more visible in the northern and the eastern region (with exceptions in Bihar). If we can use the four typologies[2] of cooperation: 'Coercive', 'Bribed', 'Leader induced' and 'Communitarian culture induced'; most of the successful cooperatives in western region will fall under leadership-induced cooperation. In the same breath it can also be added that the failed cooperatives are mostly attempted copies of the similar typology of cooperatives but unfortunately have lacked the leadership charisma of the successful ones'. The successful coops of this western region can easily be identified with a prominent name for example, Amul with Tribhuvandas Patel, Warna with Tatya Saheb Kore, Mehsana with Motibhai Choudhary etc.

As leadership is not a controllable factor through Operation Flood programmes attempts were made in Gujarat and in other states to institutionalize the parameters of the success in dairy cooperatives under the banner of Anand Pattern cooperative. We have to admit that success did embrace the cooperatives under Anand pattern but not uniformly. Today it reinforces further that the leadership is the key factor in sustenance and growth of the cooperatives.

[2] Tushar Shah, (1996) 'Catalysing Co-operation design of self-governing organizations'. Sage publication.

In regions other than west, the dairy cooperatives will fall under the 'bribed cooperation' category as they were created at the behest of the government fiat coupled with protective shield of milkshed license and later the MMPO for monopolistic continuance, and further supported through resource transfers from the government under various subsidies. Till today these cooperatives suffer under the shackles of government control and a larger percentage of these cooperatives especially at apex level are languishing in lack of government's support as the Government cannot afford financial doling out of the past.

A few successes cannot shift the burden of proof of efficacy of the cooperatives on onto these few ones. 'However, it is nevertheless true that there has been no fair chance given to cooperative so far. What are called doles and subsidies by outsiders and government, have actually become millstones around the neck of co-operatives'[3].

Cooperatives will sustain only if they are continually driven to achieve purposes central to their members and have all the controls within their membership.

Current Concerns of the Dairy Cooperatives

It is estimated that only about 15% of the marketable surplus of milk is procured by the cooperative milk unions. Actually this percentage instead of going up is sliding down in view of increasing competition from the organized as well as unorganised private trade. For the cooperatives the situation is quite bleak in northern region. The trend in many southern states is also disturbing as the private dairies share is increasing at a rapid pace at the cost of cooperatives. The main reasons for stunting/static/declining growth rate in procurement are: i) Poor coverage of villages by the cooperative milk unions, ii) Lack of flexibility in milk collection system by the DCS leading to big milk producers shying away from DCSs, iii) Lack of approachability to the village because of poor roads, iv) lack of women involvement in governance of dairying although being the real users v) Political undercurrents influencing the Union/DCS functioning vi) Poor financial health of the unions resulting in delayed or no payment for the milk supplied by the producers vii) poor pricing system vii) Mismanagement of DCS viii) Private operators' aggressive strategy of advancing loans or such other favors to lure producers ix) Inefficiency due to high overheads mainly because of overstaffing in the three tiers system x) Low employee morale and low accountability due to common cadre system.

Even absence of regular access to market comes in the way of enhancing milk procurement. Over the years the growth rate of the marketing is far behind that of procurement by the dairy cooperatives. This has led to a widening gap between procurement and marketing. Many cooperatives resort to distress selling of milk products mainly skimmed milk powder and white butter to tide over working capital problem resulting in huge piling of stocks in flush season. Many unions depend upon the strategy of declaring milk holidays to avoid disposal problems.

[3] Rajagopalan R (1996) Rediscovering co-operation: A connective Summary (IRMA Symposium)

Key Issues for Cooperative's Success

Notwithstanding these issues described above the key parameters that need to be addressed to ensure success of cooperatives are i) Enabling law, ii) Leadership, iii) Professionalism, iv) Member involvement. Each of these factors is briefly explained below.

Enabling Law

Cooperative is an economic organisation, to be more specific a private business organisation in the self-interest of its members similar to what the public limited company is for its shareholders. Then in the name of public interest we should stop creating shackles around the cooperatives. The Cooperative law must

- Permit the practice of cooperative principles without any hindrance;
- Ensure clear links between responsibility, authority and accountability;
- Respect the constitutional rights of the members
- Accept the need for patronage based voting rights to replace the anachronistic 'one man one vote' principle.

It appears this has finally sunk into the mind of the policy makers in this country and the proof is enactment of enabling legislations like Producer Company and Multi state cooperatives Act. But the cooperative being a state subject the change of mindset has to percolate to state level policy makers.

At the same time let us recognise that the modest preferences the cooperatives have enjoyed in the past will not continue in future. The cooperatives will have to enhance members' stake so that there is no need to attract share capital form outsiders and also learn to supply goods and services to its members without looking for subsidy from any quarter.

Leadership

Good governance is essential for the success of any cooperative, and an elected but powerful board is equally necessary to sustain it in the long run. Sadly, elected boards lose their power because they either misuse it for their private purpose or use it in a manner, which is not in the best interest of members. This has been one of the main arguments for external control by the Government agencies, and thus leading to disempowerment of the elected boards. Well certainly to some extent appropriate design of the cooperative structure may address some of the issues but undeniably the answer lies in the having leadership with undiluted commitment to the cause of the cooperatives they represent.

In most cases the success of a cooperative especially in our country has hinged on to the cooperative finding an exceptional leader, and it is evident from the examples of excellence quoted in the beginning. However there is a need for caution that glorious past is not the sufficient condition for future success, and hence the quest for devoted leadership should not stop at having found one. Also in the fast changing times an organisation, for the sake of better adaptability, should not be bogged by outdated ideological delineation. We need to revere the past but worship the future for the sake of making a difference in the lives of millions of members who seek to better their future through the cooperatives.

The selfless and dedicated work of the cooperative leaders in last 100 years has made so much of difference in sustaining the cooperative movement despite the stifling law, it certainly stands to contribute manifold in this reforming stage of cooperative legislation. To shape the future cooperatives we need more and more number of value based leaders and I am hopeful of its taking place.

With an aim to build value-based and business-oriented leadership NDDB is proactively supporting institution - building activities in dairy cooperatives under its perspective plan. The institution building activities envisage modular education, training and workshops of cooperatives' elected representatives to lead to evolving values and mission statement, adopting long term plan, setting values based policies for good governance and putting in place an effective monitoring mechanism.

Professionalism

Given its owner-representative role, the board's obligation to true owners i.e the members is to ensure that the cooperative achieves what it should while avoiding unacceptable activities and situations. Governance is part of ownership and not management. Hence the board of a cooperative will be failing in its responsibility if it has not employed committed and competent professionals and has not empowered them to use their knowledge and skills creatively to achieve the stated goals. In the competitive environment a cooperative cannot survive if it fails to adopt winning strategies and implement the same with the desired finesse.

Member Involvement

Cooperative, being a private business organisation of its members, depends immensely on its active and aware membership for success. In order to strengthen action oriented cohesive goal congruence among the members, education and training of the members is an imperative no cooperative can afford to ignore.

National Dairy Development Board has consciously promoted programmes through the milk unions aimed at creating enlightened, participatory and responsive membership. Specific education and training programmes for each segment like farmers, elected board and professionals have been designed and delivered either directly by NDDB professionals or by the milk union personnel after training them suitably. Every year thousands of participants including farmers, Board members and professionals attend various training programmes at NDDB Anand, and at its training centres in the different parts of the country.

At NDDB we ensure that the content and process of a training programme is continuously evaluated and modified to suit the requirements. Having recognised the importance of human resources in i) strengthening cooperatives, ii) enhancing animal productivity, iii) improving quality of milk and iv) building stronger database for efficient decision making, NDDB, under its perspective plan 2010, has given a major emphasis toward building awareness and enhancing skills of the members, board and employees of the cooperatives. This is a continuous task which we value and will commit our best resources to reinforce it in future also.

Dairy Cooperatives: International Perspective

The cooperatives dominate the dairy sector almost all over the world and more so in the developed countries. The table given below establishes clearly the choice of the dairy farmers in choosing cooperative form of enterprises as the preferred and trusted one.

Cooperatives' share in dairying

Sr. No.	Name of the Country	Cooperatives' Share (%)
1	Denmark	95
2	New Zealand	95
3	Austria	94
4	USA	85
5	Netherlands	83
6	Germany	70
7	India	15

The dairy cooperatives in Denmark and New Zealand collect almost all the milk produced by the dairy farmers. In New Zealand there is only one cooperative operating in the entire country. This gives the advantages of the economy of scale and financial muscle to the cooperative to fight the competition and build the coops' share. Actually there is a trend of consolidation through merger among the dairy cooperatives in developed countries. For example the table given below shows how much in vogue is the process of mergers in the dairy cooperatives of USA

Mergers of Dairy cooperatives in USA

Year	No. of Dairy Coops	% of Milk Handled
1960-61	1609	61
1969-70	971	73
1974-75	394	78
1990-91	264	82
1997-98	226	83
2000-01	220	85

Some of the dairy cooperatives are as big as any other multinational in food business and are equally competent and vibrant if not more. The following table gives glimpse of a few major dairy cooperatives of the world and their annual business turnover during 2002.

Big Dairy Cooperatives And Their Turnover

Sr. No.	**Name of the Cooperative**	**Turnover (in Rs crore)**
1	**Dairy farmers of America**	**32500**
2	**Land O' Lakes**	**29000**
3	**Friesland Coberco Dairy**	**24000**
4	**Campina**	**22000**
5	**California Dairies**	**9500**

Indian dairy cooperatives have along way to go to make their mark in the international dairy business. In the fiercely competitive world there is no alternative to being capable and efficient in both management and governance for any cooperative wishing to succeed and grow in the interest of its farmer members.

The new trade regime, which is underway with the ongoing the WTO agreements on agriculture (although quite tricky, intriguing and unpredictable ones) will certainly give a fairer chance to developing countries like India which have better potential to produce milk at competitive rate specially when the subsidies of the developed countries on dairy production are phased out. The future holds a lot of promise for our country if we could revitalize the cooperative sector with high level of professionalism and business orientation. This will involve experimenting with innovative cooperative form of institutions like Producer Company that retain the cooperative character but at the same time enjoy enabling legal framework and greater disclosure norms of governance.

CHAPTER – II

Cooperative Legislation and Bye-laws

1. Cooperative Principles

1.1. International Cooperative Alliance (ICA) statement on the Cooperative Identity

Definition: A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically controlled enterprise.

Values: Co-operatives are based on the values of self-help, self-responsibility, democracy, equality, equity, and solidarity. In the tradition of their founders, co-operative members believe in the ethical values of honesty, openness, social responsibility, and caring for others.

Principles: The Co-operative principles are guidelines by which Co-operatives put their values into practice.

1st Principle: Voluntary and open membership: Co-operatives are voluntary organisations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political, or religious discrimination.

2nd Principle: Democratic member control: Co-operatives are democratic organisations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary co-operatives members have equal voting rights (one member, one vote), and co-operatives at other levels are also organised in a democratic manner.

3rd Principle: Member economic participation: Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the co-operative; and supporting other activities approved by the membership.

4th Principle: Autonomy and independence: Co-operatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organisations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

5th Principle: Education, training and information: Co-operatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives. They inform the general public - particularly young people and opinion leaders - about the nature and benefits of cooperation.

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

7th Principle: Concern for community: Co-operatives work for the sustainable development of their communities through policies approved by their members.

1.2. Explanation of ICA Statement on the Cooperative Identity

The International Co-operative Alliance, whose membership includes co-operatives from all parts of the world, has defined a co-operative as under:

"A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise."

The main characteristics of a co-operative are:

- it is an autonomous association of persons.
- the persons unite/join at their own will.
- the members should unite to meet their common economic, social and cultural needs.
- it is jointly owned and democratically controlled enterprise.

"Autonomous" means an organisation or association that is free to take all business and governance decisions itself without any outside interference.

"Jointly-owned" means those who have joined the co-operatives to use their services are, collectively, its owners.

"Democratically-controlled" means the management of co-operatives is carried out by the members and by those persons who have been authorized to do so by the members. The ultimate control always remains with the members of the co-operative. Those authorised to manage the co-operatives are in turn accountable to the members.

"Enterprise" highlights the nature of the organisation: an enterprise is constituted by its owners to carry out business to their benefit.

Values: Co-operatives are based on the values of self-help, self-responsibility, democracy, equality, equity, and solidarity. In the tradition of their founders, co-operative members believe in the ethical values of honesty, openness, social responsibility, and caring for others.

"Self-help" means that persons should help themselves by coming together and should not depend on others beyond the co-operative. Co-operators believe that the development of a person can best take place in association with others.

"Self-responsibility" means that the members themselves assume responsibility for their co-operatives for its formation, continuation and future success.

"Democracy" means that each member has an equal opportunity to decide how the co-operative should be run and to frame policies to achieve its objectives. This is the principle of one-member with one-vote.

"Equality" means that everyone in a co-operative has an equal opportunity with respect to the right to participate, the right to information, the right to be heard and the right to be involved in decision-making.

"Equity" means a member is rewarded for her/his participation in the co-operative. The more he uses the services of the co-operative, the higher the return he will get.

"Solidarity" means that a co-operative is not merely an association of members. Members should be treated as fairly as possible. The each member of the co-operative is responsible for the collective interest of all its members. This value also means that co-operators and co-operatives stand together for the development of the co-operative movement.

The values of honesty, openness, social responsibility and caring for others are fundamental ethical values. These are values, which members of any community should practice. They have been practiced for ages and thus find a central place in the co-operative movement.

Co-operative Principles: The cooperative principles are guidelines by which cooperatives put their values into practice.

1. <u>Voluntary and open membership:</u>

Co-operatives are voluntary organizations Open to all persons who are:

- **able to use their services**

- **willing to accept the responsibilities of membership**
- **without gender, social, racial, political or religious discrimination.**

This is the first of the seven principles of co-operation. It is very important because it reaffirms the importance of members choosing voluntarily to make a commitment to their co-operative. It establishes the fact that co-operatives are <u>open to all persons</u> who are <u>able to use their services</u> and <u>willing to accept the responsibilities</u> of membership without gender, social, racial, political or religious discrimination. It also acknowledges the fact that membership should be limited to only those persons who are actively involved in that type of activity. It reminds members that they have obligations to their co-operatives. These obligations include exercising their voting rights, participating in the meetings and using the services of the society. This principle also clearly specifies that there should not be any gender bias when granting membership and women should be present as far as possible in equal numbers to men. Thus this principle itself provides the needed opportunity for women to join co-operatives and for them to be co-operators.

Co-operatives should not discriminate among members on the basis of class, religion or political affiliation. Co-operatives should not exploit non-members of their communities and they should accept the responsibility of fostering the development of the co-operative movement in their areas.

2. <u>Democratic member control:</u>

- **Co-operatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions.**
- **Elected representatives are accountable to the membership.**
- **In primary co-operatives, members have equal voting rights (one member - one vote)**
- **Co-operatives at other levels are also organised in a democratic manner.**

This principle emphasizes that the members, who are the owners, ultimately must control their co-operatives. This control must be exercised in a democratic manner. It reaffirms the right of members to be actively involved in setting policies and in making decisions. This active involvement leads in many cases to policy issues being discussed, major decisions being made and important actions being approved in the general body meetings of the co-operative.

This principle also reminds the men and women serving as elected representatives that are accountable to their members.

The democratic basis of this principle is that every member of a primary society has equal voting rights (one member - one vote) and that co-operatives at other levels are also organised and run in a democratic manner.

3. **Member economic participation:**

- **Members contribute to the capital through equity and democratically control**
- **Limited compensation to equity.**
- **Surpluses may be allocated:**
    - **as reserves to develop their Co-operative**
    - **to distribute Patronage**
    - **to any other activity approved by the members that benefits the members.**

This principle describes the reasons why and the ways in which members should invest in their co-operatives as well as how they should decide to allocate surpluses. As the co-operative grows they may create reserves for further development of their co-operatives. Members also control the capital of their co-operatives. They should decide how capital should be raised and how surpluses should be distributed. When these surpluses are distributed to the members as a patronage bonus, it must be in proportion to their transactions with the co-operative.

4. **Autonomy and independence:**

- **Co-operatives are autonomous, self-help organisations controlled by their members.**
- **If co-operatives enter into agreements with other organisations, including governments, or raise capital from external sources, they should do so on terms that ensure democratic control by members and maintain their autonomy.**

Co-operatives should be autonomous and free from control by Government or any other external body. In most countries of the world governments decide the legislative framework under which co-operatives must function. These laws enable co-operatives to operate as legal entities and broadly protect the members and public interest. However, good laws ensure that co-operatives remain autonomous in the same way, as are private enterprises.

In the case of co-operatives entering into agreements with other organisations including the Government, such agreements should be on mutually agreeable terms and conditions.

5. **Educations, training and information:**

- **Co-operatives provide education and training for their members, elected representatives, managers and employees so that, they contribute effectively to the development of their Co-operatives.**

- **Inform the general public - particularly the young people and opinion leaders - about the nature and benefit of Co-operation.**

This principle emphasises the importance of educating and training co-operative members, elected representatives, managers and employees of a co-operative. It does not mean just distributing reading materials and correspondence but includes in educating and informing the members, elected representatives, managers and employees the values of the co-operative thought and action.

Education, training and information should be imparted by co-operatives on a regular basis. More emphasis should be given to training youngsters, potential leaders, politicians, public servants, reporters and educators about the advantages of the co-operative form of business. It is very important that if education, training and information are imparted regularly, it will go a long way in making co-operatives viable and sustaining it.

6. <u>Cooperation among co-operatives:</u>

- **Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through**
- **Local.**
- **National.**
- **Regional and**
- **International structures.**

This principle highlights the importance of co-operation among co-operatives. If co-operatives are to grow and achieve their maximum potential, they should do so by collaborating with other co-operatives, not only at the local level but also nationally, regionally and internationally levels. This principle is even more important as we enter the next century and the competition with other forms of business organizations increases.

7. <u>Concern for community:</u>

- **Co-operatives work for the sustainable development of their community through policies approved by their members.**

Co-operatives exist primarily for the benefit of their members. Since these members live together in communities, it is important that they play a role in developing those communities. This principle clearly emphasizes that co-operatives have a social responsibility in ensuring that the communities to which their members belong develop economically, socially and culturally. As in many parts of the world the environment is at risk, it is important that co-operatives also accept a responsibility of working together to keep their environment clean and free from pollution.

Conclusion: According to the cooperative principles, Cooperatives are formed to satisfy the needs of their members. They are voluntary, autonomous, self-help democratic organizations owned and controlled by their members. Membership in cooperatives is open and voluntary. Any person who is able to use the services and accepts the responsibility of membership may become a member without any discrimination. The whole system is controlled in a democratic manner. The members elect their representatives to manage the affairs of their cooperatives. The managers and the staff are appointed and removed by the cooperatives. They are accountable to the elected leaders/Board of Directors and in turn Board of Directors are accountable to the members (General Body Meeting). Every matter is decided democratically by majority of votes. There is limited interest on share capital and members share profit and loss based on their participation as users of the services provided by the cooperatives. Cooperatives also provide education and training for their members, elected representatives, managers and employees so that they can contribute effectively to the development of their cooperatives. They serve their members most effectively and strengthen the movement by working together through local, national, regional and international structures. They also work for the sustainable development of their communities in which they operate.

The Co-operative Principles are the foundation for understanding co-operatives and their functioning. These principles make co-operatives distinct from other organizations. They provide standards to help decide whether an organization can be called a co-operative or not.

2. Cooperative Legislation:

2.1 **History of Cooperative legislation:**

Cooperatives did exist in India even before it was formally introduced through enactment of the law. The main problem in India was the exploitation of poor and innocent farmers by moneylenders. This resulted in social unrest and riots in some parts of the country. To meet the situation, Government tried to assist the farmers through various legislative measures. At that time it was thought that cooperative could possibly resolve this problem. Thus, the first Cooperative Societies Act - The Credit Cooperative Societies Act, 1904 was passed to provide relief to the farmers and to protect them from the clutches of moneylenders.

This Act was simple and contained 29 sections and was a nearly 10 page document. However, this Act was restrictive in its scope as it permitted only primary credit societies and kept non-credit and federal cooperatives out of its purview.

The need of cooperatives was felt in other sectors also. Therefore, another cooperative societies act - Cooperative Societies Act, 1912 was enacted to replace the Credit Cooperative Societies Act, 1904 addressing its shortcomings. The Act gave a new impetus for the growth of cooperative movement. Cooperative in various sectors and federal cooperative were organized.

In 1919, with the introduction of Reform Act (Government of India Act-1919), the cooperatives became a provincial subject. Each province then started formulating their own cooperative societies act to suit their requirements. The Act of 1912 served as a model for subsequent Acts passed by various state Governments.

The co-operative sector was given an important place in the economy of the country after independence. Many committees were set up to strengthen the co-operative movement and changes were affected in the co-operative law from time to time.

The All India Rural Credit Survey Committee, 1954 under the chairmanship of Prof. A.D. Gorwala recommended that promotion of cooperatives be accepted as a part of State policy in the development of various economic activities, particularly in those providing support to agriculture. The policy led to state partnership in the share capital of cooperatives and in their management. Committee on Cooperative law (1956) under the chairmanship of Shri S.T. Raja the then Joint Secretary under the Ministry of Food and Agriculture appointed by the Government of India suggested a number of modifications in the cooperative legislation for giving effect to the concept of the state partnership and accordingly various States Cooperative Societies Acts were amended which in effect also strengthened the government control on the cooperative institutions. The committee prepared a model cooperative Bill, whom the committee thought, could be uniformly applied in all the states. A new chapter was added in the Bill relating to state partnership in cooperative Societies to give effect to the recommendations of the ARCS Report.

The Mirdha Committee (Committee on Cooperation (1965), analyzed criteria of genuine cooperative societies and removal of vested interests from them. However, on the pretext of promotion of genuine cooperative movement by removing vested interests, the state governments made cooperative legislation more and more restrictive and stringent pushing the cooperative character of the movement in the background.

Committee on Cooperative Law (Ardhanareeswaran Committee) 1987 observed that the existing Cooperative Societies Acts contain provisions which militate against the democratic character and autonomy of the co-operatives and over the years, the Registrar has acquired undue powers in respect of management Committee on Cooperative Law.

A committee was setup by Government of India, Planning Commission "The Committee on Model Cooperative Bill, to consider and finalize the model cooperative societies bill (Choudhary Brahm Perkash Committee –1991) The committee submitted the Draft Cooperative Society Act to the Government of India in May 1991

However, with the passage of 1912 Act and subsequent amendments by each state Government, co-operative law drifted away from what it was intended for. Most of the provisions were drawn up with the Registrar as the central player keeping away the members who constitute a co-operative. These laws contain a number of restrictive/unreasonable provisions giving room for politicization and bureaucratization of the cooperatives. These laws allow little or no freedom for our cooperatives to operate as autonomous business entities. Therefore, Cooperative laws need drastic changes in their approach, nature and contents. The law should allow them to be operated as members owned, managed and controlled institutions. The present laws are outmoded and unsuited to a democratic institution like cooperatives.

The recommendations of Ardhanareeswaran Committee- 1987 and Choudhary Brahm Perkash Committee –1991, were not considered. Only few States enacted a parallel cooperative legislation meant for such of those cooperatives, which do need Government's financial assistance in the form of share capital and loans. States such as AP, MP, Bihar and J&K, Orissa, Uttaranchal have already enacted such parallel Acts for self-reliant cooperative. However, the progress is very slow and such enactments are going to help that big number of cooperatives, which are registered under the old Acts.

In the present liberalized economic scenario and competitive environment, the cooperatives need a level playing field with other business enterprises but the cooperatives continue to be governed under the restrictive cooperative laws. It was felt if cooperative enterprises are to continue to serve rural producers, they require an alternative to the institutional form.

Keeping all this in view, GOI constituted a Committee consisting of experts led by Dr. YK Alagh, Economist, former Union Minister. On the basis of recommendations of the Committee, A new chapter – IXA (Producer Company) was introduced in the Companies Act –1956. The Legislation enables incorporation of cooperative business as companies and conversion of existing eligible cooperatives into companies. This law accommodates the unique elements of cooperative business within a regulatory framework similar to that of companies. This will pave the way for formation of new generation cooperatives in the country.

Milestones in India's Coop. Movement

First Cooperative Act – Credit Cooperative Societies Act - 1904: Only for organising primary agricultural credit cooperative societies.

Cooperative Society Act - 1912: Purview of Act extended to non-credit and federal cooperative societies

The Government Of India Act - 1919: Cooperation became a provincial subject.

Multi-Unit Cooperative Societies Act – 1942: For societies whose membership and operations extended beyond a Province/State. Multi-state Coop. Societies Act-1984 later on replaced this Act.

All India Rural Credit Survey Committee – 1954: Headed by Prof. AD Gorwala recommended inclusion of 'Cooperation' in the State policy leading to state partnership in the share capital and management of cooperatives

Committee on Cooperative Law – 1956: Headed by Shri ST Raja, the then Joint Secretary under the Ministry of Food and Agriculture – Led to amendments in State Cooperative Societies Acts, further tightening government hold on cooperatives

Committee on Cooperative Law for Democratization and Professionalisation of Management in Cooperatives – 1985: Headed by Shri KN Ardhanareeswaran, the Committee submitted its report in 1987 suggesting deletion of certain provisions against the democratic character and autonomy of cooperatives.

Choudhary Brahm Perkash Committee –1990: The committee submitted a Model State Cooperative Societies Bill in 1991. The main thrust of the Bill was to allow the cooperatives to function as autonomous and democratic institutions owned, managed and controlled by the members.

Parallel Cooperatives Acts: Based on the recommendations of the Choudhary Brahm Perkash Committee, nine States namely; AP, MP, Bihar, JK, Orissa, Karnataka, Jharkhand, Chhattisgarh and Uttaranchal, have so far enacted Parallel Cooperatives Acts which are enabling and ensure autonomous and democratic functioning of cooperatives.

Multi-state Cooperative Societies Act: Multi-state Cooperative Societies Act-1984 was replaced with Multi-state Cooperative Societies Act-2002 keeping in view on the recommendations of Choudhary Brahm Perkash Committee.

The Companies (Amendment Act) Act – 2002: On the recommendations of the YK Alagh Committee, a new chapter in IX-A (Producer Companies) was introduced in Companies Act -1956. The legislation enables incorporation of cooperative business as companies and conversion of existing eligible cooperatives into companies, while keeping the unique elements of cooperative philosophy.

2.2. Restrictive provisions in cooperative Societies Acts:

As mentioned earlier, the existing Cooperative Societies Acts contain a number of restrictive/unreasonable provisions giving room for government interference, politicization and bureaucratization of the cooperatives. These laws allow little or no freedom for cooperatives to operate as autonomous business entities. Some of the important restrictive provisions generally found in cooperative societies acts of various states are:

1. Power of the Registrar to direct amendment of the bye-laws.
2. Amalgamation or division of societies with previous approval of the Registrar.
3. Power to direct amalgamation, division and re-organisation of societies in public interest.
4. Government membership.
5. Registrar's power to give direction to the society and the society is bound to comply with such directions.
6. Government/Registrar's power to appoint Government nominees on the Board/ Management committee
7. Supersession of the Board/Committee of Management by the Registrar.
8. Registrar's powers to conduct elections and audit.
9. Registrar's powers to determine the conditions of employment/ Common cadre of the employees.
10. Special sanction of the Registrar for advancing loan from one society to another society.
11. State aid to societies. (Direct and indirect partnership of State Government in societies).
12. Approval of the Registrar for investing the funds of the society other than in the prescribed manner.
13. Restriction on term of holding office of Chairman/designated officers.
14. Power of the Registrar to appoint custodian in certain circumstances.
15. Appointment and removal of Chief Executive and/or Chairman by the Government in certain circumstances.
16. Registrar's power to remove an officer and to appoint a person caused by such vacancy.
17. Registrar's power to enforce performance of obligations.
18. Registrar's power to seize records.
19. Power to exempt societies from the provisions of the Act.
20. Prior permission of Registrar to open branches etc. outside the state.
21. Power of the State Government to make rules.

2.3. **Parallel State Cooperative Societies Acts:**

The Self Reliant Cooperative Societies Acts have been enacted in some states based on the recommendations of the Choudhary Brahm Perkash Committee in addition to the existing Cooperative Societies Act. Therefore these laws are also known as Parallel Cooperative Societies Acts These laws are enabling and ensure autonomous and democratic functioning of cooperatives. They provide for the voluntary formation of Cooperative Societies as accountable, competitive, self reliant business enterprises based on thrift, self help and mutual aid and owned managed and controlled by members for their economic and social betterment. Nine States namely, AP, MP, Bihar, JK, Orissa, Karnataka, Jharkhand, Chhattisgarh and Uttaranchal, have so far enacted such legislations.

The Acts apply to all cooperatives that do not have government share capital, government loans or guarantee at the time of applying registration. However, if a cooperative registered under old Cooperative Societies Acts, wishes to convert itself into a cooperative society under the Parallel Coop. Societies Act, the evidence shall be produced to show that the society is not in possession of any share capital from government, is not in receipt of any government loan or guarantee or that it has entered into a Memorandum of Understanding with the government for such outstanding loans or guarantees.

The laws have been framed to:

- facilitate the practice of cooperative principles.
- strengthen the concept of user members.
- encourage participation, sense of belonging and loyalty.
- empower the cooperative to regulate their functioning by framing suitable bye-laws.
- clearly define accountability of the elected management and their officers and the Chief Executive in the management of the enterprise.
- provide for timely and regular conduct of elections by the incumbent Board for ensuing Board.
- provide for proper accountability by conducting proper and professional audit in time.
- provide for the settlement of disputes by constituting Cooperative Tribunal.
- Restrict Government from making rules.

2.4. Multi-state Cooperative Societies Act-2002:

As mentioned earlier, the increasing demand of cooperative societies for more autonomy and democratic management with less control from the Central or State Government resulted in setting up of a Committee by Planning Commission, Government of India under the Chairmanship of Choudhary Brahm Perkash during 1990. The report of the Committee during May 1991 suggested a model cooperative law ensuring the cooperatives to function as autonomous, democratic, member owned and controlled institution. Since then demands were on to amend the Multi-state Co-operative Societies Act-1984 on the lines of the Model Co-operative Act. Consequently, the Multi-state Cooperative Societies Act, 1984 was also repealed by the Multi-state Cooperative Societies Act, 2002. Many restrictive provisions of the Multi-state Cooperative Societies Act, 1984 were removed in order to ensure minimum control by the Central or State Governments and to ensure the multi-state cooperative societies to function as autonomous, democratic, member owned and controlled institution

Important features of the Act are as under:

1. Objective:

The objective as stated in the Multi State Cooperative Societies Act-2002 is given below:

“An Act to consolidate and amend the law relating to co-operative societies, with objects not confined to one State and serving the interests of members in more than one State, to facilitate the voluntary formation and democratic functioning of co-operatives as people’s institution based on self-help and mutual aid and to enable them to promote their economic and social betterment.”

2. Registration:

At least fifty persons or at least five representatives duly authorized by the cooperatives may apply for registration. There is restriction on the registration of a multi-state co-operative society where another multi-state co-operative society with similar object exists.

3. Membership:

An individual, any multi state co-operative society, any co-operative society, Central Government, State Government, NCDC, any Government companies, Government corporations etc may be admitted as member.

In order to empower members and to ensure their active participation in management, adequate provisions have been made for filing a complaint by a member for prosecution of offences, access to information and disqualifications for membership on account of non-attendance of three consecutive general body meetings or failure to use services provided by a multi-state cooperative society to the minimum level as provided in the bye-laws of such society.

4. Voting right:

In case of membership consisting of only individuals voting rights shall be one member one vote. In case of membership consisting of other Multi State cooperative Society or other cooperatives voting rights may be based on equitable system having regard to the membership and the extent of business as provided in the bye-laws.

5. General Body:

The bye-laws may provide for representative General Body.

6. Board of Directors:

Number of Directors as specified by the bye-laws but in no case the number shall exceed twenty-one. There is provision for devising procedures for association of employees in the management. The Act-2002 provides for nomination of Directors by the Government on the Board of a multi-state co-operative society in proportion to share holding of the government subject to the maximum of three.

A. Positive changes in the Multi-state Cooperative Societies Act, 2002:

1. **Following restrictive provisions of the erstwhile MSCS Act, 1984 have been removed:**

- Prior approval of the Registrar for amalgamation and division
- Powers to give direction by the Central Government and supersession of the Board by the Central Govt have been restricted to only those MSCS in which not less than 51% of paid up share capital is held by Central Government
- Power of the Government to exempt the societies from the provisions of the Act.

2. **Following enabling provisions have been incorporated:**

- Conduct of election is the responsibility of the cooperative.

- Freedom to promote subsidiary organizations

- Freedom for raising loans and grants from external sources in accordance with the bye-laws without any approval of the Registrar.

- Disqualification of Board members for non-performance: calling of general meetings, conduct of timely elections.

- Cooperatives are free to appoint their own chief executive officers.

- Deemed registration of multi-state cooperative societies and deemed amendment of the bye-laws.

B. Key limitations of the Multi-state Cooperative Societies Act, 2002:

- **Rule Making Power:** The Multi-state Cooperative Societies Act, 2002 continues to provide for the Rule Making Power that has in past been utilized by the Department to act arbitrarily and beyond the scope of the law.
- **Government Share Capital**: The Multi-state Cooperative Societies Act, 2002 continues to provide the Government the right to subscribe to the equity of a Multi-State Co-operative.
- **Liability for Deficit:** The Multi-state Cooperative Societies Act, 2002 does not provide for any liability for deficit
- **Restriction on holding of office** of the chairperson or president after holding the office in more than two Multi-State Co- operatives.
- **Mobilizing Capital:** The Multi-state Cooperative Societies Act, 2002 imposes restrictions on the manner and extent of mobilising capital by a Multi-State Co-operative.

- **Mandatory contribution of education fund to NCUI continues:** Unlike the Model Act recommendations, the Multi-state Cooperative Societies Act, 2002 make it mandatory for co-operatives to contribute to the co-operative education fund of the NCUI.

Conclusion: In the process of promotion of cooperative movement aided by the Government the co-operative law drifted away from what it was intended for. Most of the provisions were drawn up with the Registrar as the central player keeping away the members who constitute a co-operative. These laws contain a number of restrictive/ unreasonable provisions giving room for state control politicization and bureaucratization of the cooperatives allowing or no freedom for cooperatives to operate as autonomous business entities. With this in view, a total amendment to the Act was demanded to be carried out on the lines of the recommendations made in the Model Act prepared by a committee appointed by the Planning Commission, Government of India (Choudhury Brahm Perkash Committee). However, there could be certain compulsions for the State Government to retain some of the existing provisions in the Cooperative Societies Act and thus not to free the cooperatives in all sectors and by bringing about comprehensive amendment to the Act. Keeping this in view, some of the States like AP, MP, Bihar and J&K enacted parallel cooperative acts for self-reliant cooperative, which do need Government's financial assistance in the form of share capital and loans.

The Multi-state Cooperative Societies Act, 1984 was also repealed by the Multi-state Cooperative Societies Act, 2002. Many restrictive provisions of the Multi-state Cooperative Societies Act, 1984 were removed in order to ensure minimum control by the Central or State Governments and to ensure the multi-state cooperative societies to function as autonomous, democratic, member owned and controlled institution

3. Salient features of the Model Bye-laws (Milk Producers' Cooperative Society and Union):

The legal frame work for cooperatives consists of (1) the Cooperative Societies Acts passed by the legislatures (2) the rules framed under the Cooperative Societies Act to carry out the purpose of the Act and (3) the bye-laws adopted by the cooperatives and registered by the Registrar Cooperative Societies.

Bye-Laws of Cooperatives:

Every cooperative makes a set of rules and regulations for internal management, business or administration. These rules and regulations are called the bye-laws of the cooperative. The bye-laws are adopted by the members of the cooperative and registered by the Registrar of the Cooperative Societies. As the bye-laws are framed and adopted by the cooperatives, they differ from one cooperative to another, as per their respective objectives and the needs. The Framework of the bye-laws is generally provided in the Act or Rules

The provisions of bye-laws cannot travel beyond the powers vested in by the Act and Rules. The provisions of Cooperative Societies Act and Rules have overriding effect on the provisions of the bye-laws. In case of conflict between the bye-laws and the provisions of the Act or Rules the provisions of the Act or Rules must be followed.

A) Salient features of the Model Bye-laws of Milk Producers' Cooperative Society:

1. **Objectives**

   a) To provide facilities for profitable marketing of milk through the District Milk Producers' Union.
   b) To undertake activities necessary for clean and quality milk production and to increase milk production.
   c) To undertake programmes in dairy extension and dairy husbandry aimed at improving rearing the breed and health of the animals.

2. **Only genuine milk producers shall be eligible for membership of the society:**

3. **Prerequisites for voting rights of members:**

   a) A member has supplied the minimum quantity of milk (500 lts) to the society or has supplied for at least 180 days in a year and,
   b) has not sold milk to any other agency other than society,
   c) has no dues with the society and has not ceased to have any of the qualifications provided in the bye-laws.

4. **Managing Committee:**

   a) The elected managing Committee of the society shall be of nine members for a period of three years. They shall elect a Chairman from amongst themselves for a period of three years.
   b) All members of the Managing Committee shall be honorary.
   c) A member shall be eligible to contest the election of a member of Managing Committee, if:

      i) he is not a paid employee of this or any other society,
      ii) is not a relative of any of the paid employee of the society,
      iii) he or any member of his family does not undertake any business of the kind undertaken by the society.
      iv) has supplied milk to the society for at least 180 days/500 litres in a pervious cooperative year.

   d) **Any member of the Managing Committee shall automatically cease to be a member of Managing Committee:**

i. when he ceases to posses any required qualification as a member of Managing Committee,
ii. when he remains absent in the Managing Committee meetings for three consecutive meetings without its consent,

e) The Managing Committee shall have powers to appoint Secretary and other paid staff of the society.

7. **Chairman** shall be responsible for executions of resolutions passed by Managing Committee and General Meetings, supervision of the daily routine work through secretary, physical verification of stocks and dead stock, disposal of members' problems, deposition of exceeding amount of cash in hand, etc.

8. **Profit distribution after the statutory deduction shall be as under:**

The net profit shall be distributed as follows:

- A sum not less that 25% shall be taken to the Reserve Fund.

- To set aside contribution for the Education Fund in accordance with provisions of the State Cooperative Societies Act. The society shall pay dividend only after the Education Fund is paid to the District Cooperative Union.

- To pay to the shareholders as dividend a sum not exceeding 12% of the paid up share capital.

- The balance, after the above deductions, shall be distributed as under:

65%	-	as bonus to the members in accordance with the price of milk supplied by them to the society.
10%	-	to be set aside for the cattle development fund.
10%	-	as bonus to the staff (Bonus to the staff shall be given as may be decided by the Managing Committee, but the amount should not exceed more than two months pay in each case).
10%	-	to be set aside for the charity.
5%	-	to be set aside for the Cooperative Propaganda Fund.

The balance remaining after these deductions shall be credited to the Reserve Fund.

9. No credit facilities to members, not even for purchase of milch animals.

B) Salient features of the Model Bye-laws of the District Milk Producers' Cooperative Union:

1. **Objectives**

The objective of the Union shall be to carry out activities conducive to the economic and socio-economic development of the milk producers by organizing effective production, processing and marketing of commodities.

2. **Membership**

There are two types of membership:

a) Ordinary members – Registered primary milk producers cooperative societies.
b) Nominal members – The person having financial dealings with the Union and shall have no right to vote or participate in the management of the Union.

3. **Obligation of members:**

a) Society shall not supply milk to any agency other than the union after meeting its local demand
b) Buy shares and debentures in relation to the value of commodities handled through the Union as may be called upon by the Board.
c) Follow direction issued by the Union.
d) Collect commodities in pure and unadulterated conditions.

4. **General Body:** The General Meetings shall consist of the following:

a) Only the Chairman of Milk Producers' Cooperative Societies to attend the General Meeting of the Union and vote/contest elections of the Board of Directors.
b) All nominated members of the Board and Managing Director shall have no right to vote and contest for any election of office bearer.

5. The General Body of the milk Union shall have supreme powers subject to the provisions of the Coop. Societies Act, Rules and the bye-laws.

6. The Board of Directors of the Union shall consist of not more than 15 members (12 elected + one nominee of NDDB + one nominee of Federation to which union is affiliated + Managing Director of the Union as ex-officio member secretary). The Chairman shall be elected by and from amongst the elected members of the Board. The term of the Board and Chairman shall be three years. No post of Vice-Chairman shall be there on the Board.

7. Qualifications of the Members to contest the election of Board of Directors of the Union:
   a) The society is placed in Audit Class "A" or "B" during last audit.
   b) The society has supplied the required quantity of milk as fixed by the Board.
   c) The society has supplied milk for at least 270 days.

d) The society should be an ordinary member of the Union for not less than 1 year as on the date of election.
e) The society has not sold or supplied milk to any other agency than the Union during the preceding year.

8. Expert panel to be constituted for selection of the Managing Director, other staff and to approve the administrative set up of the union

Qualification of Managing Director:

A degree in any discipline. Preference will be given to a candidate having degree in Food Technology/Engineering/Dairy Technology/Animal Husbandry. A degree/ diploma in business management/marketing will be considered as an additional qualification for selection. Must have at least 10 years managerial experience, out of which three years as overall in-charge of a large dairy/food/consumer products processing unit. Should be a man of proven managerial competency.

A. Panel for administrative set-up shall comprise:

a) Chairman of the Union.
b) Managing Director of the Union.
c) A nominee of the Federation to which the union is affiliated.
d) A representative of the NDDB

B. Panel for selection of MD.

b) Chairman of the Union.
c) Representative of the State Federation to which the union is affiliated.
d) Representative of NDDB.

C. **For recruiting junior staff** of the Union the Managing Director shall have powers to form a panel of at least three officers of the Union.

9. Managing Director shall have general control in the matter of finance, administration, management and the business of the union.

10. **Distribution of profits**

Subject to the provisions of the Act, the net profit shall be appropriated as follows:

Not less than 25% shall be carried to the reserve fund.

- Contribution towards the Education Fund of the State Cooperative Union as per the Act and any other such statutory provisions.

- A sum not exceeding 12% per annum shall be distributed as dividend on the paid up share capital.

- Any other funds to be created for the interest of milk producer keeping in view the provisions of the Act and the Rules.

- The remaining profit shall be taken to the General Fund to be utilized as decided by the General Meeting.

11. The Union shall not provide credit facilities to the member societies for the purchase of cattle.

Conclusion: The provisions of the Model Bye-laws for the Milk Union and village dairy cooperatives have been prepared keeping in view the cooperative principles so that they can function as autonomous business entity owned, managed and controlled by the members. Provisions are aimed at ensuring that only user members may vote, contest and participate in the management of the cooperative. The provisions also facilitate for professional management accountable to the Management Committee / Board of Directors for the organizational performance.

CHAPTER III
Milk Producers' Organisation

1. Organisation of a Primary Dairy Cooperative

1.1. **Survey of a village:**

To assess whether any project or industry would be viable in a certain area, a survey of available resources in that particular area is carried out. While conducting a survey of the villages concerning milk procurement, the following aspects are studied in detail.

- The existing cattle and buffalo population
- The production and utilization / disposal pattern of milk and milk products
- Marketing channels for surplus milk
- Returns from the sale of milk realized by the farmers
- Agricultural facilities and production patterns
- Basic amenities such as communication links, educational facilities, etc.
- Other sources of income
- Performance of other institutions including multipurpose cooperatives, etc.
- Different communities living in a village and their inter-relationship
- Other relevant information if any

Such a study helps in assessing the future prospects of a milk cooperative society. It also helps in finding out the interest and faith of farmers in collective activity. Thus, survey forms the basis for establishing any milk cooperative society.

Procedure

The Union's field staff conducts the survey. The study is carried out in the village itself. A suitable format is designed for this purpose so that all the information is collected (formats on the following page). The following steps are taken for conducting survey of a village before setting up a milk producers' cooperative society:

- The field supervisor proceeds to the village.
- He contacts the progressive farmers, village Sarpanch or Pradhan and other important persons of the village.
- He explains to them the purpose of his visit and the entire scheme.
- He collects the basic information about the village from Panchayat office.
- He moves from door-to-door to collect information about individual villagers.
- He visits the people belonging to all communities and areas in a village.
- He also collects information regarding agriculture and animals from the records of district office.
- All information thus collected is crosschecked for validity.

After conducting the survey, the field staff should be in a position to judge whether the people are interested in forming a cooperative society for milk or not. He should record his opinion on the format accordingly. He also decides whether the village can be considered for setting up a cooperative in the very first stage, or it should qualify for the same at a later date.

This information is then submitted to the milk procurement section of the Union for review. The union analyses this information carefully. And on the basis of marks allotted to each section of information, the merit of a village is finally assessed. Depending on the merit, further action for organizing cooperative society is decided.

Survey of Village – Format A

Name of village	Date of survey
Name of Taluka/Block	Area (sq. kms)
Name of District	Human population
Name of milkshed	No. of house holds

A. Animal Statistics				**B. Public Facilities Available**	
Particulars	Cattle	Buff.	Cross bred	Telephone	Yes/No
Animals in milk				Post Office	Yes/No
Animals dry				Railways	Yes/No
Service bulls				Bus service	Yes/No
Average milk yield				Electricity	Yes/No
Total milk production				Educational facilities with standard	Government/Pvt./Nil
Veterinary facilities	Nil	Pvt.	Government	Drinking water	Deep tube well/ well/Nil/Pvt.
A.I. Facilities	Nil	Pvt.	Government	Medical facilities	Government

C. General

Village connected by	Metal/Kachha Road	- Village Panchayat	Individual / group Panchayat
Distance of metal road from village		- Name of Sarpanch	
Nearest village connected by road. Name and distance		- Important crops grown in village	
Days for which village not accessible in monsoon		- Name of fodder crops grown	
Distance and name of nearest town		- Total area for fodder crops	
Distance of village from dairy plant/ chilling centre		- Sources of irrigation	

Existing Milk Disposal Details

I. Liquid

Agencies	No. of agents	Total Qty. per ltrs.	Basis of payment Quality	Price offered/ ltr.	Payment frequency Advance/ weekly/ monthly	Where disposes the milk	Contract Yes/no	No. of farmers supplying
Village vendors								
Vendors from other villages								
Any coop. Society Name								
Private / Public organised sector Name								

II. Product Conversion Details

Products name	No. of creameries/ shops converting milk into products	Qty. of milk converted (Ltrs.)	Price/kg. product	Price offered to producer Rs./ lit.	Skimmed milk disposal/ utilization if any	No. of producers supplying milk	Remarks
1. Ghee							
2. Khoa							
3. Butter							
4.Chhana							
5. Curd							
6. Cream							
7. Others							

Existence of Cooperative Society other than Milk:

1. Does any coop. society exist:	______________	Yes / No
2. If yes, name and financial status:	______________	In profit / In loss
3. General view of villagers about above cooperative	______________	Unsatisfactory/Satisfactory/Good

Milk Producers Cooperative Organisation:

a) Land holdings	Large farmers	Small farmers	Marginal farmers	Landless labourers	Remarks
No. of farmers in village					
No. of farmers expected to become members of milk coop.				Approx. No.	

b) Marketable surplus milk (in kg.)	Flush	Lean		Mean
c) Expected milk supply to the society, if formed				

d) Name/No. of
milk route in
which society
will fall

Recommendation: Society to be organized ___________________________ Yes / No.

To complete the above format, a supplementary format is required to be filled. This is possible only if door-to-door survey is conducted. In other words, a realistic survey has to be done to assess the position correctly. The design of the format (B) is given on the following page.

MODEL OF SUPPLEMENTARY FORMAT – B

Name of village: ______________________________

Sl. No	Name of prod-ucer	No. of milch animals				Milk prodn. Lts/day		Home consu-mption Ltr./day	Marketa-ble surplus of family ltrs./day	Mode of dis-posal	Rate of dis-posal Rs./lit.	Freque-ncy of receiving payment, advance/ monthly/ weekly
		In milk		Dry								
		Cow	Buff	Cow	Buff	Cow	Buff					
1	2	3	4	5	6	7	8	9	10	11	12	13
1												
2												
3												
4												

Satisfied or not with existing system Yes/No.	Land Holding Status				Whether willing to become member of the society Yes/No.	Remarks
	L.F.*	S.F.	M.F.	L.L.		
14	15	16	17	18	19	20
1.						
2.						
3.						
4.						

* L.F. – Large farmers – having more than 5 acres of land
S.F. - Small farmers – having 2.5 to 5.0 acres of land
M.F. - Marginal farmers – having less than 2.5 acres of land
L.L. - Landless labourers – having no land

Analysis of the Survey Format and Ratings:

The format (A) consists of 6 important sections from A to F. Each section has been allotted certain points. On analyzing, each section should at least score the minimum marks as explained below for deciding to organize the society in a particular village:

Sections	A	B	C	D	E	F	Total
Maximum marks	5	5	7	13	5	10	45
Minimum marks	3	3	4	6	3	4	23

The above table is based on the following criteria:

Section A – (5 marks) Criteria	Points awarded
Total milk production – 500 litrs. and above / day	4
Between - 300 litrs. to 500 litrs. / day	3
Between - 200 litrs. to 300 litrs. / day	2
Less than - 200 litrs./ day	1
Veterinary / A.I. facilities in village by Government / Private / Other agency	1
No such facility in the village	0

Section B – (5 marks)

Post office facility	1
Bus service / Railway service	2
Electricity in village	1
Education facilities	1

Section C – (7 marks)

Metal road up to village	3
Katcha road up to village	1
No road up to village / only foot path	0
Distance from nearest town more than 5 kms.	1
Distance from nearest town less than 5 kms.	0
Village not accessible in rainy season for about 30 days	1
Village not accessible in rainy season for more than 30 days	0
Good fodder cultivation in village	2
Average fodder cultivation in village	1
No fodder cultivation in village	0

Section – D (13 marks)

Village vendors operating	1
No village vendors operating	3
Vendors from other villages operating	1
No vendors from other villages operating	2
Organised sector collecting milk	1
No organized sector collecting milk	2
Entire milk converted into products	0
About 50% milk converted into products	3
No milk is converted into products	5

Section E – (5 marks)

General idea of villagers about societies performance

Unsatisfactory	0
Satisfactory	3
Good	4

Section F – (10 marks)

More number of small and marginal farmers	4
More number of large farmers	2
More number of landless farmers	2
Retention of milk by villagers	
- Less than 30% of production	5
- Between 30-60% of production	2
- More than 60% of production	1

Rating Total points awarded 45

Rank – A	Between	35 to 42
B	“	25 to 34
C	“	15 to 24
D	Less than	15

After the format (A) is filled out and marks allotted to each section by the surveyor, he should add all the marks and rate the village in either of the above-mentioned categories.

Final Selection of a Village for Society Organisation

The villages with rank ‘A’ and ‘B’ can be easily selected in the first phase itself. The villages ranking as ‘C’ may be taken up for filling in the gaps at a later stage. However, villages falling under category ‘D’, as far as possible be avoided for organising independent societies as the same may not be an economical proposition.

However, this classification should be used only as a guideline as sometimes a village may not obtain the required minimum score but still may be considered for organising a society due to one single reason such as potentiality of village in terms of milk. In such cases the milk procurement sectional head has to use his own discretion based on practical experience.

1.2. Organisation and Registration of society:

After the Survey, villages are categorised on the basis of milk potential and other related factor such as approachability and location in the proposed milk route. The milk union’s personnel initiate work pertaining to the organisation of a dairy cooperative society once the categorisations of villages are complete and proposed area for the route is decided. The State Cooperative Societies Act and Rules form the basis for organisation and registration of a society. Normally following steps are taken to form a society:

Organising Gram Sabha

This involves the following activities to be undertaken:

- One person from the milk union’s procurement wing visits the selected villages and arranges meeting of villagers. This meeting is called as gram-sabha and the interested villagers participate in the same.
- A well accepted elderly person from the village is requested to preside.
- The officer / staff of the milk union explains the purpose and advantages of organising the dairy cooperative society in the village. The principles and concept of cooperation and the activities and functioning of the society are explained.
- Once the milk producers have decided to form a milk producers’ cooperative society, an organiser is selected from amongst them.
- The organiser is authorised to collect the share subscription (as per the State Cooperative Societies Act, Rules, model by-laws of the society etc.) and entrance fee from all those milk producers who are interested in becoming members (promoters) of the society. The share collection takes a few days and normally the concerned supervisor keeps a close watch on the developments.
- After a sufficient number of milk producers become members (depending on the expected quantity of milk procurement, number of milk producers in the village etc.), the amount of share money and entrance fee is deposited to a local bank in the name of the proposed society.

Society Organisation Meeting

A general meeting of all the milk producers who have subscribed to the share deposit of the proposed society is convened. At this meeting, one of the members is elected as Chairman to preside over the meeting. The following issues are discussed and resolved. These resolutions are then minuted in the Proceeding Book.

- To form a milk producers' cooperative society on the lines of bye-laws as suggested by the milk union, named ----Milk Producers' Cooperative Society and to apply for registration in due course under the State Cooperative Societies Act. Till the registration certificate is obtained, this will be called Proposed Society.
- To decide the area of operation of the society (Revenue village, part of village, Khatian/Daag No, Tola, Hamlets etc.).
- To constitute an ad-hoc managing committee comprising members as per rule to look after the society's affairs till the registration.
- To elect the Chairman (Chief Promoter) of the proposed society as per rule.
- To authorise the managing committee to appoint society staff for day-to-day work (normally on honorary basis for initial period). Generally at the beginning only a Secretary is appointed and than as the procurement goes up, other supporting staff are appointed. The staff should be the resident of the same village.
- To authorise the Chairman and Secretary to open a bank account in the name of the Proposed Society at the nearest branch. The Chairman and Secretary will operate this account jointly.
- To obtain tangible security from the Secretary to become eligible for operating bank account and handling of cash.
- To regularise the collection of share money and entrance fees from milk producers towards membership.
- To make the dairy cooperative society duty bound to follow all directions and suggestions given by the Milk Union to which the society desires to be affiliated.
- To collect milk from all the members and supply the same to the milk union as suggested/directed by the milk union.
- To supply the inputs on cost to the members as provided by the milk union.
- To select the milk collection centre/location/premise for the society in the village which desirably a centrally located position and accessible by most of the members.
- To procure the Milk Cans, Milk Collection and Testing equipment, Stationary, Chemicals for testing etc. before the date of commencement of milk procurement by the society.
- To decide the modalities of milk transportation (Head Load) if the society is not on the main road/lifting point of the milk truck.
- To raise fund /deposit from individual or to request milk union for an advance to facilitate quick payment in the beginning.

It may please be noted that constitution of ad-hoc managing committee / Chief promoter, collection of the share money, application for registration etc. are governed and decided by the State Cooperative Societies Act, Rules and the Milk Union's policy of organisation and registration of society.

Registration of Society

In normal circumstances a proposed society (which has been organised as per bye-laws) is allowed to function as such for a period up to which the milk union assess its attainment of sustainability. A performance review of the functioning of the society is done and if satisfied with its growth and sustainability, the milk union proposes for its registration. The proposal is recommended by the milk union and forwarded to the concerned office of the Registrar, Cooperative Societies of the State. The general procedure for preparing the proposal for registration is indicated below:

- The application form for registration is collected.
- All members including those on the ad-hoc managing committee sign the application as Promoters.
- The application is submitted to the appropriate authority for consideration along with the following documents. The requirement may vary from state to state.
    a) Number of copies (as prescribed in the application form) of the bye-laws signed by the Chief Promoter.
    b) Number of copies (as prescribed in the application form) of the list of members (promoters) with number of shares held by each of them.
    c) Number of copies (as prescribed in the application form) of the resolutions passed at the proposed society's organisation meeting.
    d) Number of copies (as prescribed in the application form) of the proposed society's bank balance certificate issued by the bank.
    e) Number of copies (as prescribed in the application form) of the accounts statement for the period it has worked as proposed society.
    f) A certificate regarding jurisdiction of village Panchyat under which this village is located.

The society is considered registered only when a registration certificate is obtained by the society with a registration number and date, issued by the registering authority.

1.3. First General Body Meeting of the Registered Society:

Once the society is registered, a general body meeting of all the members is convened by the Secretary of the proposed society with the permission /consultation of the Chairman. The following suggestive / indicative agenda items are considered in the meeting (depending upon the state act, rules etc.).

- Selection of a person to chair this meeting.

- Thanks to the registering authority and accepting the registered bye-laws.
- Election to the regular Managing Committee and Chairman of the Society as per bye-laws.
- Regularising / terminating the existing staff / appointing new staff, if required.
- Accepting the statements of accounts for the period it functioned as a proposed society.
- Informing the bank about the registration of the society and request them to make the account of the proposed society in the name of the registered society.
- Regularisation of membership according to the bye-laws. Enrollment of new members.
- Affiliation of the society with the Cooperative Milk Union and other related organisations.
- Appointment of local auditor.
- Any other items with the permission of the Chair.

1.4. Organisation and registration of Milk Union:

Once sizeable number of societies (40-50) are organised and registered in a milkshed, the steps for organising the District level milk union are taken. The responsibility of organising the union lies with the implementing agency along with concerned societies. The societies form the basic unit (member) of a union. The organisational work is done as per the approved bye-laws for union which are available from the office of the Registrar, Cooperative Societies or his representative office at District level. In some case the implementing agency (Government/Corporation/Federation) may nominate the union directors and ask the union to organize the societies. This happens when a cooperative dairy project is to be started from a scratch.

Nominated/Adhoc Body

In pursuance of the union bye-laws, the Chief Executive Officer of the implementing agency invites the society representatives (normally Chairman of all the registered milk societies) to hold a general body meeting which is called as an organisation meeting for union. For this purpose a communication in writing is sent to all the registered societies, stating purpose, date, time and place of meeting.

The proceedings of this meeting may differ on the basis of provisions in bye-laws of the union. In some cases the adhoc board is democratically elected in this meeting itself while in others the State Government/Registrar Cooperative Societies, nominates the first board. In former case the board continues functioning till the union is registered and holds its first general body meeting to elect the Board as per the bye-laws. In latter case the nominated board continues to function for the whole term as specified in bye-laws (normally 3 yrs) unless changes are made by the Registrar Cooperative Societies himself.

The meeting in both cases resolves around the formation of District Cooperative Milk Produces’ Union in accordance with bye-laws. Also an interim board and Chairman are elected for a period of 3 months or till the union is registered. In the latter case the meeting resolves all the other matters but election of Board and Chairman which is subsequently nominated.

Registration of Union

The proposal for registration of Union is made on the prescribed application form available from District Registrar's office. This is accompanied by 4 copies of bye-laws duly signed by promoter-members, a copy of minutes of organisation meeting, bank balance certificate and other necessary resolutions as prescribed in bye-laws Acts with a request to register the union.

Post Registration General Body Meeting

After the union is registered, an agenda stating date, place, time and purpose of meeting is issued by the Chief Promoter to all member societies. In this meeting only those member societies are eligible to participate which have signed the original proposal of registration in the organisation meeting and who have also purchased shares of the union. This is called the first General Body Meeting of the union after registration. The agenda of this meeting contains following points to be considered:

- Selection of President of the meeting
- Acceptance of registered bye-law
- Election of regular board
- Approval of accounts for the proposed period
- Fixing the borrowing limit for union
- Any other work with the permission of chair.

The election of office bearers is done according to norms prescribed in the bye-laws/Rules and Acts of the State and thus a regular board is installed.

Meeting of Board of Directors

The board conducts its meeting soon after the general body meeting and decides about appointing the staff and taking further actions for achievement of the objectives as per bye-laws of the Union.

2. Dairy Cooperative Society, Milk Union, Milk Federation:

Relations and Functions

2.1. Relation between DCS, Union and Federation:

The basic unit of the Anand Pattern is the village milk producers' cooperative society. The functions of a dairy cooperative society can be classified into the following two categories:

1. Managerial
2. Operational

Managerial

The milk producers of the village with the support of the milk union form a village dairy cooperative society. The milk producers become members by buying a minimum of one share of the society and paying an entrance fee as per the bye-laws. All these members form the general body of the society, which has the supreme powers subject to the State Cooperative Act, Rules and Bye-laws. The society has an elected Managing Committee (MC) including the Chairman from amongst the member producers as per the provisions of the bye-laws. All the positions of the MC are honorary. The committee employs paid staff to run the day-to-day affairs of the society. The number of such staff depends upon the size of the business of the society.

The provisions of the bye-laws govern the term of the MC and the Chairman of the society. The committee decides policy matters and frames guidelines for efficient running of the society. The committee holds its monthly meetings to discuss issues pertaining to society, members, milk producers, suggestions/guidelines provided by the Milk Union and other relevant matters.

Operational

The society's major operations can be classified in two groups: milk trading and providing input services. Milk trading involves reception, testing, local and sample milk sale, dispatch of milk to milk union, payment and accounts keeping. Input services include animal health coverage, breeding, supply of cattle feed, fodder development, clean milk production and extension services to producer members.

Milk Trading

Reception of milk:

Each society has milk collection centre either in an owned or hired premise. Each morning and evening, the milk producers bring milk in their own containers (stainless steel) to the society. A representative sample of milk is drawn for testing the quality milk. Milk is collected in milk cans or directly to the cooler as the case may be. The collection accessories are made up of stainless steel (AISI 304). The measurement of milk is done carefully so as to avoid foam, shortage etc. Quantity of milk supplied by each individual along with the sample bottle of milk is recorded against her/his name in the purchase register and the card/pass book of the pourer. In many of the societies the process is semi automatic with the help of computer and Electronic Milko Tester placed on line. A printed slip is generated for each member giving details about the date, shift, type of milk, producer identification number, weight and fat% of milk, rate, price etc.

Testing of milk:

Where the Gerber Centrifuge/Electronic Milkotester is used for fat test of milk samples, once sufficient number of samples are collected these are tested as per laid down procedure. The test results are recorded against each sample number in the Fat Test Register. This ensures the confidentiality of the owners of the samples. After the testing is over, the records are compiled; the left over sample milk is disposed off in a manner decided by the management committee. At pourers' request retesting is also carried out before the samples are disposed off and the changes if any, are recorded.

After the milk collection is over, a composite sample is drawn from the total quantity of milk collected observing the general procedure to draw the sample. This sample is tested for fat and lactometer reading is also noted in the test register. This is commonly known as General Test (GT) of milk collected by the society. All the accessories/equipment used in reception and testing of milk, are then cleaned thoroughly with warm water and or detergent solution.

Despatch of milk:

Lids cover all the filled milk cans tightly and the cans are loaded in the milk vehicle/truck as per the time schedule of a particular society. The staff of the truck deliver the fat slip of previous shift, letters from milk union, other materials as indented by the society. This is done quickly to avoid any stoppage of the vehicle more than the schedule. The vehicle also unloads the cleaned empty cans received from the dairy plant for the use of the society for the next shift milk collection.

Wherever the AMCU/Bulk Cooler is installed in the society, the milk tanker from dairy/chilling centre comes once or twice in a day as per requirement to lift the chilled milk from the society.

Payment for the milk:

The milk union depending upon the policy it adopts on pricing decides the price of the milk. Quality and quantity form the basis for the payment. Normally a price chart or ready reckoner is prepared and supplied by the union to the societies. The society pays the pourers daily/weekly/after every ten days as per the decision of the managing committee. The relevant entries are made in the Card/Pass Book of the members and the registers of the society.

Milk union generally pays the price of milk so procured from societies through bank advice on a regular interval i.e. weekly, every ten days as the case may be. This frequency is generally not changed and is same for all the societies.

Accounting:

There is a set of a standard registers, most of which are to be completed daily. The others are completed as and when any transaction takes place. It is the responsibility of the concerned staff of the society to complete the records on time and regular basis. All the records are to be countersigned by the Secretary/ Chairman as per the decisions of the society and as required under the provisions of bye-laws. The registers and formats are designed in such a way that they reflect the volume of business and financial standing of the society at any given time.

A society appoints a local person as an internal auditor who audits the transactions made by the society on regular basis. The society prepares its monthly accounts statement for the managing committee meeting and also other accounts statements on quarterly basis. The annual accounts are prepared for statutory audit.

Cleanliness:

Milk is a perishable commodity. In order to have improved quality of raw milk and avoid spoilage besides contamination of milk, a society maintains cleanliness through the clean milk production process and techniques from producers to society level. Various activities and steps are undertaken for cleanliness of the utensils, staff, equipment/ accessories and building emphasising procurement of clean milk.

Standardisation of Testing Equipment and Chemicals:

Generally the milk union supplies to the society milk testing equipment, accessories and chemicals that have BIS and or other relevant standard. However, the society needs to check the quality / standard of these articles periodically. Otherwise a society may face milk and fat shortage problem and eventually run into losses.

Local Milk sale:

The managing committee is authorised to fix the quantity and price of milk to be sold locally. The price varies from season to season. The general fat in the milk, local demand etc. determines the price of milk.

Sample Milk sale:

After conducting the fat test for all the samples and also the retests, if any, the remaining sample milk is spooled for sale. This sale is generally done on open contract basis (quarterly/half yearly/yearly) with a fixed price as decided by the managing committee.

Distribution of profit:

Besides regular payment of milk price, the society at the end of the year pays dividend on paid up share capital. The major portion of society's net profit is paid in the form of bonus to the producers proportionate to the value of milk supplied by them during the year. The extent of these benefits is decided in accordance with the provisions made in the bye-laws.

Inputs Services

The second important work of a society after milk trading is making available the technical inputs to the milk producers for production enhancement activities. Generally the basic facilities are owned by the milk unions and the services are provided to the members through the societies on cost / no profit no loss / grant basis as decided by the milk union.

The society has a trained Artificial Insemination (AI) and Veterinary First Aid (VFA) Worker who looks after the job regularly through Single or Cluster Centre basis. Generally the milk union supplies liquid nitrogen, semen doses and veterinary medicine, cattle feed, fodder seed to the society on cost for the members. Apart from this cattle insurance and other group insurance schemes are also available for the benefits of the members.

Other Functions/Activities

Besides the functions as stated above dairy cooperative society also organises with the help of milk union various awareness and training programmes, meetings, camps, visits in connection with capacity building of managing committee members and members, women involvement in dairy cooperative, clean milk production, better animal keeping and management, health and hygiene, literacy and numeracy.

In addition the society also takes up many promotional activities for the members and the village.

Anand Pattern is a multi –tier vertically integrated cooperative structure which

- Is governed by the elected representatives of the milk producers and managed by Professionals.
- Ensures a direct linkage between milk producers and consumers through integration of production, procurement, processing and marketing of milk.

The salient features of Anand pattern dairy cooperatives are:

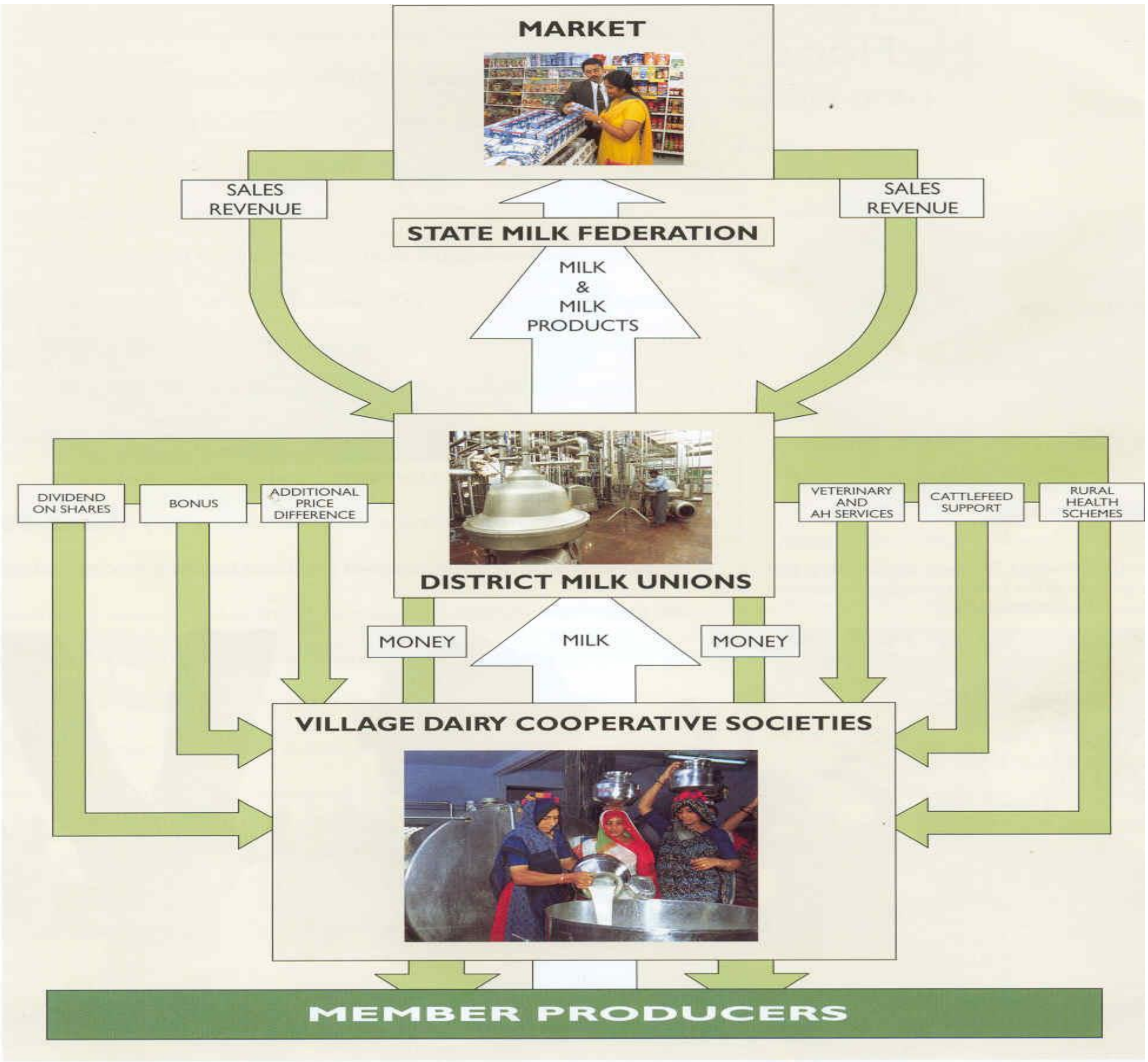
- Effective governance by elected representative of farmers.
- Effective professional management.
- Availability of rounds the year market to the milk producers.
- Availability of inputs for enhancing milk production of animals of the members of dairy cooperatives
- Sharing of profits by members of the dairy cooperatives on equitable basis.

2.2. Function of a Dairy Cooperative Society (DCS)

The functions of a dairy cooperative society can be listed as follows:

1) Collection of milk twice a day from farmers
2) Make regular payment to suppliers.
3) Dispatch the milk collected to Milk union.
4) Provide to members:
    a) Balanced cattle feed.
    b) Fodder seeds of improved variety.
    c) Services for animal health care.
    d) Services for breeding of milch animals.
    e) Patronage based portion of the surplus.
    f) Contribute to village development.

Every morning and evening, the society buys the surplus milk from the member-producers. The producer is paid for the milk at an interval usually decided by the managing committee of the society. The payment is made on the basis of milk quality (fat, SNF, bacteriological) content of milk supplied by individual producer. The union's dairy plant organises the transport of milk from all its member-societies.



The producers in this system are not only assured of regular and remunerative payment for their milk but also benefit from the milk production enhancement inputs. The micro-level inputs such as veterinary first-aid and artificial insemination are organised by village societies with the support of the milk union. One staff member of the society is trained for carrying out these functions. In addition, the supply of balanced cattle feed and the sale of fodder seeds are also channelized through the societies. Society also organises other services such as cattle insurance, health insurance and promotional activities for the members and the village.

2.3. Functions of a Milk Producers' Cooperative Union:

The major functions of Milk Union are:

1. Procure, process and market milk and milk products.

2. Arrange/Provide macro level inputs like cattle-feed, animal health and breeding care, etc.
3. Arrange for training and education of managing committee members, staff, and members of dairy cooperative society and also for the Board members, managers and staff of the milk union.

In general, the Union carries out five important functions: procurement, processing and marketing of milk and milk products, providing technical inputs, institutional strengthening of milk cooperatives, enhancing women involvement in dairy cooperatives, organisation of extension activities and rural development services. The union owns and operates dairy plant; cattle feed plant, fodder and bull mother farms, semen collection station etc. for animal husbandry activities.

In addition to the above, the milk union carries out research development and other promotional activities for the overall benefit of milk producers. The milk union organizes the macro-level inputs such as compounded cattle feed, fodder seeds, and various veterinary services for treatment of sick animals, all of which are made available to the milk producers through the dairy cooperative societies. Thus, it is at the Union level that professional skills are hired for specialized purposes, which individual producers cannot afford to do.

The union pays to the societies dividends on their shares and bonus in relation to the quantity of milk supplied by them during the year. The milk products processed by the union are also marketed through the State Milk Federation.

A special feature of the Anand Pattern is that the unions are under continuous and concurrent audit to maintain financial propriety.

2.4. Functions of a Milk Federation:

The important functions of the state milk marketing federation are:

- Marketing of milk and milk products.
- Manage production planning and State Milk Grid (movement of milk within the state).
- Coordinate with state government, central government, NDDB and other agencies.

The Milk Unions become members of a Cooperative Milk Marketing Federation by subscribing share capital to it as per provision of the bye-laws of the Federation. The Federation is responsible for evolving and implementation of policies on cooperative marketing of all member unions' liquid milk and milk products, deciding the product-price mix, cooperative provision of joint services (artificial insemination, breeding, cattle feed etc.), cooperative marketing of technical inputs to members and strengthening the institutional structure of the dairy cooperatives.

The Federation's Board consists of the elected chairmen of all the members unions and the Federation's Managing Director. There are also other members in the board as ex-officio and also as technical experts. The Board of the Federation evolves the Federation's policies on all its functions. Equitable distribution of profit is done on the basis of business transacted by the milk unions with the Federation and as per the provisions of the bye-laws.

The Federation's Board is advised by its Programming Committee, which is composed of each member union's chief executive, the Federation's chief Quality Control Officer and one or more non-voting co-opted technical experts. The Committee meets on a regular basis and is also responsible for day-to-day implementation of the Board's policies and plans.

3. Producer Companies Legislation
(New generation co-operative form of business enterprise)

3.1. Introduction:

Economic liberalization has opened up co-operatives to global competition. During the last decade, liberalisation of the economy has brought changes in the terms of trade between rural and urban, labour and industry, finance and commerce. These changes in commerce, banking, international trade and information technology helped to raise the standard of living of the rural masses by linking rural economy with regional, national and global demand.

When most of the Indian Industry has been delicensed, it undoubtedly makes sense to put co-operatives on the same level playing field. One of the reasons why cooperatives have not been able to meet the needs of their members is because by and large they continue to be governed under the restrictive provisions of the cooperative laws. These laws allow little or no freedom for our cooperatives to operate as autonomous business enterprises. The last decade has witnessed some reforms in the enactment of enabling co-operative legislation, however the progress has been extremely slow. So far only nine states in the country have enacted parallel co-operative societies acts. i.e. Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Jammu and Kashmir, Jharkhand, Chhattishgarh, Orissa and Uttaranchal.

While majority of the co-operatives still continues to be governed under the regulatory environment, the present institutional form needs to change to link the rural economy with the emerging new opportunities. Rural producers are now at a potential disadvantage given their limited assets, resources, education and access to advanced technology. In the present competitive scenario, if present forms of co-operative enterprises are to continue to serve rural producers, they require an alternative to the institutional form that is presently available under the law.

Keeping this in view, The Department of Company Affairs (DCA) Government of India had constituted a High Powered Committee headed by Dr. YK Alagh, noted economist and former Union Minister, to examine and make recommendations with regard to -

(a) framing a legislation which would enable incorporation of co-operatives as Producer Companies and conversion of existing co-operatives to Producer Companies and

(b) ensuring that the proposed legislation accommodates the unique elements of co-operative business within the regulatory framework similar to that of companies.

The Producer Companies legislation combines the institutional and philosophical strengths of cooperative under Mutual Assistance Principle such as:

- ownership limited to users;
- limited interest on shares;
- no trading of shares,
- patronage based returns

with greater autonomy and flexibility under the Companies Act 1956.

The Committee members had a series of meetings during which interacted various co-operatives, institutes and individuals. On the basis of the recommendations of the Committee, the Companies (Second Amendment) Bill, 2001 was finalized and was introduced during December 2002 in the Parliament. Finally, the Companies (Amendment) Act 2002 came into effect on 6th February 2003, which is popularly known as Producer Companies legislation.

3.2. The salient features of the Producer Company legislation:

(a) This law enables primary producers to form specially structured Producer Company on the basis of mutual assistance (cooperation) principles and provides co-operatives that are inter-state in operation, whose objects extending to more than one state, a voluntary option to register/convert as Producer Company.

(b) Ten or more individuals who are producers, two or more producer institutions or a combination of both can form a Producer Company. In case of Producer Company formed by individual members or individuals and institutions, each member shall have one vote irrespective of his share holding, in case of Producer Company formed exclusively by producer institutions the voting right may be computed on the basis of participation in the business. In case Producer Company formed by individual members and Producer Institutions voting rights shall be based on one member one vote.

(c) In order to further its objectives the Producer Company may collaborate to form subsidiaries, joint ventures etc.

(d) The shares or any other rights of the Producer Company cannot be traded on the stock exchange or to with anyone who is not eligible for membership in the Producer Company. Thus making the Producer Company "invulnerable" to takeover by multinationals or other companies.

(e) The Producer Company is to be managed by Board of Directors elected by the General Body. Provision for co-option of expert Directors has been provided. The minimum and maximum limit for members in Board is five and fifteen respectively.

(f) The Board of Directors shall appoint the Chief Executive of the Producer Company. Other employees of the Producer Company are to be appointed by the Chief Executive in accordance of the powers delegated to him by the board.

(g) The Board of Directors of the Producer Company shall be responsible and accountable to conduct timely audit, election and general body meetings.

(h) Every member of a Producer Company must participate in its business. The articles of association may establish minimum levels of participation and may provide conditions under which those who do not meet those levels, or who cease to participate, may be made ineligible to hold office, to vote or to continue their membership.

(i) Producer Companies will form their own articles of association suiting to their own business and operations needs.

(j) Dispute settlement shall be by simple process of Arbitration and Reconciliation.

3.3. The essential steps required for registering a Producer Company:

Sec. 581C (1) of the Producer Companies Legislation provides that any ten or more individuals, each of them being a producer or by two or more Producer Institutions, or a combination of ten or more individuals and Producer Institutions, desirous of forming a Producer Company having its objects as specified in section 581B and complying with the requirements of the provisions related to the Producer Companies and the provisions of the Companies Act, 1956 in respect of registration, may form an incorporated Company as a Producer Company.

The steps required at the time of incorporation of a Producer Company:

(a) Ascertain the availability of name for incorporation of the Producer Company from the Registrar of Companies by making an application in Form 1A for the purpose;

(b) Prepare Memorandum of Association;

(c) Prepare Articles of Association;

(d) Get the Memorandum and Articles of Association printed (A computer print is acceptable as long as printing is done on both sides of the paper);

(e) Get the Memorandum and Articles of association duly stamped (In accordance with the requirement of the Indian Stamp Act, 1899 and the applicable rate depending on the State where the Registered Office of the company is to be situated)

(f) Get the Memorandum and Articles of Association subscribed/signed by the requisite subscribers (ten or more individuals, each of whom being a producer, or any two or more Producer Institutions, or a combination of ten or more of such Producers and Producer Institutions)

(g) Prepare other documents as noted under:

    (i) Form-18 regarding situation (full address) of Registered Office;

    (ii) Form-32 (in duplicate) regarding particulars of directors

    (iii) Form-1 declaring compliance of all and incidental matters regarding formation of companies;

(h) Prepare a power of attorney also, duly stamped and executed by all the subscribers, authorising any one of them or any other person to follow up the matter with the Registrar of Companies;

(i) File the following documents along with the fees payable with the Registrar of Companies of the State, where the Registered Office of the Producer Company is to be situated:

  (i) Copy of the letter of Registrar of Companies confirming the availability of name for formation of the company;

  (ii) Memorandum and Articles of association duly stamped and signed;

  (iii) Form-18 regarding situation (full address) of Registered Office

  (iv) Form-32 (in duplicate) regarding particulars of directors

  (v) Form-1 (on a stamp paper) declaring compliance of all and incidental matters regarding formation of companies

After the Registrar is fully satisfied that all the documents, as required, are dully filled, requisite fees paid and other formalities related to incorporation have been completed, he passes order to register the company. The Registrar of Companies finally, issues a Certificate of Incorporation, which is conclusive proof of its formation. For Producer Companies the Registrar is obliged to issue the certificate of incorporation within 30 days of the receipt of documents required for registration.

3.4. PI-PC Structural and functional arrangement:

At the village level Milk Producers will form a group (Self-Help Group) which will be known as a Producer Institution (PI)

The Producer Institutions will together form a Producer Company (PC)

The Producer Company will own Bulk Cooling Centres (BCCs) to receive milk from the Producer Institutions.

Producer Institutions (PIs): At the village level minimum 10 and maximum 20 Milk Producers will together form a PI. In a village there may be more than one PI of Milk Producers. A PI will be an unregistered body but will have its own working rules adopted by all its members. The PI will arrange for pooling the milk of its members and arranging to send the samples of the milk, the pooled milk and the list of members who have poured milk to the BCC. The members who have supplied milk to the PI will collect the price of their milk from the person in charge of pooling the milk for the particular PI or they can collect the price of their milk from the BCC or the price of their milk may be deposited in their individual bank account. The members of the PI will contribute to take a share of the Producer Company. The members of the PI will elect/select from amongst them a member who will represent the PI in the Producer Company. The elected representative will maintain the records of the PI. The elected representative will take up any matter related to the grievances of the members of the PI, the BCC and the PC with the PC or the advisory committee of the BCC as the case may be.

Producer Company (PC): The Producers Institutions will together be the owner members of the Producer Company. The PC will undertake the task of milk collection, regular payment, promotion of PIs, training of the staff of BCC, training of Resource Persons for education and awareness of the members of PIs. The PC will be incorporated/registered under Chapter IX A of the Companies Act 1956. Board of Directors of the PC will be elected from amongst the representatives of the PIs. The Managing Director of the PC appointed by the Board will also be the ex-officio director of the Board. The PC will own and install BCC’s to receive milk from the PIs and will arrange to send the milk for processing and marketing. PC’s employees will ensure smooth functioning of BCCs, training of BCCs staff and training of Resource Persons for education and awareness of members of PIs.

Bulk Cooler Centre (BCC): It is a cluster Bulk Cooling Centre equipped with Automatic Milk Collection System (AMCS) and Milk Can cleaning facility. The PC will own it. It will be created in rented premises in village.10-15 PIs will be affiliated to 1 BCC. The BCC will have contractual staff. The BCC will receive the milk supplied by each PI, take sample of milk, test the same and also test the samples provided by each PI. The BCC will keep records and arrange payment. The BCC will have an advisory committee headed by one of the representatives of the PIs.

Milk Producers – Producers Institution (PI) – Producer Company

Producer Institution (PI)

- Minimum ten and maximum twenty Milk Producers will come together to form a PI.
- In a village there may be more than one group (PI) of such Milk Producers.
- A PI will be an unregistered body but will have their own working rules adopted by all its members.
- The PI will have a person in charge of pooling the milk and arranging to send the samples of the milk and the pooled milk to the Bulk Cooler Centre.
- The Milk Producers (members of PI) will bring their milk to the PI.
- A sample of milk will be taken from the milk of every member.
- The milk brought by the every member will be measured / weighed.
- A list of the milk producers indicating the quantity of milk supplied by each member will be prepared.
- The member's pooled milk, the samples taken from the member's milk, a copy of the list of milk producers indicating the quantity of milk supplied by each member will be taken to the Bulk Cooler Centre.
- The members who have supplied milk to the PI will collect the price for their milk from the person in charge of pooling the milk or they can collect the price of their milk from the Bulk Cooler Centre or the price of their milk may be deposited in their individual bank account.
- The members of the PI will contribute to take a share of the Producer Company.
- The members of the PI will elect/select amongst them a member who will represent their PI in the Producer Company.
- The elected representative of the PI will maintain all the records of the PI
- The elected representative will take up any matter related to the grievances of the members of the PI, the Bulk Cooler Centre and the Producer Company with the Producer Company or the advisory committee of the Bulk Cooler Centre as the case may be.

Bulk Cooler Centre (BCC):

- Producer Company will install Bulk Cooler Centres (BCC's) with Automatic Milk Collection System (AMCS) and Milk Can cleaning facility.
- The facilities will be created in rented premises in villages. While selecting the location of the BCC nearness to good road, availability of electricity connection and ease to approach by producers from other nearby villages will be kept in view. 12-13 PI's will be affiliated to one BCC
- The staff of the BCC will be placed by the PC but will not be the employees of the PC. They will be employed on contractual basis on behalf of the PI's affiliated to the particular BCC.

- The BCC will collect the milk supplied by each PI, take a sample of milk and test the same. The BCC will also test the samples provided by each PI.
- After testing the samples provided by each PI, the BCC will make the entries of the fat and SNF content in the respective samples in accordance to the list of members who had supplied milk.
- The BCC will also maintain a record of the quality, quantity and the price of milk of each PI.
- PC will arrange to transport the milk from each BCC to the Dairy Plant.
- The BCC will send the information of milk collected from individual member and the milk collected by each PI to the PC and the respective PI's.
- The BCC if needed, will make payments to each member of PI's or the in charge of each PI or the representative of the PI in cash as per the mode decided by the PI's.
- The BCC will have an advisory committee headed by one of the representatives of the PI's on rotational basis as decided by the PI's.

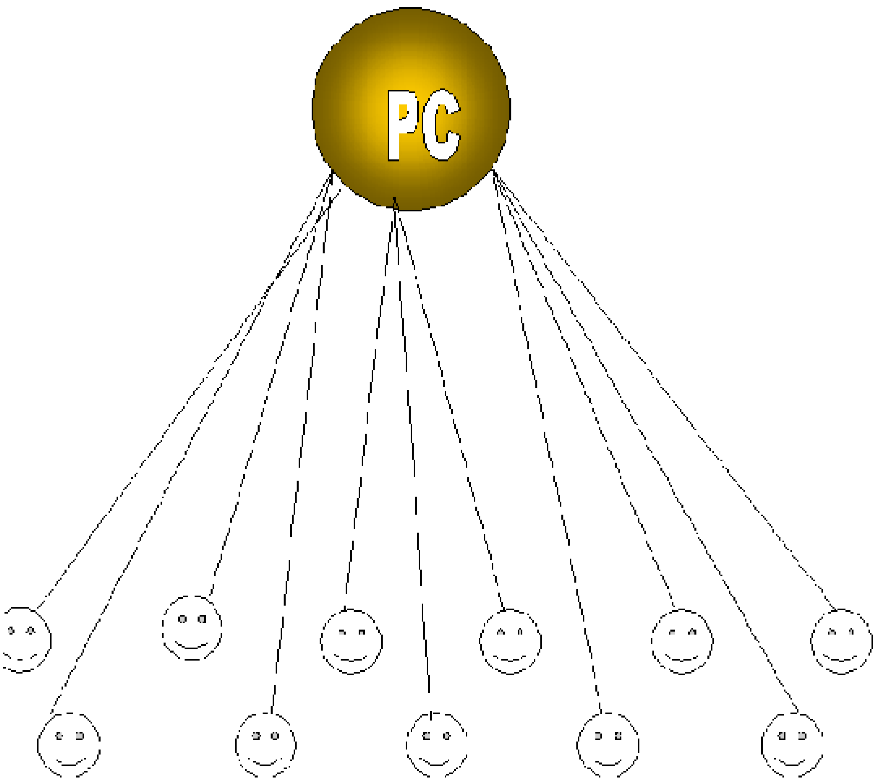
Producer Company (PC)

- The PI's will form a Producer Company to undertake the task of milk collection, regular payment, promotion of PI's, training of the staff of BCC, education and awareness of milk producers and support measures for enhancing milk production.
- The PC will be incorporated / registered under Chapter IX A of the Companies Act 1956.
- Board of Directors elected from amongst the representatives of the PI's will manage the PC.
- The Managing Director of the PC appointed by the Board will also be the ex-officio director of the Board.
- The PC will own and install BCC's to collect milk from the PI's and will arrange transportation of the milk collected by BCC to the Dairy Plant.
- The PC will have staff as supervisors who will ensure smooth functioning of the BCC's, training of staff of BCC's, education and awareness of milk producers for clean milk production and milk production enhancement.
- PC will dovetail with NGO's and other agencies for input supply, developing Gochar (grazing) lands, promote stall feeding etc. in the villages where PI's operate.

3.5. Possible structure of Producer Company

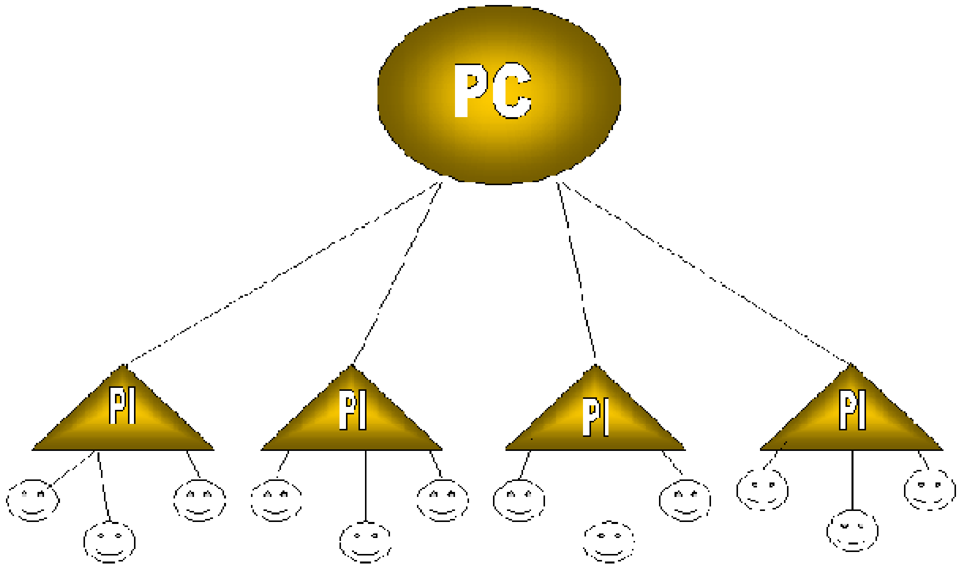
Possible structures of Producer Company

Producer Company Type - I



Producers

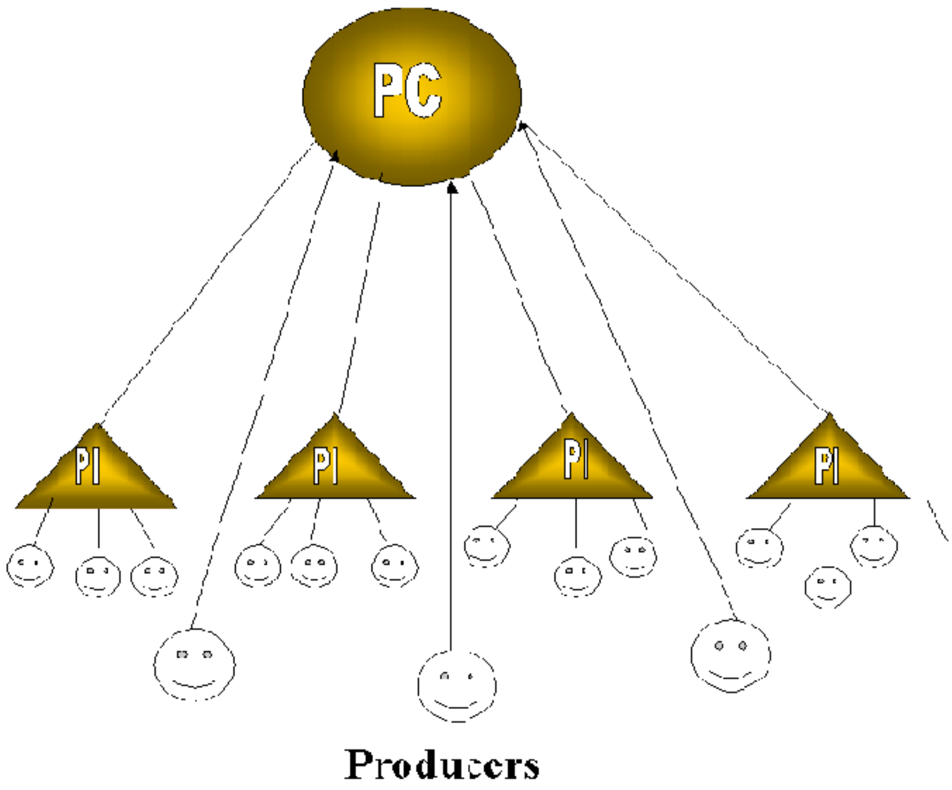
Producer Company Type – II



Producers

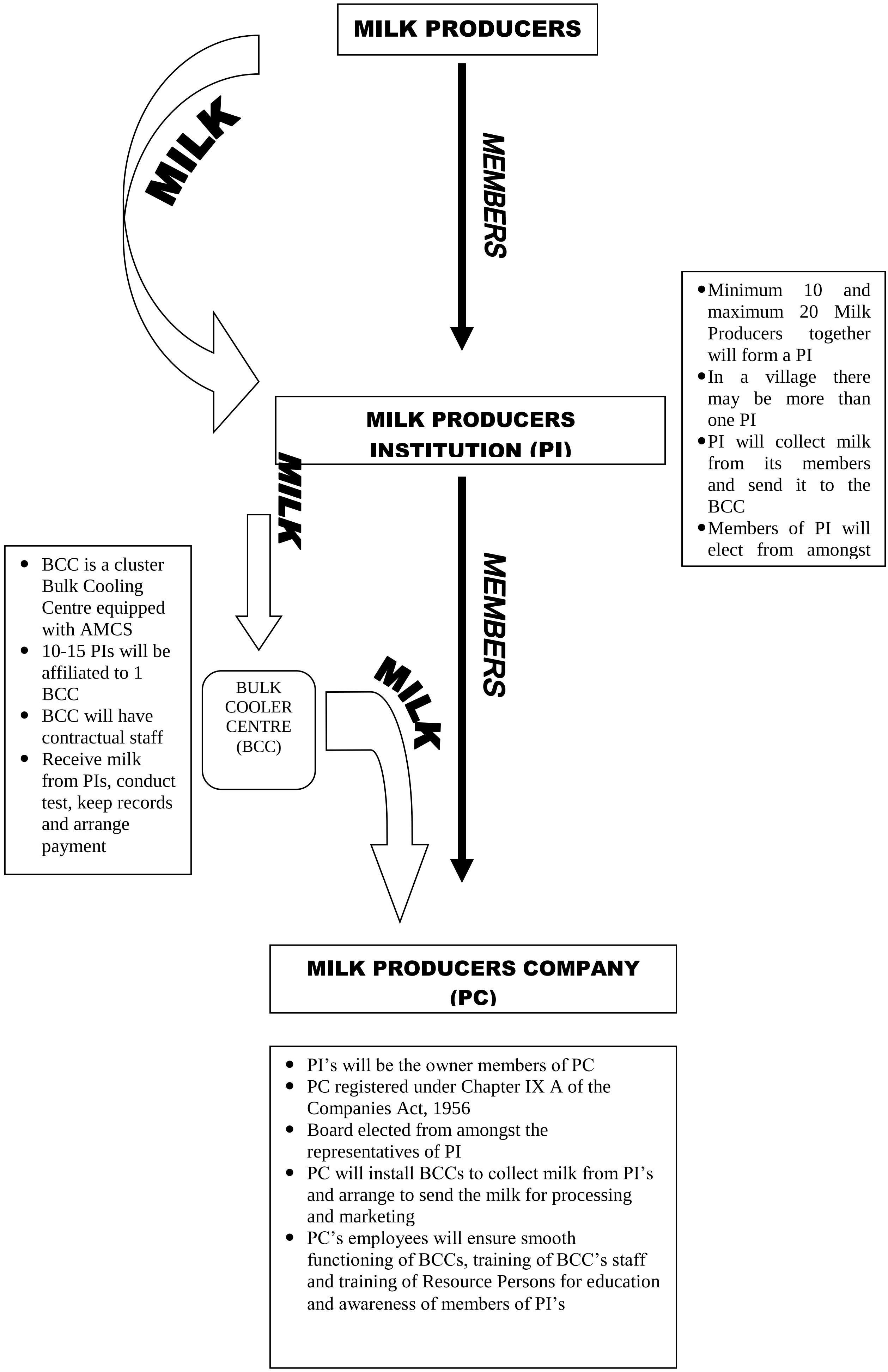
When Producer Institutions are directly members of the Producer Company

Producer Company Type – III



When both Individuals and Producer Institutions are the members of Producer Company

PC-PI Structural and functional arrangement



3.6. Conclusion:

The enactment of this legislation is clearly in the interest of our nation's co-operatives. It will provide a legal framework for those producer and artisan co-operatives that wish to compete with the large business houses and multi-nationals that are now moving rapidly into the agro-industrial sector. It will also serve as an incentive for our state governments to amend existing co-operative laws, improving the legal environment in which all our co-operatives operate and freeing co-operatives that are operating under archaic co-operative law that presently restricts the movement.

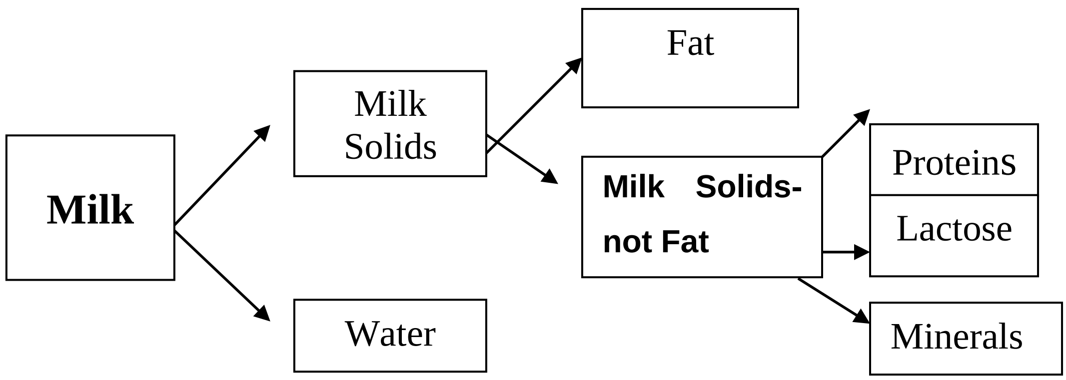
CHAPTER – IV
MILK, ITS TESTING AND PRICING

1.1. Milk Composition

Milk is considered as an important component of our diet since ancient times. It is a complete diet with all essential nutrients, which are easily digestible and are required for development. In the Indian context, it has a traditional value and relevance as people consume milk in different forms, simultaneously relating its usage to the health aspects. Over a period of time with the growth of the dairy industry in the country, not only has its availability and consumption increased but public awareness has also increased in terms of quality and other related aspects also gained momentum.

Milk is the fluid secreted by female mammals for nourishment of their young ones. Prevention of Food Adulteration Act (PFA) defines milk as “the lacteal secretion derived from complete milking of healthy milch animals, excluding the milk derived during the first week after calving – Colostrums”.

Milk is a complex of water, carbohydrates (lactose), fat, protein, minerals and vitamins. Milk has water ranging from 83 to 87% and solids from 13 to 17%, which provide nutrients needed by the body for good health. An overview of milk components is shown as follows:



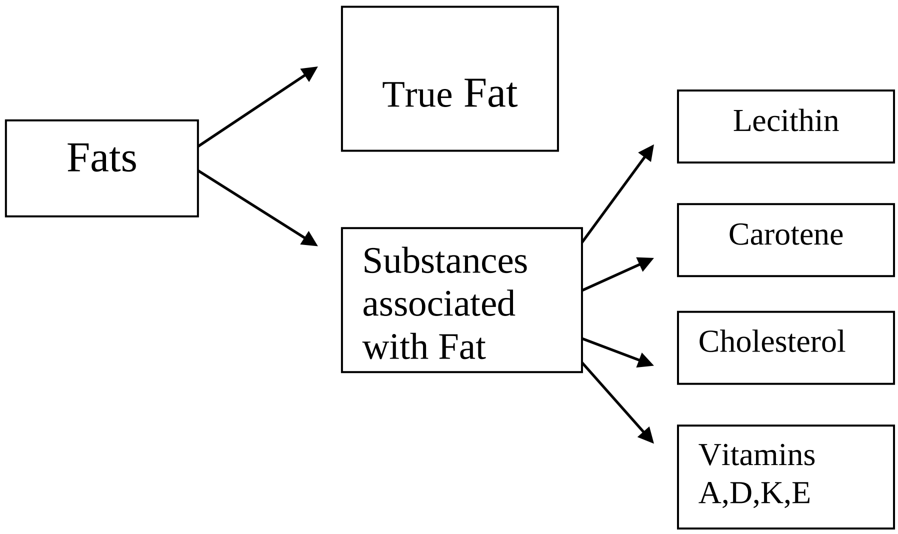
<u>WATER</u>

On an average about 85% of milk is water though it varies with species, breeds and individual animals. Water serves to hold the soluble constituents of milk in solution. Any variation in the amount of other constituents is reflected upon the water percentage. A higher water percentage is often leads to the concept of the food value of milk.

MILK SOLIDS

MILK FATS

Milk fat often called 'butter fat' is commercially the most valuable constituent of milk. It is also of great importance from the standpoint of the food value of milk. The flavour of rich milk, and to a large extent of other dairy products is largely due to milk fat. The milk fat is not a single chemical compound but a complex mixture of fats - lipids. It provides a major source of energy.

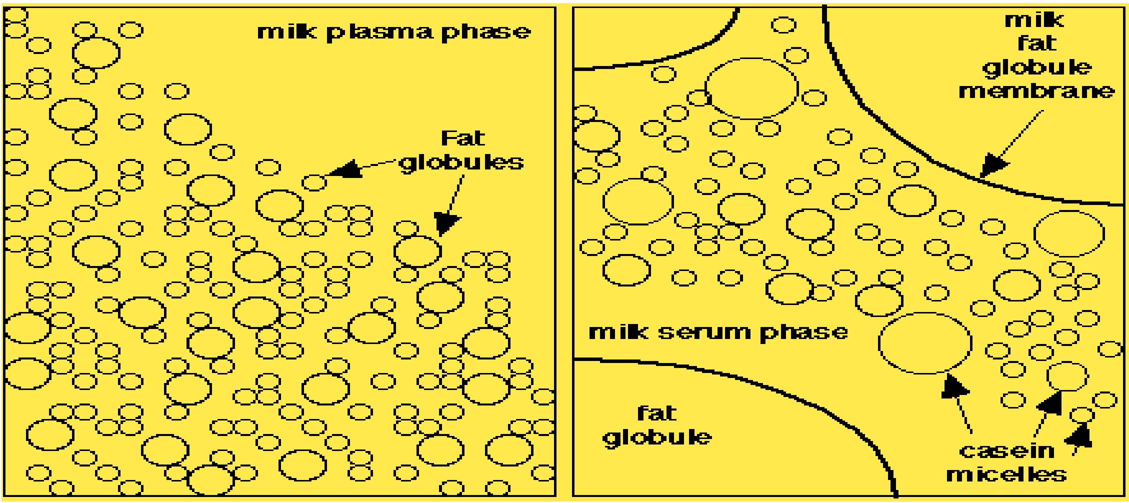


In addition to providing milk's characteristic taste and texture, fat supplies vitamins A, D, E, and K, as well as certain fatty acids that the body cannot produce on its own.

Milk fat exists in milk in the form of minute globules in a true emulsion of oil-in-water type, the fat globules being in the dispersed phase. The globules vary in size in a sample of milk and are invisible to the naked eye but can be seen under the microscope. Milk fat is secreted from mammary epithelial cells as fat globules which are surrounded by membrane of protein and fat-like substances. The membrane helps to stabilize the fat globules in an emulsion.

Microscopic picture of Milk fat

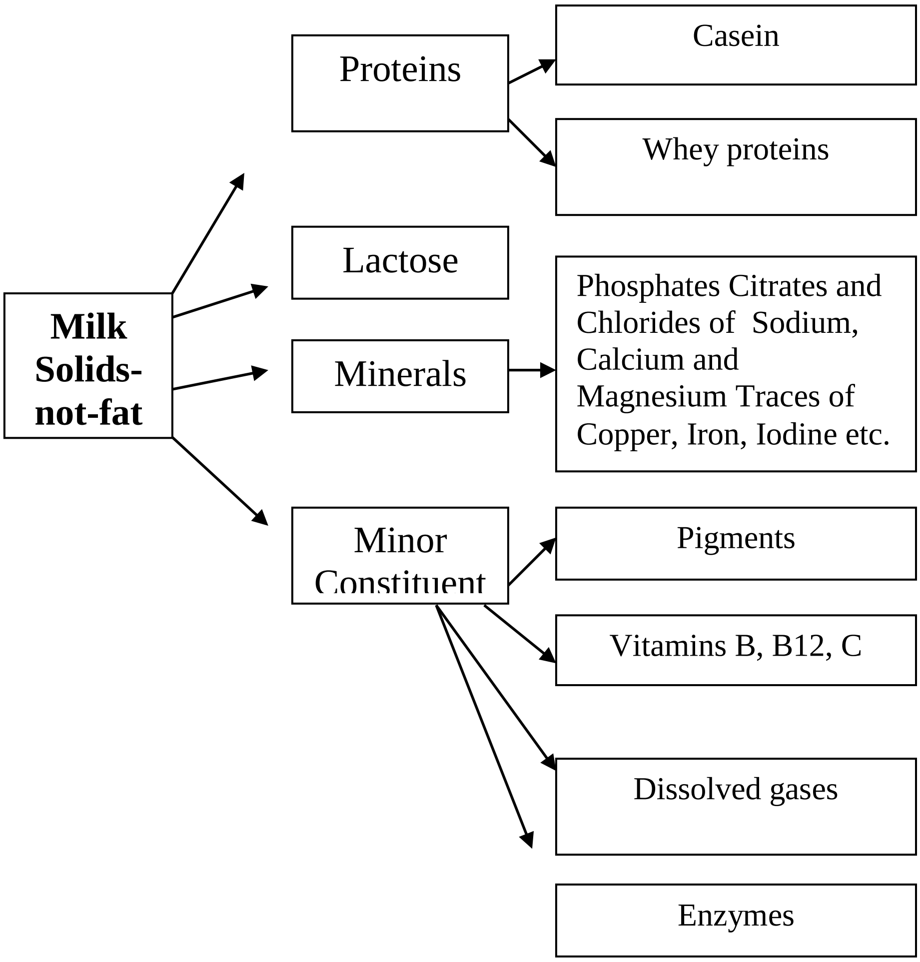
If we observe milk fat through a microscope, it would be seen as follows:



In the diagram, milk is viewed at two magnifications; the left view is what would be seen at about 500X magnification, and the right view at about 50,000X. This illustrates that milk is a partially stable emulsion of milk fat globules (left view) in the plasma phase of milk (the skimmed milk). In the right view, the casein micelles are in a colloidal suspension in the serum phase of milk (the whey). Milk fat globules in cow milk, by and large are smaller in size compared to those in buffalo milk.

MILK SOLIDS-NOT-FAT

The major constituents of Milk Solids-not-fat is illustrated as follows:



Milk Protein

The total protein component of milk is composed of numerous specific proteins. The most important is casein, accounting for 80% of milk protein. Casein is composed of several similar proteins. It is a complete protein which means that it contains all of the essential amino acids, which the body cannot manufacture on its own. They are important for growth and development of the nursing young. Casein molecules and globules of fat deflect light rays passing through milk, giving milk its opalescent appearance. Caseins are fairly easily digestible in the intestine compared with many other food proteins available. This high quality, easily digestible protein is one of the key reasons why milk is such an important human food. Once casein has been removed, then all other proteins in milk are the whey proteins. Other proteins present in milk include albumin and globulin.

Carbohydrates

Lactose is the major carbohydrate in the milk of most species. It is essentially unique to milk, although it has been identified in the fruits of certain plants. It is a kind of sugar which gives milk its sweet taste. Lactose is a major, readily digestible source of glucose which supply energy. Carbohydrates other than lactose are found in milk, but at low concentrations.

Minerals – Ash (salts of milk)

If milk is dried first, then the residue burned, a white powder, which is the ash or mineral part of the original milk, remains. A chemical study would reveal that this ash is a complicated mixture containing a number of metallic elements.

Milk contains many minerals, the most abundant of which are calcium and phosphorus. They are required for growth and development of bones and teeth. Milk also contains other minerals in relatively smaller amounts like potassium, sodium, aluminum, copper, iodine, manganese, and zinc etc. Parts of the calcium and phosphorus are combined with the proteins while the remaining portions of these elements are partly in colloidal and partly in solution and other minerals like potassium, sodium and chlorine exist entirely in solution. Milk is however low in iron relative to the needs of an adult. Minerals are extremely important in relation to the heat stability of milk and contribute to the buffering capacity of milk, the maintenance of milk pH, the ionic strength of milk, and milk's osmotic pressure.

Other Minor constituents

Vitamins

In proportion to the major constituents, water, protein, fat, sugar and minerals (ash), milk contains a number of minor constituents in milk particularly with regard to the proportions in which they occur in milk. However, some of these constituents are exceedingly important. For example, the yellow colour of milk is due to a pigment known as ‘carotene’, which in small or large quantities materially influences the yellow colour of milk.

Milk contains all the major vitamins. They include all of vitamins B group and C and fat-soluble vitamins, A, D, E, K; milk has only limited amounts of vitamin K. While vitamins B and C are found in the aqueous phase of milk, the fat-soluble vitamins are associated with the milk fat globule.

Phospholipids

The principal phospholipid contained in milk is lecithin, a fat-like substance which contains nitrogen and phosphorus. Lecithin is closely associated with the fat forming a layer surrounding the fat.

Pigments

Milk contains two pigments one of which is fat soluble and the other water soluble. The fat soluble pigment of milk is called carotene responsible for the yellow colour of milk fat. It does not occur in milk of all species. The colour of cow milk is yellow due to presence of this pigment. Carotene is not synthesized by the cow, but by the plants and finds its way from the feed into the blood stream and, thus, into milk.

Enzymes of Milk

Enzymes are the normal constituents of milk. They are chemical substances secreted by the animal and living plant cells which stimulate chemical reactions without becoming a part of the compounds formed.
Common examples of formation of maltose from starch and breaking down of proteins occur due their stimulations.

Gases

Milk contains some amount of gases. Carbon dioxide is present in milk as it comes from the udder, while nitrogen and oxygen are taken up by the milk during milking. On standing, the amount of gas becomes less. Gases may also be formed in milk by certain bacteria. The detrimental effects of these gases, however, are not apparent for several hours after the milk is produced.

It can be summarized that milk is complex in nature possessing a number of physical and chemical properties. It carries within itself a number of elements with each one of them having its own significance. In the present day scenario when the demand for milk and its products is increasing, a proper understanding of the nature and its importance required to be able to interact more effectively both with the producers and the consumers in the market.

1.2. Factors affecting composition of Milk:

Composition of milk is influenced by many factors. Milk composition apart from the milk yield, affects the realization and hence profitability of the dairy farming. The price paid to the farmers is based on the volume and the solids in milk. While some constituents in milk vary little, others vary considerably. For example, widest variations occur in the fat percentage of milk and so it enjoys a greater economic value. Milk besides being a part of the diet, is a source for manufacture of various dairy products also. With the change in composition, the food value varies and gains economic importance when the product is placed on the market. Variations in the composition of milk carry significance in connection with the use of milk in the human diet, especially when it forms a large part of the food intake, as it does for infants. The Variations are largely quantitative rather than qualitative i.e. milk from every source regardless of breed or species shall contain same classes of nutrients but differ in nature or the characteristics. These variations are caused by nutritional and non-nutritional factors. It is therefore essential to understand the factors responsible for variations in the composition of milk, caused by the interplay of various factors which affect the physiology of the animal and thus determine the constituents in milk.

Various factors affecting composition of milk may be summarized as follows:

1. Species of Animals

Milk composition varies according to the species since it is an inherited character. Table below provides an average composition of milk in some of the species:

Species	Constituents in milk (%)					
	Fat	Protein	Lactose	Ash	Total	Water
Cow	4.9	3.4	4.6	0.74	13.64	86.36
Buffalo	7.3	3.8	4.9	0.78	16.78	83.22
Goat	4.0	3.7	4.5	0.85	13.05	86.95
Sheep	6.2	5.2	4.7	0.90	17.00	83.00
Camel	3.0	3.9	5.4	0.74	13.04	86.96
Human	3.5	2.0	6.8	0.30	12.60	87.40
Monkey	3.9	2.1	5.9	2.6	14.50	85.50
Whale	34.8	13.6	1.8	1.6	51.80	48.20
Rabbit	12.2	10.4	1.8	2.0	26.40	73.60

It can easily be observed that there exists a wide variation in the fat, protein and carbohydrate, the major constituents, compared to other minor constituents present in milk of different species. Cow/buffaloes enjoy significant importance as a producer of milk for human food, since their milk has comparatively higher percentage of protein and fat than human milk while lactose is higher in human milk. These marked differences are taken into account when milk from cows/buffaloes is prepared for infant feeding to bring it to the normal for human milk.

2. Variation among Breeds

Milk composition varies among different breeds of animals as they develop distinctive features due to continued segregation. Differences in the constituents of milk among different breeds can be seen from the table below:

Table. Breed as a factor in Milk Composition

Species	Breed	Fat%	SNF%
Cows	Sahiwal	4.55	9.03
	Gir	4.73	8.83
	Red Sindhi	4.90	9.03
	Tharparker	4.55	8.87
Exotic Cows	Jersey	5.14	14.57
	Holstein	3.45	11.93
Buffaloes	Murrah	6.8	10.1
	Surti	8.4	10.3
	Jafrabadi	7.3	10.1

It may be noted that the fat percentage varies widely followed by protein while other constituents vary relatively in a narrow range. The composition of milk is a factor of great importance in the value of milk for food or for the purpose of manufacturing products. The breeds producing milk with high fat content produce less milk than those producing milk with lower fat percentage.

Breeding is of considerable importance since fat and protein are heritable characters. Gains in milk composition made from breeding are permanent and accumulate from year to year. Benefits of sire and cow selection, and of mating decisions made today, will continue to be realized in all future descendants of the herd. In this respect, selection is a very productive means of improving milk composition.

3. <u>Variation within a Breed</u>

Variation in composition of milk exists among animals within the same breed due to inherited characters and the environment. Under normal conditions, an animal with higher fat may have higher SNF content and milk of high chloride content shall have low lactose content.

Table. Variation in milk composition within Breed

Breed	Animal	Fat %	SNF %
Red Sindhi Cow	1	5.69	9.03
	2	4.81	8.46
	3	4.66	8.16
Murrah Buffalo	1	7.05	9.49
	2	7.38	9.64
	3	6.57	9.41

4. Stage of Lactation

Composition of milk varies considerably during a lactation with the major changes usually occurring soon after the start of lactation. The first secretion or milk produced by milch animal called 'colostrum' differs in composition from normal milk. It is lower in water, sugar, and fat, higher in vitamins (except Vitamin C), minerals, anti-bodies, enzymes, amino acids and anti-toxins. It differs considerably from normal milk in appearance and general properties. It has an abnormal odour, a bitter taste and is slimy and viscous and has a decidedly acid relation. It clots on heating. All these factors make colostrums unacceptable for commercial use. However it gradually changes to mature milk. The average composition of colostrum (milk) is as follows:

Composition of Colostrum	
Fat	2.0%
Protein	14.5%
Lactose	3.0%
Ash	0.9 – 1.0%
Total Solids	20.5%

Because of its high total-solid content, colostrum also has a much higher specific gravity than normal milk, approximately 1.079.

Transition from Colostrum to Normal Milk in Cows

As the lactation advances, composition also starts changing. Fat content comes to normal after few weeks and then rises considerably at the end of the lactation. However, SNF content is highest in colostrum, comes down to normal at the time of maximum milk yield as the lactation advances and again, it increases slightly at the end of the lactation.

5. Effect of Age, Gestation and Number of Lactations

Age of a milch animal is a factor of considerable importance with regard to the yield of milk but it may have less significance in connection with the composition. It has been observed that fat, SNF and, also the milk yield increases from the first to the second or third lactation, reaches the maximum during 3^{rd} and 4^{th} lactations, then it starts declining. Cows that conceive generally show a steeper rise in SNF than cows that remain open through their lactation. This is due to the reason that pregnancy causes a decline in milk yield therefore percent of SNF increases.

6. Seasonal Variations

Change in environmental factors like temperature and humidity affect the feed and fodder availability and thus the reduced intake by the animals results in variations in the milk yield and its composition (affecting both fat and SNF contents). Consistently high temperature will reduce the milk yield as well as the percentage of milk protein because of a reduction in energy intake. The effect of seasonal variation on milk yield and composition may also be a combined effect of the physiological changes associated with the stage of lactation of an animal. It is observed that milk during lean season contains more fat compared to milk during flush season.

7. Variation during a milking

Variation is observed in different portions of milk during a milking. Milk fat is lowest in the foremilk and gradually increases as the milking progresses. The last stripping (milk) is highest in the fat content.

Variation in composition of fore-milk, middle milk and last milk (stripping) is shown below:

Variation in Fat and SNF constituents in different portions of milk

Portion of Milk	Fat%	SNF%
Fore Milk	1.04	8.64
Middle Milk	4.40	8.37
Last Milk	7.63	7.77

It can be interpreted that the fat being the lighter constituent of milk rises to the top in different portions of milk. Hence, the fore milk has lowest fat content, middle having normal and the last milk (stripping) having the maximum. However, SNF content indicates a declining trend towards the end.

It is therefore important when taking samples for testing of milk fat and other components that a well-mixed sample is taken representing the entire milk collected during a milking.

8. Length of Interval between Milkings

The fat content of milk may show considerable variation if the interval is varied between the milkings. The longer the interval, the greater the quantity of milk and the lower the fat test. The tendency of variation has been observed in some animals in the morning and evening milk. It can be seen from the table below that the animals have

Variation in Morning and Evening Milk Composition of Cow

Breed	Milking Hours	Fat%	SNF%
Tharparkar	Morning	4.8	8.92
	Evening	4.4	9.14
Haryana	Morning	4.8	8.96
	Evening	4.4	9.20

higher fat content in milk produced in the morning than in the evening. However the SNF behaves in a different way. The variation is also affected by the change in the feeding schedule between two milkings.

9. <u>Effect of Feed</u>

Though the milk composition and the yield is a matter of heredity of an animal, variation depends on the nature and quality of feed. Changes in feed and the quantity of feed to the animals affects the composition. Proteins and lactose are decreased due to under feeding. Over feeding causes fattening of the animal. Though feed may impact the variation both in milk yield and composition, these do not indicate a definite means of increasing permanently the fat content to any significant extent by methods of feeding. The proportion of other major constituents likewise is unaffected by the feed.

Forage quality and quantity may affect milk SNF. Rations, low in roughage, interfere with the usual synthetic process resulting in a slight increase in the SNF content. Increasing the intake of roughage such as grass and sorghum silage usually reduces SNF and milk yield. The decrease is largely due to reduced energy or dry matter intake. Increasing energy or dry matter intake usually restores the SNF to normal. Good quality hay tends to increase SNF, but poor quality hay may reduce both intake and SNF. Adding more roughage to the ration has little to no effect on SNF. However, a minimum amount of roughage is needed for normal milk fat percent and health maintenance of the cow. Green fodder increases Vitamin A and SNF in milk. Feeding a ration carrying liberal quantity of oily feed increases the fat content.

10. <u>Effect of Diseases</u>

Disease and climatic conditions that cause elevated body temperature of the lactating cow affect milk yield and composition. A decline in SNF, protein and lactose is associated with sub clinical mastitis, an infection in the udder which adversely affect milk yield. Under this condition, the ability of the system in the animal to synthesize FAT and SNF gets impaired.

11. <u>Variation among four quarters of Udder</u>

Four quarters of an animal are anatomically and functionally independent of each other. Synthesis of milk by all four quarters varies in composition. The variation in Fat composition, however, may not be significant. Variation in fat percent in the milk drawn from all the four quarters in three different animals can be seen from the table below:

Fat % among four quarters of Cow Milk

Animal	Left Fore	Right Fore	Left Hind	Right Hind
A	4.36	4.33	4.42	4.20
B	4.42	4.68	4.31	4.38
C	4.19	4.12	4.32	4.27

11. <u>Miscellaneous factors</u>

A number of other factors play an important role in affecting the variation in the composition of milk. The direction and extent of the variation from these factors however, are not constant. These factors are:

i) **Change of Milker and Milking Procedure** – Incomplete milking result in low fat content as the last milk (stripping) with the maximum fat is retained in the udder as explained earlier. Therefore, milker should be trained to avoid any loss. Like wise, change of milker, milking place and interval shall have direct impact on milk composition and the yield.

ii) **Oestrus or Heat** – During this period, when the animal gets nervous and excited, it either holds some milk or secretes less milk thus effecting the composition. However this is inconsistent. Frightening the animal at milking time usually lowers the fat percent with the result that some of the last richer stripping are not secured by the milker.

iii) **Administration of drugs** - Feeding or injecting certain drugs may increase the milk yield and fat content of milk temporarily while certain drugs and vaccines affect both milk yield and composition adversely due to the restlessness etc.

It may be understood that the milch animals though have same classes of nutrients in milk but they are different in nature. The composition may change according to species, breeds or even with an individual. Heredity plays a major role in determining milk composition followed by environmental and the nutritional causes. One single factor may not be responsible to affect variation. However, good care and management of the milch animals certainly change in the composition particularly the fat and the SNF when a farmer has adopted dairying as a commercial venture.

1.3. Testing of milk and detection of adulterants at society level:

Since milk is the important article of our food, the Public Health Department has laid certain standards for milk. In order to ensure standard supplies of milk and milk products, it is essential that raw milk reaching the dairy conforms to the standards. This implies that raw milk needs to be tested at DCS and Dairy dock before it is accepted for further processing. Generally the milk is tested at following levels:

- ***At the DCS level when the producer/s deliver the milk to DCS.***
- ***At the Dairy Dock at the time of receipt of milk from DCSs.***

Further the testing should have following characteristics:

– It should be quick
– It should be accurate i.e., high repeatability
– Producer/s should have faith in the results – minimum chance of human error.

At the society level, a rapid examination has to be carried out on each and every sample of milk including organoleptic tests and quantitative estimation of fat and SNF present in milk.

A. **Qualitative Tests and** **B.** **Quantitative Tests**

❖ **<u>Qualitative Tests</u>**

<u>Organoleptic Tests</u>

Judging the quality of milk by its taste and smell requires considerable skill and experience. Still an ordinary man can tell if the milk is good or bad by smelling and tasting.

Smell: Open the lid of the can / container and immediately smell. If any abnormal odour is detected, the milk may be rejected or kept for confirmatory test, otherwise it should be accepted as good milk.

Colour: Colour of milk can change only if extraneous matter is added to it. Hence, if abnormal colour is observed, it may be rejected, otherwise it should be accepted.

Taste: If the milk does not smell fresh, but its taste is normal, it can be accepted or if it tastes sour or bitter, it should be rejected.

Note : The tests described below (COB Test, Alcohol Test and Acidity Tests) require apparatus and technical skills on part of the tester. So the details are given for reference. It may not always be possible to conduct these tests at every DCS in a routine manner.

Clot-on-boiling Test (C.O.B. Test)

This is quick test to determine developed acidity and the suitability of milk for heat processing.

Apparatus:

a) Test-tube, preferably with a mark at 5 ml., b) Water-bath

Procedure:

Transfer 5 ml of the milk sample to the test tube. Place the tube in boiling water bath and hold for about 5 minutes, and smell again for any acidic flavour. Remove the tube and rotate it in an almost horizontal position and examine the film of milk on wall of the test tube for any precipitated particles. The formation of clot is indicative of a positive test.

Interpretation:

The principal features of the boiling test are speed and certainty of results. Milk either remains unchanged or gets coagulated. Milk which gives a positive C.O.B. test has an acidity generally above 0.17 per cent (as lactic acid) and is not suitable for distribution as liquid milk or for processing.

Alcohol Test

The alcohol test is used for rapid assessment of stability of milk for processing. This test is essential, particularly for condensing, and sterilization plants. The alcohol test is used to assess the mineral balance of milk and not so much as an index of developed acidity. The test helps in detecting abnormal milk such as colostrum, milk from animals in late lactation, milk from animals suffering from mastitis, and milk in which the general salt balance has been disturbed.

Apparatus:

a) Test tubes, 15 X 1.9 cm., preferably with graduation marks at 5 and 10 ml., b) 5 ml alcohol measure.

Reagent: Ethyl alcohol: 68% by weight or 75% by volume (density 0.8675 g/ml at 27^{o} C)

Procedure:

Place 5 ml of milk in a test tube and add an equal quantity of alcohol. Mix the contents of test tube by inverting them several times. Note any flakes or clot. The presence of a flake or clot confirms a positive test.

Interpretation:

A negative test indicates good heat stability of the milk sample. Milk showing positive test is not considered suitable for the manufacture of evaporated milk which has to be sterilized to ensure its keeping quality.

Acidity Test

The titratable acidity test is employed to ascertain if milk is of such a high acidity as to reduce its keeping quality and heat stability. The acidity of milk is not a true measure of lactic acid present, but in practice it gives a good indication of the quality of milk.

Apparatus:

a) White porcelain basins – hemispherical, 60 ml capacity
b) Pipette – 10 or 20 ml.
c) Burette-with stand
d) Measuring Cylinder – 25 ml.
e) Stirring rods-glass

Reagents:

a) N/9 Sodium Hydroxide Solution (NaOH); and b) Phenolphthalein Indicator Solution.

Procedure:

Thoroughly mix the milk by pouring several times from one container to another avoiding formation of air bubbles. Measure accurately 10 to 20 ml of milk in two porcelain basins. Add an equal quantity of recently boiled, cooled water. Add few drops of the phenolphthalein indicator solution. Rapidly start pouring sodium hydroxide solution from burette dropwise in the milk. While doing so, go on stirring the contents of basin with glass rod, continue the process till the opaque white colour of milk changes to faint pink colour. This colour should remain for 10-15 seconds. Compare the colour with other basin for confirmation. Note the quantity of sodium hydroxide used from burette and use following formula for finding out the acidity.

$$\% \text{ Acidity} = \frac{9\,A.N}{V}$$

A = quantity of sodium hydroxide used in ml.
N = normality of sodium hydroxide
V = volume of milk taken in ml.

In case only N/9 NaOH is used then 1 ml. of solution utilized will directly indicate as 0.10% acidity in terms of lactic acid. In case the normality changes, the use of formula will be necessary to find out % capacity.

❖ Quantitative Tests

Fat Test by Gerber Method

This is the most important test to be carried out while procuring raw milk from producers. The price of milk is generally decided on its fat content.

Apparatus:

a. Centrifuge : 1000 to 1200 rpm
b. Water – bath : 65°C
c. Milk butyrometers : 0-10% Fat
d. Lock stoppers
e. Automatic measure for acid: 10 ml.
f. Automatic measure for amyl alcohol: 1 ml.
g. Shaking stand for butyrometers
h. Milk pipette : 10.75 ml.
i. Lock stopper key
j. Water in bottle

Reagents:

a. Sulphuric acid (Sp. gr. 1.820 to 1.825), free from fat, b. Amyl alcohol (Sp. gr. 0.815 – 0.818) free from fat, furfurol or any substance that might appear in the fat column after centrifuging.

Procedure:

1. Transfer 10 ml of sulphuric acid into butyrometers through automatic measure.
2. Pipette 10.75 ml. of well-shaken milk and pour this in the butyrometer allowing it to flow slowly down the side to the butyrometer to form a distinct layer above the acid.
3. Add one ml. of amyl alcohol.
4. If necessary, add distilled water to bring the volume to the neck of the butyrometer (the quantity of water to be added is know by experience) so that the fat column remains in the graduated portion of the butyrometer.
5. Tighten the lock stopper with the help of lock stopper key and shake butyrometer till all curd is dissolved. This should be done quickly so that temperature does not fall down.
6. Place butyrometers in the centrifuge and run the centrifuge for 5 minutes.
7. Remove butyrometer from centrifuge and read fat percentage immediately. Immerse butyrometer in hot water to bring the temperature to 60-65°C, if necessary.

FAT TEST BY MILKO-TESTER

The problem encountered in the conventional Gerber method and its disadvantages, led to the development of a new machine for fat testing know as Milko-Tester. For operations at village level, a Danish firm had developed a semi-automatic, cheap and less complicated model of Milko-Tester-III, know as Milko-Tester Minor (MTM) with the held of NDDB. The use of this machine for testing fat in milk has brought down the cost of testing considerably, besides providing accurate and quick results. A functional sketch of MTM is given below:

Principle:

The MTM works on the principle of scattering of light by milk fat globules. The light transmitted through the milk-mix bears an inverse relationship with the fat content of milk. The transmitted light is measured photometrically and is read directly in terms of fat percentage of milk samples on a digital display.

Apparatus

a. Milko-Tester Minor
b. Beaker for milk sample
c. A Diluent

Procedure:

1. Place a well mixed sample of milk under the MILK INTAKE tube.
2. Push the MILK INTAKE button in. With this action, milk (about 0.5 ml.) along with a definite quantity of diluent (about 7.0 ml.) is sucked in.
3. Remove the milk sample and place the mix out breaker under the milk intake tube.
4. Push the mixout button in. Initially, the milk will come out followed by the diluent which ensures proper mixing of milk and the diluent.
5. Place the mixout beaker under the MIX INTAKE tube.
6. Operate the pump handle up and down three times with a steady motion and then allow the handle to rest in bottom position.
7. Read out the result appearing in the display and record it. This gives directly the fat percentage in milk sample.

The above operation of MTM is schematically illustrated on the following page.

Preparation of Diluent:

1. Pour one litre of hot, clean water into a clean 10 litre bottle/jar
2. Add chemical to the water (EDTA 45 gms + NaOH 7.6 gms)

3. Add 1 ml. Titron 100 liquid and 0.5 ml antifoam liquid
4. Put the cap on bottle and mix well
5. Add rest of the 9 lit water to it
6. Mix well-the diluent is ready for use

Automatic Milk Collection System (AMCS)

The Automatic Milk Collection System is latest technological item for milk collection, testing, weighing and other operations at the DCS. It consists of following components:

a) Weigh scale: For milk weighment. It has a parallel display digital indicator panel having a facility for Litre / Kg. indication.

b) Milk fat testing machine: For measurement of fat % age in raw milk.

Measurement range - 0 to 13 %.
Capacity - 120 to 150 samples/hour.
(This depends on the speed of manual milk collection also)

c) Milk collection tray (SS 304): The raw milk received from the farmer is poured into it after weighing and fat testing and then transferred into a milk balance tank (in case of a BMC system) or a can after passing through suitable size SS filter.

d) Member card reader (optional): For the identification of a member at DCS. (coded with his/her identification no.) is given, which he/she brings to the society at the time of milk pouring. The operator inserts the card into the card reader and the member identification no. is displayed on the PC/data processor screen. The other relevant data such as fat % and weight are communicated through the fat tester and weigh scale after the Identification number (id. no.) is read.

e) PC with printer: PC is provided for storing memberwise data (simultaneously with milk collection) for daily operations as well as data for daily (both shifts), monthly, quarterly and yearly reports depending a floppy disc drive and UPS are also provided.

Every member is given a slip (in the form of PC printout), consisting of the following details, at the end of his/her reception transaction. He/She can collect the payment by submitting it at the payment counter, either in the same shift or the next shift as per the system being followed by a society. A sample slip shall contain the following details:

a) Name of DCS :
b) Date and Shift (morning or evening) :
c) Member no. :
d) Type of milk (Cow or buffalo):

e) Fat %. :
f) Volume (Litres):
g) Unit rate. (i.e. per Kg.) :
h) Amount payable to the member. :

The AMCS is also used for recording other data such as sale of cattle feed, ghee etc. In addition financial record can also be entered and stored. The use of PC and printer helps in overcoming the burden of maintaining manual registers at society. The record keeping becomes systematic and the chances of human error in maintaining the records are not there.

SNF (Solid not fat) Test:

The estimation of Solids-non-fat in milk is as important as the estimation of fat. The SNF is determined using Richmonds and other formulae with a correction factor. The other method involves gravimetric estimation of total solids which, though more accurate, involves a tedious procedure and is time-consuming. Hence, in field for quick estimation of SNF, volumetric method using lactometer and thermometer is used. It involves determination of specific gravity of milk.

The principle involved in measuring the specific gravity or density of milk using lactometer is that a floating object sinks until it has replaced a volume of fluid equal to its own weight. The greater is the volume of the displaced fluid, the lesser is the density / Sp. Gr. Of the fluid, the lower is the lactometer reading.

Apparatus:

a) Specific gravity lactometer calibrated at 15.6^{o}C
b) 250 ml. capacity cylinder suitable to float the given lactometer
c) Enamel tray for spillage
d) Thermometer with range 0^{o}C to 5^{o}C
e) Thermostatic water bath adjusted at 15.6^{o}C

Procedure:

a. Adjust the temperature of milk sample as near to 15.6^{o}C as possible (but not below 10^{o}C or above 21^{o}C)
b. Mix the milk gently by pouring several times from one vessel to another, avoiding incorporation of air or foam formation
c. Pour sufficient milk into the glass cylinder to allow lactometer to float freely
d. Place the lactometer in milk allow it to come to a stationary position
e. Read the lactometer scale and record the temperature of milk
f. Repeat the reading after depressing the lactometer about 3 mm and allowing it to come to rest.

g. Take the average of two readings and calculate the correct lactometer reading (CLR) at 15.6°C (using temperature correction)
h. Calculate SNF and Total Solids (TS) using formula.

$$TS = \frac{CLR}{4} + 1.2F + 0.14$$

$$SNF = \frac{CLR}{4} + 0.2F + 0.14$$

Where L.R. = Lactometer reading
CLR = Corrected lactometer reading
F = Fat per cent of milk sample

The possibility of some difference with formula used by different dairies is always there. This depends upon dairy's own standardization of formula using gravimetric method of estimation.

Detection of Adulterants

The modes of adulteration commonly encountered in market samples are:

a. Removal of fat by skimming
b. Addition of separated milk of skimmed milk to whole milk
c. Addition of water, and
d. Addition of starch and cane sugar for raising density to prevent detection of added water by lactometers.
e. Addition of Urea
f. Addition of Ammonia Fertilisers
g. Addition of salts
h. Addition of neutralisers
i. Addition of pond water/ nitrate fertiliser
j. Addition of Formalin
k. Addition of hydrogen peroxide

Detection of Skimming

An addition of the removal of excess fat from milk is given by the following:

a. Lower percentage of fat
b. Higher density reading of the sample at 27°C, and
c. Higher ratio of solids-not-fat: fat

Detection of milk mixed with separated milk or skimmed milk

When fresh separated milk or skimmed milk has been added to whole milk, it could be inferred from the following facts:

a. Lower percentage of fat
b. Higher density of the toned milk sample at 27^oC
c. Higher percentage of solids-not-fat, and
d. Higher ratio of solids-not-fat: fat

Detection of Extraneous water:

Presence of extraneous water in milk is detected by following facts:

a. Lower percentage of fat
b. Lower density of milk at 27^oC
c. Lower percentage of solids-not-fat, and
d. Depression of freezing point

Detection of Starch

Starch or cereal flours may be added to make up the density of milk to prevent detection of added water. The presence of starch or cereal flours is detected by the following test:

Place in test tube about 3 ml. of well-mixed sample. Bring it to boil by holding the tube over a flame. Allow to cool to room temperature. Add a drop of one percent iodine solution. Presence of starch is indicated by the appearance of blue colour which disappears when the same is boiled and re-appears on cooling.

Detection of cane sugar

Cane sugar may be added to milk to raise the density to prevent detection of extraneous water. It is detected by the following test:

To about 15 ml. of milk in a test tube, and one milli-litre of concentrated hydrochloric acid and 0.1 g. of resorcinol and mix. Place the tube in boiling water bath for five minutes. In the presence of cane sugar, a red colour is produced.

Detection of Preservatives

Milk and other dairy products are required by public health laws to be free from preservatives. With a few exceptions, any preservative added to milk is not removed in the process of treatment or manufacture. Thus, if milk-containing preservative is accepted, the treated milk or milk product when subsequently offered for sale may contain preservatives and render the seller liable to prosecution besides constituting a hazard to health. No preservative shall, therefore, be added to milk except in the case of the samples, which have to be preserved for chemical examination.

Turmeric Paper Test for Boric Acid or Borax

Reagents:

a. Turmeric paper-dried
b. Concentrated hydrocholoric acid-sp. gr. 1.16
c. Ammonium hydroxide, sp. gr. 0.88
d. Lime water or caustic soda solution

Procedure:

Immerse a strip of the turmeric paper in a sample of milk previously acidified with hydrocholoric acid in the proportion of 7 ml. of concentrated hydrocholoric acid to each 100 ml. of milk. Allow the paper to dry spontaneously. If boric acid or borax is present, the paper will acquire a characteristic red colour. The addition of ammonium hydroxide will change the colour of the paper to a dark green, but the red colour may be restored by hydrocholoric acid.
The latter method is more sensitive than the former.

Hehner Test for Formaldehyde
Reagent:

Concentrated sulphuric acid-commercial sp. gr. 1.84

Procedure:

The about 10 ml. of milk in a wide mouthed test tube add about half the volume of concentrated sulphuric acid carefully down the side of the tube so that it forms a layer at the bottom without mixing with the milk. A violet, or blue colour, at the junction of the two liquids indicates the presence of formaldehyde. The test is sensitive to one part in 10,000.

Note: The test is given only in the presence of a trace of ferric chloride or other oxidizing agents. This test may be combined with the determination of fat, noting sulphuric acid in the butyrometer.

Test for Hydrogen Peroxide

Reagent:

Paraphenylenediemine solution – 2% (w/v)

Procedure:

Add to about 5 ml. of milk in a test tube, and equal volume of raw milk, followed by five drops of a 2% solution of paraphenylenediamine. A blue colour is developed in presence of hydrogen peroxide.

Note: Hydrogen peroxide is destroyed when milk is heated or stored for a long interval.

Detection of Neutralizers:

Neutralizers in the form of lime water or sodium bicarbonate may be added to neutralize developed acidity before milk is processed. Such a practice is not permissible.

Rosalic Acid Test for Carbonates

To about 5 ml. of milk in a test tube add 5 ml. of alcohol, a few drops of a 1% (w/v) alcoholic solution of rosalic acid, and mix. If a carbonate is present, a rose-red colour appears, whereas pure milk shows only a brownish colouration.

Latest trends in testing for detection of presence of adulterants

With a view to make testing for detection of adulterants smooth, easy and possible at field level, NDDB has developed a Kit for detection of Adulterants in Milk. The kit is marketed by Mother Dairy Foods Ltd, Delhi. Three versions of the kit are available at present:

Large Kit : This kit is suitable for detection of following adulterants:
Urea, Ammonia Fertiliser / Pond water, Starch and cereal Flours, Sugar/Sucrose, Glucose, Salt, Neutrilisers, Hydrogen Peroxide, Formalin.

The reagents in the kit can perform **100 tests** for each of the above adulterants.

Medium Kit : This kit is suitable for detection of following **five adulterants**:
Urea, Starch and Cereal Flours, Sugar/Sucrose, Salt, Neutralizers.

The reagents in the kit can perform **100 tests** for each of above adulterants

Small Kit : This kit is suitable for detection of following five adulterants:
Urea, Starch and Cereal Flours, Sugar/Sucrose, Salt, Neutralizers.

The reagents in the kit can perform **5 tests** for each of above adulterants.

1.4. Pricing of Milk

Pricing of any commodity is always determined on the basis of cost price and/or the price paid by the consumers. For most of the consumer goods, it is easy to work out the cost. In case of agricultural commodities especially milk, determination of cost is a complex phenomenon. In milk production, more than 70% of cost is on feeding the animal. This in turn depends on many factors like, type of animal, type of fodder, by-products available, use of hired labour or family labour, Dairying as a farm or subsidiary of agriculture. The type of feed and fodder depend upon season, crop mix, climate, location etc. The crop mix will depend upon land holding and family requirement of food grains and other agricultural products. Thus cost of milk production keeps varying from time to time with variation in any of the above factors. There is no monitoring system in place to determine cost of milk production. In such a situation, the pricing of milk is determined by the market forces i.e. demand for milk and milk products in the market.

In such a situation there is always a fear that at times milk producers may not get sufficient return from sale of milk to meet costs of milk production which would discourage milk production and labour put in for years to enhance milk production would go waste due to disposal of animals by the farmers. On the other hand the dependence of a farmer on milk for consumption expenses is increasing day by day. Therefore there is a need to increase the productivity, i.e. increase milk production per animal and reduce cost of inputs.

Government, Cooperative and Privately run milk plants have their own methods of arriving at the price to be paid to milk producers keeping viability and market and social factors in mind. A pricing system should therefore encourage production of milk and farmer should get fair return for milk. It should also have a built in incentive and penalty system for enhancement of quality. Therefore any pricing system should be based on the following principles:

1. The price offered should be remunerative and adequate.
2. It should be competitive to the prices offered by other players operating in the area.
3. Should discourage dilution, adulteration and promote quality and total solids content.
4. Should be based on major constituents as per their importance in the end product.
5. It should consider the range of quantitative variations in the major constituents like fat and SNF.
6. Should promote narrowing of gap between flush and lean season procurement.

The price of milk is fixed by the management of dairy plant. The standards for minimum fat and SNF are same as enforced by PFA Act in the state. These standards act as a base for deciding the price by different methods.

Methods of Milk Pricing

Fat and SNF are two major constituents of milk. Milk pricing can be for fat alone or both fat and SNF. The vendors generally collect milk on per litre price basis irrespective of its constituents. The price is negotiated at the onset of lean and flush season. Factors like, quantity of milk with the producer, money given as advance etc. form the basis. This system of milk pricing is highly unprofessional as it does not consider quality – mainly milk constituents – and most of times it is exploitative.

The other methods which are more professional and scientific take into account the milk procurement price existing in the market as base. Generally price paid by a leading dairy plant or majority of plants in the area are taken as base. (Say for example the existing price is Rs 175 per Kg. Fat. The union decides to pay Rs 5 per kg fat more than this i.e. Rs 180 per Kg fat, or lower say at Rs 170 per kg fat). The price determined by different methods based on this are as follows;

1. **Pricing on Pro-rata basis**: In this method the fat content of milk is priced. The price of SNF is inbuilt in the price of fat. That is why the price of fat is generally higher than prevailing price of ghee. The price per litre will vary with variation in fat content of milk. Variation in SNF content does not affect the price, unless penalty clause for low SNF is defined.

Illustration: The price for the milk offered by the farmer is worked out using the following formula'

$$\text{Price of 100 litre of milk} = \boxed{\text{Rate per Kg Fat X\% fat content in milk}} \qquad \text{(i)}$$

Suppose fat % of milk is 6% and SNF 9%, and rate offered by the union is Rs 180 kg fat.

i) Cost of 100 litre of buffalo milk with fat and SNF as above would be

= 6.0 X 180 = 1080 Rupees or **Rs 10.80 per Litre** of milk.

ii) The cost of 100 litre of Buffalo milk with 10% fat and 9% SNF would be

= 10 X 180 = 1800 Rupees **or Rs 18 per Litre**.

iii) The cost of Cow milk with 3% fat and 8.5% SNF would be:

= 3 X 180 = 540 Rupees or Rs 5.40 per litre.

Hence the cow milk with low fat gets very low price which is not remunerative to the farmer, and buffalo milk with high fat fetched very high price which is not profitable for the union.

Advantages and disadvantages of the system;

Advantages:
1. Simple arithmetic calculation, so easy for a common man - secretary, farmer.
2. Requires only fat estimation, so easy to adopt.
3. Can be used for any type of milk without changing the procedure and calculation.
4. Adulteration does not yield any extra benefit as total fat content remains same.

Disadvantages:
1. Does not provide remunerative price for Cow Milk.
2. High fat content leads to extraordinary price which is a losing proposition for the Union.
3. Absence of SNF testing leads to malpractices which are beyond the scope of this training.

This method suits for buffalo dominated areas.

For getting quality milk, the lower acceptance limits for SNF must be fixed and penalty for low SNF clearly defined and enforced.

Ready reckoner (Rate Chart): To make the payments calculation simple at DCS level, a ready reckoner indicating the price of one litre of milk at different fat intervals is provided. The price at different intervals is calculated using the formula (i). Some unions prepare rate charts indicating 3 points slabs for fat where rate for the middle value is generally calculated. This acts as a safeguard against possible testing error and avoid conflicts. As the awareness of milk producers is increasing, the producers have started questioning about the middle point rate when the fat content is the upper mark of the slab. Keeping this in view some unions have prepared rate charts with each fat point. A ready-reckoner with slab system and each point is given at annexure-I.

CLR Based Rate Charts: Calculation of SNF for individual sample at DCS level is a cumbersome task. But calculation of CLR is very easy. However, consideration of SNF while giving milk price at DCS level is in the interest of DCS viability as well as quality of milk. As fat content of milk is considered on one axis of the rate chart, the other axis considers CLR instead of SNF. Based on these two parameters, SNF is worked out, for all the slabs of fat and CLR. However this remains only in the background (a part of calculation of rate at different slabs). The actual rate depicted on the rate chart is based on fat and SNF. The rate chart depicts rate at different fat and SNF levels against the axes of fat and CLR. An illustration of CLR based rate charts on two axis system is given at annexure-II.

Pricing on Two Axis basis: As mentioned earlier, pricing on pro-rata basis underestimated the price of cow milk as no consideration is given to SNF. To avoid this, two axis method is used in which both fat and SNF are priced considering that fat and SNF are two main constituents. Price of fat and SNF is decided considering market price of Ghee and SMP as these are two independent products. Fixing of milk price on the basis of both fat and SNF is called the two axis pricing.

Hence the price of fat as in case of pro rata basis is split in price of fat and SNF in accordance with the commercial value of Ghee and SMP. Generally price of fat is considered as half the price of fat on pro rata basis and SNF is priced at 2/3 or ¾ of price of Fat depending on the comparative prices of Ghee and SMP in the market. The price of milk is calculated using the following formula:

Price of 100 litres of milk =

Price per kg fat x fat %age of milk + price per kg SNF x SNF %age of milk …… (2)

Price of fat on pro-rata basis = Rs 180 per Kg.

Price of fat in two axis system = 180/2 = Rs 90 Per Kg.

Price of SNF on Two axis system = 90 x 2/3 + Rs 60 per Kg.

i) **Cost of 100 litres of milk with 6% fat and 9% SNF** =

90x6+60x9 = 540+540= Rs 1080 or **Rs 10.80 per litre.**

ii) **Cost of 100 litre milk with 10% fat and 9% SNF =**

10x90 + 9x60 = 900+540 = Rs. 1440 or **Rs 14.40 per litre**.

iii) **Cost of 100 litre Cow milk with 3% fat and 8.5% SNF =**

3x90+8.5x60 = 270+510 = Rs 780 or Rs 7.80 per litre.

Advantages

1. Cow milk is reasonably priced as due consideration is given to SNF.
2. The system does not discriminate with cow milk or buffalo milk, or with SNF.
3. The price can be paid for any level of fat and SNF.
4. Milk with low and high fat content does not fetch very high or very low rates respectively as in case of pro-rata basis.

Limitation: The system calls for testing of SNF at every level for rightly pricing the SNF. As it requires SNF testing, the practice of this system is hampered as no quick method of SNF calculation at DCS level is available. In the absence of SNF testing, dilution of milk lowers SNF content, but as rate based on fat content alone and full SNF is given, the DCS incurs losses. The union receives low SNF milk. Therefore, testing of SNF at DCS level has to be strictly enforced.

This system is more practical in the predominantly cow milk areas where range of fat content is narrow as scope for adulteration of milk is very poor. In the areas where both buffalo and cow milk are predominant, there is tendency to dilute low fat buffalo milk and sell it as cow milk. In this practice the producer gains but the DCS and the union incur losses.

Ready reckoner: Two types of ready reckoners are in use where this system is in practice. One with fixed SNF and other with varying levels of SNF. The fixed SNF is as per existing PFA standards for the state. Another type is CLR based ready reckoner. However, rate is actually based on SNF content. All the three types of ready reckoners are given in annexure –III.

Pricing on Equivalent-fat-units (EFU) basis: This system is a modification of two-axis basis pricing system. In this method instead of lowering the SNF rate, SNF units are converted into fat units in proportion to the comparative rates of Ghee and SMP in the market. Rate per equivalent fat unit is calculated from the existing pro-rata fat rate at standard buffalo milk. As testing of SNF is not a practice at the field level, a specified SNF level is taken into account for calculating equivalent fat units.

Illustration: Assume the average fat and SNF received for buffalo milk is 6% and 9% respectively and the present rate for buffalo milk is 180 per kg fat.

Assume that the ratio of SMP/Ghee prices is 2/3.
Equivalent fat units in 100 litres of buffalo milk =

Fat%+ SNF%x2/3, or 6+9x2/3 or 12 Units.

Rate of 100 litres of milk at prorata basis = 180x6% = 1080.

Rate per EFU = 1080/12 = Rs 90.

The following formula is used for working out cost of milk.

Rate per Equivalent Fat Unit X EFUs in milk ………………………….. (3)

i) Cost of 100 litres of milk with 6% fat and 9% SNF =

Equivalent fat Units 100 Litres of milk = 6+9x2/3 = 6+6 = 12

Therefore cost of 100 litres milk = 12x90=1080 or Rs 10.80 per litre.

ii) Cost of 100 litre milk with 10% fat and 9% SNF =

Equivalent fat units in 100 litres = 10+9x2/3 = 10+6 = 16

Cost of 100 litres of Milk = 16x90 = 1440 or Rs 14.40 per litre.

iii) Cost of 100 litre Cow milk with 3% fat and 8.5% SNF =

Equivalent fat Units = 3+8.5x2/3= 3+5.67 = 8.67

Cost of 100 Litres of milk = 8.67x90 = 780.3 or Rs 7.80 per litre.

Comparing this system with two-axis system we find that both the systems give same results. So its advantages and limitations are same as in case of Two Axis system. The only difference is that SNF component is hidden and not mentioned in the rate chart. Calculation at DCS level is difficult, and needs high level of understanding.

5. Total solids basis: This is a fairly simple method. This is applied where the end products from milk are not discrete like GHEE and SMP. In case of a dairy plant where the entire quantity is sold as liquid milk only this method is more appropriate. In this method both fat and SNF (i.e. total solids) are considered as such without assigning weightage to SNF or SNF rate. The rate is per kg total solids.

Illustration: Assume the average fat and SNF received for buffalo milk is 6% and 9% respectively and the present rate for buffalo milk is 180 per kg fat.

Total solids in 100 litres of milk = Fat%+SNF% = 6+9=15 Kg.

Rate of 100 litres milk at prorata basis = 6x180 = 1080 Rupees.

Rate per Kg total solids= 1080/15 = Rs 72

Formula used for calculating cost of milk =

Rate per kg TS x Total solids in milk. ……………….. (4)

i) Cost of 100 litres of milk with 6% fat and 9% SNF =

Total Solids in 100 Litres of milk = 6+9=15

Therefore cost of 100 litres milk = 72x15=1080 or Rs 10.80 per litre.

ii) Cost of 100 litre milk with 10% fat and 9% SNF =

Total Solids in 100 Litres of milk = 10+9=19

Cost of 100 litres of Milk = 72x19 = 1338 or Rs 13.68 per litre.

iii) Cost of 100 litre Cow milk with 3% fat and 8.5% SNF =

Total Solids in 100 Litres of milk = 3+8.5=11.5

Cost of 100 Litres of milk = 72x11.5 = Rs 828 or Rs 8.28 per litre.

We see that for low and high fat contents this method is still better as it promises better price for cow milk and rational price for high fat buffalo milk. This is because SNF is priced at par with fat. Generally cow milk producers are discouraged if other methods are used. So for the dairies which sell toned or standardized milk, this system will be more useful as low fat milk i.e. cow milk would get better price. However determination of SNF content of milk at DCS level has to be ensured. Secondly to work out total solids this method will compel SNF testing.

Ready reckoner: in this method the ready reckoner is similar to that in case of pro rata system. The only difference is that instead of fat, we take into account total solids. As SNF content of milk has to be considered in this method, we can also prepare CLR based rate charts. As both CLR and Fat content are known first SNF content can be worked out to find total solids based on which rate at different slabs of fat and CLR can be worked out.

Calculation of Fat and SNF Rates: In the private circles, calculation of fat and SNF rates is done from the prevailing procurement price on per litre basis for standard buffalo milk. Suppose vendors purchase buffalo milk with 6% fat and 9% SNF @ Rs. 10.80. This rate is split into fat and SNF rates generally in the ratio of 1:1. Thus price of Fat present in one litre of milk would be Rs. 5.40 and SNF also Rs 5.40. If we consider 100 litres milk it would contain 6 Kg fat and 9 Kg SNF. The total price of fat is Rs 540. The rate per Kg fat would be (540/6) Rs 90. Similarly 9 Kg SNF costs Rs 540. Price of SNF per Kg would be (540/9) Rs. 60.

Price revision: Milk production in any area is largely determined by climatic conditions and type of milch animal. In buffalo dominated areas milk production is higher during winter season and lower during summers. In order to maintain adequate supply of milk to the consumers and proper capacity utilization of plant, the unions have to revise the price of milk from time to time. Generally higher price is given during summer season. In the areas where competition is fierce, the pricing is one of the tools to fight competition. The following precautions should be kept in mind while revising the price;

1. **Number of revisions:** Number of revisions should be minimum possible. Preferably there should not be more than two revisions in a year i.e. one at the onset of flush season and one at onset of lean season.
2. **Timing of Revision:** It is also seen that some milk unions announce the price for the summer months in late April or even in May. Although the price announced is higher than existing, it has no impact on milk procurement as the vendors have already negotiated with the producers in the month of March for supplies till Deepawali. Hence price to be paid in summer months should be announced in mid-March (By Holi).
3. **Upward Revision:** Any upward revision should be done only once. It would have an impact on the producer as the marginal increase would be high. Upward revision in installments say Rs 5 per kg fat at a time and three times within a shorter period would have hardly any impact as marginal increase for one litre of milk containing 6% fat would be only 30 Paise which the producer would ignore. If this increase of 15 Rs per kg fat is done at a time, the marginal increase would be 90 Paise. It is sufficient to sensitise a producer and enhance milk procurement.
4. **Time lag:** There should be adequate time between decision for price revision and its actually coming into force particularly when there is upward revision. It takes a few days to disseminate the information in the area. Within this time the producers who want to shift from vendors and others to cooperative can get sufficient time to settle their dues with them. Secondly, revision which takes place instantly unless given as a reward to the producers, proves a drain on resources of the union for initial few days.
5. **Awareness/Publicity:** Adequate publicity to the price revision (upward) should be given so that milk producers in the milkshed area get this information. Some unions also make use of newspapers and posters etc.

Penalty System: Milk received by the union can be of following types;

- Good milk meeting standards of fat and SNF and free from any adulterants and sediments like straw, hair, dung, flies and any other physical matter which is not a constituent of milk.
- Milk with any deviation from above i.e. not meeting the standards of fat and SNF, having any adulterants, or physical matter of any kind or sour/ curd.

In case the milk is sub-standard, the unions impose penalty on the milk received. Generally milk with adulterants is not accepted.
Sour milk is valued at 75% of equivalent milk.
Curd milk is valued at 25% of equivalent milk.
Milk with low SNF is paid actual SNF rate upto certain limit and double deduction for low SNF is levied if SNF is lower than the specified limit.

Note: These penalty norms are indicative. The union may decide its own norms depending upon the prevailing circumstances.

CHAPTER – V

MILK PROCUREMENT

1. Milk Procurement Issues:

1.1 Milk Transportation:

Milk is a perishable commodity. As it is a complete food, microorganisms grow very fast in it leading to deterioration in quality. It can not be kept for long if not chilled or processed within 4-6 hours of milking depending upon weather. In our system there is no arrangement for chilling at the source of milk production. In the recent years some initiative has been made in this direction through installation of bulk milk chilling (BMCs) units at DCS level. But as the quantity of milk procured by many DCSs is not sufficient to fully utilize the capacity of a BMC, hence milk procured at these DCSs has to be transported to the nearest Milk Chilling Centre or Dairy Plant immediately after the collection is over. This too, twice a day. For this purpose a formal regular arrangement for milk transportation has to be made.

Generally the milk unions collect milk from a few hundred societies. From all the societies milk has to be brought to the chilling centres or dairy dock. It is not possible to decide lifting from societies every day. So milk routes are defined. A transporter is assigned a route for lifting milk from the societies falling on that route.

Formation of milk routes:
The most important information for chalking out a milk route is the latest road map of the area indicating the entire main and link roads (Both Pucca and Kuccha). The other information is the quantity of milk procured by each DCS and distance of Each DCS from the dairy or chilling centre falling in the area. The milk routes are generally of two types, 1) Linear, and 2) Circular. Generally the linear routes cover the DCS along the main roads in the milk shed, and circular routes cover the interior DCS connected by link roads. The following points are considered while deciding the routes.

- The total distance from first DCS to the dock should not be more than 60 KM.
- The number of DCS should be such that the time taken from 1st DCS to the dock is not more than 2-2.5 hours and the vehicle is not overloaded.
- The running time for the vehicle is about 40 km per hour. It can vary depending upon the road condition.
- Halting time at DCS for loading of milk, unloading of cans, filling of truck sheet etc. should be 3-5 minutes depending on the number of cans.
- Considering the distance between DCS and halting time, a timetable for arrival and departure at each DCS and dock is prepared. A grace period of 15 minutes is given over and above the calculated arrival time at the dock to compensate for the delay

arriving due to minor breakdown of vehicle, waiting time at railway crossings and traffic congestions etc. A copy of the route time table is given to all concerned i.e. DCSs, transporter, dairy/MCC dock, main gate security, and concerned field staff.

- Arrival time of all the routes at MCC or dairy dock is staggered by 10-15 minutes to avoid waiting time for the vehicles and congestion at the dock.
- Care should be taken to cover minimum possible distance for all the routes combined to ensure economy in operations.

Type of vehicles: Which type of vehicle is appropriate for a particular route is determined by the road condition, Quantity of milk, and approachability of DCS in a village. Which type of vehicle is available in the area and, comparative economy of hiring different types of vehicles are also important factors. In case the quantity of milk with the DCS on a route is very high, a truck would be suitable. If quantity is small, tempo type (LTV) vehicles are more suitable. Generally medium transport vehicles are in operation in plains and light vehicles are used in hilly areas. These are preferred because of their speed and operational ease.

Owned or hired vehicles: A union procuring milk from say 600 DCS and covering 15 DCS per route would need 40 vehicles for milk transport. In case it plans to have its own transport arrangement, it would need at least 40 vehicles, which would mean a heavy investment. It would have to hire nearly 95 drivers, have its own workshop for their maintenance, mechanics, people for completing legal formalities, huge inventory of spares etc. Thus a big establishment would be required to manage only transport of milk. In case a vehicle breaks down, fixing of liability for sourage or curdling of milk would be a big problem. It would be difficult to arrange additional vehicles as and when need arises. Considering the interest, depreciation, salaries of drivers, maintenance cost, fuel and lubricating expenses etc. it would be a very costly affair to have own transport system.

To avoid all these hassles, the unions prefer to hire transport vehicles on contract. Generally vehicles are hired for a period of one year. A formal tender notice is issued in local newspapers indicating type of vehicles, model, number of vehicles required date of opening of tenders etc. in different areas of milk shed. The laid down procedure is followed and selected bidders are asked to enter into an agreement with the union. A draft model agreement is given at annexure -

Rate for hiring of vehicle: Generally vehicles are hired on rate per kilometer basis. But there are circumstances where the distance covered is very low say 55 KMs. Provision for change in rate depending on change in the rates of fuel is also kept. In such a case a minimum distance for which payment would be made is decided (say 70 kms per trip in above case). The rate forms an important component of the agreement. It may also mention rates for transport of bulky material like cattle feed, Seed etc to DCS.

Transport Agreement: The transport agreement forms the basis for dealings between the transporter and the union. It clearly spells about the Milk route, requirements the transporter has to fulfill, the responsibilities of his staff, liability in case of shortage of milk, fat, SNF, souring/curdling of milk, arrangement in case of break down of vehicle, pilferage of milk, loss of cans, payment etc. The transport agreement forms the sole document in case of any dispute. So utmost care has to be taken while drafting it.

Head Load: In almost all the milk shed areas, there are villages that are not connected with pliable roads. The transport vehicle cannot reach such a village. But delivery of milk to the union is a time bound job. Therefore to deliver milk to the transport vehicle a point nearest to the village is decided. This point is called head load point. Milk cans are brought at this point by the DCS either by manual lifting or using appropriate mode of transport like bullock cart, camel cart, tractor etc. before the arrival time of vehicle. Arrangement for bringing milk from DCS to the head load point is made by the DCS. The union pays the DCS on per litre per Km basis. In some cases the nearby societies also bring milk to the chilling centre dock on head load basis.

Precautions:

1. Timing for the vehicle should be just adequate to safely transport milk from DCSs to dock. If the time is more than adequate, the transport staff may indulge into malpractices. Too short time would lead to dispute between transporter and DCS and procurement staff.
2. As the link roads in the villages are not smooth, there is too much of jerking during transport. If the can lids are loose, there would be lot of spillage of milk leading to shortage of milk and unhygienic conditions in the vehicle. Hence can lids should be properly fitted.
3. The name/code of DCS and type of milk i.e. BM or CM should be legibly written on the cans to avoid mixing of milk and cans.
4. Verification of cans should be done periodically. Timely notice should be given to transporter in case any cans are missing. In case he is unable to return the cans, recovery should be made from him.
5. Similarly, any recovery from the transporter should be done without delay. There are instances where it becomes difficult to recover the entire amount from the transporter when the contract comes to an end. Generally the last bill and security refund is paid after receiving no dues statement from DCSs and other concerned departments and making necessary recoveries if due.
6. The staff of transporter should be given orientation in handling of milk and milk cans, personal hygiene and sanitation of vehicle, measures to be adopted to keep quality of milk in summer season and distribution of truck sheet and information to be collected from DCS while lifting milk
7. Any complaints from the transporter and disputes related to milk transport should be settled immediately. Any delay may lead to complications.

ANNEXURE – I

AGREEMENT

This agreement is made on this day ________________________________ between the __________________ District Milk Producers' Union Ltd. _______________ hereinafter called Union, on the first part and Sh. ______________________________ son of Sh. ____ Resident of ____
District ____________________ hereinafter called the Transporter on the second part.

Whereas the Union is interested to hire _______________________ from the transporter to transport milk and other commodities from and to its various Milk Producers' Cooperative Societies, and the transporter has agreed to offer and operate his vehicle number __________________ type/model _______________ for this purpose.

Now therefore, both the parties have agreed on the following terms and conditions.

1. This agreement will remain in force from _____________________ to ___________. However, it may be extended for a period of ____________ months by the union on the existing terms and conditions and thereafter if required by the mutual consent settlement between both the parties. In case the union gives no notice for extension before the date of expiry, the agreement will automatically come to an end on the last day of valid period.
2. The transporter will deploy the vehicle in efficient working condition to the entire satisfaction of the Managing Director, or Manager Milk Procurement or, Concerned area in charge of the union with all its requisite documents such as Registration certificate, Insurance policy, Pollution under control certificate, payment of taxes and levies as applicable from time to time, driving license of the operator/driver duly complete and valid at all the times. The attested photographs of the driver and helper will be displayed in the vehicle at all the times.
3. The transporter will ply his vehicle on route number /name _____________ in _________ area. The union will have the right to increase the number of DCS or divert or change the route as per their requirement at any time during the validity of this contract or extended period. The union will verify the distance of the route and the same shall form the basis of payment of hiring charges to the transporter.
4. The union shall pay hiring charges @ Rs __________ per day or Rs _____ per Kilometer to the contractor. These rates will be inclusive of market price and all other charges prevalent during the said period for diesel and lubricants etc used by the transporter.
5. In case the transporter fails to provide the vehicle on a particular day, the union will arrange an alternate vehicle from the open market. In such a case, any additional amount paid to the alternate vehicle, and any loss occurring to the societies or the union on account of sourage/curdling of milk or any other incidental cost will be recovered from the transporter.

6. It would be the responsibility of the transporter to keep the vehicle road worthy at all the times. He will be responsible for the up keep, repairs, service and maintenance of the vehicle in general at his own cost.
7. As and when the accumulated increase or decrease in the price of diesel since last revision takes place, corresponding increase/decrease in as per fuel consumption of the vehicle (specify Kms/litres of diesel) will be worked out and rate adjusted accordingly.
   a. For example: Tata 409 @ 8Km per litre or 12 paise per Km.
      Tata 407 @10 Km per litre or 10 paise per Km.
8. The transporter will transport milk twice a day, once in the morning and once in the evening, from the specified DCSs as per timings fixed by the union from time to time. If due to some reasons the vehicle reaches a DCS late by more than an hour, it will be obligatory on the part of transporter to call the secretary to the DCS for collecting milk and to ensure that no damage or loss is caused to the DCS on account of non-lifting of milk. In case of sourage or curdling of milk due to late arrival than the scheduled time, the transporter will be liable to bear the loss caused thereby.
9. In case there is any breakdown of the vehicle, it shall be the liability of the transporter to make alternative arrangement at his own cost for lifting of milk in time and in case of default he will be liable to bear the losses caused thereby. If for circumstances beyond the control of union or for any other reason, the milk collection of the route is suspended on a particular day or for a particular period, the transporter will be informed in time and he will not be entitled for any payment for the period when the collection remained suspended.
10. Besides milk the transporter will have to carry cattle feed, ghee, chemicals, milk testing equipment, fodder seeds and any other material required for milk collection or related to milk production enhancement, letter and other documents like, rate charts, posters, milk bills, payment advices, from union to DCSs and vice-versa. The entire responsibility of safe delivery of such material will be of the transporter and he will be liable to compensate the union or DCS as the case may be, for any loss incurred during transportation. The transporter will however not carry any other kind of material of his own or any other party on the vehicle while transporting goods of the union.

    In case the vehicle is sent on a special trip for transportation of cattle feed or any other material to the DCS or from a chilling centre to main dairy, or any other destination within the milk shed, payment will be made on the same rate as given in Para 4 of this contract.
11. Within the rules under Motor Vehicles Act, the transporter will allow the authorized representative of the Union/DCS to travel with the vehicle, but no outsider will be allowed to travel in as long as it is on Union duty.
12. The transporter will employ his own staff such as driver, helper on the vehicle. He will be responsible to pay them wages (at least minimum wages as declared by the government from time to time) deduction of Provident Fund and deposition of same

with the concerned department, and observe all the labour laws and regulations in force. In case of any violation of labour laws related to his staff working on the vehicle, or transport rules applicable to the vehicle, the transporter himself will be liable. In case the transporter does not employ any outside staff and himself, or his relative etc. performs work he will have to give an affidavit in this regard duly attested by a notary public.

13. The transporter will arrange to cover the vehicle with Tarpaulin or any other suitable material during summer season i.e. April to September, to protect milk cans from direct sun light ant prevent rise in temperature of milk. However he will NOT ADD ANY THING TO MILK LIKE ICE OR CHEMICALS. If such a case is detected, necessary legal proceedings can be initiated under the applicable food law like PFA.
14. The contractor will have to deposit a security of Rs (say 30000) with the union. Out of this Rs (say 15000) will be deposited immediately on acceptance of the contract and remaining (say 15000) will be deducted in equal installments in the first 10 transport bills. The security will be refunded within 2 months after termination of contract subject to completion of required formalities by the contractor and making necessary adjustments/ recoveries if any. Within this period the transporter will get the logos/sign/paints etc related to union removed from the vehicle. Failing to do this can attract a penalty of Rs 5000/-, which will be recovered/adjusted at the time of releasing the security or final bill. The security deposited with the union will not bear any interest.
15. The transporter will present fortnightly bills on 2^{nd} and 17^{th} of month. The payment will be released within 10 days of receipt of bill through cheque or bank advice.
16. The transporter will be enrolled as nominal member of the union as per its bye-laws.
17. The transporter will not transfer or sublet the contract to any party. However under special circumstances it can be done with the approval of Managing Director of the union provided that the person to whom the contract is to be transferred fulfills all the conditions required for hiring of vehicle. In such a case a fee of Rs 1000 will have to be deposited with the union.
18. Damage/and or loss of milk cans or any other material transported under this agreement due to mishandling, or carelessness of the transporter shall be recovered from transport bills after making due assessment of the loss. However a due notice of this loss will be given and adequate time will be given for replenishment of cans or lids. Recovery for any loss and/or damage will at the rate of two times the market price of the item lost/damaged.
19. During the tenure of this agreement, the transport will provide space on the vehicle for publicity as decided by the union. He will not put up any publicity material of any other party on the vehicle.
20. The transporter will receive milk from the societies and record number of cans, quantity of milk, both Cow milk and Buffalo Milk, their fat content etc. He will deliver the truck sheet of previous shift to the DCS. He will also take acknowledgement of delivery of other material and documents etc. from DCS staff. As soon as the vehicle reaches the dock, the record of cans milk etc received from

the DCS will be handed over to the dock in charge. On completion of weighment etc at dock, he will receive the empty milk cans, truck sheet and any other material to be sent to DCSs. The empty milk cans should be loaded in horizontal position.

21. If the vehicle is found plying on road or place other than the prescribed route, or found in a residential area or commercial premises, or found halting at an unauthorized place, in suspicious condition, or manipulating with milk cans, or mixing of milk of different DCSs or pilfering, adulterating, milk or alteration in truck sheet, the agreement can be terminated, security forfeited or suitable penalty can be imposed.
22. On account of violation of any terms and conditions of this agreement, or unsatisfactory discharge of duties, the Managing Director can terminate this agreement at 24 hours notice.
23. If the transporter withdraws his vehicle without giving 30 days’ notice, his security and/or pending bills may be forfeited. . Any dispute between the transporter and the Union arising out of any act of omission or commission, the matter shall be referred for arbitration to The Managing Director (of concerned Milk Federation) whose decision shall be final and binding upon both the parties.
24. The staff deployed by the transporter will observe proper discipline while on duty and in the premises of milk union. Washing of vehicle, clothes, taking bath in the premises of the union is not allowed.
25. Any staff of the union can check the vehicle at any time when it is performing duty of the Union.
26. The transporter and his staff will have to follow the directions/instructions issued by the union from time to time.

(Name and Signature of First Party)

(Name and Signature of Second Party)

Witnesses

1. Sign ____________________ Name and address ____________________

2. Sign ____________________ Name and address ____________________

1.2. Lean and Flush Milk Procurement:

It is observed that milk procurement by the milk unions varies in different pockets of the country during summer and winter. In Southern States, the variation is almost nil. In Haryana, it is almost 4:1. In Punjab 2.5:1 and in western areas like Gujarat and Maharashtra it is almost 1.5:1. Why does milk procurement varies like this?

India falls between Lattitude 8°4’ N and 37° 6’N. As we move away from the equator, the climatic variations during the year become more and more distinct. As such in most parts of the country the temperature during summer goes beyond 40°C. During winter the temperature falls as low as 4°C. In southern parts of the country, the variations in temperature are less marked. The climate of any area has a large influence on milk production of that particular area. The climate influences milk production in the following ways.

1. The temperature determines suitability of animal species and breed for that area. We know that as the exotic blood level goes up in the cross-bred cattle, the animal feels it very difficult to accommodate in hot climates. In hot climate areas, it is very difficult to maintain high producing HF cows. But local breeds like Sahiwal and Rathi are very much suitable.

2. Hot climate hampers milk production. Cross-bred cattle are under severe heat stress during summer. When any living organism is under stress, its production efficiency gets hampered. The system works more on coping with the stress.

3. Climate also influences the breeding cycle of animals. For example buffaloes are seasonal breeders. They do not come in heat during summer months.

4. Apart from breed and production efficiency, the animal needs ample nutritious fodder for production. You will observe that fodder is more or less scarce during summer months. The fodder produced is more fibrous, i.e. it does not meet protein requirement of the animal. Also it is largely dependant on rainfall. Areas with scanty rainfall have poor fodder production.

5. The climate also determines availability of other resources like ingredients for cattle feed through the crop mix suitable for the area, which in general affect the production capability of the animal.

The other factors which influence Milk procurement by the union are as follows.

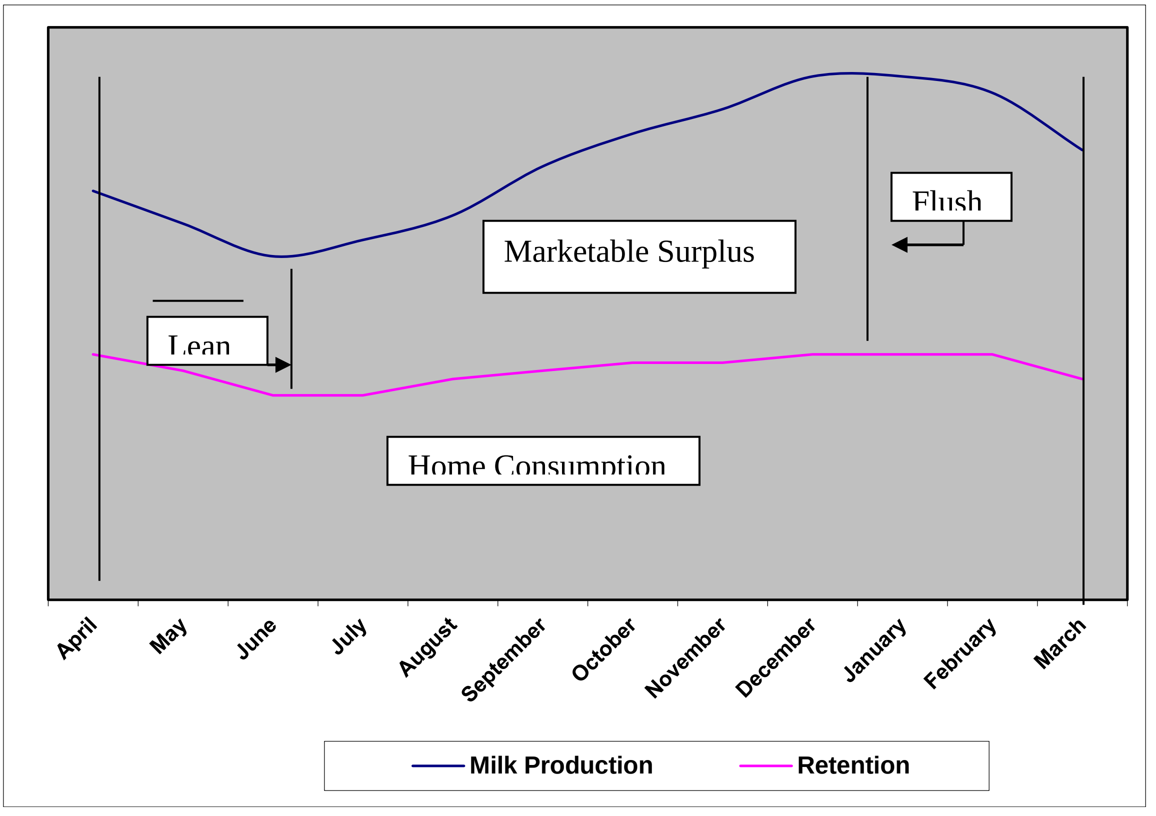
We know that primarily milk is produced for home consumption. Only the surplus after meeting the domestic requirement is available for disposal. The following players have their share in the surplus.

1) Local vendors.
2) Milk Union.

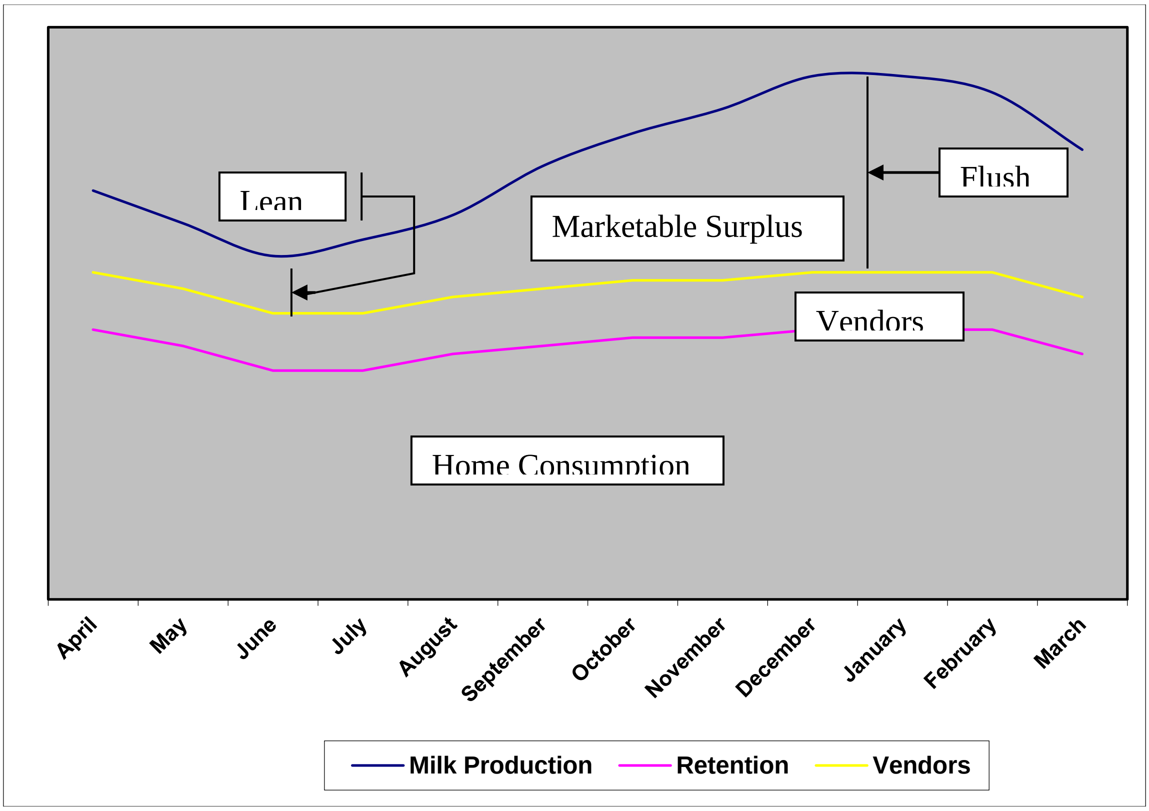
3) Private plant or plants if operating in the area.

1. Local culture and feeding habits of the people in the area determine home consumption of milk. In Haryana and Punjab, consumption of milk and milk products is very high i.e 67% and 50% respectively. However it is much less in Gujarat and Southern states.

Thus the areas with wide climatic variations during the year have wider gap between milk production during flush and lean seasons which in turn determine milk procurement by the union. High local consumption leaves high Flush Lean ratio as surplus during lean season will be much less and comparatively high during flush season.



The operation of vendors depends upon the market demand, in the areas with big urban centres the number of vendors is high and consequently milk flow from rural to urban areas through vendors is more. As the demand for milk in urban areas is almost constant, the areas where vendors have a stronghold on the milk market face a still wider lean flush ratio. It can be well understood from the following diagram:



From the above figure we observe that ratio of marketable surplus during flush season and lean season is widened if we consider operation of vendors as well.

The private milk plants generally programme their operations in accordance with the market prices of their products. Generally small operators stop operations during summer months due to low throughput and higher overheads of plant operation. In times the private plants operate in a vigorous manner. At such times they grab a major share of marketable surplus leaving a small share for the cooperatives. The ratio may be arbitrarily narrowed. A similar situation was observed in the northern region during 2003-04. It should not be taken as positive sign. On the other hand cooperatives having a firm base, and operating aggressively are hardly affected by this phenomenon.

Strategies to cope with wide Lean Flush ratio:

1. Careful study of reasons for the wide ratio is a pre requisite for any strategy formation. What needs to be studied is herd composition, milk production curve both for cow milk as well buffalo milk, fodder availability, urban milk market demand, milk consumption pattern at home, operation and intensity of vendors operation etc.

2. Long-term measures include induction of more cows. Buffaloes calve during August to October. They are an assured source of milk production during winter season. As cows generally calve during March April, they ensure milk supply during summer months. The union and state needs to devise a careful breeding policy for their Artificial Breeding programmes, to encourage milk production during summer months.

3. Similarly production of green fodder during lean season should be encouraged. In each area, some crop rotation recommendations are made by the agricultural universities and ICAR. The unions should arrange seeds of appropriate varieties which give more fodder yield over a longer period of time.

4. Seasonal breeding in buffaloes should be discouraged. Rather extension programmes to encourage buffalo breeding during summer months should be initiated. It would need careful examination of onset of heat. It would encourage higher income through higher milk price. Other measures such as providing natural habitat to buffaloes like wallowing ponds should be encouraged.

5. Management of cross bred cattle during summer is very important. Heat stress coupled with high humidity is a major hindering factor for milk production. Animal housing should allow free flow of air. Animal coolers should be installed in the sheds.

6. The milk unions are adopting appropriate pricing strategies for attracting more milk during summer season. However, it is noted that in most cases the announcement of milk price by the unions is very late. In Northern India, the vendors negotiate with the producers during the month of March for supply during summer season. However, the unions hike the price only after the milk procurement starts declining. By this time the vendors have already bound the producers for summer season. The hiked price has little benefits for the union. Therefore, although the price for summer season may be effective from 1st April or mid April, it should be announced in mid March.

7. The milk price for the lean season should be such that it makes a dent on the producer as really attractive price. A marginal hike in price like five rupees per Kg. Fat does not make much sense.

8. The union should ensure that whatever price is announced, it actually reaches the producer. Regular testing of both fat and SNF should be a habit and demanded by the farmers.

9. Some times, the milk payments during March-April are delayed. It is highly detrimental to milk procurement during summer months. It happens due to piling of stocks of finished products like Ghee and SMP from high milk procurement during summer season. The union should make prior arrangement of working capital to tide over this situation. The unions which market more liquid milk do not face such a situation.

10. In the areas where fodder is scarce during summer season, milk production depends upon mainly concentrates and Cattle feed. Farmer has limited stocks of concentrates and other agricultural by products. Hence supply of good quality cattle feed should be ensured. Apart from increased milk production, it would also help animal maintain its body.

11. Measures for enrichment of dry fodders like wheat straw, paddy straw by urea treatment, and fodder conservation by hay and Silage making should be promoted. April is best for treatment of wheat straw with urea when farmers store it in cuppas.

1.3 Shortage of milk:

Although India is number one in milk production in the world, the milk plants especially cooperatives face ups and downs in milk procurement. The reasons for this are a number of players operating in the market, and speculative nature of dairy commodities. It also depends upon level of import and export of milk products. In some areas the climate plays an important role. In order to ensure smooth running of dairy industry, there is a need for comprehensive programmes for milk production enhancement.

There are many players like cooperatives, private plants and milk vendors operating in the dairy industry. Level of operation by different players depends upon their objective. No doubt the ultimate objective of all the players is earning profit. But cooperatives are also working for a social cause. They have to provide year round market to the milk producers, required services for milk production enhancement, and regular availability of milk to the consumers. Procurement of milk depends upon demand and market prices of liquid milk and milk products.

Prices of packed milk sold by cooperatives and some private plants, and liquid milk supplied by the vendors remain almost constant throughout the year. Among the products except milk powder and ghee the prices of most of other products remain constant or hardly decline. However prices of milk powder and ghee are highly speculative and depend upon the availability of these products in the market, import of these products, substitution products like butter oil and vegetable oils etc. in view of this milk procurement by the plants manufacturing ghee and milk powder depends on their market prices and forecast for the coming summer season. As milk procurement by vendors almost remains constant, the residual milk is shared by the cooperatives and private plants. As the level of operation of private plants (manufacturing speculative products) generally depends on market prices of SMP and Ghee, their operations largely affect the operations of cooperatives. Thus there are times when cooperatives have to face fierce competition for milk procurement, and at other times they face glut in milk procurement and have to operate even at negative contribution in order to meet social commitments.

The other major factors which affects milk procurement by cooperatives is entry of more and more private plants in liquid milk marketing. As market for liquid milk is almost stable, the plants marketing liquid milk have to maintain a bare level of operations. This trend is gaining strength day by day leading to consistent competition for milk procurement.

Due to liberalization of dairy industry, number of private plants have increased manifold thus bringing more and more challenges before the cooperatives.

If we see the milk production trend, there is increase in milk production every year. But the size of our urban centres is increasing at a much faster rate, leading to higher demand for liquid milk in the cities. This demand is largely met by the vendors, leaving a limited space for the cooperatives. The cooperatives have to face competition for milk procurement in the villages.

The milk vendors collecting milk from the villages are operating at lower overheads. The organized (and even unorganized) milk plants especially cooperatives are operating at high fixed overheads like high salary bill. As a result the gap between milk procurement and selling price is higher than vendors and private plants also. It leaves less scope for offering better price to the milk producers and competitive price for consumers. The vendors although generally pay to milk producers at par with cooperatives (only in the areas where cooperatives are operating), offer milk to consumers at lower rates. Thus a large chunk of liquid milk market is retained by the vendors. As their flow of milk in the market is more, they source it from villages leaving lesser share and more competition for the cooperatives.

Other reason for shortage of milk is climatic. Some areas of the country like Rajasthan, parts of Punjab, Parts of Gujarat are highly dependant upon rainfall for agriculture. In case of low or no rainfall, availability of fodder and other by products is severely affected in these areas. There have been cases in the past when people have let the animals loose, there have been tremendous mortality of animals. Making available fodder for survival of animals is a difficult task, as it has to be transported from far off areas at a high cost. The volume of fodder required is very high. This in turn affects milk production.

In some areas the land holding is high. Major source of income for the people is agriculture. A typical example is Bathinda, Ganganagar, Hanumangarh districts. These are cotton growing areas. If the cotton crop is successful, people do not bother for milk sale. Rather huge quantities are retained at home. It is only in case of crop failure that the people are forced to sell milk for their livelihood. A similar trend is also seen in case of drought.

Due to WTO regulations, the developed countries are slowly withdrawing subsidies to the dairy industries in their respective countries. On the other hand there is no subsidy on milk or milk products in India. As a result, the following is likely to happen:

1. Import of milk products from these countries to India will be costlier than local products. It will discourage import of milk products to India.
2. Dairy products from India will get a competitive price in the international market more opportunities for export of milk products from the country.

This phenomenon is likely to cause more demand for milk in the coming years, leading to more competition and shortage of milk for all the players.

In view of above, there is a need for a comprehensive policy for enhancement of milk production and licencing of new milk plants in line with milk production and installed capacity in the area.

1.4. Competition in Dairy Industry:

> *Competition is essential for the health of any industry. In dairy industry it is much complex as competition is on both fronts i.e. milk procurement and marketing of products. Only a regular monitoring and careful analysis of competition and competitor can help devise appropriate strategies to effectively fight competition. There cannot be a standard set of strategies, but these will be worked out only depending on local conditions. An effective monitoring mechanism to provide basal information for analysis and strategy formation is a pre-requisite for analysis of competition.*

Every industry faces competition within different players. More the number of players more is the likelihood and severity of competition. If there is only one player dealing with a particular product or commodity, it enjoys monopoly. If the number of players is very small, they may unite into a cartel and monopolise the business. But monopoly does not remain for long. Severity of competition also depends upon availability of the raw material. If it is available in abundance, naturally there will be more people dealing with it and consequently more competition for sale of product in the market.

Advantages of competition

1. The consumer gets the product at a reasonable price and producer of raw material gets fair price of his produce.
2. If the competition is fair, the quality of product is better.
3. Cost of production and processing are low.
4. Products are available to consumers easily and in plenty. No restriction on volumes, quotas etc.
5. Quality of service like warranty, after sale service, is better and prompt.
6. In order to stay in the industry, there is continuous improvement in the quality of existing product and there is more innovation in product development.

Disadvantages of competition:

1. Consumer is generally misled.
2. Practically the quality of product deteriorates because of efforts to reduce cost of production.

3. Chances of adulteration, evasion of taxes, are more.
4. Unfair trade practices like high margins to traders, resembling pack designs, gimmickry schemes like steel tumbler in cattle feed bag, etc. to woo the consumers.
5. Use of inferior quality raw material.

In such a situation it the CONSUMER who is ultimately affected.

Competition in dairy Industry

To take effective strategic decisions it is important for an organization to identify its competitors. There are three major players operating in this industry:

1. Unorganised trade i.e. Vendors and Contractors.
2. Cooperatives
3. Organised private trade.

At the aggregate level, the unorganized trade handles about 885 lakh litres per day, cooperatives 175 LLPD and organised private trade 140 LLPD. Here we can say that our major competitors are vendors. But an organization has to make an assessment at the local level to identify its real competitor. In different pockets the magnitude and complexity of competition is different.

In Punjab, parts of Haryana and western Uttar Pradesh, all the three players are very active. In Madhya Pradesh, parts of Rajasthan, cooperatives and vendors are competing with each other. In Gujarat cooperatives are hardly facing any competition. In southern states, some private players have come into the fray in the past few years.

In general competition is considered to be only for sale of products. But in dairy industry competition is on two fronts -

1. Milk procurement.
2. Sale of products.

Assessment of competition and competitor:

For assessment of the competitor, it is important to analyse the competition. From analysis of competition we mean analysis of both self and competitor/s. A very common tool used for this purpose is SWOT analysis. SWOT stands for:
S - Strengths.
W – Weaknesses.
O – Opportunities.
T – Threats.

The SWOT analysis has to be done considering the following areas:

1. Type of organization i.e. private, public sector, cooperative, voluntary agencies.
2. Whether dairy plant is main business or subsidiary.
3. Area of operation for milk procurement.
4. Autonomy in milk procurement and pricing decisions. (Autonomy, reaction time)
5. Milk collection system.
6. Extent of milk procurement as social service.
7. Legal boundaries and controls in milk procurement system (Level of Autonomy)
8. Transparency in milk procurement system
9. Milk transportation system
10. Quality of milk procured.
11. Status of milk payments.
12. Milk chilling system.
13. Cost effectiveness of milk chilling system.
14. Fixed costs of milk procurement.
15. Technology and life of processing plant (Labour intensive, level of automation).
16. Fixed costs of plant (Depreciation, Interest, permanent staff)
17. Capacity utilisation of plant.
18. Product mix with respect to market scenario.
19. Extent of liquid milk disposal in local market.
20. Extent of speculation in the prices of finished products.
21. Quality of finished product especially packed milk.
22. Availability of product in the market. Liquid milk at doorstep, at proper time.
23. Brand image.
24. Product availability in the market.
25. Disposal of finished product, marketing system and trade margins.
26. Legal concessions like purchase tax, sale tax concessions.
27. Government/corporate grants on operating losses.
28. Financial compulsions like repayment of loans, arrangement of working capital.
29. Quality of manpower (extent of professionalism)
30. Long-term objectives and strategies.

This is an indicative list. Depending upon the local conditions new items can be considered at the time of analysis.

(As first step this exercise will be done by the participants for their milk union and competitors in the area.)

Just assessment on these points is not sufficient. A comparison of strengths of one with weaknesses of the other and vice-versa, and opportunities of one with threats of other and vice versa will be done.

Self	**Competitor**
Strength	**Strength**
Weakness	**Weakness**
Opportunity	**Opportunity**
Threat	**Threat**

It will bring out areas where the weaknesses are to be converted into strengths and appropriate strategies thereof to be designed. Similarly, what opportunities are available which can be made use of to face the threats?

Formation of Strategy: Each strength, weakness, opportunity and threat should be evaluated on the following lines:

1. Strengths: Each identified strength has to be analysed in the following way;
    a. Is there any threat to it?
    b. To what extent this is made use of?
    c. How can it be further strengthened?
    d. Which weakness of the competitor can be taken care of by this?
    e. How it can be used as a threat to my competitor.

2. Weakness:
    a. How vulnerable is this weakness to the organization.
    b. How it can be converted into a strength.
    c. How the competitor can make use of this weakness.
    d. How to prevent use of this weakness by the competitor.

3. Opportunities:
    a. How easy is my access to this opportunity
    b. What is the most appropriate time to make use of this opportunity.
    c. What will be the cost and other implications.

4. Threat:
    a. To what extent this threat will become my weakness and harm the organisation.
    b. How it can be diffused.
    c. Is it an opportunity for the competitor?

Such an analysis has to be done for the competitor also. The appropriate strategy will be based on this analysis. It may not be possible to address all the listed points at a time. The identified strategy has to be carefully timed. A new strategy should be carefully evaluated for its impact.

Monitoring system: Analysis of competition is a highly professional system. It needs knowledge of all the functional areas hence involvement of people from different functional areas. No analysis is possible in the absence of adequate and appropriate data. Hence a set regular formal or informal monitoring system and a constant watch on the operations, strategies and actions of the competitor is a must. Our milk unions in general lack such a surveillance system.

Remember
Your competitor is keeping a constant watch on your operations. If you are sleeping you can be nabbed at any time.

1.5. Milk Procurement Enhancement Strategies:

Every milk union needs sufficient milk to meet its demand for city supply and products. Due to growing competition, the unions sometimes face difficulty to maintain the required level of milk. In order to be sure that union gets sufficient milk, working of all the systems at the DCS, input delivery, proper product mix, and focused attention to city supply are few strategies. Above all the right strategy can only be developed if a careful study of the prevailing conditions is done.

Any business unit has an installed capacity, fixed overheads like salary, depreciation, interest and many others. In addition, there are variable expenses in accordance with the volume of business. To meet all these expenses and to generate surplus, there has to be a specific volume of business handled. For example, a milk plant having installed capacity of one lakh litres may need 55000 litres milk in order to just meet all the expenses. This volume of milk handled is called break even point. If volume of milk handled is less than 55000 litres, it will incur losses. Any volume handled above 55000 litres will generate profits.

In a competitive scenario, all the units make efforts to operate above break even volume. In dairy industry, similar situation exists. The cooperative milk plants have to operate even if volume of milk is low as they have a social commitment to collect milk offered by the producers, and make milk available to the consumer. On the other hand, the private plants manage their operations entirely on profitability criteria. If they are not able to get sufficient milk, they just close down operations. In order to operate above break even point, they need to devise strategies to enhance milk procurement. Each milk plant has its own strategy for milk procurement enhancement. Although there cannot be a complete list of strategies as a strategy is devised based on the conditions prevailing at the specific time, the following list is a suggestive one.

1. A regular monitoring of strategies of competitor and his strategies. Some plants mislead the producers by just announcing very high procurement prices, but in fact these are not paid. Such moves should be carefully analysed and producers should be made aware of this.
2. The DCS should be organized after proper groundwork like survey, gram sabha, organisation meeting etc. These are the best forums to spread the concept of dairy cooperative among the village people.
3. A comprehensive need based milk production enhancement programme, involving feeding, breeding, fodder development and all other need based inputs.
4. Milk procurement price should be according to that prevailing at any point of time. There are occasions when the trend is to offer too low prices. At such times it should be ensured that the farmer at least gets more than the cost of milk production. If the price offered becomes a losing preposition for the farmer, there are chances of disposal of animals from the area leading to permanent damage to the system.
5. It should be ensured that whatever price is announced by the union, it reaches the farmer. It would be possible only if the measurement and testing at the DCS is regular. Here milk testing both for fat and SNF content is very important. Milkotesters and Automatic milk collection Stations play a vital role as these ensure transparency of the system.
6. In the DCS where AMCS is not installed, the rate chart should be CLR based instead of SNF as calculation of CLR is much easier at DCS level.
7. Milk payments to the producers, should be made on the committed dates. Delay in milk payments erodes faith of farmer in the organization.
8. Regular bonus distribution by the DCS makes it strong as it depicts what we say in the meetings.
9. In general milk collection time at the first few DCS on any route is very early. In some villages it is even before the milking time. The milk collection time in these villages should be rationalized.
10. Any disputes at the DCS should be resolved in the beginning itself. Proper education of members will keep party politics away.
11. Milk collection by the DCS depends mainly on the behaviour of secretary and managing committee. Generally it is the secretary who makes or breaks the society. Proper training and education of these functionaries is a must.
12. The DCS must prepare its long-term vision and make efforts to achieve it.
13. Quick fix strategies like procuring milk directly from big producers should be avoided, as they are first to divert milk to others with slight variation in price. Our base is small and marginal milk producers.

14. Differential pricing in different areas of milkshed depending upon distance and level of competition have paid rich dividends in some unions.
15. Stress should be given on organizing women's DCS. These have proved to be more successful. But a women's DCS should have true representation of women.
16. Effort should be to organize vibrant societies rather than poor performing large number of DCS. More number of DCS dilute focus and attention of field staff.
17. The staff of milk unions is getting old and retiring. There should be a clear succession policy. All the new entrants should be thoroughly trained in DCS systems and accounts, extension, milk testing, DCS bye-laws etc.
18. As mentioned elsewhere, milk flows directly from villages to consumers through vendors. So long as this system is strong, the organized sector would not be able to procure sufficient quantity of milk. The union should put proper strategies in place to break or weaken this nexus. One strategy for this is to flood the market with packed milk at affordable price. When the consumers will purchase packed milk, his demand from vendor would come down and that much milk from village would come to the DCS. Liquid milk marketing also ensures regular flow of money to the union and there is no need for arranging working capital. It ensures regular milk payments.
19. The union should decide its product mix depending upon contribution per litre from each product. This will ensure maximum revenue generation and capacity to pay better price to the producers.

All these strategies are not new to anyone working with dairy cooperatives. But we have diluted our efforts to a large extent and the proven system has developed lacunae. The need is to place right systems at right place.

1.6. Alternate Strategies for Milk Procurement:

The Milk unions are procuring milk through primary dairy cooperatives. There are other systems also followed by different players. A system suitable for one area may not be suitable for the other area. However there is a need to evaluate applicability of each system to a particular area depending upon local demographic and legal environment. But the system of milk collection through SHGs and Producer Institutions seems more promising for many areas particularly where level of competition is high.

Dairy Cooperatives are procuring milk through Primary Dairy Cooperative Societies (DCS) at village level. This is a proven system wherein the DCS is a legally registered body under the state Cooperative law of the concerned state. This system has been very successful in Gujarat from where it has been replicated in other states. This system is running quite successfully in all other states. It has the following advantages:

1. This is a member owned and controlled system.

2. The operations of the DCS are transparent. At any time the pourer knows about his transactions with the DCS.
3. The surplus earned by the DCS is again distributed among the members.
4. Needed input services are provided to the members from time to time.
5. All the records of the DCS are systematic and systems are efficient.
6. The DCS has representation on the union's general body and can fight for membership of the Union's board also.

This system has its own demands from the members, staff and staff of milk unions:

1. The milk producers have to have an inculcated sense of affiliation to the society. With the changing economic scenario and level of competition the milk producers sometimes switch over to other players procuring milk who offer high price temporarily. In such a condition, the quantity of milk with the DCS comes down which jeopardizes its viability.
2. The system demands participation of all or most of milk producers in the DCS. But a majority of villages are victims of party politics. Hence due to individual or political differences a large number of milk producers do not pour milk to the DCS if secretary or chairman is from the opponent group.
3. The system requires maintenance of a number of records which are legal requirement and then these are to be audited. As the income to the DCS is limited, it can offer only a limited remuneration to its staff. Consequently it becomes difficult to find a suitable candidate from the village to work as secretary.
4. The DCS being a legal body, it has to deal with other departments like local registrar of cooperative societies, audit department etc. it makes the working complex.
5. The managing committee members do not take required interest in the affairs of DCS. The DCS remains at the mercy of secretary. As the secretary is generally paid a lump sum amount, he does not make any efforts to enhance the operations of DCS.
6. The staff of milk union has to constantly follow up with the DCS in order to ensure its proper functioning and record keeping.
7. The milk union also has to spend a lot of energy in dealing with the other government departments with respect to the DCS.

In most of the states the cooperatives are controlled by the concerned state governments and are enjoying little autonomy.

(The participants should list down the various indicators of autonomy and evaluate each for level of autonomy on a scale of 0-5.)

Other milk procurement systems:

There are at least three other organized systems of procurement as below:

1. Milk procurement through village level commission agents.
2. Milk procurement by self-help groups.
3. Milk procurement by producers' institutions.

Out of these, first system is very old and the other two are the latest developments.

1. **Milk procurement through village level commission agents**: As already mentioned, this system is very old. Erstwhile dairy corporations followed this system. Presently many milk plants in the private sector are following this. In this system the procurement price is fixed by the plant collecting milk from these agents. The agent procures milk on the basis of quality i.e. fat and SNF. The milk producers are paid on the basis of price declared by the union. The agent gets a commission on the milk business done by him with the plant. All the equipment used for milk collection, testing etc. of milk is the property of the union. Milk is generally procured in Kgs. The system has the following advantages:

    a. The record keeping is simple and easy.
    b. The milk measurement and testing etc. are transparent.
    c. The agent has to deal with only one party i.e. milk plant.
    d. Unlike one DCS in one village (in many states), any number of agents can be appointed in a village to take care of party politics.
    e. As the agent is decision maker at village level, he can arrange for direct lifting of milk from doorstep.

    Disadvantages of the system:

    a) The milk producers' role and authority is only up to milk pouring and getting payment. They have no role in dealing with the milk plant or how the business is conducted by the agent.
    b) There is no provision of bonus. As this system is followed by the private plants, there is no incidence of payment of price difference to the milk producers.
    c) Malpractices in milk collection and testing are common.
    d) If milk goes sour/curd, the agent suffers the loss and chances of adulteration like neutralization are high.
    e) If a higher price is offered by any other plant, chances of diversion of milk are high.
    f) There have been cases of agents running away without making payments to the producers.
    g) Binding of milk producers by through advances is common. In this mechanism the producer does not get the declared price.

2. **Milk procurement through Self Help Groups (SHGs):** This is a recent system operating in isolated pockets in some states like Andhra Pradesh. The self-help groups are informal groups. The number of members is less than 20 to avoid legal hassles. The SHGs are promoted by many government and voluntary agencies under SGSY

(Swarnjayanti Grameen Swarozgar Yojana). The milk cooperatives are promoting SHGs of existing members of DCSs for thrift purpose. These SHGs mainly of women are very successful especially in the area of thrift where repayment is more than 99%. With the same ideology the SHGs for milk collection are promoted. Functionally these take care of the enabling features of both the cooperatives and agent system. The members of an SHG can have small management committee say of five members, and appoint staff, may be one of the members. The salient features are;

a. As of date as the SHGs are not covered under any legal framework, these are free from any legal hassles. No registration, no audit. If felt necessary the members can have their own internal audit system.
b. They can have affiliation with the union or plant for milk supply and availing other services.
c. As the number of members is small, sense of belongingness and responsibility is high.
d. Any number of groups can be organized to take care of the party politics in the village.
e. All the dealings with the union and milk payment system can be like the DCS.
f. The election of management committee can be done by the members themselves without the involvement of any government agency.
g. Milk collection testing and record keeping will be transparent as in case of DCS.
h. Generally the members of the group will be of cohesive nature and chances of conflict are less. It would be possible to organize people of different strata.
i. Problems like refusal of membership would be less.
j. Linking of dairying and thrift would be very easy. Competition between different groups in the same village would encourage efficiency.

Disadvantages:

a. As the group does not enjoy any legal identity, in case of any malpractice taking action against the defaulter would be difficult.
b. More the number of groups would increase lifting points for milk. More time may be required for milk lifting from all the points.
c. As the number of members would be less, the volume of milk may not be sufficient to go in for automation in milk collection.

3. Milk Procurement through Producer institutions:

Some milk unions have also tried direct milk collection from medium and big dairy farmers by enrolling them as nominal members. This system provided a hope in the beginning. But as and when the competition for milk procurement gained momentum, they switched loyalties and immediately shifted to the agency offering even nominally high price. In the hard time these are the small and marginal milk producers who have stood with dairy cooperatives.

Milk procurement by vendors is a common practice. As the vendor is an independent business entity, we are not discussing this system.

Selection of appropriate system: In the present circumstances for any organization it is important to ascertain the appropriateness of milk procurement system keeping in view the legal framework and demographic profile of the area. The advantages and disadvantages of different systems listed above would give a fair idea about all the systems. However to summarise, the following systems should be considered.

1. The system should encourage open and voluntary participation.
2. It should ensure transparency in operations at village level.
3. The number of records required should be minimum but adequate to avoid loopholes.
4. It should encourage quality of milk and efficiency of operations.
5. It should be easy to comply the legal requirements.
6. It should provide a platform for smooth flow of needed services to the milk producers.
7. It should provide adequate room for supervision of records and accounts related to the business of milk at village level and democratic control.
8. It should be cost effective.

Exercise: the participants will evaluate each strategy for its appropriateness in their milkshed area.

CHAPTER – VI

Books of Record, Audit and Viability

1. **Record Keeping**

OBJECTIVE OF RECORD KEEPING

No matter how good a DCS is no one would care about it unless all the little details are being recorded properly in a systematic manner. The co-operative need to have a systematic way of maintaining records and files.

With all the legal obligations required for a small business, it is imperative to keep careful records. In case of any legal problem arises than properly maintained records are of utmost importance. They are proof of all the transactions. A good record keeping system helps in achieving several objectives like it keeps your co-operative organized and growing. Good records always help in support of any claim.

A co-operative that fails to keep complete and accurate records places its long-term success in grave doubt. Therefore good records keeping are crucial to the success of any business. The accurate and complete records enable a DCS to identify all its business assets, liability, income and expenses. They also will present a complete picture of total business operations.

1.2. Records maintained at DCS:

The records can be classified in the following group:

A- Organisational Records

- PROCEEDINGS RECORDS: To record the proceedings of General Body Meetings, Managing Committee meetings and special general Body meetings.
- MEMBERSHIP REGISTER: The details of each member of the Society are recorded.
- SHARE LEDGER: The details of shares purchased by members of the society are recorded.
- BONUS AND DIVIDEND REGISTER: The details of milk business made by a member in one year along with record of bonus and dividend paid to a member in one year.

B- FINANCIAL RECORDS

- CASH BOOK: This is the book where all transactions including cash, credit, counter entries are made i.e. daily financial transactions of the society is recorded.
- GENERAL LEDGER: To record daily transactions under separate heads.
- PAYMENT REGISTER: The details of milk payment made to the producers are recorded.

C- PROCUREMENT RECORDS

- MILK PURCHASE REGISTER: To record the quality and quantity of milk supplied by producer and the price paid/ payable to them.
- MILK PRODUCERS PASS BOOK: To record the quality and quantity of milk supplied by producer and the price paid/ payable to him for milk.
- SAMPLE MILK SALE REGISTER: The sale proceed of sample milk sale is recorded.
- MILK PRODUCERS INDIVIDUAL LEDGER: To record the milk supplied by an individual producer during the period of his membership.
- LOCAL MILK SALE REGISTER: To record all the local sales of milk done at society level in each shift along with price.
- DAIRY REGISTER: This record provides ready and complete information about all operations in a shift along with economics of business. Faults can be removed immediately by observing this register.

D- GENERAL MISCELLANEOUS RECORDS:

- INDENT BOOK: This book is mainly used for requesting the union to supply different materials.
- STOCK CUM PURCHASE REGISTER: (Consumable and dead stock) To record all purchases and stocks of material along with issues and balances. The balances drawn within register are used in preparing final accounts also.

- CATTLE FEED /GHEE STOCK CUM SALE REGISTER: To record all purchases, opening and closing of stock and sales of cattle feed, ghee or other such items. It is used in preparing final accounts also.

- SOCIETY LETTER HEAD: Required for official communication with union, bank and other agencies.

2. Audit in dairy cooperatives:

In general, audit means checking and the auditor is considered to be a faultfinder or fraud-detector. But, in fact, audit implies more than what the common man thinks of it. The responsibility of an auditor is not confined to finding of faults or irregularities. He has to verify whether the books of accounts and other records maintained by the organization are in sufficient detail and cover all types of transactions. He is responsible to see whether the final accounts show a true picture of the state of affairs of an organization. A leading American author has defined auditing as “Systematic examination of the books and records of business or other organization, in order to ascertain or verify and to report upon the facts regarding the financial operation and the results thereof”.

At the outset, it will be proper to make clear the difference between accounting, auditing and investigation.

Accounting is concerned with preparation of statement of accounts and maintenance of books of accounts for the transactions entered into by the organization.

Auditing, in fact, starts where accounting ends. Auditing involves a detailed and critical examination of accounts prepared by others. Unless accounts are maintained properly in time, auditing cannot be started.

Investigation implies the examination of accounts for a special purpose. Hence, the scope of an investigation has to be different from that of an audit. An investigation chiefly consists of analysing, collecting and presenting facts in a manner which may enable the parties to know the essential facts regarding the matter under inquiry.

The general practice in cooperative is the annual audit. In case of dairy cooperatives when the transactions take place twice a day at the village level annual audit may mean a post-mortem. It is therefore advisable to have a continuous and concurrent audit preferably every quarter.

2.1 Objective and Functions of Audit:

The following are the objectives of conducting audit:
1. Verification of accounts and statements
2. Detection of errors and frauds

3. Prevention of occurrence of errors and frauds
4. To ascertain the exact and correct financial position of the society as on a particular date.

Functions: a) General: Following are the general functions of audit.

1. To examine the system of internal check (Internal check system is explained separately)
2. To check the arithmetical accuracy of books of accounts by the verification of posting, costing, balancing and by tallying the receipt and payment statement of trial balance.
3. To verify the authenticity and validity of transactions by an examination of the entries in books with relevant supporting documents.
4. To ascertain that a proper distinction has been made between items of capital nature and those of revenue nature.
5. To confirm the existence and value of assets and to verify liabilities.

Specific to Primary Milk Producers' Cooperative Society: Following are the functions of audit specific to a Primary Milk Producers' Cooperative Society:

1) To check that all members have been issued a passbook and proper entry is made therein, each time when milk is brought to the society.
2) To see that registers of purchase, fat test, local sales and sale of milk to dairy are properly maintained.
3) To ensure that the members are correctly paid for the milk on the basis of its quality.
4) To see that payment for milk is made to members regularly twice every day.
5) To check whether the fat tests of the samples of milk of previous shift are correctly entered in the purchase register and members' pass books.
6) To examine the method applied for local sale of milk and see that all local sales are duly accounted for.
7) To see how the sample milk is disposed of and whether the system adopted is fair and equitable.
8) To verify that system for transportation of milk from society to dairy is satisfactory and economical.
9) To see that all statutory requirements of Cooperative Societies Act and rules and regulations prescribed in bye-laws of the society are duly complied with.

2.2. Different types of audit:

Statutory Audit and Internal Audit: In the case of some organisations, audit is compulsory under the statute. Hence, it is imperative on the part of such organisations to get their accounts audited according to the requirements of law by which such organisations are governed. Audit is compulsory in case of undertakings mentioned below:

a. Joint stock companies registered under the Companies Act.
b. Banking companies governed by Banking Companies Act.
c. Insurance companies governed by the Insurance Act.
d. Public and charitable trusts registered under various religious and other endowments acts.

Internal audit is not compulsory under any law. In order to keep a constant check over the activities of the organisation, internal audit is carried out.

Internal audit is a review of operations and records within a business by specially assigned staff. It refers to a thorough examination of the accounting transactions as well as that of the system according to which these have been recorded. Internal audit may differ in its scope and emphasis, which may be more managerial than accounting in nature.

Internal audit is expected to ensure that the standards of economy and efficiency are maintained. The main responsibility of the internal auditor is to maintain a suitable system of internal control by a continuous examination of accounting procedures, receipts and disbursements and to provide adequate safeguard against misappropriation of assets. He is normally made responsible to the head of the organisation so as to enable him to report on the activities without fear and favour.

System:

Final Audit and continuous Audit; A final audit is commonly understood to an audit which will not be until the books are closed at the end of accounting period and is then carried on continuously until completed.

Conversely, a continuous audit is the one in which the audit staff is occupied continuously in checking the accounts, the whole year round.

Advantages of a continuous audit:

1. Errors, which are discovered at an early stage, may be rectified in time.
2. Chances of fraud are minimized due to continued presence of audit staff.
3. Constant attendance of auditors acts as amoral check on employees of the organization.
4. Accounts are always kept up-to-date.
5. Checking of accounts in detail is possible.
6. Final accounts can be prepared and reported upon much earlier without facing any difficulty.

Since cooperative societies are prone to public criticism due to their democratic set-up, it is essential that continuous audit should be done for cooperative societies in order to affirm faith of member-farmers in the management of the society. Once it is lost, the society will have to be wound up. Hence, continuous audit is recommended for societies.

Internal Control

It comprises the whole system of controls, financial and otherwise, established by the management in the conduct of the business. It included internal check, internal audit and various other forms of control, both financial and otherwise.

Internal check for cooperative society

A system of internal check implies organization of the system of bookkeeping and arrangement of staff duties in a manner that no one person is allowed to carry through and record every aspect of a transaction.

Its objective is to prevent or bring about an early detection of frauds and errors. Internal check is organized by a proper allocation of authorities and integration of the functions of different members of staff in such a way that they are complementary to one another and thereby each acts as a check upon the other.

While framing the internal check system, the following considerations should be kept in mind:

1. All acts of every employee should, during normal course, come under the review of another.
2. Duties of members of staff should be changed from time to time without any previous notice so that the same person does not perform the same function for a considerable length of time.
3. Members of the staff should be encouraged to go on leave at least once a year so that frauds successfully concealed may be unearthed during his absence.
4. Persons having physical custody of assets should not have access to books of accounts.
5. Cash collected from union or local customers for the sale of milk must be deposited in the Bank on the same day or the next day. It should not fall into the hands of persons not responsible for its accounting.
6. Funds required for expenditure should be drawn from bank under the signature of two responsible persons, namely Secretary and Chairman of the society.
7. When funds are required for disbursement of salary to staff the exact amount of total salary should be withdrawn from the bank. If any employee remains absent on salary day, his salary should not be paid to other persons without a letter of authorisation. The Secretary of the society should ensure that persons duly appointed by the society are paid the salary only for the days they worked. Attendance of each employee must be marked every day.
8. Since payment to members is made on the basis of fat percentage, it should be ensured that the person testing fat and the one who prepares the amount payable to members do

not join hands. Person responsible for handling cash should not be allowed to write the cashbook.

9. Only printed receipts with serial numbers should be issued for amounts collected.
10. Amount of cash collected and paid should be checked every day and physical cash should be reconciled with entries in the cashbook.
11. Payments should be made only after proper verification of documentary evidence and authorization.

2.3. Classification of Societies as per Audit:

Societies are classified in following categories on the basis of audit report:

A Class	All records up-to-date and in order. No breach of any provision of Act/ Rule/Bye-laws.
B Class	All records systematic and in order, but not up-to-date. No breach of any provision of Act/Rule/Bye-laws.
C Class	Records not systematic, lack of administration, amount spent from reserve-fund for unauthorised work. Breach of provisions of Act/ Rule/Bye-laws.
D Class	Records not fairly maintained, incurring losses, amount spent from reserve fund for unauthorised work. Breach of provisions of Act/ Rule/Bye-laws.

In Gujarat State, the Primary Milk Producers' Cooperative Societies are classified as follows under audit groups (A, B, C and D) on the basis of marks system:

1. Society getting 60 or more marks - A
2. Society getting 50 to 59 marks - B
3. Society getting 40 to 49 marks - C
4. Society getting below 40 marks - D

2.4. Conclusion: An audit has a moral effect on the employees, frequently deterring those who are included, from committing defalcations or embezzlements. The primary objective of an audit is to establish, by an examination, of books, vouchers and other appropriate records that the balance sheet at a given date is properly drawn up so as to show a true picture of the state of affairs of the business and the profit and loss. Accounts of that period disclose true profit or loss. In the process of such an examination of accounts, certain frauds or errors may be detected. It must not be regarded as the main objective of audit. Detection of errors, irregularities and even frauds is only a subsidiary advantage or benefit flowing from audit.

3. Viability of Dairy Cooperatives

3.1. Sources of Profit of a DCS:

A dairy cooperative society like others is also a business enterprise. Any business organisation has to make profit for its survival and healthier growth. The typical characteristic of a DCS which makes it different from other business organisations is that it does its business with the members in the village who are also its owners. Hence, the DCS's sole objective is not to maximize its profits. It has to ensure that its members get the competitive milk price and also the services/inputs needed for the milch animal and members' own development. Therefore, the margins earned by a society are less compared to its competitors. However, the competition has shown a change over the last decade or so. The possible option for a DCS to gain higher profit is to increase volumes of the business so as to pas on maximum to its members.

The margins earned by a cooperative society are distributed to its members. The bye-laws adopted by the society provide the necessary guidance for its distribution. The major business of a dairy cooperative society is milk trading. In addition, the DCS deals with sale of different inputs like cattle feed, fodder seeds, mineral mixture besides liquid milk and milk products like ghee, powder, flavour milk, etc. Depending upon the local conditions, the DCS should keep on exploring the avenues for enhancing its business in its area of operation.

Different sources of profit to a DCS from milk trading in routine is as follows:

Source	**Percentage**	**Basis**
Commission from the Milk Union	2-3	Value of milk supplied to milk union
Weight and Volume difference between DCS and the Milk Union	2-3	Varies due to specific gravity of milk
Sample Milk Sale	1-1.5	Varies on number of samples
Local sale of Milk	1-1.5	Quantity and price decided by MCM
Total	6-9	

This range provides an indication of satisfactory performance of a DCS.

In addition, depending on the efforts carried out, the nominal margins accrued on account of commission on sale of inputs like Cattle Feed, Fodder Seeds, Mineral Mixture, and Milk and Milk Products adds up to the profit of the DCS as and when the transaction occurs.

Different sources of profit of a DCS are described as follows:

Commission from the Milk Union

The DCS primarily gets this amount based on the milk price declared by the milk union and the amount so received changes as and when the price is revised by the union. However, depending upon decision of the milk unions, the commission to DCS varies between 2 - 3%.

Assuming that –

The price declared by 'A' Union is Rs.160/- per kg. Fat. A DCS collecting 100 litres of milk having 6.0% fat shall cost Rs.960/-

Then, the Price of 100 litres of milk = 160 x 6 = Rs.960/-

If a commission of Rs.4 per kg. fat is paid by the milk union, the amount so received by the DCS on account of commission on 100 litres milk at 6.0% fat shall be Rs.24/-

Hence, the percentage of profit shall be as follows:

$$\text{\% of profit as commission to DCS} = \frac{24 \times 100}{960} = 2.5$$

The milk unions may also rationalize the commission structure for lean, flush and transit periods in a year to consider the seasonality and the competition scenario in their milksheds.

Weight and Volume difference between DCS and the Milk Union

The dairy cooperative society accepts milk on volume basis, through measurement in litres while the milk plant or its milk chilling centres accept milk on weight basis, in kilograms. The specific gravity of milk ranges from 1.025 to 1.032. Hence, 100 litres of milk shall weigh 102.5 to 103.2 kgs. at the reception dock. It is expected that the DCS shall get an additional amount for 2 to 3 kg. in 100 litres milk supplied to the union. This difference adds to the gross profit of the society.

In order to avail the benefit of this component, the DCS is required to ensure use of standard milk collection equipment, proper measurements and avoid pilferages etc. Whenever the Automatic Milk Collection Unit is installed, electronic calibrations/ balances should be standardized and checked before milk collection.

Sample Milk Sale

Milk is paid on the basis of quantity and quality. For testing of milk at DCS, a sample is drawn from milk collected from the producer. The sample so drawn contains milk sufficient to carry out 2-3 testings (sometimes re-testings may be required). The left over milk after testing is pooled together and sold. It is not advisable to mix the pooled quantity of sample milk into the DCS bulk milk before delivery to milk union to avoid deterioration of quality of milk. The managing committee approves the disposal of sample milk including its price, the buyers, etc.

The profit from sample milk sale depends upon the number of milk samples received and not on quantity of milk collected by the DCS. Therefore, greater the number of samples i.e. milk producer suppliers, higher will be the profit from sale of sample milk. However, the sample milk sale, on an average, contributes 1 – 1.5% to the gross profit of the DCS.

Local Milk Sale

The DCS collects milk from its milk producer members and sells it to the milk union. Besides, as a part of its obligations to the members, the DCS undertakes local sale of milk to cater to the demand of the member/milk producers including marriages, festivals and other social occasions in the village. However, it needs to be ensured that the service is not exploited by the vested interests and the private vendors and whatever local sale is done goes to the member/milk producer and is properly accounted for.

The price of local sale of milk is decided by the managing committee of the DCS considering the milk price received from the union, the DCS overhead expenses, commission from the union, advantage of weight and volume difference. The price is fixed generally higher than the calculations to avoid any risk. The price is reviewed and changed depending upon the change in the milk prices by the milk union from time to time. The profit earned, in general, from local sale of milk varies from 1 – 1.5%.

Cheaper Purchase of Milk by the DCS

Though it is not a direct source of profit of a DCS, this is a means to ascertain testing of milk at the DCS and ultimately the testing skills of the DCS staff. The DCS makes payment on the basis of fat tests of milk supplied by individual milk producers. After completion of milk collection, fat test of the sample of pooled milk is also taken. If the total amount paid based on the fat tests of individual samples is less than the amount calculated on the basis of the pooled sample, then it is called as the cheaper purchase. In case, if the amount of the pooled sample milk is less than the amount of the individual tests, then it is called a costlier purchase. One must ensure that the purchase is neither costlier nor cheaper, because in that situation neither DCS nor producers are in loss. If the purchase is too cheap, it means that the producers are paid for less fat – the DCS shall be gaining at the cost of its producers, but if it is costlier, then the producers are paid more than the actual fat in the individual samples – the producers are gaining at the cost of the DCS and therefore the margins of the DCS are unnecessarily cut and hence members share in the profit gets reduced. However, variation is acceptable within a limit of 1% under normal conditions.

Example

For understanding cheaper and costlier purchase of milk by a DCS, let us examine two cases as follows:

A DCS has collected 100 litres of milk from 50 producers (50 samples) in a shift. The milk purchase price of the union is Rs.160/- kg. fat.

	Case I	Case II
A. Total payment calculated on account of individual fat tests for 100 samples	Rs.1030	Rs.1050
B. Assuming the General Test of the pooled sample of milk at DCS	6.5%	6.5%
C. Amount of the pooled quantity of milk (100 litres collected by the DCS)	Rs.1040	Rs.1040
D. Cheaper/Costlier Purchase	Rs.1040-1030 Rs.10 (cheaper)	Rs.1040-1050 Rs.10 (costlier)

Thus it is essential that every day in both morning and evening shifts after milk collection, the purchase be worked out to ascertain testing and other reasons for corrections so that the profits are not chopped off unnecessarily.

The costlier purchase may occur under the following circumstances:

The secretary/tester is untrained, so the measurements are not accurate.
The testing equipment are not properly clean.
The equipment are not standardized.
The samples are not drawn properly.
Human error.

Apart from the sources above, the DCS may accrue more profits through retention of margins offered by the milk union on sale of milk/milk products like ghee, powder, etc. and the inputs like cattle feed, mineral mixture, fodder seeds etc. as the increased sale will not only immediately add to the profit of the DCS but also mop up higher procurement – hence more profit from additional producers feeling the need for such inputs. The DCS can gain from these components only when they are delivered in time and as per need of their producers.

We must remember that the dairy cooperative society being a business enterprise must earn profit for viability and support its members in the long run especially when the scenario is changing very fast, and getting more competitive. On the other hand, it cannot earn higher profits as it would be at the cost of its members who are the suppliers. The DCS must function in a manner and explore ways and means for strengthening its milk business to gain profits safeguarding the interests of the producers/members.

3.2. Factors affecting Viability of a Dairy Cooperative Society:

Viability of an enterprise depends largely on volume of its business and in turn, the business volume and growth depends on how efficiently the enterprise operates and manages its system and how best it can convince and satisfy needs of its customers. A dairy cooperative society is a business enterprise which operates on a small scale at the village level. While efficiency in case of a private enterprise rests with the professional skills and management of the owner, in a cooperative society it depends on a number of factors since it is a group activity and does not necessarily depend on any individual action. The changing scenario around calls for strong and viable enterprises to fight the growing competition in a healthy way.

The Dairy Coop. Society follows a systematic approach of collection, testing and payment of milk to the producers. The transparency of the system provides a competitive edge to the DCS. However, certain deviations in normal working are observed due to various reasons which ultimately cause losses to the cooperative society. It is essential to identify and understand the factors which are responsible for affecting the viability of the DCS. Though there are a number of factors causing losses/affecting viability, the major ones are described as follows:

Milk Procurement

Since the DCS's primary business is milk, its profitability directly depends upon the volume of milk business handled. The higher the volume of milk collected, the higher will be the profit to DCS and vice versa. If the procurement does not grow or declines, reasons for the same must be ascertained and corrective actions taken in time.

Member Participation

The DCS collects milk from the producers – members. By and large, the quantity of milk collected increases or decreases with number of producer suppliers. However, in some cases, it may happen that 100 litres of milk in 'A' society may be received from 20 producers while in 'B' society 100 litres is supplied by 45 producers.

Quite often, it happens that the producers are seen rushing to supply milk when the milk transport vehicle is ready to load DCS milk for delivery to the milk union. Hence they may have to return, if not accepted, without supplying milk to DCS and hence it affects viability on account of reduced quantity of milk handled. On the other side, in case the DCS milk is not ready for dispatch as per the scheduled timings, the transport vehicle may leave without lifting that milk. In such cases, the options to the DCS is either transport the milk to the union at its own cost or go ahead with a distress sale incurring losses else milk will get curdled/spoiled and there shall be no buyers. Therefore, all efforts should be made to ensure that the producers are aware of the timings of milk collection at the DCS.

Member may not participate in milk supply due to various reasons like system of milk collection and testing, lack of awareness about the milk price and other fringe benefits from the DCS, false commitments, advances, local politics, anti-propaganda by the private. Producers may be persuaded to join and supply milk to the cooperative society. With the increase in number of producers-members, the procurement will also increase and hence the viability of the DCS will also improve.

For ensuring maximum coverage and participation of members in milk supply, the DCS can explore setting up of additional collection centres. This would not only be convenient to the distant producers but also increase milk collection of the DCS and hence its viability.

Member participation and trust, thereby supply of milk to DCS would tremendously grow in cases where electronic milko-testers are replaced by the traditional Gerber method of milk testing. This would further grow where Automatic Milk Collection Units (AMCU) have been installed. This, however, requires an initial big investment by the DCS. These technological changes have not only drawn the attention of producers but also helped in increasing the efficiency of operations of the DCS handling hundreds of suppliers during a single collection.

Quality of Milk

Milk is primarily valued for fat and SNF contents which reflect the quality. Quality consciousness is growing in the present day environment. Hence, all measures are being taken for addressing the quality aspects including acquiring certification for acceptance in the market.

It is expected that the DCS accepts good quality milk for onward delivery to the milk union. Milk with sediments, flies and/other physical matter deteriorates the quality of milk fetches less payment from the union and hence affects the viability. In some cases, the unions pay incentives linked to quality norms which means an additional income to the DCS.

Provisions of penalty are also laid down for accepting milk with a minimum standard of Fat and SNF %. The DCS collecting milk below these standards will be paid less on account of penalty for supplying substandard milk which affects the viability. Though the fat testing is done by the DCS on a regular basis, the SNF testing is not possible, as the laboratory conditions required for testing of SNF do not exist at the DCS. The price of SNF fixed and paid at a particular standard is inbuilt in the producers purchase price structure. Though, in some cases, low SNF in milk from cattle has been observed, some vested interests may also take the advantage, adulterate and supply milk to the DCS and get the payment based on fat%. This situation leads to payment more than the actual which should have been paid due to low SNF. Since the milk payment from the union is on the basis of both fat and SNF, the DCS receives less payment on account of either low SNF or payment with penalties and as such incurs losses.

It is important that along with the fat estimation, lactometer (signaling a simple way of ascertaining SNF in milk) is also used for the individual suppliers on regular basis. Awareness generation on clean milk production should also be carried out side by side so that the adulteration, if any can be stopped. Reasons for low SNF in milk are found out and remedial measures be taken so that the producers can overcome this problem and the DCS can avoid deductions in milk payments from the union and improve its viability.

Milk Collection and Testing Equipment

For collection of milk, a set of measures is used. It is important that the measures are of certified and standard quality as substandard and cheaper ones can cause variations. This would result in shortage of milk delivered to the milk union and hence unnecessary loss to the society.

Likewise the equipment and the chemicals for testing of milk should be of standard quality and tested before use at the DCS level otherwise it may create differences and distrust among the producers besides causing a loss to the DCS on account of variations and/low payments also.

It is also important that the milk collection and the testing equipment are cleaned before close of work every day.

With the passage of time, the technological changes are taking place around and so in the village level societies also. A number of societies having set up EMTs and AMCUs are using electronic system of collection and testing of milk making readily available (print outs) the value of their milk to motivate and ensure maximum supply of milk from producers and thus the viability.

Milk Pricing

The milk collection at a DCS, by and large depends on the price paid to the producers particularly when options are available to them to negotiate a good deal. The society is expected to pay a competitive price to tap maximum quantity of milk in the village. The price may also have to be rationalized based on the season and the competition in the area. Field intelligence should be developed to ascertain what their competitors are doing in terms of milk price and other benefits to enable plan strategy to counter them. However, uncompetitive milk price shall fetch less milk from producers and hence affect the viability of the DCS.

Business Planning

Every business enterprise sets its objectives and goals for ensuring long-term growth. They provide a direction to the organization by enabling it to plan and monitor actions from time to time. This helps the organization to focus on need based areas and cost control wherever required. The DCS should also have its business plan to reflect its growth in procurement, membership, quality, milk payments, expenditure and the strategies prepared every year. The DCS in absence of a business plan may lack focused approach and its state of operations may not necessarily reveal a true picture of the growth and finances, thus affecting viability of the DCS.

Overheads

With an increase in the business, the expenditure may also go up. If an increase in the overheads is disproportionate to the milk procurement growth, it shall affect the viability. It is therefore essential that cost control measures be taken and an unnecessary expenditure on any component may be avoided.

DCS Management and Staff

A DCS achieves consistently higher growth in business where producers are most satisfied with its system of working and management. A viable DCS need to have its management (committee members) and staff (secretary, tester, helper) trained for their responsibilities. Untrained MCM and the staff are likely to make mistakes in decision making and working leading to a loss.

Members Enrolment

The DCS having voluntary membership of the milk producers operate successfully. The membership which is thrusted upon the farmers generally faces losses on account of low volume of milk and ultimately leads to even closure of the society. It is therefore essential that before a dairy cooperative society is organized, a spadework for assessing milk potentiality and response of farmers to voluntarily join the society is carried out in the village so that a strong and viable cooperative set up. Sometimes, some unscrupulous elements having vested interests join the society and take advantage at the cost of other members. Awareness must be created so that only genuine milk producers get entry into the system and only those producers who fulfill the eligibility are enrolled as members of the DCS.

Attitudinal Behaviour

It is one of the most important factor for any kind of a business affecting viability of an enterprise. A DCS deals with ‘n’ number of suppliers every day morning and evening shift. It is obligatory on the part of the DCS, a business entity, to satisfy its producers – members and resolve issues in time. If problems are not properly addressed, behaviour of the DCS functionary is rude, the producers may withdraw and find out some other options available to them for disposal of milk in the village. The milk collection in the society in such circumstances shall come down thus affecting margins to the DCS. It is essential that the DCS functionaries should develop business relations and they, themselves should have faith in the system so as to motivate producers for enhancing the DCS business.

Expansion Avenues

With the passage of time, the orientation and interests of milk producers have also changed. The DCS should explore the possibilities of selling milk/milk products like ghee, SMP etc. besides sale of inputs like cattle feed, seeds, mineral mixture, first aid medicine which can be easily procured with the help of the milk union. The DCS may sell these items on retention basis. Sale on account of these items shall fetch additional income and hence improves profitability.

Implementers

The implementers play a key role in successful implementation of the concept and system of working of the cooperative milk producer’s organization. They are required to keep themselves updated on the developments for benefit of the DCS and milk producers. They should work on capacity building of the DCS functionaries to enable them to manage the business independently and enable them to compete with the private players in the village. DCS organization should not be a targeted approach for them. System of monitoring and coordination should be evolved for feedback and timely actions. However, they should

- Have faith in the concept and system of working
- Avoid foul politics
- Have no vested interest in the business
- Be proactive in approach
- Fulfill the commitments within a stipulated time
- Develop local Resource Persons to carry out village extension work.

They must plan and work out the options for increasing the volume and efficiency of business for suggesting to the DCS.

It can be concluded that for an organization like a DCS to be viable, it needs to adopt means to enhance its skills and capacity for efficient operations and growth in business. The DCS should plan and act immediately in the interest of business and counter the competition from the organized and unorganized private dairies.

CHAPTER – VII

PRODUCTIVITY ENHANCEMENT

For raising animals productivity and thereby increasing the returns to the farmers, supply of good quality semen, balanced cattle feed, quality fodder seeds, vaccines etc., are undoubtedly important. However it is no less important for the farmers to adopt scientific animal husbandry practices and make use of available resources more efficiently. This chapter on "Animal Husbandry" therefore attempts to provide the basic information about animal healthcare, management, nutrition, breeding, fodder production and the available new technologies.

1. Principles of feeding Dairy Animals:

A normal adult animal should be fed 6 kgs dry and 15-20 kgs green fodder per day. Legume and non-legume green fodder should be fed in equal proportions. Green fodder should be harvested at 50% flowering stage. Excess green fodder should be conserved in the form of 'hay' or 'silage'. Conserved fodder becomes useful during summers or when green fodder is scarce.

- Animals fed only on dry fodder should be provided Urea Molasses Mineral Block as a supplement to the diet.
- For body maintenance and higher efficiency of milk production, 'balanced cattle feed' / 'bypass protein feed' should be given (details on page nos. 3 and 4).
- As minerals are essential for all metabolic functions of the body, animals should be provided with good quality mineral mixture. (details on page no.5).
- Changing from one feed to another should not be sudden but in a gradual manner.
- Fodder should be chaffed before feeding to avoid wastage.
- Dry fodder, green fodder, cattle feed and mineral mixture should be mixed to make ***sani***. It would be more appropriate to feed ***sani*** in 3-4 equally divided parts in a day**.**

- **Sani** making reduces spoilage and increases the digestibility.

2. Importance of Green Fodder in Milk Production:

Green fodder is essential for maintaining health and milk production of animals. It is palatable and easy to digest. It is also rich in vitamin-A and minerals, which are necessary for the reproductive health of the animal and helps animal to come in heat on time and *reduce inter-calving period.* ***Feeding green fodder is the key for reducing cost of milk production and increasing income.***

Though farmers, due to small land holding and poor monetary conditions, prefer to cultivate cash crops, yet adoption of following methods may increase green fodder production.

Methods:

- In irrigated areas, time gap between two main crops can be used to grow short-duration green fodder crops.

- For higher fodder production and biomass, improved varieties of forage crops should be grown.

- Quality seeds should be used for growing fodder.

- Wasteland can be reclaimed by cultivating suitable fodder crops.

- Community land in villages can be planted with perennial grasses (like Sewan, Dhaman) and fodder trees (like Sesbania, Khejri, Subabul).

- In fruit orchards, green grasses (like Congo signal) can be grown in the space between trees.

- At the backyard of the house, around the water drainage area multi-cut fodder crops (Para grass, Hybrid Napier, Napier) can be grown.

3. Importance of Balanced Cattle Feed in Milk Production:

Cattle feed produced by the milk unions/ Federations is a balanced source of essential nutrients required for body maintenance, growth and milk production. It is manufactured by using good quality grains, oil cakes, guar meal, brans, molasses, common salt, minerals and vitamins. It is comparatively cheaper and highly palatable to the animals.

- Cattle Feed is prepared from different grains, cakes, brans, molasses, salt mineral mixture and vitamins
- Cattle feed contains protein, carbohydrate, fat, minerals and vitamins required for the growth and maintenance of animals. It is advantageous to feed extra cattle feed to pregnant animals for proper development of foetus.
- It increases reproductive efficiency, milk production as well as fat percentage.
- Calves should be fed 1 to 1.5 kg of balanced cattle feed daily.
- Milking animals should be fed 2 kg of balanced cattle feed for body maintenance and additional 400 g to cows and 500 g to buffaloes for every litre of milk produced.

- In addition to this quantity, 1 kg balanced cattle feed and 1 kg good quality oil cake should also be given to pregnant animals during the last two months of pregnancy.

Cow producing 6 litres of milk per day	2.5 Kgs cattle feed (for milk)	+ 2 Kgs (for body maintenance)	= 4.5Kgs cattle feed
Buffalo producing 6 litres of milk per day	3 Kg cattle feed (for milk)	+ 2 Kgs (for body maintenance)	= 5 Kgs cattle feed
During last 2 months of pregnancy for cow / buffalo	1 Kg cattle feed + 1 Kg oil cake	+ 2 Kgs (for body maintenance)	= 3 Kgs cattle feed + 1 Kg oil cake

4. Importance of feeding bypass protein feed:

Proteins are essential for the growth and milk production. Generally, the major portion of the feed proteins is broken down in the first compartment (rumen) of the stomach. In case of bypass protein feed, significant portion of the protein escapes break down in the first compartment and goes to the later part of Gastro-Intestinal (GI) tract resulting into better utilisation of proteins in the body. Bypass protein feed can be prepared by selecting naturally available ingredients and mixing them or by chemically treating protein feed.

Benefits of bypass protein feed

- More nutritive feed at a cheaper price.
- The utilisation of the dietary protein increases.
- It improves growth and milk production.
- Bypass protein feed, reduces cost of milk production.
- Nutritional requirements of high yielding animals can be met by feeding 70% quantity of bypass protein feed.
- If ‘bypass protein feed’ is not available then 1 Kg “treated bypass protein feed” can be fed as top feed (half Kg morning and half Kg evening) to animals producing 8-10 litres of milk in addition to the balanced cattle feed offered as per earlier recommendations.

5. Importance of feeding Mineral Mixture:

Minerals are essential for proper metabolic functions. Mineral mixture contains all the essential minerals in required quantities. The benefits of feeding mineral mixture are:

- Helps in better growth of calves.

- Improves the digestibility of feed taken.
- Increases milk production in animals.
- Maintains reproductive efficiency and reduces inter-calving period.
- Increases productive life of animals.
- Increases disease resistance of animals.
- Prevents metabolic diseases like milk fever, ketosis, haematuria which occur around calving period.

Calves	20-25 gm daily
Heifers and dry animals	50 gm per animal daily
Milking animals	100-200 gm per animal daily (as per milk production)

6. Urea Molasses Mineral Block (UMMB) – A Feed Supplement:

Ruminants have a special compartment in their stomach, which is called rumen. It contains large number of beneficial microorganisms, which help in digestion of fibrous components of feed. During scarcity of green fodder, UMMB improves the digestibility of dry fodder fed by helping the ruminal microbes to multiply.

Benefits of UMB

- Increases dry fodder intake and minimises wastage.
- Improves the digestive efficiency of the animals.
- Improves milk production and fat percentage.
- It is a good source of essential minerals.
- Dry fodder supplemented with UMMB can help sustain the life of animal in absence of cattle feed and green fodder.

7. Advantages of Artificial Insemination:

When cow/buffalo is in heat, it is not necessary to search for a bull. Trained inseminator, can inseminate the animal in time with quality semen of selected bull .As thousands of females can be inseminated using the semen of a single bull, therefore better bulls can be used for large female population. Rapid improvement of the progeny is possible. Transmission of infectious genital diseases can be avoided. During insemination, we could *notice whether the animal is having any reproductive disease.* It is a cost effective technology.

Signs of Heat

- Repeated bellowing.
- Lifting of tail and stretching of back.
- Swollen vulvar lips and redness of vaginal passage due to congestion.
- Thick, sticky and transparent vaginal discharge.
- Frequent urination (Micturition).
- Reduced Feed intake and decreased milk yield.
- Restlessness, smells other animals and mounts on them.
- After 10-12 hours in heat, the animal allows a bull or a cow to mount her. **This is the right time for insemination**.

Suggestions

- AI / Natural service should be given after 10-12 hours of first sign of heat. If the animal does not become pregnant, she will come into heat after 21 days.
- An animal comes into heat after every 21 days. So, after 21 days of AI the animal should be observed for symptoms of heat, especially during early morning and late evening hours.
- Special care should be taken in case of buffaloes, as symptoms of heat are not very prominent.

- 21 days post insemination, the animal should be observed for symptoms of heat.

- 90 days after artificial insemination, the animal should be examined for pregnancy.

- If the animal does not get pregnant after three inseminations, then consult the veterinary doctor.

8. Care of Pregnant Animals:

Adequate care for health and nutrition can ensure rapid growth and bring the female calf to heat at an early age and a timely insemination can help the animal calve at 2 to 2 ½ years of age. As foetus develops rapidly during 6th-7th months of pregnancy, we need to take care of the following.

- 6-7 months pregnant animal should not be taken far away for grazing. Uneven paths should also be avoided.
- A lactating animal should be dried gradually after 7th months of pregnancy.
- Pregnant animal should have enough space for standing and sitting comfortably.

- Pregnant animal needs nutritive ration to reduce the possibility of diseases like milk fever and ketosis at the time of calving and also ensures adequate milk production. The daily feeding requirement for a pregnant animal is as under:

Green fodder ------------- 25 – 30 Kg Dry fodder ----------------- 5 Kg Balanced cattle feed ---- 3 Kg	Cake -------------------------- 1 Kg Mineral mixture ------------- 50 gm Common Salt ----------------30 gm

- Pregnant animal should be provided with minimum 75-80 litres of fresh and clean drinking water daily.
- A heifer after 6-7 months of pregnancy should be tied with milking animals; and its body, back and udder should be massaged.
- 4-5 days before calving, the animal should be tied in a separate clean and airy area having sunlight. Paddy straw should be spread on the ground as bedding for the animal.
- The animal should be kept under observation during the last 1-2 days before calving.

Care during calving

A sticky discharge is secreted from the vagina a day before calving. Such animal should be observed closely at hourly intervals even during night without disturbing the animal. At the time of calving, the water bag comes out first, which gradually increases in size and finally bursts. The hooves of the fore limbs of the calf can be seen with the head between the knees of fore limbs. With the expulsion of the calf the process of calving gets completed. Many times if the cow / buffalo is weak then there could be some difficulty in calving. In such a situation, some experienced person can help in gently pulling the calf out. In case of any deviation in calf position, one should call a veterinarian.

Care after calving

Animal should be kept under observation till expulsion of placenta takes place. Normally, it is expelled within 10-12 hours. As soon as it is expelled, it should be removed and buried under the ground. If the placenta is not expelled within 24 hours, a veterinary doctor should be called for help.

The animal should be milked 15 to 20 minutes after calving. Cow / buffalo undergo a lot of stress while calving, therefore, the animal should be given light ration containing warm rice gruel, boiled millet or wheat mixed with common oil, Jaggery, Soya, Ajma, Methi and Kali Jiri, etc. for 2 to 3 days after calving. This kind of diet is also helpful in early expulsion of placenta. In addition, the animal should be given tender green fodder and fresh water as much as it wants to drink, but do not give hot water.

After removal of the placenta, the animal should preferably be bathed with hot water during winter and with normal water during summer. After calving if the animal appears to be sick, contact veterinary doctor immediately.

After calving, a cow or buffalo usually comes in heat in 45 to 60 days, but animals should be inseminated in the next oestrous cycle. If the animal does not come in heat within 60 days, a veterinary doctor should be consulted.

9. Care and Management of New Born Calves:

- Just after birth, clean the nostrils and mouth of the calf.
- Massage the chest gently to help the calf breath comfortably. Clean the entire body of the calf properly.
- Insert two fingers in the mouth and place them on the tongue, which will help the calf start suckling.
- Navel cord should be tied with a thread at a distance of 2 inches. Cut the remaining cord with clean scissors and apply tincture iodine so as to avoid navel infection.
- Within half an hour of birth, we should start feeding colostrum to the calf. Total quantity of colostrum to be fed daily may be up to one-tenth of the body weight of the calf, but it should be fed in 3-4 divided doses.
- For proper growth, milk should be given to calf for about 2 months.
- De-worming should be done during third week and then at 3^{rd} and 6^{th} months of age.
- After one month, the calf should be fed tender green grass and hay and 100 gms of calf starter daily.
- When the animal is 3 months old, contact the veterinarian for vaccination.
- Newly born calves should be kept in protected environment.

Advantages of feeding Colostrum to newly born calves

- Newly born calves have very low resistance against diseases. Buffalo calves have even lesser resistance to diseases. Colostrum-feeding is a natural way of transferring immunity from mother to calf.

- Colostrum is an invaluable gift of nature to the newly born calf. Compared to milk it contains extra nutrients, like 4-5 times protein, 10 times vitamin A and plenty of minerals.

- Colostrum acts as mild laxatives and helps in removing meconeum from the intestines.

10. Vaccination of dairy animals:

To save dairy animals from infectious diseases like Foot and Mouth Disease (FMD), Haemorrhagic Septicaemia (HS), Black Quarter (BQ) and Brucellosis, it is necessary to get them vaccinated regularly.

S.No.	Name of the Vaccine (Disease)	First Dose	Booster Dose	Subseque-nt Dose
1	Raksha-ovac (FMD)	4 months of age	9 months of age	Annually
2	Raksha- HS (HS)	6 months of age	----	Annually
3	Raksha – BQ (BQ)	6 months of age	----	Annually
7	Bruvax (Contagious Abortion)	Female calves in the age group of 4- 8 months (Once in life time)		
COMBINED VACCINES FOR MORE THAN ONE DISEASE				
4	Raksha HS+BQ (Haemorrhagic Septicaemia and Black quarter)	6 months of age	----	Annually
5	Raksha- Biovac (Foot and Mouth Disease and Haemorrhagic Septicaemia)	4 months of age	9 months of age	Annually
6	Raksha-Triovac (Foot and Mouth Disease, Haemorrhagic Septicaemia and Black Quater	4 months of age	9 months of age	Annually

11. Worm control

The worms living in digestive tract are parasites, which suck the blood of animals and weaken them. Worms keep on eating the considerable amount of food provided to the animal and thus animal looses weight gradually. Such parasites and their eggs are most commonly found in and around the ponds and water reservoirs.

Symptoms:

- Diarrhoea and death in young animals.
- Reduced feed intake
- Poor growth rate
- Delayed maturity
- Reduced reproductive efficiency of adult animals
- Increased inter-calving period
- Reduced milk production.

Prevention

- Administer the deworming drug to animals at the beginning and at the end of rainy season.
- For this, feeding medicated feed pellets is a convenient and economic method. For more information and availability please contact your Dairy Cooperative Society or the milk union.

Treatment
Consult veterinary doctor for treatment.

12. Fodder conservation (Silage and Hay):

It is very difficult to get green fodder throughout the year especially in summers whereas after rainy season, green fodder is available in plenty. Therefore it can be conserved as hay or silage. This may be a valuable alternative as conservation preserves the nutritive qualities of green fodder.

Silage:
This is pickle like green fodder, which is easily digestible, and palatable to animals. Quality silage can be prepared from green fodder crops of monocotyledons e.g. Sorghum, Maize, Bajara, Hybrid Napier, Oat etc. as these are rich in carbohydrates. Green fodder should be harvested and chaffed when 50% of the crop is at flowering stage. This chaffed fodder should be stacked in yard, field or a pit, but the area should not be low lying. Size of the pit depends on the quantity of fodder. One cubic meter (1M length x 1Meter width x 1 Meter depth) is sufficient for 5 quintal chaffed fodder. The fodder should be properly pressed in the pit to remove the air. Filling level should be one foot above the ground level, then the heap should be covered with polythene, soil and dung layer respectively. Later, if some cracks are observed in the covered layer, more soil should be spread to fill it, lest the air will enter and spoil the silage. Within 40-50 days silage is ready for use. Only required quantity should be taken out from one side of the heap. Once pit is opened, silage should be used up at earliest.

Hay
The best quality hay can be prepared from forages like Lucerne, Oats, Sorghum etc. The crop should be harvested; at its peak nutrient content I.E at flowering stage.5-10 kg bundles are made and kept with each other's support in the field for drying under the sun. While drying the bundles, flower end is kept upside down and places of bundles should also be rotated for complete drying. Plants can also be put up with the support of wire for drying. Well-dried bundles/ crop can be stored at a moisture free place. Hay can also be chaffed before storing.

13. Enrichment of Straw by Treating with Urea:

It is well known that green fodder and cattle feed form the ideal nutrition for health and milk production of animals, but non-availability of green fodder throughout the year and high cost of cattle feed pose problems for the farmer. Generally, paddy and wheat straw are available in plenty with the farmer but straws are extremely deficient in nutrients. It has less than 4% protein. Urea treatment of straw increases its nutritive value by raising the protein content to about 9%. Feeding urea treated straw may reduce the cattle feed requirement up to 30%.

Straw Treatment Method:

At a time at least 1-tonne straw should be treated. We need 40 Kgs urea and 400-litres of water for the treatment of 1-tonne straw.

1. Dissolve 4 kg urea in 40 litres of water (union's milk cans are equivalent to 40 litres).
2. Spread 100 Kgs straw on the floor to form 3-4 inch thick layer.
3. Sprinkle 40 litres of prepared urea solution on the spread straw using gardener's sprinkler. Then press the straw with feet by walking or jumping on it.
4. Spread another 100 Kgs of dry straw on top of this compressed straw, and prepare another 40 litres of urea solution (by dissolving 4kg urea in 40 litres of water). Sprinkle the prepared solution over the second layer of straw and repeat the compaction by walking and jumping on the layers of treated straw.
5. Likewise, repeat the procedure 10 times by spreading 10 layers of straw, sprinkling it with urea solution and then pressing with feet.
6. Cover the treated straw with a plastic sheet and spread some quantity of mud at the point where it touches the ground to prevent the formed ammonia gas to escape.
7. In case plastic sheet is not available, cover the treated heap with dry straw. Then after putting some soil, cover the same with wet clay / or cow dung layer to make it airtight.

Precautions:

- Never feed urea directly to the animal. Urea as such is poisonous to animals.
- While treating the straw, keep the urea solution away from the reach of animals, lest some animal may drink it
- Cemented floor is more appropriate for treatment of straw. If the floor is *kaccha*, use a plastic sheet on the floor before spreading the first layer of straw.
- It is convenient to undertake straw treatment in a closed room or in the corner location.
- After harvesting if the farmer stores straw in stacks, then the straw can be treated before stacking, following the above steps. This will save substantial labour.
- Treated straw should be opened after 21 days in summer and 28 days in winter. Before feeding, the straw should be spread in open air for the gas to escape.
- Start feeding with small quantity of treated straw. Slowly the animal gets habituated and starts relishing it.

14. Animal Housing:

It is important to provide clean and comfortable housing facilities to the dairy animals for their proper growth and optimum productivity. The milch animals should be protected from extreme weather conditions of summer, winter, scorching direct sunrays and winds by providing proper animal sheds.

During summer the animals suffer from heat stress and they become restless. Sweating and panting, to some extent helps them to cool their bodies. Reduced feed intake of the animals, results into decreased milk production. Therefore, we must have a suitable housing for the animals.

- Animal shed must ensure minimum 5.5 feet x 10 feet floor space for one cow / buffalo.

- The flooring should be of rough concrete finish with 1.5% slope towards drain. The drain should be open, 8 inch wide, 3 inch deep having 1.0% cross slope so that the shed remains clean and bacteria free.

- Height of the ceiling should not be less than 10 feet – may it be thatched or of AC Sheets or Brick or RCC.

- Shed should be open from three sides. Only western side should have wall. For every animal there should be ventilator of size 3 feet x 1.5 feet at the ceiling level. During winter remaining three open sides may be covered by gunny cloth.

- 2 feet wide and 1.5 feet deep manger should be located on western wall of the shed. Base of the manger may be 1 feet above the floor level. Clean drinking water trough should be provided by the side of the manger.

- Eastern side of animal shed should have free loafing area. Animals are more comfortable under the shade of the tree. Loafing area, therefore should have 2 -3 shady trees e.g. Neem.

- During summer, sprinkling of water on the animal body at an interval of 15 to 20 minutes reduces heat stress as evaporation of water causes cooling of body. National Dairy Development Board has developed "Animal Cooling System" costing only Rs 6000 (March 2004 rates) for small farmers. This animal cooling system is suitable for 4 to 10 animals.

CHAPTER – VIII

ADOPTION OF QUALITY ASSURANCE PRACTICES IN PROCUREMENT ACTIVITIES

With the globalisation, lifting of trade barriers, better logistics competition has increased for every sector including Dairy Sector. Not only has competition increased due to entry of domestic players, many MNC's have entered Indian Dairy Markets. As a result of the increased competition, the consumers now pay more attention to the quality aspects particularly the food safety aspect of milk and milk products. To ensure manufacture of superior quality milk and milk products, which are safe for human consumption, it is essential that only superior quality raw milk reaches the dairy plant for manufacturing milk and milk products.

1. Introduction

India has emerged as the largest producer of milk in the world. The annual milk production was 880 Million MT in the year 2002-03 and it is increasing at the rate of 4% per annum (approx).

2. Need for receipt of superior quality milk at Dairy dock

The need for superior quality raw milk can be summarized in the following manner:

- With the opening up of national boundaries through signing of WTO agreement the competition in all the domestic markets including market of milk and milk products has increased. Unless quality of our products is at par with the international quality, we will lose business.
- After adoption of codex standards and signing of SPS agreement for milk and milk products, export will be impossible without meeting certain minimum quality standards.
- Some countries have their own quality standards such as BRC (British Retail Consortium), SQF (Safe Quality Food), EHEDG (European Hygienic Equipment Design Group) etc which has to be met for exporting products to those countries. More over, most of the standards cover primary production of raw material also.
- With increased coverage of mass-media and information boom consumer awareness about quality has increased tremendously. Consumers would reject products that do not meet their expectation regarding quality and safety aspects as per their perception developed through education.
- Production of premium milk products requires raw milk of high quality. This is because the processing of milk in the dairy plant can not off-set the harmful effects due to use of poor quality raw milk.

Quality of raw milk reaching the dairy dock can be improved through adherence to proper clean milk production and milk handling practices, deployment of appropriate technology etc. Thus, there is great responsibility on the persons who are involved with procurement activities, DCS staff and transporter to see that the raw milk reaching the dairy plant is of superior quality.

3. Milk Quality

According to Prevention of Food Adulteration (PFA) Act milk is the normal mammary secretion derived from complete milking of healthy animal without either addition thereto or extraction there from. It shall be free from colostrum**.**

The raw milk quality can broadly be classified in following three categories:

i. Nutritional or Compositional Quality
ii. Food safety Quality
iii. Sensory Quality: refers to taste, flavour, colour etc.

i. Nutritional or Compositional Quality

This quality refers to the quantitative presence of following milk constituents:

- Fat
- SNF (Solid not Fat) : Consisting of Lactose, Proteins, Minerals, Vitamins, Enzymes etc.
- Water

This quality is influenced mainly by type of milch animal (cow/buffalo), breed of milch animal (Jersey, HF, Murraha, Nili Ravi etc), feeding practices, physiological condition of milch animal, health care management practices.

So far this quality of milk was getting importance as the payment to producers was linked with the fat and SNF component of the milk.

ii. Food safety Quality

This quality refers to the contamination caused to the food item which can result into health hazard for the human on consumption. The causes of contamination can be grouped into two main categories:

i. Contamination caused by normal handling practices and environment prevalent in our country.
ii. Contamination caused by willful acts of persons handling the milk

i. Contamination caused by normal handling practices and environment prevalent in our country.

The contamination is caused by milch animal, utensils, milking and milk handling practices, extraneous matter in milk, feed, fertilisers, environment etc. The contaminants from these sources can be classified into following three main categories:

- Biological : such as bacteria, yeast, moulds, viruses etc.

- Chemicals : such as antibiotics, vet. drugs, insecticides, pesticides, aflotoxins, heavy metals etc

- Physical : such as Nails, Straws , insects, hair etc .

iii. Willful addition of foreign substances (adulteration)

This aspect deals with the willful addition of certain substances which are harmful to the human health. The commonly used adulterants are:

- Starch and flours of different cereals
- Sugar / Sucrose / Glucose
- Urea
- Caustic soda / other neutrisliser
- Formalin
- Hydrogen Peroxide
- Ammonia Fertilisers
- Dirty water

iv. Sensory Quality

It refers to flavour, colour and appearance, which can easily be sensed by our sensory organs. Milk should be free from odd and abnormal flavours.

The term flavour refers to smell and taste. Normal milk has sweet smell and taste. Milk also gets some fulvous from the feed the milch animal takes. For example milk from cotton growing areas will have slight smell of cotton seed in it, and when the animals are fed with onion leaves during onion harvesting season, the smell of onion will be transferred to the milk.

When milk is kept at atmospheric temperature for a long time, the lactose in the milk forms lactic acid due to bacterial action, and the milk gets acidic flavour.

The appearance of milk is normal. Milk from animals affected with mastitis will show formation of flakes. Such milk would easily be identified and needs to be segregated.

4. Food Safety Quality vis-à-vis Microbial Quality of milk

The microbial (biological) quality of milk assumes significance because the deterioration in quality on its account is directly proportional to the hygienic conditions adopted during milking, milk handling and the temperature at which the milk is kept till it reaches dairy dock. The milk is an excellent medium for microbial growth due to the presence of nutrients i.e., fat, lactose, proteins, minerals, vitamins etc and water. As a result of microbial activity milk is likely to get spoiled very quickly if it is not handled properly right from the time it leaves the udder of the milch animal. The microbial activity also influences other quality aspects of the milk such as sour taste, off flavors, milk curdling etc.

5. Strategies for Clean Milk production

To ensure that minimum possible deterioration occurs to the milk quality after milking and till it reaches dairy dock, the following precautions should be taken:

1. **Maintenance of hygienic and sanitary conditions** during milking and subsequently till the milk reaches dairy plant.
2. **Time interval** between milking and chilling (at dairy/ at Village level Bulk Milk Cooler) should be minimum in case the transportation from DCS to Dairy / chilling centre is through cans.
3. The milk should be kept **in cool condition** till the time it reaches dairy dock.

1. Maintenance of hygienic and sanitary conditions during milking and subsequently till the milk reaches dairy plant

To ensure superior quality of raw milk, the following aspects need attention at the **Milk Producer level, DCS level and during transportation to dairy dock**.

❖ **<u>At Milk producer Level</u>**

The critical areas are:

– Cattle shed management
– Animal Health and Feeding Management
– Milk equipment cleanliness
– Milker hygienic milking practices

- **Cattle Shed Management**

  The important considerations are:

  - The shed should be airy, well ventilated and kept dry.
  - The shed should have pucca and non slippery flooring
  - The shed should be kept clean with daily washing with water or dry cleaned. The dung and urine should not accumulate in the shed.

- ***Animal Health and Feeding Management***

  - The milch animal should be healthy and free from all diseases particularly Mastitis.
  - The hair on the body and on udder of the cattle should be removed.
  - The cattle should be fed only green fodder during milking and not the dry fodder.

- ***Milking Pail cleanliness***

  - The milking pail and storage vessels (if any) should be from AISI 304 grade stainless steel and should be of proper design with a stainless steel cover.
  - The milking pail should be cleaned properly with detergent.
  - The pail should preferable be sanitized (by using Potassium permagnate Solution) before milking.
  - The pail should exclusively be used for milking only.

- ***Milker and hygienic milking practices***

  - Sufficient quantity of feed and drinking water should be given to the cattle before milking.
  - The cattle should be clean and the body surface should be free from dirt and dry dung etc. The cattle should be given bath daily with clean water and if bath is not possible because of water shortage, dry cleaning by using broom/brush should be done.
  - The milking area shall be properly clean. The cleaning should be completed at least 10 minutes before milking so that the dust etc settles down and does not enter the milk.
  - The udder and teats of the cattle shall be thoroughly cleaned with water to remove dirt and dung and then should be dried by using tissue paper or clean dry cloth.
  - Separate vessels should be used for keeping / carrying water for washing / cleaning the udder and for milking. In case the same vessel is used the dirty water during udder cleaning shall fall into bucket and contaminate the milk.

- ➢ If letting down occurs after calf sucking, the teats should again be cleaned with water before milking.
- ➢ Initial milk from all the four teats should be discarded, as the bacterial count in such milk is very high.
- ➢ Milker should be free from any infectious transmittable disease.
- ➢ The milker's hair should be properly cut/ tied and nails should be properly cut.
- ➢ The hands and preferably arms up to elbow should be properly washed with soap/detergent only and dried. Mud or ash should not be used for washing the hands/arms.
- ➢ Milker should wear clean clothes.
- ➢ Milker should avoid contact between milk and his body parts.
- ➢ Sneezing, coughing over the milking pail should be avoided by the milker.
- ➢ Entry of flies, hay, husk, dry dung cake or other extraneous matter should be eliminated/ avoided to the maximum extent.
- ➢ After milking all the teats of the cattle should be rinsed / dipped in a disinfectant solution (Iodophor/ Dipal etc).

❖ DCS AS AN ELEMENT OF CLEAN MILK PRODUCTION

The Dairy Co-op. Society (DCS) is the vital link in the milk collection chain between the milk producers and the dairy plant as it facilitates the collection, accounting and analysis of the raw milk received from each producer. It is here that the milk is handled and stored temporarily before it is taken further to a chilling centre or the dairy plant. Milk is held at the DCS till such time as the transport vehicle reaches the DCS.

Presently, either the milk is collected in cans and transported in trucks / tempo to the dairy / chilling centre or in a few cases, collected and preserved in bulk milk cooling tanks and transported directly to the dairy plant in road milk tankers.

The studies indicate that in case of milk collection through cans bacterial load gets progressively added to raw milk due to unhygienic methods of handling at the DCS level and leads to rapid deterioration of bacteriological quality of raw milk. To avoid any contamination of milk during the collection procedure, certain practices, which should be followed are given below:

- **Milk collection and sampling at DCS:**

At present, the milk collection equipment and other items (such as volumetric measures, the funnel which is placed above the cans, the plunger, and bottle stand and sample bottles) which come into direct contact with the raw milk are generally made from Galvanized Iron (GI)/Aluminum or plastic. It is desirable that the aluminum / GI / plastic made items are replaced by stainless steel components (Grade AISI 304) at the earliest possible since SS made items are hygienic, long lasting and easy to clean and maintain.

The milk collection trays and other milk collection equipment should not have sharp edges and corners as it is difficult to clean the dirt and milk deposits at sharp corners which leads to the accumulation of bacteria.

Inside the DCS at the milk collection area care should be taken to avoid flies etc in the environment which can adversely affect the milk quality.

A removable/cleanable filter preferably of AISI 304 with a suitable mesh size fitted in an SS frame should be placed in the funnel kept above the can. Alternatively, an arrangement of SS filter directly placed on the can also serves the purpose. The extraneous material collected on the filter should be frequently removed and filter should be kept thoroughly cleaned to avoid any contamination of milk by foreign material.

In case a muslin cloth filter is used, this should be replaced with a fresh cloth frequently. A practice shall be developed while collecting the milk at DCS is that as soon as some extraneous matter accumulates on the muslin cloth it should be replaced with a fresh one. Field studies have indicated that when the milk passes through an unclean filter, its bacterial load increases to the tune of 16 times the original level.

Measuring cylinders /vessels, sampling bottles, plungers, lactometers and other glassware should be thoroughly cleaned using hot water and detergent daily before and after milk receipt. Open surfaces of equipment/vessels should be manually scrubbed with a proper fibre brush to avoid milk stone/soil formation. Preferably, the DCS equipment should also be disinfected by chlorine / iodophor/ Potassium Permagnate solution or sterilised using hot water.

For all milk handled at the DCS, take precautions not to put fingers, hands in the vessels containing milk. For raw milk sold directly at the DCS level, take precautions not to dip measuring vessels directly into the milk tank or milk cans.

- **Milk Cans**

An important factor which affects the quality of milk is the physical and sanitary condition of the cans through which the milk is being transferred to the Union from the DCS. Greasy can interiors due to improper cleaning or residual wash water in the can increases the risk of contamination and deteriorates the milk quality faster while transporting milk.

It is observed that Milk cans after cleaning in the can washer; are utilised for carrying cattlefeed, fodder seeds, ghee and other material to the DCS, and then they are cleaned unsatisfactorily using locally available water which is not potable in many cases. This defeats the purpose of the can cleaning and should be discouraged. Cans should not be used for storage /transport of any other material except milk.

While transporting milk from the DCS, there is a tendency to use material such as newspaper, straw, jute etc. to keep the lids firmly in place. This has two disadvantages:

a) The impurities in the packing material contaminate the milk,

b) Since the lids are firmly in position, to dislodge them at the dairy dock a pipe/rod is used leading to denting of the cans This in turn increases the chances of milk contamination as the thorough cleaning of dented cans is not feasible.

As compared to aluminum cans, **stainless steel (grade AISI 304)** cans offer better cleanability, hygiene and durability. Usage of SS Cans of AISI 304 grade is, therefore, recommended.

- **Hygiene and sanitation at DCS**

To avoid contamination of raw milk it is essential that the DCS and its surroundings are kept clean and tidy. The following are the salient aspects to be looked into:

- The floor should be regularly broomed/ washed and kept dry. Milk spillage, if any, should be immediately cleaned so as not to leave any residue for bacterial proliferation.
- The DCS building should be airy, well ventilated.
- The walls should be clean. Corners and ceiling shall be free from dust and cobwebs besides flies which are most common carrier of disease producing germs.
- There should not be any loose electric wiring at the DCS as it is a serious hazard for the DCS staff.
- All working surfaces should be regularly cleaned and washed, if possible, daily.
- The DCS should have a reliable source of potable water, preferably a small capacity overhead tank (which in turn should be regularly cleaned,

at least once in six months) to take care of the cleaning /drinking water requirement at the DCS. Instectocutor shall be installed in the DCS.

- There should be enough space provided for the pourer members to queue up.
- Every day after milk reception the shutters of the DCS are required to be closed. This would keep flies and undesirable insects at bay.
- DCS building shall be maintained free from the movements of dogs and rats which increase the risk of milk contamination. A periodic pest control of the DCS building is recommended.
- The SS line and the hose pipes used for the milk despatch from bulk coolers to tanker shall be thoroughly cleaned after use, should be corked and preferably kept on a hanger to prevent entry of foreign matter, insects, rodents etc.

- **Cleanliness of surroundings:**

The surroundings of the DCS should be kept clean, so as to avoid breeding of insects and flies. The waste material generated shall be immediately removed from the vicinity of the society and shall not be littered here and there but place in covered dustbins, or at a particular place, from where it is disposed frequently to safer places. There should be a proper method of collection and disposal of waste water from the DCS either into a drain line or a soak pit.

Stagnated rain / wastewater causes breeding of flies, mosquitoes and other harmful insects. Hence ponds or pools of water shall be treated appropriately to avoid breeding of flies, mosquitoes and harmful insects.

The passage for the milk transport vehicles and other vehicles coming to the DCS shall be preferably such as to avoid entry of dust in the milk handling operations of the DCS.

- **Hygiene and cleanliness of the DCS personnel**

An unhealthy person responsible for any operation at the DCS such as milk collection, sampling, analysis or maintenance of cleanliness at the DCS and bulk cooler can adversely affect the raw milk quality. A sick person, especially one suffering from a contagious disease should not be involved in any of the operations at the DCS. The DCS personnel deployed should not be suffering from TB or any respiratory ailment or having an open cut/ wounds as it could affect the milk quality or infect the pourer members.

The personnel should be clean and tidy. Nails and hair (in case of male members) of the personnel should be neatly trimmed. Clothes should be clean, washed and tidy.

Before taking up the related operation at the DCS the hands of the person should be washed preferably with a soap to remove any bacteria.

Coughing, sneezing, spitting, smoking within the DCS premises should be avoided/discouraged. Also consumption of tobacco, paan / masala / alcohol within the premises by DCS staff or the pourer members should not be permitted.

- **Quick Transportation of milk to dairy dock**

Since the bacterial multiplication depends upon the time the milk is held in cans particularly in summer, even a little delay in milk reception at RMRD results in increase in bacterial count and thereby the sourage. Therefore, efforts should be made to see that the milk reaches dairy dock as early as possible after milking (preferably within 4 hours in case of milk collection by cans).

The shorter transportation routes, to the extent possible, should be put in use to ensure that the milk reaches the dairy plant in shortest possible time.

Transportation trucks should be provided with cover to avoid direct exposure to atmosphere.

- **Keeping the milk under cool conditions - Methods to arrest microbial activity**

In our country, the ambient temperature during milking and subsequent handling till it reaches dairy dock is generally in the range of 20-37^0 C. This range is the most conducive for the rapid growth of spoilage causing micro-organisms. The rapid growth of micro-organisms leads to the development of acidity and consequently to deterioration of milk quality. There are several methods to arrest microbial growth like heating of milk, chemical method, cooling etc. The cooling method is preferred at the DCS level because it is efficient, cost effective and it maintains the natural quality of milk without being adulterated by the chemicals.

The use of bulk milk cooling systems at the village level to cool the milk, has been found to be quite useful in controlling the growth of micro-organisms and hence improving the quality of milk being delivered to a dairy for processing. The following data from a union highlights this point.

Parameters	Unchilled milk in cans	Chilled milk from CC's thru tankers	Chilled milk from BMC'c thru tankers
Acidity (% LA)	> 0.140	0.130 - 0.145	> 0.130
MBR Time	15-30 minutes	30-45 minutes	Avg. 90 minutes
Standard plate count	5-10 million	2-4 million	1-1.5 million

CC's : Chilling Centres BMC's : Bulk milk coolers

❖ **Bulk Milk Cooling System**

In the bulk milk cooling system, the raw milk received at the DCS after each milking is poured / transferred (through milk reception tray, balance tank and pump) to a closed and insulated SS 304 tank and cooled to a temperature of about 4^0 C. in shortest possible time, to preserve the raw milk quality. The cooling time depends upon the quantity of the milk poured. The refrigeration system has a facility to automatically cut -off the cooling operation as soon as the pre-set temperature (say 4^0 C.) is achieved. This helps in saving in electricity cost since the unwanted operation of the refrigeration system is avoided. The efficiency of the tank insulation is such that at an ambient temperature of about 35-40^0 C. the rate of rise of the mean temperature of the milk, initially at about 4^0 C. shall not exceed 1^0 C. in four hours when the rated volume is allowed to stand undisturbed.

The milk feeding to the bulk cooling systems can be done in two ways:

- **Gravity feed system:** The milk reception platform is at higher level than the overall height of the cooling tank. The milk is first poured into the milk reception tray after weighing and fat testing and finally conveyed to the cooling tank by gravity through an interconnecting SS pipeline. A suitable size filter is used at the inlet of the tank to filter the extraneous matter. It is advisable to discard the extraneous matter frequently from the filter to ensure reduced bacterial load in the milk being cooled.

- **Pump feed system:** The milk is first poured from the reception tray into a milk balance tank (SS) through a filter and then pumped to the cooling tank by SS milk pump.

The milk despatch from BMC to the dairy plant is through insulated tankers.

CONCLUSION

It is clear that in future, the quality and food safety aspects of the milk and milk products shall play a significant role in capturing a commanding share of the market. Adoption of hygienic and sanitary practices for handling of milk along with the use of appropriate technology (such as chilling the raw milk as early as possible after milking) will ensure that only the superior quality of raw milk reaches dairy plants and is used for manufacturing milk and milk products. Proper education, training and motivation of all the persons in the milk procurement activities i.e., from producers to dairy plant also plays an important role.

CHAPTER – IX

WOMEN IN DAIRYING

Introduction:

A woman is the nucleus of a family, particularly in rural India. For the rural women, the day starts early in the morning with the responsibilities of fetching water, fodder and fuel, cooking food and looking after the livestock and children. She works for 14-16 hours a day, managing the entire household matters and looking after the family assets and livestock. Still, there is no recognition for their hard work, just because their work is not evaluated in terms of money.

The 1999 Human Development Report of UNDP says that, while women do 67% of the world's work, only 10% of global income is earned by women and a mere 1% of global property is owned by women.

As we all are working for the dairy sector, we need to understand **and recognize women as the backbone of dairy industry**. An important factor, which is of great concern and needs attention, is involvement of women milk producers in the affairs of dairy cooperatives. The role that women play today and the role that they would be playing in the next decade in managing the dairy cooperatives will be decisive in sustaining the dairy cooperative movement of our country. To understand the role women needs to play in the next decade, there is a need to look at their present role as a women dairy farmer, know the current status of women's participation in cooperative dairying and strategize enhancing their participation in dairy cooperatives.

1.1. Role of Women in Dairying:

In general, it has been observed that a traditional division of labour exists with in the Indian household with respect to dairying. Most women do the management and feeding of the livestock as part of their household chores. Rural women are not only engaged in routine household work as wives and mothers, but also significantly contribute to family income through their productive family labour of looking after dairying part of the mixed agricultural farming enterprise round the year. The number of hours spent by women in dairying work is so far in excess compared to that by men in most of the states in India.

In many parts of our country, dairy farming has traditionally been a women's occupation and they also know much more about the care and feeding of dairy animals. Women are responsible for 60 to 80 percent of the work involved with dairy animals.

1.2. Current status of women participation in dairy cooperatives:

Despite sharing larger responsibility in dairying occupation, the socio-cultural conventions have severely delimited women's access to organised public activities in the sector of dairying also, thus restricting their participation in the Cooperative system. Women have been overlooked when it comes to enrolling them as members of dairy cooperatives or enabling them to be a part of the governance system of village dairy cooperatives. Some important reasons for their low representation in dairy cooperatives are given below.

1) It is well known that ours is a patriarchal society where men are generally regarded as the heads of the households and consequently as the key decision makers. Particularly in rural areas, not only are men the decision makers, it is normally expected that the women will not speak openly, will not voice their opinions and also avoid male dominated forums. Traditional male domination and male resistance for women participation is prevalent in village dairy cooperatives as in case of all other spheres of economic activities.

2) Women in the rural households are generally confined to household tasks and suffer from inadequacies such as lack of mobility, lack of peer support, lack of access to information, resulting in general lack of awareness even about the role they can play in the dairy cooperatives.

3) Most women have to put up with the impacts of early marriage, poor attention to health and nutrition, marginal education opportunities, which anyway tend to reinforce conventional gender expectations, and the difficulty of sparing time from their existing workload of house hold tasks. Better-off, higher caste women may be more privileged in terms of having more education and more time, but they too face constraints on their mobility and activities, and in most cases they can only do what their husbands permit.

Coupled with some of the inherent disadvantages that women suffer from, evident lack of support from their male counterparts is generally hindering women participation in dairy cooperatives at all levels. Clearly, considering the significant part played by women in dairying activities, it is by large they who should be regarded as primary producers of milk and legitimately as true "users" of the services of the dairy cooperatives. While it is the women who should have been largely the members, and thus true owners of the dairy cooperatives and not the relative of the owners as is observed.
Even today the women membership in dairy cooperatives across India accounts to barely 24%. Very few are involved in governance of dairy cooperatives.

So, if our milk production has risen to 88 million tonnes and we are now the largest milk producer in the world, then it is Indian woman dairy farmer who deserves the major share of the credit. One can imagine what they could have achieved had they been literate, educated and truly, empowered. While there has been some participation by women in dairy cooperatives in India prior to 1980s, it is only during the last decade that the women are gaining access to membership and governance of dairy cooperatives.

“A dairy co-operative that is formed and led by users, that is, by those who actually rear, feed and manage cows and buffaloes - will prove far more successful than one that is formed and led by the relatives of such users”.

1.3. Strategies to enhance participation of women in dairy cooperatives:

Before working out the strategy, we must be aware of the factors that restrict women’s participation in dairy cooperatives. Some of the major factors are listed below:

- **Lack of men’s support for women’s new initiatives**: Any step towards empowering rural women meets with male opposition and this is true when it comes to women becoming members of the co-operative or when they want to receive payment for the milk supplied. Lack of support from the male members of the family, who are used to seeing their women subdue and non – interfering and who never stepped outside the house on their own. A dialogue with women threatens their status and dominance. Although DCS in theory have ‘open membership’ the socio- cultural norms are such that so called ‘general’ or ‘mixed’ DCS are in practice ‘men’s’ DCS. Men play a key role in DCS issues and decision making like; dealing with the members, attending the MCM meetings and AGMs not only at the village level but also at district union and state level. Even in some WDCS, men secretaries dominate women members. **Women are not seen as decision makers.**

- **Women have low mobility, less scope for information seeking, hence less experience**: The young unmarried daughters have relative freedom and mobility within the village, are likely to be interested in social change and even looking for a job. However, their involvement is short term. As young daughters in law, their individual freedom usually become quite severely restricted- even if they are educated and have interests. Therefore, the older women who have greater status both in the family and in the village community are therefore nominated/ elected as MC members. They often resist changing in traditional practices and patterns of behaviour.

- **Lack of alternative, acceptable, role models**: Other than the women extension staff visiting the villages, the members do not have any women role models in their village whom they can follow. In a mixed DCS, women are in minority. Although they have the access to pouring milk and receiving payment but are not able to play an informed and active role in the dairy cooperatives. Therefore, the fear of failure is very strong in them.

- **Lack of literacy / low literacy levels**, near absence of documentation and documented reading material of cooperative experiences of rural women in the vernacular language are also factors, which act as barriers for their involvement in dairy cooperatives.

Considering these aspects and recognizing the potential for strengthening the dairy cooperative structure and also to make full use of the vast human resource untapped, the Milk Unions need to initiate and continue some measures as mentioned below:

1. **Creation of awareness among men / Male sensitisation:**

Men take up almost all the elected leadership and employees of a dairy cooperative society, the district cooperative union and the state cooperative milk marketing federation. Breaking the patriarchal male dominance in dairy cooperatives will require a revolutionary change. Unless men are sensitized to the need of making women come forward, we may not achieve the desired changes, but will raise a social conflict and disturb family harmony. Therefore, it becomes very important to convince men to give space to women. To begin with, we need to sensitize men about the role of women in dairying, benefits of women involvement in dairy cooperatives, particularly, with respect to their development as an individual. This could enlist greater support for women participation in dairy cooperatives and in various development programmes.

The other aspects that require persuasion are convincing men to give way to women at the management level, opening and operating of individual / joint accounts in the bank, recognition of their services to the family and society could empower women further and provide equal status in the society.

2. Creating awareness amongst women: Woman should be made aware that becoming a member of the village dairy cooperative could be the beginning of attaining the recognition as wage earner - when she herself receives payment towards milk supplied to the dairy cooperative.

Educating women on scientific method of breeding feeding and management of milch animals, and enhancement of skills for increasing milk production would certainly help them to increase their income.

3. **Facilitating Milk Union to play the role of a catalyst of change**

The Unions that take up people's issues must see themselves as Catalytic agents rather than only businessmen. The union must realize and appreciate the potential that exist for women involvement in dairy cooperatives should take up tasks of implementing focused programmes for women involvement in dairy cooperatives as members, Management committee members, Chairperson and employees too. The following steps could be taken at the Union level:

- **Orientation of Senior officers, BODs for their understanding and commitment to women's programmes:** To begin with, Milk Union Board members should be sensitized and made responsible for the Cooperative reform/ modification, and initiate gender balance at the Board level first. More number of women at Board level would enrich the quality of discussion and the decision itself. The Board members and senior officers of the Union must be convinced that investments in women's developments would yield rich results in terms of better management of the society. For that they need to strengthen women employees within, in terms of their importance and in sheer number. If the Union is striving to bring about these changes, the commitment at the senior level should spread over the whole organisation, which would result in support and coordination for specific activities at field levels. They should also be convinced of the fact that women can be brought into management and policy making for dairy development only by strengthening their participation in the cooperative sector, which would enhance the efficiency of cooperative management and its performance.

For that, the Union needs to have long-term commitment to support these interventions on a sustainable basis.

- **Orientation of Union Officers and Staff:** Field Staff needs proper orientation to adopt suitable approaches to address the problems and encourage women through appropriate training and exposure. The Milk Union must support women dairy farmers, DCS employees, MCM, leaders and its field staff from time to time by providing training, guidance and relevant information. The mingling of women extension staff with the rural women without any reservations, motivate them and develop confidence in women.

The Union may adopt the strategic phasing of support, which may involve some initial training, including awareness programmes, demonstration visits for both women and men and later on follow up for some period of time – for members, employees and the management committee members. Follow up could be a gradual and deliberate assigning of different tasks in a phased manner to begin with, follow direct guidance. For this, the extension effort needs to go beyond procedural attention to registers, routine meetings and problem solving.

- **Strengthen the role of women members**: Major emphasis should be given on women's education and activities to strengthen the role of members by making them aware about the benefits, management and governance of the dairy co-operative societies. The education programme for women should provide information on the technical know-how for increasing the milk production, their duties, roles and responsibilities as members of dairy cooperatives with a strong emphasis on women's role as milk producers as well as that of primary members of a dairy cooperative society. All the trainings should aim at creating a constituency of members to exercise their rights and responsibilities as owners of co-operatives.

- **Developing women as role models/leaders**: Women's membership in a DCS, even of a WDCS does not guarantee active participation in the DCS – whether in terms of collecting milk payments, attending meetings or exercising governance. There are very few examples of outstanding women who play an effective leadership role as WDCS chairman. Generally, women managing committee members make little if any, contribution to DCS governance because they often lacked basic literacy and numeracy skills, do not have the confidence to assume leadership roles, ask questions, take decisions, do not have the mobility to participate in various types of meetings and trainings.

To begin with, involve and bring forward educated women, progressive and active women members of the village dairy cooperatives to take initiatives and work as role model. These women can be exposed to various aspects of cooperative dairying, which include signifying their roles in strengthening their DCSs, working as pressure groups for local trouble – shooting and enhancing women participation in cooperative dairying. Thus, they can play the role of leaders in economic and social development of the entire community.

- **Building up women members' competencies**: All the interventions at the village level should be carried out only after it is agreed with the DCS members, taking into account their expectations, and what they feel is possible and realistic. Such programmes would not only relate to governance issues like organizing meetings, communicating information, taking decisions, selecting MC members etc; but also to practice of individual membership – in terms of, for e.g, insisting that members only collect milk payments, building up women's competencies like literacy, numeracy, access to information etc. at the village level.

Facilitate participation of women in dairy cooperatives as members; this will enhance their economic development.

- **Developing trained and well informed Management Committee Members (MCM)**: Presently, the role of women managing committee of a DCS is to some extent limited but there is scope for active involvement and direction to the DCS if they are interested and motivated to play an active role. Therefore, initially the selection of MC members and the chairman should not just be left to village elders and opinion leaders but could be guided so as to include women, who because of may be nature, or circumstances and existing family support are likely to be prepared to be different and emerge as leaders.

For MCM, initially the meetings need to be facilitated, made more interesting, participatory and less routine. This applies not only to the way in which meetings are conducted, how issues are presented but making sure that the materials are understood. The Union staff facilitate them to set yearly targets for their dairy cooperatives, prepare quarterly and yearly business plan, take up activities to achieve them. The content of meetings can be made more varied – going beyond dairying issues that concern women for example, savings, village sanitation, health and hygiene, girls education etc.

Women's involvement in decision-making process as Management Committee members will help them in understanding the functioning of the DCS.

4. Creating space / separate forums for women to meet at a common place.

There are very few spaces in a village where women can meet in public without attracting unwanted attention.

Conversation is important and so is the human interaction- whether it happens through Mahila Mandals or through Self Help Groups (SHG) or Thrift Cooperatives. When women come together, they talk and interact in a sustained way, month after month in an SHG or a Thrift Cooperative setting; there is some kind of upliftment. When people listen, they learn. So, dialogue is a wonderful route to self – reflection. Promotion of informal groups like Mahila Mandals of women provide occasion for interaction, and thus help building network. Promotion of informal groups (Self Help Groups) around activities develops confidence in dealing with money. These groups provide a platform of learning to interact with organised groups and take decisions for the benefit of the group. Formation of SHGs and Thrift cooperatives help women to save and borrow money and also avoid them from taking loans from the professional moneylenders at high rate of interest.

There are, many avenues of helping women to become leaders and developing leadership skills. The organisation of women's thrift groups and co-operatives often proves a fertile ground for leadership development. In fact, any activity that involves women working together for a common goal over a period of time creates sustained enthusiasm and confidence in them.

5. Taking help of local lady resource person for better rapport building.

Women are less comfortable than men in travelling and working by themselves- the existing systems has more number of male employees in the milk unions as well as in the DCSs. Even the field staff / Supervisors of the Milk union get very little time for interaction after the routine supervision of tasks and book keeping. The existing women extension officers / staff cannot spend more time in the same village, as they have to cover large number of villages. In order to sustain the activities initiated by the field staff in the village, one of the best ways is the training and positioning of a local woman as a change agent in the village. These trained change agents along with the active women members of the DCS can make significant contributions in motivating rural women to join village cooperatives through awareness and education programmes.

Some of the Unions have adopted this strategy and have found it helpful in encouraging and supporting women's involvement in dairy cooperatives. The tasks given to them are like; diverting women milk producers from private vendors to DCS and encouraging members to attend animal health camps, educate members on proper feeding, breeding and vaccination of animals. They also play an important role in popularizing clean milk production approaches in the villages, organize women health-camps (eye-camp, against anemia, etc.), encourage in adopting family planning practices by the members and promote functional literacy. They can also facilitate formation of self-help groups (SHGs) and organisation of health and literacy camps. The Resource Person has to be essentially a local woman so as to carry out the interventions with the women dairy farming community effectively.

Thus, the Resource Persons play the role of a link agent between the Union and the dairy cooperative members and as a catalyst who brings about the desired changes in the women members.

6. Formation of all women dairy cooperatives (WDCS):

Against the cultural pattern of subordination that women traditionally face, separate WDCS are seen as a means of providing an environment (space) in which women have the freedom to participate, to develop the skills and confidence to manage and run a village institution. Whenever women work in their cooperatives and manage their own business, they create new knowledge for themselves, share that knowledge with others and the same is useful for the community. The women's dairy cooperatives offer the space for women to be in the creation of wealth. This way the real users will be upfront in these organizations.

The Chairman and Managing Director of Valsad Cooperative Milk Union of Gujarat are convinced about the capability of rural women to manage the dairy cooperatives efficiently. They go with the staff of the milk union in villages and convince men about the need for enrolling women as members and necessity of organising women dairy cooperatives. The male sensitisation approach resulted in men folk of Valsad villages providing moral support to the women in their endeavor. Presently, Valsad Milk Union has more than 419 all women dairy cooperatives having 50,0000 women members out of 695 functional dairy cooperative societies. Four women have been elected as the Board of Directors of the Milk Union.

Whenever women have taken over the management of village dairy cooperatives, they have shown that they can manage the cooperatives as well as men could do and in some cases even better. But for the lack of skills, it is evident that women's instincts as care taker of home holds good even with respect to the institutions they get a chance to govern. They are also found to be less politically inclined than men, which is perhaps good for the institutions. They are more collaborative in their approach and their aptitude to place their common interests and concerns above the superficial differences of religion, caste and political affiliation. Besides, women's natural gift for thrift and tidiness are also appropriate reasons for encouraging women's participation in dairy cooperatives. Hence, women have the abilities to run affairs more effectively than men.

Keeping this in view, some state dairy federations and unions are promoting formation of women dairy cooperatives exclusively owned and managed by women.

Adopting the strategy mentioned above, Ichhamati Milk Union, an all women milk union in West Bengal has emerged as a success story of the rural women in true sense of self-reliance. From a humble beginning with a few dairy cooperative societies, the milk union is now having 361 all women dairy cooperative societies with a membership of about 28,000 and procures more than 90, 000 Kg of milk per day.

The Mulukanoor Women's Milk Union started in August 2002 in Andhra Pradesh is another example of an all women milk union. The collective will and the initiative of about 9000 women through their membership in 75 dairy cooperatives in the area have brought about this phenomenal beginning.

The Government of India through its Support to Training and Employment programme for Women (STEP) provides financial assistance to the implementing agencies for formation of Women Dairy cooperatives, initial financial support for recurring costs of societies, margin money for obtaining bank loans. In addition to dairying, great emphasis is given to support services such as health education, legal literacy, gender sensitisation, sanitation and formation of Self Help Groups. STEP is being implemented almost in all the states since 1986.

As of today, there are 18,000 all women dairy cooperative societies out of the 1.08 lakh dairy cooperatives societies wherein, women are not only members but also serve as elected leaders.

With all these efforts, today, the women membership has reached to 2.84 million out of the total membership of 11.86 million. There has been increase in the numbers of women serving on co-operative managing committees as well as in paid positions, but there is a long way to go. When compared with the actual role performed by women in dairying these achievements still represent only a very small start. NDDB aims to achieve 50% women membership in dairy cooperatives by 2010. It is also expected that there will be significant increase in the numbers of women employed as chief executives, managers and as officers.

1.4. Self-Help Group Concept:

Background and Introduction

Since the 1950s, various governments in India have experimented with a large number of grant and subsidy based poverty alleviation programmes. Studies show that these mandatory and dedicated subsidized financial programmes**,** implemented through banking institutions, have not been fully successful in meeting their social and economic objectives. The common features of these programmes were: 1.target orientated 2.based on grant/subsidy, and 3. Credit linkage through commercial banks.

These programmes were often not sustainable, perpetuated the dependent status of the beneficiaries, depended ultimately on government employees for delivery, led to misuse of both credit and subsidy and were treated at best as poverty alleviation interventions. Banks too never really looked on them as a profitable and commercial activity.

According to a 1995 World Bank estimate, in most developing countries the formal financial system reaches only the top 25% of the economically active population - the bottom 75% have no access to financial services apart from moneylenders.

In India too, the formal financial institutions have not been able to reach the poor households, and particularly women, in the unorganized sector. Structural rigidities and overheads lead to high cost of making small loans. Besides, organizational philosophy has not been oriented towards recognizing the poor as credit-worthy. The problem has been compounded by low level of influence of the poor, either about their credit worthiness or their demand for savings services. Low levels of recovery have further eroded due to loan waiver programmes leading to institutional disenchantment with lending to small borrowers.

Despite the vast expansion of the formal credit system in India, the dependence of the rural poor on moneylenders continues especially for meeting emergent credit requirements. Such dependence is more pronounced in resource poor areas and in the case of women belonging to the socially and economically backward classes and the tribal population.

All this gave rise to the concept of micro-credit for the poorest segment along with a new set of credit delivery techniques. With the support of NGOs an informal sector comprising small Self Help Groups (SHGs) started mobilizing savings of their members and lending these resources among the members on a micro scale. The potential of these SHGs to develop as local financial intermediaries to reach the poor has gained recognition due to their community based participatory approach and sustainability. The recovery rates have been significantly higher than those achieved by commercial banks inspite of loans going to poor, unorganized individuals without security or collateral.

Success stories in neighboring countries, like Grameen Bank in Bangladesh, Bank Rakiat in Indonesia, Commercial and Industrial Bank in Philippines, etc., gave further boost to the concept in India in the 1980s. Indian NGOs have created at least one million self-help groups with 17,000,000 members since Mysore Resettlement and Development Agency; MYRADA developed the self-help group concept in the late 1980's. The unorganized, self employed, socially and economically backward sections of the society were offered a new hope in SHGs. It caught on rapidly with encouraging support from organizations such as National Bank for Agriculture and Rural Development (NABARD), which has been categorized as the largest micro finance initiative in Asia, with the Grameen Bank a close second.

The most prominent national level micro-finance apex organisation providing micro-finance services for women in India is the **National Credit Fund for Women** or the **Rashtriya Mahila Kosh (RMK). RMK** is working exclusively for women living below the poverty line. Its loans are available solely and entirely to this target group.

Reasons for focus on poor women

Among the poor, the poor *women* are the most disadvantaged. They lack education and access to resources, both of which are required to help them work their way out of poverty and for upward economic and social mobility. The problem is more acute for women in countries like India, despite the fact that women's labour makes a critical contribution to the economy. This is due to low social status and lack of access to key resources. Rural women cannot put their meager amount of money in mainstream banks. It is difficult for them to follow the formalities even. Easy access of credit to rural women is the need of the hour rather than cheaper rate of interest. The basic problem with rural women is not the higher rate of interest, but the difficulty to get adequate amount of credit on time.

Evidence shows that groups of women are better customers than men; they are better managers of resources. Benefits of loans are spread wider among the household if loans are routed through women.

What is an SHG?

It is a voluntary group (of not more than 20), owned, managed and controlled by its members to create a local buffer (fund) for meeting their credit needs and exigencies.

The groups start functioning with women from the village saving some cash regularly on a monthly basis to create a local buffer. The members rotate this common pooled resource/ buffer within themselves at a very small rate of interest. Each group has a leader, who is also called President and a secretary who writes the books of accounts. Formations of SHGs have helped women to save and borrow money and have also avoided them from taking loans from the professional moneylenders at a high rate of interest. The delivery mechanism is simple and informal, disbursement is quick and made repeatedly, approach is flexible, links thrift and savings with credit and the entire process is participatory in nature and that has made women realize the timely and adequate credit was preferable and productive than subsidies.

Women perceive thrift as their strength and also as the bonding factor among themselves. The potential of these SHGs to develop as local financial intermediaries to reach the poor has gained recognition due to their community-based participatory approach and sustainability - recovery rates have been significantly higher than those achieved by commercial banks in spite of loans going to poor, unorganized individuals without security or guarantee.

Self Help Group provides opportunity to the rural women for getting sufficient amount of credit easily to meet any exigency, or to start any income generating activity. Least formal and official obligation makes the uneducated poor comfortable to get the credit. As group members save and borrow and manage their groups, they gain status in their families and become more active in their communities. As their assets and income increase, they start their income generating activities, break free from moneylenders, and send their children to school.

Features of an SHG:

Area of operation: It is preferably one per village or more if required. The group is basically homogenous in nature (based on caste, location, economic status etc.)
Member: A person staying in the village willing to be a member and take responsibilities of thrift and credit transaction with the SHG
Management: All members based on operational needs evolve working rules (by laws) for SHG. One chairperson / executive committee supervise the activities. Books of records / accounts is maintained by a paid secretary. The group maintains records of transaction in written format.
SHG opens a bank account on the Group's name and is operated by the Chairperson and Secretary.
Credit: Credit is always linked with savings/thrift and the group members play an important level in credit appraisal, monitoring and recovery of loans.

Major Activities of an SHG:

- Each SHG consists of an informal group of 10-20 members formed by women or men living in the same village or vicinity who come from the same economic background.
- The members of SHGs meet at least once a month. The frequency of the group meetings depends on the convenience of the group members.
- The Group has its own set of rules framed in consultation with the group members.
- The SHG members uniformly save a mutually agreed amount every month to contribute to a common fund to be inter-loaned for meeting their productive and emergent credit needs. The loan amount is sanctioned to the individual members after an open discussion on who merits priority, in case there is more number of members asking for loans. Usually a consensus is reached amicably.
- The monthly installment to be paid for return of loan amount is pre-decided and fine is imposed if the loanee fails to return the same. However, the group decides if a certain member has a genuine problem and takes decision accordingly.
- A mutually agreed rate of interest usually between 2% to3% is charged to the group for the amount taken as loan, which contributes to the group funds and hence benefits all the members. In case the women borrow from outside sources like moneylenders, they would have to pay a high rate of interest of 5% per month or even more.

- Normally there is a President and a Secretary in each SHG. The term of office bearers is on rotation basis as decided by its members.
- The entire group maintains the records such as membership register, minutes book, cashbook and savings and loan ledger.
- Normally, after six months of existence of SHGs and after collecting a sufficient thrift fund, the group approaches the link banks with its credit plan. The Reserve Bank of India advices the commercial banks to participate actively in the linkage programme. NABARD gives 100 % refinance to the Bank for their lending through the SHGs.
- However, because of their lack of legal status, SHGs often encounter difficulties in entering into transactions and thus establishing formal linkages with lending agencies. Since a formal nature of existence does not fit their pattern, the practical way for SHGs is to develop interfaces with legally registered self-help promotional institutions such as NGOs.

Role of Self Help Groups in empowering women:

The SHGs make a lasting impact on the lives of the women.

- A habit of savings instills discipline among members.
- Builds a culture of self reliance
- Members can avail credit from the groups' savings to meet their daily requirements.
- Collectively women can take financial and non-financial decisions for common good. The social horizons of the members widen, they make many friends and feel socially active.
- Self-reliance and self-confidence increase as they end their dependence on moneylenders.
- Women get a sense of satisfaction and wish fulfillment. They feel proud of the fact that they are economically self-reliant and can financially contribute to their family.

Purpose of an SHG organised by a Milk union/ SHGs in context of dairying:

- Primarily, to prevent women being allured by private vendors and also for the following needs:
    - Day to day domestic credit requirements.
    - For Agricultural/ seasonal inputs
    - Unanticipated exigencies (health etc)
    - Education expenses of children
    - Income generation.

The SHGs have proved to be effective in neutralizing the allurement of women by the private traders for supply of milk to them on pretext of giving loans. These groups also provide an entry point to the existing as well as potential milk producers for joining the dairy cooperative society in their villages.

- The SHGs provide a platform for carrying out extension activities, demonstrations of appropriate technologies and to facilitate development dialogues.
- Help women to develop skills relevant and useful in their day-to-day functions and also encourage them to participate in the process of governance where they have a stake holding. Hence, the organisation of women's thrift groups often proves a fertile ground for leadership development.

Thus, there is enormous scope in these SHGs, and the rural women can achieve a lot by participating in these groups. However, there is need to mold the SHGs, so that they find strength as independent entities or as federated body. Greater networking and sharing of best practices among groups, and recording of success stories can play also an important role.

CHAPTER – X

Institution Building Process

1.1. Institutional Building Approach:

> "Institutional Building Effort is a process which will lead a co-operative to become a members-owned and controlled viable enterprise. This process aims at systemic and value based strengthening of institutional capacities which definitely produces "physical, financial and organizational" gains in immediate future but emphatically strives to ensure self sustained long term growth."

To translate the above mentioned definition in terms of observable /measurable end-objectives, we are proposing IB efforts at two levels

1. DCS
2. Unions

1.2 IB efforts at DCS level:

It is expected that IB DCS (Dairy Cooperative Societies) will operate as vibrant local business enterprises serving their unions' needs effectively and economically. This will be evidenced by

i) All associated with the society (the three segments of DCSs – members, management committee members and secretary along with other staff) own their responsibility.
ii) Society takes all the necessary actions to ensure growth of its business and satisfaction of it members by serving their needs timely.
iii) Society adopts certain guiding principles to ensure alignment of its activities with the purpose of its existence.
iv) Takes steps for sustaining these principles.

Responsibilities of all the three segments of a DCS:

a. <u>Members:</u> ***Sense of belongingness and ownership as exhibited by -***

i) pouring milk only to the society irrespective of seasons.
ii) their demands from society for services they need and utilization of the services offered by the DCS.
iii) at least 50% of the members attending Annual General Meeting (AGM)
iv) all members pouring clean and quality milk as per the standard decided by the MCM of that society.
v) at least 10% of members (in addition to MCM) will commit at least seven days a year for members' education and towards enrolling new members.

b. <u>Secretary and Other staff:</u>

i) They perform all duties as per the policies and decisions of management committee.
ii) They will ensure timely and prompt arrangement of all input services demanded by members.
iii) They will provide relevant statements/information to the MCM that can help them to make proper decisions.
iv) They will answer queries of members and act suitably that would lead to increase in members' faith in the DCS.
v) They will always maintain up-to-date records and relevant business statements.
vi) They will ensure suitable arrangements for programmes conducted by society/union.
vii) They will keep equipment and DCS premises clean and hygienic and ensure regular testing at the DCS.
viii) Union will ensure that each secretary gets opportunity to attend short-term training / motivation programme once in a year.

c. <u>Management Committee Members:</u>

Management Committee will develop and implement societies' own business plan.

i) Every member of the committee will have a defined role to play towards achieving the business plan.
ii) The MCM will take initiative in joint effort with the other nearby societies (in the same route) towards increasing the union's business. Union will facilitate this once in every three months.
iii) The MCM will dovetail with other agencies at the block / taluka level to achieve coop. society's goal. Union will facilitate this once in every three months during the route meeting and that will be pursued by chairmen and secretaries of the respective DCSs.
iv) Management committee ensures that agenda reflects the focus of the business plan and hence, the decisions are business oriented. MCM will also finalize three agenda to resolve these in their next monthly meeting.
v) The MCM should take suitable steps for member-awareness (including conducting programmes for members on benefits of cooperatives, quality milk procurement or cost reduction methods etc.). MCM will talk to members gathering regularly and discuss the common issues (dairying and cooperative) with them.
vi) The MCM will ensure that the secretary/staff of the society have been adequately trained to deliver their duties effectively.
vii) The MCM will ensure setting up a suitable mechanism that the society is responsive to members' needs.
viii) The MCM should ensure that required information is sent timely to the union when asked for.
ix) Societies' concerns are appropriately represented at proper forum in the union.
x) Presence of any one of the management committee members during collection time at DCS is required.

xi) Date and venue of management committee meeting will be announced and put in to the notice board so that members with any grievance can go and contact the MCM.

xii) Time to time campaign to assess and understand members' needs and popularization of cooperative inputs and services.

In order to prepare all the three segments owning their responsibilities, a series of activities are required at the village level. It requires a process involving a series of activities. CS group has designed modular interventions for the IB efforts at DCS which are as follows.

Workshops designed for management committee members and staff of DCS
(under IB efforts at DCS level)

In order to initiate the process of institution building efforts at DCS level, a workshop known as MCM visioning workshop has been designed. It is a Zero level workshop as it just initiates the IB process. Only by doing this workshop, expectations from IB cannot be achieved. It is important as it creates a shared vision among management committee of the DCS for a set of guiding principles of the DCS, which triggers a series of activities leading all the three segments owning their responsibilities.

Zero level:

MCM Visioning Workshop: Evolving organization values, Mission, Long term objectives and one year business plan.)

This is a three days workshop facilitated by union’s field staff for the management committee members and secretary of the DCS. It has been designed with an objective to initiate “Institution Building Efforts” at DCS level.

This programme leads to MCM evolving

- a set of values for their cooperative,
- a Mission statement
- a set of objectives and
- a business plan to achieve the objectives.

Business Plan of a dairy co-operative society

- Business plan is evolved during the three days MCM visioning workshop of management committee members and staff of DCS. In this workshop, participants evolve organizational values, mission, long term (3 year) objectives and business plan for a year.

- ♦ Long term (3 year) objectives of the DCS covers all possible areas where in improvement is desired.

- ♦ This 3-year end objective is broken in to yearly milestone and business plan is prepared by MCM to achieve the yearly milestone.

- ♦ Business plan is basically listing of time bound activities, and identifying specific person(s) who will be responsible for getting it done (in some of the cases even doing it).

- ♦ If these activities have significant cost implication, the committee also decides whether they will meet from their own resources or seek support from union.

- ♦ Each activities of business plan are listed in term of observable or / and measurable targets.

<u>Suggested format for Business Plan:</u>

Year end objective	Observable / measurable outcomes and tasks.	Time limit	Person/s Responsible	Support required
1.				
2.				
3.				
4.				
5.				
6.				

<u>Suggestive list of identified areas a business plan address.</u>

1. Enhancing Milk Procurement
2. Increasing the usage of input services by the members
3. Enhancing members’ participation.
4. Ensuring clean and quality milk production
5. Strengthening financial base of the DCS
6. Strengthening information availability

<u>Suggestive list of activities that may be undertaken by MCM and others concerned at the village dairy cooperatives as a part of the annual business plan</u>

- To create a profile for their village DCS which will include the animal population, milk production, milk consumption/disposal details and to work out strategies for periodical update.

- To contact the non-member non-pourers and member non-pourers and convince them to pour milk only to DCS and to become members of the DCS.
- To identify innovative/progressive/active members to get involved in DCS related activities.
- To ensure proper functioning of the DCS as evidenced by…

  a) Supervising DCS regularly on rotational basis to regularize fat testing, to ensure up-to date record keeping and to attend to members' problems/grievances.
  b) Conducting regularly the management committee meeting which will include the following agenda items (may be changed as and when required):
     - discussion on membership – details of milk producers (non-member non-pourers, member non-pourers, etc.) contacted, enrolment of new members, removal of sleeping member.
     - discussion on milk procurement – progress during the month – possibilities of increase or decrease and reasons for the same.
     - discussion on member/milk producers' grievances and solution for the same.
     - discussion on the month's business progress – profit /loss account and action plan for the next month.
     - discussion on the union related issues/correspondences, etc. and strategies to popularize the input schemes from the union.
  c) ensuring regular payment to milk producers (as and when the money received from the union the MCM will ensure that payment is made immediately) and to arrange for money so as to make the payment in time without depending on the union for the same.
- To display the highest price per litre received by any member every day and also to display the rate obtained for the previous day milk (as per the GT of the DCS) from the union on daily basis and to display regularly the progress of the DCS on monthly basis.
- To work out strategy for distribution of incentives to staff for proper functioning/to milk producers for maximum milk pouring.
- To decide on incentives / price mechanism for lean and flush seasons
- To contact and convince members to take part in the AGM
- To take up activities to increase the milk production in their area of operation as evidenced by
  - regular conduct of informal meetings to discuss on issues related to animal husbandry practices like animal breeding, feeding and health care and to find out solutions for the same.
  - organized study tour for the interested dairy farmers to the places of progressive dairy farmers /farms /research stations/dairy plant/cattle feed factory/model dairy cooperative society/demonstration plots, etc.
  - Regular organization of veterinary camps – AH camps, vaccination camps, infertility camps.

- organizing competitions like calf rally and announce prizes for the maximum milk yielding animal, best milk producer in that area/member pouring milk with maximum fat % and facilitation of the men member for transferring their membership to women members.
- arranging for induction of new cross-bred animals so as to increase milk production
- arranging for removal of the low yielding animal/local bulls and arranging replacement of the same.
- arranging for training of the DCS staff on Artificial Insemination, deworming, Animal First Aid.
- identifying local persons to act as resource persons in their area and arranging training for them and positioning them to carry out the extension activities.

After MCM visioning workshop, a DCS gets an annual business plan ready for its implementation to achieve the long-term objectives. There are a series of activities in business plan, few of which can be performed by the MC members and the secretary themselves while the rest require the support from others. So long as they need outside support, there is a need of a facilitator who develops their capacity so that they become self reliant in taking up all the activities of business plan.

Keeping this in mind, another five interventions have also been designed with an objective to enable all the three segments of a DCS to own their roles and responsibility, adopt guiding principles of the institution and be self sustaining in taking steps to achieve their long term goal. These five interventions are not an end in itself. So long as the guiding principles are not institutionalize at the DCS level, the need based modular interventions are required to be undertaken.

<u>First Level:</u>

<u>Mulya Ankuran Workshop</u>: (Reflecting and reinforcing Values, Mission and Long term objectives and Business plan, Members involvement, cleanliness drive)

It aims at involving members of the DCS towards the activities of the dairy co-operative society. This workshop is facilitated within a month of MCM visioning workshop.

Participants recognize the need of a quarterly drive; apart from an achievement chart of quarterly business plan activities to bring substantial change in a short period of time. The first quarter after MCM visioning is celebrate as "Cleanliness drive".

In the premises of the DCS, an achievement chart of quarterly detailed activities and a drive activities chart are displayed in the DCS. Secretary of the DCS is supposed to updated the IBE achievement chart periodically which shows the status of each activities targeted and accomplished during that quarter. This mechanism helps MC Members, and secretary of the DCS monitor the progress of business plan implementation by focusing to their roles and responsibility.

Second Level :

Mulya Pallawan workshop: Reflecting and reinforcing Values, Mission and Long-term objectives and Business plan, Role clarity (of members, secretary, and MCM) and quarterly Drive – Procurement and input services.)

It aims to clarify roles and responsibilities of each segment of DCS. It may be facilitated within a fortnight of the end of 1st quarter (cleanliness drive). During this workshop, Participants review IBE achievement chart and assess the positive changes achieved during the last quarter. It aims to clarify the roles and responsibilities of members, MC members and Secretary through experiential games and stories. In this workshop, those members who took active part in the "Cleanliness drive" are invited. They are given a certificate for their voluntarily service. During this workshop participants enlist such activities to enhance milk procurement and usage of input services in the next quarter.

Third Level:

Mulya Sangrakshan Workshop: Reflecting and reinforcing Values, Mission and Long term objectives and Business plan, Problem solving skill and drive for information and Business database.

It aims to develop problem-solving skills among the management committee members, secretary and some active members. It may be facilitated within fifteen days of the end of the 2nd quarterly drive "procurement and input"

During this workshop, participants (MCM, Secretary and some of the active members) analyze one or two problems in a group exercise and explore the best alternate in the light of organizational values to address the problem. They recognize the need to maintain and keep updated all the information's about the village potentialities, areas of business expansion, competitors profile, current status of milk production and productivity at the DCS level etc. In this workshop they plan the activities of third quarterly drive on "information generation"

Fourth Level:

Mulya Surabhi: Reflecting and reinforcing Values, Mission and Long term objectives and Business plan and quarterly drive for sharing IB achievements and visibility.)

True to its name, this workshop aims to spread the fragrance of IBE achievements at all levels. It may be facilitated within a fortnight of the end of 3rd quarter (information generation drive).

During this workshop, participants recognize the need to publicize their achievements among the people who are important in DCS business environment. They plan various functions and programmes to be organized during fourth quarter to signify IBE achievements. As a result of quarterly drive activities they decide to increase their credibility in the eyes of union, district administration and bank.

<u>Fifth Level:</u>

Mulya Arohan: (Reflecting and reinforcing Values, Mission and Long term objectives and Business plan and renewing of next year business plan for sustenance and renewal of the IB process)

As the name suggests, it signifies the sustenance and continuation of the process in the next year also. A DCS takes more than a year for coming to the stage of Mulya Arohan. By this time, it is expected that the MC members and secretary of the IB DCS must have gained enough experiences to sustain and carry out the process in the next year also. In the Mulya Arohan workshop, in stead of P&I personnel, it is the chairman of the DCS who is expected to take lead and involve other MC members and secretary for the preparation of business plan for next year and drive activities for addressing local issues. Mulya Arohan workshop signifies that the institutional capacity of the DCS has been built through the past IB interventions in order to make them self-sustaining in achieving long-term objectives of the institution by themselves.

All the six modular interventions are facilitated by the P&I personnel of the union. In order to make the efforts of P&I personnel effective, CS group has developed a video film “Dishabodh” depicting the process of “MCM visioning programme.

Institution Building Inventories

At union level, board of directors and at DCS level, management committee members are the focus of NDDB’s institution building efforts. The goal is to develop value-based leadership at both the levels. The initial modular interventions at union level and at DCS level lead to a collective statement of values, a mission and long term plan. In advance phase, elected representatives are facilitated to formulate policies and monitoring the same.

The successful transformation of the board often leads to the union’s adoption of a similar approach to strengthen individual dairy cooperative societies at village level where it addresses the issues like business planning, its implementation through member’s participation, and collective monitoring of the long-term objectives by management committee members. Mirroring board development programme at union level, DCS institution building efforts begins with a visioning workshop in which management committee members in the village and staff evolve value and mission of the dairy cooperatives and prepare an annual business plan. Subsequent modular interventions encourage management committee, staff and members to work together, taking responsibility for long-term objectives. Institution building efforts at DCS level are carried out by the Union field staff trained by NDDB on "Facilitation skills" programme designed to equips and motivate participants to shift from routine supervision to becoming agents of change.

In order to make the efforts of milk unions more effective, and enable their field staff, NDDB has developed three video films titled, "**Dishabodh, Mulyabodh and Kartavyabodh**" depicting the process of business planning, implementation through member's participation, and collective monitoring of the long-term objectives as a concept in management committee members at DCS level.

Dishabodh

(A film on MCM visioning workshop):

In order to make the efforts of field personnel more effective in initiating Institution Building Efforts at DCS level, the video film titled "Dishabodh" has been developed as a training aid for the programme on "Facilitation skills for institution building efforts at DCS level. It is 70 minutes video film depicting the process of three days duration of "MCM visioning programme" which facilitates the management committee of the DCS to evolve a set of values for their society, a mission statement, long-term objectives and an annual business plan. It also depicts the experiential games and group exercises involved in the process. The film also has a theme song reinforcing the concept of IB at DCS level.

This film also reinforces the role of a field staff of the milk union as a facilitator of institution building efforts. The media is also used as a reminder media and reinforcing tools among the DCS functionaries about the key concepts of institution building. The video film, "Dishabodh" has been dubbed in eight regional languages (Tamil, Telugu, Kannada, Malayalam, Marathi, Gujarati, Punjabi and Bengali).

"**Mulyabodh and Kartavyabodh"**

(A film on member's enrollment and role clarity)

Both the video film depict the process of second and third modular interventions known as "Mulya Ankuran workshop" and "Mulya Pallavan Workshop" designed to reinforce the concept of business plan implementation through member's participation, and collective monitoring of the long-term objectives. The film titled, "Mulyabodh" depicts the process of second modular intervention titled "Mulya Ankuran workshops" which is a two days programme facilitated at DCS level to reinforces the concept of campaign involving all members for bringing visible change in a quarter. With the help of experiential games and group exercises, management committee members and active members are involved to recognize the need of evolving shared vision in their institution.

The third film titled, “Kartavyabodh” depicts the process of third modular intervention titled “Mulya Pallavan workshop” which is also a two days programme conducted at DCS level after the period of three months of Mulya Ankuran Workshop to review the last quarter performance and plan the activities of next quarter. With the help of experiential games and group exercises, active members, management committee members and secretary are involved to recognize the need of role clarity among themselves. Both the film are being used as a training aid for the programme on “Facilitation skills” for field personnel and as a reminder media for the village level management committee members, staff and members of the DCS.

<u>A booklet titled “Doodth Samiti Ki Chali Lahar Gaon Gaon Dagar Dagar”</u>

In order to provide a reference material for educating and improving awareness among literate members and management committee members of DCS, A booklet titled “Doodh Samiti Ki Chali Lahar Gaon Gaon Dagar Dagar” has also been published in Hindi and six regional languages (Gujarati, Marathi, Telugu, Kannada, Malayalam and Bengali). The booklet contains the inputs on roles and responsibilities of management committee members of dairy cooperative societies, features and functioning of an Ideal DCS and expectations from members and staff.

Module for Procurement and Technical input personnel of milk unions

The milk union’s field staff can most effectively facilitate the efforts of Institution Building efforts at DCS level. In order to make a shift in their approach from a routine supervisor to an IB facilitator, a programme on, “Facilitation skills for institution building efforts at DCS level” has been designed.

1.	• Programme on Facilitation Skills for Institution Building Efforts at DCS level	12 days
2.	• Refresher workshop on Facilitation Skills for P&I personnel	3

<u>Programme on “Facilitation Skills for Institution Building Efforts at DCS level</u>

As the name suggests, this a programme on “Facilitation Skills for institution building efforts at DCS level for the field personnel of milk unions. The purpose of the programme is to enable the field personnel of the union to own the role of a facilitator for the institution building efforts at DCS level. It aims at bringing a shift in the approach of field personnel from being a routine supervisor to a facilitator of Institution Building Efforts at DCS level. This programme has been designed with the following objectives:

By the end of 12 days programme, the participants will be able to:

- Recognize the need to integrate his / her personal values with that of the institution for which they are working and demonstrate their commitment to the values.
- Enlist ways of enhancing their effectiveness in interpersonal skills and commit to bring positive change in their behaviour.
- Develop lesson plan on selected topics as per teaching learning principles and adopt the same for enabling all the three segments of a DCS to own their responsibilities.
- Conduct MCM visioning programme for the initiation of IB efforts at DCS level and facilitate the IB process which lead a cooperative institution to become a members owned and controlled viable business enterprise.

Method:

The programme involves the participants through the process of individual and group exercise; games and role-play, combined with field visits. The programme is designed to encourage field personnel to own their responsibility as a change agent for the DCSs and the Union leading to better returns to members.

Refresher workshop on " Facilitation Skills":

This is a three day workshop at the union level for those P&I personnel who have attended first intervention on "Facilitation Skills" at Anand. As the name suggests, it is a workshop to refresh the learning and renew the enthusiasm of those P&I personnel who have undergone programme on "Facilitation Skills" for institution building efforts at DCS level. It has been designed with the following objectives.

At the end of training, each participant will be able to

- Design various need-based interventions for doing the follow-up of Institution Building efforts at the DCS level (where MCM visioning has already been done.)
- Exhibit creativity / innovations in designing the need based interventions / games / stories.
- Exhibit their commitment by explaining their action plan to achieve the end results of Institution Building Efforts.
- Use IB extension skills in dealing with all the segments of the co-operative.

1.3. Institution building efforts at union level:

Institution Building efforts at the union level involve the facilitation of board of directors, managers and employees with the aim to making the organization a vibrant business enterprise. This will help them match the best in the dairy sector and achieve higher goals in procurement, processing, marketing, productivity and members' responsiveness.

Union as a whole:

1. All associated with the union (staff, Managers and Board) own their responsibility.
2. Union will develop and implement a long term plan and exhaustive competitive strategy to ensure growth of its business and satisfaction of the need and aspirations of its member DCSs.
3. Union adopts certain guiding principles to ensure alignment of its activities with the purpose of its existence.
4. Union will adopt and implement policy based governance.

Responsibilities of all the three segments of a Milk Union:

Staff:

i) Staff will recognize their roles and responsibilities in relation to the overall goals of organization and exhibit their behaviour in conformity with the values of the union.

ii) The staff will take initiative in providing feedback, which could help the organization becoming future focus rather than crisis management driven.

Managers:

i) Each Manager leads its respective team to achieve group's goals effectively and economically as set by the board for its group.

ii) Managers will operate in a manner, which exhibits system thinking, team building and proactive approach.

iii) Managers will ensure improving their own capacities and should take initiative towards increasing their knowledge and skills.

iv) Managers should work in a manner that adopt and act as per the values of the organization and work towards achieving mission and objectives set by the board.

Board:

i) Board will govern through policies coupled with proactive approach rather than adhocism. And thus, admit and commit to perform policy formulation as their indelible jobs.

ii) Board would have drafted policies in all major areas, thus obviating any need for trivial issues appearing in the board agenda. These policies specifically should be categorized into 3 segments:

iii) Policies setting values, mission statement, and objectives.

iv) Policies about governance processes.

v) Policies about chief executive's linkages with the board and chief executive's authority.

vi) Board will own responsibility and prepare annual agenda plan.

vii) Board will finalize monitoring methods for the chief executive's performance along with their own performance.

viii) They will take all steps ensuring improved linkages of the union with its members (societies).

ix) Board should assure the performance of CEO by hiring a capable CEO and keeping him motivated towards effective and quality functioning.

Workshops designed for board of directors and managers of milk unions under IB at Union level:

Sl. No.	Tasks / Interventions	Duration Days
1.	• Business Orientation Programme for the Board of Directors • Financial Analysis of the Union	3
2.	• Interface workshop for the board and managers	3
3.	• Across functional workshop for managers and sectional heads	3
4.	• Policy need recognition workshop	3
5.	• Institution building process adoption workshop	5
6.	• Policy formulation workshop	3
7.	• Workshop on formulating Monitoring and Evaluation mechanisms	3

"Business Orientation Programme" for Board of Directors of Milk Unions":

Business Orientation Programme provides an opportunity for the board of directors of milk unions to recognize and realize their potential as individuals and a team committed to excellence. This programme has been designed with the following objectives.

By the end of the three day programme.

i. The Board will recognize the need for a Vision for their Union and a Mission Statement that -
   - clearly states why the Union exists
   - integrates personal values with those of the Union
   - guides decision and actions for the benefit of the members and the Union

ii. The Board will prepare a draft Mission Statement for the Union, which provides a clear sense of direction and reflects -
   - the Union's values
   - the Union's commitments to its members
   - a concern for the community

iii. The Board will prepare a draft strategic plan with long-term objectives in line with the Union's Mission and with clearly stated statements of performance outcomes for each major functional area.

Method:
The programme will include group discussions and presentations; games and role-play; exercises and case studies combined with field visits. Entire programme is designed to encourage directors to recognize their own potential and that of their Union leading to a renewed commitment to enriching the services and returns to members.

Interface Workshop for board and Managers: This three-day workshop is taken up at the union level where in both the Board and Managers together finalize the organization Values, Mission and long-term objectives (5 years) for their unions. In line with the finalized long-term objectives, functional managers prepare the strategic action plan for their respective group to achieve the annual targets.

Across – functional workshop for managers: This workshop provides an opportunity to managers and functional heads of Milk unions to establish an essential requirement of “Common bonding” and helps the union to break the barriers of “functional boundaries”. This programme aims to bind people together around a common identity and sense of destiny, what we call “shared vision”. This programme will help people in the union to recognize the need to see any problem in any functional division “not as an isolated problem of a division” but as ‘an organization problem”. It is expected that this attitude will compel them to “proactively” co-create long term solutions.

Objective:
By the end of the three day workshop the participants (key-functional heads / managers) will recognize the need for an across functional approach in their decision making by committing themselves to a behaviour associated with system thinking, team-learning and proactive approach.

Method:
The programme will include real life case analyses, exercises, experiential games, role-plays and presentations. The entire programme is designed to encourage more participation and inter-active discussions. It is expected that the group will plan out a mechanism to expand and practice the learning.

Policy need recognition workshop for the board: By the end of the three day workshop the board of Directors will-

- Recognize the need for governance through policies coupled with proactive approach
- Admit that policy formulation as their job, not to be delegated and commit to perform this task

- Will acquire necessary skill for policy formulation as exhibited by preparing draft policies in few decision areas
- And along with managers of the union finalize the long term plan of the union, which is aimed to achieve the five years end objectives set out during interface workshop.

Institution Building Process Adoption Workshop (IBPAW): This is a five-day workshop at the union level. It has been designed with an objective to help the participants recognize the need for a process, which encourages IB efforts on continuous basis. Participants evolve and commit to put in place a mechanism to promote institutionalization of (i) value adoption in decisions and actions (ii) systemic and proactive solution seeking, (iii) team learning and (iv) being driven by the organizational vision.

Participants:

Managers and sectional heads about 25 in number for the first and fourth day and on the second and third days interact with various functional groups separately. On the fifth day, the number of participants may be more than 100 wherein large number of employees and managers from various groups will participate together.

Policy formulation workshop: This is a three-day workshop at union level. It aims to institutionalize the concept of governance through policies. This workshop has been designed with an objective to help board of directors to identify and enlist the key areas in which policies need to be formulated, acquire and refine the skills of drafting policies as exhibited by drafting policies in at least 12 selected areas during the workshop and commit to develop policies in all the selected areas as exhibited by finalizing a schedule for evolving the policies.

Monitoring and Evaluation workshop for board: By the end of the workshop Board of Directors will:

- Recognize the need for change in monitoring and evaluation process;
- Examine the present board meeting process and set of union's agenda;
- Identify the board processes which require significant changes;
- Design a board meeting process and evaluation mechanism for their union;
- And along with managers of the union finalize the monitoring and evaluation information needs to help managers provide information accordingly in future.

Module on Process designing

Training Module Structure:

There are two aspects to the structure of a training design.

- Visible part;
- The amount.

1. The first is the visible part; what people can see that tells them what is going to happen. This includes posted agendas, seating arrangements, pens, notebooks, flip charts etc. There should be a balance of visible structure at the beginning of a training event. Too little may cause concern; the participants need to see that something is going to happen. Too much could stifle individual contributions. People want to have input into their own learning. They want to affect the amount and type of structure. In general, it is desirable to have some visible structure at the beginning of an event. This should be geared to the participants and must be congruent with the system in which the training is taking place and with the training objective.

2. The second aspect is the amount of structure in knowledge / concept of training. High structure in design may not require high visibility. There can be a great deal of structure in the design, with preplanned activities, materials, and etc. without it being highly visible. Participants generally want and need less structure as they begin to take responsibility for their own learning. For this reason, there is more visible structure in knowledge / concept training and less in working with the content of the participants generated by experiential learning.

Pre-design Concerns

Before designing the process of training, the training objectives must be established. For the training objectives to be clear, there must be a training need assessment. It is much more difficult to design training if one does not know how and by whom the training will be evaluated. Although needs assessment and evaluation are separate functions in training design, in reality they must be performed by the same people. Design is the bridge between what the trainer wants to accomplish with (or in) a training event and how it will be done. Before attempting to design training even, one should have answers to eight basic questions.

1. Why is the training being conducted?
2. Who is to be trained?
3. Who is going to conduct the training?
4. What is to be the focus of the training?
5. How is the training being designed?
6. By whom, what and how will the training be evaluated?
7. When and where is the training being conducted?
8. Where the contents of training have been taken from?

- Explain steps to be followed for designing a new module

Steps that may be followed for developing a new module

Title of the Programme:	
Phase – 1	
Problem Analysis (1.) Why is the training being conducted?	Describe the current reality, existing problems along with facts / figures supporting the current situation. This is to derive at the real situation pointing out the background for the need of the programme / module.
Target Group (2.) Who is to be trained?	Name the target group for whom the module is designed. Describe the level of participants in terms of literacy, language, age etc. Also explain your assumptions about them.
Facilitator (3.) Who is going to conduct the training?	Mention who will conduct / facilitate this module? And, also name the place where the programme will be organised / conducted.
Behavioural Objectives (4.) What is to be the focus of the training?	List the behavioural objectives of the module, which will address the entire above mentioned problem or a part of it and help in improving the current situation by achieving desired results.
Contents (5.) How is the training being designed?	Describe the content to be delivered in order to achieve the Behavioural Objective. Please state all the assumptions clearly. Also add all concepts on which the module is primarily based at.
Methodology (6.) By whom, what and how will the training be evaluated?	Spell out the methodology clearly with the sequence in which the contents will be delivered. Also, specify how you are going to divide the entire module into classroom sessions, games, demonstrations, field visits or other.
Duration and Location (7.) When and where is the training being conducted?	Mention the number of days along with the break up of time allocated to different activities (tentative schedule)
Bibliography (8.) Where the contents of training have been taken from?	List out all the reference materials both from where the contents have been taken and also materials that participants are advised to consult (may not have been discussed during the programme).

1. Why is the training being conducted? The Needs Assessment

The preferred way to answer the "why" questions is by conducting a needs assessment. It is one of the most basic skills in establishing objectives for a training event. Such an assessment can provide clarity about the expectations of the client system and can help to reconcile them with the needs of the participants. (e.g. do you want skill training or awareness expansion, team building or communication training? What are the priorities? Can these be accomplished in time allowed? To design training programme or intervention, the programme designer should consider the possible sources of data, how the data will be collected, and how the data will be analyzed. Although it is possible to build a programme based on an interview with a supervisor or a few potential participants, a wider perspective is helpful in assessing the needs that the programme should attempt to meet. In general, the more sources of information, techniques of data collection, and methods of data analysis that can be used to diagnose a problem, the better the understanding one has of the problem or training need.

There also can be several other beneficial outcomes. Including the following.

- Increasing the commitment of management and potential participants to the training and development effort;
- Increasing the visibility of the training function;
- Clarifying crucial organization issues;
- Providing for the best use of limited resources;
- Providing new programme and design ideas. And
- Formulating strategies for how to proceed with the training efforts.

But it is always preferable to do a format or full scale needs assessment. As an absolute minimum, an informal needs assessment of the client population is required for obtaining the answers of following questions:

<u>Questionnaires</u>

1. Why is the training being conducted? What is the need?
2. What is expected to change as a result of this training (e.g.) knowledge, skills or attitudes – for individuals groups or a system)?
3. What will be the impact of this training (on individuals groups the system)?
4. How will the learning's be reinforced?
5. How will results be monitored / evaluated?

2. Who is going to be trained? Participants considerations

<u>The number of the participants:</u>

It is important to be able to anticipate how many people will be involved in the training programme because some design components require a large number of participants while others are designed to be used with very small groups. The size of the total group will dictate the size and number of small groups that can be formed to achieve various objectives. Subgroups of three to seven members each tend to be optimal.

The designer also must consider the level of effect (emotional response) that is likely to be generated by each design component. A facilitator can handle a large group if there will be minimal risk taking, conflict, or emotional involvement. If participants will be “pushed” the facilitator will need to devote more time and energy to each participant, so the group must be smaller or there must be additional facilitators.

The familiarity of participants with one another

This consideration is important in selecting learning experiences. For example, it may not be necessary to include “ice-breaker” activities if the participants are familiar with one another. What often happens is that some participants know one another but there is an unequal acquaintanceship within the group. The design of the training even should take into account that there might be some natural subdivision because of previous social acquaintance. One can capitalize on the relationships that participants bring to a training experience by using acquaintanceship as a means of support for planning back home applications and for follow-through.

The background and previous training Experience of the participants

It is important to consider whether the training might be dissonant with the norms and culture of the institutional backgrounds of the various participants or of that within which the training is to take place. One might not want to ask the participants to learn and change their attitudes in ways that are contrary to the ideology of situations back home. The organizational climate of the client organization may not understand or be supportive of training, and the implications of this need to be considered.

Before attempting the design, the facilitators should try to learn something about the background of the participants in regard to experiential approaches to education. This includes information about the initial goals, needs and readiness of the participants. It is important to know whether participants have been in similar training programmes before, because they may already have experienced some training activities that are being considered in which the learning depends on the novelty of the experience to the participants.

In addition, it may be helpful to know what the attitudes of the participants are regarding one another and the stated content or objectives of the training programme and whether they have received any preparation for the training event from the sponsor.

3. Who is going to conduct the training?

The third concern is the availability of qualified staff to facilitate the training programme. This includes consideration of the personalities, styles, preferred learning models, philosophies, and assumptions, of the various staff members, which might cause role conflicts. The following issues should be resolved prior to the training event, and the design should be agreed to by all who will be involved in facilitating the event.

Skills / Repertoire: The facilitators' ability to handle certain types of group experiences and their range of competence should be a major consideration. The design of the experience should take into account the capabilities of the staff members as well as their preparedness in attempting various learning goals. If the staff members are minimally qualified, it may be necessary to use a great deal of instrumentation and structure to make up for their lack of supervised experience. The intensity level of the training event also should be modified somewhat depending on the expertise of the available staff. If the credentials of the staff members are somewhat suspect, it may be necessary to develop fairly strict controls on the amount of affect that is generated in the experience itself e.g. activities that might generate a great deal of feeling data might not be used because in general, they require much more expertise on the part of the facilitators.

Facilitators also may have differences of opinion about training approaches. The following are some examples of these and suggestions for handling them.

<u>Mechanistic / Organic approaches:</u> If one staff member insists on structuring a group experience, and another wants to respond to group needs spontaneously, the entire experience may suffer. In such a case, it is necessary to synthesize these two approaches into a productive design.

<u>Modeling / Scanning:</u> Trainers who adopt a learning theory based on modeling might find that they are encouraging noticeable but short term change. If, instead, they encourage group members to use one another as learning sources, through an approach based on scanning the interactions of group members, participants may actually show less change, but the approach may prompt major, internalized change.

4. What is to be the focus of the training? The training objectives

Once the needs assessment has been completed, the data can be analyzed in order to consider the focus of the proposed training and its aims or desired outcomes, the specific ways in which people should change, develop or behave. With these in mind, the following points then should be considered; each will affect the training design.

- Who should determine the learning objectives (the facilitator, the participants, or both)
- To what extent can learning aims be determined prior to the training experience?
- What is the possibility of additional aims emerging during the training event?

- To what extent might the facilitators impose, consciously or otherwise, some aims because of their own values and by setting norms?

Extent of Objectives;

- To what extent are training aims conceptual (cognitive) or emotional (usually personal)? This will affect the nature of the design, the materials needed, and the type of facilitation required.
- Are the training objectives remedial (focused on participants' weaknesses, problems, or lacks) or developmental (to build participants strengths)/ The extent to which activities are focused in either direction should be considered, as well as the implications of this focus.
- How long is the group learning intended to have an effect (days, months, years)/ what reinforcement will be available to the participants to aid in the transition and refreezing processes?

Experimental / Experimental aims:

The choice between these aims has implications for the training (e.g., the use of observers, data collection, process reviews) design (e.g., the use of observers, data collection, process reviews) and for the facilitators' learning theory or models. Points to consider include:

- The extent to which the activity will be a joint learning experiment, in which the facilitator has a special responsibility (e.g. for helping the group to examine the data in reviewing its work)
- The extent to which the facilitator allows participants to experience the activity without heavily processing it.

Identifying the training objective

To pinpoint the training objective, ask" What is expected to change as a result of this module? In general, the training objective will fall into one of three broad categories:

- Cognitive; The acquisition of knowledge / understanding of concepts/ memorization of content;
- Psychomotor; The practice and acquisition of new skills/ new behaviour; and
- Affective' the development of awareness / exploration of attitudes / realization of preferences.

It is important to be clear about which of these areas will be the focus of the training. If participants are to be presented with a lecture on a particular topic, the training is in the cognitive realm (knowledge / concepts) and the objective would be to tell the participants about the topic or issue or to acquaint them with its major points. The objective is not to develop their skills in dealing with it (you cannot do that with a lecture) or to change their attitude about (ditto). To often, training objectives are worded as "To change the participants' attitudes about… "when all that happens is a lecture on why they should or should not do something. (It would at least be more effective to state what would happen if they did or did not behave in a certain way.) Although the latter may bring about some change in people's behaviour in certain situations (because of the understanding of the consequences.) It is very unlikely to change their attitude or opinions.

Knowledge and concepts can be communicated through training modules such as reading, lectures, and discussions. Psychomotor skills can only be imparted through "hands –on (literally or figuratively) practice such as that provided by role playing, case studies, and simulations. Effective learning (e.g. awareness training or exploration and discovery of personal attitudes requires the participation of the trainees. Their content – their thoughts, reactions, feeling etc. – are a great deal of the focus of this type of training experience. Obtaining this information and working with it requires more facilitating skills than presenting skills. The training technologies that can be used in this realm of role-plays, instruments, structured experiences, and intensive small groups. Note that we stated the objective of this type of training as the awareness, discovery, or exploration of attitudes. Even with time to experience something and discuss it in a training group, participants are likely to need time to reflect (and perhaps to experience the effects of changed behaviours) before their attitudes actually change. As research shows; if you can change the behaviour, the attitude are more likely to follow. It does not seem to work as well the other way around.

Wording it realistically

The training objective should communicate the following:

1. What the facilitator intends to do or
2. The expected outcome or benefit to the participant.

In writing training objectives, it is wise to stick to what you will do and what you expect to happen. Suggested alternatives are; "The trainer will demonstrate and explain how to thread a needle, and the trainees will practice this skill" or "The trainees will have the opportunity to learn how to thread a needle" or "the trainees will be presented with the theory of and practice in threading a needle". Other objectives can be " to explore" or to engage in and so on. If the training is mandatory skills training, the objective can include an or else, statement, e.g., "The trainees will learn how to thread a needle"

6. How is the training being designed for implementation? Implementation considerations)

This item may be the most important and it has two dimensions. First, it is critical that the facilitator have a clear sense about the contract with the client system is. In the best circumstances, this consideration relates to one's skill in conducting a needs assessment, in determining learning objectives, and in specifying goals. At one end of the spectrum, the client may specify what is to be done (what type of training is to be delivered), although few clients have the expertise to stipulate how this is to be achieved. It then is the facilitator’s job to determine whether he or she can accept such an assignment in good conscience. Generally, the client will ask for some type of training. The facilitator will ask relevant questions; and then the facilitator will suggest what type of training might be most appropriate, based on the completion of some degree of needs assessment. When the training to be delivered is agreed to, the means of delivery may be specified in the contract, or it may be left up to the facilitator to determine what will work. In such a case, the facilitator may want to leave some flexibility in the design in order to negotiate aspects of it with the participants.

The contract between the facilitator and the participants is the second dimension of contracting. It is important to narrow the expectation gap between oneself and the participants in the training event. It also is important to recognize that the psychological contact and the legal contract may not be the same. It is important that the goals and the learning method of the event be specified beforehand in language that both the staff members and the participants can understand. The design is far more likely to have a chance to be effective if the participants come to the learning experience knowing what to expect, why they are there, and what they have contracted to experience. However, it is also important to establish more specific expectations, behavioural norms, and so on with the participants at the beginning of the training event. In some cases, this can best be achieved by means of a contract between the facilitator and the participants.

Access to materials and other aids: Access to training materials and other aids in terms of availability budget, and convenience is an important consideration. Some materials, such as standardized measurement instruments, are expensive and others require a great deal of time to prepare or assemble. Some teaching aids, such as videotape recorders, are difficult to carry from place to place. The facilitator needs to develop an inventory or materials that are available; newsprint flip charts, felt tipped markers, easels and masking tape; chalk boards, chalk and erasers, blank paper and pencils overhead projectors and other audiovisuals aids as well as work sheets, instruments and handouts. It is often very useful to have duplicating equipment at the training site.

Opportunity for follow –through: A final consideration is the opportunity to follow through with the participants after the training experience is formally ended. Although this concern is listed last, it is by no means of least importance. When developing a design for a learning event, it is important to know beforehand what is going to happen afterward. Is it going to be feasible for participants to meet again to work through the problems of transfer of training? Are they going to have access to one another on a day-to-day basis? Is the staff going to be accessible to them afterward? Is it possible to have follow–up sessions some weeks or months later to ensure transfer of training? Part of the application of learning to the participants’ own work and social settings cab be designed differently if there is an opportunity for some support and follow through work after the training event is completed. Prior to developing the design for a particular training event, the facilitator should explore what he or she has to work with in terms of time, time, space, money, human resources, and materials**.** Once such an inventory is completed, the facilitator may conclude that the contracted goals of the learning experience are unattainable given the resources that are available. The facilitator then may want to renegotiate the contract or attempt to develop new resources for the event.

7. By whom, what, how and why is the training being evaluated?

The issue of training evaluation raised several questions; the answers to the first two questions will help to answer the over all question; **“should evaluation be done?** Evaluation is not always necessary, and unnecessary evaluation may not be a good idea. Because it is time consuming and expensive and because it generates expectations that something will be done with the data obtained. So the answer to the “should” question almost always is either “yes” or “No”. If it is driven by a purpose: **to determine something or to justify something.** No, if the results will not be used. If the trainers or the client do not care what the results are, or if the subject matter or results may be too sensitive.

The purpose of evaluation is to obtain information. Before initiating or agreeing to an evaluation effort, it is wise to ask: **What kind of information do you need**? What kind of questions are you trying to answer? What questions will give you that information?

The impetus to begin training and development in an organization often comes from management’s belief that training is an important benefit to employees, that it is a worthwhile investment, and that it will help employees to fulfill their potential. However, management also hopes that it will increase personal and job satisfaction, increase motivation and productivity, and decrease turnover. In today’s organizations, the emphasis often is on “ the bottom lime” return on investment. Managers and others who contract for training programmes need to understand that it is impossible to measure the effects of training in such terms. One would have to measure all the other factors in the organization, over a stipulated period of time, in order to determine what part training played. Obviously, this would be almost impossible if not merely more time consuming and expensive that would be realistic. However, many managers still ask for training to be measured in terms of “increased productivity” or effect on morale or similar results. Behaviour does not change in the moment at the time of training. A host of personal and organizational factors affect how well the training “take” and whether changed attitudes or behaviours are permitted, supported, and reinforced in the work place. Too often, the people who expect an evaluation are as confused about what is to be measured as they are about why the evaluation is being done.

Probably the best reason for evaluating training is to help the facilitators to examine the design and to improve it, if necessary; probably the worst reason is to prove that the training was worth the time and effort that it took. If those who are sponsoring the training do not understand the intangible effects of human resource develop0ment, the trainers would be wise to educate them or to seek work elsewhere.

The how part of the training can be measured realistically whether the participants were satisfied with the training; whether they felt valued because of having been offered the training; whether they though it was interesting, helpful, or useful; and whether they think that they will use the skills, change their attitudes or behaviours, or have achieved some type of self development as a result of the training.

The most important thing in deciding to do evaluation is to be clear about why you are doing it, what or whom you are doing it for, and what or whom you are evaluating. Evaluation done for the purpose of **justification** is different form evaluation done for the purpose of **documentation**, and that is quite different from evaluation done to **determine** exclusion and inclusion of something. The evaluation forms or survey materials should be geared toward obtaining the responses or the quantity and quality of information that you need. For example, **justification** might include the need to show that the trainees were satisfied with the training. The evaluation form then would not ask, "were you satisfied with the training? Rather, it would contain questions such as "which activity (or part of the training) was the most satisfying? The **report** then could say that the data shows that ---------- percent of the trainees found ---portion of the training to be the most satisfying. For documentation, you may need to show that so many people attended, that there was follow – up that the training was timely or what was requested, etc, or you may need to keep a head count in order to show that so many people were trained per year or that so many managers were included in the HOURD. In order to **determine something,** you need to frame the inquiry so as to elicit useful information (e.g. what other job skills would be useful) in this training programme. How do you plan to use this training? You need to know the techniques used to obtain information for the needs assessment.

If the training facilitators are not to be involved in the evaluation phase, they should be permitted to assess the evaluation methods and to know who the evaluators will be. This is necessary for two reasons. The first is that one cannot design effectively until one knows what will be evaluated. When the goals of the training and the outcomes to be measured are specified clearly and are related to each other; the training staff has a clear notion of what to design.

The second reason to ask questions about evaluation before beginning are related to professional ethics if not self – preservation. If it is not clear that the evaluation has a realistic purpose, that the proper issues or people are being assessed, that the methodology suits the purpose; and the evaluators are qualified to conduct the inquiry, then the facilitators may well question whether they want to accept a training assignment that will be evaluated inappropriately.

8. When and where is the training being conducted? The length and timing of the event and the location and physical facilities.

The length and time of the training event are important in that the sequencing and timing of particular events are dependent in part on whether the training takes place at one time or is spaced over several meetings. Training that occurs weekly for an hour or two presents a significantly different design problem than does a one-day event. In many cases, a primary issue is how to accelerate learning within time constraints. In a brief contract design such as one evening or one half day, some learning modules would not be attempted because either there would not be enough trust developed in the time available or more data might be generated than could be processed adequately. Likewise, spaced sessions (e.g. weekly two hours sessions) probably would produce a less intimate and less sessions (e.g. a one week retreat) might offer more personal growth. Spaced sessions may allow greater analysis of group dynamics and encourage members to work through issues between sessions.

Defined time limits within the event itself also can affect the training. Setting limits for various activities can encourage participants to express useful information by the end of the allotted time period, but also can establish the facilitator's role as the locus of control or authority. Similarly, the facilitators need to decide whether starting and ending times for session, break times, and meals times will be adhered to strictly or loosely. The facilitator should ask the person who is requesting the training programme whether starting and ending times, lunch times, and break times, can be arranged to suit the participants. If the client says, "no" the time constraints are given. Norms will develop as a result of the time constraints are given (a) the total time allotted to the group experience, (b) the time distribution (sessions at regular intervals)

This consideration is important. It is easier to develop what is called a "cultural –inland" effect in a retreat setting than it is in the every day environment of the participants. It is more possible in a retreat setting to capitalize on the development of norms of meaningful openness, experimentation, and sensitivity in creating an environment in which people are genuinely resourceful to one another during the free time of the training even. Some of the most significant learning in HOURD training takes place outside the formally planned sessions.

The physical facilities also are important: ordinarily movable furniture and privacy are desired. The physical set up also can affect the training. The designers should consider where and how the groups will work; what kind of atmosphere the physical surroundings will create; and how the physical environment can be arranged to support the learning objectivities. For example, different group arrangement can have different effects. A circle of chairs distributes power and promotes interaction. Flexible seating often is desired so that participants can move around, form groups, and so on.

Phase- II

Lesson Plan

- Design a detailed lesson plan of the module with description of activity and the time duration, facilitator's note and participants' activity.
- Document all reading / reference material including the instruction sheets for games, slides to be used by the facilitator. This material can be substantiated with relevant annexes.
- Prepare and add a document describing details of the activities to be performed (read exercises) by the participants.
- Prepare all handouts to be distributed among the participants.

Demonstration

Test the module with the target group.

Finalisation

Incorporate the suggestions / feed back obtained during the demonstration and finalise the module.

After creating a framework of a module, one must conceive the process, which will lead the group to achieve the programme objectives. Facilitator’s success in bringing behavioural change among the target group is highly dependent on the process he uses. An IB facilitator has to be innovative and creative in designing need-based process for the target group.

OCE-RGA Model is one of the most logical models of process designing. It helps in combining the experiences of the participants with the new inputs of the facilitator. Such process brings sustainable behaviour changes among the participants. While using this model, participants get experiential learning through their own reflection.

Orientation	Clarification	Experience
♦ Introduce learning topic ♦ Relate the topic with previous input/event/background ♦ Build expectations ♦ Motivate learner/ Create PP	♦ Established B.O and validate learning objective ♦ Create complete understanding of objective ♦ Evaluation of the achievement of the objectives	♦ Provide physical experience of the problem or task in order to stimulate his curiosity and simulate world problem and issues

Reflection	Generalisation	**Application**
♦ Facilitate group discussion help people reflect on the experience by focusing on what happened	♦ Enlist Do's and Don'ts of carrying out task ♦ State conclusion	♦ Devising ways for the appropriate practice of new learning.
Evaluation ♦ Provide_a test for each participant to test whether they satisfactorily applied Dos and Don'ts in carrying out task or not. ♦ Provide measurable and observable evidence and Simulate real world situation.		

<u>Summary at Glance</u>

Process Design Model

1. Orientation: The phase of learning activity introduces the topic, and explains how the topic relates to previously learned topics or learning brought to the session. It should build expectations and motivate the learner by focusing on relevance and usefulness of what is to be learned.

2. Clarification: This phase of the design is intended to establish and / or validate the learning objectives, and to ensure complete and correct understanding of what is expected during the activity. It is important that participants know how achievement of the objective will be evaluated.

3. Experience: This phase of the lesson should provide an "experience" for the learner to stimulate his or her curiosity, to simulate a real – world problem or issue. A film, a role-play or a case study all involve the learner directly in the experience. A lecture does not constitute an experience, but may be appropriate for some topics.

4. Reflection: Having experienced an activity or a discussion, the next phase of the lesson should cause the learner to reflect on the experience. Questions, used effectively, will facilitate such reflection. Essentially this segment focuses on what happened. Small group discussions are commonly used for reflection.

5. Generalisation: Participants draw generalisations and state conclusions resulting from the reflection phase. These might include dos and don'ts for carrying out a task. This segment asks, "what can we learn from the experience? What new or revised skill, knowledge or attitude is being acquired (learned)?"

6. Application: In this phase of the lesson participants are asked to suggest ways they might apply their new skills and knowledge. In addition, the instructor should devise ways of having participants use what they have learned by way of a case study, a role

play, and exercise, and practice, practice, practice. This portion asks, “How can we use what we have learned?”

7. Evaluation: This section relates to the lesson objectives and provides a test of whether or not each participant has satisfactorily achieved them. As much as possible, this test should simulate real – world conditions and should provide measurable and observable evidence that skills have been developed, knowledge has been gained and attitudes have changed.

CHAPTER – XI

Extension and Training

1. Participatory Methodologies, Problem solving & Logical Framework Analysis

1. Participatory Methodologies for Development

1.1 What are participatory methodologies?

Participatory methodologies aim to actively involve people and communities in identifying problems, formulating plans and implementing decisions. They are often seen as a set of principles for generating Insights about people and the communities in which they live. However, for those involved in using them, they are not only often flexible and informal, they are also continually evolving. In addition, there is no one standard methodology or set of methods to employ in any given situation: different techniques therefore need to be developed for particular situations.

Participatory methodologies enable people to do their own Investigations, analyses, presentations, planning and action, and to own the outcome. The principles behind psarticipatory methodologies are:

- That it is possible, and desirable, to increase Participation in development by involving those Immediately affected by a particular need;
- Involving people so affected enables activity designers and managers to explore a range of real circumstances and systems rather than concentrating on statistical samples;
- Issues can be investigated from different perspectives and using a range of approaches, such as involving multidisciplinary teams;
- Informal approaches are often more appropriate and can be changed as the work progresses.

1.2 Application

Participatory methodologies can be used at any stage of the Activity Cycle:

- At the Design stage, by involving people in identifying problems during the planning and designing stage, e.g. needs assessments, feasibility studies;
- At the Implementation stage, through examination of a particular problem or topic e.g. identifying priorities, or implementing new activities where information needs to be collected;
- At the Monitoring and Evaluation stage, by enabling participants to implement procedures to examine their own activities.

The precise information requirements of the different stages are diverse. However they all depend on the systematic collection of data about the households and communities served by the activity and the environments in which they live and work.
Three of the more common methodologies are:

1. Participatory Learning and Action;
2. Participatory Rapid Appraisal;
3. Participatory Action Research.

   See Box 1 for more information on these.

Box.1: Common Participatory Methodologies:

Participatory Rural Appraisal (PRA) is a cross-disciplinary, cross-sectoral approach to engaging communities in development through interactive and participatory processes. PRA builds upon the techniques of Rapid Rural Appraisal (RRA) pioneered to involve communities in their own need assessment, problem identification and ranking strategy for implementation and community action plan. It uses a wide range of tools often within a focus group discussion format to elicit spatial, time related and social or institutional data.

Participatory Action Research (PAR) involves three key elements: research, education and socio-political action. It is an experimental methodology for the association of serious and reliable knowledge upon which to construct power or countervailing power for the poor, oppressed and exploited groups and social classes – the grassroots – and for the authentic organizations and the movements.

1.3 Why is participatory management important?

Participatory management will not arise spontaneously: it is a conscious and informed activity to be advocated and implemented at every stage of the activity cycle. And it is important that senior staff recognize participatory management as necessary to the success of any development activity or intervention: senior staff are key because they act as powerful role models for other staff; and the practices they take up should inspire and influence whole teams of staff interacting their partners.

The process of continued, active stakeholder involvement in an activity results in various improvements.

- Sustainability and sustainable impact:

More people are committed to carrying on the activity after outside support has stopped; Active participation helps develop skills and confidence.

- **Effectiveness:**

There is a greater sense of ownership and agreement of the processes to achieve an objective.

- Responsiveness:

Effort and inputs are more likely to be targeted at perceived needs so that outputs are used appropriately.

- Efficiency:

Inputs and activities are more likely to result in outputs on time, of good quality and within budget if local knowledge and skills are tapped into and mistakes are avoided.

- Transparency and accountability:

This accrues as more and more stakeholders are given information and decision making power.

- Equity:

This is likely to result if all the stakeholders' needs, interests and abilities are taken into account.

1.4 Applying participatory methodologies

Start with yourself

To become a participatory manager, start with an examination of your own attitudes and actions - these are critical. A self-assessment exercise is shown in Box 3. Understand that 'participation' means different things to different people in different situations (See Box 2 for a typology of participation).

For example, someone may be said to participate by:

- Attending a meeting, even though they do not say anything;
- Being actively involved in building a clinic by supplying sand and their labor;
- Controlling the design of a programme;
- Being responsible for achieving objectives in the implementation or management of an activity.

Understand yourself and where you are on the Ladder of Participation (see Box 4 overleaf).

Understand that if required, you can change your management style and become more participatory.

Learn, develop and practice the wide range of techniques for participatory management and actively search for new and innovative ways of involving stakeholders in management decision-making:

- Actively listen to others
- Involve primary as well as secondary stakeholders
- Build local capacity
- Cultivate teamwork
- Advocate the use of participatory approaches
- Build the required attitudes in the programme team
- Develop a self critical/learning culture in the team
- Cultivate a 'partnership' relationship by
- Building trust and confidence in partners
- Handing over control to partners

Develop and use a 'facilitator' leadership style as **opposed to a 'traditional' leadership style.**

The approach is basic. If our attitudes are wrong and rapport is not good, many of the methods will not work. The following list is a menu. Use those if you find it comfortable and appropriate. Some methods are plain common sense and common practice given a new name.

- Try out and explore
- Adapt and invent for yourself
- Don't lecture - Look, listen and learn
- Facilitate, don't dominate
- Don't interrupt or interfere
- Spend time with stakeholder groups
- Relax, don't rush
- Allow time
- Show interest and enthusiasm in learning working in teams, working in a multidisciplinary environment, working with diverse partners, and doing so to achieve sustainable development, means adopting core values that reflect real participation: values about empowerment, collaboration, building trust, and respecting people's ability to solve their own problems.

Such values are fundamental in building local ownership and commitment to successful development progress. Participatory approaches require attitudes that favor:

- Participation
- Respect for community members
- Interest in what they know, say, show and do
- Patience, not rushing, not interrupting
- Listening not lecturing
- Humility
- Methods that enable community members to express, share, enhance and analyze their Knowledge
-

While Logical frameworks are often created at a distance from the activity location; those people immediately affected by the development need may be under-represented, while central elites may be over-represented, or urban / rural or gender bias may be found. Here, stakeholder analysis is essential to understand the interests and needs of local participants, to make valid decisions about which local participants should be involved in the planning and management processes.

Box 2: A typology of participation

Passive 'Participation' People participate by being told what is going to happen or has already happened. It is unilateral announcement by an administration or programme management without listening to people's responses. The information being shared belongs only to external professionals.

Participation in Information Giving People participate by answering questions posed by extractive researchers and programme managers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings, as the findings of the research or programme design are neither shared nor checked for accuracy.

Participation by Consultation People participate by being consulted, and external agents listen to views. These external agents define both problems and solutions, and may modify these in the light of people's responses. Such a consultative process does not concede any share in decision making and professionals are under no obligation to take on board peoples' views.

Participation for Material Incentives People participate by providing resources, for example, labour, in return for food, cash or other material incentives. Much in situ research and bioprospecting falls into this category, as rural people provide the fields but are not involved in the experimentation or the process of learning. It is very common to see this called participation, yet people have no stake in prolonging the development activities when the incentives end.

Functional Participation People participate by forming groups to meet predetermined objectives related to the programme, which can involve the development or promotion of externally initiated social organisation. Such involvement does not tend to be at the early stages of programme cycles or planning but rather after decisions have been made elsewhere. These institutions tend to be dependent on external initiators and facilitators but may become self-dependent.

Interactive Participation People participate in joint analysis, which leads to action plans and the formulation of new local groups or strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. These groups take control over local decisions, so people have a stake in maintaining structures and practices.

Self- Mobilization People participate by taking initiatives independent of external institutions to change systems. Such self-initiated mobilization and collective action may or may not challenge inequitable distributions of wealth or power.

Modified from Pimbert and Pretty, 1997

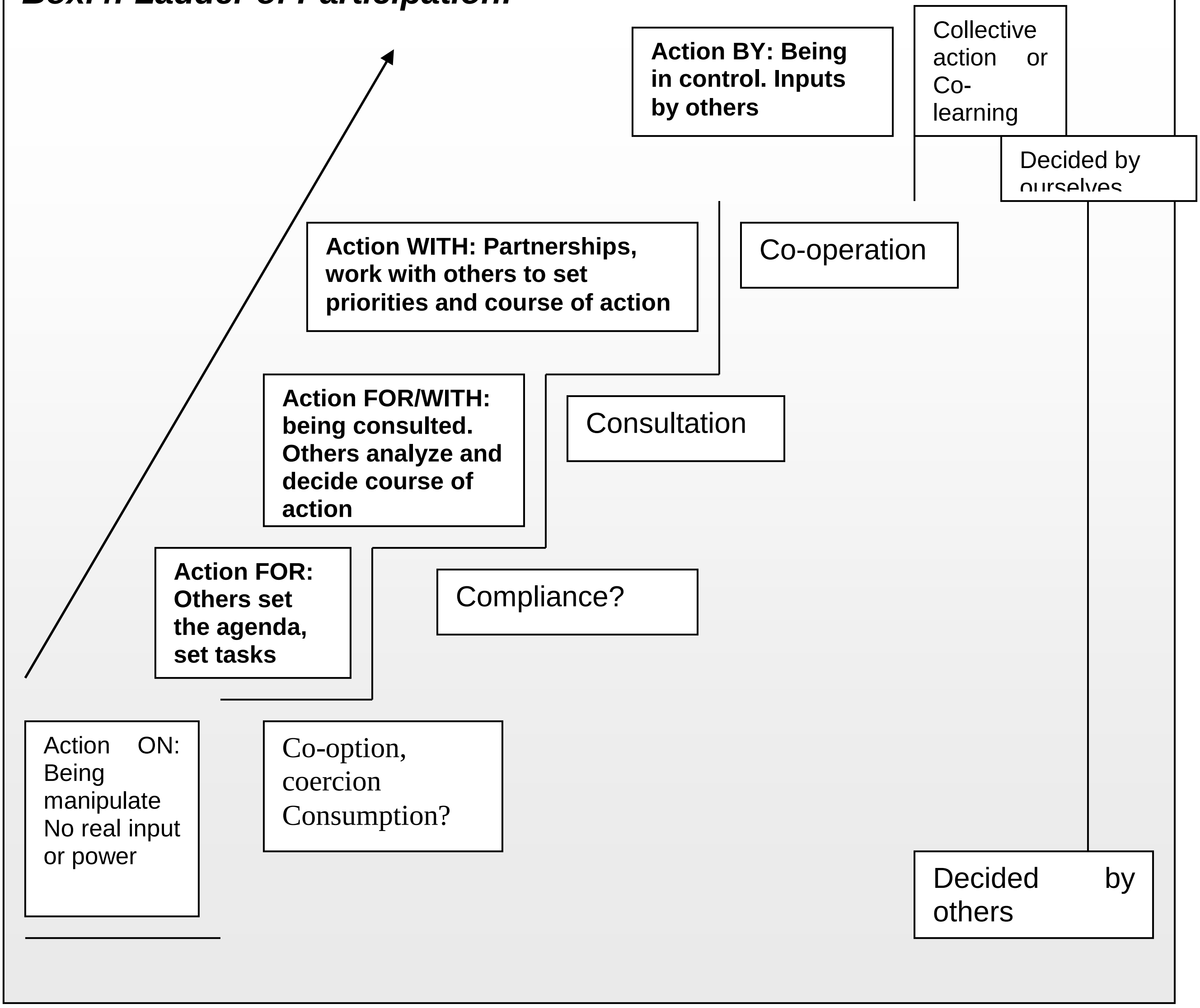
Box 3: Participatory Management – Self-Assessment

As a manager involved with programme work, you may already involve programme staff and stakeholders to some extent. Assess how much participative behaviour you are currently using. This self- assessment may help you focus on areas you wish to improve. For each statement, check off the category that best describes you.			
	Almost always	Sometimes	Never
1. I believe that involvement of programme staff is critical to the programme success			
2. I believe that the active involvement of the other stakeholders is critical to programme success			
3. I believe that I have to learn a lot from stakeholders			
4. I believe that programme staff has to learn a lot from stakeholders			
5. I review the programme goals, purpose and outputs with programme staff regularly			
6. I review the programme goals, purpose and outputs with other stakeholders regularly			
7. I review and refine the programme indicators and means of verification with programme staff			
8. I review and refine the programme indicators and means of verification with other stakeholders			
9. I clearly communicate how the programme team contributes to the overall success of the programme			
10. I establish clear performance measures with all programme staff			
11. I provide informal but clear performance feedback to all programme staff			
12. I involve programme staff in determining recognition and rewards.			
13. I involve other stakeholders in determining recognition and rewards			
14. I appropriately delegate responsibilities to programme staff			
15. I appropriately delegate responsibilities to other stakeholder groups			
16. I support programme staff by providing the resources that they need			
17. I support other stakeholder groups by providing the resources that they need			
18. I clearly emphasize the importance of teamwork			

19. I use a 'facilitative' style of management as opposed to a 'traditional' style			
20. I cultivate ways of building trust and confidence with programme partners			

To determine your score, give yourself a 3 for each Almost Always, 2 for each Sometimes and a 1 for each Never.
51–60: You are already a participative manager
40–50: You are well on the way to becoming a participative manager
30–39: You have begun the shift to participative management
Below 30: You are still a 'traditional manager' – you have a lot of work to do

Box.4: Ladder of Participation:



2.00 Building the necessary environment:

2.1 Working with stakeholders

Understanding the stakeholders, including their literacy levels, local languages, gender roles, indigenous management practices and work ethics, is one important step. This information can be used to design logframe planning activities that are more appropriate to the local context and more conducive to local participation.

A second, related step is to learn roughly equivalent terms in local languages for key logframe concepts (such as Goal, Purpose, Outputs, Assumptions). This often has to be done through discussions with local people.

Sometimes the terms need to be renegotiated in logframe workshops when there is more of a context for the discussion and a better understanding of key concepts.

The preparation for logframe planning workshops should be thoughtful and rigorous, including ample time for stakeholder interviews in advance of the session and adequate time for designing and preparing specialized planning sessions that are responsive to local requirements.

For planning work with illiterate or semi-literate participants, the traditional (literacy-based) version of the logframe is inappropriate. In these groups, more literate and more articulate elites may dominate discussions, even with the assistance of an outside facilitator. In these situations local ownership of activity designs will not result and the disbenefits of using the logframe approach far outweigh its benefits.

Through adequate planning and preliminary stakeholder interviews, this kind of situation should be recognised well in advance and before the arrival of a planning team. Where use the logframe approach is not appropriate, Participatory Learning and Action (PLA) or Participatory Rural Appraisal (PRA) planning methodologies will be more appropriate (Refs), because they rely more on images rather than words. If need be, the results of these planning methods may be eventually be married with the logframe, preferably through a planning process involving more articulate local representatives. If necessary, though this is less desirable, planning experts can synthesis PRA planning decisions into a logframe format.

In these kinds of planning settings, using the formal, literacy-based version of the logframe will create a bias against local participation. Again, more literate and articulate elites will tend to dominate the planning process. In these situations, the logframe approach can be used subtly with little explicit mention of its technical terms.

One planning process used in this situation combines consensus-based approaches for determining objectives that have more of a visual focus or an intuitive appeal. For example, planning methodologies such as Appreciative Inquiry or Future Search, with a strong emphasis on visioning, are blended with informal use of the logframe. UNICEF and GTZ (Germany) have pioneered more visually based variations of the logframe. In using and blending these planning methods the visual focus and visioning provides a common basis for communication and building consensus and ownership amongst local groups.

2.2 The facilitator

The role and skill of the facilitator is crucial in avoiding top-down bias: engaging local facilitators and co-facilitator can help to ensure that planning processes are culturally appropriate and sensitive to local realities. Local facilitators may also be especially adept at translating logframe terms and concepts into local languages and metaphors. In larger group settings, two facilitators should be involved because of their increased ability to track and support a participatory group process.

Facilitators may, however, bring their own pressures to bear: preference for one methodology to the exclusion of others that might be more appropriate. The best facilitators, however, will have a repertoire of skills that can be brought to bear. Here, your own judgment will be central in selecting a skilled team with an awareness of the importance of designing and managing a locally appropriate and inclusive planning process to build local ownership over results.

Creating a logframe, undertaking stakeholder and situation analyses or a risk assessment, are not one-time events. Building local capacity, engagement, ownership and sustainable support for an activity requires appropriate and relevant training to help groups to understand how these different processes can be integrated into their own organisational structures and procedures. Doing so helps build partnerships at the design and appraisal stage, not just at the point of implementation, while follow-up training (or training of trainers) and regular consultation helps reinforce involvement.

Longer-term, more comprehensive approaches to capacity building can also develop greater ownership over planning and design processes and the results that are produced, but local ownership on any activity can be particularly enhanced when participants are involved from the start.

Participatory launch workshops provide an excellent opportunity to build on participatory design efforts, or to strengthen participation if it has not been integral to earlier stages. They help build collaboration amongst implementing agencies, creating a common vision of success and defining detailed plans of operation. Each of these is important to building ownership and commitment from stakeholder groups and to help to lay a solid foundation for implementation.

3.0 Participatory Monitoring and Evaluation

Participatory Monitoring and Evaluation (PME) can also enhance local ownership. PME is a broad set of practical approaches, methodologies and techniques for monitoring and evaluating programmes. Like other participatory methodologies, PME is focused on increasing local learning and ownership over development activity.

PME produces important benefits including valid, timely and relevant information for management decision-making and development activity improvement, especially when PME systems feature in the planning and early implementation phases. During implementation, PME systems provide a framework for collaborative learning and for involving different partners in the M&E process. PME is most effective when it reinforces participatory processes that are already operating, but it can also help to make up for lost ground where participation has not been integral to earlier phases, although this poses a greater challenge.

Groups that are seriously considering PME approaches must be willing to commit to participatory management approaches, a positive attitude towards partnership, and they must commit the time and resources needed to support PME systems.

Thoughtful, focused participation of stakeholders - especially local ones - in decision-making is at the heart of successful development activity. Developing a participation plan with stakeholders and staying with it throughout the activity cycle will help to keep stakeholders involved and committed. The plan should encompass:

-
- A thorough stakeholder analysis;

Identifying key interventions during the life cycle to build local participation and ownership, specifying when these interventions will take place; Identifying who will be involved in each of these activities;

A line item budget for participatory activities that have not be included elsewhere in the budget.

3.1 Where and when to use a startup workshop

Start-up workshops should be used to launch new projects, programmes and policies. They add the greatest value where development activities are complex and need sorting out, where there is little knowledge of, or buy-in, to a design by implementing groups, or where relationships among these groups are weak and non-collaborative. Start-up workshops can also be used to reinforce programmes that incorporate participatory management as a central theme. Start-up workshops can be used at any time during the inception phase, however, earlier use once all implementing groups or staff are in place-enables teams to get off to the best start.

The benefits of participatory start-up are:

- A shared vision of objectives and success criteria;
- Strengthened local capacity for collaborative planning and implementation;
- Clear roles, responsibilities and time frames for implementation;
- Increased stakeholder commitment and participation in implementation;
- Strengthened Project Monitoring and Evaluation systems;
- Improved co-ordination amongst partner agencies during implementation;
- Increased potential for lasting programme benefits.

4.0 Conducting effective start-up workshops

Following are some basic tips/guidelines/steps for planning and carrying out effective project start-up activities. These activities could take place in a single three-five day workshop or they could be an integrated series of events over a several month period. These guidelines are not meant as a blueprint but should be seen as a point of departure for planning and adapting start-up workshops to specific situations. Since participatory start-up activities will create a set of expectations among stakeholders for collaborative management and working in partnership DFID should only use this approach where it has the intention and wherewithal to follow through.

The Checklist in Box 5 may also be of help.

4.1 Planning: Conduct a Stakeholder Analysis

By completing an initial Stakeholder Analysis you can identify groups and agencies with an interest in implementing the activity, better understand how certain groups may affect implementation, and decide which groups should be directly involved with the start-up activities (See Chapter 2 for more details). Special consideration should be given to involving representatives from implementing agencies, clients/beneficiaries, groups which control important resources for implementation, and key stakeholders who may have been peripheral to the design process. Simply getting the right groups together at the same place and time is a key success factor for this activity.

4.2 Planning: Recruit skilled facilitators

The planning phase is essential to laying the foundation for a successful launch. During this phase you can begin to put together a detailed plan for the workshop. For this type of activity we highly recommend facilitation teams that involve a local facilitator who has added sensitivity to issues related to local culture, language and working in groups. In addition, facilitators will need skills in team building, using the logical framework approach in groups, and be familiar with basic concepts and tools for project scheduling.

4.3 Planning: Assess stakeholder expectations and potential for collaboration

Interview stakeholders several weeks in advance of the workshop to surface their interests, expectations and concerns, assess current levels of collaboration and to explore other issues and opportunities related to activity start-up and implementation. Since it is often impractical to interview all participants, a simple, one page survey can be used to supplement the interviews. This is also a good time to build rapport with participating groups, and to double check that important stakeholders have not been omitted from the process.

4.4 Planning: Design a responsive workshop

Now is the time to spell out clear, realistic and responsive objectives for the workshop and the content, sequencing and process of its main sessions. For situations where there is little understanding of the activity design among key stakeholders or a weak sense of collaboration you will need to introduce special sessions to build these.

Similarly, if the activity is complex you will need additional time for developing annual work plans.

4.5 Planning: Ensure adequate logistics

Select a comfortable venue for the workshop with adequate space, seating, lighting and ventilation and develop a list of all the materials required. Send invitations and activity documents to participants well in advance of the session. Make follow-up calls to understand who plans to attend and who will not and to encourage participation. Check that all logistics are in place well before the workshop and make a point of visiting the workshop facilities a day in advance to ensure everything is ready.

4.6 Conducting: Set the tone for collaboration at the beginning

The introductory sessions are vital to establishing an environment of trust, learning and collaboration. This is especially important when participants are unfamiliar with each other or where they represent competing interests in activity implementation. These initial sessions orient the group to the participatory process of the workshop, establish an environment of respect and learning and model collaborative management. The introductory sessions should also present workshop objectives, clarify participant expectations, present a basic flow of the workshop and establish group norms about how the workshop will be run.

4.7 Conducting: Create an appreciation for collaboration across agencies

For activities that are national in scope, or those involving many partners, many of whom may be unfamiliar with each other, you can start sessions to create a shared appreciation of organisational capabilities and best practices. One method is to use a ‘poster gallery’ or other process where partners can introduce their organisation to the others. Groups should be asked to be as creative as possible (using logos, slogans, symbols, etc) in designing a poster that conveys the following information: name of organisation, district, mission, key services and best practices, unique programme features. After each of the posters have been hung, participants walk around the room making note of the other organisations and services that may be effectively linked with their own. The session is completed with discussion about how partners may improve collaboration.

4.8 Conducting: Strengthen the team process

Start-up workshops provide a model and a structure for collaborative planning and management. Although the content of each start-up workshop will be different, teambuilding and collaboration are common underlying themes. Since the process side of the equation is so important, it requires special attention. Introduce short warm-ups, energisers and experiential learning activities each day to deepen the understanding of themes related to team process and collaboration. Helping the team reflect on its process and how to improve it can be very useful. See the Chapter 8 on Team working for more ideas.

4.9 Conducting: Develop a common understanding of the activity's rationale and its main objectives

The purpose of this session is to clarify the activity's rationale and main objectives while building ownership over it by the participants. If the design process has not been participatory, this step may be difficult, requiring more time and an additional visioning exercise.

Involve local stakeholders in presenting the rationale and main objective objectives for the activity logframe (Goal, Purpose, Outputs), referring to collaborative processes that were part of activity preparation and design. This is followed by a short group discussion.
The activity structure can be presented using a large (wall-sized) visual format or simple objectives tree showing how the activity objectives are linked causally. This is followed by further discussion.

This session is critical to helping the group become oriented to the activity design and it works best if participants have read the activity document or a synopsis of it in advance.
If the activity has not been developed using a collaborative process, or if the stakeholders involved in implementation are quite different than the ones who participated in activity design, then we recommend a separate visioning step.

4.10 Conducting: Create a shared vision

The purpose of this step is to provide an opportunity for the partners to create a shared vision of success for the activity. The shared vision is 'the collective sense of what's important for the future'. If the activity is working at the district level we often develop district visions and then meld these into a common vision for the group.

You may find it useful to begin the visioning step which asks people to imagine what beneficial changes will result from the activity and from improved collaboration in 3-5 years. Groups express their visions using drawings, symbols and images. During presentations or galleries we ask groups to discuss their visions, to identify common themes, and to relate these back to the activity design.

4.11 Conducting: Review and strengthen the activity design

The earlier steps, while creating ownership over the activity design, often create questions about it. Depending on the questions raised, smaller working groups of 5-8 people can be set up to discuss issues related to activity objectives, indicators, assumptions and activities. The working groups are tasked to review various aspects of the activity design and to develop recommendations for strengthening it. The main points are then presented and discussed in the plenary with ideas for strengthening the activity being fed into the next working group. This step is especially important if there has been a significant lag time between design and launch or if the activity context has changed substantially since its design.

4.12 Conducting: Develop work plans

In this session, sub-teams develop one and/or two-year work plans for each Output in the activity design. Output teams are created and asked to develop Work Breakdown Structures (WBS): Outputs broken down into small sets of activities and tasks. Two levels below Outputs are usually sufficient in the WBS, and Post-Its can be used for this step. After cross-checking their WBS with other groups in poster sessions, the Output teams develop realistic schedules for the activities and agree on roles and responsibilities. Most teams tend to underestimate the amount of time needed to complete activities, often by 100%. To counteract this tendency a 'sceptic' may be appointed to each team to argue for allocating more time for suspect activities. The teams then present, discuss and refine their work plans and identify critical dependencies among tasks (see Box 6).

4.13 Conducting: Develop a Monitoring and Evaluation Plan

Start-up workshops provide an ideal opportunity to develop a practical Monitoring and Evaluation (M&E) plan derived from the activity logframe. Teams review and refine the activity indicators, define roles, responsibilities and time lines for data collection, analysis and reporting and sometimes review and develop simple reporting formats.

M&E systems in participatory activities need to be in harmony with principles of stakeholder involvement (see Chapter 8 on Designing Participatory M&E systems). The M&E plan should include agreements on regular meetings to review activity progress and plans for more systematic annual performance reviews.

Box 5: Start-up Workshop: Checklist

Planning

1. A stakeholder analysis for the workshop has been completed.
2. The analysis has been used to understand the interests of groups who have a stake in the activity's implementation;
3. The analysis has been used to identify which groups should be involved in the start-up workshop, including peripheral groups.
4. A needs assessment (interviews/simple survey) has been used to understand participant's issues and expectations for the workshop.
5. Clear and realistic Terms of Reference for the workshop have been developed.
6. A good venue for the workshop has been selected with adequate space, seating, lighting and ventilation.
7. Skilled facilitators (including a local facilitator) have been identified and recruited.
8. The assessment has been used to develop a detailed workshop design including:
   - **workshop objectives;**
   - **individual session objectives;**
   - **estimated duration of each session; and**
   - **process guidelines for each session.**
9. Invitations and project documents have been sent to participants well in advance.
10. All logistics have been double checked.
11. Follow-up calls to participants have been made.
12. Arrangements with presenters and guest speakers have been made.

Conducting the Workshop

13. The workshop process is participatory and engages all participants.
14. The process is flexible allowing adequate time to respond to unanticipated issues.
15. Each day includes a simple activity for monitoring workshop progress.
16. Warm-ups and energisers related to themes of collaboration and team work are included in each day's activity.
17. The workshop process, activities and exercises are sensitive to local culture.

Each of the core workshop sessions have been completed:

18. Introductions, Expectations, Workshop Objectives and Group Norms
19. Partner Introductions
20. Understanding the Project Rationale and Its Main Objectives
21. Creating a Shared Vision
22. Reviewing the Project Design
23. Developing Work Plans
24. Developing an M&E Plan
25. Next Steps and Personal Action Plans
26. Final Workshop Evaluation

5.0 Conclusion

Start-up workshops provide an excellent opportunity to build on participatory activity design efforts or to strengthen participation if it has not been integral to earlier stages.

Start-up workshops are useful in building collaboration amongst implementing agencies, creating a common vision of activity success and defining detailed plans of operation, including M&E plans. Each of these results are important to building the ownership and commitment of stakeholder groups to the activity and help to lay a solid foundation for activity implementation. Moreover, the workshop process models the type of collaboration the DFID is seeking in its work and helps to build the capacity of partner agencies for collaborative programme management.

6.0 Combination of techniques: Participatory Learning and Action, Participatory Rapid Appraisal and Participatory Action Research PLA, PRA and PAR (see Box 1) all make use of a combination of techniques, the choice depending on the objectives and available resources.

6.1 Review of secondary data

- Sometimes secondary data can mislead. Sometimes it can help a lot. At present secondary data is not emphasized much because of the concentration on 'our' reorientation and 'their' participation.
-

6.2 Observe directly

- See for yourself. It can be striking for many to realize how much they have not seen, or did not think to ask. Does our education and background 'desensitize' us?

6.3 Do-it-yourself

Let yourself be taught by villagers at an early stage of the exercise, work alongside them in their daily routines and tasks (weeding, herding, collecting water, fishing ...etc.), roles are reversed; they are the experts. We learn from them; they are the experts.

6.4 Semi-structured interviews

This is guided interviewing and listening with only some of the questions determined beforehand. New questions arise and aspects to follow-up, during the interview. The interviews are informal and conversational, but actually are carefully controlled.

- Interviews may be with:

Individual villagers or households perhaps selected on the basis of a particular characteristic of their household or farm Key informants; seek out the experts? Often overlooked. Medicinal plants? Water supplies? Ecological history? Markets and prices? Changing values and customs? Fuels? Historical time-line?

Group interviews; community groups, specialist groups (birth attendants? fruit-growers, structured groups (by age? by wealth?), random groups.

As a guide in interviewing:

- Have a mental or written checklist ready.
- Use open-ended questions. What? When? Where? Who? Why? How? Avoid questions that can be answered 'Yes' or 'No'.

Generally at least 2 people should interview with one of the team leading Watch your manners; greetings, non-verbal factors, seating arrangements, posture, etc.

- Keep it informal and relaxed, not an inquisition; listen

6.5 Participatory mapping and modeling

Resource maps of catchment's areas, villages, forests, fields, farms etc.

- Social maps of residential areas of a village
- Wealth/well-being maps and household assets surveys
- Health maps e.g. to identify TB cases or ear infection

6.6 Transect walks

Systematic walks with key informants through an area, observing, listening, asking, seeking problems, solutions and mapping the finding onto a transect diagram.

6.7 Participatory diagrams

- Seasonal Calendars

Explore seasonal constraints and possibilities by diagramming changes month by month through the year; rain, labour, diet, sickness, prices, animal fodder, income, debt, etc. Histogram calendars can be drawn over 12 or 18 months.

- Activity profiles and daily routines

Histograms chart daily patterns of work. Compare for different groups; e.g. women, men, children.

Compare different profiles for different seasons.

- Historical profile, time lines and change analyses, chronologies listing major local events, ecological change, disease/pest/weed occurrence, population trends, etc.

Venn (chapatti) diagrams, use of circles to represent people, groups and institutions and their relationships.

6.8 Analytical games

Rankings and choices and analyzed through interview games.

- Wealth/well-being rankings

Groups or clusters of households are identified according to relative wealth or well-being. Informants sort a pile of cards, each with one household name on it, into piles. The wealthiest are put at one end, the poorest at the other. The process is replicated with at least three informants. This provides a good lead into discussions on the livelihoods of the poor and how they cope.

- Matrix scoring and preference rankings

6.9 Portraits, songs and stories

Case studies, household histories, how conflict was resolved... are recorded.

- Workshops

6.10 Brainstorming and analysis exercises

- SWOT analysis: Strengths, Weaknesses, Opportunities and Threats.
- Problem web and flow charts
- Games and role-play
- Presentation and evaluation of information gathered.

Investigators using participatory methodologies can select from a 'basket of choices' for a given situation according to their needs and experience. Both PRA and PAR use triangulation - i.e. different methods, sources and disciplines, and a range of informants in a range of places are used to cross-check and thus get closer to the truth.

2. Problem Solving and Conflict Resolution Skills:

Salient Points of the Article

- **Problems and conflicts**
- **Problem solving**
    - Problem Tree Analysis through Focused Group Discussion.
    - Participatory Situation Analysis (PSA).
    - Problem Identification and Programme Planning through PSA
- **Conflict Resolution**
    - Types of conflict.
    - Causes of conflict.
    - Strategies for managing conflict.
    - Guidelines for conflict resolution process.

Problems and Conflicts

As a development worker, Problems come quite often in our day-to-day business and become integral part of our life. But here we are talking of the problems which we face while working with our clientele; the farmers. As an extension worker it is our obligation to identify farmers' needs, constraints, priorities and problems and find solutions for the same in order to make them competent to keep pace with the changing world. Conflicts on the other hand are a natural and inevitable part of people working together, sharing diverse thoughts, concerns, perspectives, and goals. If the Problems/ Conflicts are not dealt tactfully then a major part of our energy is either drained out trying to solve or resolve the Problems/ Conflict or if remained unsolved they slowly starts affecting our performance.

Problem Solving

In the development sector various processes are in practice to identify and address the problems. In the context of dairy development the following methods can be adopted:

A. Problem Tree Analysis through Focussed Group Discussions.

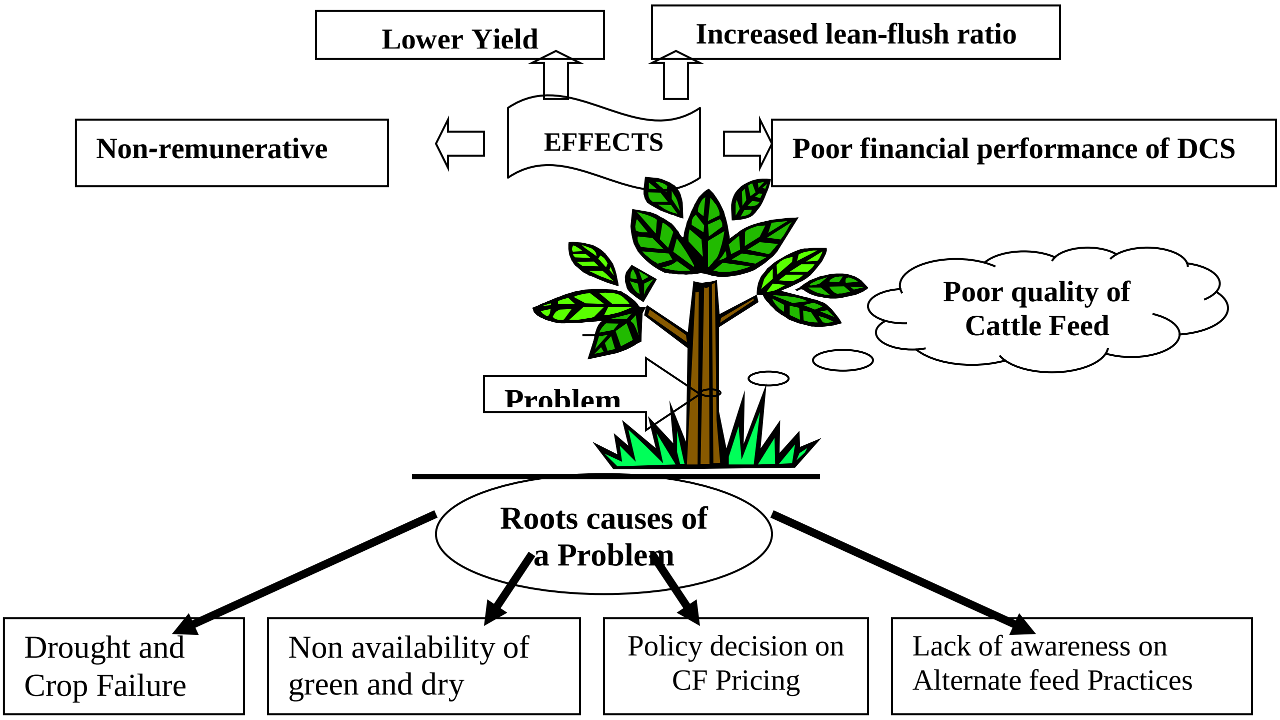
Every problem that arises from farmers has a root cause. In order to address the problem effectively we have to go in-depth of their problems and understand the root causes for the same. The first task is to identify major problems, then the main causal relationships between them are visualised using a problem tree. A tree will have many roots like primary, secondary, tertiary etc. Similarly, the causes for a problem would appear simple but are interrelated and a cause is a result of many factors. Understanding of these causes and finding solutions would help to overcome these problems.

Developing the problem tree

During the Problem Analysis stage, it is important that as many possible options are examined as possible. Here, the aim is to establish an overview of the situation. Later in the process, the perspective will be narrowed and deepened in order to prepare an activity design.

- Identification of the Problem.
- Identify immediate and direct causes of the focal problem.
- Identify immediate and direct effects of the focal problem.
- Construct a problem tree showing the cause and effect relationships between the problems.
- Review the problem tree, verify its validity and completeness and make any necessary adjustments.

Following is a simple example of problem tree analysis:



In the above example as we can see that the milk producers are not getting remunerative price for their milk business, the milk yield of their cattle/ buffaloes have come down and all these have resulted in poor financial performance of the DCS. Normally when we discuss about problems the effects of problems are also considered as problems, where as we can see that these are consequences of one or the other problem(s). There can be other factors too, which are responsible for the effects mentioned in the example. In order to identify the actual problem(s) **focused group discussion** with the farmers on the various issues needs to be done. It can be parallely done with the other stakeholders too (Union board, Union officers, Animal Husbandry Department, NGOs' etc.)

Focussed group discussion is a form of group discussion which is used to guide, focus and inform planning and implementation of any activity, and to ensure that the activities undertaken respond to the needs of the farmers. They are used to gain the views of stakeholders and to learn their perceptions about current or proposed activities/ concerns.

There are certain principal advantages of Focussed Group Discussions:

- They have 'high face validity': for everyone involved, the technique looks as though it can measure what it says it will (people's opinions), it's transparent (everyone can see and hear what's going on), and those using the information can easily understand the results

- Focus groups place participants in a naturalistic, relaxed setting, assisting a higher degree of response from participants as well as immediate cross-checking of responses from other group members
- Focus groups give their moderators the opportunity to probe and to explore unanticipad issues and diverse experiences.

How to conduct a Focus Group Discussion

- 8-10 open ended questions carefully thought out on the relevant issues and sequenced.
- A group of 8-12 participants of similar background and experience.
- A moderator with knowledge of group dynamics and facilitating skills to ask the questions
- An assistant moderator to take notes.
- A comfortable place where everybody can sit facing each other.

Caution

Focus groups are not without their dangers. As with any group of people, the rules of group dynamics will apply: The views of the most voluble may overshadow those of the less talkative. Hence there is a need for the careful selection of a facilitator, and meticulous planning well in advance for the activity.

Addressing the Problem

In the problem mentioned above after focused group discussions at various levels it was understood that the root cause for the poor quality of cattle feed was Policy Decision on Cattle Feed Pricing. The union management due to some reason or other was not in a mood to burden the milk producers by increasing the cattle feed price. This would have resulted into so many other consequences too viz;

- Raw material prices kept increasing which compelled the union to increase subsidy on cattle feed.
- After some time they found it difficult to sustain and the subsidy was removed.
- The union board was bent upon not to increase the feed prices, so inferior quality raw material usage started.
- After consuming poor quality cattle feed the yield of the cattle/ buffaloes in the area lowered and dairying as an Income Generation Activity started becoming less remunerative.
- The farmers now opted for other alternate feeds which although were costlier than the cattle feed but were giving better returns.
- Demand of cattle feed came down leading to the CF plant going into huge losses.

The union management was too late to judge the actual requirement of the farmers. They opined price as the major criteria to please the farmers, but sometimes quality not price becomes important for the farmer too. Being a development worker one of our jobs is also to facilitate management in taking appropriate decisions at right time. In this case the

Route Supervisor, Procurement Manager, Cattle Feed Plant Manager should have taken the following steps to address the problem:

1. Approaching the Board of Director of the area and brief him about the perception of people on the quality of cattle feed.
2. They should also come to know that people are buying alternate feed at a higher price.
3. Approaching the Managing Director for addressing the problem.
4. The quality reports of NDDB should have been put in the board as one of the agenda items.

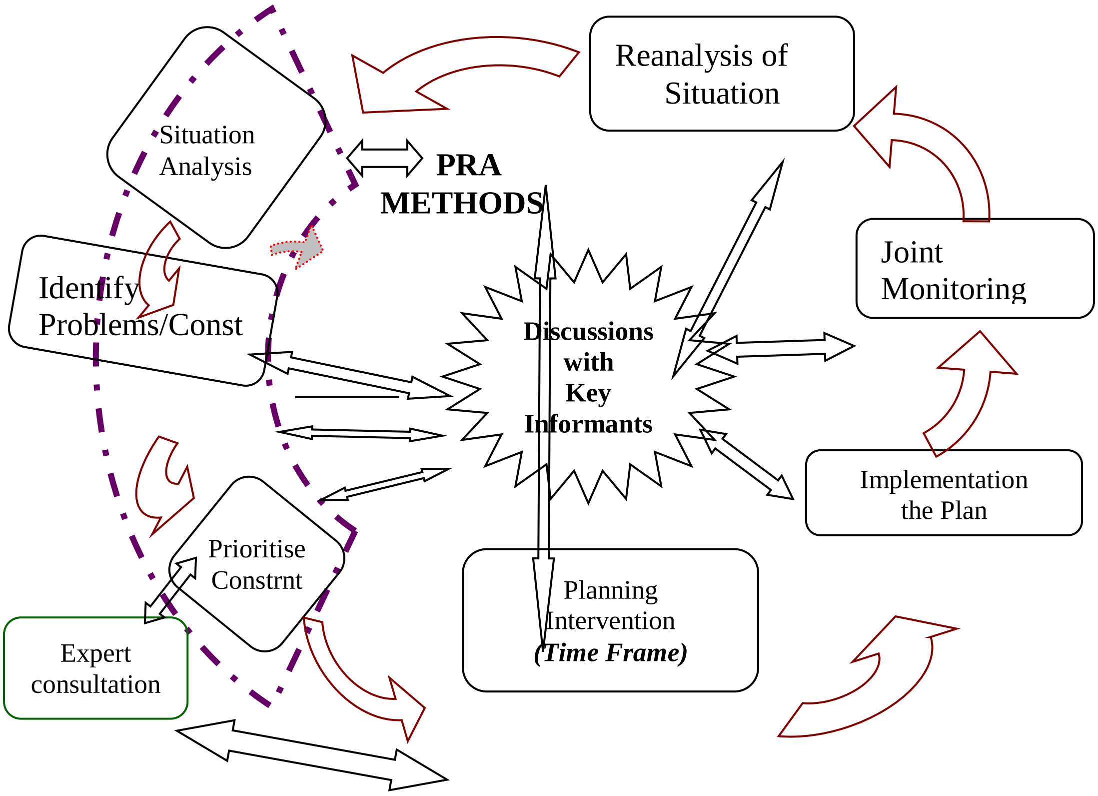
After putting all these efforts also there is a possibility of continuance of status quo on the issue due to political reasons, but the job of a development worker is to keep addressing the problems of our primary stakeholders to the possible extent.

B. Participatory Situation Analysis (PSA)

Participatory Situation analysis (PSA) is one of the most important tools through which analysis of the farmer's situation in a participatory mode using all the suitable techniques of Participatory Rural Appraisal takes place. It not only involves the farmers at the problem identification stage but also continues through the process of Participatory Programme Planning and Implementation to address the problems.

The steps are diagrammatically represented in the flow chart shown.

FLOW CHART FOR PSA AND PROGRAMME PLANNING



Steps in Problem Identification and Programme Planning through PSA:

1. **Analyze the situation:** It involves participatory discussion with the farmers on the existing situation. Supplementary information collection, analysis and interpretation of the existing facts follow the process. Dairy personnel should have sufficient knowledge as to what farmers are practicing and what are their requirements.

2. **Select problems prioritize them:** Selection of problems to be tackled involve identification, classification and selection with due regard to priorities. Once the problems are identified through situation analysis, it is obvious to classify them in to different categories like, problems, which could be solved by the farmers themselves with no outside support, and the problems, which could be solved with the support of the dairy union. It is impossible to meet all the needs at any one point of time, which would also confuse farmers and hence efforts should be made to select the problems with due importance.

3. **Find solutions to problems:** Finding solutions should be on participatory mode, which should be discussed with the farmers. Experience of the farmers and the suggestions of the specialists (may be union officials, AHD officials, NGO personnel etc.) would help in arriving at a joint decision.

4. **Execution of the plan:** Prepare a plan of activities, directed towards solving the identified problems like conducting meetings, demonstrations etc. The approved programme should be carried out, step by step, according to plan of work in a coordinated manner.

Conflict Resolution

Conflicts; as we mentioned in the earlier part of the document are natural and inevitable when people work together. As a manager, you have to deal with conflict situations both as a mediator (to help resolve conflicts between others) and as a participant (when you, yourself, are in conflict with someone). Unfortunately, managers often make the mistake of treating all conflicts as destructive confrontations that should be avoided or resolved as quickly as possible. In reality many conflicts provide an important opportunity to improve business results. Hard to believe—conflict a good thing? Yes. Disagreements and differing points of view, when managed properly, are essential to an innovative workplace.

For the most part, conflicts are not big, emotional outbursts or scenes of physical violence—although these can and do occur, especially in workplaces or societies in which conflict is not managed well. Conflicts can hurt working relationship.

- **Intrapersonal** Conflict occurs within us: when we are at odds with ourselves, when we are torn between choices we need to make, when we are frustrated with our goals or accomplishments. Conflict with ourselves very often leads to conflict with others.
- **Interpersonal** Conflict occurs between two or more individuals. We might get into a heated debate in a meeting, get in an argument with a coworker, or have a bad encounter with our boss.
- **Intergroup** Conflict occurs between groups: villages, castes, parties, gangs, work areas, etc.

There are numerous causes of conflict, and these causes can be placed into three general categories:

- Communication
- Personal
- Process

Communication causes of conflict come from infrequent or ineffective communication (e.g., lack of feedback, misunderstandings, lying, criticism, discounting, and sarcasm).

Personal causes of conflict come from ego, personal biases, and lack of empathy (e.g., differing personalities, perceived disrespect or lack of concern, past friction, differing backgrounds, differing values or beliefs, and prejudice).

Process causes of conflict come from differing views about what should be done or how it should be done (e.g., differing goals, differing approaches to a problem, differing perspectives on an issue, and differing sources of information.)

Generally speaking, Communication and Personal sources of conflict are not beneficial to the individuals', organization because they tend to attack people on a personal level. Process conflicts, on the other hand, often allow people to clarify what is most important and make positive changes to the way things are done. However in order to deal with various types of conflicts there is no perfect process. The chosen strategy for each activity needs to be that which is 'most practicable' given the available resources and capabilities. It is also crucial to ensure coherence in overall engagement with the individual/ group/ organisation in question and to work towards complementarity.

<u>Options for deciding a most practicable strategy for managing conflict:</u>

1. **Force**
    1. Public Protest.
    2. Use of mass media to rally public support.
    3. Lobbying.
    4. Uncompromising Negotiations.
    5. Legal Channels.

2. **Withdrawal**
    1. Avoidance
    2. Opting out.
    3. Delaying tactics
    4. Postponement of decisions.

3. **Accommodation**
    1. Relationships dominate.
    2. Goodwill nurtured.

4. **Compromise**
    1. Trade off
    2. Arbitration.

5. **Consensus**
    1. Direct Consensual Negotiation.
    2. Third party facilitated negotiation.

Each of the five strategies outlined above has its advantages and disadvantages. Ideally consensus negotiations are required, but they may not be always possible. The importance of building and maintaining an open dialogue in any situation of conflict is critical. Training and facilitation are often critically important. Here are some necessary guidelines for development workers for facilitating conflict resolutions:

- Listening, listening and more listening.
- Build and maintain rapport.
- Acknowledge perceptions.
- Accommodate cultural differences.
- Understanding and describing the view points of others.
- Identifying needs, interests, concerns and fears.
- Encouraging conflicting parties to listen to each other.
- Setting and getting agreements on rules.
- Starting constructive discussions (and keep them going).
- Creative problem solving.
- Building relationships.

Following are the guidelines for facilitating conflict resolution at the project level:

- Identify that conflict is happening.
- Disagree with ideas NOT people.
- Do not accuse or blame.
- State problem as a shared one: We donot agree about "X", rather than You are wrong about "X".
- Identify and focus on the central issues to the conflict. Donot digress.
- Do not compromise too quickly. Quick compromise means you have not adequately explored the problem or possible solutions. The ideal solution gives everyone what they need and meet their interests.
- Those not directly involved in the conflict may be invited to pay close attention to both sides and add perspectives on the process as well as the content.
- Ackowledge and accommodate cultural differences.
- Be aware of your own opinion and feelings. People tend to think that their wants and needs are locally justifiable, so often they focus on rational arguments even though their feelings may be the driving force.
- Use silence. If the discussion becomes too heated, a few minutes break or a schedule that permits meetings over several days or weeks may help facilitate a decision.

3. Logical Framework Analysis (LFA):

1.1 Introduction

Logical Frameworks (usually referred to as 'logframes') are widely used by development organizations to help strengthen activity design, implementation and evaluation. They can be used in almost any context to identify what is to be achieved, and to determine to what degree the planned activity fits into broader or higher-level strategies. Within the activity, the logframe helps to determine the role(s) to be played by different participants, and provide an accurate schedule of the actions that will need to be undertaken. It can also be used as the focus for discussions about amendments and alterations to an activity in the light of experience, while the activity is under way.

What is a logframe and how does it help?

The logframe is a simple but potentially powerful participatory tool. The essential questions it helps to address are set out in Box 3. If used correctly the logframe approach can help us to:

Achieve stakeholder consensus;
Organize thinking;
Relate activities and investment to expected results;
Set performance indicators;
Allocate responsibilities;
Communicate concisely and unambiguously with all key stakeholders.

1.3 Advantages

Most major donor agencies use logframes for planning, implementation and evaluation, because of the advantages they offer.

The logframe draws together all key components of the planned activity into a clear set of statements.

This provides a convenient overview that is useful for busy staff. It can also act as an aid to the exchange of views amongst all those involved.

It enables possible responses to weaknesses in past designs to be identified, documented, and lessons learned.

It is easy to learn how to use.

It is used internally for design and appraisal processes and externally with consultants of an organization.

It anticipates implementation and helps plan out development activities.

It sets up a framework for monitoring and evaluation where planned and actual results can be compared.

1.4 Limitations

However, the logframe approach also has limitations. It begins with identifying problems (Problem Analysis). This can have the following consequences:

The process of problem analysis and this process can sometimes produce poor results. If this is the case a negative focus may pervade the rest of the logframe process. This may result in a limited vision.

Starting with a problem analysis can be difficult in cultures where it is considered to be inappropriate to openly discuss problems or be critical of others

Starting with a problem analysis is often not a suitable strategy where there is a great deal of uncertainty or where agreement cannot be reached on the main problem.

Over-emphasizing objectives and external factors specified during design can cause rigidity in programme management. This can stifle innovative thinking and adaptive management.

It is not a substitute for other technical, economic, social and environmental analyses. It cannot replace the use of professionally qualified and experienced staff.
It requires a team process with good leadership and facilitation skills to be most effective. Without these skills the logframe process can falter and have negative consequences.

The process requires strong facilitation skills to ensure effective participation by appropriate stakeholders – this may take time.
Logframes are often developed after the activity has been designed rather than used as the basis for design. The use of the logframe late in the design process can be caused by:

- A lack of understanding of the logframe approach by the design team;
- The logframe being seen a bureaucratic requirement rather than as a design or management tool. The whole culture of the logframe approach can be alienating for some stakeholder groups. For others the approach may be difficult to understand because of the language used.

1.5 How to develop a logframe

Box 1 provides some key points to completing a logframe. The best logframes are built upon clear stakeholder involvement.
A participatory 'team' approach is critical in the development of good logframe. The

Box 1: Key Points to completing the logframe
A logframe is a 4 x 4 matrix, with a hierarchy of objectives (the project structure), indicators of performance, means of verifying the indicators and important risks and assumptions along the horizontal axis and goal, purpose, outputs and activities along the vertical axis.

The logframe should be simple and concise. Goal, Purpose and Output must be specified in full, activities should be summarized where possible. The logframe in a programme or project document should rarely be more than two or three sides of paper. It should be a stand-alone document, comprehensive, at first glance, to the reader. The logframe is utilized not only at the programme or project proposal stage, but also throughout the implementation and eventual evaluation as a basic management and monitoring tool.

The logframe is a living document: it should be reviewed regularly during programme and project implementation.

'Team' should include not only the programme management and implementation people but also the key and primary stakeholders. In most circumstances a workshop approach works well: this may be allied to workshops being constructed as part of the process of

Stakeholder Analysis or Visioning, or may be operated separately. It is likely that several of the participants from these other activities will need to be involved here, although timetabling for those with other pressing responsibilities may prove a difficult issue to resolve if several workshops are planned to run consecutively.

What follows is a simple step-by-step guide to developing a logframe. Follow the steps in numerical order working in small groups as part of a workshop process.
It is important to check the logic of the logframe (see Box 2). This is:
IF we undertake the activities AND the assumptions hold true, THEN we will create the outputs.
IF we create the outputs AND the assumptions hold true, THEN we will achieve the purpose.
IF we achieve the purpose AND the assumptions hold true, THEN we will contribute to the goal.

Box 2: The 'If'/'And'/'Then' logic that underlies the logframe approach

Objectives	***Indicators***	***Means of Verification***	***Assumptions***
Goal Purpose			
Outputs			
Activities ***if***		Then	***And***

1.6 Types of Indicators

Indicators play a crucial role in logframe planning and analysis (Box 4). There are many different types of indicators: some are more common than others, some better than others, some easier to collect than others, some more widely recognized than others. The formulation of indicators has become a major field of development work, an indication itself that much of former and current practice may not be good practice.

Box 3: The logframe matrix

Project Structure	**Indicators of Achievement (See 1.6)**	**Means of Verification (See Box 9)**	**Important Risks and Assumptions (See Box 8)**
Goal What are the wider objectives that the activity will help	What are the quantitative measures or qualitative	What sources of information exist or can be provided to allow the goal to be	What external factors are necessary to sustain the

achieve? Longer-term programme impact	judgments, whether these broad objectives have been achieved?	measured?	objectives in the long run?
Purpose What are the intended immediate effects of the programme or project, what are the benefits, to whom? What improvements or changes will the programme or project bring about? The essential motivation for undertaking the programme or project.	What are the quantitative measures or qualitative judgments, by which achievement of the purpose can be judged?	What sources of information exist or can be provided to allow the achievement of the purpose to be measured?	What external factors are necessary if the purpose is to contribute to achievement of the goal?
Outputs What outputs (deliverables) are to be produced in order to achieve the purpose?	What kind and quality of outputs and by when will they be produced? (QQT: Quantity, Quality, Time)	What are the sources of information to verify the achievement of the outputs?	What are the factors not in control of the project which are liable to restrict the outputs achieving the purpose?
Activities What activities must be achieved to accomplish the outputs?	What kind and quality of activities and by when will they be produced?	What are the sources of information to verify the achievement of the activities?	What factors will restrict the activities from creating the outputs?

Direct and Indirect Indicators

Direct Indicators are used for objectives that relate to directly observable change. This is usually at Output and Activity level in the logframe. A direct indicator is simply a more precise, comprehensive and operational restatement of the respective objective.

Indirect or Proxy Indicators may be used instead of, or in addition to direct indicators. They may be used if the achievement of objectives:

Is not directly observable like the quality of life, organizational development or institutional capacity; Is directly measurable only at high cost that is not justified;

Is measurable only after long periods of time beyond the life span of the activity.

Process and Product Indicators

It is important to measure not just what is done but how it is done; not just the 'products' of an activity, but also the 'processes'. Emphasis in development work is increasingly on the processes involved, where the means are just as important, if not more important, than the ends.

This is particularly the case in 'process' work, where iterative processes are emphasized. Focus on the processes will generally lead to better targeting at real problems and needs, better implementation and improved sustainability. At the outset of a process-led task, it may be very difficult, and undesirable, to state precise outputs. Instead, outputs and activities may be devised for the first stage or year; then later outputs and activities are defined on the basis of lesson learning.

Product indicators may measure the technologies adopted, 'the training manual in print and disseminated', or the increase in income generated. Process indicators are usually entirely qualitative and will assess how technologies were developed and adopted, how income was generated, and who was involved. At least some of these indicators will be subjective. End-users and participants may be asked to verify them, but the means of verification may still be less than fully objective.

Qualitative and Quantitative Indicators

The Quality, Quantity, Time (QQT) maxim for constructing an indicator generally works well. But its rigid application can result in performance and change that is difficult to quantify not being considered or given appropriate value.

Just because a change may be difficult to quantify, or the analysis of qualitative data may not be straightforward, is not reason to ignore them. Instead, special effort and attention needs to be given to devising qualitative indicators. A balance of indicators is needed, some focusing on the quantitative, others on qualitative, aspects.

Quantitative indicators may relate to:

The frequency of meetings, the number of people involved;

Growth rates;

Climate data;

Yields, prices;

The up-take of activity inputs; e.g. loans, school enrolment, seeds, visits to the clinic, children vaccinated;

The adoption/implementation of activity outputs; e.g. technologies, manuals, newsletters or guidelines in use.

Qualitative indicators may relate to:

The level of participation of a stakeholder group;

Stakeholder/consumer opinions; satisfaction;

Aesthetic judgments; e.g. taste, texture, colour, size, shape, marketability;

Decision-making ability;

Attitudinal change;

The emergence of leadership;
The ability to self-monitor;
The development of groups and of solidarity;
Behavioural changes;
Evidence of consensus.

It is generally easier to measure behaviour than feelings; behaviour can be observed. So if an objective is 'to increase people's confidence in meetings', it may be appropriate to measure this by observing how often they speak and whether they speak clearly.

SMARTER and SPICED' Indicators

These indicators seek to examine different aspects of an activity's design. When defining the logframe's objectives (effectively the left-hand column), SMARTER helps in defining good and useful objectives. In the same way, SPICED helps when you are trying to define a relevant and comprehensive set of Objectively Verifiable Indicators, remembering that indicators have functions beyond simply attempting to measure the quantifiable aspects of an activity.

SMARTER Indicators	***SPICED Indicators***
Specific	**S**ubjective
Measurable	**P**articipatory
Achievable	**I**ndirect
Realistic	**C**ross-Checked
Time-Bound	**E**mpowering
+	**D**iverse
Enjoyable	
Rewarding	
Diverse	

Box 4: Indicators

Indicators show performance. In logframe analysis and planning, they play a crucial role:

They specify realistic targets (minimum and otherwise) for measuring or judging if the objectives at each level have been achieved;

They provide the basis for monitoring, review and evaluation so feeding back into the management of programme/project implementation and into lesson learning and planning for other subsequent programme/projects;

The process of setting indicators contributes to transparency, consensus and ownership of the overall objectives, logframe and plan.

Some important points:

Who sets indicators is fundamental, not only to ownership and transparency but also to the effectiveness of the indicators chosen. Setting objectives and indicators should be a crucial opportunity for participatory management.

A **variety** of indicator types is more likely to be effective; the demand for objective verification may mean that focus is given to the quantitative or to the simplistic at the expense of indicators that are harder to verify but which may better capture the essence of the change taking place.

The fewer the indicators the better. Measuring change is costly so use as few indicators as possible.

But there must be indicators in sufficient number to measure the breadth of changes happening and to provide the triangulation (cross-checking) required.

Cross-Sector Indicators

Sector-based or technical indicators must be balanced by the inclusion of other more cross-sector indicators; for example relating to social issues, gender, the environment, and capacity building.

Formative and Summative Indicators

Formative indicators are set with a time frame to be measured during part of, or across the whole of, an activity; hence, they are really synonymous with milestones. Summative indicators are used to measure performance at the end.

Box 5 demonstrates practical ways in which the logframe can be developed with different kinds of groups, later checklists have been provided for developing a logframe.

1.7 <u>Living logframes</u>

Logframes have great value in clarifying thinking about the task to be achieved and how to evaluate change.

They also have value as a means of improving communication between participants in any given activity. And if they are constantly referred to and reported upon, people will understand what they are doing and why.

But logframes are dynamic, not static, and are therefore subject to change. There is a standard procedure for achieving this:

Those managing any particular activity usually have the discretionary authority to change Activity level objectives for their logframe.

Changes to Output level objectives require consultation with immediate managers or supervisors, but should be initiated by the person concerned.

Changes to Purpose level objectives must be initiated by the level above and discussed with the staff affected.

However, changes impact downwards as well as up:

Changes to Activity level and Output level objectives may affect someone else's Purpose level objectives, so consulting downwards about proposed changes is always valuable.

Box 5: Checklist for Objectives column of the logframe

For checking Column 1 of the logframe:

1. Do the Objectives answer:

Goal Greater Why?

Purpose Why?

Outputs What?

Activities How?

2. Does the logic work?

Vertical logic in Column 1;

Then

If

Are the Objectives necessary and sufficient?

3. Where are the boundaries of the programmeme or project?
4. Is there only one Purpose?
5. Is the Purpose too remote from the Outputs?

Is it assessable?

Is the causal link reasonably strong?

6. Do we see ‘Process’ as well as ‘Product’ objectives?
7. Are the Outputs and Activities linked /cross-numbered?

Checklist for Risks and Assumptions

For checking Column 4 of the logframe:

1. Have all the risks been identified?
   - Stakeholder analysis?
   - Problem trees, etc?
2. Are the risks specific? Or too general?
3. Are the risks/assumptions at the right level?
4. Does the logic work?
   - Diagonal logic between Columns 1 and 4
   - Necessary and sufficient?
5. Where risks are manageable, have they been managed?
   - Where possible, have they been turned into Activities and Outputs? i.e. moved into Column 1?
6. What are the pre-conditions?
7. Should the activity proceed in view of the remaining assumptions/risks?

Checklist for Indicators and Means of Verification

For checking Columns 2 and 3 of the logframe:

1. Are the Indicators QQT’ed? (Quality Quantity and Time)
2. Are the Indicators and Means of Verification:

- **Relevant**
- **Valid**

- **Reliable**
- **Measurable / verifiable**
- **Cost-effective / proportionate?**

3. Are the Indicators necessary and sufficient?

- **Do they provide enough triangulation?**

4. Are the Indicators varied enough? Do you have indicators that are:

- **Product and Process**
- **Direct and Indirect**
- **Formative, Summative and beyond**
- **Qualitative and Quantitative**
- **Cross-sectoral?**

5. Who has set / will set the indicators? How will indicators be owned?
6. Are the data collection / Means of Verification

- **Already available**

Set up where necessary within the programme or project?

7. Is there need for baseline measurement?

The Logical frame work: project Design:

Start working on the project summary and assumptions (Column 1and 4). Return to column 2and3 later.

Column-1: Summary – Hierarchy of objectives	Column-2: Objectively verifiable Indicators (OVIs)	Column-3: Means of Verification (MoV)	Column-4: Assumptions and risks
Goal	Step – 7 a	Step – 8a	Goal Assumptions (step- 6 e)
Purpose	Step – 7 b	Step – 8 b	Purpose assumptions (step – 6 d)
Outputs	Step – 7 c	Step – 8 c	Output assumptions (step – 6 c)
Activities	Step – 7 d	Step – 8 d	Activity assumptions (step – 6 b)
Critical conditions (step 6 a)			

Step.1: Define the goal

What is the wider sector or programme goal?
What overall need or problems are you trying to address?
The goal does not change. It is affected by the other factors outside the project. A group of projects may share a common goal.

Step.2: Define the purpose

What is the rationale for what is planned?
What impact do you hope to make?
How will the client/ user benefit?
The purpose often relates to how outputs will be used or implemented. The purpose may be affected by factors outside your project.

Step.3: Define the outputs

What will be measurable end results of the planned activities?
What results will the activities directly be responsible for?
Given the necessary resources, the management team will be directly accountable for the outputs.

Step.4: Define the activities

What will actually be done to achieve the outputs?

Step.5: Verify the vertical logic

Check the cause and effect method to verify the vertical logic. If the given activities are carried out, will the stated output result? and so on up to column 1.

> ***As design and implementation progress, return to the logframe and update it. Changes to assumptions, activities and outputs are certain to happen.***

Step.6: Define the assumptions – The action recommended at any of these steps is **"Redesign the plan and evaluate your assumptions.**

a. Include here everything and anything that must happen before the activity can commence.
b. Check your logic.
    - Will the completed activities lead to achievement of the outputs?
    - Are all the resources needed to achieve the outputs?
    - What assumptions outside the control project have been made?
    - If the risk or assumptions are too great, shall a redesigning of project take place?

c. If the outputs were produced, would the purpose be achieved?

- What achievements, outside the control of projects have been made about the achievement of the outputs?
- If the risk or assumptions are too great, shall a redesigning of project take place?

d. If the activity’s purpose is achieved, will this in fact contribute to solving the problem / need identified originally?
   - If yes, then state clearly the assumptions you have made to reach this view.
   - If no, then redesign the activity.

e. What external factors are needed for or may hinder the long term sustainability of the activity?

Step.7: Objectively verifiable indicators (OVIs): OVIs are standards against which changes can be measured. Set targets in terms of quantity, quality and time. Indicators should be specific, usable, measurable, sensitive, cost-effective, and available. Begin with higher order objectives and apply the necessary and sufficient last.

a. What will indicate whether the goal has been achieved?
b. What will indicate whether the purpose has been achieved?
c. What will indicate whether the outputs have been achieved? These indicators define the terms of reference, the deliverable for the activity.
d. What will indicate whether the activities have been achieved? The inputs and budget will also be an entity here. What inputs are needed to carry out these activities> Staff, transport, market, finance etc.

Step.8: Means of verification (MoV): What are the data sources you will use to verify the indicators? eg. Reports, minutes, surveys, accounts, government statistics, harvest records etc. If a survey is needed, are related activities included in the column? If this costs money, is that added to the budget?

a. How will you verify Goal OVIs?
b. How will you verify purpose OVIs?
c. How will you verify output OVIs?
d. How will you verify activity OVIs? The activity accounts will be one of the MoV’s here.

2. Training

Training Need Analysis (TNA)

1.0 Introduction

Training is not the only way of improving job performance. In some cases it may be more appropriate to simplify the work known as job simplification, men expected to do so, possibly by reorganising the job, or by improved equipment design or process. However, providing suitable training can enhance the individual performance. To decide appropriate training module it is necessary to know individual training requirement by conducting systematic training need study. Department concerned with training can conduct it preferably or else could be through specialised agencies. While conducting training need study it is require to understand the job description, job specification, and proficiency measurement of an individual or a group or an organisation. It means that before a training courses or a programme starts definite effort should be made to find out just what needs exist for training. In any case, before a training programme is set up, there should be systematic analysis of an individual about the available and require knowledge, skill and even attitude to perform his/ her duties at the optimal level.

2.0 **Basic requirement for TNA**

Job description:

The job description is a statement of activities of the individual. The process of producing such a description is referring as job analysis. The process requires us to pose such question as: how frequently do they occur? How important and how difficult are they? The job description helps to plan for suitable provision for the organisation of training programme, develop appropriate teaching materials and facilities during the training programme.

Job specification:

One is less concern about formal job specification / content than the behaviour analysis inferring the psychological processes involve in the performance of the job. Job specification would help us to know how the trainee can best acquire the skills of the experience trainer. The training requirement can also be measured by the aptitude and attitude possessed by the trainee.

Proficiency measurement:

It is prime important to decide how best we can judge whether the individual has acquired the mastery in the tasks, which he/she is required to perform. There are many alternatives by which the individual could demonstrate his /her competency, but each of the alternatives has different implications for training. The most effective way of determining the proficiency of a trainee in a particular functional area needs study over a period in a training programme. Every functional area needs relative knowledge and skills to judge the level of proficiency of the individual.

3.0 Methods of TNA

Considering the basic requirement of the TNA one has to examine the job requirement, available knowledge and skill of an individual and what is expected from the individual. Thus, the total training needs can be determine by analysing the situation in respect of each skill and each task of an individual. The training needs can be assessed by using any or combination of the following methods:

Analysis of an activity:

All the activities can list in a logical sequence, the activities in producing a product or a service or part thereof and determine what new knowledge or skill is called for or which aspects of present knowledge or skill needs modified.

Analysis of problem:

Analyse any problem in producing a product or a service or part thereof, determine what additional knowledge, skill, or insight are required to handle it properly.

Analysis of behaviour:

Analyse typical behaviour by an individual or groups, determine the corrective action involving training.

Analysis of an organisation:

Analyse organisational weakness and to produce clues, both individual and group needs training.

Appraisal performance:

Analyse performance and determine if some one should get something, be it additional knowledge, skill or understanding.

Brainstorming:

Bring together a homogenous group and to ask individual in the group to call out any ideas they have for answering a “how to” question and identify items, which call for additional knowledge, skill or attitude.

Buzzing:

Ask homogenous audience of managers, professionals, supervisors, what the desirable next step are in the organisation's training programme or what additional areas of knowledge or skill or understanding do we need to handle our work better.

Card sort:

Write statement or potential training needs on cards, hand over to the persons whose ideas are sought. Arrange these cards in what they feel is their order of importance for various training needs.

Checklist:

Break down a job, process, programme, activity or area of responsibility in to a list of detailed parts or steps arrange in logical sequence. Then checked off by each employee the items about which he/she feels would like to have more skill or knowledge.

Committee:

Constitute an advisory committee composed of persons responsible for or with a direct interest in an activity to identify training needs.

Comparison:

Compare what an individual contemplates is doing with what others are doing or have done to learn about new ways to handle old problems and keep up to date on new techniques and procedures and fight his own obsolescence.

Counseling:

Discuss between a training practitioner and a person seeking guidance regarding ways he can improve his/her on-the-job performance or prepare for advancement.

In-basket:

Measure or test a manger's ability to handle some of the day-to-day challenges, which come to him in writing in his "in-box" from various sources.

Incident pattern:

Assess the individual in terms of success or failure, the responses to special situations and study the pattern of deviation.

Informal talks:

Meet and talk informally with the people for finding clues to training needs.

Interviews:

Arrange a formal meeting with the person or group concerned employing and apply interview techniques.

Role-playing:

To get clues to his training needs in a skill, an area of knowledge, or in understanding or attitude by observing how each role player acts in a role playing situation.

Self-analysis:

Self- evaluates and knows what needs, in knowledge, skill or insight.

Skill inventory:

Establish and annually update an inventory of the skills of their employees and to identify gaps or blind sport in reserve or stand by skill.

Slip writing:

Write on a slip the type of training needed and analyse the information.

Study:

Undertake study, which can turn up training, needs which will have to meet if the plans have adopted.

Survey:

Undertake surveys that can use to take inventory of operations, employee attitudes, implications of advance planning.

Tests:

Conduct tests to measure skill, knowledge or attitude and identify the gaps.

Taskforce:

Constitute a task force to analysing the problem may unearth training needs.

Questionnaire:

Develop a questionnaire to elicit information, which can helps to determine training needs. Delimit the scope of the training and identify course content. The sample copy of the questionnaire is enclose as Annex - 1 for the benefit of the reader.

4.0 Conclusion

The above-mentioned methods are applicable to a particular situation. One should be very careful while applying the method to assess the training needs of an organisation or an individual. The pros and corns of some the frequently used methods for Training Need Analysis is depict in Annex - 2. Therefore, readers are requested to apply suitable method /s considering the target group.

Annex - 1

Questionnaire to identify training needs

(To be filled by the appraiser of the appraise)

Name of the appraise:

Qualification:

Designation:

Name of the appraiser:

Designation:

Department:

Following is a list of activities, which may require the attention of an employee and in which he will need training. Think over each item carefully and place an “X”.

In Col. 1 - beside those subjects, which you feel, are so basic that the employee must learn about them immediately.

In Col. 2 - beside those subjects, which you feel, employee should know about eventually but does not need immediate training.

In Col. 3 - beside those subjects, which you feel employee will not need to be, train in order to perform his work.

The column No. 4 and 5 should be marked after attending the entire question for column No 1 to 3. The direction for marking column No 4 and 5 is indicated at the end of the questionnaire.

Particulars **A) Basic information** 1) Purpose of establishing Cooperatives and inputs services? 2) How Cooperative and Inputs services operate? 3) What are the scope and limitation of cooperative? 4) What is the role and responsibilities of elected and appointed cooperative members? 5) How other cooperatives are performing and what are the reasons for their success? 6) Other (Specify)	1 Immedia-tely	2 Eventually	3 Not needed	4	5
B) Milk producers 1) How to induce the new members? 2) How to convince member? 3) How to resolve differences? 4) What to supervise? 5) How to build moral? 6) How to provide basic knowledge and skill to the members? 7) Other (Specify)					
C) Quantity 1) How to improve productivity of an animal? 2) How to handle excess quantity? 3) How to understand records? 4) How to forecast quantity? 5) How to manage milk procurement function? 6) Other (Specify)					
D) Quality 1) How quality standards are set?					

2) How quality of individual member to measure? 3) How to handle poor quality? 4) How to understand quality records? 5) How to improve quality? 6) How to manage quality function? 7) Other (Specify)					
E) Material and supplies 1) How to procure? 2) How to handle it? 3) How to sale it? 4) How to use office service functions? 5) Other (Specify)					
F) Equipment used in system 1) How is works? 2) How to use it? 3) How to get it repair? 4) How to replace? 5) Other (Specify) **G) Costs** 1) What standard costs are? 2) How standards costs are established? 3) How cost of individual member to reduce? 4) How to control costs? 5) What are the methods to reduce costs? 6) How to write and understand financial records and reports? 7) Other (Specify)					

In Col. 4 - look at the list of activities and decide which ten are the most important. Place “X” beside those ten subjects, which are most important for the employee to know.

In Col. 1 - please indicate those subjects, which you feel, should be treated by you in a man-to-man basis, rather than in-group classroom sessions by placing an "X" beside each of these subjects.

Annex -2

Common methods use for Training Need Analysis

Method	***Advantage***	***Limitation***	***Do's and Don'ts***
Interview	Reveals feeling, causes and possible solutions of problems as well as facts. Affords maximum opportunity for free expression of opinion, giving of suggestions.	Time consuming and reach relatively few people. Outcome may be difficult to quantify.	Protest and revise interview questions as needed. Be sure interviewer can and does listen, does not judge responses. Do not use to interpret, sell or educate.
Questionnaires	Can reach many people in short time. Gives opportunity of expression without fear or embarrassment. Yield date easily summarised and reported	Little provision free expression of unanticipated response. May be difficult to construct. Has limited effectiveness in getting at causes of problems and possible solution.	Protest and revise questions and form as needed. Offer safeguard anonymity. Use only if prepared to "report findings, both favourable and unfavourable.

Tests	Useful as diagnostic tools to identify specific areas of deficiencies. Helpful in selecting from among potential trainees those who can most profitably be trained. Results are easy to compare and report	Validated for many specific situations often not available. Tests validated elsewhere may prove in valid in new situation. Results give clues, are not conclusive. Tests ate second best evidence in relation to job performance.	Know what test measures. Be sure it is worth measuring here. Apply results only to factors for which test is good. Do not use tests to take blame for difficult or unpopular decision which management should like.
Brain Storming	Highly time saving, useful tool to measure the intensity of problem Recessive members encourage to speak their problem.	Do not show causes. Possible solutions.	Safeguard enormity. Do not allow discussion criticism and judgement.
Job analysis and Performance review	Produces specific and precise information about jobs, performance. Is directly tied to act equal jobs and to on-the-job performance.	Time consuming. Difficult for people not trained in job analysis techniques. Reveals training needs of individual but not those based on needs of organisation.	Brush up on-the-analysis techniques; arrange special training for those who are to do it. Be sure analysis is of

	Breaks job into segments manageable both for training and appraisal purposes.	Supervisors often dislike reviewing employees' inadequacies with them.	current job and performance. Review both analysis of job and appraisal of employee performance.

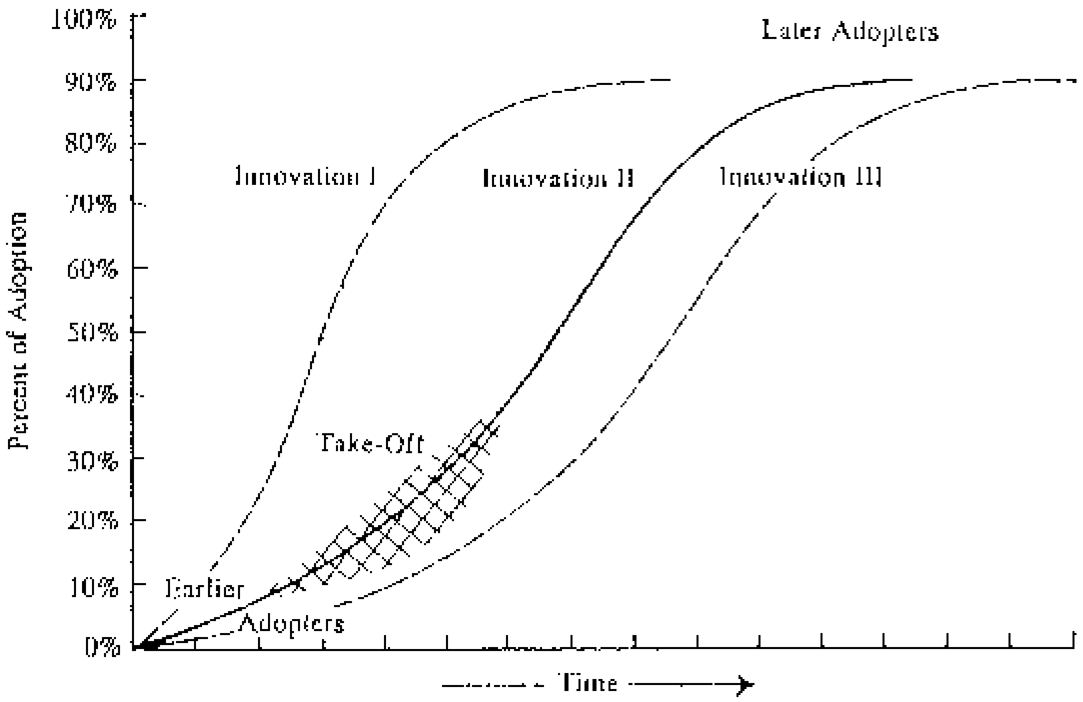
2.2. Diffusion of Innovation

The role of the P&I staff is to build capacities and to promote acceptance of new ideas and new attitudes. There are several skills that could prove very helpful to fulfill this role. These skills involve identifying the individuals who are most likely to adopt new ideas and those whose example others will follow. This will enable to accurately focus your efforts. A good number of us have worked with the very individuals who are least likely to successfully adopt a new practice. Not only is this a frustrating experience, it often precludes our working productively with those individuals who are receptive to change. Similarly, it is important to be able to identify the stage of adoption an individual has reached, and to respond with the appropriate method to promote adoption. Choosing the wrong method may simply be a waste of time – of it may actually retard the process. Hence it is necessary that the process of Diffusion of Innovation be understood.

Diffusion of Innovation:

Diffusion of innovation is the process by which an innovation is communicated through certain channels over time among the members of a social system.
The four main elements are:
(1) innovation - an idea, practices, or objects that is perceived as knew by an individual or other unit of adoption.
(2) communication channels - the means by which messages get from one individual to another.
(3) time- the three time factors are:
(a) innovation-decision process
(b) relative time with which an innovation is adopted by an individual or group.
(c) innovation's rate of adoption.
(4) social system - a set of interrelated units that are engaged in joint problem solving to accomplish a common goal.

The critical difference between communication and diffusion is that diffusion involves new ideas, new ways to do things, new things to use, and even new attitudes and values. A new idea challenges old ideas. Communication is a message conveyed between two or more individuals that employs a communication channel.
The four main elements in the diffusion of new ideas are (1) the innovation, (2) communication channels, (3) time, and (4) the social system



One of the greatest pains to human nature is the pain of a new idea. It makes you think that after all, your favorite notions may be wrong, your firmest beliefs ill founded. Naturally, therefore, common men hate a new idea, and are disposed more or less to ill-treat the original man who brings it.
-Walter Bagehot

An Innovation

An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. The characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption. Why do certain innovations spread more quickly than others? The characteristics, which determine an innovation's rate of adoption, are:

(1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability.

- Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social prestige, convenience, and satisfaction are also important factors. It does not matter so much if an innovation has a great deal of objective advantage. What does matter is whether an individual perceives the innovation as advantageous. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be.

- Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system, which is a relatively slow process.
- Complexity is the degree to which an innovation is perceived as difficult to understand and use. Some innovations are readily understood by most members of a social system; others are more complicated and will be adopted more slowly. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.
- Trialability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan will generally be adopted more quickly than innovations that are not divisible. An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, who can learn by doing.
- Observability is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea, as friends and neighbors of an adopter often request innovation-evaluation information about it.

Innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more rapidly than other innovations.

Communication Channels

The second main element in the diffusion of new ideas is the communication channel. Communication is the process by which participants create and share information with one another in order to reach a mutual understanding. A communication channel is the means by which messages are sent from one individual to another. Mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject a new idea. Most individuals evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation.

Time

The third main element in the diffusion of new ideas is time. The time dimension is involved in diffusion in three ways. First, time is involved in the innovation-decision process. The innovation-decision process is the mental process through which an individual (or other decision-making unit) passes from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. An individual seeks information at various stages in the innovation-decision process in order to decrease uncertainty about an innovation's expected consequences.

The Innovation - Decision Process

The innovation-decision process is the "process through which an individual (or other decision making unit such as a group, society, economy, or country) passes through the innovation-decision process".

There are five stages in the Innovation-Decision Process:
(1) from first knowledge of innovation,
(2) to forming an attitude toward the innovation,
(3) to a decision to adopt or reject,
(4) to implementation of the new idea,
(5) to confirmation of this decision.

It should be noted that prior conditions affect the innovation-decision process. Prior conditions such as:
(1) previous practice,
(2) felt needs/problems,
(3) innovativeness, and
(4) norms of the social systems.

The first stage of the innovation-decision process entails seeking one or more of three types of knowledge about the innovation.

1. Awareness knowledge is information that an innovation exists.
2. How-to-knowledge consists of the information necessary to use an innovation properly, and
3. Principles knowledge consists of information dealing with the functioning principles underlying how the innovation works.

The second way in which time is involved in diffusion is in the innovativeness of an individual or other unit of adoption. Innovativeness is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system.

The Social System

The fourth main element in the diffusion of new ideas is the social system. A social system is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members or units of a social system may be individuals, informal groups, organizations, and/or subsystems. The social system constitutes a boundary within which an innovation diffuses.

Needs, Values, Norms and Diffusion

The needs and values of a social system are normally reflected in the system's norms. These in turn, affect an individual member's innovation-adoption behaviour. Norms are established behaviour patterns for members of a given social system. They define a range of tolerable behaviour and serve as a guide or standard for members of a social system. A system's norms can be a barrier to change. In addition to influencing the initial adoption or rejection of an innovation, norms also influence the way in which an innovation will be integrated into the existing way of life of a community, as well as affecting the consequences of the innovation.

The Adoption Process

Diffusion process occurs within society, as a group process; whereas, the adoption process pertains to an individual. "The adoption process is the mental process through which an individual passes from first hearing about an innovation to final adoption".

There are five adopter categories, or classifications of the members of a social system on the basis on their innovativeness:

(1) Innovators
(2) Early adopters
(3) Early majority
(4) Late majority and
(5) Laggards.

- Innovators are the first 2.5 per cent of the individuals in a system to adopt an innovation. Venturesomeness is almost an obsession with innovators. This interest in new ideas leads them out of a local circle of peer networks and into more cosmopolite social relationships. Communication patterns and friendships among a clique of innovators are common, even though the geographical distance between the innovators may be considerable. Being an innovator has several prerequisites. Control of substantial financial resources is helpful to absorb the possible loss from an unprofitable innovation. The ability to understand and apply complex technical knowledge is also needed. The innovator must be able to cope with a high degree of uncertainty about an innovation at the time of adoption. While the other members of a social system may not respect an innovator, the innovator plays an important role in the diffusion process: That of launching the new idea in the system by importing the innovation from outside of the system's boundaries. Thus, the innovator plays a gate-keeping role in the flow of new ideas into a system.

  Characteristics dominant in the innovator type:
  (1) venturesome, desire for the rash, the daring, and the risky,
  (2) control of substantial financial resources to absorb possible loss from an unprofitable innovation.
  (3) the ability to understand and apply complex technical knowledge, and
  (4) the ability to cope with a high degree of uncertainty about an innovation.

- Early adopters are the next 13.5 per cent of the individuals in a system to adopt an innovation. Early adopters are a more integrated part of the local system than are innovators. Whereas innovators are cosmopolites, early adopters are localites. This adopter category, more than any other, has the greatest degree of opinion leadership in most systems. Potential adopters look to early adopters for advice and information about the innovation. This adopter category is generally sought by change agents as a local missionary for speeding the diffusion process. Because early adopters are not too far ahead of the average individual in innovativeness, they serve as a role-model for many other members of a social system. The early adopter is respected by his or her peers, and is the embodiment of successful, discrete use of new ideas. The early adopter knows that to continue to earn this esteem of colleagues and to maintain a central position in the communication networks of the system, he or she must make judicious innovation-decisions. The early adopter decreases uncertainty about a new idea by adopting it, and then conveying a subjective evaluation of the innovation to near-peers through interpersonal networks.

Characteristics of the Early Adopters:
(1) integrated part of the local social system,
(2) greatest degree of opinion leadership in most systems,
(3) serve as role model for other members or society,
(4) respected by peers, and
(5) successful.

- Early majority is the next 34 per cent of the individuals in a system to adopt an innovation. The early majority adopts new ideas just before the average member of a system. The early majority interacts frequently with their peers, but seldom hold positions of opinion leadership in a system. The early majority's unique position between the very early and the relatively late to adopt makes them an important link in the diffusion process. They provide interconnectedness in the system's interpersonal networks. The early majority are one of the two most numerous adopter categories, making up one-third of the members of a system. The early majority may deliberate for some time before completely adopting a new idea. "Be not the first by which the new is tried, nor the last to lay the old aside," fits the thinking of the early majority. They follow with deliberate willingness in adopting innovations, but seldom lead.

  Characteristics of the Early Majority:
  (1) interact frequently with peers,
  (2) seldom hold positions of opinion leadership,
  (3) one-third of the members of a system, making the early majority the largest category.
  (4) deliberate before adopting a new idea.

- Late majority is the next 34 per cent of the individuals in a system to adopt an innovation. The late majority adopts new ideas just after the average member of a system. Like the early majority, the late majority makes up one-third of the members of a system. Adoption may be the result of increasing network pressures from peers. Innovations are approached with a skeptical and cautious air, and the late majority do not adopt until most others in their system have done so. The weight of system norms must definitely favor an innovation before the late majority is convinced. The pressure of peers is necessary to motivate adoption. Their relatively scarce resources mean that most of the uncertainty about a new idea must be removed before the late majority feels that it is safe to adopt.

Characteristics of the Late Majority:
(1) one-third of the members of a system,
(2) pressure from peers,
(3) economic necessity,
(4) skeptical, and
(5) cautious.

- Laggards are the last 16 per cent of the individuals in a system to adopt an innovation. They possess almost no opinion leadership. Laggards are the most localite in their outlook of all adopter categories; many are near isolates in the social networks of their system. The point of reference for the laggard is the past. Decisions are often made in terms of what has been done previously. Laggards tend to be suspicious of innovations and change agents. Resistance to innovations on the part of laggards may be entirely rational from the laggard's viewpoint, as their resources are limited and they must be certain that a new idea will not fail before they can adopt.

  Characteristics of the Laggards:
  (1) possess no opinion leadership,
  (2) isolates,
  (3) point of reference in the past,
  (4) suspicious of innovations,
  (5) innovation-decision process is lengthy, and
  (6) resources are limited.

Critical mass, which occurs at the point at which enough individuals have adopted an innovation that the innovation's further rate of adoption becomes self-sustaining. The concept of the critical mass implies that outreach activities should be concentrated on getting the use of the innovation to the point of critical mass. These efforts should be focused on the early adopters, the 13.5 per cent of the individuals in the system to adopt an innovation after the innovators have introduced the new idea into the system. Early adopters are often opinion leaders, and serve as role-models for many other members of the social system. **Early adopters are instrumental in getting an innovation to the point of critical mass, and hence, in the successful diffusion of an innovation.**

The following chart identifies seven characteristics consistently found in `early adopters'. These characteristics should be taken into consideration when targeting the early or late adopters segment of the population.

1	Early adopters of an innovation have more formal education than late adopters.
2	Early adopters of an innovation have higher socioeconomic status than late adopters.
3	Early adopters of an innovation have more exposure to mass media channels of communication than late adopters.
4	Early adopters of an innovation have more exposure to interpersonal channels than late adopters.
5	Early adopters of an innovation have more change agent contact than late adopters.
6	Early adopters of an innovation have more social participation than late adopters.
7	Early adopters of an innovation have more cosmopolite than late adopters.

The knowledge stage of the innovation-decision process is of great value to change agents because at this vulnerable stage of the innovation-decision process, change agents are able to create an impressionable impact on their target audience. Change agents should focus their efforts on creating awareness and knowledge when promoting a new product or innovation.

Five Stages of Adoption
(1) awareness,
(2) interest,
(3) evaluation,
(4) trial, and
(5) adoption.

(1) Awareness is the generalized knowledge that an innovation exists; something impinges on the consciousness, whether it be a newspaper advertisement, a television commercial, an idea encountered in a book, a comment of a friend or acquaintance. Without having formed any attitude – positive or negative – you are aware that there is a new way of doing something, a new product, a new attitude or a new ideology. In the awareness stage "the individual is exposed to the innovation but lacks complete information about it".

(2) Interest involves moving from passive awareness to active engagement with the innovation. At this stage you will try to relate the innovation to yourself, to your own desires, needs and interests. At the interest or information stage "the individual becomes interested in the new idea and seeks additional information about it".

(3) Evaluation is a critical stage in the process. Here you take the decision to test the innovation – or, you decide not to take the risk. Risk, it should be stressed, is not just financial risk. It could be risk to your status or prestige, the risk of loosing influence; or even the risk of failure. Almost invariably this process involves observing someone else who has reached the subsequent trial or adoption stages, observing whether the innovation is proving successful for them or not. This person is generally someone with whom we can identify and because of this, we can extrapolate from his or her experience to our own probable success or failure. At the

evaluation stage the "individual mentally applies the innovation to his present and anticipated future situation, and then decides whether or not to try it".

(4) Trial is a test on a limited scale to confirm, or validate the initial judgment reached during the evaluation stage. Here the role of the change agent becomes one of technical advisor, consultant, trainer and hopefully, transferor of skills. During the trial stage "the individual makes full use of the innovation".

(5) Adoption, which is the decision to employ the innovation fully, replacing the idea or practice that preceded it. Rejection is on the other hand, is the decision to discontinue the innovation. Adoption can, in some instances, be followed after some time by rejection – hopefully when a new and better innovation supercedes the old. At the adoption stage "the individual decides to continue the full use of the innovation".

Types of innovation-decisions

- individual adoption decisions
- organizational decisions
- made by an authority
- by consensus

Discontinuance

Of course, an innovation may be rejected during any stage of the adoption process. Rejection is the decision not to adopt an innovation. Rejection is not to be confused from discontinuance. Discontinuance is a rejection that occurs after adoption of the innovation.

There are two types of discontinuance:

(1) disenchantment discontinuance - a decision to reject an idea as a result of dissatisfaction with it's performance, and

(2) replacement discontinuance - a decision to reject an idea in order to adopt a better idea.

One must learn by doing the thing, for though you think you know it, you have no certainty until you try. -Sophocles, 400 BC

Consequences of Innovations

It is important to consider the consequences or changes that occur to an individual or to a social system as a result of the adoption or rejection of an innovation. There are three consequences or changes:

(1) Desirable versus undesirable consequences

(2) Direct versus indirect consequences, and

(3) Anticipated versus unanticipated consequences.

Opinion Leaders as Multipliers

Individuals play different roles in a social system, and these roles have an effect on the diffusion of innovations. Innovators are often perceived as deviants in a social system with attendant low credibility as role models. Therefore their role in diffusion of innovation is likely to be limited. Early adopters and Early Majority often function as opinion leaders. Hence they can play a key role in diffusion of innovation.

2.3. Criterion referenced instruction:

Introduction:

CRI is short for Criterion Referenced Instruction- an approach to the analysis, design, development, implementation, and control of performance improvement initiatives. It has impact especially where a skill deficiency is one of the aspects restraining people from achieving or where new levels of achievement is desirable.

CRI is often referred to as: PERFORMANCE-BASED, COMPETENCE-BASED, OBJECTIVES-BASED, MODULAR and probably the one encompassing all the others, the OUTCOMES-BASED (OB) approaches to Performance Improvement and Education, Training and Development of people.

Introduced by Robert Mager and Peter Pipe in the 1960's and 1970's, then with a drive towards redesigning training for impact and learner centeredness, the emphasis has since shifted from training and education to a broader inclusive HUMAN PERFORMANCE IMPROVEMENT approach.

Task analysis

Several steps are involved in systematic approach to training. The three major parts of the process are:

1. Determine and describe what we want to achieve;
2. Do what is necessary to achieve that result.
3. Evaluate the result and determine whether we have succeeded, or need to improve our future efforts.

Whatever might be the subject matter, the goal of training should be to develop trainees to the point where they are:

1) Capable of performing satisfactory in the job described;
2) Capable of improving their skill through further practice.

Task Analysis is directly related to the first goal. To prepare someone to perform a job we must first know:

- *what the job consists of;*
- *what one needs to do to perform the job; and*
- *how often and under what conditions those activities need to be performed.*

Once the basic information is mastered the trainer can design an approach that is **performance oriented**. The strategy is to use the job as the basis for deciding: what will be taught, and in what order and depth—not to simply present as much subject matter as possible in a given time. Once the trainees' job is examined and analyzed, the trainer will be able to identify the knowledge, skills and attitudes that is essential if s/he is to perform satisfactorily and to continue to develop his or her skills. This is the basis of **Performance oriented instruction.**

I. Job Description: The first step in developing a task analysis is a "job description". A job description is a general statement about what a person on the job does and NOT a description of what s/he knows. The following criteria are used to evaluate a job description:

1) It should tell **what a person does.**
2) It describes **special or unusual conditions under** which s/he does the job.
3) It includes **all areas of performance.**
4) It is **short.**

II. Task Analysis: Any job invariably includes a number of tasks. A task is a set of logically–related actions required to complete an observable job outcome. It is a complete job element. The first step in a Task Analysis is to derive a list of all possible tasks. The steps involved in conducting a task analysis are:

1) **Preparing an outline** (job description)
2) **Identifying a source or sources**: Essentially there are three types of sources;
    a) Someone actually doing the job
    b) Someone who knows about the job
    c) You

The best source is someone actually doing the job. The second best source is someone who knows about the job.

3) **Conducting an interview or interviews**

Once the tasks have been listed, each task should be ranked in terms of *importance, frequency and difficulty of learning*

4) **Organising the data**: The tasks must be grouped in terms of
    a. Major functions of the job (e.g. technical, sales and business)
    b. Cognitive (deals with intellectual activities), affective (deals with attitudes and values) and psychomotor (which deals with physical activities)

5) **Validating the data**: A comprehensive list of tasks is presented in logically coherent categories. Once this list is compiled and ranked in terms of importance, frequency and difficulty discuss the same with the sources (consider their suggestions).

Once the task analysis is complete, for each task the following should be prepared:

- Develop an appropriate Behavioural Objective
- Design a Teaching Learning Activity.
- Prepare a Post Evaluation

<u>What is C.R.I?</u>

CRI is an educational methodology based on teaching – learning psychology. This methodology is used for training, which requires every trainer to prepare and use a lesson plan (which includes Pre-evaluation, Teaching – learning principles and Post evaluation) for taking session in training programmes. It also ensures that all trainees will achieve the Behavioural Objective by the end of the session.

The Components of CRI:

- Behavioural Objectives
- Pre- evaluation
- Teaching –Learning principles:
    - Perceived Purpose
    - Individual Differentiation
    - Graduated sequence
    - Appropriate Practice
    - Knowledge of Results
- Post Evaluation

Behavioural Objectives (B.O):

B.O is a way of describing the objectives of training course in terms of what the trainees will be able to do at the end of that training. A statement of training goal is a **Behavioural Objective** if it meets the following conditions:

- It must state what behaviour is desired as the outcome of the training. B.O describes **what the trainee should be able to do at the end of the training** that they were not able to do before the training began**.**
- It must state the desired outcome of the training in terms of observable and measurable actions**.** B.O contains **an action verb describing observable, measurable** behaviour.
- **The TRAINEE must be the subject** of the sentence. That is, Behavioural Objectives are written in terms of the trainees' actions. The objectives should not specify what the instructor must do, but only what the trainees will be able to do at the end of the training.

Some examples of the ways in which BEHAVIOURAL OBJECTIVES are usually written:

- *The Trainee will be able to <u>describe</u> the process of preparing urea treated straw.*
- *When presented with a week's transactions, the trainees will be able to use these to forecast and <u>prepare</u> the following week's cattle feed indent demand.*
- *After going through this paper, the trainees will be able to <u>answer</u> basic questions about Cooperative Principles. S/he will demonstrate this by <u>selecting</u> the correct*

response from among several incorrect responses to general questions about cooperation.

In each of the objectives, the underlined verb indicates an observable, measurable action.

There are two lists of verbs below. One list contains verbs that are observable, measurable actions, which are appropriate for use in BEHAVIOURAL OBJECTIVES. The other list describes actions that we cannot see or measure and are therefore unsuitable for use in behavioural objectives.

Action Verbs		Vague Verbs
DO	DESCRIBE	KNOW
TELL	SHOW	UNDERSTAND
WRITE	ANSWER	APPRECIATE
DEFINE	CHOOSE	HAVE
LIST	ORGANISE	COMPREHEND
WALK	CONDUCT	BE AWARE
RUN	DRAW	FEEL
EXPLAIN	PRESENT	BELIEVE

Behavioural Objectives can help the trainer in the following ways:

1. Facilitate instructional design and development by providing **clear goals** to work toward.
2. Facilitate **curriculum development** –sequencing, eliminating gaps and overlaps.
3. Promote more **efficient communication** between trainers, administrators, researchers and trainees.
4. Make it evident what training participants actually learn, thereby permitting **selection of the most important training goals.**
5. Permit instruction to be **evaluated and thereby improved.**
6. **Promote individualized instruction by making possible** *Criterion –Referenced Evaluation* – each trainee can be required to master all objectives.
7. Permit training participants to be **more efficient learners** because it is clear what is expected of them.
8. **Eliminate the time wasted** when trainees can already achieve some of the objectives before start of the course.
9. Impose a philosophy of **trainer responsibility** for assisting training participants to master objectives.
10. Promote the idea of behaviourally analyzing all components of instruction – entry performance, intermediate performance and terminal performance.
11. **Facilitate research** in training, thereby advancing instructional technology.
12. Promote a new role for trainers as **instructional designers, managers and resource specialists** as opposed to information dispensers.

- **Pre-Evaluation (Pre. E.)**

What is meant by Pre- evaluation?

A Pre – evaluation is an evaluation before the instruction begins to determine what the trainees already know about the subject matter as well as to elicit other information about their interests and aptitudes that will help in designing learning activities.

<u>Why conduct a Pre-evaluation?</u>

Only by using a Pre-Evaluation can the instructor relate the training to achievement of the behavioural objectives for the course.

- Instructor can make certain **that only trainees who CANNOT already perform the activity receive** training, thereby reducing boredom and other discipline problems.
- The Instructor can ensure that **all the trainees have the necessary pre-requisite knowledge and skills** to benefit from the course, thus reducing the chances of frustration on the part of the trainees and the trainers.
- The Instructor can find out the types of details about **each trainee that will permit the design of training that meets individual needs** and that is tailored to specific interests.

What should a Pre-Evaluation Do?

A good Pre-evaluation should accomplish three things:

A. It should determine **whether or not the trainees can already perform the actions described** in the Behavioural Objectives. Pre-testing saves the Instructor's work, as well as benefits the trainees. The trainer does not have to waste time teaching something the trainees can already do. The trainees needn't waste their time repeating lessons already learnt. Sometimes, the trainee is forced to sit through the course that he has no need for –only because the Instructor did not take time to determine what the trainee could already do. *If most of the trainees in a course are found to already be capable of achieving the objective, then the objective should be changed.*

B. It should determine **whether the trainee has the necessary prerequisite skills** needed to learn the new course /skill. Rarely do all trainees come to a training programme with the same backgrounds and the same abilities. Nor do all the trainees come to the training programme with the necessary skills to participate in the learning activities planned for the course. If upon conducting the pre-evaluation, an Instructor, finds that some or all the trainees do not have the necessary pre-requisite skills for the class, there are at least three available:

1. The Instructor can attempt to first train the participants in the deficient skills, and then go on to train the skill that is the course objective.
2. The Instructor can eliminate the objective (s) that require the pre-requisite skill.

3. The instructor can exclude those who lack the pre- requite skill from the course.

The last alternative is normally not possible nor it is desirable. The second alternative may be the best solution if a large number of the trainees lack the pre-requisite skill.

C. It should provide enough **background information about each trainee, in terms of interests, skills and experience,** to enable the trainer to tailor learning activities to suit each trainee. It also enables the **trainee to master the new skill.**

E.g: BO*: The participants will be able to tell the advantages of deworming of calves.*

Pre-evaluation*: a) How do you take care of your calf?*
b) Does it fall sick? How often? Why?
c) What are the symptoms?
d) How do treat it?
e) How often you deworm the calf, the doses and what precaution do you take?

The five teaching learning principles

Perceived purpose: The trainee must see why s/he should study something.

What does Perceived Purpose mean?

To "perceive" means to see or understand and "purpose" means the reason for doing something, the usefulness of something, or why something should be done. Thus PERCEIVED PURPOSE means that the trainee must understand and accept the reason for studying a particular subject, or meeting a specific objective. The trainee MUST SEE A REASON WHY it is useful or important to achieve the objective. For example, if we want the Extension worker to prepare effective posters, they must know why this skill is important.

Why is Perceived Purpose needed?

The trainee must understand the importance of learning the new subject. It is the trainer's responsibility to see that the trainee is motivated to learn. Too often trainers leave this entirely upto the trainee. They either assume that the trainers will want to learn, or assume that those trainees who do not want to learn are simply lazy. Both assumptions may be incorrect. The instructor must find ways to help the trainees understand why mastery of the objective will be useful to them. The trainees should be told how and why it would be useful.

How should Perceived Purpose be developed?

A. The instructor must try to create a positive attitude towards the subject to b studied.
B. The Perceived Purpose must be relevant to the specific Behavioural Objective being taught.

C. The Perceived purpose must be relevant to the particular trainees whom you are teaching; it should be important to them personally in some way or the other. People understand things that relate to their lives. The instructor must take the trainees background and interests under consideration.
D. Perceive Purpose should be developed sometime near the beginning of instruction. It is usually a good idea to develop and sustain PERCEIVED PURPOSE through out the period of instruction.
E. Perceived Purpose must support the self–esteem of the trainee. It should not belittle or frighten the trainees or make them feel bad.

Few possible ways of developing Perceived Purpose:

- The instructor can relate the objective to the trainees' own lives by pointing out how the achievement will help them; in other words, how it will make their lives more rewarding.
- The Instructor can point out the importance of the objective to the trainees' jobs, how it will make them more effective or efficient.
- The instructor can provide examples of ways in which use of the objective has helped others in jobs similar to those held by the trainees.
- The Instructor can outline the negative consequences if the objective is not mastered.

*E.g: **Behavioural Objective**: The trainee will be able to use the correct methods of preparing monthly and annual procurement forecasts.*

***Learning Activity**: The instructor begins by telling the class of his experience as a Spearhead Team Leader. The gives examples of how the process of preparing forecasts enabled him to identify problems and opportunities that, in turn, helped him to strengthen both the dairy cooperatives and the District union. Because the Union was a success, his own career has been bright. He points out that if the trainees master this skill, they, too, will have taken a major step toward success as Procurement officer.*

- **Individual differentiation:** Each trainee should be given the opportunity to learn in the way best suited to her or him.

What is Individual Differentiation?
It is the principle of learning psychology that recognizes that each of us is an individual, and as individuals we learn different things in different ways and at different speeds. While using his principle of Individual Differentiation, the trainer structures the learning activities in such a way that each trainee is given the conditions and opportunities for learning that are best suited to that individual's own personality and needs.

Why use Individual Differentiation?
By using the principle of Individual Differentiation, instructors actually make their jobs easier. By providing rewarding learning experiences to all the trainees, the instructor

avoids both discipline problems and uninterested trainees who discourage others from learning the material. Using this principle of INDIVIDUAL DIFFERENTIATION ensures that attention is directed to each trainee's learning problems.

<u>How should Individual Differentiation be used?</u>

A. ID provides different learning experiences for different trainees, **based on actual differences among the trainees,** not merely on a random basis. In order to assign learning activities to particular trainees according to their individual needs, the instructor must know something about the trainees. This information should be obtained through the PRE - EVALUATION.
B. ID should provide the trainee the opportunity to develop to his or her best advantage. It should not have a negative effect on any trainee. The purpose of training is to help the trainee develop. The purpose of Individual Differentiation is to find the best way of helping each trainee develop in a positive way. Differentiation in a negative way directed towards any particular trainee or group of trainees is called "discrimination" and should be avoided.

Remember that **each trainee is an individual and the purpose of training is to bring out the best in every individual**.
A list of few ways in which trainees may be differentiated: by interests, by language, previous experience or education, gender, age, job designation, speed of learning, language ability, special talents, their own preference etc.

Some ways of applying the principle of Individual Differentiation are:

1. The Instructor may divide the class into groups according to one or more of the categories listed above.
2. The faster trainees (or those with previous experience) may be asked to help the slower or less experienced ones.
3. The trainees who get the correct answer first during practice may be asked to read out the correct answer to the rest of the class, or t give a demonstration.
4. The Instructor may give extra practice on particular points to different trainees depending on the area where each trainee is weak.
5. The Instructor may provide extra attention and instruction to trainees who are having difficulty.
6. The Instructor may give extra practice for the slower trainees, more advanced or challenging material for those who are doing well.
7. The trainees may be divided into different groups based on the results of pre-evaluations and the objectives for each group set based on that group's entry-level skills.

e.g. ***Behavioural Objective****: the trainees will be able to prepare posters, signs, displays and other visual materials in support of education programme for members.*

Learning Activity: *During the pre-evaluation the trainees are asked if they have had experience working with visual aids. Those who have are asked to prepare samples of their work. On the basis of these samples, the trainees are divided into groups and each group is assigned to prepare a type of visual aid that the group members have not done previously.*

- **Graduated sequence (G.S):** The trainee must proceed step by step, and each step must be in some way more difficult than the previous step.

What is meant by Graduated Sequence?

Graduated Sequence basically means starting with what is easiest for the trainee and gradually progressing to what is more difficult until the objective is achieved.

Why use Graduated Sequence?

Graduated Sequence is one of the best-known principles of education psychology. Most trainers apply it – more or less naturally- in one-way or another. There are many reasons why trainees learn better when they proceed from the easy to the difficult.

1. Some difficult skills simply cannot be mastered until pre-requisite skills have been learnt.
2. It is more motivating for trainees to start with some thing that is familiar, or that they can master easily.
3. If they learn how to do one step, they will be eager to move on to the next.

Graduated Sequence makes the Instructor's job easier too, because as trainees move gradually and naturally from a step that they can perform, to the next step, they become more and more involved with the instruction and tend to proceed to the more difficult steps with fewer problems.

How should Graduated Sequence be used?

Graduated Sequence can refer to any of the following progressions:

Simple to complex
Easy to difficult
Known to unknown
Familiar to unfamiliar
Individual parts to the complete whole
Individual units to a combination
Practicing with help to doing it alone
Theory to practice

The step-by-step progression can be accomplished in number of ways:

1. The instructor can divide the objective into smaller parts and first teach each part separately, then put them together as the combined objective.
2. The instructor can start with those parts of the objective that are already known to the trainees, or those with which the trainees are partially familiar.
3. The instructor can start with more simple problems or questions and gradually to more difficult ones.
4. The Instructor may start with a demonstration and then have the trainee try the action with the instructor's guidance.
5. The trainee may first simply memorize the theory and then attempt to apply the theory in practice.
6. The trainee may first attempt the action in a model or role- play situation and then try it in a real life situation.

Behavioural Objective*: When presented with common beliefs about the health and nutrition of dairy cattle, the trainee will state whether the belief is based on fact or whether it is a misconception.*

Learning Activity*: The instructor gives the trainees an article he has prepared entitled "Cattle Health and Nutrition: Fact and Misconception." In the handout there is an extensive scientific discussion of the nutritive and health aspects of dairy husbandry as well as presentation of common misconceptions. After the trainees have read the article, they are divided into groups. Each group is given three statements about the health and nutrition of dairy cattle and is asked to decide whether it is factual, or a misconception. After the group has worked together for some time, the instructor passes out a second set of statements which the trainees are asked to do individually.*

- **Appropriate Practice (A.P):** All the trainees must practice doing the action described in the Behavioural Objective.

What is meant by Appropriate Practice?

Appropriate Practice means practice doing exactly the same action that is described in the Behavioural Objective. For e.g, if you want the trainee to be able to prepare a poster, you must allow a minimum of one opportunity to prepare posters and after that, a conduct at least one more exercise in poster preparation as an evaluation.

Why is Appropriate Practice needed?

Educational psychologists have demonstrated that "practice makes perfect": people learn best when they are given an opportunity to practice or apply their new skills and knowledge. This is especially important for job training, since specific skills are required on the job, that too practical training and not theoretical discussions. Instructors who use

CRITERION REFERENCED INSTRUCTION realize that without sufficient practice, many objectives simply cannot be achieved. By using the principle of APPROPRIATE PRACTICE, the Instructor is certain that what is being taught is relevant to the Behavioural Objective and further that it is much more likely that the trainees will achieve that objective.

Main Points about Appropriate Practice

A. The trainees are allowed to do the **specific action called for in the Behavioural Objective** under exactly the same conditions described in the objective.
B. **All** of the trainees **have a chance to practice.**
C. The practice comes **before the final evaluation** of the objective
D. If more than one desired action is described in the objective the trainees must have practice in **doing all of the actions**. It cannot be assumed that because the trainees can do one action that they can do a different action as well.

e.g.: ***Behavioural Objective****: When provided with descriptions of farmers, the trainee will be able to categorize them by adopter category and explain which category is best to work with when promoting a new idea.*

Learning Activity: *The instructor first reviews each type of farmer, stating which category is best to work with. Then she has each trainee practice categorizing the farmer by adopter category and explaining which category it is best to work with when promoting new idea. She observes as each trainee practices and indicates any mistake they make. Once all the trainees are practicing correctly, the Instructor give a Post–Evaluation.*

- **Knowledge of Results (K.R):** As trainees practice, they must know whether they are performing correctly or not.

What is meant by Knowledge of Results?

Each time trainees practice the desired action (i.e; each time there is APPROPRIATE PRACTICE) they should be told in some way whether they are practicing correctly or not. If they are doing it right, they should be told in some way whether they are practicing correctly or not. If they are doing it right, they should be told that they are doing it correctly; if they are doing it wrong, they should be told that they are doing it incorrectly. If only part of what they are doing is wrong, they should be told which part is wrong, why it is wrong and how to make it right.

Knowledge of Results is for the trainee and not for the Trainer.

Why should Knowledge of Results be given?

It is necessary for trainees to improve from one practice to the next. If they are not told that they are performing incorrectly, they may continue doing the same thing and thus simply practice the wrong action over and over again. It is true that we learn from our mistakes—but only if we know that they are mistakes. Trainees must be told if they are performing correctly. Other wise, they may think they are doing the activity incorrectly and change a right performance to a wrong one. **The purpose of knowledge of Results is to guide the trainee towards accomplishment of a specific objective.**

How should Knowledge of Results be given?

A. For every activity that trainees perform, they should be told how well they are doing.
B. Each and every trainee must receive Knowledge of Results – not just some of them.
C. Trainees should be given Knowledge of Results as soon as possible after performing the activity – preferably after doing the activity.

These are basic kinds of Knowledge of results:

1. Say "Right" or "Wrong"
2. Say "Right" or "Wrong" and add an explanation
3. Give the right answer.
4. Give the right answer and an explanation

E.g: *Behavioural Objective: The trainee will be able to present the reasons why urea treated straw is the nutritional equivalent of a more conventional cattle ration.*

Learning Activity: While each trainee makes a presentation, the instructor takes down careful notes. After the presentation is over, she discusses the good and bad points with the trainee who made the presentation, and with those who observed the presentation. Then she makes suggestion on how the presentation might be improved.

Post Evaluation (P.E):

A. Post evaluation requires the trainees to perform the exact same behaviour as described in the Behavioural Objective.

At the end of the training programme, the trainer needs to have the **trainees perform the same action(s) as described** in the objective. If the trainees perform the action correctly, then the training has been successful; if they fail, then the training needs improvement.

B. The trainees must be allowed to **practice the behaviour described** in the Behavioural Objective before the Post – Evaluation of that behaviour.

C. Each trainee must perform the action described in the objective at least twice: no less than once for appropriate practice and once for Post Evaluation**.** Thus a single practice cannot be used as Post Evaluation.

e.g: *Behavioural Objective: When given a series of cards, each with the name of a task involved in the daily operation of Dairy Cooperative Society, the trainee will be able to arrange the cards in proper chronological order.*

Testing Procedure: For practice, the trainees are given three sets of cards and have to place them in the proper order. For the Post–Evaluation they are given a fourth set of cards to put in order.

A LESSON PLAN:

The first important step in preparing, presenting and evaluating training is a good plan. We call this a **Lesson Plan.** A good Lesson Plan includes:

1. A clearly stated Behavioural Objective
2. A list of the Materials needed
3. A Step-by-Step description of:

    a) What the trainer does
    b) What the trainee does
    c) The teaching learning Principles involved
    d) The time required.

Objective: The participants will be able to write/describe/state the Behavioural Objectives for a training programme which they have to do after they return home.
Materials required ____

Sr. No	Trainer's Activity	Trainees' Activity	Teaching-learning principles	Time
1.	State objective	Listen	BO	
2.	**Ask who can define a Behavioural Objective, how they are used and why they are used.**	Respond	Pre-Evaluation	
3.	**If none have done so, define Behavioural Objective** a) Describes what happens at the end of training b) Statement is observable and measurable. c) Describes what trainee and not	Listen	G.S1	

	trainer will do.			
4. .	**Ask how using Behavioural Objectives can contribute to good training**. • Clear goals to work toward • help promote clear communication between trainers and trainees. • Helps trainer know what trainees have actually learned. • permits evaluation and improvement of training • makes trainees more efficient because they know what is expected of them. • reduces time wasted on unimportant activities. • imposes responsibility on trainer.	Respond List reasons Discuss		
	List three rules for B.O.s Describe what trainee should be able to DO at the end of training. Contains an action verb describing observable, measurable behaviour Trainee is the subject of the sentence.	Listen Listen Ask questions	GS-2	
6	Provide example of a non –BO Ask group if it is, or is not BO.	Reply	GS-3	
7	If one individual is quite clear on why it is not, ask him to explain to group; otherwise explain reasons.	Explain Listen	ID	
8.	Provide example of a BO. Ask group if it is, is not a Behavioural Objective	Reply	GS-4	
9.	If one individual is quite clear on why it is, ask him to explain to group; otherwise explain reasons.	Explain Listen	ID GS-5	
10	Explain exercises and how they can help to develop skill -- By practicing recognizing use/non-use of objectives, skill is developed which can later be applied to own	Listen	GS-6	

	objectives.			
11	Ask group to read introductory materials and then ask any questions they may have before beginning exercises.	Read, Ask questions	GS-7	
12	Distribute exercises and request group to complete first and then raise hand.	Do exercises	GS-8 AP	
13	As individuals complete exercises check the results. If answer is correct, state it is correct. If answer is wrong, explain why it is wrong.	Listen to comments	KR	
14	If an individual does first two exercises 100% correct, ask him to rewrite non-BOs as BO.	Rewrite	ID	
15	If any individual experiences difficulty, ask him to work with trainee who is doing well.	Work with other trainee	ID	
16	Ask each trainee to practice.	Do practice	AP	
17	For those who score 100% while doing the practice ask to do Post-Evaluation.	Do Post Evaluation	Post -E	
18	For those who score =<80%, ask them to do more practices before doing Post-Evaluation	Do additional practice	ID AP	
19	Have remaining trainees complete Post-Evaluation	Do post evaluation	Post -E	
20	Tell Group the Scores Summarize any problems seen. Repeat reasons why using BOs is important for a good training	Listen Discuss	PP	

THE DOMAINS OF LEARNING

All objectives are not the same, some are quite simple, and others call for very complex skills. Some objectives can be described s requiring intellectual activity; others may call primary for physical skills; and still others may relate to attitude and values.

There are three major **"domains"** of activity that have been identified. These are:

- The **Cognitive** domain; which deals with intellectual activities. Objectives are concerned with intellectual skills like remembering, calculating, creating, solving and evaluating.
  e.g : The trainee will be able to translate a paragraph from pamphlet from English to Hindi.

- The **Psychomotor** domain; which deals with physical activities Objectives deal with physical skills that involve skeletal, muscular and voluntary nervous system.

  e.g: Given a straw , square, pencil and a ten foot plank 3'x2', the trainee will cut the plank into five sections of two feet each.

- The **Affective** domain; which deals with attitudes and values. Objectives those deal with behaviours and attitudes like valuing and believing.

  e.g: Given an opportunity to transfer a skill to a student, the trainee will choose to follow CRI training methodology.

3. Presentation skills

1. Introduction:

Presentation creates the first impression and this can be lasting also. The success largely depends on how we present ourselves and what are our first utterances. In today's competitive world wherein there is an added emphasis on customer satisfaction, effective presentations go a long way in communicating what you want to communicate. The idea of presentations has expanded to include a wide variety of interpersonal, group and public communication situations for accomplishing an equally wide variety of personal, social and professional goals. The purpose of the presentation is to motivate and reach across to your audience on what you intend to cover.

The suggestion of an idea as a solution to any given problem is known as presentation.

2. Purpose of Presentation:

Any presentation is made to achieve success in communicating to your target audience, some of the reason for giving presentations is as follows:

- **To gather, disseminate and exchange information:** Presentation can be used for gathering and exchanging information. Presentation to the Board, to Government officials, sales meeting, budget meetings as well as training and development programmes are all example of events at which presentation are made with the aim of acquiring or exchanging information, talking about values, creating an ambience for a work culture, etc. The audience should carry a message home. From the organizational perspective, these communication situations are essential to the operation of the organization. In most cases, Information can be given more quickly and efficiently during meetings than in any other way.

- **To exercise influence over the organizational process:** Presentation can be used to influence organizational processes. During departmental meetings, for example, an employee may provide a clear rationale for changing the work culture in the organization. Because of the presentation, a decision may be made to adopt the plan, thus crating an opportunity for an organizational change.

- **To create, change or modify individual and work-group identities:** From the employee's perspective, a formal presentation presents an opportunity to convince other team members on some critical issues. Several organizations have a presentational culture with the objective of building synergy among teams and also a presentation is a good way of carrying your superiors along. Opportunities to make presentations can also create interpersonal impressions, and therefore, contribute towards assessment of communicative skills. For example a good speech is something that people generally remember even long after the presentation.

3. Different Types of Presentations:

Presentations come in nearly as many forms as there are life situations. In the business world, there are sales presentations, informational and motivational presentations, briefings, status reports, image building and the training sessions.

Though we most often think of presentations in a business meeting context, there are countless occasions when that is not the case. For example, a school district superintendent presents a programme to parents about the introduction of foreign-language instruction in the elementary schools; a horticulturist shows garden club members or homeowners how they might use native plants in the suburban landscape. Presentations can also be categorized as vocational and avocational. In addition, they are expository or persuasive. But when looking at presentations in the broadest terms, it is more important to focus on their purpose.

The three basic purposes for giving oral presentations in the Business and Administrative Communication is

- To inform
- To persuade
- To build goodwill

- **Informative Presentations:**

Informative presentations can be divide into two distinct categories - reporting and explaining.
The **reporting presentation** brings the audience up to date on projects or events, telling how things are going. These situations might include shareholders meetings, executive briefings, or oral sales reports.

The **explanatory presentation** provides information about products and procedures, rules and regulations, operations, and other data.

Informational presentations include talks, seminars, proposals, workshops, conferences, and meetings. The presenter shares their expertise, and exchanges the information. In a business, it might be a supervisor explaining new forms, products, regulations, or filing procedures to employees. During the sales process, the sales person may provide information on the product or service to a prospective customer. In a retail situation, newly hired sales clerks may attend a presentation on selling techniques or loss prevention and in an educational setting, an informative presentation may report on changes in the reading curriculum.

Persuasive Presentations:

In a Persuasive presentation, a presenter attempts to convince the audience to buy product or service, to support goals or concepts, or to change their minds or attitudes. Persuasive presentations, which are sometimes called transactional, are often motivational. For example, during a sermon a priest might attempt to persuade the gathering to accept the teachings of the church in order to reduce ethnic tensions.

In a business context, a supervisor may make a presentation on teamwork in order to motivate employees to support new cooperative efforts within the company structure. It may be a situation in which the board is asking the shareholders to support changes in the way dividends are distributed. It could be that the distribution arm of an organization is making suggestions about packaging changes that would reduce shipping costs

Goodwill Presentations:

Schools, soccer teams, and country clubs have awards ceremony to recognize the top competitors. Companies honor retirees with a dinner. At special ceremonies, outgoing presidents of civic and charitable organizations are given plaques for their years of service. Departments, units, or teams within a business organization are often rewarded for their success at meetings at which their work is showcased. Each of these events usually includes some kind of presentation, most often in the form of a speech and sometimes with a slide show, video, or multimedia event.

Goodwill presentations, which often take the form of after-dinner speeches, are often designed to be entertaining. Sometimes these presentations are ceremonial. For example, when inducting a new officer, dedicating a memorial plaque.
The purpose of goodwill presentations is pretty obvious. That purpose is to build goodwill, to make people feel good about themselves, and to build respect for the organization and/or the product, as well as for peers, colleagues, and superiors.

Multipurpose Presentations:

Presentations, however, usually have more than one purpose. A presentation to employees may be announced as an informative session on new regulations, but in fact may also be an all out effort to persuade workers to buy into the new rules

Sales:

Probably the single largest category of presentations is the sales scenario. Though throughout life we are "selling" ourselves to teachers, prospective mates, neighbors, or colleagues. In the business world, we are most often selling our products, services, or ideas.

Sales presentations can start out simply as first encounters those one-on-one get-to-know-each-other meetings. If things go according to plan, first encounter might progress to a full-blown sales presentation with the top brass, the entire sales team, and a multimedia show.

Though sales techniques are complex. Two essentials for success in a sales presentation are to know and understand the audience, and building rapport.

Training:

Training is also one of the most important types of presentation in which presenters teach participants a variety of skills. Topics might include:

- Sales techniques
- How to deal with diversity in the workplace
- Time management and stress reduction
- Team building
- Negotiation or leadership
- Meetings management
- How to give presentations

Some companies have entire divisions devoted to training with course catalogs.
In and out of the business world, people more and more are looking for ways to balance their lives and they find that attending various training sessions is one of the routes they can travel to reach their personal goals.
In many business situations, training is a captive situation in which the audience has no choice but to participate. In order to reach the audience, the presenter must make a connection and build rapport, just as in a sales situation.

Entertainment:
This type of presentation is often designed to serve more than one purpose. It may be

planned to inform, build a positive image and create goodwill. Clubs, service organizations, adult education programmes, and social organizations as part of their weekly or monthly meetings often schedule entertaining presentations. They are also frequently included in the activity schedules for retirement communities.

- **Political Arena:**

Presentations in the political arena are primarily grouped in the persuasive category. But to be effective, they must include lots of information and also build goodwill.
Bill Clinton is famous for his comfy, personalized presentations featuring real people with real-life stories to tell. He generates lots of goodwill, is very persuasive.
In our media-crazed society where every move is televised for the entire world to see, political presentations take on gigantic proportions. Most politicians running in major market races, call on professional political consultants to manage their public (and private, in many cases) appearances so that they present the right image for each audience, deliver the right message in the right context. And format, and develop the right rapport with each audience segment.

- **Motivation Presentations:**

Political candidates may give motivational presentations to their volunteer staffers to keep their level of commitment high. A head of a cooperative society may make a presentation to the cooperative workers and farmers in order to motivate them to think of themselves as cooperative workers first and union members second.

Motivation is another form of persuasion, but one that somehow takes on a more enthusiastic, highly charged tone. Motivational presenters use high-energy presenting tactics in order to capture the audience's attention for the entire message.

- **Interviews:**

When a company spokesperson, political candidate, writer, artist, inventor, or other expert appears on a radio or television talk show or is interviewed for a magazine or newspaper article, that person is making a presentation.
A job interview is yet another presentation form, one where the presenter should make an effort to identify her immediate audience (the interviewer), but also take great pains to know as much as possible about the larger audience (the company).

4. Effective Presentation Techniques:

A good presentation has a clearly defined structure and, if followed can allow anyone to present in a relaxed, clear and interesting way. Excellent presentations will always follow this structure**:**

The Meaty Sandwich:

The simplest and most direct format remains the meaty sandwich. This is the simple beginning-middle-end format in which the main meat of the exposition is contained in the middle and is proceeded by an introduction and followed by a summary and conclusion. This is really the appropriate format for all small sub-sections in all the previous structures. If the talk is short enough, or the topic simple enough, it can indeed form the entirety of the presentation.

Meaty Sandwich Format:

1. **Beginning**
    - Getting attention
    - Building rapport
    - Statement of theme
    - Audience needs
2. **Middle**
    - Points to be made
    - How will they benefit the audience?
    - Support material, examples, third party references, visual aids
    - Possible audience objections

3. End

- Reiterate the theme
- Summary of points
- Closing words and commitment

The Beginning:

It is imperative to plan your beginning carefully; there are five main elements:

Know your **P-A-L** (**Purpose**, **Audience** and **Logistics**):

Purpose: The purpose of presentation must be clear in mind of the presenter whether to talk to boss about getting a raise or updating an entire department on a project.

Audience: Who is your audience? What age group are they in, where do they live, what attitude do they have?

Logistics: These are the things that have to be organized. You should know how much time you have to speak, what time of day it will be and how the room will be set up.

Get their attention:

Too often in a speech, the first few minutes of the presentation are lost while people adjust their coats, drift in with coffee and finish the conversation they were having with the person next to them. You only have a limited time and every minute is precious to you so, from the beginning, make sure they pay attention.

Pay attention to **Timing Plan**, prepare and practice for 75 per cent of the allotted time you are given to speak. If you end early, no one complains, but ending late is poor planning. If you expect audience involvement, plan on speaking for 50 per cent of the time and using 25 per cent for the audience participation.

Establish a theme:

Basically, you need to start the audience thinking about the subject matter of your presentation. A statement of your main objective can do this, unless for some reason you wish to keep it hidden. They will each has some experience or opinions on this and at the beginning you must make them bring that experience into their own minds.

Present a structure

If you explain briefly at the beginning of a talk how it is to proceed, then the audience will know what to expect. This can help to establish the theme and also provide something concrete to hold their attention. Ultimately, it provides a sense of security in the promise that this speech too will end.

Create User Friendly Notes:

Use bulleted points instead of sentences. Make the type easy to read (use a felt tip pen or at least 18 point type, bold face, if printed), only use the top 2/3 of the page to avoid looking down, and use highlight pens to indicate the must, should and could know information. Practice Out Loud and say it Differently Each Time.

Hierarchical Decomposition:

In hierarchical decomposition the main topic is broken down into sub-topics and each sub-topic into smaller topics until eventually everything is broken down into very small basic units. In written communication this is a very powerful technique because it allows the reader to re-order the presentation at will, and to return to omitted topics at a later date. In verbal communication the audience is restricted to the order of the presenter and the hierarchy should be kept simple reinforced. As with sequential argument it is useful to summarize each section at its conclusion and to introduce each major new section with a statement of how it lies in the hierarchical order.

Hit Emotional Buttons:

It includes stories, analogies and metaphors to reinforce the key points of your presentation. That creates more impact and action than pure data.

Channel Your Adrenaline into **Enthusiasm Stage:**

Fright is a negative term for excitement. No coach tells the team to be calm. Instead, control the physical symptoms of stage fear by breathing from your diaphragm and using positive visualization. Being prepared will also boost our confidence.

Deliver with Passion:

It is amazing how catchy enthusiasm is. If your voice is expressive and your gestures animated, you will appear to be confident and passionate.

Appearance Counts:

Appearances count in today's world as much or even more than in earlier decades. Rigid "success dressing" rules have yielded to new, more flexible guidelines that encompass casual business looks as well as traditional power suits. But as the speed of the business world accelerates, the importance of making a positive first impression increases, too.

Appearances count, not only in first impressions, but also in ongoing interactions. In his comprehensive research on communication, in a face-to-face encounter, 7 per cent of a verbal message comes from the words used; 38 per cent comes from the vocal tone, pacing, and inflection; 55 per cent of the message is transmitted by the speaker's appearance and body language.

Appearances count, especially in the business world. When one college's career planning and placement centre surveyed 150 employers, they discovered that the number-one reason for rejecting an applicant after the first interview was poor personal appearance. Appearances count often in cold, hard cash.

Amazingly, appearances count even when nobody else sees you! One study says that Americans have the opportunity to see their own reflection (in mirrors, windows, elevator doors, etc.) up to fifty-five times every day. That means fifty-five opportunities to feel instantaneously good, indifferent, or even negative about your physical self.

Strategies for Defining Your Audience:

Before you plan your presentation, you have to define your audience. The following checklist will help you do this:

- What is the size of the group? The number of people in your audience will affect your delivery style, the way you present visuals, the number and type of handouts, and the level of audience interaction.
- What is the age distribution of the audience? This is especially important if the audience is primarily made up of the very young or the very old. And age can make a difference in terms of reference points.
- Is the audience mostly men, mostly women, or mixed? Though, in many cases, your content and delivery would be the same with either sex, there may be nuances that are more suitable for one group or the other. And you may have to work especially hard on your delivery style and your choice of words if your audience is made up entirely of the opposite sex.
- How do audience members rank within their organization? In relation to your position? This is an especially important question when addressing members of a hierarchical organization like a corporation, university, board of directors, or committee. If you are addressing a group of your superiors, you may need to work on building your confidence. But if you are speaking to people in lower ranks, you may have to guard against sounding superior or overconfidence.
- Why are people attending your presentation? Are they captives, socially or financially motivated, committed, or pragmatists?
- How familiar is audience members with your topic? If your subject is computer applications for the garden centre and nursery trades, for example, it would be helpful to know what percentage of your audience uses computers already and at what level of sophistication. You would start from a different point of view for a group of novices than you would for a group in which 90 per cent of the nursery managers used computers for inventory and irrigation control, pesticide applications, and invoicing.
- What is the level of education of audience members? Your delivery will be markedly different for an audience made up of MBAs or Ph.D. than for an audience made up of artists, engineers, or people who have only completed high school.
- What kind of reaction to your message can you expect? Upon hearing your announcement of downsizing plans, an audience whose jobs are secure will have a reaction dramatically different from one whose jobs are at risk. Residents at a town meeting are likely to react more enthusiastically to a presentation on plans to build a recreation centre for their children than they are to one on plans to build a quarry.

The more you know about your audience's value systems, beliefs, experiences, and needs, along with demographic factors like age, economic status, education, and age, the better able you will be to construct a successful presentation.

5. Tone, Delivery: How to Engage the Audience

How well you are able to reach your audience with a presentation is directly related to two basic elements:

- What you have to say

- The way you deliver what you have to say

Here, given the ways to build rapport with audience and effectively deliver message using humor, drama, gestures, facial expression, and vocal variety.

Building Rapport:

To build rapport means to develop a relationship, especially one of mutual trust or emotional affection. We spend our lives working on our relationships with family, friends, and associates. Naturally, the relationship develop with a roomful of people won't be the same as it would be with a small group sitting around a restaurant table or with a one-on-one session with a prospective client. But it is possible to establish the kind of accord that leads to trust and affinity.

If you can win the audience over in the first minute, you will keep them for the remainder. You should plan exactly how you wish to appear to them and use the beginning to establish that relationship. You may be presenting yourself as their friend, as an expert, perhaps even as a judge, but whatever role you choose you must establish it at the very beginning.

By attempting to stand in another person's shoes, to see things through another person's eyes, any presenter can come closer to establishing rapport with another individual. Understanding the **WIIFM** (What's in it for me?) factor is a part of the larger task of building rapport.

Possible Questions:

Think ahead to all Possible Questions that may be asked the question and answer part of the presentation may be more important than the actual presentation, particularly the questions that might throw you. Remember to paraphrase the questions before answering them and take into account the motivation of the questioner. When answering the questions, look at all audience members, they may have had the same questions. Treat all questions and questioners with respect.

6. Audience Centered Sport:

Remember that Speaking Is an Audience Centered Sport and avoid speaking out of ego, appearing too cocky or unprepared. As long as you stay focused on the audience, in preparation and delivery, you should be successful as a presenter.

Visual Aids:

Most humans absorb more than 80 per cent of what they learn through the sense of sight. That means if you show something to people, they are far more likely to remember it, at least for a while, than if you tell something to them. Show and tell at the same time and your audience will remember even more.

Adding visuals like graphs-charts, maps, or photos to presentation increases the amount of retained information by as much as 55 per cent. For example, people who have attended a show and tell presentation will retain about 65 per cent of the information after three days, compared to about 10 per cent retention for audiences who have simply heard the information.

A study shows that the use of visuals reduced meeting times by as much as 28 per cent. Another study found that audiences believe presenters who use visuals are more professional and credible than presenters who merely speak. Meetings and presentations reinforced with visuals help participants reach decisions and consensus in less time.

When to use visuals:

Nearly any kind of presentation will benefit from some form of visual aid. Shareholders will have a better grasp of earnings or losses when presented with pie charts or bar graphs to show them where the money went. Gardeners will learn how to propagate plants from cuttings when they actually have the plant material in their hands.

Sometimes visuals are essential components of a presentation. Examples of times when visuals are a "must" include the following:

- Your message is abstract, complex, or difficult to understand.
- Your key message or subject is visual in nature.
- It is essential that your audience retain your message.
- There is controversy or the chance your message could be misinterpreted.
- You have more than two or three key points.
- You want to add emphasis to a key point.
- The presentation includes words or language unfamiliar to the audience.
- The presentation is a how-to session involving several steps.
- You need to "dress up" a subject that may not be of great interest to the audience.
- The presentation includes numbers or mathematical calculations.
- You are dealing with children.

Types of Visuals

- Visual aids take many forms, for example:
- Flip charts on easels
- Note-book flip charts
- Blackboards with chalk
- Whiteboards with markers
- Overhead transparencies
- Slides

- Videos
- Multimedia productions
- CD ROM
- Computers
- Props
- Three-dimensional models
- Posters
- Banners
- Handouts

And there is enormous diversity for the potential content of your visual aids:

- Photographs
- Typography
- Graphics
- Lists
- Symbols
- Colors
- Shapes
- Charts
- Maps
- Graphs
- Diagrams
- Cartoons

Somewhere among all these possibilities and combinations, the visual aid will match objectives, subject matter, delivery style, audience needs, expectations, and, very importantly, budget.

The Ending:

The final impression you make on the audience is the one they will remember. Thus it is worth planning your last few sentences with extreme care.

As with the beginning, it is necessary first to get their attention, which will have wandered. This requires a change of pace, a new visual aid or perhaps the introduction of one final culminating idea. In some formats the ending will be a summary of the main points of the talk. One of the greatest mistakes is to tell the audience that this is going to be a summary because at that moment they simply switch off. Indeed it is best that the ending comes unexpectedly with that final vital phrase left hanging in the air and ringing round their memories. Alternatively the ending can be a flourish, with the pace and voice leading the audience through the final crescendo to the inevitable conclusion.

7. Conclusion:

Once the speech is over and you have calmed down, you should try to honestly evaluate your performance. Either alone, or with the help of a friend in the audience, decide what was the least successful aspect of your presentation and resolve to concentrate on that point in the next talk you give. If it is a problem associated with the preparation, then deal with it there; if it is a problem with your delivery, write yourself a reminder note and put it in front of you at the next talk.

Practice is only productive when you make a positive effort to improve - try it.

How to Best Convey Your Message

What is it?

There are many different ways to make a presentation, depending on the subject matter, the objectives of the presentation, the number of people in the audience, and many other factors.

Why use it?

It is important to choose the best way to present information for each situation so you will reach your audience effectively.

Who uses it?

The team members and the management.

When to use it?

When you are planning to make a presentation.

How to use it?

Select the presentation technique that will be most suitable for the content of the presentation and for the audience. Some of the major techniques are described below:

- **A Speech or Lecture:** typically used when the presenter addresses a large group, and little interaction is expected. Presenter conveys a large amount of information in a short period of time. Presenter may use overheads or a computer-generated presentation.

- **A Workshop:** this format is used to teach a group about a topic. There is often a portion in which the presenter presents information, and then a period of time during which participants ask questions, discuss the content, or take part in activities to learn more about the subject area. A workshop usually has no more than 50 participants.

- **A Discussion:** typically used with a smaller group, no more than 25 or 30 participants. Participants can sit in a circle to facilitate intimacy and a feeling of equality. The leader may present topics or questions for discussion, and the group members are encouraged to participate.

- **A Group Activity:** sometimes the best way to present information is to have the participants take part in an activity and try out a new skill or behaviour. Group activities often involve role plays, voting on different topics or positions about a topic, or forming smaller groups that work on a project and then present what they learned to the larger group.