

**AN UDDER TALE: AN INSPIRING CASE EXAMPLE OF  
PEOPLE-CENTRED DEVELOPMENT**

Joseph Scaria Junior

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## ABOUT THE AUTHOR

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## 1: INTRODUCTION

The day begins for Chandaben as she moves out of her mud-walled home in Rampur, 50 km from Ahmedabad, leaving behind her sleeping family. Her milch animals eagerly await her loving care. After the milking process she is off to the dairy centre where her neighbour Hansaben is already perched, measuring, testing and buying the milk from a steady stream of women.

Chandaben is one of the 6 lakh<sup>1</sup> farming families in 1,017 villages, who constitute the backbone of the Kaira District Cooperative Milk Producers Union Ltd., popularly called AMUL. They produce 50 lakh litres of milk everyday. More than 70% of them are fringe farmers and 20% of the members of the cooperatives are women. They are a part of a revolutionary social and economic system that converts marginal farmers into entrepreneurs with the latest technology, empowers rural women and sets in motion an equitable socio-economic order.

### White gold

75% of India's population lives in villages. About 33% of the country's GDP and two-thirds of its work force derives sustenance from agrarian activities. Yet about 40% of the population doesn't have enough food. Despite ambitious plans, Indian agriculture and economy are yet to be healthy. Promises of rapid economic growth, self-sufficiency and equitable distribution of the fruits of development have not produced results..

One consistent white lining in the cloudy financial performance of agriculture is the prosperous dairy industry. Such 'white farming' not only provides nourishment for people but can bring terrific changes in socio-economic structure of villages.

The role of dairying in employment generation is well known. It provides many small and marginal farmers and labourers with supplementary employment and a regular source of income. Everywhere in the world, the emphasis is not only on increasing production but also on increasing productivity. Priority is given to providing fair returns to farmers, good quality services, hygienic milk for consumers and a healthy environment for citizens.

Just as the mighty Ganges starts with a tiny stream in the Gangotri ranges of the Himalayas, so does the history of AMUL have small beginnings.

It all began with just two village cooperatives producing 250 litres of milk per day. Today India is the world's largest milk producing country. Its milk output now reaches 74 million tonnes. A nationwide network of dairy cooperatives serves more than 10 million farmers in over 95,000 villages. The value of the annual output of the Indian Dairy Industry is over Rs. 1,050 billions and the industry is growing annually at the rate of 5.6%.

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<sup>1</sup> 1 lakh = 100,000

Progressive dairy production and distribution in India has become synonymous with the name AMUL, which has become the symbol of the aspirations of millions of farmers, and a route to liberation and self-sufficiency for the rural masses.

## **2: DAIRY DIARY**

AMUL's origins lie in the period of British colonial rule, when the British Defence Department established military dairy farms to ensure the supply of milk and butter to the colonial army. The first of these farms was set up in Allahabad in 1913. Subsequently, similar facilities were established at Bangalore, Ootacamund and Karnal. The farms were well maintained and raised improved milch animals. Herd improvement was done through artificial insemination. But this approach did not supply milk to urban civilian consumers, which was of major concern to the civilian authorities.

With the growth of the population in urban areas, consumers had to depend on individual milk vendors who kept cattle and sold their milk, often door-to-door. Several cattle sheds came into existence in different cities. This was not an environmentally sound approach. As the main objective of the milk vendors was to maximise profit, they started increasing the lactation period and in the process generating unproductive cattle. Once the cattle became unproductive, they were sold to slaughterhouses. This practice systematically drained the country of its genetically superior breeds.

To some extent, the Second World War gave impetus to private dairies with modestly modernised processing facilities. In Bombay, Calcutta, Madras, Delhi and in many large townships, processed milk, table butter and ice-cream were available, though not on a large scale. Poisons Ltd (sic!) Keventers and the Express Dairy were among these pioneering urban processing dairies. But they were not concerned with improving the breed of milch animals reared in rural pockets. Instead they were content with contracting with milk suppliers through middlemen or their own staff. Milk producers as well as consumers were thus exploited in the quest for profit. These early systems did not bring about significant shifts in milk production, nor did they develop quality milch animals. To a large extent, in spite of modernized processing facilities, dairying remained unorganised.

### **White wars**

In the 1940s, the dairy industry was dominated by Poisons Ltd. It was established by a rather enterprising gentleman who founded a creamery and the name Poisons became synonymous with butter - much as AMUL is today.

Poisons enjoyed a monopoly for the supply of milk to the government's milk scheme for Bombay. As the milk had to be transported over more than 400 km everyday, it had to be pasteurised, a facility of which Poisons Ltd boasted. The company hired contractors to collect milk from the villages.

Kaira (also called Kheda, now in Gujarat) district, then a part the Bombay Presidency, produced a good deal of milk that was procured by Poison's middlemen. This situation was profitable for almost everyone. Bombay received reasonably good quality milk and Poison and his contractors made handsome profit. Only the poor farmers weren't

important enough to be considered. They invested in animals, fodder and labour. Yet, they received the smallest share of the consumers' rupee.

These farmers, as everywhere else in India, derived their income almost entirely from seasonal crops. The income they got from milk was paltry and undependable. The contractors of Polson Ltd dictated the price and it fell far short of reasonable reward for the farmers' efforts in production. As milk is perishable, farmers were compelled to sell milk for whatever they were offered. This unfair system bred widespread discontent and the farmers appealed to Sardar Vallabhbhai Patel, one of the doyens of India's Free Movement, for help.

Sardar Patel was fired by the spirit of the freedom struggle had ambitions of Indian self-reliance. He knew that if the farmers were to have a chance of earning a decent income they needed to gain control over resources they created. He also knew that cooperatives offered them the best chance of gaining that control. So he advised them to stop selling milk to Poison and form cooperatives of their own, and also own their own dairy processing unit. He gave them the slogan, "Throw out Poison and his milk contractors." He cautioned the farmers that they would have to face losses for some time as there would be no buyers for their milk. The farmers accepted Sardar's proposal.

Under the leadership of Morarji Desai (a veteran freedom fighter who would become Prime Minister of India) and Tribovandas Patel, a local leader, farmers decided to form a dairy cooperative society in every village of Kaira district. Kaira District cooperative Milk Producers Union Ltd (AMUL) was born in 1946. It was decided that the union would buy milk from the village dairy cooperatives and send processed milk to the Bombay Milk Scheme. However, the Government turned down the terms offered by the cooperative. The farmers responded with a milk strike, which lasted for fifteen days. The Milk Commissioner of Bombay relented due to the shortage of milk and the union was formally registered on December 14, 1946.

The Kaira District Cooperative Milk Producers' Union (AMUL) was thus born and Shri Tribhuvandas Patel was its first chairman. He understood the farmers and fostered a spirit of cooperation. His integrity was unquestionable. Thanks to the trust and respect that he commanded amongst the farmers, the cooperative worked through some very difficult times and eventually became a model of cooperative dairying throughout the world.

### **Stream of joy**

From the very beginning, the goal of the Kaira District Cooperative Milk Producers' Union was crystal clear - to ensure that the producers receive the highest possible share of the consumer's rupee. This goal largely guided the direction that this union took. Their focus was on production by the masses, not mass production.

The Union realised the need for professional management and was able to get a team of dedicated managers together to steer its growth. Keeping pace with the increasing milk collection it created expanded processing capacities and even enhanced milk production

with measures such as animal health care, breeding facilities, fodder seeds supply, and balanced cattle feed. The Kaira Union, under the brand AMUL, also manufactured milk powder and baby food from buffalo milk for the first time in the world.

The success achieved by combining the farmers' power with the management by professionals in an integrated cooperative structure gave the incentive to increase milk production, and placed the tools of development in the farmers' own hands.

By the early 1960s, the modest experiment in Kaira had become a recognised success. Farmers came from all parts of Gujarat to learn how to replicate this model. They went back to their own districts and started their own cooperatives. The result - the District Milk Producers' Unions of Gujarat – now owns the Gujarat Cooperative Milk Marketing Federation that markets their milk and its products. In 1999-2000 the Federation's turnover was over Rs. 2220 crore<sup>2</sup>.

### **Milch milestones**

Between 1946 and 1952, AMUL's policy was directed towards obtaining monopoly rights for the sale of milk to the Bombay milk scheme. In 1952, it succeeded in achieving this objective after the Government of Bombay cancelled the contract with Poisons and handed over the entire business of supplying milk from the Kaira district to AMUL. However, as the Bombay milk scheme was committed to purchasing all the milk produced by the Aarey Milk Colony in Bombay, it would not take AMUL's milk during the peak winter months. The disposal of this surplus milk posed difficulties for AMUL, forcing it to cut down on purchases from its member societies, which affected members' confidence. The answer was the production of milk products: in 1955, a new dairy plant was set up at Anand to produce butter, ghee and milk powder.

A second dairy was built in 1965, and a product manufacturing unit was established in 1971 to cope with increasing milk procurement. In 1993, a fully computerised modern dairy was constructed adjacent to the original AMUL dairy plant at Anand.

AMUL formed the basis for the Anand Model of dairying. The basic unit in this model is the milk producers' cooperative society at the village level. Membership of these cooperatives is open to all who need the cooperative's services and who are willing to accept the responsibilities of being a member. Decisions are taken on the basis of one member exercising one vote. No privilege accrues to capital, and the economic returns, whether profit or loss, are divided among the members in proportion to patronage. Each cooperative is expected to carry out the continuing education of its members, elected leaders and employees. All the milk cooperatives in a district form a union that, ideally, has its own processing facilities.

All the unions in a state are normally members of a federation whose prime responsibility is the marketing of milk and milk products. There is also a fourth tier, the National Cooperative Dairy Federation of India (NCDFI), which is a national-level body that

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<sup>2</sup> 1 crore = 10 million

formulates policies and programmes designed to safeguard the interests of all milk producers. Each tier of the Anand Model performs a unique function: procurement and services by the village cooperative society; processing by the district union; marketing by the state federation; and advancing the interests of the cooperative dairy industry by the national federation. Thus, the Model has evolved into an integrated approach to systematic dairy development.

The Union now handles on an average about 736,000 litres of milk per day, has nearly 573,962 milk producer members belonging to 1,017 village dairy cooperatives in the district. It owns modern processing facilities with a capacity to handle up to 1.5 million litres of liquid milk per day. It possesses large scale manufacturing facilities for products such as butter, milk powder and baby food and cheese. The union provides round-the-clock veterinary services and balanced dairy cow rations. It also provides artificial insemination services through village dairy cooperatives by establishing its own network of bull stations, frozen semen production and delivery arrangements

### **AMUL's milestones**

In summary, the milestones of the Kaira District Cooperative Milk Producers' Union (AMUL) are these:

1946 - established two societies collecting 250 litres of milk. Competed against Polsons Ltd to supply milk to Bombay.

1952 - Bombay Government terminated Polsons contract and signed with AMUL.

1955 - Dairy and milk powder plant was established with aid from the United Nations Children's Fund (UNICEF).

1960 - AMUL pioneered production of milk powder and baby food from buffalo milk.

Today AMUL members supply more than 750,000 million litres of milk per day and sell 12,000 tonnes of cattle feed every month.

### **3: STATE STRUGGLES**

In contrast to AMUL's remarkable progress, the government tried various animal husbandry and dairy development schemes between 1951-70 at a total cost of Rs 11,400 million. None of them yielded the desired results; many were dismal failures.

In India's first Five-Year National Plan in 1951, modernisation of the dairy industry was a priority for the national government. The goal was to provide hygienic milk to the country's growing urban population. Initial government action in this regard consisted of organising 'milk schemes' in large cities. To stimulate milk production, the government implemented the Integrated Cattle Development Project (ICDP) and the Key Village Scheme (KVS), among other similar programmes. In the absence of a stable and remunerative market for milk producers, however, milk production remained more or less stagnant. During the two decades between 1951 and 1970, the growth rate in milk production was barely 1% per annum, while per capita milk consumption declined by an equivalent amount.

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

The establishment and prevalence of cattle colonies was a curse for dairying in the rural hinterland as it resulted in a major genetic drain on the rural milch animal population, which would never be replaced. City dairy colonies also contributed to environmental degradation, while the rural producer saw little reason to increase production.

#### **Flood gates**

In October 1964, the then Prime Minister Shri Lal Bahadur Shastri visited Anand to inaugurate the country's largest cattle feed factory owned by AMUL. Spending a night alone in a village without officials, the Prime Minister saw and heard from the farmers about the transformation brought about by the village milk cooperatives of Anand. On his

return to Delhi, he set in motion efforts to replicate the Anand experiment in all parts of India. Institutions owned by rural producers were sensitive to their needs and responsive to their demands. This was a potent tool for progress. The National Dairy Development Board (NDDB) was created in 1965 in response to this aspiration. The Board tried to convince State Governments to make some funds available for dairy development based on the Anand model.

It had meagre financial resources and the government departments had little interest in turning over their responsibilities to farmers. Around this time, huge quantities of milk powder and butter oil were accumulating in Europe. It was feared that some kind European gentleman would decide that this should be donated, or sold at subsidised prices, to help the 'poor people of India'. That would have been the death knell of India's nascent dairy industry. It was to face this potential threat that the Board thought up the idea of using such food aid to generate the financial resources necessary to replicate Anand throughout India. So, donated commodities were reconstituted as liquid milk and sold at prices comparable to those in the domestic market. The funds that were generated were used to finance the development of the cooperative dairy industry.

Fortunately there were sensible people in both India and the EEC who supported the idea. Thus, what could have been a serious threat was successfully turned into a stepping-stone for greater development.

### **Milking waves**

It was in 1969 that NDDB formulated 'Operation Flood' to use the food aid available in the form of dairy commodities from donor agencies such as the EEC and World Food Programme (WFP) to generate funds for the replication of Anand model. Responding to the proposal the WFP committed commodity assistance involving 126,000 Megatonnes of skimmed milk powder and 42,000 Megatonnes of butter oil for the first phase of the Operation Flood Programme. This was to link the four major metropolitan cities with 18 potential milk sheds in the country. The program envisaged monetisation of gifted commodities through sales to the already existing dairies in Delhi, Bombay, Calcutta and Madras that remained under-utilised due to paucity of liquid milk.

The NDDB programme was based on the following simple assumptions:

- Dairying in India is supplementary to agricultural income for most farmers.
- Milk production is scattered over millions of small producers, far away from the market place.
- The market and the price are the primary incentives to increase production and farmer income.

So, the actions taken by the NDDB were these:

- Promoting and assisting milk producers in the establishment of village dairy cooperatives and cooperative unions.
- Creation of additional milk chilling, processing, distribution and marketing facilities to be owned and operated by the Dairy Cooperative Unions.
- Creation of sufficient conversion capacities to balance the 'lean' and 'flush' periods of supply.
- Establishment of a network of storage and long distance milk transport facilities to enable the operation of a National Milk Grid.
- Giving technical support to farmer members to improve the productivity of their dairy animals.
- Support services such as information systems, training and manpower services.
- Centralised support services such as animal disease diagnostic centres, vaccine and biological production and delivery systems, and a national frozen semen system to enhance the productivity of dairy animals.
- Dairy processing and conservation methods developed.
- Undertaking research and development activities for future growth.

The AMUL experience had established, tested and proved that a three-tier cooperative structure owned and controlled by farmers, professionally managed, providing the inputs for production enhancement, purchasing all the farmers' milk, processing and marketing it in urban markets was required for dairy development. In fact, the World Bank recently acknowledged this fact. Producers' cooperatives, which sought to link dairy development with milk marketing, were the central plank of this project. Milk could reach consumers in towns and cities all over the country through a National Milk Grid. With no middlemen, the price was perfectly fixed. The farmer could finally enjoy the fruits of his labour.

#### **4: FLOOD PHASES**

Operation Flood sought to establish milk producers' cooperatives in the villages and make modern technology available to them. The broad objectives were to increase milk production, augment rural incomes and transfer the profits of milk marketing from well-to-do-middlemen to the milk producers. As the founder-chairman of the NDDDB, Dr Verghese Kurien finalised the plans and negotiated the details of the EEC assistance.

Phase I of Operation Flood was launched in 1970 with a total outlay of Rs. 1,160 million generated from the commodities given by WFP/EEC. The donated commodities were converted into liquid milk and sold through existing city dairies. The NDDDB ensured that the milk would be sold at the same price as the locally produced milk so that the local market would not be depressed. The funds generated would be invested in setting up milk sheds around cities.

This phase aimed to organise village-level dairy cooperatives and build the required physical and institutional infrastructure. It procured milk from union-owned and managed cooperatives. It enhanced production by the use of modern techniques, obtained processing and marketing facilities and established dairies in cities.

In less than a decade the Operation Flood Programme clearly demonstrated the replicability of Anand model of Dairy cooperatives. This led to initiating the second phase with finance from the World Bank and European Union for expansion of selected districts in most of the States.

Phase II of the project, implemented during 1981-85, involved about 136 milk sheds linked to over 290 urban markets with a total population of over 15 million. The seed capital raised from the sale of WFP/EEC products and World Bank loan had created, by the end of 1985, a self-sustaining system of 43,000 village cooperatives covering 4.25 million milk producers. Milk powder production went up from 22,000 tonnes in the pre-project year to 140,000 tonnes in 1989, thanks to dairies set up under Operation Flood. The EEC gifts thus helped to promote self-reliance. Direct marketing of milk by producers' cooperatives resulting in the profits from milk contracts increasing by several million litres per day. The number of societies, members and volume of milk procured all more than doubled.

Phase III implemented from 1985 to 1996, consolidated these achievements by improving the productivity and efficiency of the cooperative dairy sector and its institutional base.

It involved strengthening the basic infrastructure, measures for production enhancement and animal healthcare and nutrition. This enabled dairy cooperatives to rapidly build up the basic infrastructure required to procure and market more and more milk daily. Facilities were created by the cooperatives to provide better veterinary first-aid and healthcare services to their producer members, thus consolidating the gains of the first

two phases. Operation Flood concluded its third phase in 1996 and has the following significant results to its credit:

- The swelling urban market led to sustained increase in production, raising per capita availability of milk to more than 200 grams per day.
- The country is not dependent on commercial imports of milk solids.
- Modernisation and expansion of the dairy industry and its infrastructure, and the activation a milk grid.
- Marketing expanded to supply hygienic and fair-priced milk to some 300 million consumers in 550 cities and towns.
- A nationwide network of multi-tier producers' cooperatives, democratic in structure and professionally managed, has come into existence. Millions of small producers participate in economic enterprises and improve the quality of their lives and environments.
- Dairy equipment manufacture has expanded to meet most of the industry's needs.
- The operation gave the rural poor a good price for their milk and the urban poor milk at reasonable prices.

Thanks to Operation Flood, the national milk production has more than trebled and per capita availability almost doubled. A robust infrastructure with good rural processing capacity and good chilling capacity to ensure good quality milk supply has been set up. The entire Operation Flood was financed by funds generated from the gifts of butter oil and milk products from the WFP and the EEC, supplemented later by World Bank loans. The internal resources employed increased from phase to phase. Future dairy development will be self-financing without dependence on any external aid or loans.

The three phases of Operation Flood have demonstrated that if the instruments of change are in the hands of farmers, success is inevitable thanks to the dairy cooperatives. Today, Operation Flood cooperatives are vibrant, involving more than 10 million farm members supplying an average of 13,659 metric tonnes of milk per day through more than 95,000 cooperative societies to 170 milk producer unions who process and market it as liquid milk and processed products. By 1997-98, the system included 13,377 Artificial Insemination Centres and 787 mobile veterinary clinics.

The success of the programme is most evident among the rural poor. More than 62% of milk procurement in Operation Flood comes from marginal farmers and landless households.

## 5: WHITE KNIGHT

The white revolution in India is synonymous with Dr. Verghese Kurien, best known as India's 'milkman' and champion of milk producers. He is the founder-chairman of the NDDB and Operation Flood, one of the world's largest-ever participative development projects. It was Dr. Kurien's creativity that transformed the threat of subsidised exports of European surplus commodities into the opportunity of financing development. He, along with the farmers of Kaira, has made India the largest producer of milk in the world today.

Born on November 26, 1921 in Calicut, Kerala, Dr. Kurien began working with farmers of Kaira in 1949, after returning to India from Michigan State University where he earned a Master of Science in Mechanical Engineering. He was posted at the Kaira District Milk Producers Union. At that time, two cooperatives were involved, representing only a handful of farmers.

An apostle of cooperatives, Dr. Kurien felt that the best route to economic justice is power to the people, together with making modern technology and professional expertise available to village cooperative societies. Thousands of successful cooperatives, inspired by Dr. Kurien, are proof of his philosophy that "true development is the development of man".

Regarded as one of the few true Gandhians in the country, Dr. Kurien has truly understood and implemented the dreams of Mahatma Gandhi, the Father of the Nation. A former Minister of Agriculture for India, Bhajan Lal, commended his success not only in milk but also in the fruit and vegetable industry, remarking: "He is an extremely efficient, learned and devoted worker. Any amount of praises I shower will not be sufficient".

Through Operation Flood the Anand model, pioneered by Dr. Kurien when he served the Kaira District Cooperative Milk Producers' Union Limited, has been adapted and replicated. Dr. Kurien nurtured the Union from its early difficult days in the late 1940s to its one-million-litres-a-day operation in early 1990. He helped set up similar Milk Producers' Cooperative Unions in six other districts of Gujarat. These eventually federated into an apex body, the Gujarat Cooperative Milk Marketing Federation Limited, which Dr. Kurien now heads as Chairman. The federation represents and is owned by more than 1.5 million milk producer families.

The success of Operation Flood attracted national and international attention. Kurien was applauded as the chief architect of India's 'white revolution'. As noted, the success of the Kaira Union gave birth to other milk producer's unions in Gujarat and in turn inspired the formation of the NDDB. In 1965, the then Prime Minister of India, Shri Lal Bahadur Shastri, cited Dr. Kurien's "extraordinary and dynamic leadership" as the reason for naming him chairman of the NDDB.

The steady expansion of the Anand model of cooperatives has progressively eliminated middlemen. Despite opposition to these projects from a variety of vested interests, often

with the support of the Government of India and State Governments at the highest levels, Dr. Kurien has been able to achieve major breakthroughs not only in the dairy but also the oilseeds sector, as the government of India requested the NDDDB to replicate the 'Anand model' to other sectors of the food economy, such as oilseeds and fruits and vegetables. Leaders from a number of countries in Africa, Asia, and Latin America have expressed the desire to replicate Operation Flood. Under Dr Kurien's inspiration, fruits and vegetables are produced and marketed through a cooperative system involving a network of 250 retail stores in Delhi. Dr. Kurien has also given shape to a project which has improved the economic conditions and living standards of the salt producers.

The need to attract, train and motivate India's youth to work the nation's farmers led Dr. Kurien to create the Institute of Rural Management (IRMA) at Anand. IRMA, established in 1979, was created to provide management training and research support to dairy cooperatives. Over the years IRMA's mandate expanded to cover oilseeds, fruit and vegetables, forestry and fisheries, as well as NGOs and even Panchayati Raj institutions. Dr. Kurien is now adviser to chairman of the IRMA's Board of Governors. He has been honoured with many awards, received numerous honorary degrees and is a member of several professional organizations.

Dr. Kurien played a major role in translating Shri Tribhuvandas Patel's dream for rural health services into the Tribhuvandas Foundation, which serves villagers with preventive, maternal and infant health care facilities. These facilities provide supplementary feeding, village training and developmental centres as well as environmental sanitation. A recent initiative uses the dairy cooperative structure to help villagers evolve their own health, sanitation, nutrition and family welfare systems.

Today, development theorists talk about "people-centered development", "participation", "institution building", "democratisation" and "bringing modern technology to the service of the world's rural poor". These have been the core of Dr. Kurien's philosophy and practice through more than 40 years of service to farmers. Today, more than 10 million farmer households in some 95,000 villages enjoy a better life thanks to his untiring efforts and those of his inspired band of workers.

In India Dr. Kurien has been awarded the Padmashri (1965), Padmabhushan (1966), Krishi Ratna (1986), and Padma Vibhushan (1999). He was World Food Prize laureate in 1989.

### **Succession**

Today the small sleepy town of Anand in Gujarat is well-known as the milk capital of India. Here, at the headquarters of the NDDDB, there has been a quiet change of the guard. The founder-chairman Dr, Verghese Kurien, has been replaced by his protegee Dr Amrita Patel, as chairman.

For her, stepping into Kurien's shoes was not a tough task. She has the same attitudes as her mentor and predecessor not only towards the cooperative movement, but also towards multinational corporations and government interference.

Three decades after Kurien started the NDDB, the challenges facing Amrita Patel are, however, quite different. NDDB was formed to replicate the successful Anand pattern of cooperative functioning in the country's dairy industry. It achieved this through the hugely successful Operation Flood programme.

The challenge now before Patel and NDDB is to capitalise on the success of the cooperative-run dairies in three ways:

1. Convert India from just being the largest producer of milk in the world into a major milk exporter.
2. Extend the cooperative model to other domestic agricultural produce.
3. Help other emerging economies set up cooperatives in the dairy industry.

Over the next few years, Patel wants to make the cooperatives professionally-managed vibrant enterprises. As incomes continue to rise across India as its economy grows rapidly, the demand for milk and milk products will grow. To face the challenges of this increased demand an action plan - *Perspective 2010* - was evolved in consultation with the unions.

The overarching goals of *Perspective 2010* are :

- Milk procurement by cooperatives to rise to 33% of the marketable surplus in Operation Flood areas.
- Liquid milk sales to increase by more than 60% of the market share in metros, and an average of close to 50 per cent in the Class I cities served by cooperatives.

To achieve these goals NDDB needs to nearly treble fluid milk marketing and quadruple procurement. These are huge tasks but Patel thinks that cooperatives can succeed in achieving just about anything: "The one lesson that we can learn from the Anand experience is the power of mutual self-help," she says.

## 6: WHITE'S BRIGHT

Virtually every village has a cooperative to which members bring their milk every morning and evening. The quantity of milk is measured or weighed and a sample is drawn from each farmer to test the fat content of his supply. In tune with its policy of bringing the latest technological advance to the doorstep of the farmer, each society is provided with an electronic fat tester. Based on the quantity and fat content the amount to be paid is calculated. Payment for morning milk is made in the evening; that for evening milk is made the following morning. With the introduction of computers, many societies weigh and measure fat simultaneously and milk is paid for immediately on receipt. The Union has always ensured that productivity enhancement measures are available to its members. Modern plants produce high protein concentrate feeds and make them available at the cooperatives. The Union provides animal health care and breeding facilities. Artificial insemination service with good quality semen was introduced through trained village society workers. A mobile veterinary service was provided for veterinary first aid. Above all, the best incentive for enhanced production is the Union's undertaking to buy the entire quantity offered by the farmer irrespective of the season.

The world's largest milk producer has finally doffed its hat to the quiet dynamism of Indian women. Research has shown that women are responsible for 60 to 80% of dairy work.

Sadly, thanks to centuries of being yoked to the dictates of a patriarchal society, women were not considered decision-makers and their involvement as members in cooperatives was low. There were exceptions in the form of a few all-woman cooperatives but men continued to dominate the membership of dairy cooperatives and failed to convey information and knowledge to women. Major decisions like buying a new cow or buffalo, whether to artificially inseminate or naturally service a cow, who to vote for in the union and whether to send a daughter to school are the crucial decisions that men continued to take.

Rural women are constrained both by the patriarchal system and succession laws which exclude women from inheriting land. This in turn denies them access to institutional credit as land is required for all credit from finance institutions. Over the past two decades the empowerment of rural women has become a mission all over the developing world.

A major effort to support women's participation, funded by the Ford Foundation in Andhra Pradesh and Bihar, sought to create dairy cooperative societies for, of and by women. Practically, bearing in mind the unequal social structure, women found it difficult to assume a meaningful role in the elected leadership or the management of cooperatives. To support the development of all-women cooperatives a cadre of women extension workers were recruited and trained.

From the late 1980s the NDDDB placed major emphasis on women's education as part of its cooperative development programme, an activity designed to strengthen the role of

women members in the control and governance of the dairy cooperatives.

Men were educated about the role of women in dairying while women were motivated to join dairy cooperatives and to assert their rights as members. They were encouraged to attend meetings with extension workers and to collect the money that was paid by the society. Women were also encouraged to stand for membership of managing committees and in some states, cooperatives and unions began to reserve seats on their board for women.

The results of these efforts have been modestly encouraging. About 6,000 out of the 70,000 dairy cooperative societies in India are women's societies. The percentage of women members has risen from about 14% a decade ago to around 20% today. There have been small increases in the numbers of women serving on cooperative managing committees as well as in paid positions. But, when compared to the actual role performed by women in dairying, these achievements and statistics are still low.

‘Women's Dairy’ and ‘Cooperative Leadership’ programmes have been evolved which set much more ambitious goals to raise the percentages of active women members in dairy cooperatives, of elected leaders at every level and of the numbers and status of women employees.

The impact of the NDDDB's programmes of women's education and leadership development has been studied in Kolhapur (Maharashtra) and Jaipur (Rajasthan). In both districts, large numbers of women were asked about their knowledge of dairying and cooperatives as well as their role as dairy farmers and as women dairy managers. There appear to be significant differences in the perceptions of women who have participated in these programmes, and those who have not.

These differences include not only more positive attitudes towards decision-making related to dairying but also in relation to the education and health of their girl children.

Interviews with women dairy farmers emphasise that cooperative dairy farming empowers women. NDDDB believes that rural people, and women particularly, develop skills and attitudes when they have opportunity to practise them. So opportunities are created for women to take decisions on matters that are important to them. It is believed that when groups of women are organised around a purpose - whether economic, religious, political or social - they have the opportunity to take important decisions.

## **7: ORGANISATIONAL ARRANGEMENTS**

The various agencies involved in milk production and sale are: the village (primary) cooperatives, the district/milk shed unions, the State Cooperative Federations, the State Governments, the NDDB and the Government of India.

The primary role of these organisations is given in the following paragraphs.

### *Primary Cooperatives*

- Procure all the milk offered by the farmers for sale.
- Ensure regular and proper payment for milk based on quality
- Provide milk production enhancement services.
- Arrange sale of milk and milk products in their operational areas.

### *District Unions*

- Organise village cooperative societies on the “Anand Model”.
- Procure, transport and process milk supplied by affiliated primary cooperatives and arrange timely payment.
- Arrange marketing of liquid milk and milk products within the milk shed.
- Dovetail with other development programmes and demonstrate the benefits of improved production techniques to the farmers.
- Arrange training of the farmers and the primary society employees.
- Implement the “Uniform Accounting System”.

### *State Federations*

- Marketing of milk and milk products of the member Unions.
- Managing the State Milk Grid and its linkages with the National Milk Grid.
- Coordination and management of common services.

### *State Governments*

- Acceptance of the Anand Model Cooperative System for dairy development in the state.

- Transfer of the existing infrastructure facilities in the area to the cooperatives.
- Ensure freedom to the cooperatives to decide the purchase and sale price of the milk and milk products.
- Arrange provision of land, power, water etc., for dairy plants, cattle feed plants and chilling centres etc.
- Ensure audit of the accounts of all dairy cooperatives.
- Dovetail dairy and animal husbandry programmes in the State with Operation Flood.

#### *NDDB*

- Providing technical, consultancy and turnkey services on all aspects of dairy development.
- Planning, designing and execution of dairy plants, cattle feed plants, chilling centres and other allied units.
- Providing training assistance.
- Providing management services including design and implementation of information system, enumeration and survey systems etc.
- Bulk procurement and distribution of equipment, cans, vehicles etc.
- Monitoring the financial and physical progress of the projects.
- Clearance, transport, storage, issue and quality control of the indigenous and imported commodities such as butter oil and butter received from donor countries.
- Generation of funds and their management.

#### *Government of India*

- Provide legislative, policy and administrative support to the project.
- Coordination and interaction among various departments of Government of India.
- Coordination with international funding agencies. Routing of funds of international donor agencies to National Dairy Development Board (NDDB)
- Overall supervision and guidance on all aspects of the project.

## **8: LESSONS**

There are many lessons that have been learnt from this experience. The main ones are now summarised.

### **Use of food aid as an investment**

The most important lesson learnt concerns the utilisation of food aid for development work. Earlier, food aid given by international agencies was used merely for consumption. Hence the aid was (literally) eaten away without any long-term benefits as regards development: indeed quite the reverse. But in this case the funds generated by sale of food aid were ploughed back for development work so as to obviate the necessity of having any further food aid. Indeed, India is not only no longer receiving any food aid in the form of dairy commodities but is emerging as a net exporter of dairy commodities.

### **People-driven development**

The whole idea of collecting 1 to 2 litres of milk per day from over 9 million small farmers scattered over about 100,000 villages in the whole length and breadth of this vast country is thrilling. It has no parallel in any other development programme in the entire world. Nowhere have people themselves organised on such a scale, despite the fact that most of the farmers are illiterate, and belonging to weaker sections of society. More than 75% of the farmer members of the cooperatives are estimated to belong to these weaker sections and about 10% of these are women. Initially there were a number of obstacles. Many people holding positions of importance were suspicious of the whole idea. They did not have faith in the power of the poor farmers. But the sheer will of the farmers and their devoted and selfless leaders changed this.

### **Competence and commitment**

The dairy cooperatives engaged competent professionals to manage their dairy plants, cattle feed units and the veterinary input systems including health care. The committed strength of the farmers, together with the competence of the professionals ensured success.

### **Market and price**

A remunerative price and an assured market is the best incentive for a sustained growth in milk production (or for that matter any agricultural commodity). Before Operation Flood the producers did not have either and hence did not take any interest in milk production enhancement and milk was largely produced for household consumption. Operation Flood changed all that.

## **Spin-offs**

Despite the non-availability of technical know-how in the beginning, the dairy equipment industry in the country was stimulated to meet the growing demands of the expanding dairy processing industry. It provided the farmers with the latest technology, plant and equipment. Other industries to benefit include the packaging industry, the electronic equipment industry and the and milk testing (chemicals) industry. The investments in the dairy sector have been exceptionally productive.

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