NATIONAL DAIRY DEVELOPMENT BOARD OF INDIA*

I. Abstract

The National Dairy Development Board (NDDB) is the national-level body involved in promoting, financing, and supporting milk-distribution organizations in India that are owned and controlled by the producers themselves. The main focus of the "Operation Flood" (OF) program initiated by NDDB was to streamline the production of milk in the country by organizing milk producers at the grassroots level.

The Board has helped to organize the dairy industry of India with 170 milk unions, operating in 285 districts, covering nearly 96,000 villages. More than 10.7 million farmers and laborers are members of the network, directly supplying milk to the cooperatives, thus eliminating the exploitative chain of middlemen. In addition, some 3,500 milk collection centers have been computerized, resulting in accurate and immediate payment to the milk producers.

However, organizing illiterate farmers into a large cooperative network proved to be a challenging task. Other major issues were the quality and the hygiene maintenance of the milk being distributed, taking into account the combined effect of milk's perishability and the fact that milk was supplied by a large number of small milk producers. Replication of the project in other countries would require an evaluative study of the social, technical, and organizational conditions conducive to the development of a similar network.

II. Background

The National Dairy and Development Board was founded in 1965, with the mission of organizing poor milk producers, thereby transforming dairying into an instrument for the economic development of India's rural people. The formation of the NDDB stemmed from the vision of the then Prime Minister of India, the late Lal Bahadur Shastri, to extend the success of the Kaira Cooperative Milk Producer's Union (in the state of Amul) to other parts of India.

The mission achieved thrust and direction with the launch of the Operation Flood program in 1970. During this period, dairy commodity surpluses were building up in Europe. Imports from Europe had already adversely affected the dairy industry in India. Imports by individual players in India would have resulted in a market glut and a fall in the prices throughout the country. With the backing of government policy, and with the assistance of the World Food Program, NDDB imported food aid in the form of milk powder and butter oil, and marketed it under its own brand name. The surplus from these sales was invested in the expansion of the cooperative movement in the dairy industry.

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The OF program has come a long way since its inception 31 years ago. As of March 2001, India's 96,000 dairy cooperatives were integrated through a three-tier cooperative structure known as "The Anand Pattern." The farmers organize themselves into village-level cooperatives, which in turn are organized into district-level cooperatives (comprising about 400 to 1,000 primary village cooperatives). The district-level cooperatives federate into a state-level cooperative organization. At the apex is the National Cooperative Dairy Federation, India (NCDFI), which coordinates the marketing efforts of all the state-level cooperatives.

NDDB and NCDFI are independent bodies. Both bodies have separate board of directors. NCDFI is (on paper) the national nodal agency for coordinating efforts of the state-level cooperatives, although most states today directly market their produce through State Marketing Federations. NCDFI's members include federal dairy cooperatives of states and union territories and the NDDB.

Payment to the milk producers is based on the quantity of milk and the fat content. Out of 70,000 collection centers under NDDB, some 3,500 (5 percent) have been computerized so far.

III. Impact/Results

In the pre-NDDB period, milk production in India was scattered. The average farmer, illiterate and poor, had no access to the organized market and was exploited by middlemen. The dairy cooperative network has provided a reliable and regular source of income to more than 10.7 million landless laborers and marginal or small farmers. This has helped to improve the quality of life of the poor farmers. More than Rs 50 billion of (US$ 10.8 million) revenue from milk sales went back to the producer-members in 1999–2000.

The dairy cooperative network includes 170 milk unions, operating in 285 districts, covering nearly 96,000 villages. During 2000–2001, milk procurement by these cooperatives reached a peak of 18.9 million liters per day, with average daily procurement at 16.5 million liters. These cooperatives marketed an average of 13.4 million liters of liquid milk per day. Table 1 gives a comprehensive view of the number of participating producer-members (men and women), as well as the procurement and marketing activities of the network

The computerization of 3,500 milk collection centers has resulted in the immediate measurement of fat content, instead of the traditional method (Gerber method), which would require many hours to calculate fat content. Therefore, milk producers are paid immediately, instead of on a 10-day basis. As daily computerized accounts are maintained, chances of errors and fraud are reduced.

The modernization and expansion of the dairy industry and its infrastructure has created a national milk grid. A fleet of insulated rail milk tankers operates throughout India. There

is a primary group of 140 rail milk tankers, each with a capacity of 40,000 liters, which is supplemented by another 25 rail tankers of 21,000-liter capacity.

Over the years, brands created by cooperatives have become synonymous with quality and value. Brands such as Amul (GCMMF), Vijaya (AP), Verka (Punjab), Saras (Rajasthan). Nandini (Karnataka), Milma (Kerala) and Gokul (Kolhapur) are among those that have earned customer confidence.

Table 1: Dairy Project: Progress on Key Parameters (March 2002)

States/Union Territories	*DCS # (No.)*	*Total Farmer Members ('000)*	*Women Farmer Members ('000)*	*Procurement (TKGPD)**	*Marketing (TLPD)**
Andhra Pradesh	4,939	723	146	1,002	782
Assam	125	2	Neg.	3	6
Bihar	3,972	200	28	342	331
Delhi	—	—	—	—	1,543
Goa	164	18	3	40	84
Gujarat	10,851	2,232	523	4,716	1,918
Haryana	3,514	189	10	340	96
Himachal Pradesh	295	20	6	28	20
Karnataka	8,801	1,550	333	2,057	1,514
Kerela	3,069	660	103	697	657
Madhya Pradesh	4,937	242	21	334	251
Maharashtra	17,152	1,369	226	2,965	2,553
Nagaland	74	3	Neg.	3	3
Orrisa	1,430	113	49	105	3
Pondicherry	92	28	12	52	48
Punjab	7,064	389	37	1,047	413
Rajasthan	7,690	465	81	1,104	615
Sikkim	174	6	—	9	9
Tamil Nadu	8,299	2,037	656	1,675	1,229
Tripura	84	4	—	1	7
Uttar Pradesh	16,164	679	205	832	407
West Bengal	1,848	123	32	251	821
All-India Total	100,558	11,052	2,472	17,062	13,423

DCS: District Cooperative Societies.
#: Organized.
TKGPD: Thousands of kilograms per day.
TLPD: Thousands of liters per day.
*: Refers to annual average.
Neg.: Negligible (less than 500).
— Not applicable.
Source : <http://www.nddb.org/achievement/physical-progress.html>.

The cooperatives' marketing network now reaches 200 Class I towns and 550 Class II towns in India.[1] The Gujarat Cooperative Milk Marketing Federation (GCMMF) is the largest milk marketing federation in India, with 2.23 million producers who have a handling capacity of 6.7 million liters a day.

[1] Class I town: population greater than 100,000. Class II town: population between 50,000 and 100,000.

Marketing volume and handling capacity are independent terms. Handling capacity (in this context) refers to the maximum liters of milk that can be collected and stored from the milk producers. On the other hand, marketing volume or sales refers to the actual amount of sales transacted.

A secure market, financial security for milk producers, technical inputs (including artificial insemination), and veterinary health services have jointly contributed to the sustainability of the milk industry. Dependence on commercial imports of milk products has ended, with positive impacts on local producers. The dairy equipment industry, the packaging industry, the electronic quality control equipment industry, and the milk testing industry all have grown with the development of the dairy industry. Currently, 95 percent of India's dairy equipment in use is produced in India.

A network of research institutions, focused on various aspects of dairy development, animal sciences, and rural development, has been established. In order to improve animal nutrition, various innovative methods that improve the digestibility and palatability of cattle feed have been developed, along with the establishment of cattle feed plants and quality control laboratories.

IV. Key Elements of Empowerment

Information

Milk producers or farmers have access to information on animal husbandry practices, health and hygiene of cattle, veterinary care, cattle insurance, and so forth through various training programs and workshops. Leadership training programs and orientation programs, held on an ongoing basis, facilitate information dissemination among the milk producers.

Farmers also have access to veterinary services through the Artificial Insemination Centers established on the premises of the cooperative societies. In addition, mobile doctors enable timely treatment of the cattle.

Inclusion and Participation

Thousands of liters of milk are circulated nationwide everyday, because of the participation of milk producers at the grassroots. With each producer contributing one or two liters daily, the villagers form the basis of the cooperative movement. They themselves elect their leaders, who coordinate with the other cooperatives. The cooperative unions own and manage the processing facilities and also deal in marketing milk and milk products within their jurisdiction.

Several workshops and awareness programs act as platform for milk producers to interact with the authorities and discuss problems related to dairying practices. In order to increase women's participation in the cooperative network, the Women's Dairy Cooperative Leadership Program (WDCLP) has been initiated and extended to 50 district

unions that include 2,062 cooperative societies and 90,000 women participants.[2] Some of the other initiatives are the Women's Dairy Cooperative Societies (WDCSs) and Women's Thrift Groups (WTGs). Training is imparted on various aspects pertaining to animal hygiene, health, leadership training, orientation, responsibilities and rights of membership, and so forth.

Accountability

With 3,500 computerized milk collection centers, the fat content of the milk is measured accurately. Payment is made to the farmers immediately according to the tested fat content and the volume of milk. Computerization of this activity ensures that the farmers are not underpaid. Computerized profit and loss accounts and balance sheets also enforce accountability in the system.

The economic and social empowerment of milk producers has been realized in the form of a steady and secure flow of income, as farmers have full control over their resources and are no longer exploited by middlemen. Farmers assert their position as contributors to the development of the dairy industry across the country, and subsequently to the national economy.

Local Organizational Capacity

Perhaps the most important factor in the empowerment of farmers is the cooperative structure of the organization, which enables the daily collection of milk from millions of farmers scattered in thousands of villages spread across the country. Nowhere in the world have illiterate, poor, and vulnerable farmers organized themselves in such magnitude.

Organizational capacity is also evident from the formation of the WDCSs and WTGs. WTGs mobilize the savings of the women members to facilitate loans for animal maintenance or for the purchase of new livestock. More important, the group acts as a secure place for saving the revenues from the sale of milk.

V. Issues and Lessons

Historically, villagers had a blind faith in the middlemen, and were accustomed to selling milk only to them. Because middlemen had a personalized relationship with the villagers, one of the biggest challenges for NDDB was to convince the dairy farmers to sell milk to the cooperatives. An important institutional innovation that helped NDDB in this was the establishment of a supply chain between the producers and the consumers. This was achieved by organizing a mechanism for milk collection, setting up milk processing plants, and establishing a marketing unit to sell the products. In flush season (when milk production is at its peak), the middleman used to collect only a part of the total output and

[2] *Indian Dairyman*, November 2002.

pay lower prices. NDDB was able to accept all the milk that was produced without significantly lowering prices, because NDDB could convert the excess milk into storable and marketable products, such as butter and cheese.

In addition, some of the successful district units chose to work on broader issues of people's poverty, health, and hygiene while promoting good dairying practices. Enlarging its scope of activities helped NDDB to build rapport and trust between farmers and dairy functionaries.

Another daunting task was to organize and educate the illiterate and vulnerable farmers to form a large-scale cooperative network. Because milk was supplied from a large number of small producers, quality maintenance was a major issue due to the highly perishable nature of milk. Measures had to be taken to ensure improved hygiene and sanitation. Quality variations among the sellers had to be removed by improving the cattle breed (through artificial insemination), cattle feed, milk processing, and the delivery infrastructure.

With the removal of the quantitative restrictions (beginning April 2001) on dairy products under the agreement between the World Trade Organization and the government of India, the dairy industry of India has been facing a threat of increased imports in the form of milk and milk products from other developed nations of the world.

The quality level of milk, low yields, animal health, and corruption have been recognized by Mr. Tikku, (Managing Director of the Board) as the major challenges facing the Indian Dairy Industry.[3]

Some attempts have been made to connect the computerized milk collection centers to the Internet and to provide access to an indigenously developed dairy Web portal, covering greater use of information technology in processing plants, delivery of breeding and veterinary services, and milk collection centers. This was done with the aim of improving animal health and yields, and of reducing corruption. However, the experiments have not been successful so far because of poor Internet connectivity in rural areas.

Amul, one of the district milk marketing federations of NDDB, has been a pioneer in building an e-commerce platform to sell its products. A big challenge is to use electronic media and Internet to educate consumers on assessing the quality of milk.

Adapting the Operation Flood program experience to other developing countries will require assessment of the social, technical, and organizational aspects of milk production and processing. The national governments and international institutions for which dairy is a major concern should formulate policies to stimulate the growth of cooperative movements within the dairy sector.

NDDB has enabled the participation of more than 10.7 million farmers in forming a dairy cooperative that is national in scope. Positive impacts in terms of access to information

[3] *Financial Express*, December 5, 2002. See: <http://www.financialexpress.com/>.

and increased accountability are evident from training sessions and workshops, as well as from the computerized centers. However, the organization of millions of small milk producers to form a dairy cooperative of this magnitude is, perhaps, the greatest strength of NDDB.

VI. Further Information: References and World Wide Web Resources

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Web Links

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