



South Asia

RURAL LIVELIHOODS - THE PEOPLE SECTOR

SERIES 2

NOTE NO. 1

RAJASTHAN: Milking Profits from Dairy Farming

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Twice a day, men and women from the Bhomiya Baba common interest group huddle around the milk collection centre of Gola ki Dhani dairy cooperative society (DCS) in Dausa district, awaiting their turn to pour milk. The milk is tested, measured and collected in cans. A receipt slip for volume, fat content and price is given by the milk tester, which the milk producers use to claim payment every ten days. Jaipur milk union's trucks pick up milk collected by the DCS twice a day. On average the DCS delivers up to 1,000 litres per day and nearly 2,000 litres per day in the flush season. This way, the DCS links the rural poor to markets under the World Bank assisted District Poverty Initiatives Project (DPIP)¹ in Rajasthan, India.

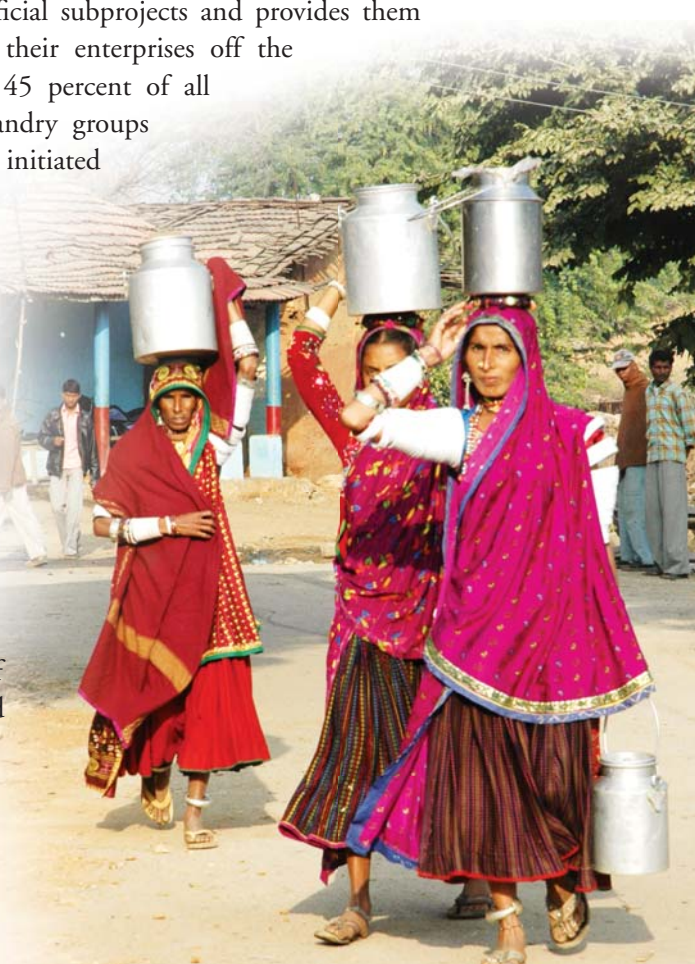
Unlike income generated from crop production, which is seasonal in Rajasthan, dairying is a source of a stable income bringing in cash on a daily basis and providing livelihoods security. This gives small farmers an important economic incentive to adopt dairying for their livelihoods. In India, dairying is recognized as a catalyst for social and economic development. Besides being a source of liquidity and insurance against crop failure, milk is the only product where the farmers realize 60-70 percent² of the consumer price.

Development Through Enterprise

The Rajasthan DPIP supports the formation of Common Interest Groups (CIGs) comprising 10-15 members at the village level. It then helps CIGs to identify and implement economically beneficial subprojects and provides them with matching grants to get their enterprises off the ground. Dairy accounts for 45 percent of all activities within animal husbandry groups and 22 percent of all CIGs initiated under the project.

Partners Vital to Dairy Success

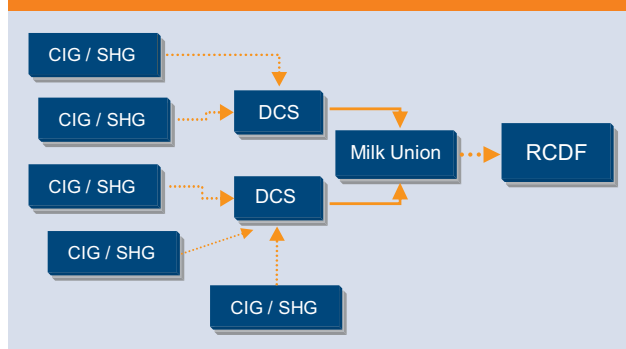
The Rajasthan Cooperative Dairy Federation (RCDF) is a registered society set up in 1977 to act as the implementing agency for dairy development programmes in Rajasthan. As North India's leading milk cooperative institution and an apex cooperative organization of the state, RCDF has established



¹ DPIP was launched in July 2000 in seven of the poorest districts and 7039 villages across the state of Rajasthan.

² Source: Dairy India 2007 report

Figure 1. Institutional arrangements for dairy production and marketing



milk routes, producers' institutions, a network of collection centres and processing facilities, and backward linkages for cattle feed, animal health services and financial products. This has led to a thriving consumer market for its branded milk products. RCDF follows the National Dairy Development Board (NDDB)³ model of providing capacity-building inputs to producers, organizing and federating them upwards into institutions and investing in the infrastructure required to scale up milk procurement. To leverage these strengths for the project, RCDF became a natural partner in the design and execution of the dairy intervention and so has successfully collaborated with the DPIP to promote institution building for dairying.

In this dairying model, CIGs are the basic unit at the village level, which unite to form a Dairy Cooperative Society (DCS). These cooperatives are organizations of producers whose function is to collect milk from their

members. All who need the cooperative's services and are willing to accept the associated responsibilities can gain membership. Each cooperative is expected to carry out the continuing education of its members, elected leaders and employees.

Milk cooperatives in a district form a Milk Union that, ideally, has its own processing facilities and coordinates transportation of milk from the village DCS to its milk processing plant. It also provides technical input services such as animal health cover, breeding advice, feed and fodder, etc., to its members. The Milk Union processes and sells the milk and milk products in order to generate revenue and offers a ready, reliable and remunerative market to the milk producers round the year.

The top tier in this system is the State Level federation (RCDF) whose main function is to market milk and milk products outside the state, oversee the inter-Union milk movement, provide technical and managerial support and liaise with the state government and funding agencies (figure 1). Each DCS and Milk Union, though affiliated, operates as an independent entity, and is responsible for their institution's economic viability. Each tier of the organizational structure performs a unique function. This constitutes decentralised production by the small producers, procurement and services by the cooperative, processing by the union, and marketing by the state federation. Thus, this model has evolved into an integrated approach to systematic dairy development.

Bundling Benefits

Under the RCDF arrangement, pre-existing dairy CIGs located on RCDF's existing milk route and the new CIGs formed by RCDF are linked to the operating DCS. Meanwhile, the CIGs formed by NGOs under the DPIP may also be connected to such milk routes or else new routes are established to reach them. RCDF is paid a facilitation charge of US\$375 per CIG by the project for their service of organising and sustaining CIGs through a comprehensive dairy support system. This entails asset building, technical know-how,

³ NDDB is an apex organization set up by the Indian Ministry of Agriculture in 1965 at Anand, Gujarat to replicate the Amul pattern of milk procurement, processing and marketing through three-tier structure comprising village cooperative society, district cooperative union and state level federation.



operational support, market and financial linkages, and capacity building and infrastructure development essential for a sustainable dairy unit. The total number of CIGs associated with RCDF is more than 3500, including many of those that are formed by NGOs and linked to RCDF for marketing.

Asset building

RCDF assists the CIG in purchasing two high quality milk animals per member at an interval of six months to a year, and at least one breeding bull per village (or CIG) to assure reproductive capacity. It is a participatory procurement process, with every member of the CIG involved in deciding what breed of cattle or buffalo they need. Members are required to undergo a three day capacity building foundation course on milk and animal management before they receive the animals. All CIG members constitute the Purchase Committee, which selects and buys the livestock themselves from villages in Haryana, Punjab and Gujarat and are assisted by qualified veterinarians, backed by the State Animal Husbandry Department or RCDF. Such an arrangement assures fitness, quality and fertility of the animals. During the process, the CIG members are exposed to the excellent animal management practices of three flourishing states of India.

Under the DPIP matching grant to the CIG, an initial one-time grant for production support (e.g., cattle feed, fodder seed, vaccinations, etc) is provided, in addition to funds to support structures such as cattle shed, manger and chaff cutter, and milk testing equipment for the collection centres (see table 1).

Technical know-how

Animal health care services and breeding and production enhancement facilities are provided by RCDF to members on a cost-recovery basis. A telephone hotline and doctor is available on call for a fee of US\$2.50. This is a significant benefit for members, as private doctors charge close to US\$17.50 for emergency visits.

The availability of a first aid worker in each village or a cluster of five villages is another significant feature of the dairy package. Skills and services that livestock farmers need on a daily basis (such as animal first aid, vaccinations, drenching and spraying for parasites) and for which they do not need a full veterinarian are being built at the village level. Youth volunteers undergo a 15-day hands-on training program with the assistance of the State Department of Animal Husbandry and are then given a medical kit to work with. This service has aided timely treatment of animals, regular health check-ups, vaccinations, and first aid during animal health emergencies.



Table 1: Sample Dairy Sub-project with DPIP assistance

Sl. No	Items	Cost per CIG	Beneficiary Contribution %	Beneficiary Contribution Rs.	DPIP Contribution Rs.
1	Cost of animals (Rs.15,500 per buffalo, 2 for each member, 15 members per CIG)	65,000	20%	93,000	372,000
2	Chaff cutter (Rs.2,000 per machine, one for three members, maximum 5 per CIG)	10,000	10%	1,000	9,000
3	Cattle Transportation (Rs.1,000 per animal, 30 animals per CIG)	30,000	10%	3,000	27,000
4	Cattle Insurance (2.25% for cattle cost, 30 animals per CIG)	10,463	10%	1,046	9,416
5	Milk cans, utensils and other equipment (maximum Rs.15,000 per CIG)	15,000	10%	1,500	13,500
6	Production grant for 1 month (for 1 animal per member, maximum Rs.1800 per member)	27,000	10%	2,700	24,300
7	Cost of bull including transportation, insurance (Rs. 20,000 per bull, one bull per CIG)	20,000	20%	4,000	16,000
	Total Sub-Project Cost (Rs.)	577,463		106,246	471,216

Operational support, market and financial linkages

Groups that are on a milk route linked to RCDF get an assured market, twice a day collection and transparency in price-setting, with prices publicly displayed at the society collection centers. In contrast, non-RCDF dairy CIGs typically sell milk in local markets to private traders and establishments who purchase only what they require on that particular day, resulting in significant wastage of milk and lower returns to producers. RCDF is able to pay its members higher rates by passing on savings created through the investment in added infrastructure, which results in reduced spoilage, transportation and processing costs.

The CIG members enjoy all the benefits that the RCDF cooperative network offers. The present pricing system is fixed and decided by RCDF and milk unions based on fat content and SNF (solid non-fat, i.e., protein, lactose, etc). Payment is determined automatically every day based on the total volume and percent fat content of the milk delivered by the members. Each member is paid once in every ten days for the milk supplied, with no limit for the supply volumes. In addition, an annual bonus is awarded in proportion to their business turnover with the DCS. The price difference earned from the value addition to milk and margin in sales is

also distributed by the Milk Union and DCS amongst its members, proportionate to their supplies. RCDF grants a subsidy of 90 percent in DCS registration fee to below-the-poverty line CIG members. However, to become a DCS member, each CIG member has to meet the membership criteria jointly set by the affiliated Milk Union and RCDF of being able to supply a minimum of 280 litres of milk in 180 days at a stretch.

Cattle insurance is mandatory at the time of animal purchase. RCDF provides Saras Life insurance (Saras Suraksha Kavach) with 12 percent of the premium borne by the member and the remainder supported by the respective DCS, milk union and RCDF. In addition, a group health insurance scheme (Saras Samuhik Arogya Bima Yojna) is available with 50 percent of the cost borne by RCDF and the rest by the respective Milk Union and DCS.

Capacity building and infrastructure development

Selected Milk Unions are operating centers for training members in DCS operations. These trainings are for the positions of DCS secretary, Management Committee member, Artificial insemination (AI) workers, milk tester, first aid worker, Chairman, and in dairy animal management and various refresher courses. Extension activities are carried out at DCS and Milk Unions to enhance active participation of the producer members

RCDF – Key Highlights

Year of Establishment: 1977-78
 Brand: Saras
 Product: Milk, Milk products and Cattle feed
 Milk procurement and marketing: No. 1 in North India
 Avg. milk procurement: 1.55 million liters per day
 Affiliated Milk Unions: 19
 Registered dairy cooperative societies (DCS): 9,050
 Registered members: 615,000
 Registered women DCS: 2,595
 Payment to producers (2004-05): US\$ 154 million

in the DCS and create awareness about improved animal husbandry practices. Visits to dairy plants demonstrate the processing of the milk collected from the producers. Producers also take field visits to acquire knowledge and skills from progressive models of dairy development in other parts of India. In turn, they educate other animal owners about the practices and benefits of cooperatives.

Technology has played an important role in building capacity of the local producers. Systems for milk collection and testing systems are automated with the installation of electronic milk testers. Meanwhile, auto milk collection stations have created a transparent and fair procurement system. Bulk Milk Coolers (BMCs), on the other hand, have played a critical role in building organized milk procurement in areas which



were inaccessible before due to distance and the risk of spoilage. Some 28 BMCs have been established by the project, leading to new milk routes, incremental income on chilled milk and more feasible transportation for the Milk Union.

Lessons Learned

The **patronage of RCDF and a well conceived dairy package scheme** has provided a strong framework, reducing the risks of failure and ensuring high probability of success. Inducting members' animals in two stages to ensure uninterrupted household cash flows, mandatory insurance of the animals, inclusion of support structures such as shelter, manger and chaff cutter to promote stall feeding and maximisation of fodder utilisation, an initial one time grant for production support and the supply

Benefits to a livestock farmer	Benefits to RCDF
<ul style="list-style-type: none"> Allows participation and empowerment in the cooperative set-up, and decision-making with an opportunity to lead at all the three levels (DCS, milk union and RCDF) Provides access to assured milk marketing routes No limit on supply volumes Availability of technical knowledge and skills and financial linkages at subsidized rates Optimum, fair and transparent pricing system with annual bonus distribution Immediate cash income and increase in savings, resulting in a positive effect on health and education of family Reap benefits from other Government schemes linked to dairy development through RCDF 	<ul style="list-style-type: none"> Aligns with their organization objective of promoting economic development of animal husbandry/ farming community, and the dairy industry Increased procurement through a growing base of livestock farmers Greater profits through economies of scale and reduced overheads Assured supply and consistent quality of milk, and therefore new markets to explore and cater to Cooperative spirit and the viability of village level DCS (backbone of RCDF) is critical to continue and sustain the momentum of growth for RCDF



of milk testing equipment to help start milk marketing were key elements of the project package.

The participatory milk animal procurement process involving every member of the CIG, supported by professional experts, has resulted in the induction of excellent quality of livestock. The animals have acclimatised well in their new environment and are in healthy condition.

Dairy development under the DPIP owes its success to **well organised CIGs**, systematic capacity building of the groups and their aggregate institutions, **establishment of strong forward and backward linkages**, and the assured sustainability arising from the integration of large numbers of the CIGs to the cooperative milk marketing system under RCDF. Model cooperatives such as DCS have progressively eliminated middlemen, bringing the producers in direct contact with the consumer market. Dairy development hinges on the CIGs set up by the rural poor who find that collective action has improved their lives and livelihoods. **CIG linkage with DCS** has provided livestock farmers with better access to inputs, skill development, animal health services and optimum returns on investment in a more cost effective manner.

Increasingly, dairy CIGs are emerging as **Self Help Groups** for their members, encouraging savings and

Subuddhi's change of fate

Subuddhi, a farmer living 'Below the Poverty Line,' has a family of five in Ramgarh village in the Dausa district of Rajasthan. He owns 2 acres of land and grows wheat, millet, sorghum, cluster beans and lucerne for subsistence and fodder.

He became a member of the Bhumiya Baba dairy CIG in March 2004 when it was formed with 15 Members. The project financed his purchase of two buffaloes and a calf, bought in July 2004 and October 2005 from Haryana. In addition, he received a subsidy for a livestock shelter, manger and a chaff cutter. With the RCDF intervention, he was soon linked to and registered as a member of Gola ki Dhani DCS. Now he owns 3 adult buffaloes and one 12-month old heifer. His animals are stall-fed with dry and green fodder and concentrate feed, and are milked twice a day. He pours milk at the collection centre both times in the day.

Production Income / Expenses for Jan-Dec 2007

Milk consumption at home: 660 litres (1.5-2 litres a day)

Total sale volume to DCS: 3920 litres

Rate per litre: Rs.17.15 (7 % F and 9 % SNF)

Total sale value from DCS: Rs.67,228

Bonus Received from DCS: Rs.13,446

Total milk Income: Rs. 80,674

Expenses during the year for feeding and managing three adult buffaloes and one heifer (Rs. 30 per animal per day): Rs. 43,800

Net Income from DPIP Dairy Business in 2007: Rs. 36,874.00

Bhomiya Baba Dairy CIG has also emerged as a Self Help Group (SHG), with members saving Rs.50 per month. The SHG has started inter-lending since 2004 at 1 percent monthly interest rate. The group has saved Rs. 45,000 and has no bad debts so far.

servicing the farm/household level credit needs of members. Access to instant cash credit as working capital for the animals and household emergencies, has insulated the enterprises and the households from different kinds of uncertainties and risks.

The record low numbers of insurance claims for animal mortality testifies to the **good management and maintenance of milk buffaloes by the CIG members**. While claims may not always capture all cases of death among livestock, they are indicative of the low mortality rate. Total insurance claims for mortality for the entire project period up to end April 2007 were 762 out of a total of 74,820 milk cattle supplied (1.08 percent mortality rate).

Strengthening infrastructure in dispersed and unconnected areas has established better market access. Installation of 28 bulk milk coolers at village level DCS has increased connectivity and expanded RCDF's network for milk collection.

Achievements

Under the DPIP-RCDF partnership, 3,500 CIGs are now producing over 125,000 litres of milk daily. With 40 percent of this as marketable surplus, RCDF is procuring 40,000 litres from these groups on a daily basis, resulting in additional income of US\$ 30-35 per month to each CIG member, and enabling the dairy CIGs to accumulate a total US\$ 575,000 in savings. The IRR for such dairy activities ranges from 25-36 percent⁴.

Impact of intervention

Social Impact

Since access to and distribution of livestock is more equitable than that of land, the programme has resulted in more inclusive rural growth benefiting both men and women in Rajasthan. Livestock assets used in dairy production provide a key avenue for capital accumulation and financing other productive activities. It acts as insurance for the resource-poor, thereby improving the social status of the rural poor in society. Well-organised dairying also promotes gender and social equity. In the



dairying sub-sector, women are mostly seen looking after livestock animals. The dairy cooperative set-up has encouraged participation and empowerment of such women, creating a space for them to be decision-makers at the village level. With better incomes, more children are attending school and there is visible improvement in the living conditions of households.

Economic Impact

Dairy activity generates incremental income for households and reduces the longstanding problems of unemployment and underemployment. Regular payment by the DCS has ensured uninterrupted flow of cash income for fulfilling consumption needs of the members. CIGs have also migrated to a Self Help Group (SHG) working pattern, accumulating savings and initiating inter-lending activity within the group to enable further enterprise development.

Household Nutrition and Food Security

Availability of milk for consumption promises better food security and guarantees improved health and nutrition for rural households, especially for women and children.

Access to services

Members are exposed to community development and group dynamics, their skills are built and voices heard, and they have access to credit and other facilities such as insurance schemes etc.

Future Directions

- There is significant potential for continued growth in dairy activities in the state as illustrated in table 2. This is due to rapidly increasing demand in the nearby urban centres of Jaipur and Delhi and the large gap between total milk production in the state and organized procurement.

⁴ DPIP Rajasthan Evaluation Report: Non-Farm Livelihoods, Animal Husbandry and Natural Resource Management Activities (Adarsh Kumar)

Table 2: Rajasthan: Milk Supply Statistics

	Lakh litres
Total Annual Production	100
Marketable Surplus	80
RCDF Organized Procurement	15
“Unorganized” Procurement: Private Sources/Local Establishments	65

* Source: RCDF Staff

- Further investment is required in infrastructure to scale up milk procurement. In dairying, there are clear economies of scale to be realized, but aggregation of production is required to make investments in needed infrastructure viable. For example, a series of BMCs are necessary to build up the volumes required to invest in an insulated tanker that can transport the milk to Jaipur and other major urban centers.
- Increased emphasis on environmental investments in the livestock sector through adoption of bio-gas plants and vermi-composting shall be beneficial. Biogas, as a supplement to fuel wood for household energy needs, has great potential in the State while vermi-composting is a low cost and easy method to enhance soil productivity and increase crop yield.
- Smallholders must manage their herds in order to maintain a steady supply of milk. The number of milk animals that can be reared is dependent on the size of landholding, the availability of cattle feed, and labour. The optimal number of buffaloes that can be maintained under the prevailing conditions for smallholders is four.
- With the expansion of dairy activities and to promote increased milk production, there is a need to develop persistent and productive pastures for high nutritive quality of cattle feed and to expand the use of qualified veterinarians and/or trained youth professionals (para-vets) for animal health and breeding.
- More private sector participation would create competition among market players and thereby, greatly benefit the members of CIGs, fetching them better prices and services. Under the project, in addition to collaborating with RCDF, such participation is being encouraged through NGO supported dairy initiatives, utilising private sector partnerships.

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