

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: AB5612

Project Name	India: National Dairy Support Project
Region	SOUTH ASIA
Sector	Animal Production (60%); Agricultural extension & research (20%); Agricultural market & trade (20%)
Project ID	P107648
Borrower(s)	GOVERNMENT OF INDIA
Implementing Agency	National Dairy Development Board Anand Gujarat India
Environment Category	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
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1. Key development issues and rationale for Bank involvement

India's 'White Revolution' is a phenomenon as celebrated as the 'Green Revolution' in development literature. National milk production quadrupled between 1974 and 2006 and per capita milk availability more than doubled over the same period. An important driver of the increased supply was the increase in domestic demand for milk and milk products. Between 1983 and 2006, as the economy grew and incomes rose, the share of milk and milk products in households' expenditures increased from 11.5% to 15.1% in rural areas and from 15.7% to 17.5% in urban areas. India is today the world's largest producer of milk -- about 108 million tons presently. Milk accounts for about 18% of agriculture GDP, and in terms of value of output is now the single largest agricultural commodity in the country. Milk production is dominated by small producers with an estimated 70 million rural milk animal households in the country -- of which about 75% are landless, marginal or small farmers. Small and marginal farmers, typically owning between 1-3 animals, contribute about 70% to the total milk production. Women constitute about 70% of the labor force in livestock farming.

An important contributor to past growth was a series of Operation Flood programs spearheaded by the National Dairy Development Board (NDDB) through promotion of dairy cooperatives across the country. The Bank was a significant partner in this process and supported Operation Flood through a series of five operations between 1974 and 1995.¹ A 1997 Operations Evaluation Department (OED) evaluation study of the impact of these operations concluded:²

¹ These were Karnataka Dairy Development Project (Cr. 482-IN), Rajasthan Dairy Development Project (Cr. 521-IN), Madhya Pradesh Dairy Project (Cr. 522-IN), National Dairy Project (Cr. 824-IN), and National Dairy II Project (Cr. 1859-IN/Ln. 2893-IN).

‘...the impact of Bank’s dairy assistance to India has been large and positive’

‘...the projects have had a big impact on employment; support of membership NGOs; increased leadership opportunities for women; education, nutrition, and poverty reduction, sometimes in excess of newer-style projects dedicated to just one of these objectives’

Notwithstanding past success, the Indian dairy sector is facing renewed development challenges today. These include:

Slowdown in growth of milk production. The growth rate of milk production has slowed in recent years – from an average of 4.3% per annum in the 1990s to 3.8% per annum in the 2000s - while domestic demand continues to grow spurred by rising per capita incomes and food preferences shifting towards milk and milk products. Over the next decade milk demand is projected to grow at 4-5% per annum. Improving productivity of dairy farmers to meet the projected demand is a key development challenge facing the Indian dairy sector.

Low productivity levels. There is significant scope for improving productivity at the farm level. For instance, average milk yield of Indian cows is only about 3.1kg/day against a world average of 6.4 kg/day.³ Less than 20% of the cattle are cross-bred with relatively high milk yields, while a vast proportion are indigenous non-descript cattle with very low milk yields. Productivity is low mainly due to poor nutrition, low genetic potential for milk production, and near absence of well run genetic improvement programs.

On the nutrition side, feed scarcity and feed quality continue to be a limiting factor to improved animal productivity. The mainstay of Indian dairy cattle and buffalos are straws and other dry fodder, with green fodder as a supplement, and concentrate feeds as available. According to one estimate, the deficit between requirements and availability is estimated to be about 11% for dry fodder, 28% for green fodder and 35% for concentrates.⁴ Green fodder production is constrained by limited acreage and lack of availability of good quality fodder seeds on sustained basis. The area under fodder crop has stagnated during the past decade and accounts for less than 5% of the total cultivated area. Common property resources have continued to dwindle both in quantity and quality. Increased use of balanced concentrates, in particular, can enhance milk yields significantly in the short run. Quality issues, though, need to be addressed as due to absence of any regulation, available manufactured feed is reportedly often of questionable quality. While R&D efforts have highlighted micronutrient deficiencies at local levels, limited attention has been paid to increasing availability of area specific mineral mixtures, by pass protein, or enriched crop residues in the form of blocks, pellets etc.

² World Bank, Operations Evaluation Department, ‘The Impact of Dairying Development in India: The Bank’s Contribution’, Report No. 16848-IN, 1997.

³ Average milk yield per cow in other major milk producing nations is as follows: 25.6 kg/day in USA, 7.8 kg/day in China, 9.5 kg/day in Russia and 18.6 kg/day in Germany. Unlike other countries, buffalos are a significant source of milk in India accounting for over half the national milk production. Average milk yield per buffalo is about 4.4 kg/day.

⁴ Report of the Working Group on Animal Husbandry and Dairying for the Eleventh Five Year Plan, Planning Commission, Government of India, December 2006.

On the breeding side, the emphasis has been on cross-breeding, with limited attention to improvement of indigenous breeds. Some success has been achieved through artificial insemination (AI) programs, particularly in the leading dairy states, with about 20% of the nationwide breedable animals having been inseminated, though conception rates are generally low, typically less than 50%. However, by and large, this has not been accompanied by scientific genetic improvement programs that would maximize impact. Presently only about 10% of the breeding bulls in the country's 55 semen production stations are coming through a genetic improvement program. To meet future challenges, this would need to be considerably enlarged with increased focus on rigorous progeny testing programs. In terms of AI service providers, the sector is dominated by the government (68%) and cooperatives (21%) whereas NGOs and private organizations account for the rest.

Limited farmer access to organized milk processing sector. About half of the milk produced is marketed, with only about 30% of the marketed milk handled by the organized sector.⁵ Small producers are particularly affected as they are forced to sell their marketable surplus to informal traders who, during the flush production season, often offer less than market prices or even decline to procure output. Also, from a health and food safety perspective, milk processed and marketed by the organized sector is safer and less likely to be contaminated. A key development priority therefore is increasing the role of the organized sector in the share of milk handled. Whereas in advanced economies more than 90% of the milk is processed by the organized sector, in India this figure is only about 16%. Scaling up the reach of the organized sector in a manner consistent with food safety norms is an important element of ensuring safe milk for consumers.

Functioning of cooperatives. There are currently about 13 million milk producers who are members of about 150,000 village dairy cooperatives that are federated into 177 district milk unions which in turn are federated into 22 state cooperative dairy federations.⁶ Development and performance of dairy cooperatives has been uneven across states. About two-thirds of village dairy cooperatives and cooperative milk processing capacity is located in six states – Gujarat, Maharashtra, Rajasthan, Uttar Pradesh, Karnataka and Tamil Nadu. Most of the cooperatives were established with some element of government equity, which provides an avenue for government intervention under the existing State Cooperative Acts. Government interference in dairy cooperatives management and price determination has contributed to a number of the cooperatives becoming increasingly dysfunctional in some states. In general, judging from milk procured and marketed, profitability, and share of producer in final consumer price, cooperatives in the west and south (e.g., Gujarat, Karnataka) have performed better than in the east or north (e.g., Uttar Pradesh). While successful experiences clearly demonstrate the potential of dairy cooperatives in reaching out to the poor, in order to achieve better performance the cooperatives

⁵ The organized sector comprises mainly the cooperative and private sectors, who presently handle roughly equal proportions of the marketed surplus.

⁶ The cooperative structure consists of a Dairy Cooperative Society at the village level affiliated to a Milk Union at the District level which in turn is further federated into a Milk Federation at the State level. The above three-tier structure was set-up in order to delegate the various functions. Milk collection is done at the Village Dairy Society, Milk Procurement & Processing at the District Milk Union and Milk & Milk Products Marketing at the State Milk Federation. This helps in eliminating not only internal competition but also ensuring that economies of scale are achieved.

need to separate politics from business, insist on competent professionals in management, and avoid interference in technical and business decisions. However, reform of cooperatives has long been a sensitive and difficult subject in India. To protect new producer based institutions from similar problems in the future, NDDDB is actively promoting the concept of 'new generation cooperatives' which would be registered as producer companies under the Companies Act, rather than as cooperatives under existing State Cooperative Acts.

Uneven regional development. Following delicensing of the dairy industry in 1991 and elimination of captive milksheds in 2002, private sector presence in milk processing has grown at a rapid rate. There are presently 450 private milk processing plants with an approved capacity of 50 million litres per day (compared to 233 cooperative milk processing plants with an aggregate capacity of 41 million litres per day). In geographical terms, however, the private sector has often followed, rather than led dairy development by building on existing institutions and infrastructure created by dairy cooperatives. This has resulted in uneven regional development with milk processing capacity, both cooperative and private, concentrated in a few states. From the GoI perspective, promotion of dairy activities in lagging regions that have potential but have hitherto been neglected is necessary to ensure a more equitable and inclusive approach to dairy development across the country.

Weak and inadequate public service delivery. Public extension services have played a major role in technology and knowledge transfer in the crop sector, but in the livestock sector extension service delivery has been very weak. Public expenditures on animal husbandry and dairying have been declining steadily from 5% of the livestock GDP in 1990/91 to 3.1% in 2007/08. Public extension activities by the state animal husbandry departments suffer from inadequacy of resources and the lack of expertise to conceive and operate technology transfer packages. The services are mainly run by veterinarians who operate from veterinary dispensaries to treat animals, rather than educate and inform farmers about feeding, breeding, animal management and health issues. In recent years a number of NGOs have started providing livestock services including AI services, extension advice, inputs, and livestock insurance. Performance of AI programs in terms of conception rates and cost per calf born is better for services administered by the NGOs compared to those provided by the government.

Policy and regulatory framework. Apart from the subject of cooperative reform, two other areas are of significance. First, is the absence of a regulatory framework that sets standards and protocols for semen production and delivery of AI services, and absence of any standards and labeling requirements for production and sale of cattle feed. As a result the inputs available (semen, cattle feed) are often of questionable quality. Introduction of appropriate regulation in these areas is under consideration in GoI. Second, a few states have issued notifications that include AI services as part of minor veterinary services which can only be delivered by government staff trained for the purpose. In addition, all states implicitly subsidize delivery of AI services at the over 45,000 dispensaries/centers run nationwide by state animal husbandry departments. These measures inhibit greater private sector participation in provision of AI services. As a first step towards understanding the extent of subsidy involved, a detailed costing exercise has recently (January 2010) been proposed by GoI to be carried out by an independent agency.

Environmental sustainability. Not much attention has been paid to environmental sustainability of the dairy sector. As demand for dairy products increases, the capacity of production systems to respond needs to factor in the possible environmental externalities. First, overgrazing threatens the sustainability of common property resources (pastures, grasslands, forests) considered to be the primary source of feeding for smallholders' livestock. Second, higher yielding dairy animals will necessarily require additional supply of feed and fodder and would put increasing pressure on land and water resources. Third, larger bovine production inevitably contributes to green house gas emissions (methane) and pollution of water ways. "Business as usual" is no longer a viable option and approaches to reduce adverse environmental impacts and ensure sustainable dairy development need to be adopted. These include improving feed diets, feed supply and feed conversion ratios to reduce enteric fermentation and hence methane emission, manure management to reduce pollution, increase feed crops productivity through intensification, and reduce common property resources degradation.

Rationale for Bank involvement

The Bank has had a long and fruitful engagement with development of the Indian dairy sector. As mentioned above, the Bank supported Operation Flood through a series of five operations between 1974 and 1995, the impact of which was large and positive.

Since the mid-1990s, as part of a number of state-level agriculture, watershed and rural livelihoods development projects, the Bank has been supporting animal husbandry and dairy components in various states, albeit at a limited scale. These components have typically been part of a 'farming systems' approach and have supported breed improvement through promotion of private paravets, farmer training on hygienic milk production, village level pooling, collection and marketing of milk by small holders, and farmer linkages with the credit system.

The proposed project is an opportunity for the Bank to re-engage at a national scale in development of a pro-poor sector. Following the 2008 food crisis there is renewed emphasis, globally as well as in India, on improving agricultural productivity and food security. The Indian dairy sector can potentially contribute significantly to meeting this goal while adding to incomes of millions of small producers. The project is well aligned with the country and sector strategies of achieving inclusive growth, promoting sustainable development, and improving effectiveness of service delivery. The scale of the project provides opportunities to catalyze GoI and NDDDB's own efforts for a more enabling policy and regulatory environment. From the environmental perspective, the project offers an opportunity to increase milk production through improving animal productivity and not by increasing the numbers of animals, thereby resulting in an overall reduction of greenhouse gases. It also presents opportunities to support programs for reducing the gap between demand and supply of green fodder with particular reference to revitalizing grasslands and pastures that were once used as grazing grounds.

The Bank has recently (June 2009) completed a major study on the Indian livestock sector which underscored the demand-led transformation of the livestock sector (including dairy) and comprehensively analyzed the various aspects of livestock and dairy development, including support services delivery, access to markets and dairy value chains, and the division of roles in a sector development strategy for leading and lagging regions. The study recognized the slow

entry of the private sector in milk processing in the lagging regions. It recommended further investments in this activity to better integrate supply response in the lagging regions with growing demand in the leading regions. The study also noted that there exist ample opportunities to establish dairy processing plants both in the private and cooperative sectors because of the wide gap between existing processing capacity and milk production. It identified breeding and feeding as key support services essential for improving animal productivity and recommended a number of measures to that end. Genetic improvement and increased AI services delivery at farmers' door steps as paid inputs, coupled with good quality semen are important to increase the genetic potential of animals. Feed manufacturing and production of good fodder seeds are necessary actions to help resolve the feed deficit constraint. The study examined other areas such as animal health and veterinary services delivery and the role of the government in focusing on preventive services rather than curative care particularly in leading regions. The above recommendations from the study will help inform project design and preparation.

Finally, the Bank is well placed to bring in value-added in terms of lessons learnt from past Bank financed projects in the agriculture and rural sector by integrating best-practices into project design and avoid repeating past mistakes. The project also offers an opportunity to consolidate and converge efforts with ongoing state-level Bank financed agriculture and rural livelihood projects and government schemes in support of animal husbandry and dairy development.

2. Proposed objective(s)

The Development Objective of the proposed project is to increase the productivity of milk animals and improve access of milk producers to the organized milk processing sector.

The project will have the following three components:

Component A (Indicative USD 280 million): Productivity Enhancement

This component would focus on animal productivity enhancement through improved animal breeding and nutrition interventions across the country. It will include:

- Genetic improvement and breeding through production of bulls through progeny testing for artificial insemination (AI), quality semen production and storage, and delivery of AI services
- Improved bovine nutrition through ration balancing program, investments in cattle feed plants and value added feeds like bypass protein, area specific mineral mixtures, fodder seed production and seed processing units, farmer education and promotion of improved livestock management practices at the farm level
- Enhanced animal identification measures and development of related information network, supporting M&E and MIS databases, technical assistance, and human resource development

Component B (Indicative USD 320 million): Milk Collection and Bulking

This component aims at village level milk collection and bulking and linking milk producers to the organized sector. It will include:

- Community mobilization and institution building which would include identifying dairy producers at the village level and formation and building of milk producer groups/institutions
- Training and capacity building of milk producers and milk collection agents, initial managerial assistance for producer institutions including proposed new generation cooperatives
- Investments in village level infrastructure for milk collection which will include milk cans, bulk milk coolers for a cluster of villages, associated weighing and testing equipment and other basic infrastructure
- Building linkages between milk producer institutions and milk processing plants

Component C (Indicative USD 400 million): Milk Processing and Market Development

This component would address the market development aspect of the dairy industry particularly at the processing level. Activities to be undertaken within this component include:

- Financial assistance for expanded milk processing and marketing capacity for cooperatives and other producer based institutions such as producer companies
- Technical assistance, support for business development and capacity building

3. Safeguard policies that might apply

Safeguard Policies Triggered	Yes	No	TBD
Environmental Assessment (OP/BP 4.01)	X		
Natural Habitats (OP/BP 4.04)			X
Forests (OP/BP 4.36)		X	
Pest Management (OP 4.09)			X
Physical Cultural Resources (OP/BP 4.11)		X	
Indigenous Peoples (OP/BP 4.10)	X		
Involuntary Resettlement (OP/BP 4.12)	X		
Safety of Dams (OP/BP 4.37)		X	
Projects on International Waterways (OP/BP 7.50)		X	
Projects in Disputed Areas (OP/BP 7.60)		X	

As part of project preparation, a Strategic Environmental and Social Assessment (SEA) has been planned. In addition to identifying plan/policy/program level environmental and social issues, the SEA will also identify the project's potential negative and positive environmental and social impacts and recommend measures to prevent, minimize, mitigate and compensate for adverse impacts and enhance the positive impacts. A range of tools, such as, stakeholder analysis, environmental and social impact assessments, policy and regulatory regime review would be utilized in the course of conducting the SEA. Adequate stakeholders' consultations will also be undertaken during the assessment. The SEA would also develop an ESMF for addressing the

adverse impacts and enhancing the positive impacts. The assessment report including the safeguards documents are expected to be ready before appraisal and expected to lead to improved environmental and social performance of the project. Safeguards related documents would be widely disclosed to ensure that concerned stakeholders have had a chance to go through them and provide inputs.

4. Tentative financing

Source:	(\$m.)
BORROWER/RECIPIENT	100
International Bank for Reconstruction and Development (IBRD)	400
International Development Association (IDA)	500
Total	1000

5. Contact point

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