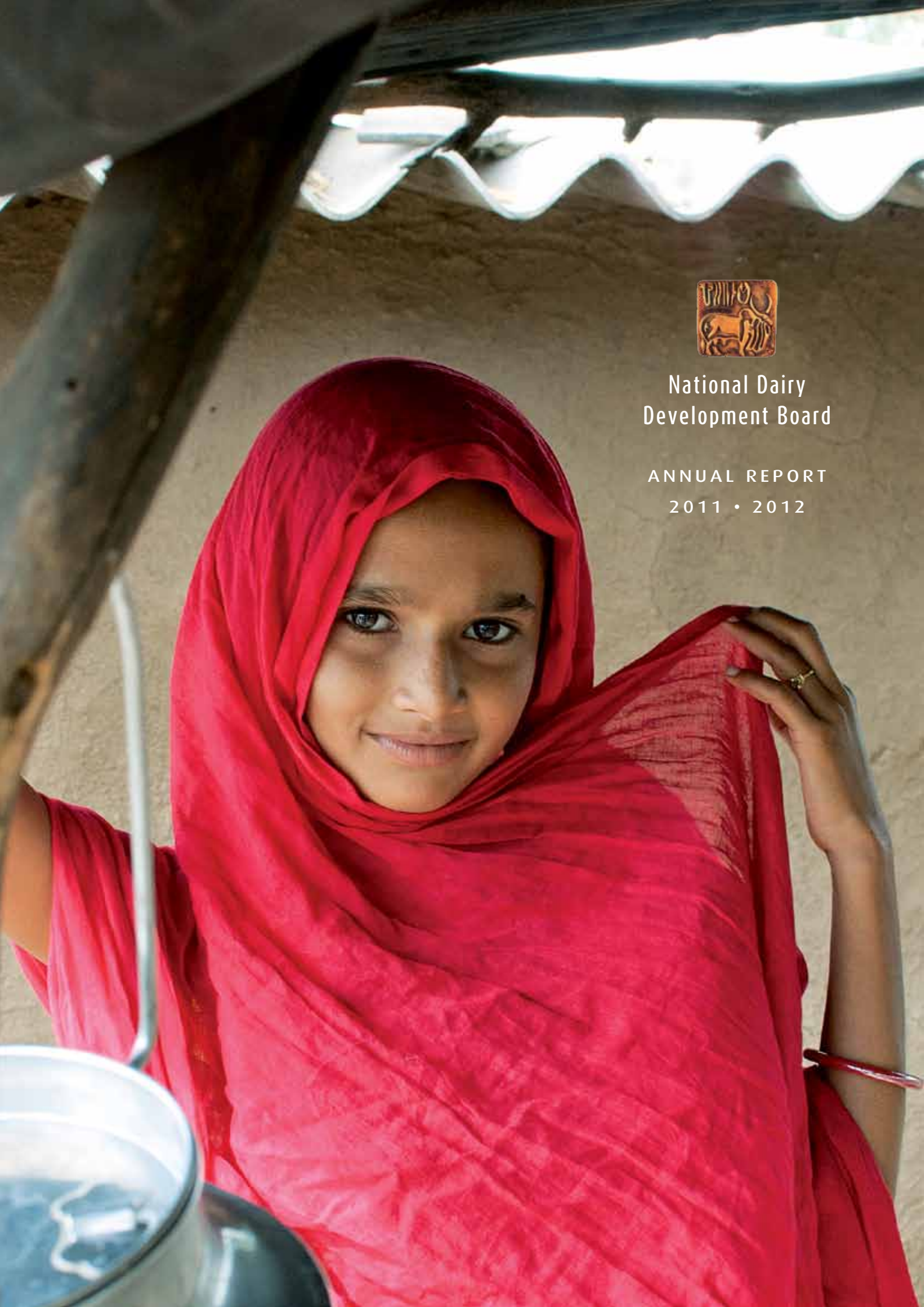


National Dairy Development Board

ANNUAL REPORT
2011 • 2012

Contents

Thank you for giving us a dream. Thank you for showing us the way. Thank you for guiding us to better the lives of

millions of farmers. As we remember all that you have done for us, we remain dedicated to pursuing and achieving your vision. We remain committed to reaching out to many more lives.

Members of the Board

(As on 31 March 2012)

Dr. Amrita Patel
Chairman

Shri Sanjeev Ranjan*
Joint Secretary
(Administration & Dairy Development)
Department of Animal Husbandry, Dairying and Fisheries
Ministry of Agriculture,
Government of India

Smt. Rajni Sekhri Sibal**
Joint Secretary
(Dairy Development)
Department of Animal Husbandry, Dairying & Fisheries
Ministry of Agriculture,
Government of India

Shri S Parthasarathy
Expert

Shri Parthibhai G Bhatol
Chairman
Gujarat Co-operative Milk Marketing Federation Ltd
Anand

Shri PT Gopalakurup
Chairman
Kerala Co-operative Milk Marketing Federation Ltd
Thiruvananthapuram

Shri Dilip Rath
Managing Director

Shri Ravi Shankar
Executive Director

Shri Sangram Chaudhary
Executive Director

* Till - February 2012
** Since - March 2012

Management Committees

The NDDB Act 1987 provides for the constitution of Management Committees for NDDB managed and subsidiary Units. The Board is of the view that the management of these Units can best be done through such Committees. The Board determines the number of persons to constitute the Management Committees subject to the condition that in each such Committee, either the Chairman or a full-time Director shall be a member. The Management Committees function under the general control, direction and superintendence of the Board and for such duration and in such manner as the Board directs.

Members of Management Committees

(As on 31 March 2012)

Sabarmati Ashram Gaushala, Bidaj

Dr. Amrita Patel Chairman

Shri D Tikku Vice-Chairman

Shri Dilip Rath Member

Dr. KR Trivedi Member

Dr. GK Sharma Member

Shri YY Patil Member

Dr. CP Devanand Member-Convenor

Jalgaon Jilha Sahakari Dudh Utpadak Sangh Maryadit, Jalgaon

Shri Sangram R. Chaudhary Chairman

Dr. SK Dalal Member

Shri Anil S. Hatekar Member

Shri SN Patil Co-opted Member

Smt. Geeta S Chaudhari Co-opted Member

Shri RC Patil Co-opted Member

Smt. AA Barhate Co-opted Member

Shri RS Lahane Member-Convenor

The Year in Retrospect

India continued to be the largest milk producing nation in 2011-12 with an anticipated production of 127 million tonnes. This was close to 17 per cent of world milk production.

The Dairy Scene

With an anticipated milk production of 127 million tonnes, an increase of 4.25 per cent over the previous year, India continued to be the largest milk producing nation in 2011-12. This accounted for about 17 per cent of world milk production. More people in India now consume milk. The 66th Round of National Sample Survey Organisation data on consumer expenditure showed that while 85 per cent of the population in urban areas consume milk in their homes, it is 76 per cent in rural areas. The dairy cooperatives collected 10.5 million tonnes of milk, an increase of around 10 per cent compared to 2010-11. Milk marketing by the cooperatives stood at 8.6 million tonnes, an increase of around 4 per cent compared to the previous year. The cooperatives paid a higher procurement price to milk producers to offset the high input cost for milk production. At the instance of Government of India, NDDB imported 50,000 tonnes of milk powder and 6,000 tonnes of butter under the Tariff Rate Quota (TRQ) to ensure availability of liquid milk during the lean season and to meet the requirements of cooperatives and city dairies.

During the year, FAO estimated world milk production at 730.1 million tonnes – an increase of 2.3 per cent over the previous year. World prices for dairy products declined during the year.

The National Dairy Plan

The Cabinet Committee on Economic Affairs considered and approved the National Dairy Plan I in February, 2012.

The Board of Executive Directors of the International Development Association approved an amount of SDR 218.8 million (US $ 352 million equivalent) for the National Dairy Plan in March 2012.

The Department of Animal Husbandry, Dairying & Fisheries (DADF), Ministry of Agriculture, Government of India thereafter issued an Administrative Approval of a Central Sector Scheme "National Dairy Plan" Phase-I (NDP-I) for a period of six years.

The Financing Agreement between Government of India and the World Bank and the Project Agreement between the World Bank and NDDB were executed in April 2012.

National Dairy Plan-I has an estimated outlay of ₹ 22,418 million comprising ₹ 15,843 million as IDA loan, ₹ 1,760 million as Government of India's share, ₹ 2,815 million as End Implementing Agencies' (EIAs) contribution and ₹ 2,000 million as National Dairy Development Board's (NDDB) contribution towards technical and implementation support. The outlay for the different components is:

Component	Activity	Outlay (₹ in million)
Component A	Breed Improvement	7,367
	Animal Nutrition	4,251
Component B	Village Based Milk Procurement Systems	7,472
Component C	Project Management & Learning	1,328
	Sub total	**20,418**

In addition, funds would be required for setting up processing facilities and marketing for which discussions are continuing with banks and financial institutions.

The National Dairy Plan is expected to be implemented directly through End Implementing Agencies' (EIAs) in the 14 major dairying states that account for more than 90 per cent of milk production in the country and which meet the eligibility criteria with regard to putting in place key policy and regulatory measures to create a more enabling environment for the implementation of the Plan.

Project proposals received from EIAs will be appraised by a Project Management Unit located in NDDB and thereafter be placed before the Project Steering Committee. The Project Steering Committee headed by the Mission Director (NDP-I) having representatives of the Department of Animal Husbandry, Dairying & Fisheries (DADF) & NDDB and the Secretary (AH & Dairying) of the concerned state government or his representative as an invitee, will approve proposals and sanction funds for disbursement. A National Steering Committee chaired by Secretary, DADF, Government of India will approve annual action plans, sanction release of funds to NDDB as well as re-appropriate funds and generally oversee and review implementation of the project.

High Genetic Merit crossbred bull calves under quarantine.

Preparing for the National Dairy Plan

During the year, several key initiatives were embarked upon in preparation for implementation of the National Dairy Plan.

NDDB's Breeding Group drafted various manuals detailing Standard Operating Procedures (SOPs) and Minimum Standards (MS) for implementation of Progeny Testing (PT) programmes, Pedigree Selection (PS) programmes, Frozen Semen Production and Artificial Insemination (AI) delivery services, which were then discussed with experts from across the country and finalised.

A major component of increasing productivity is breeding by Artificial Insemination (AI) and the need to ensure that the AI service can be carried out in a sustainable manner. Two studies were undertaken: one to provide a better understanding of the various AI delivery systems in the country including those carried out by state governments, and another study to estimate the cost of AI delivery at the farmers' doorstep, as, over time, states that participate in the NDP - I are committed to increasing the charges for AI to cover the actual cost.

Productivity enhancement by providing ration balancing advisory services at the milk producers' doorstep is going to be a major focus area under the NDP - I. A large pilot on ration balancing was implemented at a single location covering 5,330 households and 12,777 animals. Guidelines on implementation of the ration balancing programme have been finalised. A documentary on ration balancing in five different languages was produced which would be used to create awareness among decision makers and milk producers on balanced feeding in the NDP - I area.

Formulation of a balanced ration.

Given the increasing shortage of straw, the use of auto pick up type balers was studied in Malabar Union in Kerala. The effective use of the baler combined with straw enhancement and densification provides a good model to be replicated in the NDP - I.

As a part of project preparation and to meet a requirement of the World Bank, a detailed Strategic Environment and Social Assessment (SESA) study was undertaken involving field studies and wide-ranging stakeholder consultations in the states of Punjab, Karnataka, Gujarat and Bihar. Based on the outcome of SESA, an appropriate Environmental & Social Management Framework (ESMF) was formulated which will be implemented as part of the project.

Key to the success of the NDP - I is manpower. A comprehensive document "Training and Capacity Building guidelines and plan for NDP-I" which includes information on training processes, templates of anticipated training programme pertaining to all the components of the plan and a year-wise training plan with a tentative financial outlay has been prepared.

Launch of the National Dairy Plan

Shri Sharad Pawar, Hon'ble Minister of Agriculture and Food Processing Industries addressing the gathering at the launch.

The National Dairy Plan was formally launched by the Minister of Agriculture and Food Processing Industries, Government of India on 19 April 2012 at NDDB, Anand in the presence of the Chief Minister of Gujarat and the Minister of State for Agriculture & Food Processing, Government of India and State Ministers of Animal Husbandry & Dairying of Karnataka, Maharashtra, Madhya Pradesh, Punjab, West Bengal and Uttar Pradesh, Secretary (ADF) & Joint Secretary (DD), Government of India. Also present on the occasion were Secretaries of Animal Husbandry & Dairying of the states of Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Odisha, Punjab, Tamil Nadu, West Bengal, and Uttar Pradesh, and Chairmen & Managing Directors of various State Milk Federations.

Earning livelihoods in a harsh environment.

In order to provide exposure to the latest technologies in progeny testing and state-of-the-art semen production facilities in some advanced dairying countries, NDDB deputed its officers to Canada. Visits to other countries like France, the Netherlands, etc. would also be arranged in the near future. ✤

Strengthening Cooperative Business

NDDB supports dairy cooperatives to meet the challenges in a market-driven economy, through better governance and sound management.

During the year, orientation programmes continued to be organised for board members of cooperative milk unions to sensitise them to the increasingly competitive environment and challenges faced by dairy cooperatives, as well as the importance of dairy cooperatives functioning as professionally managed business enterprises. Training programmes for milk procurement personnel were conducted to upgrade and update their skills to enable them contribute more effectively towards the structure and processes in adopting best practices in the areas of clean milk production, animal breeding, animal nutrition, animal healthcare and management practices. Orientation programmes were also organised to expose milk producers to processes which ensure fair and transparent systems for milk procurement.

During 2011-12, the cooperative milk unions together procured 28.7 million kg of milk per day compared to 26.2 million kg per day in the previous year, registering an annual growth of around 9.5 per cent. Liquid milk marketing by the cooperatives reached 22.9 million litres per day compared to 22.0 million litres per day in the previous year, showing a growth of 4.1 per cent.

Unions were encouraged to persuade more women to participate actively as members in the day-to-day functioning of their village cooperative societies.

A number of milk unions are increasingly creating all-Women Dairy Cooperative Societies (WDCS). By March 2012, unions across 20 dairying states have reported 18,954 WDCS with a total membership of 4.26 million across the country.

Of the total women members in dairy cooperatives, 2,35,000 have attained leadership roles on management committees of village DCS, and 230 of these have attained representation on the Boards of Directors of milk unions and federations.

Women – the lifeline of dairying in India.

A fair and transparent system of milk procurement.

Self Help Groups (SHG) have also proved to be an effective tool for capacity building as these groups provide a platform for social, economic and cultural empowerment. Milk unions in the states of Bihar, Madhya Pradesh, Karnataka, Kerala and Tamil Nadu reported that 85,464 women members actively participated in SHG activities.

Thrift continued to be encouraged as a means of economic empowerment of women members. This was actively promoted by milk unions in Bihar, Madhya Pradesh, Karnataka and Kerala which reported the participation of 61,823 women members in thrift activities with aggregate savings of ₹ 132.26 million.

Women empowerment through thrift cooperatives.

New Generation Cooperatives

The objective of the National Dairy Plan is to improve milch animal productivity and provide rural milk producers with greater access to the organised milk processing sector. This would be achieved through strengthening

existing dairy cooperatives and the promotion of Producer Companies in areas where cooperatives are not present or have low coverage.

During the year, NDDB Dairy Services, a wholly owned subsidiary of NDDB, was operationalised to function as the delivery arm of NDDB to undertake field operations to enhance productivity and to promote producer institutions.

A number of milk producers have come forward in Gujarat and Rajasthan to set up Producer Companies. Assistance was given to them by NDDB Dairy Services to do so. Articles of Association and Memorandum of Association were framed and it is expected that the Producer Companies in these areas would become operational in the coming months.

A fair, transparent and user-friendly payment system covering about 90,000 producers is in operation where payments are disbursed directly to the producers' accounts in banks or through business correspondents using smart cards. Ration Balancing and Artificial Insemination services are also being provided in some areas of these states.

Management of Milk Unions and Dairy Projects

Jalgaon Milk Union

NDDB continued to manage the operations of the Jalgaon Milk Union. Compared to the previous year, the union procured over 144,474 kg of milk per day registering a growth of 4.7 per cent while its liquid milk marketing increased by 3 per cent to around 166,928 litres per day. The turnover of the union increased by 25.6 per cent from ₹ 2,110 million in 2010-11 to about ₹ 2,650 million, with significant increase in its net worth.

The union continued to be the only dairy cooperative in Maharashtra to receive four integrated accreditations by the Det Norske Veritas (DNV), the Netherlands – ISO 9001 2008 on Quality Management System, ISO 22000 2005 on Food-safety Management System, ISO 14000 2004 on Environmental Management System and OHSAS 18001 2007 on Occupational Health & Safety Management Systems.

Jharkhand Dairy Project

Operations in Jharkhand Dairy Project (JDP) were initiated in Ranchi district in August 2009, and later extended to Lohardaga and Ramgarh districts.

Breaking social barriers through dairying.

NDDB remains committed to the upliftment of tribal communities which form the majority in the rural areas of Jharkhand and to provide them a livelihood option from milk. Being a milk deficient area, progress is slow compared to other parts of the country where the potential for milk production and density are much higher. During 2011-12, 2,212 milk producers received ₹ 46.34 million as payment for milk. Farmer orientation and animal management programmes were carried out at Anand and the training centre of NDDB at Siliguri in which 221 farmers participated.

Ongole Dairy

Ongole Dairy and its related operations are being managed by NDDB. Milk sales increased from 54,270 kg per day in 2010-11 to 55,696 kg in 2011-12, a growth of 2.6 per cent. The 30 MT drying plant which was made operational to its rated capacity in July 2007 produced 4,579 MT of skimmed milk powder and 2,445 MT of white butter during 2011-12.

West Assam Milk Union

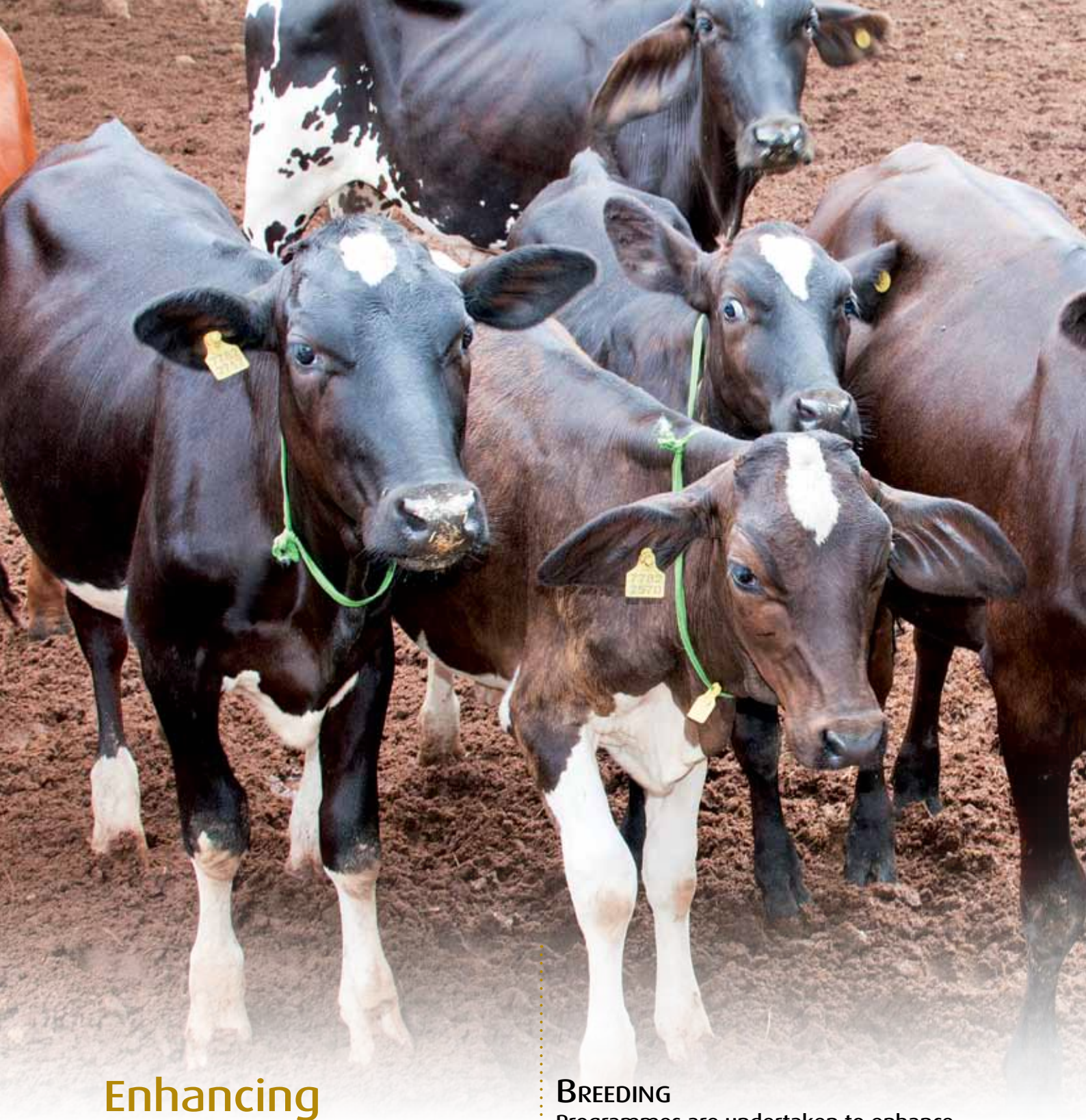
NDDB continued to manage West Assam Milk Union (WAMUL). During the year, the milk union registered an average milk procurement of 6,668 kg per day with a peak procurement of 19,200 kg per day compared to an average milk procurement of 5,230 kg per day during 2010-11, an increase of 27.5 per cent. The milk was procured from 97 MPIs/DCS with a total membership of over 1,500 milk producers.

With a sales growth of about 44 per cent, the union marketed an average of 32,600 litres per day under the union's brand 'Purabi' in Guwahati and adjoining districts of the state through more than 1,500 retail outlets and 20 distributors during the year 2011-12, compared to an average milk sale of 22,700 litres per day during 2010-11. The turnover of the union grew from ₹ 232 million to ₹ 365.8 million in the year gone by.

Study visits to NDDB, Anand of two batches of milk producers for Farmer Orientation Programmes were organised, at which they were exposed to the success of cooperative dairying in Gujarat and ways of implementing the best practices in Assam.

Encouraged by the growth in procurement, the second phase of refurbishment of the dairy plant was taken up by the milk union. The Central Government sanctioned ₹ 59.87 million to the union under the "Intensive Dairy Development Programme" (IDDP) to begin its operations in Nagaon and Morigaon districts of the state. The project spanning over four years would have a significant impact in reaching out to more milk producers, and in milk procurement and marketing in the two districts. ✤

Stepping forward towards cooperation.



Enhancing Productivity

Building infrastructure for genetic improvement of animals and providing balanced nutrition, healthcare and improved management services, makes it possible to achieve higher levels of productivity in our animals and enhance the income of farmers.

Breeding

Programmes are undertaken to enhance the productivity and induction of improved genetics.

Sire evaluation and production of high quality genetic merit bulls

The seven field progeny testing programmes, initiated by NDDB in partnership with Banaskantha and Mehsana Milk Unions for *Mehsana* buffaloes; Animal Breeding Centre, Salon for *Murrah* buffaloes; Sabarmati Ashram Gaushala, Bidaj jointly with Panchmahal, Sabarkantha and Surat Milk Unions for Holstein Friesian crossbreds and up-graded *Murrah* buffaloes; Karnataka Milk Federation for

Superior crossbred heifers.

Holstein Friesian; and Tamil Nadu Milk Federation for Jersey crossbreds, continued during the year.

These seven programmes completed test inseminations of 106 bulls during the year and added 121 new young bulls under test. Some 2,04,904 test inseminations were carried out during the year and 16,964 new born daughters were registered under these programmes. During the year, 132 bull calves born through nominated mating were procured, and after confirming their parentage through DNA markers and after testing them and their dams negative for Tuberculosis, Johne's Disease and Bucellosis; they were reared at different rearing stations. During the year, 51 high genetic merit bulls, procured and reared under these programmes, were distributed to various semen stations.

Since 2009, 295 bulls have been put under test, 169 bulls have completed their test mating, 5,25,288 test inseminations have been carried out and 37,012 daughters have been registered. These programmes together have so far supplied 98 bulls for semen production.

Indigenous breed development

The implementation of the *Rathi* breed development programme in partnership with URMUL Trust in 100 villages of Bikaner and Shri Ganganagar districts of Rajasthan and of the *Kankrej* breed development programme in partnership with Banaskantha Milk Union in 88 villages in Banaskantha district of Gujarat continued during the year.

A proud milk producer with her Gir cow and calf.

Under the *Rathi* breed development programme, 33 AI centres covering 100 villages carried out 4,116 inseminations during the year. All inseminated *Rathi* cows were ear-tagged and registered and the data was captured through Information Network for Animal Productivity and Health (INAPH). Some 281 cows were milk recorded. The average standard 305-day lactation yield of recorded elite cows was 3,337 kgs.

The *Kankrej* breed development programme continued in 88 villages in Banaskantha district. AI technicians in these villages carried out 1,640 inseminations in *Kankrej* cows during the year. In the first phase of the project, 2,843 completed milk recorded elite cows produced an average 2,649 kgs of milk in a 305-day standard lactation. One hundred and four male calves born to top recorded dams were procured for semen production. Out of these, 64 bulls were distributed to other agencies for semen production and natural service.

Efforts by NDDB to preserve indigenous breeds of cattle and buffalo by *in vitro* methods in the form of frozen embryos and frozen semen continued in cattle breeds namely *Sahiwal, Red Sindhi, Gir, Rathi, Kankrej, Khillar, Hariana* and *Tharparkar* and in buffalo breeds namely *Murrah, Jaffarabadi, Pandharpuri* and *Toda.*

Information Network for Animal Productivity and Health (INAPH)

INAPH is being used by seven progeny testing programmes, two pedigree selection programmes and a ration balancing programme spread across eight states, 33 districts and 5,069 villages of the country. Around 1,786 users are using the application for different services through 332 handheld devices (PDAs) and 139 net books. A total of 10.42 lakh animals belonging to 3.43 lakh farmers have been registered through INAPH till date.

Sabar Milk Union in Gujarat is implementing a identification and registration system in the district, making use of INAPH for identifying and tracing of dairy animals as well as for their artificial insemination and veterinary health services.

Semen processing at SAG, Bidaj.

Frozen semen production and AI services

The three NDDB-managed semen stations — Sabarmati Ashram Gaushala (SAG), Bidaj, Animal Breeding Centre (ABC), Salon and Rohtak Semen Station — together produced 16.18 million frozen semen doses accounting for about 22 per cent of the semen doses produced in the country. In addition to this, eight other semen stations in the cooperative sector produced 13.15 million semen doses.

During the year, IndiaGen carried out 1.147 million inseminations at the farmers' doorstep, through their 1,359 mobile AI units. Further, the cooperative unions performed 13.2 million AIs through 17,530 AI centres covering some 50,375 villages.

NDDB, at the request of the Government of India, commenced a study through the Indian Institute of Management, Bangalore on the estimation of cost of AI services by different AI service providers spread over four states in the country, viz. Karnataka, Gujarat, Punjab and Bihar. While the study in Karnataka state has been completed, the field work on collection of data in the remaining three states has been completed and the final report is awaited.

Green fodder is an economical source of macro- and micro-nutrients for dairy animals.

Animal Nutrition

Limited feed resources require their judicious use – value addition and appropriate mineral supplements contribute to productivity enhancement.

Ration balancing advisory services

To study the impact of implementing the Ration Balancing Programme (RBP) on a larger scale, NDDB initiated a large pilot programme following the guidelines to be adopted in NDP-I in the villages of Banaskantha district. 12,777 animals were covered in 160 villages. Technical officers and trainers of the Banaskantha Union were trained at NDDB. The trainer, in turn, trained 160 Local Resource Persons (LRPs) selected from these villages to carry out ration balancing for individual animals at the milk producers' doorstep, using net books

Crop residues are a basal feed of dairy animals.

loaded with the RBP software. The LRPs were trained in their local language on the basic aspects of animal feeding, software handling, formulation of least-cost balanced ration, using locally available feed resources and area-specific mineral mixture for five days in classroom sessions and on-the-job training at the farmers' doorstep for five days. The training included ear-tagging, measurement of body weight and working out a least-cost balanced ration, by weighing different feeds and fodder actually being fed by the farmer to his animal. All the animals covered were ear-tagged for identification and the data recorded in the central server. Data of the animals covered under the pilot programme is now available on-line. In 12,777 lactating animals, balancing the ration led to an increase in average daily milk yield by 0.26 kg and milk fat by 0.14 per cent units. The total daily cost of feeding was also reduced by ₹ 1.50 per kg of milk. The average net daily income of milk producers showed an increase of ₹ 26.7 per animal for an animal yielding 8-12 kg milk per day.

One distinct benefit of implementing the programme was that as a result of continuous follow up and monitoring by the LRPs, regular addition of area-specific mineral mixture by the farmer to the ration of animals was seen. On an average, about 25 kg mineral mixture was consumed per village before the start of the programme, which increased to 150 kg after the implementation of programme. Regular use of area-specific mineral mixture on a regular basis was also seen to contribute significantly to reducing problems related to reproduction, increase in lactation length and reduction in inter-calving period.

The Food and Agriculture Organization (FAO) of the United Nations has also recognised the significance of ration balancing in improving productivity in developing countries. FAO organised a three-day International Workshop on 'Ration Balancing for Dairy Farms in Tropical Countries' in Colombia, which was attended by 207 participants from nine Latin American countries. NDDB was invited to make a presentation on various aspects of RBP at the workshop. A programme is now being designed by FAO together with Latin American countries, taking into consideration their feed resources and local conditions of feeding and management.

Assistance for the production of specialised feeds and area-specific mineral mixtures

Most of the cooperative cattle feed plants (CFPs) continue to produce BIS type-2 compound cattle feed. CFPs were advised to formulate feeds appropriate to local feeding conditions, productivity of animals, age, species, stage of lactation, etc. Such customised feeds would be more effective in improving productivity. Special emphasis was given to the production of a calf starter for enhancing the growth of young calves. During the year, two bypass protein plants, each of 50 MT per day capacity, were set up at Kolhapur in Maharashtra and Thrissur in Kerala to treat locally available protein meals. In addition, technical assistance was provided to set up three mineral mixture plants, each of 12 MT per day capacity, two in the state of Andhra Pradesh and one in Karnataka.

Straw secured from farmers' fields after combine harvesting.

Storage of wheat straw for feeding dairy animals in Punjab.

Fodder production

Quality fodder seeds are crucial in enhancing the yield of green fodder. NDDB assisted dairy cooperatives in propagating production and marketing of 5,606 MT certified / truthfully labelled fodder seeds of high yielding improved varieties of maize, sorghum, berseem, lucerne, oats, cowpea, pearl millet and cluster bean. During the period, 8.73 MT of breeder seed of improved varieties was arranged from the Indian Council of Agricultural Research, and supplied to cooperatives which organised the production of certified / truthfully labelled fodder seeds by their farmer members under a buy-back arrangement. A consultancy agreement was also executed by NDDB with the Mithila Dugdh Utpadak Sahakari Sangh Ltd., Samastipur, Bihar to establish a new fodder seed processing unit.

To popularise the cultivation of improved high yielding varieties amongst farmers, demonstrations of perennial grasses and legumes and annual fodder crops were conducted along with fodder conservation (quality silage and hay making) at NDDB's fodder demonstration unit. Field demonstrations of improved varieties of fodder beet (*Jamon, Monro, Jauna & Splendide*) were also organised at SAG Bidaj, Banas Dairy, ABC Salon and Ropar Milk Union. About 60,000 stem cuttings of hybrid napier (CO-4) were supplied to Banas Dairy, Gram Panchyat Dharmaj in Anand district, AMUL Dairy (Ode farm), SAG Bidaj, S. K. Rajasthan Agricultural University (ARS, Jalore) and visiting farmers, to propagate its use for green fodder production.

Securing crop residues after combining & their enrichment and densification

Auto pick up type field balers were propagated to secure straw left in the farmers' fields when combine harvesters are used. With the technical support of NDDB, Malabar Milk Union introduced such balers in Palakkad and Thrissur milk sheds. During the year, Malabar Union secured about 1,200 MT of paddy straw in the form of 75,000 bales, each of 16 kg. Many farmers in the milk shed have now started purchasing auto pick up balers to recover and conserve straw. Straws thus secured can be used for feeding or for feeding after enrichment and densification.

Two straw enrichment and densification plants at Kerala Livestock Development Board, Dhoni and Malabar Union, Patencheri were installed with the technical support of NDDB. The use of pick up balers in Malabar region to secure crop residues and their densification after enrichment in the form of pellets / blocks would serve as a model for areas having surplus biomass. Surplus biomass could also be secured for use in deficit areas, after enrichment and densification. ✤

Research & Development

NDDB's Research and Development Laboratory at Hyderabad is engaged in the development of improved vaccines and diagnostics for efficient control of animal diseases.

Animal vaccines and diagnostics

Focus on diagnostics and vaccines for foot and mouth disease (FMD) continue. A real-time reverse transcriptase loop mediated isothermal amplification assay (RT-LAMP) was developed and validated for quick serotyping of FMD virus which can be adapted for use in the field. The ELISA (DIVA) developed last year has been further improved by modifying it into a competitive form of ELISA for differentiation of infected from vaccinated animals. FTA™ cards as an FMD sampling device was established. FTA™ cards impregnated with FMD clinical materials can be sent to a laboratory through regular post or courier for sero-typing of FMD virus.

Immunogenicity and potency of virus like particle (VLP) based type O FMD was studied in cattle and was found to protect vaccinated cattle on virus challenge. The VLPs of serotypes A and Asia-1 have also been produced and are being characterised.

As available data on FMD vaccination of buffaloes is very scanty, a study was undertaken on FMD vaccine efficacy that established a buffalo virus challenge model. A new vaccine strain for type O with broader antigenic spectrum covering the recent outbreak strains was identified.

A challenge virus model for Infectious Bovine Rhinotracheitis (IBR) using an Indian isolate of BHV1 was established in the laboratory. Potency of the MDBK cell culture derived, inactivated IBR vaccine was evaluated using the challenge model. Vaccinated cattle could withstand the BHV1 challenge as per the pharmacopoeia requirements. Substantial progress was achieved in the development of IBR marker vaccine.

Preparation for densitometric analysis of microbial proteins.

Preparation of bacterial cell lysates for downstream processing.

Oral rabies vaccine, intended for immunizing wild animals against rabies was found immunogenic in mice and safe in adult mice upon intra-cerebral inoculation. Work on safety in immuno-compromised mice is under progress.

Johne's Disease (JD) and bovine tuberculosis (BTB) are two chronic zoonotic diseases that affect the productivity of infected animals. Early detection of JD and BTB is essential for control of these diseases in herds. To address this problem, in-house molecular and whole blood interferon gamma assay (IFN-γ) for diagnosing BTB and JD were developed and standardised in the laboratory. The IFN-γ assay for BTB has been validated in various laboratories in the country and found specific and sensitive. Further work on validation with a large number of samples is under way.

The efficacy of Brucella Glycoconjugate (GC) vaccine was tested in cattle. A 50 µg primary dose of *B. abortus* S19-GC given subcutaneously in an infected group of cattle was able to prevent shedding and further spread within the herd, while the unvaccinated group continued to shed pathogenic Brucella strains. An in-house competitive ELISA for sero-diagnosis of bovine brucellosis was developed and is undergoing the final stages of validation. A real-time PCR has been developed and standardised for detecting the genus Brucella and is ready for validation in the field.

Bovine genital campylobacteriosis caused by *C. fetus venerearlis* induces abortion in cattle. The R&D Laboratory has developed facilities for screening field samples and bovine semen by cultural identification of the agent.

Animal Nutrition

Reducing enteric methane emission and faecal nitrogen loss

Enteric methane contributes 74 per cent of the total agricultural methane emission and also represents a significant loss of dietary gross energy to ruminants. To quantify the impact of ration balancing on livestock productivity and enteric methane emission under different agro-climatic regions, NDDB continued to undertake field measurement of methane emission from milch animals by using SF_6 tracer technique. A study was taken up in Banaskantha district of Gujarat, where methane emission was measured in lactating animals before and after feeding a balanced ration. Balancing of the ration reduced methane emission (g/kg milk yield) by 13.5 per cent. Intestinal flow of microbial N increased by 51.4 g per day, whereas, faecal N excretion

was reduced by 19.4 per cent (on feeding a balanced ration) indicating lesser excretion of nitrogen into the environment. In addition, lower faecal parasitic egg count and improved levels of serum immunoglobulins IgG and IgM were recorded on feeding a balanced ration.

Comparison of *in vivo* and *in vitro* technique for methane emission measurement

Methane emission measurements were made in field animals using SF_6 tracer technique, before and after feeding a balanced ration. Feed samples of the animals under trial were collected and used to formulate total mixed rations (TMRs), to simulate actual feeding conditions. These TMRs were used to measure methane emission *in vitro,* to assess whether or not *in vitro* conditions of methane measurements can be applied to generate data under different agro-climatic conditions. Limited observations made thus far revealed that there is no significant co-relation between *in vitro* and *in vivo* methane measurement.

Estimation of faecal archaeol - a lipid biomarker for methanogens

To identify a link between methane production and levels of faecal archaeol in ruminants, a protocol for analysis of archaeol lipids, using gas chromatography was standardised. Faecal samples of crossbred cows from Banaskantha district were collected, extracted for total lipids and analysed quantitatively for archaeols. The archaeols will be analysed on gas chromatograph and used for assessing quantitative methane production, which will then be compared with the estimates made by *in vitro* and *in vivo* techniques.

Calf starter for young calves

Optimum level of nutrition in early life favours faster growth, earlier onset of puberty and enhanced productivity. Calves need to be reared to obtain optimum gain in body weight, so that they attain about 75-80 per cent of mature body weight at puberty. Poor feeding of young calves leads to higher age at first calving and overall loss of productive life. A calf starter comprising sodium butyrate, sodium propionate, quality protein meal, bypass fat, vitamins A, D_3, E, toxin binder, mineral mixture, flavouring agent and anti-oxidants was formulated and produced. A group of calves were kept on traditional feeding, while the other group was fed calf starter at 100 g per day, which was slowly increased to 500 g per day. The average daily weight gain was significantly higher in calves fed calf starter and the immune status also improved significantly.

Ration balancing reduces methane emission in dairy animals.

It was thereafter established that a calf starter formulated scientifically can help in significantly improving the daily weight gain in growing calves, which in turn would lead to reducing the age at calving.

Feed supplement for reducing the incidence of sub-clinical mastitis

Mastitis is an infectious disease causing great economic loss due to reduction in milk yield. Sub-clinical mastitis is 30-40 times more prevalent than clinical mastitis. A feed supplement containing chelated minerals and coated vitamins was formulated and fed daily at 10 g per head to 25 high yielding crossbred cows in Banaskantha district, with a history of clinical and sub-clinical mastitis in the previous lactation. The supplement showed encouraging results when fed four weeks prior to calving. The incidence of sub-clinical mastitis in these cows post calving reduced by 72 per cent, as confirmed by the Mastect and California Mastitis Tests.

A supplement for breeding bulls

A bull supplement comprising L-carnitine, arginine, zinc methionate, copper methionate, vitamin-A, vitamin-E and a herb was formulated in the form of pellets, to enhance the quantity and quality of semen in breeding bulls. The pelleted supplement was tested on 50 breeding bulls each at Sabarmati Ashram Guashala, Bidaj and Animal Breeding Centre, Salon. By feeding the supplement at 250 g per bull per day, it was possible to increase the semen doses by about 400 per bull per month. Further, the (per cent) abnormal spermatozoa count reduced significantly and (per cent) intact acrosome plasma membrane integrity and post thaw motility improved.

Product and Process Development

NDDB continued research on the development of new product and process technologies to support dairy cooperatives in adding value to surplus milk. With a focus on improving the health and functional attributes of dairy products, NDDB developed a low fat butter spread and a fermented dairy spread which, apart from having fewer calories, have improved spreadability at refrigeration temperature.

Work was initiated to improve the yield and texture of *paneer* by developing techniques which could increase protein hydration and decrease solid losses in whey. Trials were also initiated for process modification of *shrikhand* manufacturing to eliminate the curd de-wheying step and for retort processing of *kheer* to extend its shelf life. Isolation and genotypic characterisation of lactic acid bacteria were carried out to assess their use in manufacture of fermented dairy products. Studies for evaluation of lactic acid bacterial isolates for food safety related concerns continued.

Evaluating cell line adhesion of lactic acid bacteria as a part of safety study using inverted microscope.

During the year, technology was transferred for the manufacture of *dahi* to Jharkhand Dairy Project, Ranchi. NDDB extended technical support and supplied lyophilised starter cultures for production of fermented dairy products to Jaipur Milk Union, Rajasthan; Dimapur Milk Union, Nagaland; Orissa State Cooperative Milk Producers' Federation Limited, Odisha; and Mother Dairy Fruit and Vegetable Private Limited, Delhi. ✤

Building an Information Network

The SA&S Group compiles timely and quality information using published and unpublished sources, conducts studies and provide insights to facilitate informed decision making

SESA study

In preparation for the implementation of the National Dairy Plan - I, NDDB undertook a detailed Strategic Environment and Social Assessment (SESA) study involving field studies and wide ranging stakeholder consultations. This included a field survey of 8,000 households in the states of Bihar, Gujarat, Punjab and Karnataka.

Based on the outcome of SESA, an appropriate Environmental & Social Management Framework (ESMF) was formulated that will be implemented as part of the project. It includes identification of environmental and social impacts resulting from the proposed project interventions, detailing of the mitigation measures, and impact monitoring indicators (process and outcome indicators).

Existing AI delivery systems

On the recommendation of the National Dairy Project Identification Mission of the World Bank, NDDB undertook a study on the existing AI delivery systems in the country under various names and forms, including those under Government schemes to enable suitable strategies to be devised for providing AI services to dairy farmers in an efficient, accountable and sustainable manner. The study was conducted in the states of Andhra Pradesh, Bihar,

Data collection for milk production study.

Gujarat, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal, which included a sample survey of 3,000 dairy farmer households spread across 108 villages and 18 districts in these states. Based on the study, recommendations were made in the areas of natural service system, AI service delivery system, liquid nitrogen distribution, manpower training and monitoring, AI charges and incentives as well as in the regulatory framework for providing these services.

Milk production and surplus studies

Presently, no published report is available at the sub-district level on milk production, marketable surplus and procurement by various agencies. Following a unique area sampling methodology, whereby the sub-districts

Collection of producer level data.

were divided into four equal area quadrants, a study on milk production and surplus in 61 districts of Punjab (12 districts), Rajasthan (23 districts) and Uttar Pradesh (26 districts) was conducted. Milch animal holdings among rural households, milk production, milk sold by the producers and village level marketable surplus at sub-district levels were estimated. Based on these, the potential pockets for intervention under the NDP - I have been identified in these three states.

Benchmark survey for Intensive Dairy Development Program (IDDP) for two districts of Assam

A benchmark survey was conducted in the districts of Marigaon and Nagaon of Assam to create a baseline for project monitoring and evaluation, comprising 38 sample villages covering about 14,153 households spread over six blocks of both the districts. It was found that 31 per cent of rural households owned milch animals and had about 1.4 per milch animals per household. More than 95 per cent of milch animals were local cows with a yield of around 1 litre per day per milk cow. About 32 per cent of total milk produced was sold. A typical milk producing household produced only a litre of milk per day, out of which only 300 grams was sold.

Estimation of milk production and marketable surplus in three districts of Madhya Pradesh

A survey was conducted in three districts (Ashoknagar, Guna and Shivpuri) of Madhya Pradesh by contacting 17,300 rural households in 94 villages to assess the potential for dairy development. The survey found that 60 per cent of rural households owned milch animals. The district of Shivpuri showed relatively better dairy husbandry practices with an average marketable surplus of about 350 litres a day per village in comparison to only 20-40 litres per village in the other two districts.

Milch Animal Population and Milk Production in Indian Herds

A study titled "Milch Animal Population and Milk Production in Indian Herds" was conducted to understand the present position relating to dairy farm structure in terms of herd size, types of animal reared, milk production, marketable surplus and related issues. The study was conducted in eight major milk producing states of Andhra Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Punjab, Rajasthan and Uttar Pradesh covering 16 districts, 200 villages and 4,600 milk producers. It was found that Rajasthan has the highest (63.5 per cent) concentration of milch animal owning households followed by UP (46.2 per cent), whereas Andhra Pradesh has the lowest concentration at 22.5 per cent. However, Andhra Pradesh in spite of the low concentration, had the highest percentage (17.9 per cent) of households which own four or more animals followed by Punjab (14.2 per cent), indicating a consolidation process wherein some households are taking to dairying on a relatively larger scale. At the same time, dairying is also emerging as a viable source of income by marginal and small landholders who are seen to be keeping larger herds. ✤

Developing Human Resources

A focus on planning for skilled and trained human resources is critical for successful implementation of the National Dairy Plan.

NDDB continues to place special emphasis on the growing human resource needs with a major focus on capacity building through training and development as a preparatory task for effective and timely implementation of the National Dairy Plan - I.

Training on the use of the ration balancing software was conducted for two batches. To ensure effective delivery of training programmes, training capabilities for trainers within NDDB were assessed. Training programmes on "Lead Trainer" modules with the objective of honing training skills were conducted. An initiative to create awareness amongst the employees of NDDB on the objectives of NDP and its sub-components was taken up in the form of an interactive workshop.

In addition, training continued of milk producers, village resource persons, boards of directors of milk unions, staff and officers working in cooperative dairies across the country to equip them with the latest knowledge and skills and a positive attitude for leveraging their energies to achieve the organisation's desired objectives. The trainings focused on up scaling business as well as better governance in the milk cooperatives. Emphasis was given on ensuring more women participation in the programmes. Orientation programmes for delegates from BRAC Dairy and CARE Bangladesh were conducted to provide exposure to cooperative milk business.

Popularizing high yielding fodder.

Capacity building of women is crucial to ensure their active participation.

A management game in progress during a leadership development programme for NDDB employees.

Training programmes related to Artificial Insemination, Dairy Animal Management, Fodder Seed Production, etc were conducted at NDDB's Regional Demonstration and Training Centres situated at Jalandhar, Siliguri and Erode. Technical training in the areas of operation, maintenance and energy conservation in milk plants, bulk milk chilling units and cattle-feed plants were organised at Mansinh Institute of Training, Mehsana.

NDDB employees underwent training in technical and managerial areas in-house and at premier institutions in accordance with the skill and competency requirements of various groups. During the year, a General Management Programme was organised for 22 officers to expose them to areas like financial management, marketing management, individual and organisation effectiveness and data analysis and management. In addition, training programmes on Achievement Motivation, Leadership Development and Enterprise Project Management were facilitated for some officers. To equip the support staff in office management and behavioural skills, three programmes of two days duration on personal effectiveness were organised. Further, an exclusive training programme on Achieving Organizational Excellence through Enhanced Personal Effectiveness was organised for SC/ST employees.

A total of 312 NDDB employees were imparted training during the year. In addition, induction and orientation programmes for new recruits were also conducted.

Training Programmes

A. Cooperative Services

(i) Training for Dairy Cooperatives

Name of the programme	No. of programmes	No. of Participants
Farmer Orientation Programme (FOP)	98	3794
Customised FOP	17	495
Producer Orientation	4	159
Board Of Directors Orientation (BOD)	5	53
Business Appreciation	9	159
Customised Programme	10	117
International Orientation	1	4
Dairy Farmers Orientation - 3 day	11	493
Procurement & Input Training for Supervisors	2	44
Total	**157**	**5318**

(ii) Training for Milk Producers Institutions

Clean Milk Production (CMP)	13	263
Dairy Farm Management	4	102
Exposure Visits to Dairy Farms	14	226
Village Level Training	12	425
Total	**43**	**1016**

B. Productivity Systems

Training on Ration Balancing Programme, using net books for technical officers	4	18
Training on least cost feed (LCF) formulation, using LCF programme for quality control officers of cattle feed plants	6	15
Artificial Insemination	19	482
Artificial Insemination (Refresher)	22	553
Resource Person Training	11	275
Dairy Animal Management	46	1190
Fodder Seed Production	6	133
Orientation of Artificial Insemination Technicians for PT projects	7	52
Orientation of District Coordinators for PT projects	4	10
Orientation of PT project Supervisors	11	42
Refresher Training of Artificial Insemination Technicians on PT projects	12	353
Refresher Training of Milk Recorders for PT projects	2	65
Refresher Training for PT project Supervisors	2	10
Orientation of Data Entry Operators for PT projects	3	6
Orientation of Artificial Insemination Officer for PT projects	1	1
Other trainings for PT projects	5	59
Total	**161**	**3264**

C. Quality Assurance

Name of the programme	No. of programmes	No. of Participants
Analysis of cattle Feed Ingredients including Minerals	3	7
Operations & Maintenance of BMCU & AMCU	5	64
Quality & Food Safety Management System	3	40
Operations & Maintenance of Milk Condensing & Drying Plant	1	6
Operations & Maintenance of Electrical Equipment & System	1	3
Operations & Maintenance of Butter Manufacturing & Packaging	1	2
Operations & Maintenance of Boiler	1	4
Dairy Plant Maintenance	2	13
Operations & Maintenance of Refrigeration System	1	6
Hygiene & Sanitation in Dairy Plant	1	22
Operations & Maintenance of Effluent Treatment Plant	1	10
Energy Conservation in Dairy Plant	2	28
Safety Management in Dairy Plant	1	16
Operations & Maintenance of Milk Processing Plant	2	40
Operations & Maintenance of Cattle Feed Plant	1	4
Economising Milk Solids Loss (Milk Solids Recovery) Training for Dairy Plant Officers	1	20
Hands-On-Practice in Dairy Equipment	3	57
Total	**30**	**342**

D. Sectoral Analysis and Studies

Internet based Dairy Information System (i-DIS)	18	214
Total	**18**	**214**
Grand Total	**411**	**10170**

E. Training of NDDB Manpower

Name of the Programme	No. of programmes	Participants Total	Participants SC/ST
Enterprise Project Management	2	52	3
General Management Programme	1	22	2
Cooperative Governance & Business	1	20	2
Lead Trainer's Development Programme	2	23	1
Achievement Motivation for success	1	26	1
Personal Effectiveness	3	49	4
Achieving organisational excellence through enhanced personal effectiveness	1	21	21
Leadership Development	1	22	–
Other Programmes (sponsorship of employees to outside institutions)	29	77	2
Total	**41**	**312**	**36**

Engineering Projects

The Engineering Services Group sets up state-of-the-art dairies and cattle feed, by-pass protein and powder plants, ensuring that they keep abreast with the latest trends and technologies.

Engineering projects

Five turnkey projects were completed during the year. These included a fully automated liquid milk processing plant of 1000 tlpd at Himmatnagar (Gujarat); a dairy plant of 400 tlpd at Biharsharif (Bihar); a dairy plant of 100 tlpd at Hajipur (Bihar); a 300 tpd cattle feed plant with 50 tpd by-pass protein plant at Kolhapur (Maharashtra) and seven marketing shops in Delhi & Noida.

Recent technological advances and improvements

NDDB continued its efforts to introduce the latest cost effective technologies to improve plant efficiency and reduce operating cost and plant downtime in dairy, cattle feed and powder plants. Some examples of this are:

Work in progress at fully automated - 1000 tpd cattle feed plant at Katarva, Banaskantha, Gujarat.

Milk Powder Plants:

A state-of-the-art dairy whitener plant of capacity 120 tpd being set-up at Palanpur (Gujarat) is equipped with two sets of MVR evaporators, 3-stage drying, coupled with CIP-able bag house to minimise stack losses. For the first time in India, the latest energy efficient technology using an absorption type de-humidification system is being implemented for removal of moisture from drying air which improves hygiene, product quality and process stability.

Cattle Feed Plants:

Large capacity automated cattle feed plants set-up recently are provided with features like:

- Centralised control system using SCADA for automated operations from dumping to bagging.
- Fully automated loss-in-weight molasses dosing system (weight to weight basis).
- Intermediate storage bins in Raw Material Godown (RMG) with automation of intake material for simultaneous handling of different raw materials to minimise loading time and requirement of labour.
- Automatic bag picking, filling & stitching machines for bagging of pellets.
- Imported cartridge type long filter bags for dumping hopper and other aspiration units for efficient dust control.
- Recovery of waste heat from boiler blow down operation for achieving better thermal efficiency.
- By-pass protein plant with nine silo system for 50 tpd plant capacity.

Dairy Plants:

- Use of Intelligent Motor Control Centre (IMCC) in the automated refrigeration plants to ensure better monitoring and control.
- Use of solid fuel in place of furnace oil in boilers to achieve substantial reduction in steam generation cost.

Projects under planning

- Dairy plant (400 tlpd expandable to 600 tlpd) at Navapura, Ahmedabad, Gujarat.
- 30 tpd cheese plant, 25 tpd *paneer* plant and 40 tpd whey drying plant at Banas Dairy, Gujarat.
- Dairy plants of 600 tlpd at Mysore & 150 tlpd at Davangere, dairy expansion (250-400 tlpd) at Mangalore in Karnataka.
- Powder plant and cattle feed plant for Karnataka Milk Federation, Bengaluru, Karnataka.

Recently completed 300 tpd automated cattle feed plant at Hassan, Karnataka.

Ongoing Projects

Project	Capacity	Location
Northern Region		
Mohali Dairy Expansion	100 to 500 tlpd	Mohali, Chandigarh
Jhansi Dairy	10 tlpd	Jhansi, Uttar Pradesh
Lalitpur Chilling Centre	5 tlpd	Lalitpur, Uttar Pradesh
Cattle Feed Plant Expansion	100 to 200 tpd	Ghania-ke-Banger, Punjab
Cattle Feed Plant Expansion	200 to 300 tpd	Khanna, Punjab
Cattle Feed Plant Expansion	150 to 300 tpd	Jodhpur, Rajasthan
Cattle Feed Plant Expansion	150 to 300 tpd	Bikaner, Rajasthan
Cattle Feed Plant Expansion	150 to 300 tpd	Nadbai, Rajasthan
Cattle Feed Plant Expansion	150 to 300 tpd	Ajmer, Rajasthan
Western Region		
Banas Powder Plant	100 tpd	Palanpur, Gujarat
Dairy Plant Expansion	175 – 600 tlpd	Rajkot, Gujarat
Dairy Plant	200 tlpd	Bharuch , Gujarat
Cattle Feed Plant	1000 tpd	Katarva, Gujarat
G N Patel Dairy Sc.& FT College		Banaskantha, Gujarat
Dairy Plant Expansion	150 to 250 tlpd	Bhopal, Madhya Pradesh
Cattle Feed Plant	50 tpd	Seoni, Madhya Pradesh
Bypass Protein Plant	50 tpd	Bhopal, Madhya Pradesh
Eastern Region		
Milk Powder Plant and APS	30 tpd pp	Biharsharif, Bihar
Dairy Plant	50 tlpd	Ranchi, Jharkhand
International centre for foot & mouth disease (BSL-3+)		Bhuvaneshwar, Odisha
Southern Region		
Cattle Feed Plant	300 tpd	Hassan, Karnataka
Dairy Plant Expansion	100 – 325 tlpd	Tumkur, Karnataka
Dairy Plant Expansion	150 – 300 tlpd	Mysore, Karnataka
Dairy Plant Expansion	120 – 300 tlpd	Hassan, Karnataka
Product Dairy		Bengaluru, Karnataka
Dairy Plant	200 - 300 tlpd	Hosakote, Karnataka
Dairy Plant Expansion	250 – 400 tlpd	Mandya, Karnataka
Dairy with Milk Powder Plant	250 tlpd dairy / 20 tpd PP	Thiruvannamalai, Tamil Nadu
Bio-Security laboratory (BSL-2)		Bengaluru, Karnataka

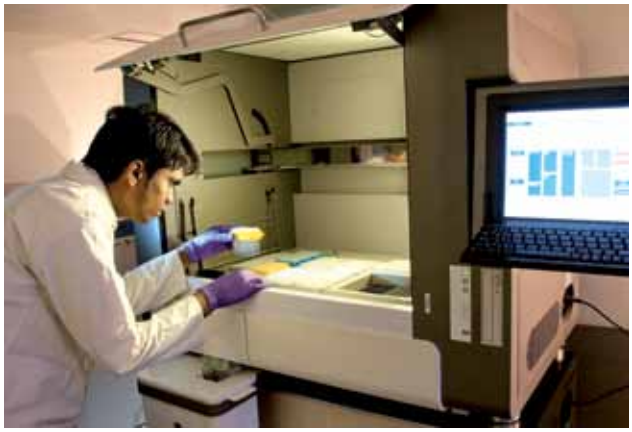
tlpd – thousand litres per day
tpd – tonnes per day
PP – Powder Plant

Centre for Analysis and Learning in Livestock and Food (CALF)

The centre continues to support various ongoing programmes through analysis of critical parameters.

With a three-fold growth in the receipt of samples during the year, CALF analysed over 20,000 samples of feed and feed ingredients, mineral mixtures and mineral salts, milk, milk products and foods. In addition serum samples were analysed for Brucella and IBR, genetic diseases, chromosomal disorders and IBR in frozen semen. Parentage confirmation based on DNA analysis (calf, dam and sire) was carried out for 667 families.

To support the breeding programme in the NDP, facilities for the evaluation of genetic disorders – Bovine Leukocyte Adhesion Deficiency (BLAD), Deficiency of Uridine Monophosphate synthase (DUMPS), Citrullinaemia and Factor XI; DNA analysis, and chromosomal disorders – were created along with tests for detection of Brucella and IBR antibody in the blood / serum and the detection of IBR virus in frozen semen samples.



Automated nucleic acid isolation system for extraction of DNA from blood.

To evaluate the efficiency of analysis, CALF participated in the Inter-Laboratory Comparison (ILC) conducted by the LGC Standards Proficiency Testing, UK for the estimation of mineral constituents (Chloride, Iron, Manganese, Magnesium, Phosphorus and Zinc) in whole milk powder. CALF achieved a z-score which lay between '– / +2' which is satisfactory. In all eight laboratories participated in the ILC. ✤

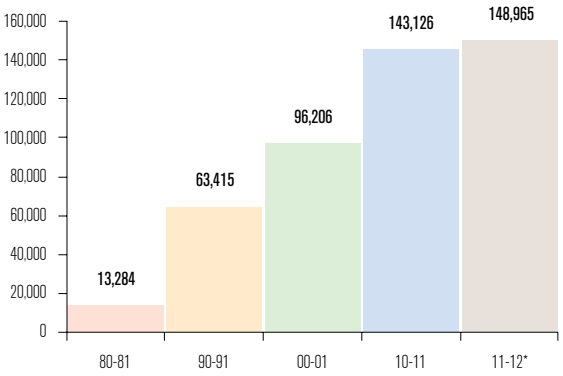
DNA fragment analysis for parentage verification and molecular characterisation on Genetic analyser.

Dairy Cooperatives at a Glance

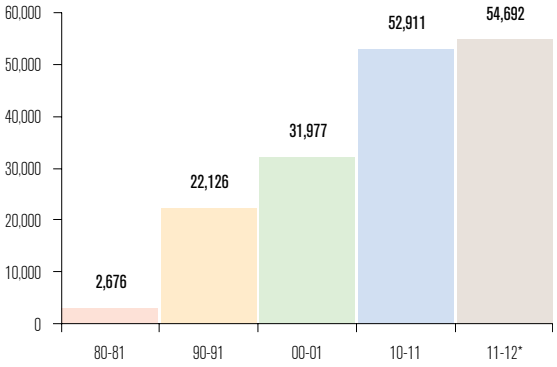
Dairy Coop Societies

(In numbers+)

Total

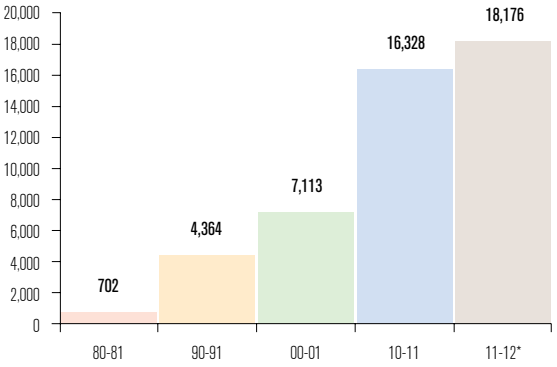


North



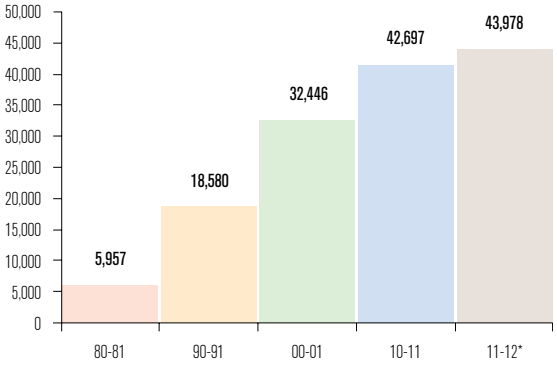
NORTH	80-81	90-91	00-01	10-11	11-12*
Haryana	505	3,229	3,318	7,019	7,029
Himachal Pradesh		210	288	740	765
Jammu & Kashmir		105	**	**	**
Punjab	490	5,726	6,823	7,069	7,639
Rajasthan^	1,433	4,976	5,900	16,290	16,809
Uttar Pradesh	248	7,880	15,648	21,793	22,450

East



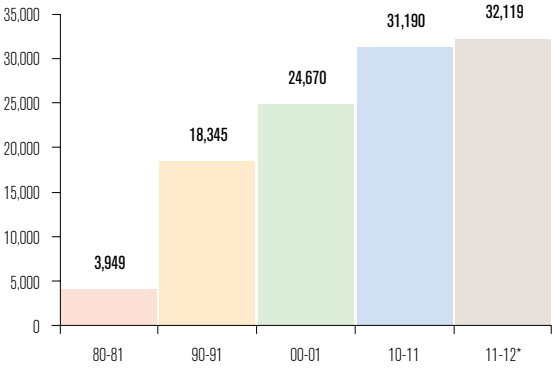
EAST	80-81	90-91	00-01	10-11	11-12*
Assam		117	125	155	188
Bihar	118	2,060	3,525	9,425	11,131
Jharkhand				53	53
Nagaland		21	74	49	49
Odisha		736	1,412	3,256	3,337
Sikkim		134	174	287	289
Tripura		73	84	84	84
West Bengal	584	1,223	1,719	3,019	3,045

West



WEST	80-81	90-91	00-01	10-11	11-12*
Chhattisgarh				757	794
Goa		124	166	178	178
Gujarat	4,798	10,056	10,679	14,347	14,631
Madhya Pradesh	441	3,865	4,877	6,216	6,744
Maharashtra	718	4,535	16,724	21,199	21,631

South



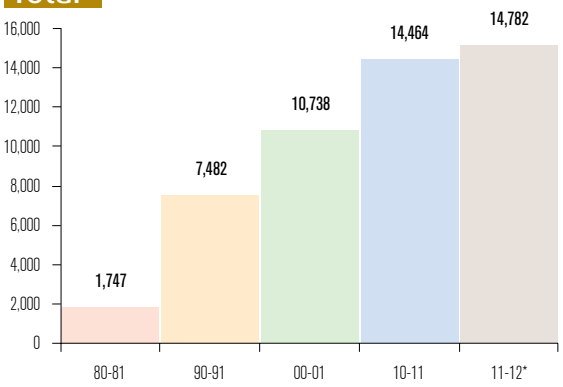
SOUTH	80-81	90-91	00-01	10-11	11-12*
Andhra Pradesh	298	4,766	4,912	4,971	4,979
Karnataka	1,267	5,621	8,516	12,372	12,925
Kerala		1,016	2,781	3,666	3,695
Tamil Nadu	2,384	6,871	8,369	10,079	10,418
Puducherry		71	92	102	102

+ Organized (cumulative) includes conventional societies and Taluka unions formed earlier * Provisional ** Not Reported
^DCS includes registered and proposed societies (collection centres) since 2009-10

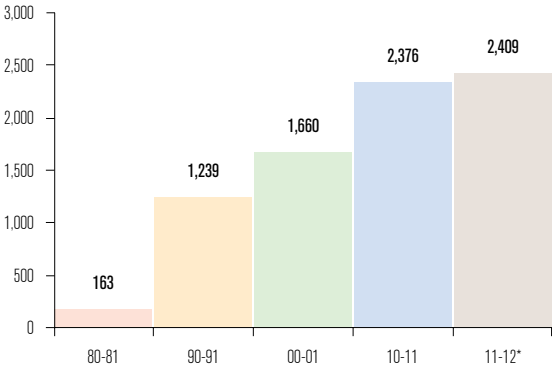
Producer Members

(In thousands)

Total

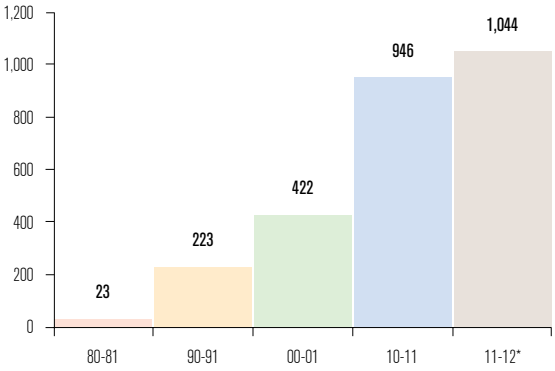


North



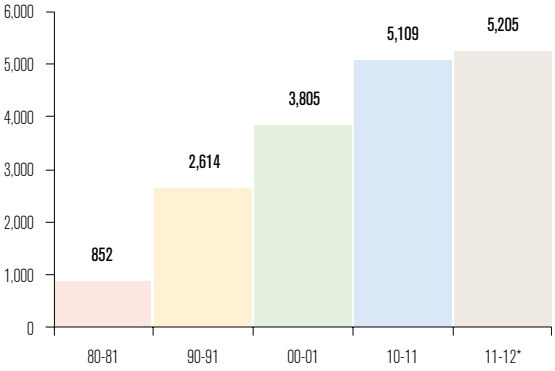
NORTH	80-81	90-91	00-01	10-11	11-12*
Haryana	39	184	185	313	313
Himachal Pradesh		17	20	32	32
Jammu & Kashmir		2	**	**	**
Punjab	26	304	370	385	403
Rajasthan	80	340	436	669	683
Uttar Pradesh	18	392	649	977	978

East



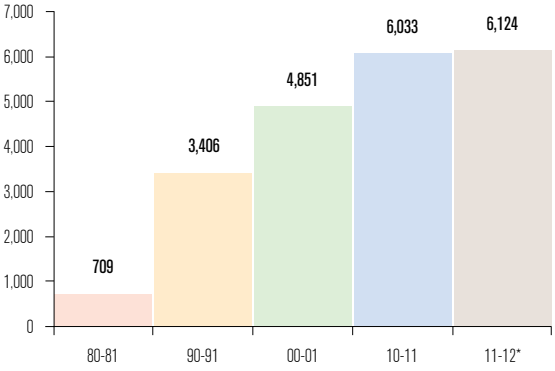
EAST	80-81	90-91	00-01	10-11	11-12*
Assam		2	1	4	5
Bihar	3	100	184	523	614
Jharkhand				1	1
Nagaland		1	3	2	2
Odisha		46	111	187	191
Sikkim		4	5	10	10
Tripura		4	4	6	6
West Bengal	20	66	114	213	215

West



WEST	80-81	90-91	00-01	10-11	11-12*
Chhattisgarh				31	33
Goa		12	18	19	19
Gujarat	741	1,612	2,147	2,970	3,041
Madhya Pradesh	24	150	242	271	285
Maharashtra	87	840	1,398	1,818	1,827

South



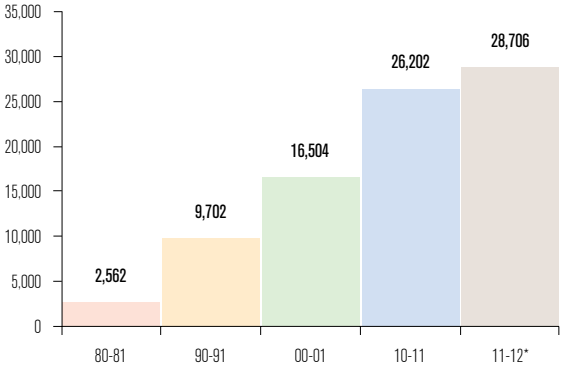
SOUTH	80-81	90-91	00-01	10-11	11-12*
Andhra Pradesh	33	561	702	846	854
Karnataka	195	1,013	1,528	2,124	2,191
Kerala		225	637	851	859
Tamil Nadu	481	1,590	1,957	2,176	2,184
Puducherry		17	27	36	36

* Provisional ** Not Reported

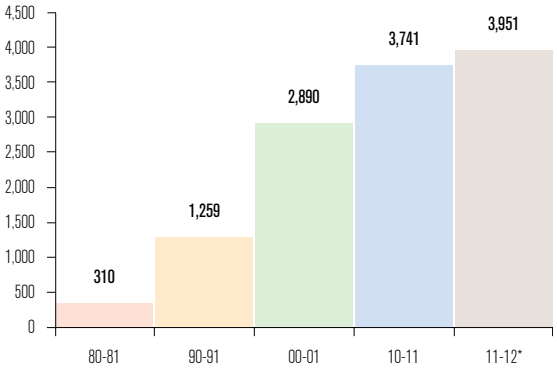
Milk Procurement

(In thousand kilograms per day)

Total

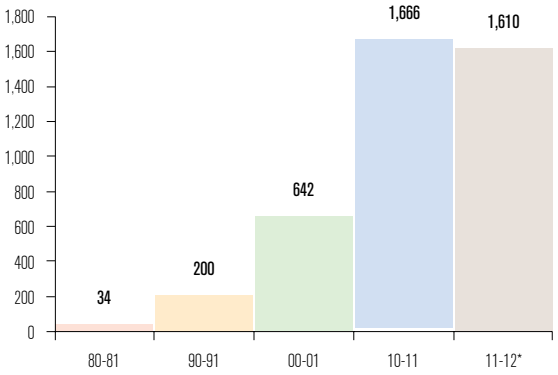


North



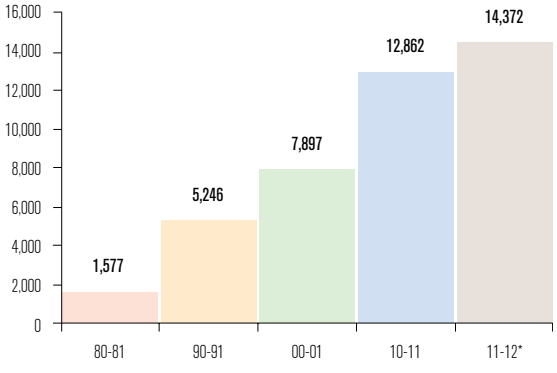
NORTH	80-81	90-91	00-01	10-11	11-12*
Haryana	33	94	276	511	534
Himachal Pradesh		14	24	60	68
Jammu & Kashmir		11	**	**	**
Punjab	75	394	912	1,037	1,110
Rajasthan	138	364	887	1,629	1,742
Uttar Pradesh	64	382	791	504	497

East



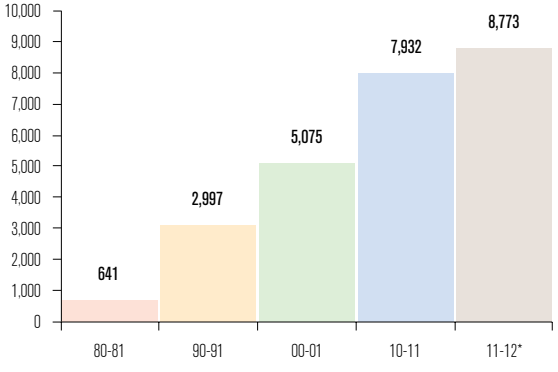
EAST	80-81	90-91	00-01	10-11	11-12*
Assam		4	3	5	7
Bihar	3	95	330	1,091	1,061
Jharkhand				5	5
Nagaland		1	3	2	2
Odisha		41	94	276	300
Sikkim		4	7	12	13
Tripura		3	1	2	3
West Bengal	31	52	204	273	219

West



WEST	80-81	90-91	00-01	10-11	11-12*
Chhattisgarh				25	30
Goa		16	32	38	41
Gujarat	1,344	3,102	4,567	9,158	10,450
Madhya Pradesh	68	256	319	588	721
Maharashtra	165	1,872	2,979	3,053	3,130

South



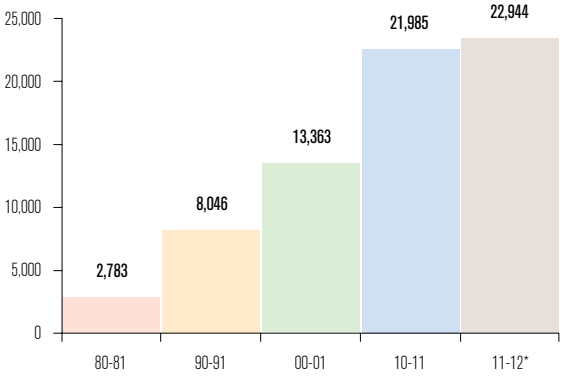
SOUTH	80-81	90-91	00-01	10-11	11-12*
Andhra Pradesh	79	763	879	1,371	1,503
Karnataka	261	917	1,887	3,742	4,277
Kerala		185	646	688	802
Tamil Nadu	301	1,106	1,618	2,097	2,161
Puducherry		26	45	35	30

* Provisional ** Not Reported

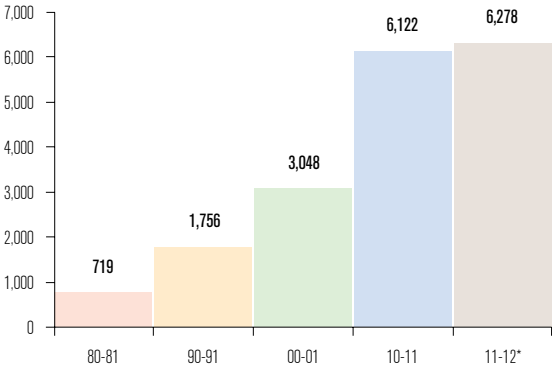
Liquid Milk Marketing+

(In thousand litres per day)

Total

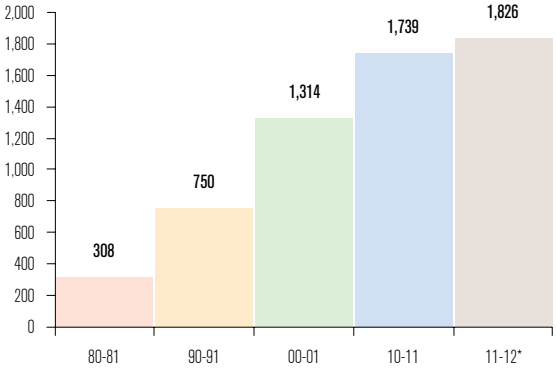


North



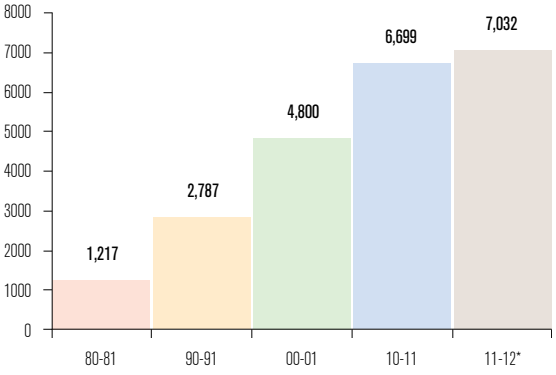
NORTH	80-81	90-91	00-01	10-11	11-12*
Haryana	2	80	108	362	370
Himachal Pradesh		15	20	23	23
Jammu & Kashmir		9	**	**	**
Punjab	7	139	420	802	866
Rajasthan	12	136	540	1,505	1,544
Uttar Pradesh	1	326	436	380	349
Delhi	697	1,051	1,524	3,050	3,126

East



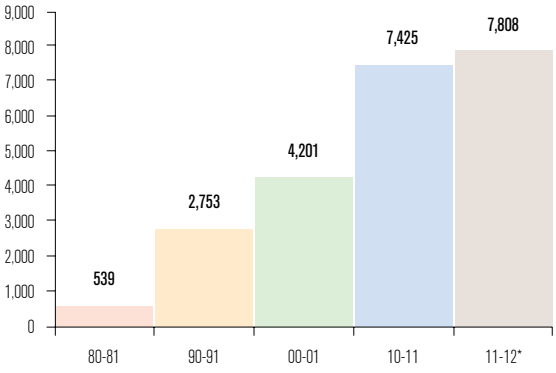
EAST	80-81	90-91	00-01	10-11	11-12*
Assam		10	7	22	33
Bihar	8	111	324	454	521
Jharkhand				253	271
Nagaland		1	4	3	4
Odisha		65	98	290	316
Sikkim		5	7	17	21
Tripura		6	7	15	13
West Bengal	17	26	27	41	37
Kolkata	283	526	840	644	610

West



WEST	80-81	90-91	00-01	10-11	11-12*
Chhattisgarh				34	35
Goa		36	83	69	69
Gujarat	210	1,052	1,905	3,237	3,512
Madhya Pradesh	39	279	244	495	525
Maharashtra	18	363	1,178	2,023	2,070
Mumbai	950	1,057	1,390	841	821

South



SOUTH	80-81	90-91	00-01	10-11	11-12*
Andhra Pradesh	19	552	733	1,565	1,680
Karnataka	166	889	1,501	2,661	2,892
Kerala		223	640	1,092	1,167
Tamil Nadu	109	405	559	989	941
Puducherry		22	43	93	100
Chennai	245	662	725	1,025	1,028

+ Cooperatives (state) and metro dairies * Provisional ** Not Reported

Other Activities

Progressive use of Hindi

Efforts continued during the year to promote Hindi in official work. The Annual Report and other documents were translated into Hindi.

To create awareness among employees on the use of Hindi in official work as well to accelerate the pace of its use, Hindi Fortnight was organised in all the NDDB offices during September, 2011.

A large number of employees participated in various competitions such as essay, translation, poetry recitation and general knowledge. Cash awards amounting to ₹ 30,300 were distributed to successful candidates. Books in Hindi were distributed as consolation prizes to all participants. NDDB introduced various incentive schemes for the promotion of Hindi in official work. One such scheme was the Hindi noting and drafting incentive scheme. Twenty one employees participated in this scheme and were awarded incentives amounting to ₹ 17,500. Besides, 12 employees, whose children scored 75 percent or more in Hindi in class 10 and 12 examinations, were given a cash prize of ₹ 1,000 each.

The NDDB library increased its number of Hindi books. During the year Hindi books amounting to ₹ 13,478 were added to the library.

Employee receives award for best Hindi essay.

NDDB is a member of the Town Official Language Implementation Committee (TOLIC), Vadodara and participated actively in its half-yearly meetings and other activities. Recognizing the efforts of NDDB for promoting the use of Hindi in official work, TOLIC awarded the third prize to NDDB for work done in Hindi during 2010-2011.

National programmes such as Republic Day, Independence Day, Gandhi Jayanti and Ambedkar Jayanti were conducted in Hindi.

Welfare of SC/ST employees

NDDB continued its efforts for the welfare of SC/ ST employees and their children. During the year an exclusive training programme on "Achieving organisational excellence through personal effectiveness" was organised for non-officers which was well received. In all, 36 SC/ST employees were provided training to equip them with the skill-sets required for effective performance of their roles in the organisation.

Ambedkar Jayanti celebration at NDDB, Anand.

SC/ST employees were reimbursed expenses incurred on education of their children up to the age of 25 years instead of the normal limit of 21 years. The expenditure on purchase of books to children of SC/ST employees from 1st standard up to graduation was also reimbursed.

To motivate the children of SC/ST employees, cash prizes and certificates were given to meritorious students in class 10 examinations. SC/ST students pursuing professional education in Institute of Rural Management, Anand are offered loan-cum-scholarship.

Ambedkar Jayanti was celebrated in NDDB with ceremonial fervour. ✤

Visitors

During 2011-12, NDDB received 1,316 visitors from India and abroad.

Overseas visitors came from Denmark, Hong Kong, Japan, Kenya, Myanmar, Singapore and the United States of America.

A team of Danish scientists visited NDDB.

Participants from Waseda University, Japan undergoing an MDP on 'Rural Development through Dairy Cooperatives in India'.

Dr Hans Joostens, Principal Administrator in the European Commission's Directorate General for Trade accompanied by Ms Renita Bhaskar, First Secretary, Trade and Economic Affairs.

Student officers of the Indian and Friendly International Armed Forces from Defence Services Staff College, Tamil Nadu.

A 10 member delegation led by Mr Myint Than, Director General, Ministry of Livestock and Fisheries, Government of Myanmar.

Shri Siddique Ahmed, Minister of State (Independent Charge), Cooperation & Border Areas, Government of Assam.

Accounts

Deloitte
Haskins & Sells
Chartered Accountants
12, Dr. Annie Besant Road
Opp. Shiv Sagar Estate
Worli, Mumbai – 400 018
India
Tel: +91 (022) 6667 9000
Fax: +91 (022) 6667 9100

Auditors' Report

To The Board of Directors of National Dairy Development Board

1. We have audited the attached Balance Sheet of National Dairy Development Board ("the Board") as at 31st March, 2012 and the Income and Expenditure Account and also the Cash Flow Statement for the year ended on that date, annexed thereto. These financial statements are the responsibility of the Board's Management. Our responsibility is to express an opinion on these financial statements, based on our audit.

2. We conducted our audit in accordance with the auditing standards generally accepted in India. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. An audit includes examining, on test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

3. We report as under
   (i) We have obtained all the information and explanations, which to best of our knowledge and belief were necessary for the purpose of our audit.
   (ii) In our opinion, proper books of account as required by law, have been kept by the Board, so far as appears from our examination of those books.
   (iii) The Balance Sheet, Income and Expenditure Account and Cash Flow Statement dealt with by this report are in agreement with the books of account.
   (iv) In our opinion and too the best of our information and according to the explanation given to us, the said accounts give a true and fair view in conformity with the accounting principles generally accepted in India:
      (a) in case of the Balance Sheet, of the state of affairs of the Board as at 31st March, 2012.
      (b) in case of the Income and Expenditure Account, of the surplus for the year ended on that date and
      (c) in case of the Cash Flow Statement, of the cash flow for the year ended on that date.

For Deloitte Haskins and Sells
Chartered Accountants
(Firm Reg. No. 117366W)

Kalpesh J. Mehta
Partner
(Membership No. 048791)

Place: Anand, Gujarat
Date: 22nd June 2012

National Dairy Development Board (NDDB)
(A body corporate constituted under the National Dairy Development Board Act, 1987)

Balance Sheet as at 31st March, 2012

₹ in million

	Annexure	31.03.2012	31.03.2011
LIABILITIES			
National Dairy Development Board Funds			
General Funds	I	24,804.41	24,037.01
Project Funds	II	—	298.25
		24,804.41	24,335.26
Secured loans	III	541.24	439.71
Current liabilities and provisions	IV	7,435.77	8,641.24
Total		**32,781.42**	**33,416.21**
ASSETS			
Cash and bank balances	V	4,597.76	9,016.45
Inventories	VI	5,437.23	976.95
Sundry debtors		20.14	105.35
Loans, advances and other current assets	VII	12,084.59	12,529.23
Investments	VIII	8,038.03	7,978.43
Fixed Assets	IX	2,374.83	2,604.04
Deferred tax assets (Refer Note 11 of Annexure XVIII)		228.84	205.76
Total		**32,781.42**	**33,416.21**
Significant Accounting Policies	XVII		
Notes to Accounts	XVIII		

In terms of our report attached.
For Deloitte Haskins & Sells
Chartered Accountants

Kalpesh J. Mehta
Partner
Membership No. 048791
Firm Reg. No. 117366W
Anand, June 22, 2012

For and on behalf of the Board,

Y Y Patil
Deputy General Manager
(Accounts)

Dilip Rath
Managing Director

Amrita Patel
Chairman

Anand, June 22, 2012

NATIONAL DAIRY DEVELOPMENT BOARD (NDDB)
(A body corporate constituted under the National Dairy Development Board Act, 1987)

Income And Expenditure Account

For The Year Ended On 31st March, 2012

₹ in million

PARTICULARS	ANNEXURE	2011-2012	2010-2011
INCOME			
Interest		1,376.54	1,427.24
Service charges	X	90.04	64.52
Sales		5,278.01	6,692.88
Rent received		160.27	152.05
Dividend received		40.49	40.49
Other income	XI	918.77	1,482.19
Total (A)		**7,864.12**	**9,859.37**
EXPENDITURE			
Interest and financial charges		98.41	56.91
Remuneration and benefits to employees	XII	395.18	999.94
Cost of materials sold	XIII	6,047.93	6,511.05
Administrative expenses	XIV	72.57	85.30
Grants		181.62	302.93
Research and development expenses		87.77	76.31
Maintenance of assets	XV	147.04	90.74
Other expenses	XVI	47.71	63.12
Bad debts written off		0.46	20.91
Depreciation		284.17	354.89
Total (B)		**7,362.86**	**8,562.10**
Surplus during the year before tax (A - B)		**501.26**	**1,297.27**
Less: Provision for taxation			
Deferred tax		(23.08)	(160.80)
Income tax		-	90.65
Wealth tax		0.85	0.72
Surplus during the year after tax		**523.49**	**1,366.70**
Less: Appropriations			
Special Reserve		51.93	107.18
Balance carried to General Fund		471.56	1,259.52
Total		**7,864.12**	**9,859.37**

In terms of our report attached.
For Deloitte Haskins & Sells
Chartered Accountants

Kalpesh J. Mehta
Partner
Membership No. 048791
Firm Reg. No. 117366W
Anand, June 22, 2012

For and on behalf of the Board,

Y Y Patil
Deputy General Manager
(Accounts)

Dilip Rath
Managing Director

Amrita Patel
Chairman

Anand, June 22, 2012

NATIONAL DAIRY DEVELOPMENT BOARD (NDDB)
(A body corporate constituted under the National Dairy Development Board Act, 1987)

Cash Flow Statement

For The Year Ended On 31st March, 2012

₹ in million

PARTICULARS		2011-2012	2010-2011
Surplus during the year		**501.26**	**1,297.27**
Adjustments for :			
Premium charged on purchase of investment	–		26.11
Depreciation	284.17		354.89
(Write back)/Provision for inventory obsolescence	–		(5.45)
Profit on sale of investments	–		(1.76)
Bad debts written off	0.46		20.91
Investment Income considered separately	(968.74)		(850.67)
Profit on sale of fixed assets considered separately	(0.91)		(0.58)
Interest financial charges considered separately	98.41		56.36
Provision for Post Retirement Medical Scheme (PRMS)	6.33		8.27
Provision for Leave Encashment	15.55		(60.03)
Provision for VRS Monthly Benefits	(36.81)		180.03
Excess Provision of Non-Performing Assets (NPA) written back	(895.63)		1,453.00
Interest and financial charges	(31.70)		(0.55)
		(1,528.87)	**1,180.53**
Operating Cash flow before changes in working capital		**(1,027.61)**	**2,477.80**
(Increase)/Decrease in Inventories	(4,460.28)		(600.69)
Decrease/(Increase) in Accrued Interest	690.38		181.91
Decrease/(Increase) in Sundry Debtors	85.21		(89.98)
Decrease/(Increase) in Loans and Advances	(722.95)		(957.02)
Tax refunded/(paid)	(197.16)		(184.52)
Increase/(Decrease) in current liabilities	383.71		(263.38)
Increase in General/Project Fund (excluding excess of income over expenditure)	(54.34)		17.51
		(4,275.43)	**(1,896.17)**
Net cash flow generated/(used) in operating activities (A)		**(5,303.04)**	**581.63**
Investing activities			
Investment income	968.74		850.67
Proceeds from maturity of investments(Bonds)	100.00		351.02
Purchase of investments(Shares)	-		(1,990.00)
Purchase of Investments(Bonds)	(159.61)		(777.59)
Decrease/(Increase) in FDR's with banks more than 90 days	4,346.10		(574.74)
Proceeds from sale of fixed assets	9.19		0.91
Purchase of fixed assets	(63.82)		(291.08)
Net cash flow generated /(used) in investing activities (B)		**5,200.60**	**(2,430.81)**
Financing activities			
Repayment of borrowed funds	101.53		(315.85)
Interest and financial charges	(71.68)		(62.98)
Net cash flow from financing activities (C)		**29.85**	**(378.83)**
Net Cash flow during the year (A+B+C)		**(72.59)**	**(2,228.01)**
Cash and Cash Equivalents at the beginning of the year		**141.85**	**2,369.86**
Cash and Cash Equivalents at the end of the year		**69.26**	**141.85**

Cash and Cash Equivalent		**31.03.2012**	**31.03.2011**
Balances with Banks:			
In fixed deposits	4,588.31		9,002.90
Less:Deposits with maturity more than 90 days	4,528.50		8,874.60
		59.81	128.30
In current accounts		9.33	8.15
Cash and Cheques on hand and in transit		0.12	5.40
Total		**69.26**	**141.85**

In terms of our report attached.
For Deloitte Haskins & Sells
Chartered Accountants

Kalpesh J. Mehta
Partner
Membership No. 048791
Firm Reg. No. 117366W
Anand, June 22, 2012

For and on behalf of the Board,

Y Y Patil
Deputy General Manager
(Accounts)

Dilip Rath
Managing Director

Amrita Patel
Chairman

Anand, June 22, 2012

General Funds
ANNEXURE I

₹ in million

		31.03.2012	31.03.2011
General Reserve (Note 1)			
Balance as per last balance sheet	3,596.64		3,596.64
Add: Research & Development Grant returned by a subsidiary company (Refer Note 5 of Annexure XVIII)	244.40		–
		3,841.04	3,596.64
Grant for Fixed Assets (Note 2)			
Balance as per last balance sheet	11.79		12.28
Less: Recoupment of depreciation (Refer Note 4 of Annexure IX)	0.49		0.49
		11.30	11.79
Special Reserve (Note 3)			
Special Reserve	497.94		390.76
Add: Transfer from Income and Expenditure Account	51.93		107.18
		549.87	497.94
Grants from Government of India (Note 4)			
For Dairy Development Centre	44.59		44.59
For Sabarmati Ashram Gaushala, Bidaj	4.41		4.41
		49.00	49.00
Income and Expenditure Account (Note 1)			
Balance as per last balance sheet	19,881.64		18,622.12
Add: Surplus during the year	471.56		1,259.52
		20,353.20	19,881.64
Total		**24,804.41**	**24,037.01**

Note: 1. To promote, plan and organise programmes for development of dairy and other agriculture based industries as per the NDDB Act.
2. In accordance with Accounting Standard – 12 on Accounting for Government Grants.
3. Under Section 36(1)(viii) of Income Tax Act 1961
4. Received prior to 12.10.1987, the date on which NDDB was incorporated as a Body Corporate.

Project Funds
ANNEXURE II

₹ in million

		31.03.2012	31.03.2011
North Kerala Dairy Project Fund			
Balance as per last balance sheet	298.25		280.25
Additions during the year (Interest)	19.97		18.00
	318.22		298.25
Less: Fund transferred to Kerala Milk Marketing Federation Ltd. (Refer Note below)	267.91		—
Income Tax provision	50.31		—
		—	298.25
Total		**—**	**298.25**

Note: Fund of ₹ 267.91 million has been transferred during the year to the beneficiary after retaining ₹ 50.31 million towards possible income tax liability.

Secured Loans
ANNEXURE III

₹ in million

	31.03.2012	31.03.2011
Loans from the Government of India		
(Secured against the assets of the Board)	—	117.20
Bank Overdraft (Secured against fixed deposits)	541.24	322.51
Total	**541.24**	**439.71**

Current Liabilities and Provisions
ANNEXURE IV

₹ in million

			31.03.2012	31.03.2011
a)	Current Liabilities			
	Advances and deposits		12.30	23.71
	Sundry creditors		358.22	492.52
	Net liability on account of turnkey projects			
	Funds received	6,353.59		3,992.42
	Due to suppliers for expenses	446.62		265.91
		6,800.21		4,258.33
	Less: Expenditure	5,538.15		3,525.70
		1,262.06		732.63
	Add: Per contra, Refer ANNEXURE VII	6.26		6.27
			1,268.32	738.90
	Interest accrued but not due on loans from Government of India		—	4.97
			1,638.84	1,260.10
b)	Provisions for			
	Non-performing assets	4,444.63		5,976.84
	General contingency on Standard Assets	498.75		411.50
	Contingency	345.00		527.21
			5,288.38	6,915.55
c)	Provisions for :			
	Leave encashment	137.49		121.94
	Post retirement medical scheme	71.36		65.03
	VRS monthly benefits	143.22		180.03
	Wealth tax	0.85		0.72
			352.92	367.72
Provisions (net of taxes paid)			155.63	97.87
Total			**7,435.77**	**8,641.24**

Note: Sundry creditors include ₹ 59.86 million (Previous Year: ₹ 13.33 million) of funds received from GoI for Assistance to Co-operative Project.

Cash and Bank Balances
ANNEXURE V

₹ in million

		31.03.2012	31.03.2011
Balances with Banks			
In fixed deposits	4,588.31		9,002.90
In current accounts	9.33		8.15
		4,597.64	9,011.05
Cash and cheques on hand and in transit		0.12	5.40
Total		**4,597.76**	**9,016.45**

Note: Above balance include ₹ 59.86 million (Previous Year: ₹13.33 million) of funds received from GoI for Assistance to Co-operative Project.

Inventories
ANNEXURE VI

₹ in million

		31.03.2012	31.03.2011
Dairy commodities		5,435.01	973.69
Stores, spares and others	17.83		16.88
Project equipment	15.60		17.59
	33.43		34.47
Less : Provision for obsolescence	31.21		31.21
		2.22	3.26
Total		**5437.23**	**976.95**

Loans, Advances and Other Current Assets
ANNEXURE VII

₹ in million

		31.03.2012	31.03.2011
Loans to cooperatives			
Milk – Secured	3,618.17		2,394.34
– Unsecured	293.74		1,626.00
		3,911.91	4,020.34
Oil – Unsecured		1,953.94	1,984.23
Loans and advances to subsidiary companies/managed units			
Secured	2,097.74		1,131.30
Unsecured	864.25		1,317.45
		2,961.99	2,448.75
Loans to employees			
Secured	4.13		5.57
Unsecured	5.75		7.73
		9.88	13.30
Interest accrued			
Loans and advances	2,193.54		2,455.08
Investments	153.40		582.70
		2,346.94	3,037.78
Advances to suppliers and contractors		10.64	407.55
Recoverable on account of turnkey projects (Per contra, Refer ANNEXURE IV)		6.26	6.27
Sundry deposits		14.91	11.34
Taxes paid (net of provisions)		808.37	553.58
Prepaid Gratuity		16.76	15.01
Other advances		42.99	31.08
Total		**12,084.59**	**12,529.23**

Note: Secured loans are secured against the mortgage of assets and/or hypothecation of stocks/assets.

Investments
ANNEXURE VIII

₹in million

		31.03.2012	31.03.2011
Long term investments:			
Shares in subsidiary companies:			
Mother Dairy Fruit & Vegetable Pvt. Ltd. (MDFVPL)	2,500.00		2,500.00
IDMC Limited (IDMC)	283.90		283.90
Indian Immunologicals Limited (IIL)	90.00		90.00
NDDB Dairy Services Limited (NDSL)	2,000.00		2,000.00
		4,873.90	4,873.90
Debentures/bonds in Government companies, financial institutions and banks		3,163.23	3,103.63
Shares in Co-operatives and Federations	1.00		1.00
Less: Provision for diminution in value of investments	0.10		0.10
		0.90	0.90
Total		**8,038.03**	**7,978.43**

Fixed Assets
Annexure IX

₹ in Millions

Particulars	Gross Block (at Cost)				Depreciation				Net Block	
	As at 01.04.2011	Additions	Deductions / (adjustments)	As at 31.03.2012	As at 01.04.2011	For the year (See Note 4)	Deductions / (adjustments)	As at 31.03.2012	As at 31.03.2012	As at 31.03.2011
Freehold land	451.17	—	—	451.17	—	—	—	—	451.17	451.17
Leasehold land	64.16	—	—	64.16	7.03	0.75	—	7.78	56.38	57.13
Building and roads	1,834.82	13.49	—	1,848.32	668.33	58.56	—	726.88	1,121.44	1,166.50
Plant & machinery	412.73	2.17	31.11	383.79	268.47	32.86	23.09	278.24	105.55	144.26
Electrical installations and air conditioning	304.53	7.23	0.21	311.55	141.82	22.10	0.04	163.88	147.67	162.71
Furniture, fixtures computers, software and equipment	1,602.21	65.03	3.24	1,664.00	1,015.79	168.40	3.23	1,180.96	483.04	586.42
Rail Milk Tankers	217.83	—	—	217.83	217.83	—	—	217.83	—	—
Vehicles	25.96	2.32	3.12	25.16	23.31	1.99	2.95	22.35	2.81	2.65
Total	**4,913.41**	**90.24**	**37.68**	**4,965.98**	**2,342.58**	**284.66**	**29.31**	**2,597.92**	**2,368.06**	**2,570.84**
Previous years	4,628.07	295.75	10.40	4,913.42	1,997.26	355.38	10.06	2,342.58	2,570.84	—
Capital work in progress (CWIP) including capital advances									6.77	33.20
Total fixed assets									**2,374.83**	**2,604.04**

Notes: 1. Land for FMD Control Project amounting to ₹ 0.39 million is obtained from Government of Tamil Nadu by alienation.

2. Freehold land includes land for Oil Tank Farm, Narela ₹17.94 million which has been obtained on perpetual lease for which lease deeds are yet to be executed
3. Land taken on lease from Bangalore Development Authority amounting to Rs.65.98 million for a period of 30 years which is being amortised over the lease period . The allotment of the said land is in the name of the subsidiary company Mother Dairy Fruit & Vegetable Pvt. Ltd., the tilte in respect of the leasehold Land is pending.
4. Depreciation for the year includes prior period depreciation amounting to ₹ 1.22 Million (Previous year :₹ 6.30 Million) and excludes depreciation ₹ 0.49 million (Previous year :₹ 0.49 million) on account of recoupment from grants received.

Service Charges
ANNEXURE X

₹ in million

	2011-2012	2010-2011
Training fees	4.79	4.37
Management fees	1.86	1.61
Procurement and technical service fees	80.07	56.14
Fees from consultancy and feasibility studies	0.02	0.95
Royalty and process knowhow fees	3.30	1.45
Total	**90.04**	**64.52**

Other Income
ANNEXURE XI

₹ in million

	2011-2012	2010-2011
Miscellaneous income (including interest on income tax refund)	22.23	26.85
Profit on sale of fixed assets (net)	0.91	0.58
Profit on sales of investments (net)	—	1.76
Excess provision of NPAs written back	895.63	1,453.00
Total	**918.77**	**1,482.19**

Remuneration and benefits to employees
ANNEXURE XII

₹ in million

	2011-2012	2010-2011
Salaries and Wages (including ex-gratia, VRS payments and retainership fees)	305.43	895.29
Contribution to Provident, Superannuation fund and Gratuity	61.74	66.20
Staff welfare expenses	28.01	38.45
Total	**395.18**	**999.94**

Remuneration excludes ₹ 6.42 million (Previous year : ₹ 37.79 million) shown as part of research and development expenses.

Cost of Materials Sold
ANNEXURE XIII

₹ in million

	2011-2012	2010-2011
Opening Stock	973.69	368.27
Purchases	10,205.60	6,857.89
Expenses (net)	303.65	258.58
Less: Closing Stock	5,435.01	973.69
Total	**6,047.93**	**6,511.05**

Administrative Expenses
ANNEXURE XIV

₹ in million

		2011-2012	2010-2011
Printing and stationery		3.23	3.56
Communication charges		6.19	6.89
Audit fees and expenses (including service tax)			
Audit fees	0.47		0.47
Tax audit	0.19		0.18
Fees for other services	—		0.03
Out of pocket expenses	0.32		0.18
		0.98	0.86
Legal fees		0.77	1.20
Professional fees (Note 6 of Annexure XVIII)		8.17	13.13
Vehicle expenses		5.51	9.89
Recruitment expenses		2.62	1.46
Advertisement expenses		9.24	8.86
Travelling and conveyance expenses		32.71	36.73
Other administrative expenses		3.15	2.72
Total		**72.57**	**85.30**

Maintenance of Assets
ANNEXURE XV

₹ in million

	2011-2012	2010-2011
Repairs and maintenance	121.15	61.59
Electricity and rent	24.40	27.05
Insurance	1.49	2.10
Total	**147.04**	**90.74**

Other Expenses
ANNEXURE XVI

₹ in million

	2011-2012	2010-2011
Training expenses	14.15	21.28
Computer expenses	10.17	8.40
Capital Work in Progress written off	7.09	4.92
Other expenditure	16.30	28.52
Total	**47.71**	**63.12**

Significant Accounting Policies
ANNEXURE XVII

1. Method of Accounting

The financial statements are prepared on accrual basis, using the historical cost convention and generally accepted accounting practices which comply with the applicable accounting standards issued by the Institute of Chartered Accountants of India.

2. Use of Estimates

The preparation of financial statements in conformity with the Generally Accepted Accounting Principles in India which requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenues and expenses and the disclosure of contingent liabilities. Such estimates and assumptions are based on the Management's evaluation of relevant facts and circumstances as on the date of the financial statements. The actual outcome may diverge from this estimate which is recognized prospectively in the current and future periods. Any changes in such estimates are recognized prospectively in current and future period.

3. Asset Classification and Provisioning

NDDB being a Public Financial Institution follows the guidelines of Reserve Bank of India for asset classification.Provision for Non Performing Assets is made at the rates approved by the Board.

4. Revenue Recognition

Interest income on standard assets is recognized on accrual basis. Interest income from non-performing assets classified in conformity with the guidelines of Reserve Bank of India applicable to Financial Institutions, is accounted on cash basis.

Income from Service Charges is recognized on proportionate completion basis and in accordance with the terms of relevant agreement.

Sale of milk commodities is accounted for on transfer of substantial risk and rewards which is on dispatch of the commodities from the warehouse.

Dividend income is accounted for when right to receive income is established.

Other income is recognized when there is no uncertainty as to its ultimate collectability.

5. Grants

a. Grants relating to fixed assets are initially credited to Grant for Fixed Assets under the General Fund. This amount is recognized in the Income and Expenditure account on a systematic basis over the useful life of such fixed asset. The allocation to the Income and Expenditure account is made over the periods in which depreciation on the related fixed assets is charged to the Income and Expenditure account.
b. Revenue grants received during the year are recognized in the Income and Expenditure Account.
c. Grants received for specific projects are credited to the Project Fund and are reduced as and when disbursements for these projects are made.

6. Research and Development Expenditure

Research and Development costs (other than cost of fixed assets acquired) are charged as expenses in the year in which they are incurred.

7. Employee Benefits

a. Defined Contribution Plan: Contribution to Provident Fund and Superannuation Fund is made at a predetermined rate and is charged to Income and Expenditure account.
b. Defined Benefit Plans: The Board's liabilities towards gratuity and post retirement medical benefit schemes are determined using the projected unit credit method which considers each period of service giving rise to an additional

unit of benefit entitlement and measures each unit separately to build up final obligation. Actuarial gains and losses based on actuarial valuation done by the independent actuary carried out annually are recognized immediately in the Income and Expenditure account as income or expense. Obligation is measured at the present value of estimated future cash flows using a discounted rate that is determined by reference to the market yields at the Balance sheet date on the Government bonds where the currency and terms of Governments bonds are consistent with the currency and estimated terms of defined benefit obligation.

c. Compensated absences: The Board has a scheme for compensated absences benefit for employees, the liability for which is determined on the basis of an actuarial valuation carried out at the end of the year.

Further, the Board has participated in Group Gratuity cum Life Assurance Scheme of Life Insurance Corporation of India.

8. Fixed Assets and Depreciation

Tangible fixed assets are carried at cost less depreciation and impairment loss. Cost comprises of purchase price, import duties and other non refundable taxes or levies and any directly attributable cost to bring the assets ready for its intended use.

Depreciation on fixed assets costing more than ` 10,000/- each is charged on Straight Line Method basis at the rates fixed by the Board. Depreciation is charged for the full year in the year of capitalisation and no depreciation is charged in the year of disposal. Each asset costing ` 10,000 or less is depreciated at 100 percent in the year of purchase. Depreciation rates, as approved by the Board, for various classes of assets are as under:

Assets	Rate (in %)
Factory buildings, Godown and Roads	4.00
Other buildings	2.50
Cold storage	15.00
Electrical installation	5.00
Computers (including software)	33.33
Office and Lab equipments	15.00
Plant and machinery	10.00
Solar equipment	30.00
Furniture	10.00
Vehicles	20.00
Rail milk tankers	10.00

Capital assets under installation / construction are stated in Balance Sheet as "Capital Work in Progress".

9. Investments

Long term investments are valued as under:

a) Shares in Subsidiaries, Co-operatives and Federations – at cost of acquisition;

b) Debentures / bonds in Government Companies, Financial Institutions and Banks - at cost of acquisition.

Current investments are valued at lower of cost or market value.

Premium on purchase of debentures / bonds in Government Companies, Financial Institutions and Banks is charged to Income & Expenditure Account over the period to maturity.

Provision for any diminution other than temporary in value of investments is made in the year in which such diminution is assessed.

10. Inventory

Inventories including stores and project equipment are valued at cost or net realizable value whichever is lower, cost being worked out on FIFO basis. Provision for obsolescence is made, wherever necessary.

11. Foreign Currency Transactions

Transactions in foreign currencies are recorded at the exchange rate prevailing on the date of the transactions.

Monetary items denominated in foreign currency and outstanding at the Balance Sheet date are translated at the exchange rate prevailing at the year-end. Non-monetary items are carried at historical cost.

Exchange differences arising on foreign currency transactions are recognised as income or expense in the period in which they arise.

12. Accounting for Voluntary Retirement scheme

The Cost of Voluntary retirement scheme including exgratia is charged to the Income and Expenditure account in the period of separation of employees. A provision for Monthly Benefit Scheme is made for the employees opting for the voluntary retirement scheme in the period of separation of employees and the same is adjusted against the payments made.

13. Taxes on Income

Current tax is the amount payable on the taxable income for the year as determined in accordance with the provisions of the Income Tax Act, 1961.

Deferred Tax is recognized on timing differences, being the differences between the taxable income and the accounting income that originate in one period and are capable of reversal in one or more subsequent periods.

Deferred Tax Assets in respect of unabsorbed depreciation and carry forward losses are recognized if there is a virtual certainty that there will be sufficient future taxable income available to set-off such tax losses. Other deferred tax assets are recognized when there is reasonable certainty that there will be sufficient future taxable income to realize such assets.

14. Leases

Lease arrangements where the risks and rewards incidental to ownership of an asset vest substantially with the lessor are recognized as operating leases. Lease rent under operating leases are recognized in the income & expenditure account with reference to lease terms.

15. Impairment of Assets

The carrying value of assets at each Balance Sheet date are reviewed for impairment of assets. If any indication of such impairment exists, the recoverable amount of such asset is estimated and impairment is recognized, if the carrying amount of these assets exceeds the recoverable amount. The recoverable amount is greater of net selling price and their value in use. Value in use is arrived at by discounting their future cash flows to their present value based on appropriate discount factor. When there is indication that an impairment loss recognized for an asset prior in accounting periods no longer exists or may have decreased such reversal of impairment loss is recognized.

16. Intangible Assets

Intangible assets are stated at cost less accumulated amortization.

17. Provisions and Contingencies

A provision is recognized when the Board has a present obligation as a result of past events and it is probable that an outflow of resources will be required to settle the obligation, in respect of which a reliable estimate can be made. Provisions (excluding retirement benefits) are not discounted to their present value and are determined based on the estimate required to settle the obligation at the Balance Sheet date. These are reviewed at each Balance Sheet date and are adjusted to reflect the current best estimates. Contingent liabilities are disclosed in Notes to Accounts.

The Board created provisions in respect of loans and other assets prior to the year 2001-02. Based on the movement in underlying assets for which such provision was created, Board reallocates / write back, such provisions based on identified events. Accordingly, the Board has made allocation of contingency provision for possible diminution in value of its asset or for unforeseen events leading to such liability.

Notes to Accounts
ANNEXURE XVIII

1 At the request of the concerned authorities, the National Dairy Development Board has been managing the Sabarmati Ashram Gaushala, the Jalgaon Jilha Sahakari Dudh Utpadak Sangh Maryadit, Ongole Dairy, West Assam Milk Producers' Co-operative Union Ltd., and Jharkhand Dairy Project. These are separate and independent entities and their accounts are audited separately. In the case of Ongole Dairy the Board has to recover its dues during the management period and hand over the management of the dairy free from liability on account of the agreed loans to the concerned authority at the expiry of the management period.

2 Contingent Liabilities:

2.1. Principal amount of claims not acknowledged as debt : ₹ 9.61 million (Previous Year : ₹ 10.44 million)

2.2. Guarantees outstanding : ₹ 0.19 million (Previous Year : ₹ 0.24 million)

2.3. Letter of Credit outstanding : ₹ 3.42 million (Previous Year : ₹ 874.65 million)

2.4. Sales Tax Demand

The Sales Tax Department has demanded incremental sales tax together with interest thereon amounting to ₹ 0.29 million. (Previous Year: ₹ 16.40 million) against which the Board has preferred an appeal.

2.5. Income Tax Demands

(₹ in millions)

Assessment Year	Tax Demand	Provision existing in the books	Status
2004-05	81.69	51.84	Appeal is pending before Income Tax Appellate Tribunal (ITAT)
2005-06	79.32	—	Appeal filed before CIT(A).
2006-07	190.74	19.36	Appeal filed before CIT (A).
2008-09	161.15	81.24	Appeal filed before ITAT.
2009-10	229.57	—	Appeal filed before CIT(A).

2.6. Other Demands

(₹ in millions)

Location	2011-12	2010-11
Siliguri (Land and Land Reform Department) and Interest thereof, if any	0.39	0.39
Ground Rent at Narela (Delhi State Industrial and Infrastructure Development Corporation Limited)	7.10	—
Interest Demand at Mumbai (Collector, Mumbai Suburban)	1.71	—

Above demands have been contested by the Board before appropriate forums.

3 The Government of India had requested NDDB to import dairy commodities under the Tariff Rate Quota on behalf of actual users for recombination into milk for sale of liquid milk to consumers.

4 As per the Administrative Approval issued by Government of India for National Dairy Plan phase – I (NDP-I), the plans under the scheme will be approved and monitored by the National Steering Committee (NSC) headed by Secretary, Department of Animal Husbandry, Dairying & Fisheries (DADF) and the projects under the scheme will be approved by the Project Steering Committee (PSC) headed by Mission Director. The Project Management Unit (PMU) in NDDB will coordinate the implementation of NDP-I through End Implementing Agencies and shall maintain separate books of accounts for NDP-I, which will be separate and distinct from all other accounts of NDDB. A separate bank account will be maintained for the receipt of funds from DADF for onward disbursement to End Implementing Agencies (EIAs) as grant-in-aid. Accordingly, separate books of accounts are being maintained by PMU for NDP-I funds.

5 At the time of formation of a subsidiary company, NDDB had provided a grant of ₹ 244.40 million from the oil project fund(which later on merged with the General Reserve) to be used as corpus for undertaking the Research and Development Project related to Rapeseed Mustard Seed. Now the Board has decided to carry out the project itself and accordingly the subsidiary company returned to the corpus of ₹ 244.40 million which has been credited to the General Reserve.

6 Professional fees include ₹ 2.84 million paid to the firm in which one of the partner of the audit firm is a partner.

7 **Segment information**

NDDB is a body corporate constituted under the National Dairy Development Board Act, 1987. As per the objectives set out in the Act, all the activities of NDDB revolve round the Dairy/Agriculture sector and the main source of income is the interest on loans and surplus funds. As such there are no reportable Segments as per Accounting Standard-17.

8. Disclosure of Transactions as per Accounting Standard 18 regarding Related Party is as under:

₹ in million

Particulars	Interest Income	Purchase of Equity shares	Purchase of Fixed Assets	Purchase of Other Items	Dividend	Rent (Income)	Grant	Refund of Capital Grants	Sale of Fixed Assets	Sale of Dairy Commodities	Sale of Other Items	Other income	Other Expenditure	Loan released	Loan repaid / Adjusted	Balance outstanding Dr/(Cr)
Subsidiary Companies																
IDMC Limited	53.13 (27.50)	-	-	-	24.29 (24.29)	2.15 (2.23)	12.50 (0.00)	-	0.00 (0.01)	-	-	0.24 (0.17)	0.20 (0.00)	430.00 (335.00)	77.92 (597.00)	766.16 (380.18)
Indian Immunologicals Limited	22.90 (14.98)	-	-	7.99 (0.00)	16.20 (16.20)	22.38 (20.08)	-	-	19.14 (0.00)	-	-	0.03 (0.02)	-	611.57 (4.88)	67.60 (49.41)	826.72 (262.22)
Mother Dairy Fruit and Vegetable Private Limited	60.34 (69.52)	-	-	-	-	110.04 (91.34)	154.53 (122.57)	244.40 (0.00)	-	1053.00 (4045.14)	-	3.17 (14.87)	70.21 (11.96)	7.88 (5.42)	462.27 (252.81)	1086.49 (1355.20)
NDDB Dairy Services Limited	-	0.00 (1990.00)	-	-	-	-	-	-	0.17 (0.10)	-	-	0.15 (0.03)	1.76 (0.00)	-	-	-0.13 (0.55)
Total	**136.37 (112.00)**	**0.00 (1990.00)**	**0.00 (0.00)**	**7.99 (0.00)**	**40.49 (40.49)**	**134.57 (113.65)**	**167.03 (122.57)**	**244.40 (0.00)**	**19.31 (0.11)**	**1053.00 (4045.14)**	**0.00 (0.00)**	**3.59 (15.09)**	**72.17 (11.96)**	**1049.45 (345.30)**	**607.79 (899.22)**	**2679.24 (1998.15)**
Other enterprises where management has significant influence over the management																
The West Assam Milk Producers Co.op Union Ltd	0.02 (0.00)	-	-	-	-	-	0.00 (0.69)	-	-	43.87 (6.21)	-	0.02 (0.00)	-	10.02 (0.00)	-	19.85 (14.16)
Animal Breeding Research Organisation	-	-	-	-	-	-	0.81 (0.00)	-	-	-	1.07 (0.00)	0.69 (0.00)	-	0.00 (0.53)	1.43 (1.31)	2.23 (2.54)
Anandalaya Education Society	-	-	-	-	-	0.52 (0.60)	-	-	-	-	-	0.13 (0.20)	-	-	-	0.00 (0.01)
Total	**0.02 (0.00)**	**0.00 (0.00)**	**0.00 (0.00)**	**0.00 (0.00)**	**0.00 (0.00)**	**0.52 (0.60)**	**0.81 (0.69)**	**0.00 (0.00)**	**0.00 (0.00)**	**43.87 (6.21)**	**1.07 (0.00)**	**0.84 (0.20)**	**0.00 (0.00)**	**10.02 (0.53)**	**1.43 (1.31)**	**22.08 (16.71)**
Remuneration to key management personnel																
Dr. Amrita Patel	1.64 (1.52)															
Mr. Dilip Rath	0.54 (0.00)															
Dr. N V Belavadi	5.56 (1.73)															
Mr. Ravi Shanker	1.78 (1.57)															
Mr. Sangram Chaudhri	0.58 (0.00)															
Total	**10.10 (4.82)**															

9. Disclosure as per Accounting Standard 15 (Revised 2005) regarding Employee Benefits is as under:

Employee benefit plans

Defined Contribution Plans

The Company makes Provident Fund and Superannuation Fund contributions to defined contribution plans for qualifying employees. Under the Schemes, the Company is required to contribute a specified percentage of the payroll costs to fund the benefits. The Company recognised ₹ 27.84 millions (Year ended 31 March, 2011 ₹ 27.66 millions) for Provident Fund contributions and ₹ 16.91 millions (Year ended 31 March, 2011 ₹ 16.45 millions) for Superannuation Fund contributions in the Statement of Profit and Loss. The contributions payable to these plans by the Company are at rates specified in the rules of the schemes.

Defined Benefit Plans

The Company offers the following employee benefit schemes to its employees:

i. Gratuity
ii. Post-Retirement medical benefits schemes (PRMBS)
iii. Leave Encashment

The following table sets out the funded status of the defined benefit schemes and the amount recognised in the financial statements:

₹ in millions

Particulars	Year ended 31 March, 2012			Year ended 31 March, 2011		
	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment
Components of employer expense						
Current service cost	9.51	-	7.81	8.63	-	6.73
Interest cost	11.95	5.37	10.06	19.42	4.68	15.01
Expected return on plan assets	(14.60)	-	-	(15.57)	-	-
Actuarial losses/(gains)	11.57	2.35	9.81	9.85	5.29	20.30
Total expense recognised in the Statement of Profit and Loss	**18.43**	**7.72**	**27.68**	**22.33**	**9.97**	**42.04**
Actual contribution and benefit payments for year						
Actual benefit payments	(15.62)	(1.39)	(12.12)	(128.37)	(1.70)	(102.07)
Actual contributions	20.15	-	-	8.79	-	-
Net asset / (liability) recognised in the Balance Sheet						
Present value of defined benefit obligation	162.30	71.36	137.49	144.89	65.03	121.94
Fair value of plan assets	(179.06)	-	-	(159.90)	-	-
Net asset / (liability) recognised in the Balance Sheet	**16.76**	**(71.36)**	**(137.49)**	**15.01**	**(65.03)**	**(121.94)**
Change in defined benefit obligations (DBO) during the year						
Present value of DBO at beginning of the year	144.89	65.03	121.94	235.37	56.76	181.97
Current service cost	9.51	-	7.81	8.63	-	6.73
Interest cost	11.95	5.37	10.06	19.42	4.68	15.01
Actuarial (gains) / losses	11.57	2.35	9.81	9.85	5.29	20.30
Benefits paid	(15.62)	(1.39)	(12.12)	(128.37)	(1.70)	(102.07)
Present value of DBO at the end of the year	**162.30**	**71.36**	**137.49**	**144.89**	**65.03**	**121.94**

₹ in millions

Particulars	Year ended 31 March, 2012			Year ended 31 March, 2011		
	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment
Change in fair value of assets during the year						
Plan assets at beginning of the year	159.89	-	-	263.91	-	-
Acquisition adjustment	-	-	-	-	-	-
Expected return on plan assets	14.60	-	-	15.57	-	-
Actual company contributions (including Contribution made by Employer and Gratuity Trust)	20.19	-	-	8.80	-	-
Actuarial gain / (loss)	-	-	-	-	-	-
Benefits paid	(15.62)	-	-	(128.37)	-	-
Plan assets at the end of the year	**179.06**	**-**	**-**	**159.90**	**-**	**-**
Actual return on plan assets	14.60	-	-	15.57	-	-
Composition of the plan assets is as follows:						
Government bonds	20%	-	-	20%	-	-
PSU bonds	20%	-	-	20%	-	-
Equity mutual funds	0%	-	-	0%	-	-
Others	60%	-	-	60%	-	-
Actuarial assumptions						
Discount rate	8.00%	8.75%	8.75%	8.00%	0.00%	8.00%
Expected return on plan assets	9.45%	0.00%	0.00%	9.45%	0.00%	0.00%
Salary escalation	7.50%	2.50%	7.50%	7.00%	2.50%	7.00%
Attrition	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Medical cost inflation	0.00%	5.00%	0.00%	0.00%	5.00%	0.00%
Mortality tables	LIC (1994-96) ultimate Mortality Rates	LIC Assured Life (1994-96) ultimate Mortality Rates	LIC (1994-96) ultimate Mortality Rates	LIC (1994-96) ultimate Mortality Rates	LIC Assured Life (1994-96) ultimate Mortality Rates	LIC (1994-96) ultimate Mortality Rates

The discount rate is based on the prevailing market yields of Government of India securities as at the Balance Sheet date for the estimated term of the obligations.

The estimate of future salary increases considered, takes into account the inflation, seniority, promotion, increments and other relevant factors.

Experience adjustments

₹ in millions

Particulars	2011-2012	2010-2011	2009-2010	2008-2009	2007-2008
Gratuity					
Present value of DBO	162.30	144.89	235.36	192.50	145.16
Fair value of plan assets	(179.06)	(159.90)	(264.50)	(198.75)	(116.73)
Funded status [Surplus / (Deficit)]	16.76	15.01	29.14	6.25	(28.43)
Post-Retirement medical benefits schemes (PRMBS)					
Present value of DBO	71.36	65.03	56.76	55.77	50.50
Other defined benefit plans (Leave Encashment)					
Present value of DBO	137.49	121.94	181.97	133.11	91.59

Particulars	For the year ended 31 March, 2012	For the year ended 31 March, 2011
Actuarial assumptions for long-term compensated absences		
Discount rate	8.00%	8.00%
Expected return on plan assets	9.45%	9.45%
Salary escalation	7.50%	7.00%
Attrition	1.00%	1.00%

The discount rate is based on the prevailing market yields of Government of India securities as at the Balance Sheet date for the estimated term of the obligations.

The estimate of future salary increases considered, takes into account the inflation, seniority, promotion, increments and other relevant factors.

The contribution expected to be made by the Board during FY 2012-13 has not been ascertained.

10. Disclosure as per Accounting Standard 19 regarding Leased Assets:

Operating leasing arrangements entered into by NDDB as a Lessor:

a) Nature of Assets leased

Class of Asset	Gross value of assets	Depreciation for the year	Accumulated Depreciation
Buildings and Roads#	1625.31 (1623.34)	51.81 (47.33)	613.06 (562.80)
Electrical Installations	146.26 (150.07)	5.90 (18.37)	56.52 (51.29)
Plant & Machinery	317.93 (329.64)	31.73 (32.87)	215.63 (187.61)
Furniture, fixtures, computers, software and office equipment	1069.55 (1103.15)	121.89 (188.72)	694.45 (590.96)
Rail Milk Tankers	198.19 (184.61)	- -	198.19 (184.61)
Vehicles	0.44 (0.44)	- -	0.44 (0.44)
Total	**3357.68 (3391.25)**	**211.33 (287.29)**	**1778.28 (1577.71)**

include staff quarters and cold storage

b) Initial Direct cost relating to leasing arrangements is charged to revenue in the year of arrangement of lease.

c) Significant Leasing arrangements:
All assets mentioned above are leased out to subsidiaries, federations and others with an option to renew or cancellation of the agreement.
(Figures in bracket represent previous year figures)

11 Deferred tax assets have been recognised as per Accounting Standard 22 on Accounting for Taxes on Income issued by Institute of Chartered Accountants of India. Details are as under:

₹ in millions

Particulars	Balance as on 01/04/2011	Adjustment during the year 2011-12	Balance as on 31/03/2012
Deferred Tax Assets :			
Depreciation	7.61	59.91	67.52
Expenditure allowable on payment basis	34.61	4.25	38.86
Voluntary Retirement Scheme	163.54	(41.08)	122.46
TOTAL	**205.76**	**23.08**	**228.84**

12 There is no impairment loss to be recognized in the financial statements for the year in terms of Accounting Standard 28 regarding Impairment of Assets.

13 Disclosure as per Accounting Standard 29 regarding Provisions, Contingent Liabilities and Contingent Assets:

(₹ in millions)

Particulars	Non-Performing Assets	General Contingency on Standard Assets	Contingency
Opening balance	5976.84	411.50	527.21
Additional provision made during the year	14.17	87.25	–
Amounts used out of provision	(731.67)	–	(101.29)
Unused amount reversed during the year	(814.71)	–	(80.92)
Closing balance	4444.63	498.75	345.00

14 The figures of the previous year have been regrouped/re-arranged wherever necessary.

In terms of our report attached.
For Deloitte Haskins & Sells
Chartered Accountants

Kalpesh J. Mehta
Partner
Membership No. 048791
Firm Reg. No. 117366W
Anand, June 22, 2012

For and on behalf of the Board,

Y Y Patil
Deputy General Manager
(Accounts)

Dilip Rath
Managing Director

Amrita Patel
Chairman

Anand, June 22, 2012

NDDB Officers

Head Office, Anand

Chairman & Chief Executive
Amrita Patel, BVSc & AH

Managing Director
Dilip Rath, MA (Eco), M Sc (Eco)

Executive Director
Ravi Shankar, EXE DIR,
B Sc, PGDRM

Sangram Chaudhary, EXE DIR,
M Sc, PGDRM

Chief Executive's Office

S Rajeev, SR MGR,
B Tech (Industrial Engg), PGDRM

T V Balasubramanyam, MGR,
B Com, LLB (Gen)

Project Finance & Appraisal

S K Dalal, DY GEN MGR,
BVSc & AH, M Sc (Anim Sci), PGDRDM
(**Also responsible for Planning**)

M C Shah, DY GEN MGR,
B Sc (DT), PGDRDM

K Manek, SR MGR,
B Com, AICWA

P C Patnaik, SR MGR,
M Com

Chintan Khakhariawala, MGR,
B E (Chem), MBA (Fin)

P V Subrahmanyam, DY MGR,
BBM, MBA (Fin)

Swati Srivastav, DY MGR,
B Sc (Phy), PGDRM

Hemali H Mehta, DY MGR,
B E (Power Elect.), MBA (Fin)

Sneha Kumar, DY MGR,
B Tech (DT), PGDM (Mktg & Fin)

Chandan Singh, DY MGR,
B Sc (Zoo), PGDM (Mktg & Fin)

Cooperative Services

NDDB, Anand

M S Sayed, DY GEN MGR,
B E (Civil), M E (Env Engg)

Prashant J Tirkey, DY MGR,
B Sc (Hons), PGDRD

Nidhi Raval, DY MGR,
B Sc (Bot), MSW

Rajni B Tripathi, DY MGR,
B Sc (Bot), MSW, PGDIRPM

Sandeep Dheeman, DY MGR,
B Com, M A (SW)

New Generation Cooperatives

Bhuj

Chandrakant C Vegda, DY MGR,
B A (Eng Lit), MSW, PGDCCM

Junagadh

Dhanraj Sahani, MGR,
MBA (Mktg), DPCS

Pretesh Joshi, DY MGR,
B E (Mech), PGDRM

NDDB, Bangalore

B S Khanna, GEN MGR,
B Sc (Hons) (Agri & AH), PGDRDM

M Govindan, SR MGR,
M A (SW)

Sabyasachi Roy, DY MGR,
B Sc (Agri) Hons, M Sc (Agri Extn Edn),
PGDRD

A Krithiga, DY MGR,
B Sc (Agri)

Latha Siripurapu, DY MGR
B Com, PGDBA (Fin)

Nidhi Negi Patwal, DY MGR,
B Sc, M Sc (Chemistry), PGDRM

NDDB, Kolkata

Sajal Biswas, DY GEN MGR,
B Sc (DT), PGDIM

NDDB, Mumbai

A S Hatekar, SR MGR,
M Sc (Agri)

Shruti Pandey, DY MGR,
B Sc (Maths), MBA (RD)

Rahul Tripathi, DY MGR,
B Com, MBA (Fin)

New Generation Cooperatives

Buldana

Abhay Muley, MGR,
B Tech (DT)

Nanded

Satish K Boywar, MGR,
B E (Chem)

Niranjan M Karade, DY MGR,
B E (Mech), PGDRM

Sandeep Bharti, DY MGR,
B Sc, PGDDM

NDDB Office, Patna

M N Buch, GEN MGR,
B Sc, LLB, MLW

A K Srivastava, SCI III,
M Sc (Agri)

Seema Mathur, MGR,
M A (Eng)

M K Rajput, MGR, B Sc,
B E (Food Engg & Tech)

NDDB Office, Chandigarh

S K Attri, MGR,
B Tech (DT)

Dhanraj Khatri, DY MGR,
B A, MA (SW)

Rupesh Kumar, DY MGR,
B Sc (Agri), PGDRM

NDDB Office, Lucknow

Dharmendra Shastri, MGR,
B Tech (Agri Engg), LLB

Hrishikesh Kumar, DY MGR,
B Sc (Phy), PGDRM

Quality Assurance

NDDB, Bangalore

S Mukhopadhyay, SR MGR,
B Tech (Agri Engg), M Tech (D & F Engg),
PGDRDM

S D Jaisinghani, SR MGR,
B Sc (DT)

NDDB, Delhi

Sunil Bakshi, DY GEN MGR,
M Sc (Dairy Bacteriology)

A K Jain, MGR,
B Sc (DT), M Sc (Dairying)

NDDB Office, Patna

Narinder Sharma, SR MGR,
M Sc (Dairying), PGDMM

Product & Process Development

Samit Dutta, SCI II,
M Sc (Dairy Chem), MBA (Oprn Mgmt),
PhD (Mgmt)

M G Haridas, SCI I,
B Tech (Dairy Tech), M Sc (Dairying)

Jitender Singh, SCI I,
B Sc, M Sc (Micro), Ph D (Dairy Micro)

Peeyush Pandit, SCI I,
B Tech (Dairy Tech), M Tech (Dairy Tech)

Brijesh D Desai, SCI I,
B Tech (Dairy Tech), M Sc (OR)

Planning

R V M Mohan Kumar, DY GEN MGR,
M Sc (Stats), PGDRDM

A Rajasekaran, SR MGR,
M Sc (Agri), PGDRM

Pramod N Menon, MGR,
B Com, MBA (Fin)

Sai Krishna N, MGR,
B Sc (Agri), M Sc (Agri Extn), Fellow (IRMA)

Ashutosh K Mishra, DY MGR,
B Sc (E&I), PGDBA (Fin)

Kuldeep Borah, DY MGR,
B Sc (Biotech), PGDDM

Rohan Jain, DY MGR,
B Tech (Elect Engg), PGDRM

NDDB Officers

Nishi K Ranjan, DY MGR,
B Sc (Chem), PGDM (Fin & Mktg)

Kahnu C Behera, DY MGR,
B Sc (Agri), PGDRM

Rajesh Singh, DY MGR,
BCA, PGDM (Mktg & Fin)

Smriti Singh, DY MGR,
B A (Eng), PGDM (Mktg & HR)

K B Pratap, DY MGR,
BIBF (Int Business), PGDDM

Project Management Unit

Aditya Nath Jha, GEN MGR,
B A (Eng), PGDRD

G G Koppa, HEAD-PCU,
B Sc, M Sc (Agri), Fellow (IRMA)

Arvind Kumar, MGR,
B Sc (Agri), M Sc (Agri Mktg & Coopn)

Rajesh Kumar, DY MGR,
B A (Eco), PGDRM

Shelly Topno, DY MGR,
B A (Hons), M A (SW)

Human Resource Development

Mohini Tilwani, HEAD-HRD,
B Sc, MLW, LLB, PGD-HRD

Saurav Dutta, DY HEAD (T & D)
DHM, PGDBM

Y M Patel, DY GEN MGR,
B Sc (DT)

Rajesh Gupta, SR MGR,
B Sc, MSW

Jaidev Biswas, SR MGR,
B Sc (Chem), PGDRD

S B Padhiar, MGR,
B A (Socio)

S S Gill, MGR,
B Sc (Geo), MSW, Ph D (SW), Dipl (Trg & Dev)

K M Shah, MGR,
B Com, LLB (Gen), LLB (Spl), DTP

Anindita Baidya, MGR,
B Sc (Hons) (Bot), PGDRD

Mohan Chander J, MGR,
B E (Mech), M Tech (HRD)

Minal Fredrick Vaz, DY MGR,
B A, MSW

Mohd. Rashid, DY MGR,
B A, PGDDM

BJ Hazarika, DY MGR,
B Sc (Stats), MBA

Sukhada Sharma, DY MGR,
B Sc, M Sc (Genetics), MBA

Thungayya Saliyan, DY MGR,
B A, MSW, PGD-HRM

Ashish Bhatia, DY MGR,
B E (Bio Tech), PGDM

Mansinh Institute of Training, Mehsana

S N Rewatkar, DY GEN MGR,
B E (Mech), M Tech (D & F Engg)

Bhagyawan, SR MGR,
DME

Sunil Kumar Mehta, MGR,
B Tech (DT), PGDM (Agri Buss)

Regional Demonstration & Training Centre, Erode

D Narayanasamy, PRINCIPAL,
BVSc

TP Aravinth, MGR,
BVSc & AH, MVSc (Vet Micro)

Regional Demonstration & Training Centre, Jalandhar

P K Mehta, SR MGR,
M Sc (Dairying)

N K Saxena, SR MGR,
M Sc (Zoo), Dipl (Fisheries Sci)

Srikant Sahoo, MGR,
B Sc, BVSc, PGDM

Manoj Kumar Gupta, DY MGR,
BVSc & AH, MVSc

Deepak Bhatia, DY MGR,
BVSc & AH, MVSc (Vet Micro)

Regional Demonstration & Training Centre, Siliguri

S K Ray, SR MGR,
B Sc (Agri)

Samata Maji, DY MGR,
BVSc & MVSc (Vety Gynaec & Obst)

Information & Communication Technologies

Salegram Padhee, GEN MGR,
M Sc (Phy), PGDRM

S B Phatakwala, DY GEN MGR,
M Sc (Stats)

K S Desai, DY GEN MGR,
B E (Mech), PGDBA

M R Mehta, DY GEN MGR,
M Sc (Stats), Dipl (Comp Sci)

S Karounanithy, SYSTEMS ANALYST,
DEE

R K Jadav, MGR,
B Sc (Phy), MCA

Vipul Gondaliya, MGR,
B E (Electronics)

Supriya Sarkar, MGR,
B Sc (Maths), MCA

B Senthil Kumar, MGR,
B Sc, PGDCA, B Ed, MCA, MBA

Vijay P Bhatt, DY MGR,
B E (CSE), M Tech (CSE)

Rakesh R Maniya, DY MGR,
B E (ECE)

Himmat K Saresa, DY MGR,
B E (IT)

Ravikumar V, DY MGR,
B E (CSE)

Sectoral Analysis & Studies

T N Datta, DY GEN MGR,
M A (Eco), MRP, Ph D (Eco)

G Chokkalingam, DY GEN MGR,
M Sc (Agri Stats), PGD (Agri Stats)

A Anand, SR MGR, M Sc (Dairy Eco),
Ph D (Dairy Eco)

S Mitra, SR MGR,
B Sc (Elect Engg), PGDRM

M Jayakrishna, SR MGR,
M A (Eco), M Phil (Eco), Ph D (Eco)

J G Shah, SR MGR,
B E (Elect), MBA, Ph D (Mgmt),
Dipl (Exp Mgmt)

Anil P Patel, MGR,
M Sc (Agri), PGDMM

Mena H Pagadhar, ANALYST,
B Sc, MCA

Rutu Prasad Sagariya, DY MGR
B Sc (Agri), PGDDM

Biswajit Bhattacharjee, DY MGR,
B Sc (Agri), M Sc (Agri Eco)

Mukesh R Patel, DY MGR,
B Sc, M Sc (Agri)

Darsh K Worah, DY MGR,
B Sc (Micro), M Sc (Env Sci), Cert GIS

Snehalkumar H Patel, DY MGR,
BVSc & AH, MBA (Intl Agri Buss)

NDDB, Bangalore

G C Reddy, SR MGR,
M Sc (Stats), M Phil (Populn Studies)

M N Sathish, MGR,
M Sc (Stats)

Halanayak A L, DY MGR,
B Sc (Agri Mktg & Coopn), M Sc (Agri Eco)

Pondicherry

V K Upadhyay, SR MGR,
M Sc (Agri)

NDDB, Delhi

Arun Chandhok, MGR,
B Sc, PGD (IRPM), DCS

Sarvesh Kumar, DY MGR,
B Sc (Agri & AH), M Sc (Dairy Eco),
Ph D (Dairy Eco)

Ashutosh Singh, DY MGR,
M A (Eco), Ph D (Eco)

NDDB, Kolkata

Dora Saha, MGR,
M Sc (Eco), M Phil (Eco)

NDDB, Mumbai

Amit K Saha, MGR,
B Sc (Agri), M Sc (Dairy Eco), Ph D (Dairy Eco)

NDDB Officers

Purchase

O P Sachan, GEN MGR,
B Tech (Chem), MBA (FIN)

B Dutta Biswas, SR MGR,
B E (Chem), PGDCE

T S Shah, SR MGR, DME,
B E (Mech), PGDBA

T N Rao, SR MGR,
B Sc, PGDMM, LLB (Spl)

B Sekar, SR MGR,
M Com, PGDMM

H P Rathod, SR MGR,
IDD (DT)

Sougata Bhar, MGR,
B E (Mech)

Nilesh K Patel, DY MGR,
B E (Prodn)

Bhadrasinh J Gohil, DY MGR,
B E (Mech)

NDDB, Mumbai

Amol M Jadhav, DY MGR,
B E (Mech)

Public Relations & Communications

Abhijit Bhattacharjee, SR MGR,
B Sc, LLB, PGDRD

Basuman Bhattacharya, MGR,
B Sc (Bot), M A (Journalism),
Dipl in Social Comm (Film Making)

Divyaraj R Brahmbhatt, DY MGR,
BA (Eng), PGDBA, MBA (PR)

Engineering Services

O P Nema, DY GEN MGR,
M Tech (D & F Engg)

R S Mandloi, DY GEN MGR,
B E (Civil) Cert (PERT/CPM)

S S Hardaha, DY GEN MGR,
B E (Mech)

P V Nadgouda, DY GEN MGR,
B E (Civil), PGDM (Mktg)

A K Chakraborty, DY GEN MGR,
B Tech (Agri Engg), M Tech (Industrial Mgmt)

J S Gandhi, DY GEN MGR,
B E (Civil)

Shashi Kumar, DY GEN MGR,
B Sc (Elect)

G Rajagopal, DY GEN MGR,
B E (Elect)

Santosh Singh, SR MGR,
B Tech (Civil)

S Goswami, SR MGR,
B E (Mech), PGDRDM

B U Solanki, SR MGR,
B E (Civil)

A B Ghosh, SR MGR,
M Tech (D & F Engg)

G S Sarvarayudu, SR MGR,
B Tech (Civil)

V Srinivas, SR MGR,
B E (Civil)

S Chandrasekhar, SR MGR,
B E (Mech)

S Talukdar, SR MGR,
B E (Mech), MIE

S K Nasa, SR MGR,
B E (Civil)

R S Sisodiya, MGR,
DME

R Soundhararajan, MGR,
AMIE (Mech)

S K Sharma, MGR,
DCE

R B Shah, MGR,
DEE

Saumitra Das, MGR,
B E (Civil)

Pradip Layek, DY MGR,
B Tech (Elec)

Rupesh A Darji, DY MGR,
B E (Elect)

Dhaval A Panchal, DY MGR,
B E (Elect)

D B Lalchandani, DY MGR
B E (Mech), MBA (Oprn)

Kousik Roy, DY MGR,
B Tech (Elec)

Nikesh V More, DY MGR,
B E (ICE)

Vipul L Solanki, DY MGR,
B E (ECE)

Manish Sharma, DY MGR,
B Tech (Elect), MBA (HRD)

Javed Iqbal, DY MGR,
B Tech (Civil), M Tech (CPM)

Dharmendra K Behera, DY MGR,
B E (Mech), MBA (Mktg & Syst), Dip Printing

Prakash A Makwana, DY MGR,
B E (Elect)

Banas Dairy Project-III, Palanpur

S S Sinha, SR MGR,
B E (Elect)

Manoj Gothwal, DY MGR,
B E (Civil)

Bhopal Dairy Expansion Project, Bhopal

Amit Shukla, DY MGR,
B E (Civil)

Satendra Singh Gurjar, DY MGR,
B E (Mech)

Biharsharif Project Site, Biharsharif, Nalanda

P Saha, SR MGR,
B Tech (Agri Engg)

S C Surchowdhury, SR MGR,
B E (Elect)

Vinay I Kulkarni, MGR,
B E (Civil)

Jasdev Singh, DY MGR,
B Tech (Elec), M Tech (Power Engg)

Cattle Feed Plant, Ajmer

A S Bhadauria, MGR,
B E (Food Engg & Tech)

Cattle Feed Plant, Hassan

Shashikumar B N, SR MGR,
B E (EEE), PGDRDM

Sudhir Kumar Gangal, DY MGR,
DCE, B E (Civil)

Cattle Feed Plant, Katarva

U B Das, SR MGR,
B E (Mech)

Bhushan P Kapshikar, DY MGR,
B E (Civil)

Shreyas Jain, DY MGR,
B E (Elect)

Abhishek Gupta, DY MGR,
B E (Mech)

Cattle Feed Plant, Seoni

Dhiraj B Tembhurne, DY MGR,
B E (Civil)

Cattle Feed Plant Expansion Project, Bikaner

Gaurav Singh, DY MGR,
B Tech (Civil)

Cattle Feed Plant Expansion Project, Jodhpur

Mihir B Bagaria, MGR,
DCE, B E (Civil), MBA (Fin)

Abhishek R Khatri, DY MGR,
B Tech (Civil)

Balbir Sharma, DY MGR,
DEE, B E (Elect)

Cattle Feed Plant Expansion Project, Kolhapur

K S Patel, MGR,
B E (Civil)

Cattle Feed Plant Expansion Project, Nadbhai

Jay Nagar, DY MGR,
B E (Civil)

Hajipur Dairy Project Site, Hajipur

Manoj Kumar, DY MGR,
B Tech (Manufac Engg)

Hassan Dairy Expansion Project, Hassan

U Sundara Rao, DY MGR,
DEE, B E (EEE)

NDDB Officers

Ganesh Mohan Shenoy, DY MGR,
DCE, B E (Civil)

Hosakote Dairy Project, Hosakote

K J J Ahmed, SR MGR,
B E (Elect)

Sandipkumar P Patel, DY MGR,
B E (Civil), M Tech (Civil)

Jhansi Dairy Project, Jhansi

Bharat Singh, DY MGR,
B Tech (Mech)

Lalitpur Chilling Centre, Lalitpur

Gaurav Dabas, DY MGR,
B E (Civil)

Mohali Dairy Expansion Project, Mohali

Sachin Garg, DY MGR,
B E (Elect), PGDBA

Mysore Dairy Expansion Project, Mysore

Rabindra K Behera, DY MGR,
B E (Civil)

Rajkot Dairy Expansion Project, Rajkot

Gopal K Narang, MGR,
B E (Civil), DIP-MCM

Sabar Dairy Project Site, Himatnagar

Chandra Prakash, SR MGR,
B Tech (Mech)

Shailendra Mishra, MGR,
Dip (Civil Eng & Const Tech)

Shailesh S Joshi, DY MGR,
B E (Mech)

Sardarkrushinagar Dantiwada Agriculture University, Dantiwada

Aditya Sharma, DY MGR,
B Tech (Civil), M Tech (CPM)

Tiruvanamalai Dairy Project, Tiruvanamalai

V E E Sundar, DY GEN MGR,
B Sc (Applied Sci), AMIE (Elect)

P Balaji, DY MGR,
B E (Civil)

Tumkur Dairy Expansion Project, Tumkur

Balram Niboriya, DY MGR,
B Tech (Civil)

Yelahanka Dairy Project, Bangalore

Arindam Mallick, DY MGR,
B E (Elect)

NDDB, Bangalore

S B Bose, SR MGR,
B E (Mech), PGDRDM

NDDB, Kolkata

G C Taneja, MGR,
B Sc, DME

Animal Breeding

K R Trivedi, GEN MGR,
BVSc & AH, MVSc, Fellow (IIM-B)

R Kasiraj, DY GEN MGR,
BVSc, FRVCS

M Namjoshi, DY GEN MGR,
BVSc, MVSc (Anim Brdg)

M U Siddiqui, DY GEN MGR,
BVSc & AH, MVSc (Vety Obst & Gynaec)

D G Raghupathi, DY GEN MGR,
BVSc, PGDRDM

G Kishore, DY GEN MGR,
BVSc, M Sc (Dairying, Ani Gen & Brdg)

R K Srivastava, MGR,
B Sc, PGDCA, CIC, MCA

Santosh K Sharma, DY MGR,
BVSc & AH, PGDRM

Ranmal M Ambaliya, DY MGR,
B E (Comp Engg)

Dhara Patel, DY MGR,
BVSc & AH, PG Agri Bus Mgmt

Progeny Testing Project

Ahmedabad

S Gorani, SR MGR,
BVSc, MVSc (Vety Gynaecology & Obstetrics), PGDMM

N G Nayee, MGR,
BVSc, MVSc (Anim Brdg)

Vilas B Dongre, DY MGR,
BVSc & AH, MVSc (Ani Gen & Brdg), Ph D (Ani Gen & Brdg)

Bangalore

L C Nunes, DY GEN MGR,
BVSc

S Raja, DY MGR,
BVSc & AH, MVSc

Bikaner

R D Baghel, SR MGR,
BVSc & AH

Meerut

R O Gupta, DY GEN MGR,
BVSc, MVSc (Med)

V P Bhosale, MGR,
BVSc & AH, MVSc (Med)

Narayan K Nanote, MGR,
Dip in Agri, BVSc & AH

M L Gawande, MGR,
BVSc, MVSc (Vet Med)

Mehsana

Parag R Pandya, MGR,
BVSc & AH, MBA (HRM)

Rohtak

Sujit Saha, MGR,
B Sc (Agri), M Sc (Dairying), Ph D (Ani Gen & Brdg)

Vishal Kumar, DY MGR,
BVSc & AH, MVSc (Vet Sur)

Pondicherry

M Kunju, DY GEN MGR,
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Abbreviations

EXE DIR	:	Executive Director
SR GEN MGR	:	Senior General Manager
GEN MGR	:	General Manager
DY GEN MGR	:	Deputy General Manager
SR SCI	:	Senior Scientist
SR MGR	:	Senior Manager
SCI III	:	Scientist III
MGR	:	Manager
SCI II	:	Scientist II
DY MGR	:	Deputy Manager
SCI I	:	Scientist I

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