



National Dairy Development Board  
Annual Report 2012 • 2013







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### Members of the Board

(As on 31 March 2013)

**Dr. Amrita Patel**  
Chairman

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

**Shri S Parthasarathy**  
Expert

**Shri PT Gopalakurup\***  
Chairman  
Kerala Co-operative Milk Marketing  
Federation (KCMMF)  
Thiruvananthapuram

**Shri G. Somasekhara Reddy**  
Chairman  
Karnataka Co-operative Milk Producers  
Federation Limited  
Bangalore

**Shri Dilip Rath**  
Managing Director

**Shri Sangram Chaudhary**  
Executive Director

*\*Till – February 2013*

### 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

**Sabarmati Ashram Gaushala,  
Bidaj**

**Dr. Amrita Patel** Chairman

**Shri Deepak 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 Patil** Co-opted Member

**Shri MM Patil** Co-opted Member

**Shri RS Lahane** Member-Convenor







# The Year in Retrospect

India continued to be the largest milk producing country in 2012-13 with an estimated milk production of 132.4 million tonnes. The country's share in world milk production stands at 17 per cent.

## Domestic dairy scene

With an estimated milk production of 132.4 million tonnes, an increase of 3.5 per cent over the previous year, India continued to be the largest milk producing nation in the world.

The dairy cooperatives collected 12.0 million tonnes of milk compared to 10.5 million tonnes in the previous year, a growth of over 14 per cent. Liquid milk marketing by the cooperatives stood at 8.9 million tonnes compared to 8.6 million tonnes in the year gone by – an increase of about 4 per cent.

Wholesale price indices of fodder, cattle feed and oil cake increased by about 20 per cent during the year. The price of rice bran extractions – a key ingredient in balanced cattle feed – increased by about 30 per cent. To offset the increase in cost of feed, higher wages and increase in fuel prices, higher procurement prices were paid to milk producers resulting in an increase in consumer prices.

About 100,000 MT of skimmed milk powder (SMP) and SMP equivalent of casein were exported during the year.

## International dairy scene

International prices, which were relatively high during the early part of 2012-13, declined during the middle of the year but increased substantially by the end of the year. FAO reported a 3 per cent increase in world milk production from 745 million tonnes in 2011 to 767 million tonnes in 2012.

## The National Dairy Plan

The National Dairy Plan (NDP) is designed to help increase productivity of milch animals and thereby meet the rapidly growing demand for milk in the country and provide more rural milk producers with better access to markets.

It provides for financing activities carried out by select End Implementing Agencies (EIAs) in 14 major dairying states in the following areas:

- **Progeny Testing** – for production of high genetic merit bulls to be distributed among semen stations across the country.
- **Pedigree Selection** – to promote conservation and genetic improvement of indigenous breeds of dairy animals.



*Awareness programme on village based milk procurement systems.*

- **Strengthening of Semen Stations** – to upgrade and expand semen collection and processing facilities to support Artificial Insemination (AI) services being provided across the country with disease-free semen.
- **Pilot model for AI delivery service** – to introduce a financially self-sustaining model to provide AI through professional service providers following Standard Operating Procedures (SOPs).
- **Ration Balancing** – to provide ration balancing advisory services specific to individual dairy animals, based on locally available feed materials, at the farmers' doorstep, through trained Local Resource Persons (LRPs).
- **Fodder Development** – to promote the use of high yielding varieties of fodder seeds and technologies for optimal use of available dry fodder throughout the year.
- **Village Based Milk Procurement System** – to expand the infrastructure for collection and chilling of milk at village level.

Successful implementation as well as the sustainability of these activities is contingent on certain key regulatory/

policy measures being in place. All states where National Dairy Plan Phase I (NDP-I) is being implemented have put in place the following regulatory/policy measures:

- An appropriate breeding policy;
- AI delivery services not being notified as a Minor Veterinary Service (MVS);
- Charges for AI delivery being raised gradually to cover the full cost;
- Semen for AI delivery in the state being sourced only from semen stations graded A or B;
- Adoption of common protocols and SOPs issued by DADF for all breeding activities; and
- Notification of State Rules under the Prevention and Control of Infectious and Contagious Diseases in Animals Act.

During the year NDDDB provided support in the preparation of sub project plans (SPPs) for various components under NDP-I. Forty-three End Implementing Agencies in 12 states were supported to prepare 81 sub project plans which are under implementation. A grant is being received from the Central Government for the specific purpose of funding these projects. ○

# Strengthening Cooperative Business

NDDB remains committed to assist dairy cooperatives in strengthening their business and ensuring maximum returns to producer members.

Orientation of newly elected board members of milk unions and capacity building of union personnel and milk producer members continued during the year. Board members from milk unions from across the country, including north eastern states, attended the orientation programmes which were held at Anand.

Sessions on farmers' training conducted at NDDB focused on fair and transparent methods of milk procurement, principles of cooperation, animal management and adoption of best practices in dairying. Union personnel were sensitised to the increasingly competitive environment, challenges faced by dairy cooperatives and the importance of functioning as professionally managed business enterprises.

NDDB continued to encourage the involvement of women in leadership roles in the dairy cooperatives. Women members were encouraged to participate actively not only as members of village dairy cooperatives but also as members of the management committees and on boards of milk unions and state federations. As on March



2013, there were 4.38 million women members across the country, of which 3,29,495 were in leadership roles in the management committees of village dairy cooperatives and 354 were represented on the boards of unions and state federations.

By March 2013, the milk unions had covered about 0.16 million village dairy cooperative societies with 15.1 million milk producer members. The cooperative milk unions procured an average of 32.8 million kg of milk per day compared to 28.7 million kg in the previous year, recording a growth of 14.3 per cent. The sale of liquid milk reached 23.7 million litres per day, showing a growth of 3.7 per cent over the previous year.

Milk procurement by dairy cooperatives in the states of Andhra Pradesh, Karnataka, Kerala, Gujarat, Maharashtra and Rajasthan collectively registered a growth of 15 per cent, in spite of 125 districts in these states being affected by drought. This only confirmed the important role of dairying in sustaining livelihoods in times of drought.

procured over 1,99,200 kg of milk per day registering a growth of 38 per cent over the previous year. With liquid milk marketing of about 1,67,000 litres per day, the union had a turnover of ₹ 2,660 million.

Jalgaon Milk Union was re-certified for ISO 9001:2008 on Quality Management System, ISO 22000:2005 on Food Safety Management System, ISO 14001:2004 on Environmental Management System & OHSAS 18001:2007 on Occupational Health & Safety Management System.

### West Assam Milk Union

The West Assam Milk Union (WAMUL) is being managed by NDDB since 2008. The average milk procurement during the year more than doubled – from about 6,600 kg per day to 15,000 kg per day. The peak daily milk procurement during the year crossed 36,000 kg. Milk was procured from 97 milk producers institutions/dairy cooperative societies with a total membership of over 2,000 milk producers.



*Women producers gain confidence through a collective approach.*

## Management of Milk Unions

### Jalgaon Milk Union

NDDB continued to manage the operations of the Jalgaon Milk Union. Compared to the previous year, the union

With a growth of about 15 per cent, the union marketed an average of 37,000 litres per day under its brand 'Purabi' in Guwahati and adjoining districts of the state through more than 1,700 retail outlets and 43 distributors. The sale of different milk products was initiated during the



year. The products sold included 28 MT of *paneer*, 22 MT of cream, 74 MT of sweet curd and 30 MT of plain curd.

The turnover of the union grew by 26 per cent to ₹462.6 million compared to ₹365.8 million in the previous year. The union reported a cash profit of ₹2.5 million.

WAMUL celebrated 'Purabi Milk Day' on December 10, 2012. The Chief Minister of Assam, Shri Tarun Gogoi inaugurated the newly set up packaging facilities and launched flavoured milk and packaged *lassi* on the occasion.

### Assistance to cooperatives

Launched by the Government of India in 2000, the scheme 'Assistance to Cooperatives' has been providing assistance as grant-in-aid to loss making dairy unions/federations, based on revival plans prepared with the assistance of NDDDB to help them become viable. Since the launch of the rehabilitation scheme, plans for 42 milk unions have been approved with an aggregate outlay of ₹2,896 million. Till 31 March 2013, rehabilitation assistance of ₹2,324 million was released to the unions.

The rehabilitation period of seven years is over with respect to 27 unions. Of these, eight unions have achieved positive net worth while six unions are earning profits but have not yet achieved positive net worth. Thirteen unions continue to incur losses and have a negative net worth.

Of the remaining 15 unions, 11 are likely to achieve positive net worth before the completion of the rehabilitation period of seven years.



*Member enrollment for a Milk Producer Company.*



*Extending the reach of dairy products.*

### Strengthening village based milk procurement systems

During the year, under the NDP-I, NDDDB assisted 23 milk unions in 10 states to prepare plans for expanding village level milk procurement. Over a period of six years, these plans envisage setting up new dairy cooperative societies (DCS) in more than 2,300 villages. These plans

also provide for strengthening about 3,000 existing DCS, which will be supplied with electronic milk collection units for weighing and testing milk supplied by farmers in a more fair and transparent manner. 379 Bulk Milk Coolers (BMC) with capacities varying from 2,000 to 5,000 litres are expected to be set up to provide village level milk chilling facilities that will help improve the quality of milk supplied to dairies and reduce transportation costs.

### Milk Producer Companies

Producer Companies combine the institutional and ideological strengths of cooperatives (ownership limited to users; limited interest

on shares; no trading of shares; patronage not capital based) with the flexibility and autonomy available under Company Law. Producer Companies are run on the basis of principles that are, by and large, the same as those adopted by the International Cooperative Alliance.

Cooperatives currently cover about 20 per cent of milk producer households and villages across the country. The organised private sector is rapidly expanding its operations and at this pace could overtake cooperatives in the years to come. It is important – in the interest of livelihoods and inclusiveness – that cooperatives and Producer Companies together handle at least 50 per cent of the milk handled by the organised sector. A substantial part of the marketable

organisations with individual milk producers as the members. A producer owned organisation performs well if its members have sufficient stake in it in the form of share capital, leading to a high sense of ownership. This makes them more vigilant about the organisation's performance. As per the Articles of Association, the members of the company need to have shares in proportion to their patronage.

Only users who are actively engaged in milk production and are willing to abide by the terms and conditions of the MPC can become and remain members. Voting rights are based on a single vote for every member, provided that the member fulfils certain conditions and additional votes



*Village level milk procurement - providing dairy farmers an assured market.*

surplus continues to be handled by traders and vendors. For the benefit of both producers and consumers, it is necessary that while the cooperatives continue to be strengthened, more and more Producer Companies are incorporated and operationalised.

During the year, NDDB's wholly owned subsidiary NDDB Dairy Services facilitated the incorporation of two Milk Producer Companies namely 'Paayas Milk Producer Company' in Rajasthan and 'Maahi Milk Producer Company' in Gujarat. The two Producer Companies have a membership currently of over 100,000 milk producers with a paid up share capital of about ₹150 million.

Milk Producer Companies (MPC) are single tier

would be in accordance with the patronage.

Recognising the importance of informed participation by the members, MPCs have planned to undertake several initiatives, including member awareness programmes with specific focus on enhancing women membership and their actual involvement in the company. Since the MPCs are single tier organisations, member relation groups are being set up to facilitate a two-way communication between the company and the members.

The Producer Company legislation has the distinct advantage of facilitating professionals to take part in governance as 'Expert Directors', their number not exceeding one-fifth of the total number of directors. ○

# Enhancing Productivity

For dairying to remain remunerative, the net incomes of dairy farmers need to improve. This can be achieved by enhancing animal productivity by genetic improvement and by reducing the cost of milk production by feeding a balanced ration.

## Animal Breeding

Efforts for genetic improvement of cattle and buffaloes through implementation of appropriate breeding programmes continued during the year.

### Sire evaluation and production of high genetic merit bulls

NDDDB continued to provide support to seven Progeny Testing (PT) programmes, in partnership with Banaskantha and Mehsana Milk Unions for *Mehsana* buffaloes; Animal Breeding Centre (ABC), Salon in partnership with Pradeshik Cooperative Milk Federation, Uttar Pradesh, for *Murrah* buffaloes; Sabarmati Ashram Gaushala (SAG), Bidaj, jointly with Panchmahal, Sabarkantha and Surat Milk Unions for Holstein Friesian crossbred cattle and upgraded *Murrah* buffaloes; Karnataka Milk Federation for Holstein Friesian cattle; and Tamil Nadu Milk Federation for Jersey crossbred cattle.

Collectively, these seven programmes had put 54 additional bulls under test during the year, taking the total number of bulls under test to 349. More than 50,800 daughters born through test AI were registered. Simultaneously, the nominated mating of elite dams with semen of top ranking proven bulls to produce high genetic merit bulls continued. During the year, 66 bull calves born through nominated mating were procured



*A proud owner with a Jaffrabadi buffalo, one of the highest yielding buffalo breeds.*



after confirming their parentage through DNA markers and testing them and their dams for tuberculosis, Johne's Disease and brucellosis. Sixty-one high genetic merit bulls, procured and reared through these programmes, were distributed to various semen stations.

The seven PT programmes initiated during the last few years and being implemented by different organisations are being continued with each of these organisations becoming an End Implementing Agency (EIA) under the NDP. Two more PT programmes, one in Andhra Pradesh for crossbred Jersey cattle and another in Punjab for *Murrah* buffalo were initiated during the year. NDDDB

Ganganagar, Hanumangarh and Churu districts of Rajasthan. Forty-one AI centres covering 132 villages carried out 6,081 inseminations during the year. All inseminated *Rathi* cows were ear-tagged, registered and monitored through the Information Network for Animal Productivity and Health (INAPH). Milk recording was carried out for about 300 elite cows. The average standard 305-day lactation yield of recorded cows was 2,699 kg.

The *Kankrej* breed development programme in partnership with Banaskantha Milk Union in select villages of Banaskantha district in Gujarat also continued. The programme, implemented through 32 AI centres



*Body measurement of a Jersey crossbred daughter to assess growth.*

assisted the eight EIAs in finalising project plans to be funded under the NDP for their PT programmes which will be implemented across six states with an estimated outlay of ₹1,686 million. During the six-year project period, these programmes are expected to make available around 1,542 High Genetic Merit (HGM) bulls of the different breeds mentioned for distribution to semen stations across the country.

### Indigenous breed development

The *Rathi* breed development programme being implemented by NDDDB in partnership with URMUL Trust continued in select villages of Bikaner, Shri

covering 88 villages, carried out 11,723 inseminations in *Kankrej* cows.

Efforts by NDDDB 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*, *Haryana* and *Tharparkar* and in buffalo breeds namely *Murrah*, *Jaffarabadi*, *Pandharpuri* and *Toda*.

The indigenous breed development programmes will henceforth be continued under the NDP-I with URMUL Trust and Banaskantha Milk Union becoming the EIAs. NDDDB worked with both EIAs to prepare Pedigree Selection (PS) programmes for *Kankrej* and *Rathi* cows. Two more PS programmes for *Gir* cattle and *Jaffrabadi*

buffalo were initiated in Gujarat during the year. These four Pedigree Selection programmes spread over a period of six years are expected to produce about 280 High Genetic Merit bulls, which will be distributed among semen stations in the country.

### Information Network for Animal Productivity and Health (INAPH)



*Milk recorder entering production data in a PDA.*

The use of INAPH was expanded to cover 36 projects including Progeny Testing, Pedigree Selection and Ration

Balancing programmes spread across 11 states and 63 districts. About 16.99 lakh animals, belonging to 6.02 lakh farmers spread across 6,015 villages, were ear-tagged for unique identification.

### Frozen semen production and AI delivery

The three NDDB-managed semen stations – Sabarmati Ashram Gaushala (SAG), Bidaj, Animal Breeding Centre (ABC), Salon, and Rohtak Semen Station, together produced 17.66 million frozen semen doses accounting for about 22 per cent of the semen doses produced in the country. In addition to this, another eight semen stations in the cooperative sector produced 13.78 million semen doses.

During the year, the cooperative dairy unions together performed 13.5 million AIs through 18,000 field AI centres covering some 54,150 villages.

Under NDP-I, NDDB provided support to 11 EIAs in seven states to prepare project plans for strengthening their semen stations.

As a part of its human resource development initiative and to provide an exposure to international standards in Progeny Testing, semen production and delivery of AI services, NDDB deputed some of its officers to advanced dairying countries like France, The Netherlands and Israel.



*Mobile AI technician*

## Animal Nutrition

The growing demand for milk can be met by enhancing productivity and the productive life of dairy animals. This can be achieved if they are fed a nutritionally balanced ration that provides the required nutrients to express their genetic potential.



*Local Resource Person advising a milk producer in balancing the animals' ration using locally available feed resources.*

### Ration balancing advisory services

The pilot project initiated by NDDB in Banaskantha district had clearly established the benefits of feeding a balanced ration based on the advice of trained Local Resource Persons (LRP). Dairy farmers were given tailor-made formulations based on locally available feed resources by LRPs who use a software developed by NDDB to arrive at a balanced ration specific to the requirement of individual animals.

Considering the significance of balanced feeding, large scale implementation of ration balancing was initiated under NDP-I. NDDB provided support to 16 EIAs in nine states to prepare project plans for ration balancing advisory services that is expected to cover more than 4.5 lakh animals in 4,800 villages. Key to the successful

implementation of the programme is trained and qualified manpower. Sixty-five technical officers, trainers and animal nutritionists from 15 EIAs were trained at NDDB Anand on the technical aspects of implementing the Ration Balancing Programme (RBP).

These trained officers started the process of identifying and training LRPs. By the end of the year three EIAs, viz. Banaskantha, Sabarkantha and Kolhapur Milk Unions had trained 135 LRPs who have started providing ration balancing advisory services to 2,831 milk producers in 86

villages covering 7,097 milch animals.

All the animals covered under the programme were ear-tagged and registered in INAPH. Data on animals covered under RBP is now being received on-line. The results of the ration balancing advisory services provided so far during the year confirm the findings of the pilot project implemented the previous year. On an average, the cost of feeding animals reduced by around ₹1.5 per kg of milk produced. An increase in milk production of about 300 ml per animal and increase in fat content of about 0.1 per cent was recorded. This translates into a monetary benefit of about ₹25 per animal per day. However, the benefits accrued from RBP do vary and depend on location, season, feed cost, species of animal, stage of lactation and milk price.

Appropriate extension and communication material

in regional languages for effective promotion of the programme was developed and made available to the EIAs. A documentary on RBP developed earlier was dubbed into four regional languages: Hindi, Punjabi, Marathi and Kannada. Printed extension material in Hindi, is being translated by EIAs into their respective regional languages for display at the village dairy cooperative societies.

### Assistance for production of bypass protein supplement

NDDDB continued to promote the use of bypass protein technology. During the year, a bypass protein plant of 200 MT per day in Katarva, Banaskantha in Gujarat and a 50 MT per day in Hassan Milk Union in Karnataka were set up to treat locally available protein meals.

### Mineral mapping programme

NDDDB continued to undertake mineral mapping in the states of Gujarat, Rajasthan, Punjab, Kerala, Maharashtra, Uttar Pradesh, Bihar, Madhya Pradesh and Andhra Pradesh to recommend formulations for the production of area-specific mineral mixtures. During the year, mineral mapping was completed for Sabarkantha district in Gujarat. Calcium, phosphorus, sulphur, copper, zinc, manganese and cobalt were found to be deficient in the ration of milch animals. Based on the results of mineral mapping, an area-specific mineral mixture formulation was developed for the district and a mineral mixture plant is being set up at its cattle feed plant in Himatnagar for the production of area-specific mineral mixture. In addition, technical assistance was provided for setting up three mineral mixture plants – two of 12 MT per day capacity each in the states of Andhra Pradesh and Karnataka, and a 25 MT per day plant in Gujarat.



*Demonstrating fodder conservation in the form of silage.*

### Green fodder production and enhancement

During the year, 7.70 MT of breeder seeds of improved varieties of fodder crops were obtained from the Indian Council of Agricultural Research/agricultural universities and supplied to cooperatives. The breeder seeds of maize, sorghum, berseem, lucerne, oats, cowpea, pearl millet and cluster bean were procured and put in the seed multiplication chain. Dairy cooperatives organised the production and marketing of 5,260 MT certified/truthfully labelled fodder seeds of high-yielding improved varieties of fodder crops of maize, sorghum, berseem, lucerne, oats, cowpea, pearl millet and cluster bean.



*Silage feeding being demonstrated to milk producers.*

Newly developed hybrids of multi-cut fodder sorghum (CSH-20MF & CSH-24MF) having the potential to produce high dry matter and crude protein yield and low HCN content with resistance to foliar diseases, as well as a new variety of oats (RO-19) having broad leaves with higher green fodder yield were introduced at NDDB's fodder demonstration unit. Performance of these cultivars is being demonstrated to farmers/trainees along with other high-yielding improved varieties of perennial grasses, legumes and fodder crops.

To popularise silage making among small farmers, demonstrations were also arranged in small size surface silos of 3 MT storage capacities. Field demonstrations of improved varieties of fodder beet (Jamon, Monro, Jauna, Splendide & J.K. Kuber), Coix (Bidhan-1) and velvet bean were organised at Ambala and Ropar Milk Unions. The plantation area of thornless cactus was increased at the fodder demonstration unit for propagation in arid areas.

To propagate the cultivation of high yielding multi-cut perennial grass, 61,000 stem cuttings of hybrid napier variety (CO-4) were supplied to Ropar Milk Union, Sabar Dairy and to farmers visiting the fodder demonstration unit.

Auto pick-up type baler machines for straw recovery after combining were propagated. Considering the benefits, namely clearing fields in time for subsequent sowing and labour-free operation, many farmers in the states of Punjab and Haryana have started using these balers.

Installation and commissioning of a straw enrichment and densification plant for Malabar Milk Union at Palakkad



*Green fodder is an economical source of nutrients.*

was completed under NDDB's technical guidance. Work on a new straw enrichment and densification plant at Shri Ganganagar in Rajasthan was also initiated.

NDDB supported 18 EIAs in 10 states to prepare plans for fodder development programmes under NDP-I. Three

fodder seed processing plants, one each at Kolar in Karnataka, Lucknow in Uttar Pradesh and Vijayawada in Andhra Pradesh are proposed to be set up. The programme will also support 368 silage making demonstrations and 119 forage harvester/mower demonstrations. ○



*Securing straw from farmers' fields using auto pickup type baler machine.*

# Research & Development

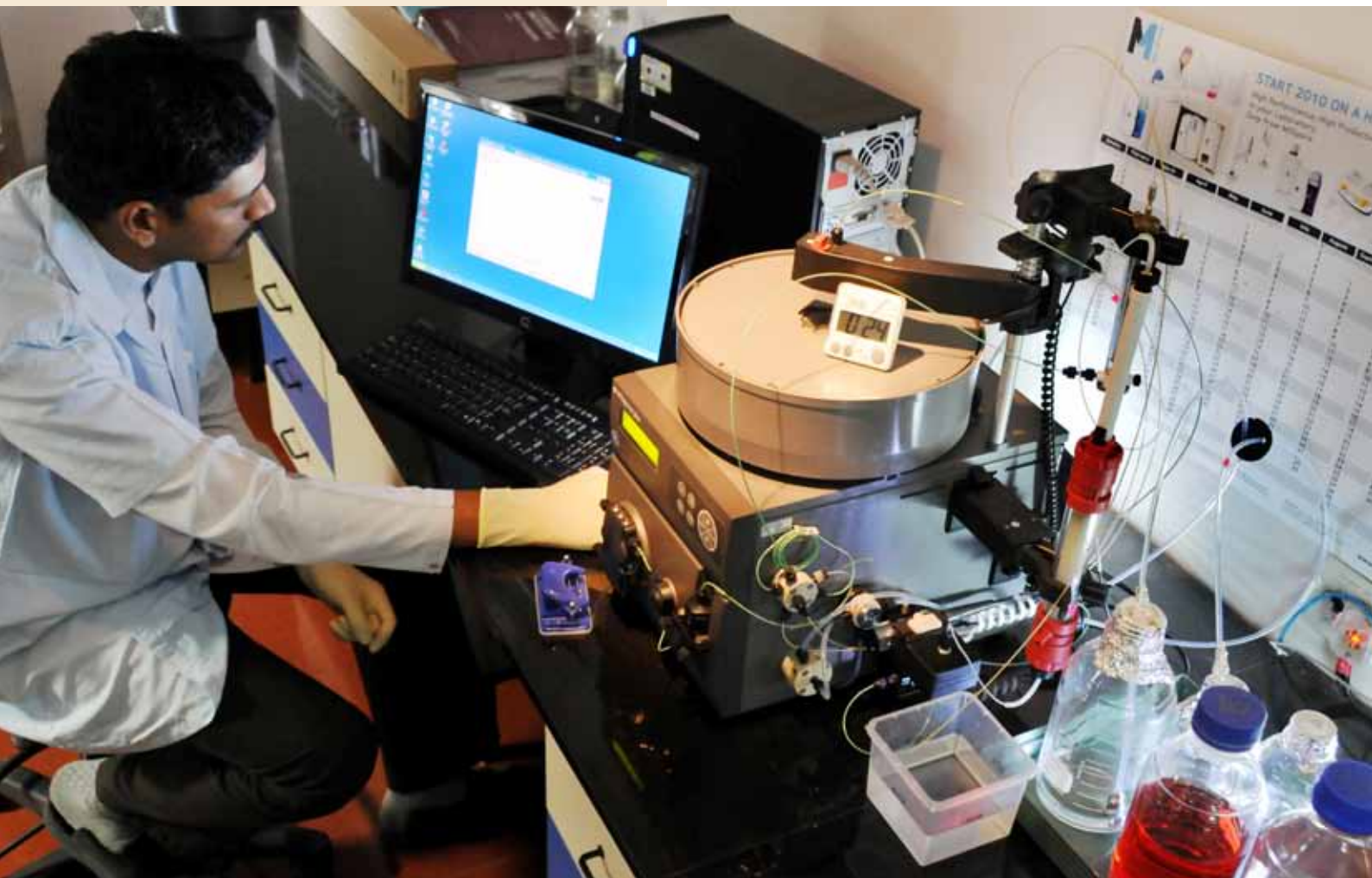
Research and Development initiatives of NDDDB focus on developing fast and accurate animal disease diagnostic techniques as well as effective vaccines for control of infectious animal diseases.

## Animal vaccines and diagnostics

Attempts were made to detect and sero-type Foot and Mouth Disease (FMD) virus using milk from suspected cattle and buffaloes. Initial studies indicated that FMD virus could be detected in milk up to four days prior to development of clinical symptoms and at least up to two weeks of convalescence by modern molecular techniques. Accurate and sensitive molecular non-invasive techniques which can provide results in a short time (two hours) have the potential to be used to detect FMD virus in the milk of lactating animals in the absence of clinical symptoms – mouth or foot lesions.

Studies on transmission of FMD virus from experimentally infected buffaloes indicated that the virus can be transmitted to naive cattle and buffaloes by direct contact exposure. The experiment indicated that buffaloes may require higher antigen payloads compared to cattle for protection against challenge.

Molecular characterisation of virus-like particles (VLP) of FMD virus indicated structural similarity of VLPs with



the native virus. Further work to improve the stability of VLPs and enhance the yield during production is in progress.

A polymerase chain reaction (PCR) technique was standardised for the diagnosis of bluetongue virus (BTV) infection in dairy animals. The test has been validated for group-specific detection of various serotypes of BTV prevalent in the country.

Evaluation of commercially available ELISA kits for the diagnosis of bluetongue virus and bovine viral diarrhoea (BVD) virus infection was carried out and the use of an appropriate test kit has been suggested for regular screening of these diseases in bovines.

For the development of a marker vaccine against infectious bovine rhinotracheitis (IBR), a gE deleted clone was developed from an Indian isolate of BHV-1, which is currently under molecular characterisation.

Freedom from bovine genital campylobacteriosis (BGC) infection in bulls is essential as per the 'Minimum Standards for Production of Frozen Semen'. A total of 202 semen samples from cattle and buffaloes were screened against BGC by cultural identification, all of which were found to be negative.

A real-time PCR was developed for differentiation between S-19 vaccine and wild strains of *Brucella abortus* directly from specimens collected from animals. In another study, around 25 per cent of the samples collected randomly from four serologically positive herds of cattle and buffaloes were found positive for brucellosis by brucella genus specific real-time PCR.

Efforts for an early diagnosis of chronic bacterial zoonotic diseases, viz. bovine tuberculosis (BTB) and John's Disease (JD) continued during the year.

Four hundred and seventy one specimens collected from farms and slaughter houses in Andhra Pradesh, Gujarat and Maharashtra were

tested for the presence of Mycobacterium, of which eight samples yielded positive results by cultural examination. All these isolates were confirmed as *M. tuberculosis* by single nucleotide polymorphism (SNP) based strain discriminatory real-time PCR and further confirmed by WHO approved molecular assays. This finding indicates humans as a potential element of transmission of tuberculosis to domestic animals.

A real-time PCR technique has been developed for diagnosis of JD. The specificity of the assay was as high as 96 per cent. The evaluation of the sensitivity of the test is in progress.



*Balanced ration helps in reduction of methane emission.*

## Animal Nutrition

### Enteric methane emission measurement

NDDB continued its field studies in various regions of the country to evaluate the impact of feeding a nutritionally balanced ration on enteric methane emission, productivity and metabolic profile in lactating cows and buffaloes. The methane emission measurement

study, using SF<sub>6</sub> tracer technique was conducted on seven lactating cows and 21 lactating buffaloes in Ropar district of Punjab. The baseline methane emission was 208 and 256 g/day in these cows and buffaloes, which was reduced to 193 and 229 g/day, respectively. Feeding a nutritionally balanced ration therefore showed a reduction in methane emission (g/kg milk yield) by 19 and 13 per cent in cows and buffaloes, respectively.

### Impact of feeding a nutritionally balanced ration on metabolic profile of dairy animals

Feeding a balanced ration improved the intestinal flow of microbial nitrogen by 7.1 and 17.4 per cent in crossbred cows (n=7) and buffaloes (n=21), respectively, in Ropar district of Punjab. Faecal nitrogen loss and parasitic infestation were reduced by 13 and 26 per cent in cows and 18 and 20 per cent in buffaloes. After feeding a balanced ration the level of immunoglobulin IgG increased from 32.4 to 36.9 mg/ml in lactating buffaloes; whereas in lactating cows, the level of IgG increased from 33.1 to 38.0 mg/ml. The study demonstrated that a nutritionally balanced ration not only reduces methane emissions, but also improves productivity and immunity, while lowering the incidence of parasitism and nitrogen loss in manure.

### Feed supplement for reducing the incidence of sub-clinical/clinical mastitis

NDDB continued to undertake feeding trials on a supplement to reduce the incidence of sub-clinical/clinical mastitis in dairy animals. During the year, a study



*Soybean straw being treated anaerobically using solid state fermentation at the farmer's doorstep.*

was conducted in Sabarkantha district of Gujarat, wherein a supplement was fed daily @10g per animal to 93 high yielding crossbred cows, 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 80 per cent, as confirmed by the Mastect and California Mastitis Test.

On feeding the supplement, the blood neutrophil count decreased, whereas immunoglobulin and anti-oxidant enzyme activity increased significantly. Further, milk pH, electrical conductivity, somatic cell count, sodium and chloride content were considerably lower, whereas lactose content, solids-not-fat and anti-oxidant enzyme activity were significantly higher in unaffected animals, compared to animals found positive for sub-clinical/clinical mastitis.

### Bio-availability of minerals from inorganic and organic sources

Minerals are important for improving production and reproduction efficiency in dairy animals. Amongst others, micro-minerals like copper (Cu), zinc (Zn) and manganese (Mn) are widely deficient in the ration of animals, impairing livestock productivity. In a study, a group of calves was given a mineral mixture with inorganic minerals, while another group was given a mineral mixture containing Cu, Zn and Mn in the form of chelates. There was significant improvement in the average daily body weight gain, total immunoglobulins, superoxide dismutase (SOD) and ferric reducing antioxidant power (FRAP) activities in the

group supplemented with chelated minerals. Serum Cu, Zn and Mn levels were significantly higher ( $P < 0.05$ ) in calves supplemented with organic minerals.

### Solid-state fermentation technology

NDDB continued research on the development of a suitable microbial consortium, which can be used for solid-state fermentation (SSF) treatment of highly



Freeze drying of dahi cultures at PPD laboratory.

lignified biomass such as cotton stalks, soybean, mustard straws, etc. A de-oiled rice bran and maize based microbial culture was developed and tested at laboratory scale for its efficacy. Studies conducted on some ligno-cellulosic materials such as cottonseed stalks, soybean and mustard straws revealed that there was significant improvement in *in-sacco* dry matter disappearance when treated with anaerobic microbial consortium. The palatability of SSF treated biomass was better than the untreated. Feeding trials on lactating animals under field conditions are being undertaken to study the effect of SSF treated soybean straw on the digestibility of nutrients and milk production. Initial results of the trial indicate that there was improvement in the palatability of SSF treated straw and milk production in lactating crossbred cows.

### Facility for production of bypass fat supplement

Negative energy balance in early lactation, especially in high yielding animals, causes delayed post-partum ovarian activity, apart from affecting peak milk yield and

overall lactation yield. To improve the energy status, the production process of calcium salts of long chain fatty acids at laboratory scale was successfully standardised, as also the process and plant design for commercial production of bypass fat. A bypass fat plant for research and development is being set up for Banaskantha Milk Union at Katarva in Gujarat for the production of bypass fat supplement using palm fatty acid distillate (PFAD).

### Product and process development

Efforts towards product and process innovations continued during the year. Trials were carried out for process optimisation of a frozen dessert. The product was ranked high on sensory evaluation. Work on developing flavour variants is in progress. A project on increasing the yield of *paneer* and improving its sensory qualities continued and encouraging results were obtained during the year. A continuous *kheer* making machine, in collaboration with IIT Kharagpur, is under development. Work on improving the process of *shrikhand* making and thereby increasing

productivity and reducing effluent load continued during the year.

A collaborative project with IIL, Hyderabad on development of direct-vat-set *dahi* cultures was undertaken and preliminary processes for growth, harvesting and drying were optimized. The studies for isolation of new potential lactic acid bacteria from diverse food sources yielded one potential strain for probable application in dairy fermentations. Studies on evaluating lactic acid bacterial isolates for safety concerns continued as an essential prerequisite for adopting a culture for use.

NDDB transferred product and process technologies of long life *paneer* and *dahi* to Kolhapur Milk Union, *mishti doi* and *lassi* to Dimapur Milk Union and *shrikhand* to Ambattur Dairy, Chennai. Technical support was extended to West Assam Milk Union to standardise the production of *dahi* and *paneer*. Lyophilized *dahi* cultures were supplied to Bhagirathi, Ambattur and Kolhapur Milk Unions on their request and to Junagadh Dairy and Banas Union for trial production. ○

## Building an Information Network

NDDDB collects information through its internet-based Dairy Information System, from various secondary sources and conducts studies to create a dairy sector database and to provide insights for supporting decision making.



### Information building

NDDDB organised refresher training for MIS officers of marketing dairies, unions, cattle feed plants and federations to improve the accuracy and timely reporting of data through the internet-based Dairy Information System (i-DIS). Two hundred and twenty officers from seven states (Andhra Pradesh, Bihar, Gujarat, Kerala, Odisha, West Bengal and Uttar Pradesh) participated in these refresher trainings. NDDDB also provided need based on-site training to MIS officers to overcome their specific difficulties.

NDDDB continued to compile monthly updates on trends in milk procurement, marketing and retail prices of milk sold by cooperative dairies. Other information regularly collected and compiled include movement of prices of cattle feed ingredients, dry fodder and green fodder prices collated from various published and unpublished sources and also from a panel of producer respondents.



*Sampling milk for testing and weighing feed ingredients for optimum feeding.*

### Study to assess reasons for declining milk procurement in Jalgaon

NDDB engaged the Institute of Development Studies (IDS), Jaipur to conduct a study to understand the reasons for the decline in milk production in Jalgaon district. The study revealed that the district had witnessed a major shift in cropping pattern – the area under cereal crops giving way to cash crops, mainly cotton and banana. This development had a significant impact on dairying in an area where mixed dairy farming was widely prevalent. It was inferred that the milk production system was undergoing a transformation.

Considering the above macro level changes, there was a need to assess milk production and surplus potential at the taluka level, to facilitate a long term milk procurement plan to be prepared for the milk union. A study was undertaken to estimate milch animal owning households, milk production, marketable surplus and competitors' profile at the taluka level.

The study found that four out of the 16 talukas in the district, viz. Chalisgaon, Parola, Pachora and Bhadgaon

showed a relatively better potential for milk procurement, accounting for about half of the total producers' surplus in the district. ○



*On-field recording of milk yield.*

## Developing Human Resources

NDDB training initiatives are focussed on building professional competence for the dairy industry.

NDDB's training programmes for milk producer members, union boards of directors and milk union staff continued. During the year, 5,077 participants attended the Farmers' Orientation Programme (FOP) compared to 4,448 participants in the previous year. Participation from the north eastern states of Assam, Mizoram and Odisha increased. An orientation programme for the board of directors of Mizoram Union was also organised.

Emphasis was given to increasing the participation of women in training programmes conducted by NDDB. During the year, 1,509 women participants attended training programmes compared to 772 in the previous year.

At the regional training centres, training in AI, dairy animal management, etc. were conducted, whereas technical training for dairy plant management and energy conservation was imparted at Mansinh Institute of Training at Mehsana.



The feedback received from trainees trained at NDDB's Regional Demonstration and Training Centres (RDTC) revealed that they have started applying the knowledge gained from the training in the field by promoting proper dairying management practices, timely vaccination, deworming, calf management and fodder production activities and proper breeding methods and procurement activities. At RDTC Erode, 40 per cent of the total participants during the year were women.

Efforts continued to be made for competency development of NDDB employees. Need based training was facilitated through in-house programmes and sponsorship to various institutions. Some of the exclusive training programmes organised for officers included

communication, interpersonal and presentation skills, managerial effectiveness and leadership skills. Staff and workers were exposed to training on personal and work effectiveness. Training on the use of advanced features of MS Excel and PowerPoint was also undertaken during the year. Officers were nominated to premier institutions offering specialised technical training. In all, 394 NDDB employees underwent training in the year gone by. In addition, induction programmes were organised wherein 31 new inductees in the organisation underwent an exhaustive 10-day induction involving exposure to all aspects of dairying through presentations, field visits, film shows and panel discussions.



*Local Resource Persons being trained in Ration Balancing.*

## **Working Group set up to study HRD needs of the dairy sector**

During the year, NDDB set up a Working Group to study the human resource development needs of the dairy sector and to suggest an appropriate institutional structure for meeting these needs. The Working Group visited several institutions, spoke to a cross section of persons in the dairy sector, undertook a training needs assessment exercise and also organised workshops in Anand, Bangalore and Delhi to obtain a better understanding of the training needs of dairy cooperatives spread across the country.

## Training Programmes

### A. Cooperative Services

Name of the programme	No. of programmes	No. of participants
Farmer Orientation Programme	115	4395
Farmer Induction Programme	5	164
Customised Farmer Orientation Programme	10	281
Producer Orientation Programme	7	237
Board of Directors Orientation Programme	7	72
Business Appreciation Programme	8	160
New supervisors training in Producer Relationship Management (PRM)	1	30
Training of Trainers in Business and Producer Relationship Management (PRM)	3	35
Procurement & Input training for supervisors	4	71
<b>Total</b>	<b>160</b>	<b>5445</b>

### B. Productivity Systems

Training on Ration Balancing module of Information Network for Animal Productivity and Health (INAPH) software	2	9
Training in least cost feed formulation for quality control officers from cattle feed plants	1	2
Technical officers & trainers training in Rational Balancing Programme	6	65
Orientation in Progeny Testing (PT) & Pedigree Selection (PS)	3	19
Orientation in fodder production and conservation practices	2	30
Artificial Insemination (Basic)	17	329
Artificial Insemination (Refresher)	17	403
Resource Person Training	1	25
Dairy Animal Management	38	987
Fodder Seed Production	50	1182
<b>Total</b>	<b>137</b>	<b>3051</b>

### C. Quality Assurance

Training in cytogenetics & molecular genetics	1	6
Training in analytical techniques in microbiology	5	8
Customised training programme in chemical analysis – food & feed analysis.	2	7
Customised training programme in chemical & microbiological analysis – milk & milk products	1	2
Customised training in AMCU (Automatic Milk Collection Unit) & BMC (Bulk Milk Cooler) – for ensuring good quality milk	1	23
BMC (Bulk Milk Cooler) and AMCU (Automatic Milk Collection Unit) training for ensuring good quality milk	1	14
Effective milk processing and packaging operations	2	29
Hygiene and sanitation- a scientific GHP approach for dairy plants	2	33

Name of the programme	No. of programmes	No. of participants
Sustainable quality through-Quality and food safety management systems	2	27
Increased productivity by minimising maintenance in dairy plants	1	11
Enhance profitability by economising milk solids loss	2	9
On the job training at Bhopal for MCC officers	1	27
On the job training at Ujjain for MCC officers	1	18
Energy conservation for increasing profitability	2	31
Efficient refrigeration system for reducing energy bills	1	4
Hands-on-practice in dairy plant equipment's	3	61
<b>Total</b>	<b>28</b>	<b>310</b>

### D. Sectoral Analysis and Studies

Internet based Dairy Information System (i-DIS)	24	266
<b>Total</b>	<b>24</b>	<b>266</b>

### E. Other training programmes

Orientation in World Bank procurement procedure	5	110
Orientation to external monitoring and evaluation agency on NDP I	1	7
Sub project plan performance monitoring and reporting solutions through Enterprise Project Management (EPM)	13	147
Training in environmental & social aspects under NDP-I	1	26
<b>Total</b>	<b>20</b>	<b>290</b>
<b>Grand Total</b>	<b>369</b>	<b>9362</b>

## Training of NDDB manpower

Name of the programme	No. of programmes	Participants Total	SC/ST
Leadership Skills	1	17	1
Managerial Effectiveness	1	16	–
Communication, Interpersonal and Presentation Skills	1	20	4
Stress Management	1	12	–
Achieving Excellence through personal and work effectiveness	6	104	15
Service Tax & VAT	1	31	–
MS Excel & PowerPoint	5	90	6
Personal Effectiveness	2	32	7
Personal Growth Lab	1	7	2
Other Programmes (sponsorship of employees at outside institutions)	23	39	4
Training in environmental & social aspects under NDP-I	1	26	3
<b>Total</b>	<b>43</b>	<b>394</b>	<b>42</b>

## Engineering Projects

NDDDB continued to provide turnkey and consultancy assistance to milk unions across the country, adding new processing infrastructure as well as expanding existing facilities.

Six turnkey projects were completed during the year. These included a fully automated state of the art cattle feed plant of 1,000 MTPD capacity with a bypass protein plant of 200 MTPD and mineral mix plant of 25 MTPD at Katarva (Gujarat); a bypass protein plant of 50 MTPD and grain storage silo system for the 300 MTPD cattle feed plant at Hassan (Karnataka); a new cattle feed plant of 50 MTPD at Seoni (Madhya Pradesh); and a dairy plant and chilling centre in Bundelkhand region of Uttar Pradesh. As a goodwill gesture NDDDB undertook and completed the construction of the academic block of the GN Patel Dairy Science and Food Technology College at Sardar Krushi Nagar Agriculture University in Dantiwada.

NDDDB is committed to providing cost effective and state-of-the-art technology for setting up fully automatic energy efficient dairy and cattle feed plants for milk unions and federations. Automation of plants has improved product quality and reduced operating cost and manpower. Reduced product handling losses have resulted in low water consumption, reduction in load on effluent treatment and a cleaner environment.



*Work in progress: 120 MTPD dairy whitener plant at Banaskantha.*

*Right: 1,000 MTPD Cattle Feed Plant at Katarva.*



## 1,000 MTPD Cattle Feed Plant, Katarva

The largest fully automatic, computer controlled, cattle feed plant of 1,000 MTPD along with 200 MTPD bypass protein plant and 25 MTPD mineral mix plant was commissioned recently for the Banaskantha Milk Union at Katarva. It was built over an area of 20 acres at a cost of about ₹ 1,350 million. The plant comprises two production lines, of capacity 500 MTPD each, equipped with grinding, mixing, molassing and pellet sections. The high level of automation and mechanical precision of the plant ensures a consistently high quality finished product. The plant has facilities to ensure very accurate mixing of raw materials and dosing of vitamins and minerals and can produce a variety of cattle feeds. The large scale of operation and high level of automation makes the plant one of the most efficient in terms of energy consumption and manpower utilisation. This is the first plant in the country to have mechanical handling of deoiled rice bran (DORB) through use of silos and mechanical conveyors. The plant is equipped with highly efficient dust extractors to provide a near dust-free environment.



*An automated packing and despatch line for the 1,000 MTPD cattle feed plant.*

The plant has a controlled retention time (CRT) conditioner, introduced for the first time in the country for improved and uniform absorption of molasses for better quality feed. An online auto arrangement for finished goods sampling at regular intervals enables continuous quality checks before the finished goods are bagged. The plant is equipped with a modern laboratory equipped with an imported NIR analyser, spectrophotometer, ion analyser and other fat, protein and fibre estimation equipment for the maintenance of quality checks of raw materials and finished goods.

## Milk powder plant

The first ever powder plant in the country designed for 24x7 operation to produce 120 MT of dairy whitener per day is being executed at Banas Dairy, with a total outlay of ₹ 1,776 million. The plant will be equipped with two sets of evaporators to ensure continuous operation up to 30 days at a stretch. The high level of automation will ensure

consistently high product quality and reduce processing losses of milk solids.

## Cheese, paneer and whey powder plant

A fully automated new cheese plant at Banas Dairy to produce 30 MTPD cheddar cheese, 24 MTPD processed

cheese and 20 MTPD of mozzarella cheese along with 25 MTPD *paneer* and 45 MTPD demineralised whey powder was also in an advanced stage of planning and design.

The plant is expected to have continuous manufacturing lines with state-of-the-art technology and equipment with a proposed facility for packing cheese in slices, dices, portions and blocks.

### Bio-safe laboratories

Setting up Bio-safe Laboratories is a highly specialised activity. World over there are limited Bio-Safety Level 3 (BSL3) and higher level laboratories. Planning and building such laboratories as well as experimental animal facilities with similar levels of bio-safety is a complex task requiring an integrated approach in defining and implementing triple layers of containment.

A cell was set up at Anand, during the year to undertake these special projects from conceptualisation, planning

and implementation to validation.

Two major projects of ICAR for building BSL facilities on a turnkey basis which includes a BSL2 facility at Bengaluru and an international centre for FMD (BSL3+ facility) in Bhubaneswar, Odisha are under execution.

While the construction of the BSL2 project at Bengaluru has commenced, the BSL3+ facility at Bhubaneswar is at an advanced stage of planning.

### Projects under planning

- 100 MTPD dairy whitener plant at Sabar Dairy, Himatnagar in Gujarat.
- Automated liquid milk processing & packing plant of capacity 1,000 TLPD at Mysore, Karnataka.
- UHT line of capacity 10 TLPD for processing and packing of milk at Mangalore Dairy in Karnataka.
- 30 MTPD powder plant in Channarayapatna in Karnataka.

### On-going projects

Project	Capacity	Location
<b>Northern Region</b>		
Mohali Dairy Expansion	100 to 500 tlpd	Mohali, Chandigarh
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
<b>Western Region</b>		
Cheese and Paneer Plant	30 tpd cheese/25 tpd <i>paneer</i>	Banaskantha, Gujarat
Powder Plant	100 tpd	Banaskantha, Gujarat
Dairy Plant Expansion	175 – 600 tlpd	Rajkot, Gujarat
Dairy Plant	200 tlpd	Bharuch, Gujarat
Dairy Plant Expansion	150 to 250 tlpd	Bhopal, Madhya Pradesh
Infrastructure Expansion of IRMA		Anand, Gujarat
<b>Eastern Region</b>		
Milk Powder Plant and APS	30 tpd pp	Bihar Sharif, Bihar
International centre for foot & mouth disease (BSL-3+)		Bhubaneswar, Odisha.
<b>Southern Region</b>		
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, TamilNadu
Bio-Security laboratory (BSL2)		Bengaluru, Karnataka

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



# The National Dairy Plan



The  
National  
Dairy  
Plan

Phase I (NDP-I) is being implemented by the National Dairy Development Board through End Implementing Agencies (EIAs) in 14 major dairying states with the following objectives:

- To help increase productivity of milch animals and thereby increase milk production to meet the rapidly growing demand for milk.
- To help provide rural milk producers with greater access to the organised milk-processing sector.

## Focus area of NDP-I



## Baseline survey for NDP-I

An external agency identified for Monitoring and Evaluation carried out a baseline survey in the 14 states which are the focus area of NDP-I. The survey involved collection of detailed information on relevant parameters from about 15,000 dairy animal owning households selected from a total of 3.4 lakh households spread across 1,257 villages in 420 talukas.

Of the total dairy animal owning households, 55 per cent owned only one animal, 28 per cent two animals and only 17 per cent had more than two animals.

The average in-milk yield was estimated at 5.03 litres per day for all types of animals. The average in-milk yield of indigenous cow, crossbred cow and buffalo were 3.1, 6.3 and 5.1 litres per day respectively. The ratio of in-milk to adult female was 63 per cent across all types of animals. This was highest in crossbred cows (69 per cent), followed by buffaloes (66 per cent) and indigenous cows (49 per cent). The survey found that 65 per cent of total milk produced was sold by milk producers and 45 per cent was sold to the organised sector (cooperatives and private dairies).

## Annual Progress Update

During the year, 81 sub projects in 12 states, i.e. Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal were under implementation.

Details of the activities are alongside.

Activity	Number of Projects
<b>Animal Breeding</b>	<b>24</b>
Progeny Testing (PT)	9
Pedigree Selection (PS)	4
Strengthening Semen Station (SSS)	11
<b>Animal Nutrition</b>	<b>34</b>
Ration Balancing Programme (RBP)	16
Fodder Development (FD)	18
<b>Village based Milk Procurement System (VBMPS)</b>	<b>23</b>
<b>Total</b>	<b>81</b>



## Animal Breeding

Under NDP-I, genetic improvement of milch animals is one of the two focus areas for improving their productivity. This will be achieved by production of semen from High Genetic Merit (HGM) bulls. Progeny Testing and Pedigree Selection programmes being implemented under NDP will supply the entire requirement of HGM bulls for frozen semen stations across the country. These stations will also be upgraded and expanded to meet the increasing demand for frozen semen.

### Progeny Testing programmes

The nine Progeny Testing programmes being implemented by EIAs across seven states cover three breeds of cattle and two breeds of buffalo. Together, these programmes are expected to make available more than 1,500 HGM bulls to semen stations across the country, accounting for 75 per cent of the targets set under NDP-I.

#### Progeny Testing programmes

State	Breeds Covered	EIAs
Andhra Pradesh	CB Jersey	Andhra Pradesh Livestock Development Agency (APLDA)
Gujarat	Murrah CB HF Mehsana Mehsana	Sabarmati Ashram Gaushala Sabarmati Ashram Gaushala Banas Milk Union Mehsana Milk Union
Karnataka	HF Pure	Karnataka Milk Federation
Punjab	Murrah	Punjab Livestock Development Board (PLDB)
Tamil Nadu	CB Jersey	Tamil Nadu Cooperative Milk Producers' Federation Limited
Uttar Pradesh	Murrah	Animal Breeding Research Organisation

### Pedigree Selection programmes

Aimed at preserving and promoting indigenous breeds of cattle and buffalo, four Pedigree Selection programmes were initiated. These programmes, being implemented in the native tracts of the indigenous milch animals will help improve their genetic merit in terms of milk yield and preserve other characteristics of the breeds. The four programmes are expected to supply about 280 HGM bulls for distribution among semen stations across the country.

#### Pedigree Selection programmes

State	Breeds Covered	EIAs
Gujarat	Kankrej Jaffarabadi Gir	Banas Milk Union Sabarmati Ashram Gaushala Sabarmati Ashram Gaushala
Rajasthan	Rathi	URMUL Trust



*Semen processing at a modern lab.*

### Strengthening semen stations:

Work on upgrading and expanding frozen semen production facilities have been initiated in 11 semen stations spread across seven states. These stations produce about 30 million frozen semen doses. On completion of the planned expansion, the total production of these stations will be doubled to about 60 million doses and will account for 60 per cent of the targets set under NDP-I. The upgrading of facilities will also ensure that the frozen semen produced is completely free of diseases and of proven high genetic merit.

#### Strengthening of semen stations

State	Semen Station	EIAs
Andhra Pradesh	Banavasi	Andhra Pradesh Livestock Development Agency (APLDA)
	Karimnagar	Andhra Pradesh Livestock Development Agency (APLDA)
Gujarat	SAGB Jagudan	Sabarmati Ashram Gaushala Mehsana Milk Union
Karnataka	Nandini Sperm Station CFSP&TI	Karnataka Milk Federation Central Frozen Semen Production & Training Institute
Punjab	Nabha	Punjab Livestock Development Board (PLDB)
Tamil Nadu	DLF Ooty	Tamil Nadu Livestock Development Agency
Uttar Pradesh	ABC Salon	Animal Breeding Research Organisation
West Bengal	Haringhata	Paschim Banga Go-Sampad Bikash Sanstha
	Salboni	Paschim Banga Go-Sampad Bikash Sanstha

## Animal Nutrition

Ration Balancing and Fodder Development programmes under NDP-I are two initiatives that aim at increasing productivity of milch animals through improved nutrition. These programmes will contribute to farmers realising the full genetic potential of their milch animals and reduce the cost of milk production.

### Ration Balancing programmes

Local resource persons (LRPs) would be trained in the use of a computer software running on mobile devices to provide animal nutrition advisory services at the farmers' doorstep. This will help farmers feed their animals an optimal ration based on locally available feed materials. The improved ration will lead to increasing the milk yield and reduce the cost of feeding. The 16 approved Ration Balancing programmes spread across nine states are expected to train 4,800 LRPs who would provide advisory services in as many villages, covering more than 4.5 lakh milch animals.

#### Ration Balancing programmes

State	EIAs
Andhra Pradesh	Guntur Milk Union Krishna Milk Union
Gujarat	Banas Milk Union Mehsana Milk Union Sabarkantha Milk Union Surat Milk Union
Karnataka	Bengaluru Milk Union Kolar Milk Union
Kerala	Malabar Milk Union Thiruvananthapuram Milk Union
Madhya Pradesh	Bhopal Milk Union
Maharashtra	Kolhapur Milk Union
Punjab	Ropar Milk Union Ludhiana Milk Union
Rajasthan	Ganganagar Milk Union
Uttar Pradesh	Lucknow Milk Union



*Ration balancing increases milk yield and reduces cost of feeding.*



*Promotion of green fodder production for enhancing productivity.*

### Fodder Development programmes

The Fodder Development programmes under NDP-I focus on the use of certified seeds of improved varieties to increase the productivity of fodder crops and thereby availability of fodder for livestock. The 18 approved Fodder Development programmes, across 10 states envisage setting up three new seed processing plants, each with a capacity of 10 MT per day. One hundred and nineteen harvesters / mowers used for recovery of crop residues will be procured by the EIAs for field demonstrations. The other components of the approved Fodder Development programmes include setting up 28 biomass bunkers, each of capacity 50 MT and more than 368 demonstrations for silage making.

#### Fodder Development programmes

State	EIAs
Andhra Pradesh	Guntur Milk Union Krishna Milk Union
Gujarat	Sabarkantha Milk Union Surat Milk Union
Karnataka	Kolar Milk Union
Madhya Pradesh	Indore Milk Union
Maharashtra	Kolhapur Milk Union Solapur Milk Union Baramati Milk Union Pune Milk Union Rajarambapu Milk Union
Odisha	Samaleshwari Milk Union
Punjab	Jalandhar Milk Union Ropar Milk Union
Rajasthan	Bhilwara Milk Union Ganganagar Milk Union
Uttar Pradesh	Lucknow Milk Union
West Bengal	Bhagirathi Milk Union

## Village Based Milk Procurement System

NDP-I also provides for investments in village level infrastructure to set up and expand village based milk procurement systems (VBMPS) to reach more milk producers and ensure collection of milk in a fair and transparent manner. The 23 approved projects spread across 10 states envisage setting up of 2,300 new village dairy cooperative societies (DCS). About 3,000 existing DCS will be supplied with data processor-based Milk Collection Units. To ensure village level cooling of milk, 379 Bulk Milk Coolers with capacities ranging from 2,000 to 5,000 litres will be installed. It is expected that about 1.6 lakh new members will be enrolled by the dairy cooperative unions covered under the programmes.



*Adopting "clean milk production" for better returns.*

State	EIAs
Andhra Pradesh	Krishna Milk Union Guntur Milk Union
Gujarat	Panchmahal Milk Union Sabarkantha Milk Union
Karnataka	Kolar Milk Union Mysore Milk Union Bengaluru Milk Union Hassan Milk Union Mandya Milk Union Tumkur Milk Union
Madhya Pradesh	Bhopal Milk Union Indore Milk Union
Maharashtra	Aurangabad Milk Union Jalgaon Milk Union Pune Milk Union Rajarambapu Milk Union
Odisha	Cuttack Milk Union Samalleshwari Milk Union
Punjab	Ludhiana Milk Union Ropar Milk Union
Rajasthan	Bhilwara Milk Union
Uttar Pradesh	Lucknow Milk Union
West Bengal	Bhagirathi Milk Union



*Investment in milk procurement systems promote fair and transparent transactions.*

## Manpower Development



*Educating farmers on importance of green fodder in effective nutrition management of milch animals.*

During the year, NDDDB facilitated the assessment of the human resource requirement of EIAs for the implementation of different components of NDP-I. NDDDB officers worked closely with EIAs across the country to identify the skill gaps among their employees and have worked out training programmes for them over the six year period. Training requirements for village level functionaries as well as dairy farmers were also assessed.

EIA staff were also trained in the World Bank procurement procedures under NDP-I. In all the training programmes, social and environmental concerns formed an integral part of the curriculum.

A summary of the training requirements for SPPs approved under NDP-I during the project period are alongside.

Activity	Category of participants/ programme	Total number of participants		
		To be trained by NDDDB	To be trained by EIAs	Total
Village Based Milk Procurement System	Milk Producers	8967	98640	107607
	Field Functionaries	206	6407	6613
	Executives	710		710
	Board of Directors (BOD)	350		350
	Trainers	95		95
<b>Sub Total</b>		<b>10328</b>	<b>105047</b>	<b>115375</b>
Ration Balancing Programme	Technical Officers & Trainers	84		84
	Local Resource Persons (LRPs)	6960		6960
	IT Officers	14		14
<b>Sub Total</b>		<b>98</b>	<b>6960</b>	<b>7058</b>
Fodder Development Programme	Advanced training on seed production technology	17		17
	Training on fodder production and conservation	98		98
<b>Sub Total</b>		<b>115</b>	<b>0</b>	<b>115</b>
Progeny Testing	Field Functionaries		6010	6010
	Executives	111		111
<b>Sub Total</b>		<b>111</b>	<b>6010</b>	<b>6121</b>
Pedigree Selection	Field Functionaries		1088	1088
	Executives	16		16
<b>Sub Total</b>		<b>16</b>	<b>1088</b>	<b>1104</b>
Strengthening of Semen Stations	Orientation programmes for technicians, attendants and workers		1026	1026
	Executives		128	128
<b>Sub Total</b>		<b>0</b>	<b>1154</b>	<b>1154</b>
<b>Grand Total</b>		<b>10668</b>	<b>120259</b>	<b>130927</b>

## Environment and Social Management Measures

During the preparation of sub project plans, necessary consultations and disclosures were carried out by EIAs to identify environmental and social issues and mitigation/enhancement measures. The focus was on inclusion of women, SC/ST and small holders across

functionaries and beneficiaries.

An orientation cum training programme on environmental and social aspects was jointly conducted by the World Bank and NDDDB.

## Information Communication Technology Initiatives



*Using technology for field level data recording.*

To enable regular review and reporting on the status of implementation of the sub projects, various ICT applications have been put in place to carry out the necessary analysis, provide feedback and facilitate necessary changes wherever required.

The ICT applications being used for information disclosure and sub project monitoring are alongside.

<b>Application</b>	<b>Objective</b>
Information Network for Animal Productivity & Health (INAPH)	Capturing real time data on Breeding and Nutrition Services delivered at Farmer's Doorstep
Enterprise Project Management (EPM)	Monitoring of Sub Project Progress
Procurement MIS	Monitoring of procurement being made by EIAs
Grievance Redressal System	To suitably capture and redress grievances in time
NDP Website	To provide salient features of NDP-I

A grant is being received from the Central Government for the specific purpose of funding NDP I and its accounts are being maintained separately. ○

# The Centre for Analysis & Learning in Livestock and Food (CALF)

CALF carries out a wide range of analyses on dairy and food products, feed and feed ingredients, acquired diseases and chromosomal and genetic disorders.

CALF witnessed a five-fold growth in receipt of samples of animal feed products, food, animal health and animal genetics taking the total number of samples to 31,000 samples for analysis of various parameters during the year.

CALF has been preparing for various activities related to its accreditation in accordance with ISO/IEC:17025 of 2005. The laboratory documented various analysis procedures (in accordance with the Indian Standards/AOAC/EN/PAM), work instructions, calculated the Uncertainty Measurement for various parameters for mineral/nutritional/compositional parameters for milk products, food, feed ingredients and water. CALF was assessed for Quality Management Systems and the laboratory is shortly to be assessed for Technical Systems to complete the process of accreditation.

Continuing its analytical support to Progeny Testing programmes under NDP-1, CALF analysed 1,787 samples of animal sera for brucella and IBR (BHV1). About 3,700 animals were tested for DNA-based parentage confirmation (calf, dam and sire) while 342 animals were tested for genetic disorders – BLAD (Bovine Leukocyte Adhesion Deficiency), Citrullinemia, DUMPS (Deficiency of Uridine Monophosphate Synthase) and Factor XI deficiency. ○

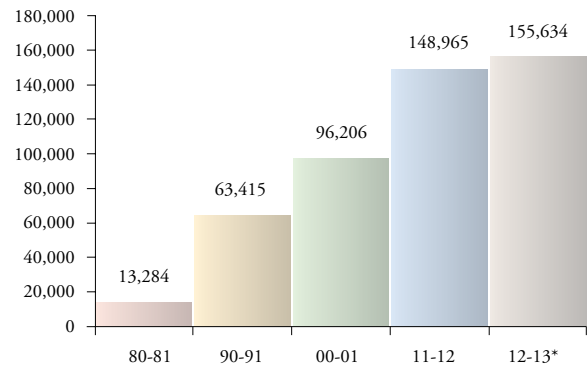


# Dairy Cooperatives at a Glance

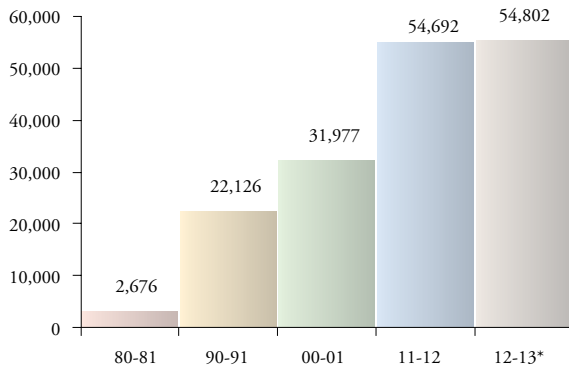
## Dairy Cooperative Societies

( In numbers<sup>+</sup> )

### Total

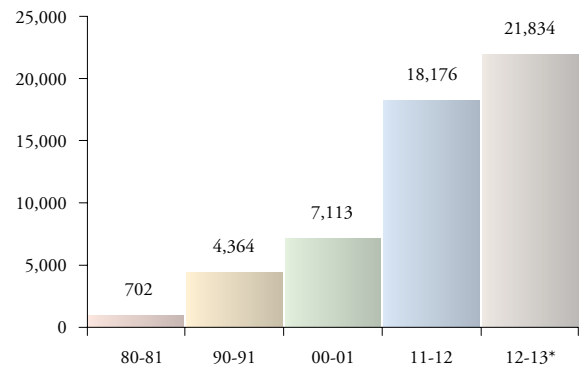


### North



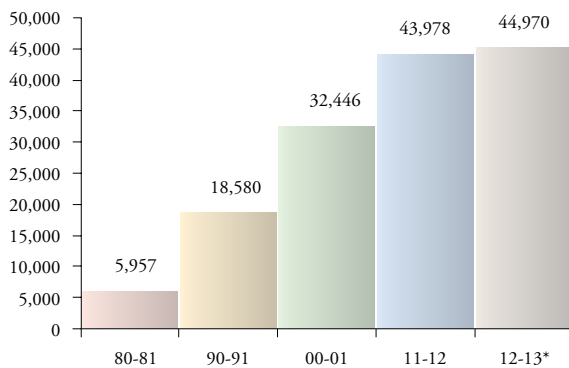
NORTH	80-81	90-91	00-01	11-12	12-13*
Haryana	505	3,229	3,318	7,029	7,050
Himachal Pradesh		210	288	765	807
Jammu & Kashmir		105	**	**	**
Punjab	490	5,726	6,823	7,639	7,393
Rajasthan <sup>^</sup>	1,433	4,976	5,900	16,809	16,482
Uttar Pradesh	248	7,880	15,648	22,450	23,070

### East



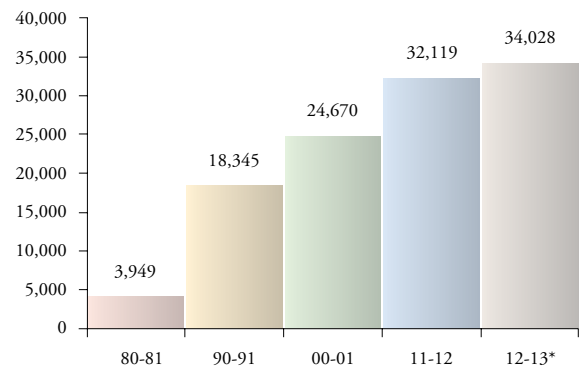
EAST	80-81	90-91	00-01	11-12	12-13*
Assam			117	125	188
Bihar	118	2,060	3,525	11,131	12,928
Jharkhand				53	57
Nagaland		21	74	49	51
Odisha		736	1,412	3,337	5,093
Sikkim		134	174	289	307
Tripura		73	84	84	92
West Bengal	584	1,223	1,719	3,045	3,080

### West



WEST	80-81	90-91	00-01	11-12	12-13*
Chhattisgarh				794	934
Goa		124	166	178	178
Gujarat	4,798	10,056	10,679	14,631	15,112
Madhya Pradesh	441	3,865	4,877	6,744	7,029
Maharashtra	718	4,535	16,724	21,631	21,717

### South

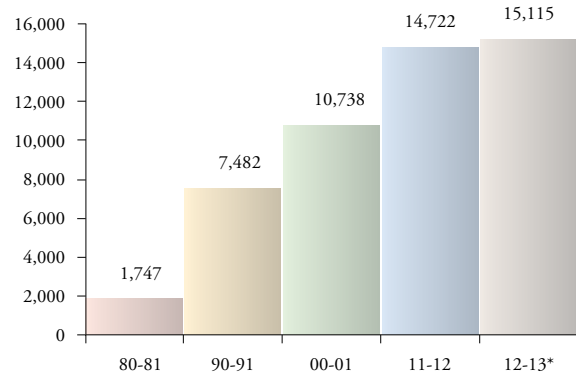


SOUTH	80-81	90-91	00-01	11-12	12-13*
Andhra Pradesh	298	4,766	4,912	4,979	5,314
Karnataka	1,267	5,621	8,516	12,925	13,527
Kerala		1,016	2,781	3,695	3,750
Tamil Nadu	2,384	6,871	8,369	10,418	11,334
Puducherry		71	92	102	103

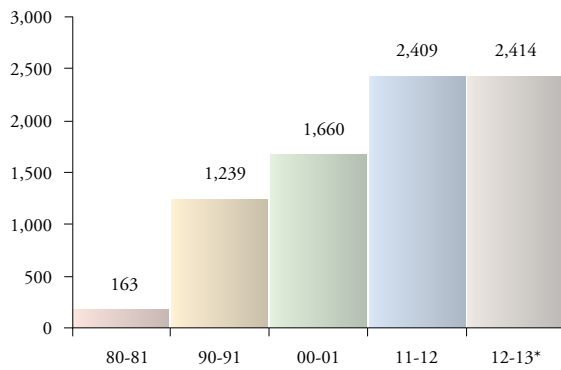
<sup>+</sup> Organised (cumulative) includes conventional societies and Taluka unions formed earlier    <sup>\*</sup> Provisional    <sup>\*\*</sup> Not Reported  
<sup>^</sup> DCS includes registered and proposed societies (collection centers) since 2009-10

## Producer Members ( In thousands )

### Total

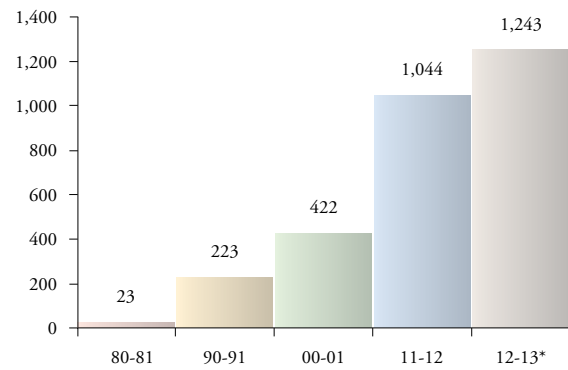


### North



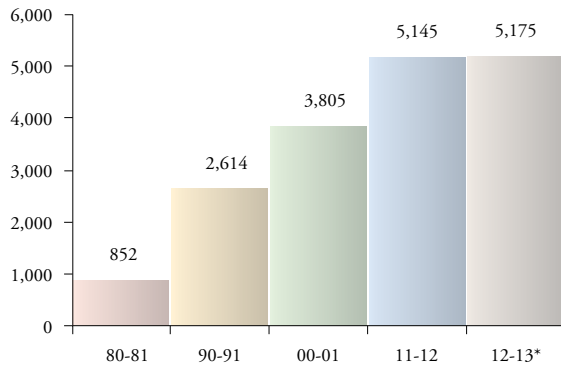
NORTH	80-81	90-91	00-01	11-12	12-13*
Haryana	39	184	185	313	310
Himachal Pradesh		17	20	32	34
Jammu & Kashmir		2	**	**	**
Punjab	26	304	370	403	402
Rajasthan	80	340	436	683	701
Uttar Pradesh	18	392	649	978	967

### East



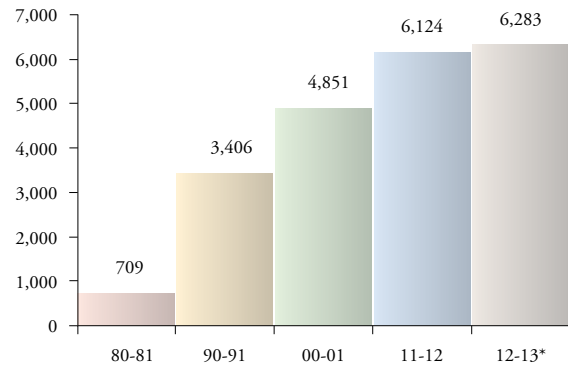
EAST	80-81	90-91	00-01	11-12	12-13*
Assam			2	1	5
Bihar		3	100	184	614
Jharkhand				1	1
Nagaland			1	3	2
Odisha			46	111	191
Sikkim			4	5	10
Tripura			4	4	6
West Bengal		20	66	114	215

### West



WEST	80-81	90-91	00-01	11-12	12-13*
Chhattisgarh				33	37
Goa		12	18	19	19
Gujarat	741	1,612	2,147	2,981	3,041
Madhya Pradesh	24	150	242	285	280
Maharashtra	87	840	1,398	1,827	1,798

### South

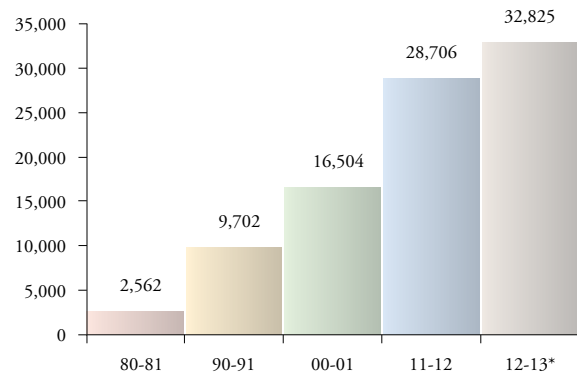


SOUTH	80-81	90-91	00-01	11-12	12-13*
Andhra Pradesh	33	561	702	854	857
Karnataka	195	1,013	1,528	2,191	2,274
Kerala		225	637	859	876
Tamil Nadu	481	1,590	1,957	2,184	2,238
Puducherry		17	27	36	38

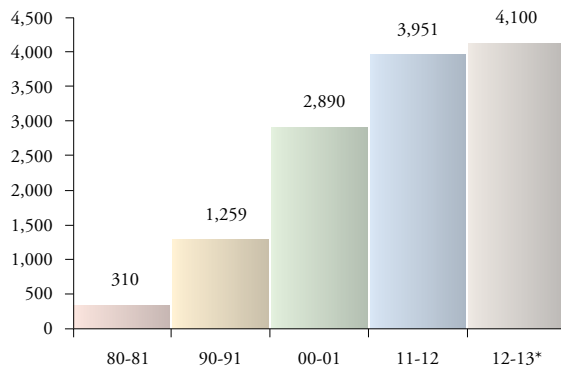
\* Provisional \*\* Not Reported

## Milk Procurement ( In thousand kilograms per day )

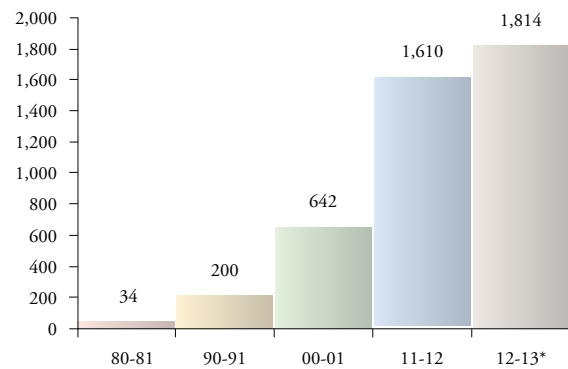
### Total



### North



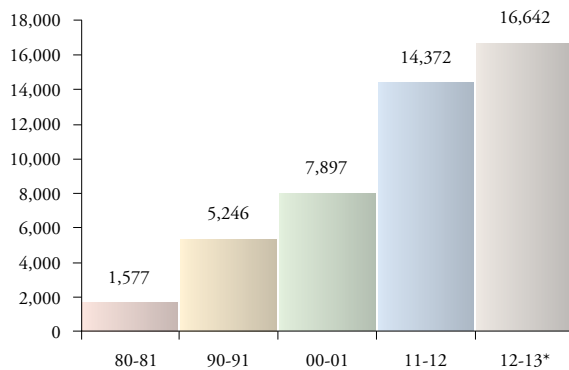
### East



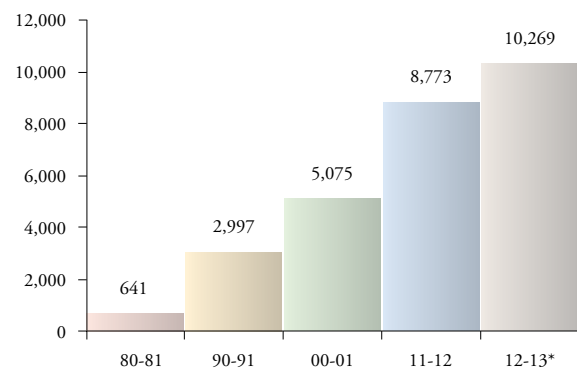
NORTH	80-81	90-91	00-01	11-12	12-13*
Haryana	33	94	276	534	381
Himachal Pradesh	14	24	68	71	
Jammu & Kashmir	11	**	**	**	**
Punjab	75	394	912	1,110	1,231
Rajasthan	138	364	887	1,742	1,931
Uttar Pradesh	64	382	791	497	486

EAST	80-81	90-91	00-01	11-12	12-13*
Assam		4	3	7	15
Bihar	3	95	330	1,061	1,224
Jharkhand				5	6
Nagaland		1	3	2	2
Odisha		41	94	300	381
Sikkim		4	7	13	13
Tripura		3	1	3	3
West Bengal	31	52	204	219	170

### West



### South



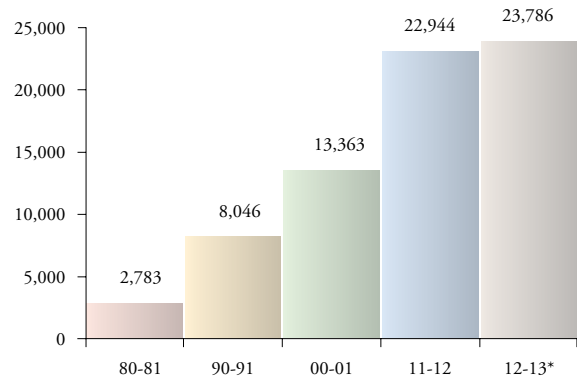
WEST	80-81	90-91	00-01	11-12	12-13*
Chhattisgarh				30	37
Goa		16	32	41	45
Gujarat	1,344	3,102	4,567	10,450	12,443
Madhya Pradesh	68	256	319	721	799
Maharashtra	165	1,872	2,979	3,130	3,318

SOUTH	80-81	90-91	00-01	11-12	12-13*
Andhra Pradesh	79	763	879	1,503	1,951
Karnataka	261	917	1,887	4,277	4,907
Kerala		185	646	802	888
Tamil Nadu	301	1,106	1,618	2,161	2,491
Puducherry		26	45	30	32

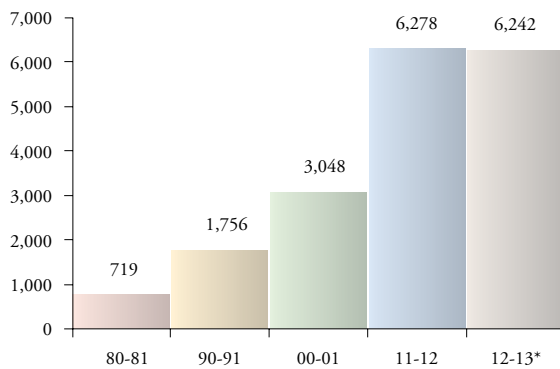
\* Provisional \*\* Not Reported

## Liquid Milk Marketing + ( In thousand litres per day )

### Total

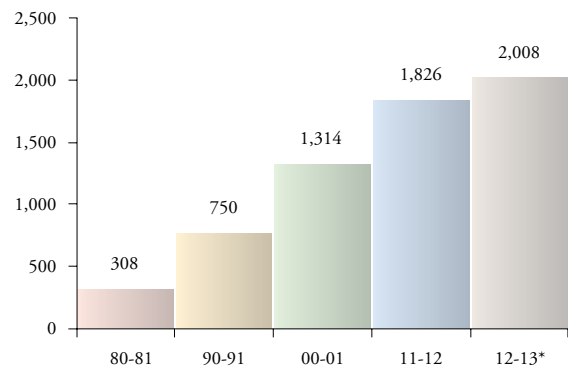


### North



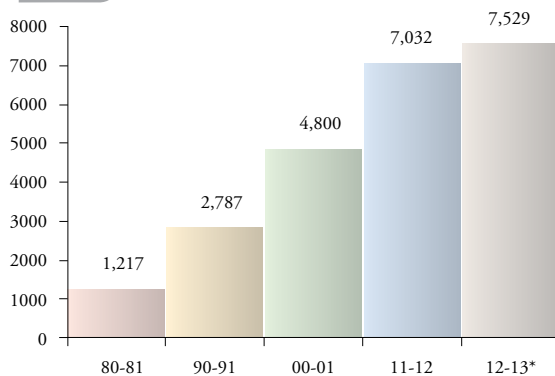
NORTH	80-81	90-91	00-01	11-12	12-13*
Haryana	2	80	108	370	369
Himachal Pradesh		15	20	23	20
Jammu & Kashmir		9	**	**	**
Punjab	7	139	420	866	861
Rajasthan	12	136	540	1,544	1,603
Uttar Pradesh	1	326	436	349	291
Delhi	697	1,051	1,524	3,126	3,098

### East



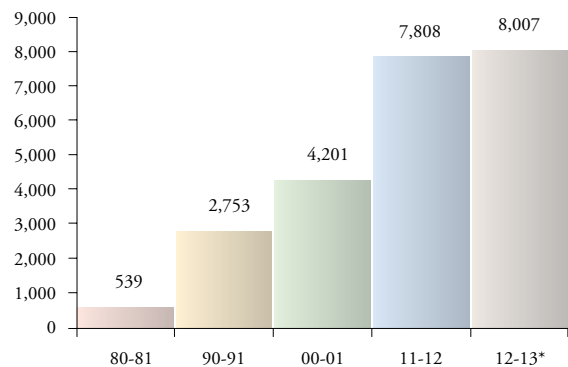
EAST	80-81	90-91	00-01	11-12	12-13*
Assam		10	7	33	37
Bihar	8	111	324	521	574
Jharkhand				271	286
Nagaland		1	4	4	3
Odisha		65	98	316	444
Sikkim		5	7	21	24
Tripura		6	7	13	12
West Bengal	17	26	27	37	45
Kolkata	283	526	840	610	583

### West



WEST	80-81	90-91	00-01	11-12	12-13*
Chhattisgarh				35	34
Goa		36	83	69	67
Gujarat	210	1,052	1,905	3,512	3,836
Madhya Pradesh	39	279	244	525	586
Maharashtra	18	363	1,178	2,070	2,173
Mumbai	950	1,057	1,390	821	833

### South



SOUTH	80-81	90-91	00-01	11-12	12-13*
Andhra Pradesh	19	552	733	1,680	1,698
Karnataka	166	889	1,501	2,892	2,991
Kerala		223	640	1,167	1,188
Tamil Nadu	109	405	559	941	982
Puducherry		22	43	100	103
Chennai	245	662	725	1,028	1,045

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

## Other Activities

### Progressive use of Hindi

Efforts to promote Hindi in official work continued during the year. The Annual Report, NDP launch brochure and other documents were published in Hindi.

To create awareness among employees to use Hindi in official work as well to accelerate the pace of its progressive use, Hindi Fortnight was organised in all the NDDB offices during September 2012.



*NDDB receives the TOLIC award.*

To encourage the use of Hindi in official work, an English word with its Hindi meaning and usage is displayed daily on the computer screen of all the employees across NDDB. A number of employees are seen to take note of these words and use them in their office work.

A large number of employees participated in various competitions such as essay, translation and general knowledge. Cash awards amounting to ₹20,850 were distributed to successful candidates. Books in Hindi were distributed as prizes to all participants. Various incentive schemes were introduced for promotion of Hindi in official work. One such scheme was the Hindi noting and drafting incentive scheme. Twenty-six employees participated in this scheme and were awarded an incentive amounting to ₹25,500. In addition, 18 employees, whose children scored 75 per cent or more marks in Hindi in Class 10 and 12 examinations, were given a cash prize of ₹1,000 each.

In order to create a conducive atmosphere for the propagation of Hindi, 'Hindi Hasya Kavi Sammelan' was organised on the eve of the New Year. Employees in large numbers along with their family members participated

enthusiastically in the programme.

NDDB is a member of the Town Official Language Implementation Committee (TOLIC), Vadodara and participated actively in its half yearly meetings and other activities. Recognising the efforts of NDDB for promoting the use of Hindi in official work, TOLIC, Vadodara awarded NDDB the second price for the work done in Hindi during 2011-2012.

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

### Welfare of SC/ST employees

Institutionalised measures for the welfare of SC/ST employees and their children continued during the year. Capacity development of SC/ST employees was facilitated through training initiatives. During the year, 39 SC/ST employees were imparted training through in-house training and sponsorship for outside training programmes. SC/ST employees were reimbursed expenditure incurred on fees and books for the education of their children. Five meritorious children of SC/ST employees were awarded a cash prize and certificate for achieving academic proficiency in Class 10, 12 and graduate courses.



*Ambedkar Jayanti celebrated at NDDB Anand.*

Ambedkar Jayanti was celebrated in all offices of NDDB. Distinguished speakers shared their thoughts on the life and contribution of Dr Ambedkar.

## Visitors

During 2012-13, NDDDB received 1,432 visitors from India and abroad.

Overseas visitors came from Afghanistan, Bangladesh, Canada, France, Italy, the Maldives, Nepal, Pakistan, Republic of Namibia, Sultanate of Oman, the United Kingdom, The Netherlands and Venezuela.



*Mr Suleman Sharif, MD, Sharif Group, Pakistan.*



*Parliamentary Standing Committee on Agriculture led by Shri HD Deve Gowda.*



*Mr Ali Mahammad Salim Al Kalbani, Advisor, Ministry of Agriculture, Sultanate of Oman.*



*Ms Laura Veendapi Mcleod, Hon'ble Governor, Omaheke Region of the Republic of Namibia.*

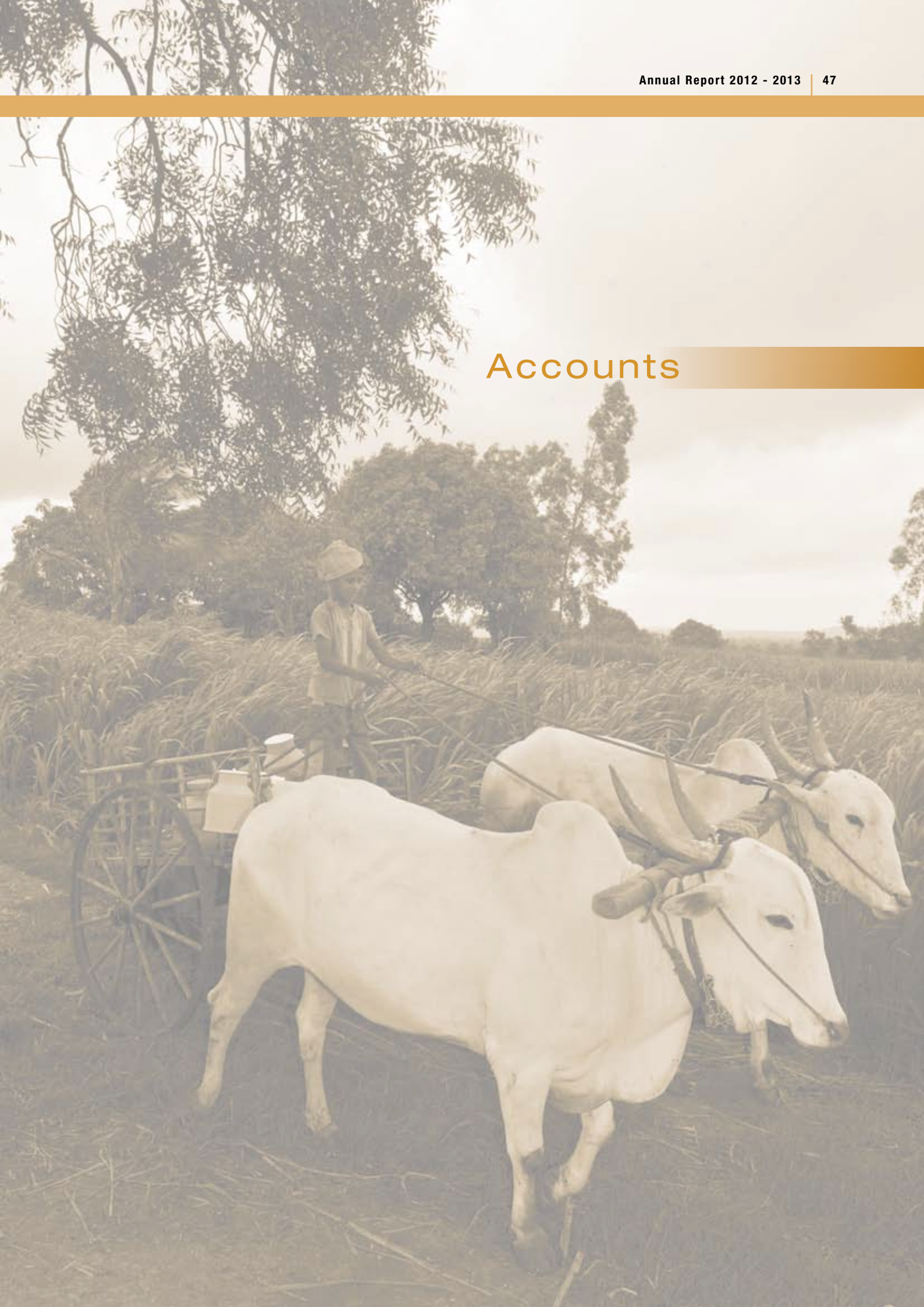


*His Excellency Alon Ushpiz, Ambassador, Embassy of Israel, New Delhi.*



*Dr Jose Francisco Gimenez, National Director of Animal Health, National Institute of Agricultural Health, Venezuela.*

# Accounts



**Deloitte Haskins & Sells**

Tower 3, 27th - 32nd Floor  
 Indiabulls Finance Centre Elphinstone Mill Compound Senapati Bapat Marg  
 Elphinstone (W), Mumbai -400013  
 India  
 Tel. +91 (22) 6185 4000  
 Fax: +91 (22) 6185 4501/4601

**Independent Auditors' Report****To The Board of Directors of National Dairy Development Board****Report on the Financial Statements**

We have audited the accompanying financial statements of National Dairy Development Board ("the Board") which comprise of Balance Sheet as at 31st March, 2013, the Income and Expenditure Account and also the Cash Flow Statement for the year then ended and Significant Accounting Policies and Notes to Accounts.

**Management's responsibility for the Financial Statements**

The Board's management is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance and cash flows of the Board in accordance with generally accepted accounting principles in India including Accounting Standards as issued by the Institute of Chartered Accountants of India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

**Auditors' Responsibility**

Our responsibility is to express an opinion on these financial statements, based on our audit. We conducted our audit in accordance with Standards on Auditing issued by the Institute of Chartered Accountants of India. Those standards require that we comply with the ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and the disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risks assessments, the auditor considers the internal controls relevant to the Board's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the Board's internal control. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of the accounting estimates made by the Management, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

**Opinion**

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements 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, 2013.
- (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.

**Other Reporting Matters**

We report that:

- (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) Proper books of account as required by law have been kept by the Board, so far as it 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.

For Deloitte Haskins and Sells  
 Chartered Accountants  
 Firm Regn. No. 117366W  
 Kalpesh J. Mehta  
 Partner  
 Membership No. 048791

**National Dairy Development Board (“NDDDB” “the Board”)**

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

**Balance Sheet as at 31st March, 2013**

		₹ in million	
	Annexure	31.03.2013	31.03.2012
<b>LIABILITIES</b>			
NDDDB Funds			
General Funds	I	25,184.46	24,804.41
Secured Loans	II	957.04	541.24
Current Liabilities and Provisions	III	7,264.12	7,435.77
<b>Total</b>		<b>33,405.62</b>	<b>32,781.42</b>
<b>ASSETS</b>			
Cash and Bank Balances	IV	6,406.76	4,597.76
Inventories	V	4,024.46	5,437.23
Sundry Debtors		243.17	20.14
Loans, Advances and Other Current Assets	VI	13,005.15	12,084.59
Investments	VII	7,382.14	8,038.03
Fixed Assets	VIII	2,132.09	2,374.83
Deferred Tax Assets	XVII (Note 10)	211.85	228.84
<b>Total</b>		<b>33,405.62</b>	<b>32,781.42</b>
<b>Significant Accounting Policies</b>	XVI		
<b>Notes to Accounts</b>	XVII		

In terms of our report of even date attached.

For Deloitte Haskins &amp; Sells

Chartered Accountants

**Kalpesh J. Mehta**

Partner

Membership No. 048791

Firm Reg. No. 117366W

Anand, 12th August, 2013

For and on behalf of the Board,

**YY Patil**  
Deputy General Manager  
(Accounts)**Dilip Rath**  
Managing Director**Amrita Patel**  
Chairman

**National Dairy Development Board (“NDDB” “the Board”)**

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

**Income and Expenditure Account**

For the Year Ended 31st March, 2013

PARTICULARS	Annexure	₹ in million	
		2012-2013	2011-2012
<b>INCOME</b>			
Interest		1,187.85	1,376.54
Service Charges	<b>IX</b>	125.44	90.04
Sales	<b>XVII (Note 12)</b>	1,512.84	5,278.01
Rent		161.55	160.27
Dividend		10.80	40.49
Other Income	<b>X</b>	516.87	918.77
<b>Total (A)</b>		<b>3,515.35</b>	<b>7,864.12</b>
<b>EXPENDITURE</b>			
Interest and Financial Charges		120.97	98.41
Remuneration and Benefits to Employees	<b>XI</b>	474.57	395.18
Cost of Materials Sold	<b>XII</b>	1,660.18	6,047.93
Administrative Expenses	<b>XIII</b>	120.78	72.57
Grants		33.24	181.62
Research and Development		97.81	87.77
Maintenance of Assets	<b>XIV</b>	148.67	147.04
Other Expenses	<b>XV</b>	71.43	47.71
Bad Debts Written off		119.20	0.46
Depreciation		265.91	284.17
<b>Total (B)</b>		<b>3,112.76</b>	<b>7,362.86</b>
<b>Surplus during the year before tax (A - B)</b>		<b>402.59</b>	<b>501.26</b>
Less: Provision for Taxation			
Deferred Tax		16.99	(23.08)
Income Tax		–	–
Wealth Tax		0.78	0.85
<b>Surplus during the year after tax</b>		<b>384.82</b>	<b>523.49</b>
<b>Less: Appropriations</b>			
Special Reserve		62.11	51.93
Balance carried to General Funds		322.71	471.56
<b>Total</b>		<b>3,515.35</b>	<b>7,864.12</b>

In terms of our report of even date attached.

For Deloitte Haskins & Sells  
Chartered AccountantsKalpesh J. Mehta  
Partner  
Membership No. 048791  
Firm Reg. No. 117366W

Anand, 12th August, 2013

For and on behalf of the Board,

YY Patil  
Deputy General Manager  
(Accounts)Dilip Rath  
Managing DirectorAmrita Patel  
Chairman

**National Dairy Development Board (“NDDB” “the Board”)**

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

**Cash Flow Statement**

For the Year Ended 31st March, 2013

PARTICULARS	₹ in million	
	2012-2013	2011-2012
<b>Surplus during the year</b>	<b>402.59</b>	<b>501.26</b>
<b>Adjustments for :</b>		
Depreciation	265.91	284.17
(Profit)/Loss on sale of investments	(3.11)	-
Bad debts written off	-	0.46
Investment Income considered separately	(703.96)	(968.74)
(Profit)/Loss on sale of fixed assets considered separately	5.46	(0.91)
Interest financial charges considered separately	120.97	98.41
Write off of CWIP	0.30	-
Provision for Post Retirement Medical Scheme (PRMS)	7.35	6.33
Provision for Leave Encashment	44.36	15.55
Provision for VRS Monthly Benefits	(31.38)	(36.81)
Excess Provision of Non-Performing Assets (NPA) written back	(450.71)	(895.63)
Contingency Provision utilised during the year (Net)	(54.43)	(640.54)
Interest and Financial Charges	(6.51)	(31.70)
	(805.75)	(2,169.41)
<b>Operating Cash flow before changes in working capital</b>	<b>(403.16)</b>	<b>(1,668.15)</b>
(Increase)/Decrease in Inventories	1,412.77	(4,460.28)
Decrease/(Increase) in Accrued Interest	124.91	690.38
Decrease/(Increase) in Sundry Debtors	(223.03)	85.21
Decrease/(Increase) in Loans and Advances	(919.52)	(82.41)
Tax refunded/(paid)	(65.70)	(197.16)
Increase/(Decrease) in current liabilities	252.13	383.71
Increase in General Fund (excluding excess of income over expenditure)	(4.41)	(54.34)
	577.15	(3,634.89)
<b>Net cash flow generated/(used) in operating activities (A)</b>	<b>173.99</b>	<b>(5,303.04)</b>
<b>Investing activities</b>		
Investment income	703.96	968.74
Proceeds from maturity of investments(Bonds)	658.99	100.00
Purchase of Investments(Bonds)	-	(159.61)
Decrease/(Increase) in FDR's with banks more than 90 days	(1,870.96)	4,346.10
Proceeds from sale of fixed assets	56.76	9.19
Purchase of fixed assets	(86.05)	(63.82)
<b>Net cash flow generated/(used) in investing activities (B)</b>	<b>(537.30)</b>	<b>5,200.60</b>
<b>Financing activities</b>		
Repayment of borrowed funds	415.81	101.53
Interest and financial charges	(114.46)	(71.68)
<b>Net cash flow from financing activities (C)</b>	<b>301.35</b>	<b>29.85</b>
<b>Net Cash flow during the year (A+B+C)</b>	<b>(61.96)</b>	<b>(72.59)</b>
<b>Cash and Cash Equivalents at the beginning of the year</b>	<b>69.26</b>	<b>141.85</b>
<b>Cash and Cash Equivalents at the end of the year</b>	<b>7.30</b>	<b>69.26</b>
<b>Cash and Cash Equivalent</b>	<b>31.03.2013</b>	<b>31.03.2012</b>
Balances with Banks:		
In fixed deposits	6,401.18	4,588.31
Less: Deposits with maturity more than 90 days	6,399.46	4,528.50
	1.72	59.81
In current accounts	5.36	9.33
Cash and Cheques on hand and in transit	0.22	0.12
<b>Total</b>	<b>7.30</b>	<b>69.26</b>

In terms of our report of even date attached.

For Deloitte Haskins &amp; Sells

Chartered Accountants

Kalpesh J. Mehta

Partner

Membership No. 048791

Firm Reg. No. 117366W

Anand, 12th August, 2013

For and on behalf of the Board,

YY Patil  
Deputy General Manager  
(Accounts)Dilip Rath  
Managing DirectorAmrita Patel  
Chairman

## General Funds

### Annexure I

		₹ in million	
		31.03.2013	31.03.2012
<b>General Reserve (Note 1)</b>			
Balance as per last balance sheet	3,841.04		3,596.64
Add: Research and Development Grant returned by a subsidiary company	–		244.40
Add: Transferred from Grants from Government of India	44.59		–
		3,885.63	3,841.04
<b>Grant for Fixed Assets (Note 2)</b>			
Balance as per last balance sheet	11.30		11.79
Less: Recoupment of depreciation (Refer Note 4 of Annexure VIII)	0.36		0.49
		10.94	11.30
<b>Special Reserve (Note 3)</b>			
Balance as per last balance sheet	549.87		497.94
Add: Transfer from Income and Expenditure Account	62.11		51.93
		611.98	549.87
<b>Grants from Government of India (Note 4)</b>			
For Dairy Development Centre	44.59		44.59
Less: Transferred to General Reserve	44.59		
For Sabarmati Ashram Gaushala, Bidaj	4.41		4.41
Less: Assets created and transferred	4.41		–
		–	49.00
<b>Income and Expenditure Account (Note 1)</b>			
Balance as per last balance sheet	20,353.20		19,881.64
Add: Surplus after appropriation during the year	322.71		471.56
		20,675.91	20,353.20
<b>Total</b>		<b>25,184.46</b>	<b>24,804.41</b>

- 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.

## Secured Loans

### Annexure II

	₹ in million	
	31.03.2013	31.03.2012
Bank Overdraft (Secured against fixed deposits with banks)	957.04	541.24
<b>Total</b>	<b>957.04</b>	<b>541.24</b>

## Current Liabilities and Provisions

### Annexure III

		₹ in million	
		31.03.2013	31.03.2012
a)	Current Liabilities		
	Advances and deposits	23.73	12.30
	Sundry creditors	238.41	358.22
	Net liability on account of Turnkey Project		
	Funds received	8,838.07	6,353.59
	Due to suppliers for expenses	706.83	446.62
		9,544.90	6,800.21
	Less: Expenditure incurred	7,982.11	5,538.15
		1,562.79	1,262.06
	Add: Payable to NDDB (Per contra, Refer ANNEXURE VI)	66.04	6.26
		1,628.83	1,268.32
		1,890.97	1,638.84
b)	Provisions for		
	Non-performing assets	4,190.87	4,444.63
	General contingency on Standard Assets	31.59	498.75
	Contingency	560.78	345.00
		4,783.24	5,288.38
c)	Provisions for :		
	Leave encashment	181.85	137.49
	Post retirement medical scheme	78.71	71.36
	VRS monthly benefits	111.84	143.22
	Wealth tax	0.78	0.85
		373.18	352.92
	Provisions (net of taxes paid)	216.73	155.63
	<b>Total</b>	<b>7,264.12</b>	<b>7,435.77</b>

Note: Sundry creditors include ₹ 64.45 million (Previous Year: ₹ 59.86 million) of funds received from Government of India (GoI) for Assistance to Co-operative Projects.

## Cash and Bank Balances

### Annexure IV

		₹ in million	
		31.03.2013	31.03.2012
	Balances with Banks		
	In fixed deposits	6,401.18	4,588.31
	In current accounts	5.36	9.33
		6,406.54	4,597.64
	Cash and cheques on hand and in transit	0.22	0.12
	<b>Total</b>	<b>6,406.76</b>	<b>4,597.76</b>

Notes: 1. Above balance in fixed deposits includes ₹ 64.45 million (Previous Year: ₹ 59.86 million) of funds received from GoI for Assistance to Co-operative Project.

2. Above balance in fixed deposits includes ₹ 1,319.10 million (Previous Year ₹ 1,330.00 million) placed with Banks for Overdraft facility with withdrawal limit of ₹ 1,225.00 million (Previous year ₹ 1,225.00 million) against which the Board has drawn down ₹ 957.05 million (Previous year ₹ 541.24 million) as at March 31, 2013.

## Inventories

### Annexure V

		₹ in million	
		31.03.2013	31.03.2012
Dairy commodities		4,023.23	5,435.01
Stores, spares and others	17.17		17.83
Project equipment	15.27		15.60
	32.44		33.43
Less: Provision for obsolescence	31.21		31.21
		1.23	2.22
<b>Total</b>		<b>4024.46</b>	<b>5437.23</b>

## Loans, Advances and Other Current Assets

### Annexure VI

		₹ in million	
		31.03.2013	31.03.2012
Loans to cooperatives			
Milk – Secured	4,676.66		3,618.17
Unsecured	247.72		293.74
		4,924.38	3,911.91
Oil – Unsecured		1,950.48	1,953.94
Loans and advances to subsidiary companies/managed units			
Secured	2,156.90		2,097.74
Unsecured	678.97		864.25
		2,835.87	2,961.99
Loans to employees			
Secured	3.38		4.13
Unsecured	5.38		5.75
		8.76	9.88
Interest accrued			
Loans and advances	2,089.58		2,193.54
Investments	132.45		153.40
		2,222.03	2,346.94
Advances to suppliers and contractors		13.28	10.64
Recoverable on account of turnkey projects (Per contra, Refer Annexure III)		66.04	6.26
Sundry deposits		17.70	14.91
Taxes paid (net of provisions)		934.32	808.37
Prepaid Gratuity		2.08	16.76
Other advances		30.21	42.99
<b>Total</b>		<b>13,005.15</b>	<b>12,084.59</b>

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

## Investments

### Annexure VII

		₹ in million	
		31.03.2013	31.03.2012
<b>Long term investments:</b>			
Shares (unquoted) 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
NDDDB Dairy Services Limited (NDSL)	2,000.00		2,000.00
		4,873.90	4,873.90
Bonds in:			
Government companies, financial institutions and banks		2,507.34	3,163.23
Shares (unquoted) 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
<b>Total</b>		<b>7,382.14</b>	<b>8,038.03</b>

## Fixed Assets Annexure VIII

₹ in million

Particulars	Gross Block (at Cost)			Depreciation			Net Block		
	As at 01.04.2012	Additions	Deductions/ (adjustments)	As at 31.03.2013	As at 01.04.2012	For the year	Deductions/ (adjustments)	As at 31.03.2013	As at 31.03.2012
Freehold land	451.17	0.00	0.00	451.17	0.00	0.00	0.00	451.17	451.17
Leasehold land	64.16	0.00	0.00	64.16	7.78	0.75	0.00	55.63	56.38
Building and roads	1,848.32	1.38	0.00	1,849.70	726.88	52.85	0.00	1,069.97	1,121.44
Plant and machinery	383.79	0.61	0.00	384.40	278.24	32.28	0.00	73.88	105.55
Electrical installations and air conditioning	311.55	3.27	18.90	295.92	163.88	20.93	9.80	120.91	147.67
Furniture, fixtures computers, software and equipment	1,664.00	73.69	152.67	1,585.02	1,180.96	158.00	99.56	345.63	483.04
Rail milk tankers	217.83	0.00	0.00	217.83	217.83	0.00	0.00	0.00	0.00
Vehicles	25.16	1.83	2.50	24.49	22.35	1.46	2.49	3.17	2.81
Total	4,965.99	80.78	174.07	4,872.69	2,597.91	266.27	111.85	2,120.36	2,368.06
Previous year	4,913.41	90.24	37.68	4,965.98	2,342.58	284.66	29.31	2,368.06	2,570.84
Capital work in progress								11.73	6.77
<b>Total fixed assets</b>								<b>2,132.09</b>	<b>2,374.83</b>

- 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 amounting to ₹ 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 ₹ 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 transfer of title in respect of the leasehold land is pending.  
4. Depreciation for the year includes prior year depreciation amounting to ₹ 0.20 Million (31.03.2012: ₹ 1.22 Million) and excludes depreciation ₹ 0.36 million (Previous year: ₹ 0.49 million) on account of recoupment from grants received respectively.

## Service Charges Annexure - IX

	₹ in million	
	2012-2013	2011-2012
Training fees	4.19	4.79
Management fees	1.71	1.86
Procurement and technical service fees	116.90	80.07
Fees from consultancy and feasibility studies	0.15	0.02
Royalty and process knowhow fees	2.49	3.30
<b>Total</b>	<b>125.44</b>	<b>90.04</b>

## Other Income Annexure - X

	₹ in million	
	2012-2013	2011-2012
Miscellaneous income	43.39	22.23
Profit on sale of fixed assets (net)	-	0.91
Profit on sales of investments (net)	3.11	-
Excess provision and NPAs written back	470.37	895.63
<b>Total</b>	<b>516.87</b>	<b>918.77</b>

## Remuneration and benefits to employees Annexure - XI

	₹ in million	
	2012-2013	2011-2012
Salaries and Wages (including ex-gratia, VRS payments and retainership fees)	360.85	305.43
Contribution to Provident, Superannuation fund and Gratuity	79.06	61.74
Staff welfare expenses	34.66	28.01
<b>Total</b>	<b>474.57</b>	<b>395.18</b>

Remuneration excludes ₹ 7.21 million (Previous year : ₹ 6.42 million) shown as part of Research and Development expenses.

## Cost of Materials Sold Annexure - XII

	₹ in million	
	2012-2013	2011-2012
Opening Stock	5,435.01	973.69
Purchases	-	10,205.60
Expenses (net)	248.40	303.65
Less: Closing Stock	4,023.23	5,435.01
<b>Total</b>	<b>1,660.18</b>	<b>6,047.93</b>

## Administrative Expenses Annexure - XIII

		₹ in million	
		2012-2013	2011-2012
Printing and stationery		4.15	3.23
Communication charges		6.61	6.19
Audit fees and expenses (including service tax)			
Audit fees	0.67		0.47
Tax audit	0.22		0.19
Fees for other services	–		–
Out of pocket expenses	0.25		0.32
		1.14	0.98
Legal fees		0.62	0.77
Professional fees (Note 5 of Annexure XVII)		11.22	8.17
Vehicle expenses		3.72	5.51
Recruitment expenses		2.88	2.62
Advertisement expenses		13.92	9.24
Launch of National Dairy Plan - I		29.35	–
Travelling and conveyance expenses		44.03	32.71
Other administrative expenses		3.14	3.15
<b>Total</b>		<b>120.78</b>	<b>72.57</b>

## Maintenance of Assets Annexure - XIV

		₹ in million	
		2012-2013	2011-2012
Repairs and maintenance		108.64	121.15
Electricity and rent		38.77	24.40
Insurance		1.26	1.49
<b>Total</b>		<b>148.67</b>	<b>147.04</b>

## Other Expenses Annexure - XV

		₹ in million	
		2012-2013	2011-2012
Training expenses		12.78	14.15
Computer expenses		17.46	10.17
Capital Work-in-progress written off		0.30	7.09
Loss on sale of fixed assets (net)		5.46	–
Expenditure on memorial activities related to founder Chairman of NDDB		14.76	–
Other expenditure		20.67	16.30
<b>Total</b>		<b>71.43</b>	<b>47.71</b>

## Significant Accounting Policies

### Annexure XVI

#### 1. Method of Accounting

The financial statements are prepared on accrual basis, using the historical cost convention and generally accepted accounting principles in India including accounting standards issued by the Institute of Chartered Accountants of India as applicable to the Board.

#### 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 recognised prospectively in the current and future periods. Any changes in such estimates are recognised prospectively in current and future period.

#### 3. Asset Classification and Provisioning

NDDDB 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 recognised 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 Services to co-operatives etc. is recognised 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 unconditional right to receive income is established.

Other income is recognised 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 recognised in the Income and Expenditure Account on a systematic basis over the useful life of such fixed asset as a recoupment of depreciation on such assets.

b. Revenue grants received during the year are recognised in the Income and Expenditure Account.

c. Grants received for specific projects are credited to the Project Funds and is utilised by disbursements for these projects are made.

#### 6. Research and Development Expenditure

Research and Development Expenditure (other than cost of fixed assets acquired) are charged as expenses in the year in which they are incurred. Fixed assets used for the Research and Development purpose with alternate use is depreciated over its useful life based on the Board's policy.

#### 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 recognised 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 costs to bring the asset 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:

- Shares in Subsidiaries, Co-operatives and Federations – at cost of acquisition;
- 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 maturity period.

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 realisable 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 recognised 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 recognised 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 recognised when there is reasonable certainty that there will be sufficient future taxable income to realise such assets.

**14. Leases**

Lease arrangements where the risks and rewards incidental to ownership of an asset vest substantially with the lessor are recognised as operating leases. Lease rent under operating leases are recognised in the Income & Expenditure Account with reference to lease terms.

**15. Impairment of Assets**

The carrying value of assets at each Balance Sheet date is reviewed for impairment of assets. If any indication of such impairment exists, the recoverable amount of such asset is estimated and impairment is recognised, 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 recognised for an asset in prior accounting periods no longer exists or may have decreased such reversal of impairment loss is recognised in Income & Expenditure Account.

**16. Intangible Assets**

Intangible assets are stated at cost less accumulated amortisation.

**17. Provisions and Contingencies**

A provision is recognised 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 had 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 XVII

1 At the request of the concerned authorities, the NDDB has been managing the Sabarmati Ashram Gaushala, the Jalgaon Jilha Sahakari Dudh Utpadak Sangh Maryadit and West Assam Milk Producers' Co-operative Union Ltd. These are separate and independent entities and their accounts are audited separately.

#### 2 Contingent Liabilities:

- 2.1. Principal amount of claims not acknowledged as debt: ₹ 344.20 million (Previous Year: ₹ 344.21 million)
- 2.2. Guarantees outstanding: ₹ 0.05 million (Previous Year: ₹ 0.19 million)
- 2.3. Income Tax demands which are pending with Commissioner of Income Tax (Appeals) ₹ 499.87 million (Previous Year : ₹ 590.03 million)

#### 2.4. Other Demands

₹ in million

Location	2012-13	2011-12
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	7.10
Interest Demand at Mumbai (Collector, Mumbai Suburban)	1.71	1.71

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

- 3 In accordance with the management agreement, the Ongole Dairy Plant was handed back debt free to the Prakasam District Milk Producer's Mutually Aided Cooperative Limited, resulting in writing off of ₹ 119.20 million to the Income and Expenditure Account during the year.
- 4 Funding for National Dairy Plan – I (NDP-I) is through a line of credit from International Development Association, which along with the share of Government of India, flows from the budget of Department of Animal Husbandry, Dairying and Fisheries to the Project Management Unit (PMU) in NDDB as "Grant-in-aid for onward distribution to the End Implementation Agencies". A separate bank account is being maintained for receipt of funds. Separate Project accounts are being maintained for NDP-I funds which are audited by the statutory auditors of NDDB.
- 5 Professional fees include ₹ 2.10 million (Previous Year: ₹ 2.84 million) paid to the firm in which one of the partner of the audit firm is a partner.

#### 6 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.

7 **Disclosure of Related Parties and transactions with them for the year ended 31st March, 2013 as per Accounting Standard 18**  
(figures in Italic represent previous year figures)

₹ in million

Particulars	Interest Income	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	Current Account Balance outstanding Dr/(Cr)	Loan Disbursed	Loan repaid / Adjusted		Loan Balance outstanding Dr/(Cr)
														Principle	Interest	
<b>Subsidiary Companies</b>																
IDMC Limited	76.78 53.13	- -	- 24.29	1.87 2.15	20.00 12.50	- -	- -	- -	- -	0.18 0.24	1.71 0.20	(19.96) (12.56)	500.00 430.00	277.21 32.33	71.89 45.59	1,001.46 778.72
Indian Immunologicals Limited	57.21 22.90	0.18 7.99	10.80 16.20	22.33 22.38	- -	- -	19.14	- -	- -	0.07 0.03	- -	(2.19) 19.96	150.00 61.57	55.06 56.03	47.98 11.57	901.70 806.76
Mother Dairy Fruit and Vegetable Private Limited	36.38 60.34	- -	- -	109.42 110.04	- 154.53	- 244.40	- -	731.57 1,053.00	- -	2.52 3.17	113.14 70.21	9.88 (109.59)	3.26 7.88	336.54 448.05	0.49 14.22	862.81 1,196.08
NDDDB Dairy Services Limited	- -	- -	- -	1.36 -	- -	- -	0.17	- -	- -	0.12 0.15	- 1.76	(0.24) (0.13)	- -	- -	- -	- -
<b>Total</b>	<b>170.37</b> <b>136.37</b>	<b>0.18</b> <b>7.99</b>	<b>10.80</b> <b>40.49</b>	<b>134.98</b> <b>134.57</b>	<b>20.00</b> <b>167.03</b>	<b>-</b> <b>244.40</b>	<b>-</b> <b>19.31</b>	<b>731.57</b> <b>1,053.00</b>	<b>-</b> <b>-</b>	<b>2.89</b> <b>3.59</b>	<b>114.85</b> <b>72.17</b>	<b>(12.51)</b> <b>(102.32)</b>	<b>653.26</b> <b>1,049.45</b>	<b>668.81</b> <b>536.41</b>	<b>120.36</b> <b>71.38</b>	<b>2,765.97</b> <b>2,781.56</b>
<b>Other enterprises where management has significant influence over the management</b>																
The West Assam Milk Producers Co-op Union Ltd	0.87 0.02	- -	- -	- -	- -	- -	- -	32.66 (43.87)	- -	0.03 0.02	- -	0.01 0.02	50.00 10.02	24.69 -	0.87 -	45.14 19.83
Animal Breeding Research Organisation	-	-	-	-	0.81	-	-	-	1.83 1.07	4.82 0.69	- -	1.82 1.14	- -	1.09 1.43	- -	- 1.09
Anandalaya Education society	-	-	-	0.49 0.52	- -	- -	- -	- -	- -	0.06 0.13	- -	0.09 -	- -	- -	- -	- -
<b>Total</b>	<b>0.87</b> <b>0.02</b>	<b>-</b> <b>-</b>	<b>-</b> <b>-</b>	<b>0.49</b> <b>0.52</b>	<b>-</b> <b>0.81</b>	<b>-</b> <b>-</b>	<b>-</b> <b>-</b>	<b>32.66</b> <b>(43.87)</b>	<b>1.83</b> <b>1.07</b>	<b>4.91</b> <b>0.84</b>	<b>-</b> <b>-</b>	<b>1.92</b> <b>1.16</b>	<b>50.00</b> <b>10.02</b>	<b>25.78</b> <b>1.43</b>	<b>0.87</b> <b>-</b>	<b>45.14</b> <b>20.92</b>

**Remuneration to key management personnel**

Dr. Amrita Patel	1.83 1.64
Mr. Dilip Rath	1.87 0.54
Dr. N V Belavadi	- 5.56
Mr. Ravi Shanker	- 1.78
Mr. Sangram Chaudhri	2.02 0.58
<b>Total</b>	<b>5.72</b> <b>10.10</b>

## 8 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 ₹ 31.31 millions (Year ended 31 March, 2012 ₹ 27.84 millions) for Provident Fund contributions and ₹ 20.53 millions (Year ended 31 March, 2012 ₹ 16.91 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 million)

Particulars	Year ended 31 March, 2013			Year ended 31 March, 2012		
	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment
<b>Components of employer expense</b>						
Current service cost	2.23	-	11.86	9.51	-	7.81
Interest cost	14.20	6.24	12.03	11.95	5.37	10.06
Expected return on plan assets	(16.74)	-	-	(14.60)	-	-
Actuarial losses/(gains)	30.42	5.70	27.35	11.57	2.35	9.81
<b>Total expense recognised in the Income and Expenditure Account</b>	<b>30.11</b>	<b>11.94</b>	<b>51.24</b>	<b>18.43</b>	<b>7.72</b>	<b>27.68</b>
<b>Actual contribution and benefit payments for year</b>						
Actual benefit payments	(6.70)	(4.59)	(6.89)	(15.62)	(1.39)	(12.13)
Actual contributions	15.42	-	-	20.15	-	-
<b>Net asset / (liability) recognised in the Balance Sheet</b>						
Present value of defined benefit obligation	203.05	78.71	181.85	162.30	71.36	137.49
Fair value of plan assets	(205.13)	-	-	(179.06)	-	-
<b>Net asset / (liability) recognised in the Balance Sheet</b>	<b>2.08</b>	<b>(78.71)</b>	<b>(181.85)</b>	<b>16.76</b>	<b>(71.36)</b>	<b>(137.49)</b>
<b>Change in defined benefit obligations (DBO) during the year</b>						
Present value of DBO at beginning of the year	162.31	71.36	137.49	144.89	65.03	121.94
Current service cost	2.23	-	11.87	9.51	-	7.81
Interest cost	14.20	6.24	12.03	11.95	5.37	10.06
Actuarial (gains) / losses	31.01	5.70	27.35	11.57	2.35	9.81
Benefits paid	(6.70)	(4.59)	(6.89)	(15.62)	(1.39)	(12.13)
Present value of DBO at the end of the year	<b>203.05</b>	<b>78.71</b>	<b>181.85</b>	<b>162.30</b>	<b>71.36</b>	<b>137.49</b>
<b>Change in fair value of assets during the year</b>						
Plan assets at beginning of the year	179.06	-	-	159.89	-	-
Acquisition adjustment	-	-	-	-	-	-
Expected return on plan assets	16.74	-	-	14.60	-	-
Actual company contributions (including Contribution made by Employer and Gratuity Trust)	15.44	-	-	20.19	-	-
Actuarial gain / (loss)	0.59	-	-	-	-	-
Benefits paid	(6.70)	-	-	(15.62)	-	-
Plan assets at the end of the year	<b>205.13</b>	-	-	<b>179.06</b>	-	-

Particulars	Year ended 31 March, 2013			Year ended 31 March, 2012		
	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment	Gratuity	Post-Retirement medical benefits schemes (PRMBS)	Leave Encashment
Actual return on plan assets	17.33	-	-	14.60	-	-
<b>Actuarial assumptions</b>						
Discount rate	8.25%	8.25%	8.25%	8.00%	8.75%	8.75%
Expected return on plan assets	9.45%	0.00%	0.00%	9.45%	0.00%	0.00%
Salary escalation	8.00%	2.50%	8.00%	7.50%	2.50%	7.50%
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.

The Board has taken policy from the Life Insurance Corporation of India for fulfilling its Gratuity obligations.

(₹ in million)

#### Experience adjustments

	2012-2013	2011-2012	2010-2011	2009-2010	2008-2009
<b>Gratuity</b>					
Present value of DBO	203.05	162.30	144.89	235.36	192.50
Fair value of plan assets	(205.13)	(179.06)	(159.90)	(264.50)	(198.75)
Funded status [Surplus / (Deficit)]	2.08	16.76	15.01	29.14	6.25
<b>Post-Retirement Medical Benefits Scheme (PRMBS)</b>					
Present value of DBO	78.71	71.36	65.03	56.76	55.77
<b>Other defined benefit plans (Leave Encashment)</b>					
Present value of DBO	181.85	137.49	121.94	181.97	133.11

	For the year ended 31 March, 2013	For the year ended 31 March, 2012
<b>Actuarial assumptions for long-term compensated absences</b>		
Discount rate	8.25%	8.00%
Expected return on plan assets	9.45%	9.45%
Salary escalation	8.00%	7.50%
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 2013-14 has not been ascertained.

## 9 Disclosure as per Accounting Standard 19 regarding Leased Assets:

Operating leasing arrangements entered into by NDDDB as a Lessor:

## a) Nature of Assets leased

(₹ in million)

Class of Asset	Gross value of assets	Depreciation for the year	Accumulated Depreciation
Buildings and Roads#	1626.56	46.63	660.28
	<i>1625.31</i>	<i>51.81</i>	<i>613.06</i>
Electrical Installations	130.60	5.33	54.35
	<i>146.26</i>	<i>5.90</i>	<i>56.52</i>
Plant & Machinery	317.93	31.73	247.35
	<i>317.93</i>	<i>31.73</i>	<i>215.63</i>
Furniture, fixtures, computers, software and office equipment	994.51	111.72	766.01
	<i>1069.55</i>	<i>121.89</i>	<i>694.44</i>
Rail Milk Tankers	200.39	–	200.39
	<i>198.19</i>	–	<i>198.19</i>
Vehicles	0.44	–	0.44
	<i>0.44</i>	–	<i>0.44</i>
<b>Total</b>	<b>3270.43</b>	<b>195.41</b>	<b>1928.82</b>
	<i>3357.68</i>	<i>211.33</i>	<i>1778.28</i>

# include staff quarters and cold storage

(Figures in italics represent previous year figures)

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.

10 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 million)

Particulars	Opening Balance	Adjustment during the year	Closing Balance
<b>Deferred Tax Assets:</b>			
Depreciation	67.52	2.29	69.81
	<i>7.61</i>	<i>59.91</i>	<i>67.52</i>
Expenditure allowable on payment basis	38.86	16.22	55.08
	<i>34.61</i>	<i>4.25</i>	<i>38.86</i>
Voluntary Retirement Scheme	122.46	(35.50)	86.96
	<i>163.54</i>	<i>(41.08)</i>	<i>122.46</i>
<b>Total</b>	<b>228.84</b>	<b>(16.99)</b>	<b>211.85</b>
	<i>205.76</i>	<i>23.08</i>	<i>228.84</i>

(Figures in italic represent previous year figures)

11 There is no impairment loss to be recognised in the financial statements for the year in terms of Accounting Standard 28 – Impairment of Assets.

12 Dairy Board is not generally involved in the sales activity. However at the insistence of the Central Government, it had imported Dairy Commodities during the previous two years. In view of decreased demand from the actual users, during the year the issue of dairy commodities got reduced resulting in sales being lower.

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

(₹ in million)

Particulars	Non-Performing Asset	General Contingency on Standard Assets	Contingency
Opening balance	4444.63 <i>5976.84</i>	498.75 <i>411.50</i>	345.00 <i>527.21</i>
Additional provision made during the year	43.30 <i>14.17</i>	1.31 <i>87.25</i>	– –
Amounts used out of provision	(99.04) <i>(731.67)</i>	– –	– (101.29)
Amount transferred*	– –	(468.47) –	468.47 –
Unused amount reversed during the year	(198.02) <i>(814.71)</i>	– –	(252.69) <i>(80.92)</i>
Closing balance	4190.87 <i>4444.63</i>	31.59 <i>498.75</i>	560.78 <i>345.00</i>

(Figures in italic represent previous year figures)

\* General Contingency provision in excess of regulatory requirement is transferred to Contingency Provision during the year.

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

In terms of our report of even date attached.

For Deloitte Haskins &amp; Sells

Chartered Accountants

**Kalpesh J. Mehta**

Partner

Membership No. 048791

Firm Reg. No. 117366W

Anand, 12th August, 2013

For and on behalf of the Board,

**YY Patil**Deputy General Manager  
(Accounts)**Dilip Rath**

Managing Director

**Amrita Patel**

Chairman

## NDDB Officers

Head Office, Anand

### Chairman & Chief Executive

Amrita Patel, BVSc & AH

### Managing Director

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

### Executive Director

Sangram Chaudhary, EXE DIR,  
M Sc, PGDRM

### Chief Executive's Office

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

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

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

### Project Finance & Appraisal

Ashok Kumar Bhargava, GEN MGR,  
M A (Eco), LLB, MFM, PGDPPIM

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

K Manek, SR MGR,  
B Com, AICWA

P C Patnaik, SR MGR,  
M Com

T T Vinayagam, MGR,  
B E (Agri), PGDRM

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

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

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

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

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

Rohan B Buch, DY MGR,  
B Com, MBA (Fin)

Harsh Vardhan, DY MGR,  
B Tech (Electro), PGDM (Fin)

### Cooperative Services

#### NDDB, Anand

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

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

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

Milan Kumar Mishra, DY MGR,  
B Com, PGDDM

Sandeep Bharti, DY MGR,  
B Sc, PGDDM

Priyadarshini Das, DY MGR,  
B Sc (Genetics), PGDRM

#### NDDB, Bangalore

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

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

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

#### NDDB, Kolkata

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

Dhanraj Sahani, MGR,  
MBA (Mktg), DPCS

#### NDDB, Mumbai

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

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

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

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

#### NDDB Office, Aurangabad

Abhay Muley, MGR,  
B Tech (DT)

#### NDDB Office, Bhopal

Seema Mathur, MGR,  
M A (Eng)

#### NDDB Office, Bhubaneswar

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

#### NDDB Office, Chandigarh

S K Attri, MGR,  
B Tech (DT)

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

#### NDDB Office, Chennai

A Krithiga, MGR,  
B Sc (Agri)

#### NDDB Office, Hyderabad

Latha Siripurapu, MGR  
B Com, PGDBA (Fin)

#### NDDB Office, Jaipur

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B E (Mech), PGDRM

#### NDDB Office, Lucknow

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Hrishikesh Kumar, DY MGR,  
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#### NDDB Office, Trivandrum

M Govindan, SR MGR,  
M A (SW)

### Quality Assurance

#### NDDB, Delhi

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M Sc (Dairy Bacteriology)

Narinder Sharma, DY GEN MGR,  
M Sc (Dairying), PGDMM

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

### Product & Process Development

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PGDRDM

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

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

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

### Planning

S K Dalal, DY GEN MGR,  
BVSc & AH, M Sc (Anim Sci), PGDRDM

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

Smriti Singh, DY MGR,  
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K B Pratap, DY MGR,  
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Chandni A Bhatt, DY MGR,  
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Reeti, DY MGR,  
B Sc (Zoo), PGDM (Fin & Mktg)

## NDDB Officers

### Project Management Unit

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

**V K Ladhani**, DY GEN MGR,  
M Com, SAS (Comm), ICWA (Inter)

**D G Raghupathi**, DY GEN MGR,  
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**Y M Patel**, DY GEN MGR,  
B Sc (DT)

**M R Mehta**, SR MGR,  
M Sc (Stats), Dipl (Comp Sc)

**H P Rathod**, SR MGR,  
IDD (DT)

**S S Nyamagonda**, MGR,  
M Sc (Agro)

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

**Naveen Kumar**, MGR,  
M Sc (Env Sc), M Tech (Env Sc & Engg),  
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### Human Resource Development

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B Sc, MLW, LLB, PGD-HRD

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### *Mansinh Institute of Training, Mehsana*

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**Bhagyawan**, SR MGR,  
DME

**Hitendrasinh Rathod**, DY MGR,  
DEE

### *Regional Demonstration & Training Centre, Erode*

**D Narayanasamy**, PRINCIPAL,  
BVSc

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

### *Regional Demonstration & Training Centre, Jalandhar*

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**Srikant Sahoo**, MGR,  
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**Satyapal Kurrey**, DY MGR,  
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GEN MGR	:	General Manager
DY GEN MGR	:	Deputy General Manager
SR SCI	:	Senior Scientist
SR MGR	:	Senior Manager
SCI III	:	Scientist III
MGR	:	Manager
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