

## CHAPTER 10

### LIVESTOCK AND FISHERIES

India has vast resource of livestock and poultry, which play a vital role in improving the socioeconomic conditions of rural masses. India ranks first in respect of buffalo and second in cattle and goats population in the world and expectedly India ranks first in the world in terms of total milk production. India has 57% of the world's buffalo population, and 13% of cattle and 15% goat population. Animal Husbandry sector provides large self-employment opportunities. Animal Husbandry, Dairy Development and Fisheries sectors play an important role in the national economy. The livestock and fisheries sector contributed over 4.07 percent of the total GDP during 2008-09 and about 26.84% value of output from total agricultural and allied activities. These sectors also play a significant role in supplementing family incomes and generating gainful employment in the rural sector, particularly among the landless labourers, small and marginal farmers and women, besides providing cheap nutritional food to millions of people. Livestock are the best insurance against the vagaries of nature like drought, famine and other natural calamities. Animal Husbandry and Fisheries sectors together engage 23.68 million populations, which is around 5.80% of the total work force in the country. The contribution of livestock and fisheries sectors to the total GDP during 2008-09 was 4.07%. The Livestock Sector not only provides essential proteins and nutritious human diet through milk, eggs, meat, etc. but also plays an important role in utilization of non-edible agricultural by-products. Livestock also provides raw material byproducts such as hides and skins, blood, bone, fat, etc.

Animal Husbandry, Dairying and Fisheries, is a State subject, the emphasis of the Central Government has been on supplementing efforts of the State Governments in the development of these sectors. Central Government is providing assistance to the State Governments for the control of animal diseases, scientific management and upgradation of genetic resources, increasing availability of nutritious feed and fodder, sustainable development of processing and marketing facilities and enhancement of production and profitability of livestock and fisheries enterprises. The State Governments/Union Territories are advised in the formulation of policies and programmes in the field of animal husbandry, dairy development and fisheries. Main focus of the activities is on (a) development of requisite infrastructure in States/UTs for improving animal productivity (b) preservation and protection of livestock through provision of livestock health care (c) strengthening of central livestock farms and (d) expansion of aquaculture in fresh /brackish water and welfare of fisherfolk, etc. The National Agriculture Policy 2000, which aimed at attaining a growth rate of more than 4 per cent per annum in the agriculture sector, had stressed the importance of food and nutritional security issues and the importance of animal husbandry and fisheries sectors in generating wealth and employment. The Policy accorded high priority to increasing protein availability in the food basket and generation of exportable surpluses. Health care, fodder production and freedom from animal diseases were some of the other areas of importance envisaged in the Policy document. An integrated approach to marine and inland fisheries, designed to promote sustainable aquaculture practices, was also envisaged.

#### **Animal Husbandry:**

The livestock population of different species is worked out on the basis of Livestock Census conducted on quinquennial basis. The 17<sup>th</sup> Livestock Census (2003) has placed the total livestock population at 485 million and total poultry birds at 489 million. The 18<sup>th</sup> Livestock Census has been conducted throughout the country with reference date of 15<sup>th</sup> October, 2007. The 18<sup>th</sup> Livestock Census has placed the total livestock population at 530 million and total poultry birds at 649 million. There are 18 Central Livestock Organizations and allied institutions for production and distribution of superior germ plasms to the State Governments for cross-breeding and genetic upgradation of the stocks. Besides, various schemes are being administered by Central Government for development of requisite infrastructure and supplementing efforts of the State Governments in achieving accelerated growth of animal husbandry sector. Central Cattle Development Organizations include seven Central Cattle Breeding Farms, one Central Frozen Semen Production and Training Institute and four Central Herd Registration Units established in different regions of the country to produce genetically superior breeds of bull calves, good quality frozen semen and for identification of locations of superior germplasms of cattle and buffaloes, so as to meet the requirement of bulls and frozen semen in the country. Seven Central Cattle Breeding Farms (CCBFs) located at Alamadhi (Tamil Nadu), Andeshnagar (U.P), Chiplima, Sunabeda (Orissa), Dhamrod (Gujarat), Hessarghatta (Karnataka) and Suratgarh (Rajasthan). They are producing high pedigree bull calves of indigenous and exotic breeds of cattle and important buffalo breeds for distribution to States. Central Frozen Semen Production and Training Institute is a premier institute located at Hessarghatta, Bangalore (Karnataka) producing frozen semen doses of indigenous, exotic crossbred and Murrah bulls for use in Artificial Insemination (AI). The institute also provides training in frozen semen technology to technical officers of the State Governments and acts as a Centre for testing the indigenously manufactured frozen semen and AI equipments.

Conserving and protecting threatened breeds of livestock, like, Small Ruminants, Pack Animals, Pigs and Equine, whose population is less than 10000, has been started during 10<sup>th</sup> Plan. The Government is providing assistance for elite breeding stock, construction/ renovation of sheds, feed/fodder/medicines and labour for two years, establishment of laboratory, holding of seminars and publicity/farmers' training and evaluation. Central Sheep Breeding Farm was established in Haryana (Hissar) during the Fourth Five Year Plan for producing and disseminating acclimatized stud rams to various State Sheep Farms for cross-breeding programmes and genetic stock upgradation. The farm also runs training courses in mechanical sheep shearing, maintenance of sheep shearing machines as well as sheep management. Beetal Goats were introduced at the farm during 2003-04. Since 2005-06, the farm has been pursuing a programme for control of Brucellosis and Haemonchosis with an aim to improve productivity and reduce mortality in the flock.

### **Poultry Development:**

Poultry Development has taken a quantum leap in the last three decades, emerging from a near backyard practice to ventures of industrial proportion. India is among the top three eggs producing countries in the World and produced 55.64 billion eggs in 2008-09. India is among the top five chicken meat producing countries in the World and the broiler production stands at about 2.0 Million Metric Tonnes of chicken meat (FAO 2006). After the initial boost given by the Central Poultry Breeding Farms to promote poultry farming on commercial lines in the country. The poultry sector has flourished and now about 70% of the production management and marketing is under a highly organized sector. Four Central Poultry Development Organizations (CPDOs) at Bangalore (SR), Bhubaneswar (ER), Chandigarh (NR) and Mumbai (WR) are presently functioning to meet following requirements in their respective regions.

- Making available quality chicks.
- Diversification program: Central Government has started diversification of species as a thrust area under which other species such as Duck (Southern and Eastern region), Japanese quail (Western and Northern region), Turkey (Southern and Western region) and Guinea fowl (Eastern region) have been introduced to boost the poultry industry. Emu farming was started at CPDO (Southern region) as a pilot project for popularizing this bird in India.
- Strengthening of Feed quality monitoring wing: The feed analytical laboratories are concentrating their activities on analysis of various feed/feed ingredients.
- Training Programme.
- Random Sample Tests: The Central Poultry Performance Testing Centre (CPPTC) located at Gurgaon (Haryana) is the lone centre at the national level to test various stocks of poultry available in the country.

### **Livestock Health:**

Indian Veterinary Council Act, 1984 regulates veterinary practice and provide for the establishment of a Veterinary Council of India and State Veterinary Councils and the maintenance of registers of the veterinary practitioners and for matters connected therewith. At present, 25 States and all UTs have adopted the Indian Veterinary Council Act, 1984. With improvement in the quality of livestock through launching of extensive cross breeding programmes, the susceptibility of these livestock to various diseases including exotic diseases has increased. In order to reduce morbidity and mortality, efforts are being made by the State / Union Territory Governments to provide better health care through polyclinics / veterinary hospitals / dispensaries/first-aid Centres including mobile veterinary dispensaries. A network of 26,540 Polyclinics / Hospitals / Dispensaries and 25433 Veterinary Aid Centers (including Stockmen Centres / Mobile Dispensaries) supported by about 250 disease diagnostic laboratories, are functioning in the States and Union Territories for quick and reliable diagnosis of diseases.

### **Dairy Development:**

Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities. Government of India is making efforts to increase the productivity of milch animals and thus increase the per capita availability of milk. India rank first in milk production having increased from 17 million tonnes in 1950-51 to 108.53 million tonnes in 2008-09.. The per capita availability of milk has increased from 112 gram per day in 1968-69 to 258 gram per day in 2008-09. About 80% milk produced in the country is handled in the organized sector and the remaining 20% is equally shared

by cooperative societies and private dairies. Over 1.33 lakh cooperative societies, spread over 265 districts in the country, collect about 25.1 million litres of milk per day and market about 20 million litres. The efforts of the Government in the dairy sector are concentrated in promotion of dairy activities in non-operation flood areas with emphasis on building cooperative infrastructure, revitalization of stick dairy cooperatives and federation and creation of infrastructure in the States. A 'National Milk Grid', links milk producers throughout India with consumers in over 700 towns and cities, reducing seasonal and regional price variations while ensuring that the producer gets a major share of the price consumers pay. The bedrock of Operation Flood has been village milk producers' cooperatives, which procure milk and provide inputs and services, making modern management and technology available to members. Operation Flood's objectives included (1) Increase milk production ("a flood of milk"), (2) Augment rural incomes, and (3) Fair prices for consumers.

The National Dairy Development Board (NDDB) is a statutory body corporate established by the Parliament as an institution of national importance under the NDDB Act 1987. NDDB promotes plans and organizes programmes for the development of dairy and other agriculture based and allied industries along cooperative lines and also provides assistance in the implementation of such programmes. NDDB is continuously providing technical and financial support to dairy cooperatives in the areas of strengthening cooperative business infrastructure, productivity enhancement, quality assurance and the creation of a national information network. Intensive Dairy Development Programme (IDDP) was launched in Non-Operation Flood, Hilly and Backward Areas' in 1993-94. The main objectives of the IDDP are as (1) development of milch cattle, (2) increasing milk production by providing technical input services, (3) procurement, processing and marketing of milk in a cost effective manner, (4) ensure remunerative prices to the milk producers, (5) generate additional employment opportunities, and (6) improve social, nutritional and economic status of residents of comparatively more disadvantaged areas. The scheme was modified during March, 2005 and also extended to some district of Operation Flood Programme.

### **Fisheries:**

India is the third largest producer of fish in the world and second largest producer of fresh water fish in the world. Fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country, particularly in the coastal state. Inedible Fish is also a rich source of animal protein for livestock feeding. Fish scales, fishery waste are also a source of organic manure. National Fisheries Development Board (NFDB) has been set up in September 2006 with its headquarters at Hyderabad to realize the untapped potential of fisheries sector, fish culture, processing & marketing of fish, application of modern tools of research & development for optimizing production and productivity in fisheries. NABARD and banks have played a crucial role in providing credit for marine, inland and brackishwater aquaculture production, processing, packaging, preservation, transportation and marketing of fish and fish products, prawn culture etc. It also assists in establishing fish seed hatcheries, development of new ponds or rejuvenation/ expansion of old ponds, manufacture of ' quality' feed etc. In marine fisheries credit is provided for manually operated and mechanized boats and fishing vessels of different capacities including other inputs like gears, nets etc. The main challenges facing fisheries development in the country include development of sustainable technologies for fin and shell fish culture, yield optimization, infrastructure for harvest and post-harvest operations and landing and berthing facilities for fishing vessels. Fisheries are a State subject and as such the primary responsibility for its development rests with the State Governments. The major thrust in fisheries development has been on optimizing production and productivity, augmenting export of marine products, generating employment and improving welfare of fishermen and their socio-economic status.

Central Institute of Fisheries Nautical & Engineering Training (CIFNET) was established in 1963 at Cochin for organizing suitable fisheries training system at the national level. Subsequently, two units of the Institute were set up at Chennai and at Visakhapatnam. The primary objective of the Institute is to make available sufficient number of trained operatives for fishing vessels and technicians for shore establishments. The Fishery Survey of India (FSI) is the nodal agency for survey and assessment of marine fishery resources of the Indian EEZ with its headquarters at Mumbai. The Institute has seven operational bases at Porbandar, Mumbai, Mormugao and Kochi along the West Coast, Chennai and Visakhapatnam along the east coast and Port Blair in the Andaman & Nicobar Islands. Besides resources surveys, the FSI's work includes monitoring of fishery resources for the purpose of regulation and management, assessment of suitability of different types of craft and gear for deep-sea and oceanic fishing, providing in-vessel training to CIFNET/Polytechnic trainees, dissemination of information on fishery resources through various media to the fishing community, industry, other end users, etc.

In order to boost inland fish production, Government is providing subsidy to the fish farmers for construction of new ponds, reclamation / renovation of ponds and tanks, first year inputs (fish seed, fertilizers, manures, etc.), integrated fish farming, running water fish culture, establishment of fish seed hatcheries and fish feed mills, etc. The progressive fish farmers have encouraged for purchase of aerators to further enhance the productivity of fish. Government is assisting for freshwater prawn seed hatchery, laboratory, soil & water testing kits, integrated units for ornamental fish and transportation of seed in hilly areas. For Development of Brackish water Aquaculture, 39 brackish water Fish Farmers Development Agencies (BFDA's) have been constituted in all the coastal states and the UT of Andaman & Nicobar Islands for providing technical, financial and extension support to shrimp farmers in the small scale sector. Marine sector comprises coastal fisheries and deep-sea fishing. The development of marine sector is being done by motorization of traditional crafts, assisting the small scale mechanized sector by subsidizing the excise duty on fuel, setting up of infrastructure for safe landing, berthing and post-harvest operations etc. and thereby to improve the socio economic conditions of the traditional fishermen. Besides, the development of infrastructure facilities for the fishery sector is one of the important factors that contribute to augmenting marine fish production and its exports. In order to meet the infrastructure requirement of fisheries sector, 6 major fishing harbours, 58 minor fishing harbours and 189 fish landing centres have been taken up for implementation in various coastal States/UTs. Besides, 12 minor fishing harbours and 11 fish landing centres have been taken up for repair and renovation/modernization.

The development of Geographical Information System (GIS) has been entrusted to Central Inland Fisheries Research Institute (CIFRI), Barrackpore. Initially satellite imageries were obtained from IRS-1D for post monsoon period from NRSA for assessment of shape and size of the water bodies. Later, it was decided to merge the component of census of inland fisheries with the component on Development of GIS. Under modified methodology, the Geographical Information System (GIS) of the Inland Waterbodies will be developed by CIFRI, Barrackpore, using LISS-III images of resolution 5.8 metre in multiple spectral bands for pre and post monsoon seasons covering the entire country and LISS-IV images in Black & White in two seasons for the States of West Bengal, Andhra Pradesh, Madhya Pradesh and Uttar Pradesh. Ground truthing for waterbodies of above 10 hectare in 30% of the districts would be carried out. During Ground truthing, information on various parameters such as type of waterbodies, water spread area, water retention, utilization for fishery, etc. would also be collected, which will be further superimposed in the GIS. Potential areas will be highlighted on the maps for future planning and development. A geo-referenced fishery data base management system will be evolved and the information will be linked and networked for the users.

Census on Marine Fisheries was launched in 2005 in all the maritime States/UTs to count the men and material involved in the marine fisheries sector. The report of the census was published and released on 26th July, 2006. As per the report, there are 3302 marine fishing villages in all the maritime states/UTs of India and 10 inhabited islands of Lakshadweep with a total population of marine fishers of about 35.75 lakh. For streamlining the catch assessment surveys of marine fisheries, Fishery Survey of India (FSI) acts as an interface between the Ministry and the State Fishery Departments. FSI is entrusted to collect data with emphasis on biological aspect of species, gear and market studies from markets of Marine States/ UTs by deputing field enumerators on contractual basis. FSI will also reconcile the data received from State Governments and data collected by CMFRI and have interface with CMFRI for scientific and technical guidance regarding catch assessment surveys to be carried out by FSI. Similarly, for streamlining the Catch Assessment Surveys on Inland Fisheries, the Central Inland Fisheries Research Institute (CIFRI) has been entrusted the responsibility of standardization of concepts, definitions and methodology for collecting fisheries statistics and training of staff concerned therewith. The work on supervision, training and data analysis is undertaken by CIFRI.

### **Highlights:**

- The total number of livestock increased from 485 million in 2003 to 529.71 million in 2007. The number of cattle increased from 185.18 million to 199.08 million, whereas, number of buffalo increased from 97.92 million to 105.34 million, sheep from 61.47 million to 71.56 million and goats from 124.36 million to 140.54 million during the same period. The number of poultry increased from 489.01 million in 2003 to 648.70 million in 2007.
- The most affected disease causing death varies from year to year. The maximum 64086 number of livestock died due to 'blue tongue' in 2005. The maximum number of livestock died due to 'chronic respiratory disease' in 2006, 2007 and 2009 and these were 20369, 16194 and 38881 respectively, whereas, maximum 10317 number of livestock died due to 'ranikhet (new castle)' in 2008. Besides, 104834 number deaths occurred due to destroy of poultry in 2006 and 130619 number deaths occurred due to in 2008, because of avian influenza. Number of birds culled in 2008 because of avian influenza was 4861979.

- The number of adult male cattle increased from 51.76 million in 2003 to 56.01 million in 2007. Out of total male cattle available in 2007, 4.68% used for breeding only, 79.66% used for 'agriculture and breeding', 9.08% used for 'bullock cart and breeding' and only 6.58% used for other purposes.
- The number of adult male buffalos increased from 5.21 million in 2003 to 6.44 million in 2007. Out of total male buffalos available in 2007, 13.46% used for breeding only, 58.22% used for 'agriculture and breeding', 18.37% used for 'bullock cart and breeding' and only 9.96% used for other purposes.
- The total production of milk increased from 80.61 million tonnes in 2000-01 to 108.53 million tonnes in 2008-09. The production of cow milk increased from 32.96 million tonnes to 45.90 million tonnes, whereas, the production of buffalo milk increased from 43.43 million tonnes to 57.13 million tonnes, and production of goat milk from 3.27 million tonnes to 3.88 million tonnes during the same period. Out of total milk production available in 2008-09, 42.29% were cow milk, 56.64% were buffalo milk and only 3.58% were goat milk.
- The number of egg production increased from 36.63 billion in 2000-01 to 55.64 billion in 2008-09. The maximum 18.35 billion number egg productions were realized in Andhra Pradesh followed by Tamil Nadu with 8.81 billion productions in 2008-09.
- The wool production decreased from 48.4 thousand tonnes in 2000-01 to 42.7 thousand tonnes in 2008-09. The maximum 12.7 thousand tonnes of wool production was realized in Rajasthan followed by Andhra Pradesh with 4.5 thousand tonnes wool production in 2008-09.
- The fish catch & landing increased from 5.61 million tonnes in 2000 to 7.60 million tonnes in 2008. The catch of inland fish increased from 2.83 million tonnes to 4.5 million tonnes, whereas, catch & landing of miscellaneous marine teleosteans increased from 1.63 million tonnes to 2.40 million tonnes. Out of total fish catch & landing during 2008, 59.19% were inland fish, 3.46% were tunas, etc., 31.62% were miscellaneous marine teleosteans, 0.98% were elasmobranchs ( shark, Rays Skates, etc.), 4.46% were decapods ( prawn, crabs, etc.) and only 0.3% were flat fish.

**This chapter contains the following tables:**

**Table 10.1:** presents number of livestock and poultry in 2003 and 2007 and their State-wise break-up in 2007 categorized by various livestock and total poultry.

**Table 10.2:** presents disease-wise incidence of livestock disease in India since 2005 categorized by Death, outbreak, and attack.

**Table 10.3:** presents adult male cattle and buffalo with their status in 2003 and 2007 and their State-wise break-up in 2007 categorized by use for breeding only, agriculture and breeding, bullock cart and breeding.

**Table 10.4:** presents year-wise production of milk since 2000-01 and state-wise production of milk during 2008-09 categorized by cow milk, buffalo and goat milk.

**Table 10.5:** presents year-wise production of wool and eggs since 2000-01 and state-wise production of wool and eggs during 2008-09.

**Table 10.6:** presents fish catch and landing by group of species since 2000.

**Table 10.7:** presents quantity of fish catch by disposition since 2000.