



**REPORT OF THE WORKING GROUP ON
ANIMAL HUSBANDARY
AND DAIRYING
FOR THE
ELEVENTH FIVE YEAR PLAN (2007-2012)**

**GOVERNMENT OF INDIA
PLANNING COMMISSION**

NEW DELHI

1. Executive Summary

Eleventh Plan: Animal Husbandry and Dairying

1. Livestock sector plays an important role in Indian economy and is an important sub-sector of Indian Agriculture. The contribution of livestock to Gross Domestic Product was 4.70 percent in 2004-05 at 1999-2000 prices. This is the sector where the poor contribute to growth directly instead of getting benefit from growth generated elsewhere. The overall growth rate in livestock sector is steady and is around 4-5% and this has been achieved despite the fact that investment in this sector was not substantial. The ownership of the livestock is more evenly distributed with landless labourers and marginal farmers owning bulk of livestock. The progress in the sector results in balanced development of the rural economy particularly in reducing the poverty amongst the weaker sections. The rural women play a significant role in Animal Husbandry and are directly involved in most of the operations relating to feeding, breeding, management and health-care of the livestock.
2. According to CSO estimates, gross domestic product from livestock sector at 1993-94 prices was about Rs.642 billion during 1999-2000 (accounting for 24% of agriculture and allied GDP). This rose to Rs.772 billion during 2003-04 with 27% share in the agriculture and allied sector. Livestock provides stability to family income especially in the arid and semi-arid regions of the country. Livestock are the best insurance against the vagaries of nature due to drought, famine and other natural calamities. Major part of the livestock population is concentrated in the marginal and small size of holdings. Livestock plays an important and vital role in providing nutritive food to families both in rural and urban areas. Bullock power continues to be the main source of draught power for agricultural operations and transport of agricultural products to nearby markets and is likely to remain so for a long time to come. Further, agricultural productions get valuable organic manure provided by the livestock.
3. **Review of Tenth Plan**

1.3.1. Milk production in India remained stagnant during the period 1950 to 1970, when the production grew at the rate of about 1% per annum. Thereafter, India's milk production showed rapid growth of between 4 and 5 percent, reaching a level of 91 million tones in 2004-05. The per capita availability of the milk increased from 112 gm per day in 1970-71 to 229 gm per day in 2004-05. An estimated 70 million rural milch animal households are engaged in milk production. Poultry, which was considered as a backyard venture in the early 60s, has now been transformed into a major farming activity. The egg production in the country has reached 45.2 billion (2004-05). India now occupies number one position in the world in respect of milk production and fourth position in egg production. However, wool production has remained almost constant during the last one and half decade. Notwithstanding this, all the major livestock products showed an increasing growth rate during the 10th plan.

1.3.2 In India, the livestock continues to be raised on crop residues and agricultural bi-products. The area under cultivated fodder production is limited only to 4.60% of the total cultivable land. The schemes and programmes relating to feed, fodder and pasture development in the country are quite limited. The efforts made during the 10th five-year plan in raising the feed and fodder resources for the livestock were not very successful. The performance of central fodder

development organization of Government of India was evaluated by The Centre for Management Development, Thiruvanthapuram and found to be unsatisfactory.

1.3.3 The National Project on Cattle and Buffalo Breeding (NPCBB) was initiated in October, 2000 for a period of 10 years. The project envisages genetic up gradation of indigenous cattle and buffaloes, development and conservation of important indigenous breeds and to evolve sustainable breeding policy. The project is being implemented by State Implementing Agencies (SIA's). Presently, 26 states and 1 UTs are participating in the project. The livestock projects have a long gestation and therefore it is too early to pass any judgement on the performance of NPCBB.

1.3.4 With the completion of 'Operation Flood' Project by NDDB, the pace of investment in dairy sector has slowed down. The allocation for dairy development by the Central and State Governments has also diminished over the last two plans. The assistance from Government of India under Centrally Sponsored Scheme 'Intensive Dairy Development Programme' has gone to non-viable areas without conducting proper feasibility studies and implemented without proper technical supervision. While delicensing and the subsequent decision to do away with the concept of milk sheds were expected to boost private sector investment in dairying, it has not happened. Furthermore, there appears to have no concentrated efforts been made in investing on technology for development of value added and innovative milk products. Consequently, in the first four years of 10th five-year plan, the growth rate of milk has been less than 3 per cent per annum. Further, no policy measures were undertaken so far to develop and organize the un-organized sector involved in the production of Indian dairy products, which otherwise have tremendous demand in the domestic market as well potential for export overseas.

1.3.5 Since first five year plan, efforts were made to control diseases of the livestock especially Rinderpest, Black quarter, Hemorrhagic Septicemia, Anthrax and Food and Mouth Disease. The Rinderpest has been eradicated from the country and India declared free from Rinderpest infection on 25th May 2006 by the International Committee of the World Organization for Animal Health (OIE), Paris. While, Rinderpest has been eradicated, other diseases still continue to pose a major threat to animal production programme. Some of the emerging diseases like Peste des Petitis Ruminants (PPR), Bluetongue, Sheep pox and Goat Pox, Swine Fever, Contagious Bovine Pleuropneumonia, New Castle-Disease (Ranikhet Disease) are causing substantial economic losses. The Department of Animal Husbandry and Dairying is not well equipped with necessary infrastructure and adequate technical manpower to execute various programmes on animal health and bio-security.

1.3.6 Small ruminants play an important role in the rural economy. They are principally maintained by poorer section of the rural community providing them a source of livelihood. However, this sector appears to have been neglected. During the last four decade, there has not been much increase in sheep population. The fine wool production in the country is stagnant around 45 million kg out of which only 4 million kg is of fine quality. While the demand from the industry for fine wool is around 40 million kg annually, which is met through imports from Australia and New Zealand. Efforts made to increase the production of fine quality wool have not been successful except in Jammu & Kashmir, Himachal Pradesh, Uttaranchal and Sikkim. With the liberalization of economy under WTO regime, the import of wool is allowed under duty-free Open General Licence (OGL). Consequently, there is no scope for domestic production of fine quality wool and the sheep farmers have crossed their animals with mutton type-breeds. On the contrary, despite any serious developmental programme, the goat population has increased at a very fast rate making it an important species of animal for meat

production. The current goat population is estimated over 124 million which may pose a threat to the environmental stability.

1.3.7 The Indian Poultry Industry has transformed from a meager backyard farming to a well-organized techno commercial industry. The significant step in poultry development has come from the initiatives taken by the private sector. India ranks 4th in egg production, producing about 45 billion eggs annually (2004-05). The sector provides a great employment opportunity. The productivity in both broilers and layers has improved tremendously due to the implementation of good management practices, optimum nutrition and scientific breeding. The government has now to play a limited role concerning policies confronting the organized sector and to provide support to development of rural poultry.

1.3.8 The pig farming is an important activity in the north-eastern region especially in the tribal communities. Pork is an important item in the daily food of these people. The local production is not able to meet the demand, which is met through import of pigs from other parts of the country. No serious attempt has been made to take up pig production on a viable basis by developing financially viable production units in the northeastern region. Similarly, no serious attempt has been made to develop Yak and Mithun, which are otherwise important in their home state.

1.3.9 Meat production in India is a bi-product of livestock production in bovines by utilizing spent animals at the end of their productive life. However, in other species like sheep, goat and pig the animals are primarily raised for meat production. There are about 3900 slaughter houses in the country which are licensed by local bodies. In addition, a considerable number of animals are slaughtered in un-authorized places. Condition of many of the slaughter houses is far from satisfactory. Assistance to State for improvement and modernization of abattoirs and to establish carcass utilization centers were provided by Government of India but implementation of these schemes has not been satisfactory. However, 15 export oriented modern integrated State-of-the art, abattoirs-cum-meat -processing plants have been set up. The export of meat, especially buffalo meat accounts for an important source of foreign exchange.

1.3.10 Export earnings from livestock products rose from Rs.1500.93 crores in 2001-02 to 2253.33 crores during 2004-05. Meat and poultry products accounted for 83 percent of total export earning. Export of milk and milk products also improved and accounted for 17 percent of the export of livestock products. Although, the possibility of export of livestock products is immense but it is not realized fully because India is unable to adjust effectively to the open trade regime under the WTO particularly in respect of requirements under Sanitary and Phytosanitary (SPS) regime.

1.4 Eleventh Plan Goals and Strategy

1. The goals for the eleventh five year plan for the livestock sector would be i) to achieve an overall growth between 6% to 7% per annum for the sector as a whole with milk group achieving a growth of 5.0% per annum and meat and poultry group achieving a growth of 10% per annum, ii) the benefit of growth should be equitable, benefiting mainly the small and marginal farmers and landless labourers and should benefit poorly endowed areas like draught prone, arid and semi-arid areas iii) the sector should generate additional employment opportunity to people in the rural areas especially to the female population, iv) livestock should provide major source of income in the selected areas having potential for mixed crop-livestock farming system, and v) the

growth in the sector should result in the improvement of environment specially in the rural areas.

2. Accelerating the growth in livestock sector between 6 to 7 per cent during the 11th plan would not be an easy task, since growth during the first four years of 10th plan has been less than 4% per annum. The strategy would require action on both supply and demand side besides the institutional restructuring. In past, the development programmes have been primarily based on public initiatives. With the increase in coverage, these programmes have overgrown in size. Their institutional structure has not changed to suit the changing requirements and remain in line with the fast changes in the technology. A sustainable and financially viable livestock farming, which will generate wealth and self-employment through entrepreneurship, is the need of the day. This would require creating an enabling environment in which farmers will increase investment to improve productivity of livestock and building participatory institutions that allow livestock farmers to get vertically integrated with processors of livestock products and input suppliers/service providers.

3. Market opportunities have opened up for the livestock sector following the economic liberalization. There are expectations of faster growth in demand for livestock products due to expected increase in income combined with the high-income elasticity of demand for livestock products. But the sector's ability to capitalize on new market opportunity is constrained by the availability and quality of support services. At present, Government is the main provider of these services. The quality of the services is however not satisfactory and these services are not available at the doorsteps of the producers. The present structure of livestock improvement is based on a fixed model of a Veterinary Hospital/Dispensary being the key nodal structure at the ground level from where services and goods are currently distributed. There is a need to restructure service delivery mechanism to become conducive to the requirements of the rural livestock producers. Lack of credit for livestock production has been a major problem. Public sector lending is abysmally very low. The commercial banks are not favourably disposed to providing credit to livestock farmers and the cooperative credit system is very weak resulting in excessive dependence of livestock farmers on informal sources usually at exorbitant interest rates. The strategy should be to correct these distortions and ensure timely availability of inputs and services including credit to livestock farmers.

4. The Department of Animal Husbandry and Dairying is managing large infrastructure of livestock farms and fodder production stations. Many of the infrastructures are out dated and have not kept pace with the development of science and technology. An exercise on restructuring the existing infrastructure needs to be taken up on priority basis. An institution like Delhi

Milk Scheme, which is suffering huge losses, has lost relevance and should be closed and sold out. An authority to supervise quality control on production and marketing of breeding material, vaccine and other biological should be set up. To advise the Department of Animal Husbandry and Dairying on policy matters, establishment of a National Institute for Livestock Information and Policy Studies is recommended. Similarly the large number of livestock farms managed by the State Governments should be reorganized and the production of vaccine and other biological materials should be privatized.

5. Establishment of a separate Indian Council for Veterinary and Animal Science Education and Research by carving out animal science institutes from ICAR and placing them with Department of A.H &D would provide better coordination between the research and developmental efforts in livestock sector.

1.5 Proposed Developmental Programme in 11th Plan

1. Adequate availability of quality fodder is essential for enhancing livestock productivity. For this, there is need to target at least ten percent of the cultivable land for growing fodder crops. Since major limitation to increasing fodder production is insufficient availability of fodder seeds a programme on fodder seed production through registered growers would be launched in collaboration with State Agricultural Universities and State Seed Corporations. Assistance would be provided for better use of crop residues through industrial manufacture of feed blocks using crops residues, briquettes, and utilization of agro- industrial byproducts. The projects on development of Common Property Resource (CPR) and fodder banks would be implemented as public private partnership initiative (PPP).
2. The National Cattle and Buffalo Breeding Project (NCBBP) would continue to the major initiative in cattle and buffalo development. Emphasis would be on using only quality bulls. Ordinarily, only progeny tested bulls should be used in such a breeding programme, however in the absence of availability of such bulls attempts would be made to identify the best males from the available sources. The Embryo Transfer Technology (ETT) would be made use of in the production of bulls in the absence of progeny testing. Import of frozen semen and embryo from high producing herds would be required for breeding the bull mothers maintained in the country. Out of existing 54 functional semen stations, 10 bigger semen freezing stations would be strengthened with the state of art facility to produce annually 40 to 50 million doses. The AI services would be privatized and delivered at the doorsteps of the livestock farmers. An information network for breeding services would be established.

3. Major policy reforms are required to provide support to small ruminant developmental programme. The grazing policy for livestock in forest including joint forest management with particular reference to high altitude forest needs to be developed and jointly implemented by Animal Husbandry and Forest Departments. Regeneration and development of common property resources and wasteland with involvement of Panchayats and NGOs need to be given greater attention. It is proposed to launch this programme in 40 backward districts in 6 states having high population of sheep and goats.
4. In case of poultry the emphasis would be on development of rural poultry. A project on PPP for sustainable livestock through poultry production has been proposed in the identified areas benefiting 10000-15000 poultry producers. The pig development would be promoted in the northeastern region through creation of breeders' villages to meet the shortage of breeding males in the area.
5. Animal health and bio-security would receive high priority. The control of foot and mouth disease would be extended to 200 new districts and control of brucellosis and paste des petits ruminants (PPR) to whole of the country. The disease diagnostic facilities would be upgraded so as to function on internationally acceptable standards. An independent Veterinary Drug Control Authority would be established and National Animal Disease Reporting System would be created.
6. Under Dairy Development, milk producers cooperatives will continue to play major role despite liberalization of the sector. However, the dairy cooperatives will have to reform themselves and become competitive. NDDB is setting up a consortium with NABARD and NCDC to fund the dairy cooperatives. The venture capital fund for dairy and poultry development set up in the 10th plan would be expanded. Primary attention would be given on creating infrastructure for production of clean milk and to improve the processing, marketing and transport facility. The processing capacity shall have to be expanded both in the cooperative and private sector. R & D efforts in developing process and packing technology for Indian milk products as also other innovative milk products would be supported.
7. Support would be provided to modernization of meat sector. Registration of all slaughter houses in cities/towns is essential for clean meat production and protection of environment. The establishment of rural based abattoirs in animal tracts would reduce the need for transportation of live animal to urban areas for slaughter. In addition, modern Abattoirs/Meat Processing Plants would be supported to promote export.

8. Animal Welfare during natural calamities and disaster will require attention since such calamities can drive the poor into destitution. A disaster management fund for livestock would be created to support livestock owners during calamities. NGOs working for livestock welfare would be strengthened so that they can ensure and promote animal care and well being.

1.6. Financial outlays and resource mobilization

1.6.1 An outlay of Rs. 37770 crores for Animal Husbandry and Dairy sector is proposed for Eleventh Plan. The estimates do not include requirement for the management of calamities like drought, famine, flood and disaster like earthquake and Tsunami. It is proposed that a calamity relief fund for livestock with an outlay of Rs.10000 crores should be created. In addition, the state governments would be required to allocate an estimated Rs.10000 crores for animal husbandry and dairying sector. Therefore, a total investment of Rs. 57770 crores would be required during the 11th Plan period. Out of proposed Rs. 37770 crores a provision of Rs.13075 crores would be required to be provided in Government of India budget and the balance provided as credit by the financial institutions.

2. The venture capital fund created by NABARD should be expanded for establishment of infrastructure by private entrepreneurs like veterinary dispensaries, vaccine production units, feed plants, fodder seed production facilities, processing plant for western and indigenous dairy, meat and egg product, semen production units and network for delivery of inputs to the farmers. These activities should also get credit under the scheme of Priority Sector Lending from commercial and cooperative banks. Introduction of Livestock Farmers Credit Card (Like Kisan Credit Card) would solve the problem of working capital by providing short- term credit. NABARD should ensure that at least 20 per cent of the total agricultural credit becomes available to Animal Husbandry Sector.

2. Constitution of Working Group

1. The Planning Commission, Government of India vide orders No.M-12043/9/2006-Agri. Dated 12.5.2006 (Amended vide orders of even number dated 5.6.2006) set up a working group on Animal Husbandry and Dairying for the 11th Five Year Plan (2007-2012) under the Chairmanship of Dr N.R. Bhasin, Vice-President, Indian Dairy Association, R.K. Puram, New Delhi. The Composition and Terms of reference for the Working Group are given in Annexure-I.
2. The working group in its first meeting held on 23rd June, 2006 decided to constitute 15 sub-groups on different aspects of Animal Husbandry and Dairying viz i) Cattle and Buffalo Breeding, ii) Small Ruminants, iii) Feed, Fodder & Pasture Development, iv) Dairying, v) Poultry & Piggery, vi) Meat & Abattoirs, vii) Animal Health Services and Biosecurity, viii) Trade, Marketing and WTO, ix) Livestock

Welfare and Disaster Management, x) Finance, Credit input and Insurance xi) Public Private Participation and NGOs xii) Livestock Technology transfer service, xiii) Institutional Restructuring, xiv) Animal Husbandry Statistics and xv) Environment, Livestock Systems & Livestock-based Industries. The composition and terms of reference for the various sub-groups is given at Annexure-II.

3. A meeting of the Chairman of the Working Group, Chairmen and Member Secretaries of various sub-groups of Animal Husbandry and Dairying was held on 31st July 2006. The meeting discussed a note prepared by the Chairman relating to the growth potential in various sectors of Animal Husbandry in 11th Five Year Plan. It was felt that an annual growth of 5% for the milk group, 10% for meat and eggs and 2% for wool should be targeted to achieve an over all growth of 6-7% for the Animal Husbandry as a whole.

2.4 Various Sub-Groups held number of meetings during the period July-September, 2006. Their draft reports were presented in the meeting held on September 7 and 8, 2006, which was attended by all member of the working groups and Chairmen and Member Secretaries of the various sub-groups. In the said meeting the Chairmen/Member Secretaries made presentation on the draft report of their sub-groups giving their findings and recommendation for the 11th Five Year Plan. These draft reports were discussed and suggestions made for improvement. The reports of the sub-groups could be finalized during the period September-October 2006. On the basis of the recommendation made by the various sub-groups; the present report of the working group has been prepared.

3. Livestock in National Economy

3.1 From the dawn of civilization, mankind has been utilizing different animal species for a variety of purposes viz. production of milk, meat, wool, egg and leather, draught power, companionship, entertainment, research experimentation, sports, security etc. Livestock wealth is deemed as the oldest wealth resource for mankind and was once a symbol of economic status in the society. Livestock sector plays a crucial role in rural economy and livelihood. This is one sector where poor contributes to the growth directly instead of getting benefit from growth generated elsewhere.

3.2 India has the largest livestock population in the world. Distributed over 100 million households in approximately 600,000 villages, Indian farmers stock animals as varied as the little known Yak and Mithun to the seemingly insignificant backyard poultry. According to the live stock census of 2003 the country had 485 million livestock population and 489 million poultry population, being the first in cattle and buffalo population, second in respect of goat and third in respect of sheep population in the world. India has 57% of the world's buffalo and 16% of the world's cattle population.

3.3 Livestock sector plays a significant role in the Indian economy, particularly for the welfare of rural population of India. Of the total household in the rural area, about 73 percent own some form of livestock. More importantly, small and marginal farmers account for three quarters of these households. The focus of the poor is on small animals. The prolificacy of goat, pig and

poultry are the influencing factors. The returns are quick; losses, if any, are recovered soon. The poor can afford it. The multiple species animal husbandry system is also environment friendly. This sector plays an important and vital role in providing nutritive food, rich in animal protein to the general public and in supplementing family incomes and generating gainful employment in the rural sector, particularly among the landless, small, marginal farmers and women. Income from livestock production accounts for significant percentage of total farm household's income in different states. Thus, an increase in demand for livestock products can be a major factor in raising the income and living standards of the rural household. With its large livestock population, India also has vast potential for meeting the growing needs of teeming millions, particularly in respect of livestock products such as milk, eggs, meat and wool.

Role of livestock sector in agricultural economy

4. In India, the livestock production and agriculture are intrinsically linked, each one being dependent on the other and both crucial for the overall food security of the people. Livestock sector is an important sub-sector of the agriculture of Indian economy. It forms an important livelihood activity for most of the farmers, supporting agriculture in the form of critical inputs, contributing to the health and nutrition of the household, supplementing incomes, offering employment opportunities, and finally being a dependable "bank on hooves" in times of need. It acts as a supplementary and complementary enterprise. Livestock is also important as a part of agriculture diversification and income enhancement. Livestock plays a vital role in the economic development. In India, during 2003-04, 27.3 per cent of the agricultural GDP was contributed by this sector and contribution of national GDP was 5.40 percent. In the Arid and Semi-arid regions of the country, livestock sector is of special importance and main source of family income. In the arid areas, the contribution of livestock to Agriculture GDP is as high as 70 per cent while in Semi-arid areas the contribution is over 40 per cent.

Percentage Contribution of Livestock Sector to Agriculture and National GDP.

(at 1993-94 prices)

Year	Percent Contribution of Livestock sector to	
	Agriculture GDP	National GDP
1999-00	24.39	5.59
2000-01	25.92	5.67
2001-02	25.91	5.70
2002-03	29.27	5.70
2003-04	27.26	5.40
2004-05 *	24.90*	4.70*

- At 1999-2000 prices

5. The importance of livestock in India's economy can be gauged from the fact that 90 million farming families rear over 90 million milch animals. Livestock provides a large share of draught power, with about half the cattle population and 25 percent of the buffalo population being used to cultivate 60 million hectare of cropland. Draught animal power is making a significant contribution to agricultural production and thus to the rural economy. The contribution is roughly estimated to be to the tune of Rs.10, 000 crores per year besides saving approximately six million tones of petroleum worth Rs. 6,000 crores. Draught animal power is still relevant and useful due to the fact that it is suitable to the needs of the farmers with small land holding and the areas where mechanized implements can not be brought to use. A significant output from small and backyard dairy farming is the production of dung, which is an important organic manure. On an average, 800 million tones of manure is produced. Of this, some 300 million tones are burnt as fuel and the balanced used as manure. Even this could be improved upon by scientific yet pragmatic planning like bio-gas production. However, the dung cakes are the sole source of energy of the poor, for cooking and for heating their dwellings during winter.
6. The growth in agriculture sector over the years has been steady and fluctuating significantly depending upon the monsoon and other climatic factors. Of late there has been deceleration of agricultural growth. Livestock sector on the contrary has shown a steady growth and thus providing stability to the overall family income.

Growth Rate in Gross Domestic Product (in percent)

(At 1993-94 Prices)

Year	Agriculture and allied sector	Livestock Sector
1994-95	5.08	5.49
1995-96	-1.13	4.33
1996-97	10.10	4.19
1997-98	-2.82	2.01
1998-99	6.87	4.61
1999-00	-0.11	3.42
2000-01	-0.40	5.87
2001-02	6.46	6.40
2002-03	-7.99	3.95
2003-04	10.31	2.73
2004-05*	0.70	4.31

* At 1999-2000 prices

7. In livestock sector, dairy and poultry are high-growth sectors and get reflected in the growing importance of contribution of these in the livestock economy. The output in dairy sector increased by over four times and its share in total value of output from livestock sector increased from about 55% in 1951-52 to about 67% in 2003-04. The dairy sector contributes the largest share in Agricultural GDP. The value of milk group was Rs.1, 15,970 crores in 2004-05, which was higher than the value of output from rice (Rs.70, 462 crore), the largest contributor to agriculture amongst food grains. The share of meat sector has declined from 20.8 percent to 17.8 percent during the period but the share of poultry sector improved. However, poultry sector suffered a huge setback due to bird flu in recent times.
8. The Livestock sector is an important source of foreign exchange. Total export earnings from livestock, poultry and related products were Rs. 2,253 crore in 2004-05, of which meat and meat products were Rs. 1,720 crore.
9. Despite the importance of livestock sector in the Indian economy, especially towards livelihood of resource poor farmers and landless labourers, government policy for the sector has suffered from the lack of clear and strong thrust and focus. One of the indicators of priority to a sector could be judged from budgetary allocation under various plan periods to the sector. The allocation to animal husbandry and dairying as percentage of total plan outlay varied from 0.98% during the Fourth Plan to about 0.18% during Ninth Plan compared to sector's contribution to the national GDP of over 5 percent. Although livestock sector occupies a pivotal position and its contribution to the agricultural sector is the highest, the Plan investments made so far do not appear commensurate with its contribution and future potential for growth and development. Over the past ten five-year plans, the allocation of funds to Animal Husbandry and Dairying has come down from about 1.2% initially to about 0.2% in the ninth plan.

Livestock sector and rural employment

10. In India, 70% of the rural households own livestock. They are an important source of employment in rural India, especially for women. In spite of the fact that the average holding of livestock is small, the livestock sector has considerable potential for generating additional employment through milk, meat, wool and eggs production. Milk production alone involves more than 30 million small producers.
11. Gender equity is more pronounced in livestock sector, as women participation is 71% of the labour force while it is only 33% in crop farming. As many as 75 million women are engaged in the livestock sector as against 15 million men. Women play a major role in livestock production and most of them have good knowledge about livestock behavior and local feeds. Extent and nature of their involvement varies within and between regions. Despite variations, women mostly handle aspects like milking, care of young and sick animals, cleaning and feeding. In the poultry sector,

women mostly look after rural poultry. Similarly, women play a prominent role in rearing of sheep, goat and small ruminants. Animal Husbandry increases the earning capacity of women and ultimately leads to their economic empowerment. There is an increasing trend towards participation of women in livestock rearing activities. One reason for this phenomenon is the migration of men from rural areas to towns and cities in search of paid employment. This has resulted in an increase in the proportion of households headed by women. Viewed from an economic dimension, the day-to-day activities performed by women are crucial inputs for economic returns/benefits that a household earns through livestock production either directly through sale of livestock and livestock products or the use of livestock in various livelihood activities.

Structure of livestock farming in India

12. India is rich in agro-ecological diversity, and concurrently one finds a range of unique livestock production systems that have evolved in each region in tune with the naturally available resources and needs of the people. This diversity begins with the choice of species reared, breeds that have evolved, management and feeding practices, healthcare systems that are closely linked to the natural flora and fauna, and local marketing systems. Mixed crop-livestock farming and pastoralism are the two common production systems found across rain fed agriculture zones. In the former, farmers derive their livelihood somewhat equally from agriculture and livestock; in the latter, people's livelihoods depend primarily upon their livestock, which are exclusively maintained on grazing. Dryland regions also traditionally harbour the 'grasslands' of India, providing pasture/grass for some parts of the year. In these harsh climates with minimal precipitation, sustained agriculture through the year is extremely difficult and it is livestock, which has historically played an important role in people's livelihoods.

13. The livestock rearing in India is highly segmented. A vast majority of livestock producers come from under-privileged section of rural community and need a Livestock development and research paradigm to achieve sustainable livestock development. This section represents a sizeable population of rural families and contributes substantial livestock produce. Livestock are important in their livelihood culture and they have limited alternative opportunities for employment. Studies have shown that development of small holders' mixed crop - livestock production is one of the most effective methods of poverty alleviation.

14. In contrast, the resource-rich section of the rural population also utilizes livestock development for optimizing their wealth. This section has the means and ability to obtain the desired variety of livestock and the inputs and services needed to harness them. From the point of view of the national economy as well as exports, output of this resource-rich segment of the population is also important.

15. The under-privileged livestock producers face a number of constraints. Their access to modern livestock services, especially veterinary services are poor. Their access to

the marketing support is also poor. The prices received by them for products are low. For example, majority of milk producers get only 50 percent of the price paid by consumer. Credit support for purchase of animals and its maintenance is not easily available to the small holders. Goat, pigs and backyard poultry are most commonly kept by the underprivileged and these get very little development/research support. Improved animals that would 'niche well' with the systems of the underprivileged and adverse agro-ecological conditions in which majority of them live, particularly the ecologically fragile regions, are not available. There are hardly any programmes to assess their needs and produce or make available such animals. Feed, fodder availability is a major constraint and conventional approach to improve the situation does not work with the underprivileged.

16. The peri-urban production system has developed around cities and towns that have high demand for milk. The peri-urban dairy farmers rely mainly on purchased feed. They are commercially oriented and respond to improved technical input supply and marketing services. Buffalo has been a favored milch animal in the system but these farmers have also improved productivity of their cattle by taking to cross breeding. Milk is often traded directly to the consumers in the city and is the major source of income for the farmers.

17. Presently, only a very small fraction of the livestock sector exists as industrialized system. Examples include commercial poultry farms, dairy farms and a few commercial goat and pig farms. While industrial systems permit reduction of costs of production due to economies of scale, their social, environmental and public health costs may prove extremely expensive in the long run. Industrial systems require conversion of good agricultural land that can feed humans to fodder plots to feed animals. They accelerate the conversion of natural forests and grasslands to pasture. They concentrate large numbers of animals in a small area, leading to accumulation of animal waste, which in turn contaminates air, soil and water, while increasing the risk of communicable diseases. Since current trends indicate that increasing share of the supply will be met by industrialised production given economies of scale, increasing labour and declining capital costs, there is a need to introduce favourable policy changes so that small producers are able to benefit from this demand and compete with organized industries. These policy changes include vertical integration of small producers with livestock food processors through contract farming, improving the efficiency of their operations and the productivity of their animals, which largely depends upon improved research and availability of services.

18. Sustained rise in per capita income and urbanization are fuelling rapid growth in demand for animal food products. Growth in demand is likely to be widespread cutting across class and regional distinctions. Demand for animal food products is income elastic and the low-income households with rise in their income will spend more on them. Though urbanization would continue to be the main driver of demand growth, rural areas will not lag behind. Besides, the world trade in livestock

products has also been increasing fast, implying opportunities for increasing exports. Expanding demand creates an immense scope for fostering rapid growth in livestock sector. Livestock production has been growing faster than crop production and the momentum is likely to continue. The demand-driven growth in livestock production will enable millions of poor to escape poverty trap, as the distribution of livestock is more equitable as compared to land. The poor have sufficient labour of low opportunity cost and are capable of producing at a lower cost. A growing livestock sector will also contribute towards women empowerment.

19. Improvement in livestock production is an important pathway for increasing the income of marginal and small farmers and landless labourers, given the uncertainties of crop production. Market opportunities due to the anticipated rise in demand for livestock products, will provide an avenue for resource-poor farmers to increase production, improve their livelihoods, reduce malnutrition and thereby, contribute to the goal of overall poverty alleviation. However there is need to provide an enabling environment in which small producers are able to take advantage of the opportunities, overcome the challenges and meet the threats. Constraints to increased livestock production will need to be properly identified and addressed.
20. The extent to which growth in livestock production can be accelerated would depend on how technology, institutions and policies address constraints facing the livestock sector. In the past, growth in livestock production was largely number-driven. This may not sustain in the long run and may stress the resources. The future growth should come from improvements in productivity. This will require overcoming feed and fodder scarcity and improvements in delivery of animal health and breeding services. Technology will be a key driver of growth and concerted efforts will be needed to generate and disseminate yield-enhancing and yield-saving technologies.
21. Public spending in livestock sector as a proportion of the value of sector's output has fallen considerably over the last two decades. This needs to be increased to re-energize the sector. Markets for live animals and their products are under-developed and dominated by informal traders who often exploit producers. There is a need to strengthen linkages between production and markets through institutions such as cooperatives, producers' associations and contract farming. This will also help improve value addition to livestock products, which has been quite low. Institutional support in terms of credit and insurance is meager and needs to be strengthened. Further, the governments and industry should prepare producers for a quality-driven competition in the domestic as well as global market.
22. It is high time to restructure and revitalize the present institutional set-up in the livestock sector, enhance institution-level efficiency, and pro-mote new institutional models to handle the emerging challenges in livestock sector development. The

efforts should aim to promote and nurture the grass root level participatory bodies all over the state as the organic link between the animal husbandry department and the small holders. It should also encourage and promote adoption of appropriate technologies, enhance productivity, increase effectiveness, and ensure returns proportional to the investment of time, energy, and resources that small holders, particularly women, make for livestock development and management.

4. Past performance including achievements in the Tenth Five Year Plan

1. General

4.1.1 Growth in GDP - One of the major concern of the performance during IX and Xth Plans was the deceleration in Agricultural growth from 3.2% observed between 1980-81 and 1996-97 to 2.0% during IXth plan and 1.8% during the first four years of Xth Plan. Fortunately, the growth rate in livestock sector has been relatively steady and the sustainable growth in livestock sector has been achieved despite the fact that the investment in this sector was not substantial compared to agriculture. However, there are signs of deceleration in growth in livestock sector during the 10th Plan mainly due to sharp decline in the growth of milk production, which might be due to low investment in dairy sub-sector. With the completion of 'Operation Flood' the investment by NDDDB has slowed down and assistance from Government of India under Centrally Sponsored Schemes has gone to non-viable areas.

Growth rate during IXth and Xth Five Year Plans

Growth (%)	IXth Plan (1997/98 to 2001-02)	Xth Plan (2002-03 to 2006-07)
GDP Growth	5.5	7.0*
Agriculture	2.1	1.8*
Livestock	4.6	3.2**

*GDP growth is in terms of GDP at Factor cost at 1993-94 prices for the period 2002-03 to 2006-07

** GDP growth is in terms of GDP at factor cost at 1999-2000 prices for the period 2002-05 to 2005-06

4.1.2 Market opportunities have opened up for the livestock sector following the policy of economic liberalization initiated by the Government of India (GOI) in 1991. The value of livestock output has grown by 4.0 to 4.5 per cent per year from 1990-91 to 1997-98 and there are expectations of even faster growth in demand for livestock products due to expected increased

in incomes combined with the high income elasticity of demand for livestock products. But, the sector's ability to capitalize on the new market opportunities is constrained by the availability and quality of support services.

Livestock Population

4.1.3 As per the 2003 livestock census, there were 185.2 million cattle, 97.9 million buffalo, 61.5 million sheep, 124.4 million goats and 13.5 million pigs. India ranks first in case of cattle and buffalo population in the world. During 1997-2003, there has been a fall in the population of cattle by 6.89% while the population of buffalo has increased by 8.9%. The fall has mainly been in the indigenous cattle

Livestock Census Results

Livestock	Population (000)	Population (000)	% Increase/
	Year 1997	Year 2003	Decrease
Crossbred Cattle	20099	24686	22.82
Indigenous Cattle	178782	160495	-10.23
Total Cattle	198881	185181	-6.89
Buffaloes	89918	97922	8.90
Sheep	57494	61469	6.91
Goats	122721	124358	1.33
Pigs	13291	13519	1.72

4.1.4 Within cattle, there has been a mark shift from indigenous cattle to crossbreds. The crossbred cows have grown at a much faster rate than the indigenous stock. The population of crossbred cattle increased by 22.82% during the period 1997-2003 compared to a decrease in the population of indigenous cattle by 10.23% during the same period. Amongst states Kerala, Maharashtra, Tamil Nadu, Punjab, Uttar Pradesh and West Bengal accounted for nearly 70% of total crossbred in the country, with Kerala having the highest crossbred population. The population of buffalo also increased by 8.90% during the intervening period between last two livestock censuses. While buffaloes are now reared in almost all states, Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttar Pradesh account for bulk of the buffalo population.

4.1.5 There has also been an increase in goat population, the population of the goat in the last livestock census (2003) was 124.4 millions. The population of sheep, which was steady during the last four decades, has also grown by 6.9% during the period 1997-2003 and there were 61.5 million sheep during 2003.

Livestock Production

4.1.6 Milk Production - India has achieved the distinction of becoming the largest milk producing country in the world with current level of production estimated at 94.6 million tons per annum (2005-06 estimates). The per capita availability of milk is about 220 grams per day, which however is still below the world average of 285 grams per day but can favourably be compared to nutritional requirement of 240 grams per capita per day. The major increase in the milk production has come around during the last two decades; the growth rate in milk

production being 5.5% during the period 1980-81 to 1990-91 and 4.5% during the decade, 1991 to 2000. The major milk producing states in the country are Uttar Pradesh, Punjab, Rajasthan, Madhya Pradesh, Maharashtra, Gujarat, Andhra Pradesh and Haryana these states accounting for about 70% of milk produced in the country. According to some studies the average milk production per animal has increased substantially for both cows and buffaloes during the last two decades. Average milk yield per year per adult breedable cow increased from 528 kgs in 1982 to 830 kgs in 1995 while that of buffalo increased from 1041 kgs to 1355 kgs. However, the yields of Indian cattle are still far below the world average and just one third to two third of productivity in many developed countries.

4.1.7 Today India ranks 4th in egg production and 19th in the broiler production in the world. It is estimated that the egg production in the country is about 45200 millions and poultry meat production is about 2.0 million tons per annum. The production of wool has remained constant around 45 million Kg. during period 1996-97 to 2004-05; the current level of wool production is estimated as 44.5 million kgs.

Production of Major Livestock Products - in India

Year	Milk (Million Tonnes)	Eggs (Million Nos.)	Wool (Million Kgs)
1991-92	55.7	21,983	41.6
1992-93	58.0	22,929	38.8
1993-94	60.6	24,167	39.9
1994-95	64.0	25,975	40.6
1995-96	66.2	27,187	42.4
1996-97	69.1	27,496	44.4
1997-98	72.1	28,680	45.6
1998-99	75.4	29,476	46.9
1999-2000	78.3	30,447	47.9
2000-01	80.6	36,632	48.4
2001-02	84.4	38,729	49.5
2002-03	86.2	39,823	50.5
2003-04	88.1	40,403	48.5
2004-05	90.7	45,200	44.5

4.2 Sector wise Development

1. Feed and Fodder

4.2.1.1 Feed and Fodder Resources: Generally, the feed and fodders for livestock are classified as roughages and concentrates, dry and fresh, as well as conventional and novel. Roughages are high in crude fibrous material which essentially consists of cellulose, hemi-cellulose and to

some extent lignin, the last increasing in level with advances in maturity of the crop. Permanent pastures constitute 3.6% of geographical area in the country. Their productivity and carrying capacity are declining, though these lands support grazing ruminants such as cattle, sheep and goats in large numbers. There are large chunks of common property and community lands which are under the public domain, but becoming drastically reduced for livestock grazing. In India, the forest cover is to the tune of 22.6% of which over 85% are under protection and conservation. These lands used to be a major source of feeds and fodder for the livestock rearing communities dwelling within and nearby the forests.

[4.2.1.2](#) However, the area under cultivated fodder production is limited only to 4.60% of the total cultivable land. In the advanced States of Haryana, Punjab, Gujarat and some parts of Rajasthan, land use for green fodder production is around 10% or more. There is a need for restructuring the land use strategy to elevate the over all percentage of cultivable lands for fodder production to not less than 10%. Sorghum and berseem are cultivated in 50% of the land under fodder, the other chief fodders grown being lucerne, maize, bajra and oats. Miscellaneous top feeds and weeds cover an area of 1.2% of geographical area while cultivable waste in the country is about 4.5%, which needs to be developed for forage production. Crop residues are the single largest bulk feed material available at the doorsteps of the farmers for feeding livestock, specifically, the ruminants. They include coarse straws, fine straws, leguminous straws, pulses straws and sugar cane tops. There are several agro - industrial byproducts such as vegetable and fruit processing residues and bagasse, which are available in abundance to be fed to livestock. Total crop residue production in the country is to the tune of 393.39 million tones. Green fodder production is about 503 million tones.

Area Under Major Fodder Crops

Crop	Area (Million Ha.)
Berseem	2.00
Oats	0.20
Lucerne	1.00
Sorghum	2.60
Maize	0.90
Bajra	0.90
Others	0.87
TOTAL	8.47

[4.2.1.3](#) Among the concentrate feed ingredients, coarse grains occupy the primary position. The production of coarse grains such as maize, sorghum, bajra and other millets amount to 37.76 million tones of which not more than 10% is presently used for livestock feeding. Cereal byproducts such as brans and polish and various oil meals including groundnut cake, mustard cake, coconut cake, soybean meal, cotton seed meal and sesame cake amount to about 15.71 million tonnes while various agro-byproducts, unconventional products such as molasses, silkworm pupae, distillery waste, wastes and byproducts from meat, milk and fish, chiefly meat scrap, whey powder and fish meal are put into use for livestock feeding. Total concentrate ingredients availability is about 35.32 million tonnes.

Feed and Fodder - Quantitative Availability

(2003 - 2004)

Feed Resources	Availability (Million Tonnes)
Greens	
Forest Area	89.37
Fallow lands	23.21
Permanent pastures, grazing area	28.70
Cultivable wastelands, misc. tree tops	17.51
Cultivated fodders	303.26
Total	462.05
Crop Residues	
Coarse Straw - from Coarse grains, sugarcane tops	154.83
Fine straw (Paddy, Wheat Straws)	194.11
Leguminous straws (pulses, others)	44.94
Total	393.88
Concentrates	
Oil Cakes	15.76
Brans	13.26
Grains for feeding livestock	5.74
Chwnis	0.53
Total	35.29

[4.2.1.4](#) Judging by the present requirements and availability of fodders, the deficits in terms of dry fodder, green fodder and concentrates are 11.20%, 27.66% and 34.45% which may persist and even aggravate unless adequate measures are undertaken to augment their resources.

Feed And Fodder Demand and Supply in India

2002 - 2003 (Million Tonnes)

Feedstuff	Consumption	Requirement
Green fodder	491	648
Dry fodder	459	503
Total concentrate	62	87
DCP	257	351
TDN	18	36

On-going Schemes

[4.2.1.5](#) The schemes and programmes relating to feed, fodder and pasture development in the country are quite limited. There are several public departments and institutions directly or indirectly connected to the formulation and implementation of these schemes and programmes. The Department of Animal Husbandry and Dairying, Govt. of India, is the principal governmental agency in this regard. In addition, the Departments of Animal Husbandry, Agriculture, Forestry, Environment, Rural Development, State and Central Agricultural Universities, ICAR Institutions, National Seed Corporation and various local bodies such as panchayats, municipalities and corporations are engaged in the task.

[4.2.1.6](#) A Central Fodder Development Organisation was formed in IX Plan, merging the 7 regional stations for forage productions in the country, a Central Fodder Seed Production Farm and a Central Minikit programme. The objectives include introduction of fodder crops, establishment of fodder calendars, organization of farmers' field days, production of forage crop foundation seeds, conduct of training programmes and distribution of fodder seed mini kits and testing their performance in the field.

[4.2.1.7](#) In addition to the central schemes, there are some centrally sponsored state level schemes which are envisaged to implement programmes for strengthening the State fodder / fodder seed production farms, grassland development, silvipasture development, fodder seed production through registered growers and enrichment of straws and other cellulosic waste. Further, establishment of fodder banks and survey of area, production and requirement of fodder crops are also undertaken. During the Xth plan, assistance to fodder block making units, grassland development, fodder seed production, biotechnology research interventions have been taken up on priority. Though about Rs. 45 crores each for central schemes and centrally sponsored State schemes were outlaid during the Xth plan, financial expenditure was to the tune of not more than Rs.28 crores in each of these groups of schemes.

Assessment of on-going Schemes

[4.2.1.8](#) The Centre for Management Development, Thiruvanthapuram made an impact assessment of the Scheme Central Fodder Development Organization. The study revealed that the overall performance of the Central Fodder Development Organization is not producing result as envisaged and the impact of these activities on the farming community and the society as a whole was too little, especially when compared to the extent of funds spent. The seed production performance of Regional Seed for Forage Production & Development (RSFP&D) and Central Fodder Seed Production Farm (CFSPF) was far from desired and extension service failed to popularize the high yielding varieties of fodder. The R & D to identity new varieties and develop package of practices suitable to the region remains neglected. No new variety has been introduced in the recent past.

[4.2.1.9](#) The study also reveals that the Central Mini Kit Testing Program could not create any tangible impact on the mandated objectives of popularizing high yielding of fodder, attracting new entrants to the fodder development activities and bridging the gap in demand and supply of fodder, mainly due to the organizational and operational issues.

[4.2.1.10](#) The evaluation report suggests that commercial seed production should be organized through certified seed producers. The Regional Stations should have the focus objectives on producing foundation seeds and organizing certified seed production through registered seed growers. The station should perform as nodal agencies for transfer of advanced technology in

fodder seed production. This would call for discontinuation of the present farmers training/farmer's fair and focusing on 'Trainer's Training' and Research and Development on fodder seed production.

11. Study suggested that the Central Mini Kit Testing Program should be redrafted, restricting area of operation to five intensively farming states in the first round and then shifting to another five states in the next round. Dairy cooperative would be ideal state partner for implementing the scheme.

4.2.2 Cattle and Buffaloes Development

[4.2.2.1](#) India with 185 million cattle and 98 million buffaloes possesses 20% of the world bovine and 14% of the cattle population (Livestock Census 2003). Productivity per animal is very low mainly due to poor plan of nutrition, low genetic potential for milk production and near absence of the genetic improvement programmes. In spite of India's position as the highest producer of milk, the average annual milk yield from cattle and buffalo is only 1214 kg as against the world average of 2104 kg per lactation.

[4.2.2.2](#) The changes within cattle population over the last two decades indicate a radical shift from work animals to milk production. Between 1972 and 1982, the number of working cattle males declined sharply by 25% (12 million in number). The proportion of adult females however increased gradually. The population of indigenous cows declined by 10.23 % between 1997 and 2003. A large decline in indigenous cattle population was noted specially in the Northern region with a phenomenal growth in the number of crossbreds. Total crossbred number grew from 11.4 million in 1987 to 24.7 million in 2003. Northern region accounted for 40% of all crossbreds in the country followed by Southern (34%) and the Western (15%) region. Eastern region had the highest proportion of indigenous cows and the lowest percentage of crossbreds (11%). Among the States, Uttar Pradesh, Punjab, Maharashtra, Tamil Nadu and Kerala had the largest number of crossbreds and these together accounted for nearly 52% (12.8 million) of the total crossbreds in 2003.

Trend of cattle and buffalo population in India

(in million)

Species	1987	1992	1997	2003
Indigenous cattle	188.3 (94.3)	189.4 (92.6)	178.8 (89.9)	160.5 (86.7)
Cross bred cattle	11.4 (5.7)	15.2 (7.4)	20.1 (10.1)	24.7 (13.3)
Total cattle	199.7	204.6	198.9	185.2
Buffaloes	76.0	83.5	89.2	97.9

Figures in parenthesis indicate percentage

[4.2.2.3](#) Buffalo population in the country has been increasing at a steady rate with slight increase in productivity. Highest increase in the past five years was in Haryana (25.1%) followed by Uttar Pradesh (20.6%), Madhya Pradesh (13.9%), Gujarat (13.6%), Uttranchal (12.2%), Andhra Pradesh (10%) and Rajasthan (6.6%). Out of the total buffalo population in the country, more than 50% are breedable females, indicating preference of farmers for rearing buffaloes for milk production. States of Uttar Pradesh, Rajasthan, Punjab, Haryana, Gujarat and Maharashtra have highest buffalo population and accounted for nearly 60% of the total buffalo population. Most of the milch breeds of buffaloes are found in these States. Eastern region has less than 10 % of the buffalo population with approximately one million swamp buffaloes used basically for draught purposes. The decline in population of indigenous cattle especially males and to some extent low producing females and increase in number of crossbreds and buffaloes suggest that preference is more for high milk yield than for draft .

[4.2.2.4](#) It is estimated that in milk production, 58% of milk was contributed by buffaloes while contribution of cattle was 42% indicating higher significance of buffalo for milk production. Average lactation yield in buffalo is about 1300 kg. Around 60% of buffalo population is non-descript with low milk yield. In some of the well-defined breeds of buffaloes, yield varies from 1500 kg to 2500 kg. Some of the buffaloes produce as high as 4000 kg but their number is limited. Average lactation yield in indigenous cattle is 600 kg but well defined indigenous breeds like Gir, Sahiwal, Rathi, Red Sindhi, Tharparkar and Kankrej produce between 1200 to 1800 per lactation with limited feed and fodder resources, the focus should be to further reduce the number of low producing animals and stabilize the population of animals in milk from the present 65 million to around 50 to 55 million

[4.2.2.5](#) The broad frame-work of cattle and buffalo breeding policy for the country was formulated in mid-sixties. The policy envisaged selective breeding of Indian cattle breeds for milk and draft; and crossbreeding of non-descript cattle with exotic dairy breeds like Jersey and Holstein Friesian (HF) and limiting the exotic inheritance to around 50% in crossbreds. Suitable selective breeding was to be followed among buffalo breeds for milk and upgrading of non-descript and low producing buffaloes with Murrah. Broad guidelines for the states were also suggested. Unfortunately, States lacked in both physical and financial resources to implement an action plan. Although AI is the major Government intervention for breed improvement, its acceptability amongst the farmers is still poor.

6. Conservation and improvement of indigenous breeds is essential for maintenance of animal biodiversity and is also important component of our breeding Policy. Quality bulls/semen is critical input to genetic improvement in milk yield. In spite of large emphasis on production and evaluation of breeding bulls only limited progress in this component has been made. There is an urgent need to establish massive field performance recording (FPR) programmes in breeding tracts/milk pockets for identifying superior animals and follow controlled breeding with proven/ genetically superior bulls. The FPR programmes should be taken up for indigenous breeds, crossbreds and buffaloes. Superior indigenous breeds with annual milk yield of 1500 kg and above should be used in grading up non-descript animals. Good quality breeding bulls/ semen and its delivery at farmer's doorstep should be a part of the action plan to the policy.

Status of Artificial Insemination network

[4.2.2.7](#) India has the world's largest A.I. infrastructure consisting of 54 functional frozen semen stations producing about 37 million frozen semen straws annually. Out of this, 7 % are of local breeds, 33% exotic (HF and Jersey), 30% crossbred cattle, and 30% buffaloes. There are 65,871 AI centres; 50,123 with government, 12,300 with Cooperatives and 3448 with NGOs and private organizations performing in all about 34 million inseminations per annum covering approximately 14 million out of the total 114 million breedable females. An action plan to cover the target population under AI should be considered and manpower to deliver the semen should be evaluated and trained. Analysis of AI network and semen delivery indicates that AI done per centre is very low. Minimum AI done per year per technician should be around 1200 for it to be a viable and self-supporting earning proposition.

Performance of AI centres in the country

Institute	No. of AI centres			AI done in (million)	No. of AI done/centre in a year
	Static	Mobile	Total	Total	
Government	28518	21605	50,123	25.85	515
Cooperatives	8,475	3,825	12,300	7.29	593
NGOs and private	-	3,448	3,448	0.86	249
Total	36,993	28,878	65,871	34.0	516

Status of bull production

[4.2.2.8](#) For producing bull calves of different breeds, seven Central Cattle Breeding Farms (CCBFs) were established during the period 1967 to 1975 at Suratgarh (Tharparker and its crosses with Holstein Friesian), Chiplima (Red Sindhi and its crosses with Jersey), Sunabeda (Jersey), Andeshnagar (Holstein Friesian X Tharparkar), Hesserghatta (Holstein Friesian), Dhamrod (Surti) and Alamadhi (Murrah). The primary objective of the farms was to produce progeny tested bulls in each farm by maintaining about 300 breedable females. Since the objective was not achieved, programme to produce progeny tested bulls was abandoned in 1988. The farms are currently involved in genetic improvement of bull mothers of important cattle and buffalo breeds and supply of high pedigree bulls for the genetic improvement programmes. In addition, State Governments have another 164 cattle and buffalo-breeding farms of different breeds which supply bulls for breeding cows and buffaloes. At present 8 to 10 institutions in the country are implementing progeny testing programme in the field for crossbred cattle and buffaloes together testing about 150 cattle and 50 buffalo bulls. Analysis of availability and requirement of breeding bulls would suggest that there is acute shortage of breeding bulls both for AI and Natural Service.

Causes of shortfall in bull production

[4.2.2.9](#) **Poor genetic potential of indigenous livestock:** About 70 - 75 % of the indigenous cattle and buffaloes do not come under any well-defined breed and are designated as non-descript. Their average productivity is much lower than the animals of milch breeds available in the country. Further, the productivity of most of the defined indigenous breeds barring a few is less

than 1000 kgs. Therefore, most of genetic resource of cattle and buffalo in India is not suitable for bull production.

4.2.2.10 Small herd size: Animal rearing is done mostly by small and marginal farmers and landless labourers with holding size of 2-3 animals per farm household. These small and marginal farmers prefer to maintain female stock for milk production and male bullocks for draught purpose. For breeding bulls they are dependant on the village/ community bull, Government agency or AI centre. As emphasis is on milk production, the female calves are preferred and male calves ignored.

4.2.2.11 Lack of farmer's awareness to use good quality bulls: It is only recently that farmers have started enquiring about the quality of germplasm being used on their animals for breeding. Concept of breed is limited to only breeding tracts and that too with progressive breeders; otherwise most of the farmers get their animals mated with any scrub bull available in the area.

4.2.2.12 Absence of performance recording and quality assurance systems: Except a few organizations, which monitor performance of their AI operations on an individual animal basis, most AI service providing agencies have not given enough attention to monitor AI performance on an individual animal basis and help farmers improve productive and reproductive performance of their animals. The number of bulls put to test under progeny testing programme is limited (20-50 bulls/batch per year), the number of daughter records used for estimating breeding values of bulls is also limited (less than 40 records per bull) and the time taken to estimate breeding values is very long (7 to 8 years). Progeny testing programme and field performance recording being undertaken by the ICAR institutions and State Agriculture Universities are also on a very limited scale covering institutional animals. There is no coordination, amongst various agencies involved in breed improvement and for monitoring performance of genetic improvement programmes and AI service providing organizations. There is an urgent need to identify individually animals under these programmes and to follow them up for fertility and performance recording.

On-going schemes

4.2.2.13 National Project for Cattle and Buffalo Breeding (NPCBB)

Government of India initiated a major project for cattle and buffalo breeding from October 2000 for a period of ten years, in two phases each of five years, with an allocation of Rs 402 crores for Phase-I. The project envisaged genetic up-gradation of indigenous cattle and buffaloes, development and conservation of important indigenous breeds and to evolve sustainable breeding policy.

4.2.2.14 The mandate of the scheme is to arrange delivery of improved artificial insemination service at the farmer's doorstep; bring in 60% breed-able females among cattle and buffalo under organized breeding through AI or natural service by inducting high quality bulls within a period of 10 years; undertake breed improvement programme for indigenous cattle and buffaloes so as to improve the genetic makeup as well as their availability; conversion of existing government AI centers into mobile; to promote private AI services for doorstep delivery; quality control and certification of bulls and services at semen stations.

4.2.2.14 Progress and performance: The Phase-I of the project started in October 2000. The participation during 2000-2001 was only limited to 5 States. During 2001-2002, 10 more States joined the programme. During 2002-2003 and 2003-2004, 6 and 3 more States were added in the project respectively. Presently, 26 States and one UT are participating in the project and financial assistance to the tune of Rs 293.4 crores has been released up to 2005 - 06. State Implementing Agencies (SIAs) have been constituted in most states for implementing the project with professional approach.

4.2.2.15 AI coverage: The impact analysis report (NABARD) for the four States (Andhra Pradesh, Haryana, Uttaranchal, Madhya Pradesh) indicated that overall conception rate has increased from 20 to 35%. The coverage of breedable bovine population has increased from 8 million to 14 million. Coverage of buffaloes in Haryana and Andhra Pradesh increased from 8 to 33%. Total number of AI in the country has increased from 20 million to 34 million. A total of 21605 AI centres have been strengthened. However the conversion of stationery Government AI centres into mobile centres is going very slow and needs to be given priority.

4.2.2.16 Semen productions: Fifty one semen stations have been taken up for strengthening by providing the necessary infrastructure and equipments. Funds were released for procurement of bulk semen storage containers, transport tankers and transport containers. In terms of breeding infrastructure, there are 54 frozen semen bull stations and more than 65 thousand AI centres. These semen stations are producing 37 million frozen semen straws as against the target of 66 million doses to meet the required percentage of AI in the population. Except for a few semen stations, most of the bulls used at semen stations are selected based on dams peak yield and procured from the field on the basis of phenotype. About 10-15 per cent of the bulls used for semen production in the country are being obtained through a genetic evaluation program.

Agency wise semen production

Agency	Semen Stations	No. of bulls	Semen production (doses lakhs) in	Bulls per semen station	Efficiency (lakh doses)	
					per station	per bull
Government	41	1700	221.06	41	5.4	0.13
NDDB, Dairy Coop, NGO's/ Private	13	772	149.25	59	11.5	0.19
Total	54	2472	370.31	46	6.9	0.150

4.2.2.17 Induction of breeding bulls: 11876 breeding bulls for natural service were procured and inducted under induction programme (mainly buffalo and indigenous cattle bulls) against the target requirement of 76000. The bulls have been procured by different State Governments from Central Cattle Breeding Farms, Central Herd Registration Scheme, State Cattle Breeding Farms, ICAR institutional herds and breeding tracts of potential indigenous breeds of cattle and buffaloes and Livestock Development Boards.

4.2.2.18 Training of AI workers: 10374 private AI workers have been trained and are working as self-employed. 37064 existing AI workers have been trained under refresher course. Training of selected professionals outside the State in reputed training centres has been undertaken. Management Information System (MIS) has been developed under the project for monitoring of

focal points.

4.2.2.19 Evaluation of semen stations: Committee constituted by the Department in May 2004 observed that out of the 54 functional semen stations in the country, only 29 stations were satisfactory with grades ranging from A to C. However, 25 stations were recommended for strengthening and 7 for closure due to poor facilities. Department of Animal Husbandry and Dairying took the initiative to develop Minimum Standard Protocol (MSP) for semen production in consultation with experts from BAIF (Urulikanchan), NDDDB (Anand), NDRI (Karnal) and CFSP&TI (Hessarghatta) and instructions have been issued follow MSP in semen production. 17 semen stations have acquired ISO certification. Semen stations located at Mattupatti in Kerala, Haringhatta, Salboni and Beldanga in West Bengal have also acquired HACCP certification. It is envisaged that all the semen stations under NPCBB shall acquire ISO certification. In addition the Central Disease Diagnostic Laboratory (CDDL) and Regional Disease Diagnostic Laboratories (RDDDLs) have been given the mandate to test all the breeding bulls and bull mothers at the semen stations, Central Farms, State/ Co-operative/ Embryo Transfer Technology Laboratory and private farms. States have also been asked to take up Karyotyping (chromosomal study) of bulls and ring vaccination against FMD around frozen semen bull stations, breeding farms and ET labs.

4.2.2.20 The problems and constraints identified in implementation of National Project for Cattle and Buffalo Breeding are summarized below :

- i. Lack of unified co-ordinating mechanism for breeding programme with database. Monitoring cell for certification of semen stations and AI bulls including sourcing and use of quality bulls for breeding is missing.
- ii. Non-adoption of a dynamic HRD strategy reflecting manpower requirement at Central / State level and need for skill up-gradation.
- iii. Bulls with unknown genetic worth are used for semen production.
- iv. Inability to provide uninterrupted supply of liquid nitrogen.
- v. Breeding policy and strategy has not been supported with requirement of breeding inputs.
- vi. Non-coordination of fund-flow for cattle and buffalo breeding programmes that is available in multidisciplinary schemes having livestock components.
- vii. Lack of coordination between development programmes and R&D support in hi-tech areas (e.g. embryo transfer technology, computer application for MIS).
- viii. Lack of legislative backup for identification and recording of the animals.
- ix. Lack of policy for conservation of dwindling indigenous cattle breeds.
- x. Lack of incentives to the farmers for rearing good quality breeding males.
- xi. No insurance cover for animals identified and registered under field performance recording programme.
- xii. Absence of effective extension network.
- xiii. Lack of proper training facilities and need based curriculum for training of AI technicians.
- xiv. Delay in formulation of SIA and transferring of assets from Deptt. of AH to SIA.
- xv. Slow progress in identification of elite animals for producing good quality bulls for natural service.
- xvi. Breeding infrastructure and mechanisms for sire production and evaluation are

critical inputs to breed improvement programmes. It is therefore, suggested that the present project may be continued for the next 10 years in order to consolidate gains made during the Phase-I and to take up further strengthening of bull evaluation, semen production and doorstep AI delivery system.

- xvii. National Semen and Liquid Nitrogen (LN₂) grid should be established to facilitate availability of semen.
- xviii. Livestock Development activities should be linked to R & D so as to incorporate latest research innovations.

Central Sector Scheme

Central Cattle Breeding Farms

[4.2.2.21](#) There are seven Central Cattle Breeding Farms (CCBFs) located at Alamadhi (Tamilnadu), Andeshnagar (UP), Chiplima, Sunabeda (Orissa), Dhamrod (Gujrat), Hasserghatta (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. The bull calves are produced from Tharparkar, Red Sindhi, Jersey, Holstein Friesian and Crossbred cattle and from Surti and Murrah buffalo. The farms at Andeshnagar and Chiplima are producing HF X Tharparkar crossbred and Jersey X Red Sindhi crossbred bulls respectively. During 2005-06, these farms have produced 188 bull calves (till December, 2005).

[4.2.2.22](#) The primary objective of establishing these farms was to produce progeny tested bulls in each farms by maintaining about 300 breedable females. This objective was never achieved and the programme to produce progeny tested bull was abandoned in 1988. The other objectives like genetic improvement of bull mothers of important cattle and buffalo breed and supply of high pedigree bulls also failed to achieve the target. The level of milk production of bull mothers is decreasing steadily over the years. Government of India is spending large sums for producing limited number of bulls. Further there are few takers to pick up the bulls from these farms indicating doubts about their quality and usefulness. The farms are also facing the problems inherent to any other Government farms like labour control, enforcement of discipline, filling up of vacant posts especially the posts in critical positions. There is urgent need to assess the ability of these farms to achieve the declared objective. It would be more appropriate to change the breeding strategy and take up progeny testing and production of breeding bulls using farmers herds. In that situation there may be no justification to continue operation of these farms.

[4.2.2.23](#) **Central Frozen Semen Production** and Training Institute established in 1969 at Hasserghatta is a premier Institute producing above 9 lakh doses of semen per year and imparting training to the field officers and veterinarians. The activities of the Institute need to be strengthened.

Conservation and improvement of indigenous breeds of cattle and buffaloes

[4.2.2.24](#) The best indigenous germplasm of milch, draught and being dual purpose breeds account for 22 to 25 % of the total Indian cattle and rest are non-descript. Some of the indigenous cattle breeds are known for their milch characteristics e.g. Sahiwal, Red Sindhi, Gir and Tharkarpar. The native cattle breeds exhibit a distinct superiority in utilizing poor quality feed and are adapted to withstand heat stress and show better resistance to tropical diseases. In the absence of indigenous breed improvement programmes and indiscriminate crossbreeding with descript indigenous breeds has resulted in deterioration of indigenous breeds. Effective genetic improvement programmes therefore are critical to sustainability of indigenous breeds.

Well-defined indigenous breeds of cattle are to be improved through selective breeding by way of producing the required number of breeding bulls from elite animals. Progeny testing in selected areas for the respective breeds should be initiated on priority. The states having the breeding tracts of distinct indigenous breeds such as Tharparkar and Rathi in Rajasthan, Gir and Kankrej in Gujarat, Sahiwal in Haryana and Punjab, Hariana in UP and Haryana should be given the responsibility for the improvement of such breeds. Similarly, responsibility for the improvement of various breeds of buffaloes should be assigned to the states having the breeding tract of distinct breeds of buffaloes.

[4.2.2.25](#) There are large areas which do not offer scope for marketing of milk and where inputs and services for successful introduction of crossbreeding with exotic breeds is not possible. In such areas grading up of local non-descript cattle with superior bulls of defined indigenous breeds should be taken up. Sahiwal, Gir, Red Sindhi, Tharparkar, Hariana, Rathi, and Kankrej should be used for grading up of nondescript stock.

[4.2.2.26](#) Most of the important buffalo breeds are concentrated in North-Western part of the country and these are to be improved through selective breeding. Progeny Testing Programme in the breeding tract for Murrah, Jaffarabadi, Nili, Ravi, Surti, Bhadawari, Pandharpuri, Nagpuri and Mehsana should be initiated/strengthened.

[4.2.2.27](#) The Murrah breed is most versatile and has exhibited comparable performance throughout the country irrespective of the agro-ecological conditions. The Murrah among all breeds of buffalo has therefore been recognized as the most appropriate breed. It is recommended that entire non-descript stock of buffalo in the country and the breeds of buffaloes producing less than 1000 kg per lactation should be graded up with Murrah to increase their milk production potential.

Field performance recording (FPR) and progeny testing

[4.2.2.28](#) The performance recording of animals under field conditions greatly helps in estimating the breeding values accurately and thereby in selecting animals of high genetic merit for breeding. Experiences in performance recording under field conditions in India have not been very encouraging and the progeny-testing program for improving milk yield in various dairy cattle and buffalo breeds have not yielded the desired results.

[4.2.2.29](#) Major constraints of field progeny testing programs are: elimination of a large number of females before completion of their first lactation, longer generation interval, poor accuracy of selection of sires resulting from errors due to non-adjustment of records for factors like age, level of exotic inheritance of dams and progeny and large difference between herds. There is, therefore, a need for developing methodologies to standardize the field records for minimizing

errors for accurate sire evaluation. In addition to performance recording, the animal recording system should generate information on reproduction, health and feeding. These would greatly help in assessing the performance potential of breeds under relevant production systems, designing breeding strategies for improving their productivity and conserving these breeds in their native ecology.

[4.2.2.30](#) The Central Herd Registration Scheme (CHRS) is also deficient as there is no recording of milk composition, and pedigree records of identified animals are not maintained. There is an urgent need to develop ways and means for proper animal identification in potential milk shed areas and breeding tract of the indigenous breeds. There is also a need in such potential area to take up milk recording in potential areas covered by departmental AI centres. Without such an approach, it may not be possible to produce the required number of progeny tested good quality bulls for the sperm-stations or their replacement.

Relevance of draught breeds and programme for their development

[4.2.2.31](#) In India 83.4 million holdings (78%) are less than 2 ha. where tractors and tillers are uneconomical and the use of animal power becomes inevitable since tractors and tillers are viable only for holdings above 5 ha. In slushy and waterlogged fields in narrow terraced field and hilly regions tractors are not suitable. Animal drawn vehicle are suitable for transportation in the rural areas especially for uneven terrain, small loads (less than 3 tons) short distance and where time is not a critical factor and number of collection points / distribution points are large as in case of, vegetable, water, oil, etc. In India the energy for ploughing two-thirds of the cultivated area comes from animal power and animal drawn vehicles haul two-thirds of rural transport. A fully-grown Zebu bullock can provide 0.5 HP and one bullock pair can cultivate about 0.33 ha land in a six hour of working per day.

[4.2.2.32](#) The role of cattle as the main source of draught power for agriculture and allied operations would continue to remain important. There is, therefore, a need for improving the working efficiency of the bullocks. Population data on animals used for milk and draught are published together in livestock census. There is a need to have separate information dealing exclusively with draught animals and the profile of farmers maintaining such animals. The cost of substitution of Draught Animal Power (DAP) with petroleum-based power also needs to be calculated rationally. The data on elasticity of supply and demand for animals, manual labour and tractors are also not available and needs to be collected.

[4.2.2.33](#) The characteristics of an outstanding draught animal are ability to survive and work effectively in the prevailing environment, compatibility with other requirements of the farming system, appropriate temperament, conformation and desirable physical attributes. Because of multi-disciplinary nature of issues relating to development of draught breeds and multiplicity of agencies involved, it is felt that focused attention to draught breed will not be possible unless a new strategy is developed for the purpose. Simultaneous attempt to reduce the number of animals used, both for work and breeding, will also be desirable. Both of these aspects can be covered under National Project for Cattle and Buffalo Breeding by linking policy with defined strategy.

[4.2.2.34](#) In tracts where there are specialized draught breeds of cattle like Nagori in Rajasthan, Amritmahal and Hallikar in Karnataka, Khillar in Maharashtra and Krishna Valley in Andhra Pradesh, besides dual purpose breeds like Tharparkar, Haryana and Ongole in different parts of the country, selection for improvement in draught ability should be undertaken on a large scale as the cattle breeders in these areas derive substantial proportion of their income by sale of

quality bullocks. Planned efforts should be made for improving the draught capacity and promoting greater uniformity in the type of the cattle population in the breeding tracts. Improvement programmes for draught breeds should be initiated in their native tracts.

Possibility of using infrastructure of Gaushalas for cattle development

[4.2.2.35](#) Gaushalas, according to the old concept, were the institutions opened under religious sentiments to house the unproductive, useless and disowned cattle and were run on charity. Regrettably even today, out of about 4000 Gaushalas in the country, over 90 percent Gaushalas are operating in the same traditional way as charitable institutions concentrating on protection of cow, and not giving any thought on harnessing the vast resources available with them. Their potential for the improvement and conservation of precious indigenous germplasm remains largely untapped due to paucity of funds, unskilled workers and traditional outlook. However, with fast changing concept of organic farming, the Gaushalas are entering a new phase. Now there is a definite awareness that Gaushalas have lot of potential in terms of bio-fertilizers, bio-pesticides, bio-energy and panch-gavya medicines. A few of these Gaushalas maintain herds of pure indigenous breeds and are providing quality indigenous / crossbreeds heifers and bulls. These can be rich source of identifying superior germplasm and their multiplication.

[4.2.2.36](#) In order to plan and assign a greater role to Gaushalas and using them for cattle development, there is a need to conduct a nationwide survey to have baseline information about the total number of Gaushalas available in each State/UTs. The survey should generate required information about the number and breeds of the cow and her progeny maintained in the available Gaushalas, size of agriculture farm land, capacity and number of biogas plants, facilities for research and development on value added products from cow dung and urine and man power available to manage the Gaushalas scientifically. Based on this information, a criterion needs to be evolved for declaring a Gaushala as a conservation unit for a particular breed. The selected Gaushalas thus identified should be encouraged to maintain purebred superior germplasm of indigenous breeds and strengthened to have state of the art facilities for animal maintenance and germplasm production and multiplication. A long term breeding programme could be developed for selected indigenous breeds, which may be undertaken by individual (large) or group (medium size) of Gaushalas in associated manner to act as "bull mother farms".

[4.2.2.37](#) The Animal Welfare Board of India (AWBI) also intends to strengthen Gaushalas / Pinjarapoles. Model Gaushalas should be set up in some of the States with a view to bring catalytic transformation. Board has also identified certain model Gaushalas which are ideal and make use of cow dung/urine in the production of bio-gas, bio-fertilizers etc. The Board will support large Gaushalas to become Model Gaushalas. There is a need to integrate the efforts being made by various agencies for the development and modernization of Gaushalas to avoid duplication of work. In spite of all encouragement from Khadi and Village Industries Commission, Animal Welfare Board of India and the District Rural Development Agencies, less than 10% Gaushalas have bio-gas plants. On the other hand some of the Gaushalas which are scientifically managed have done exceedingly well. The Sabarmati Ashram Gaushala (SAG), near Ahmedabad which is managed by the NDDB, is one such example and has a training centre for AI service including embryo transfer. The Gaushala is maintaining more than 100 bulls for semen production and preservation.

[4.2.2.38](#) The infrastructure available with Gaushalas should be used for scientific breeding of indigenous breeds to produce quality males and demonstration of practices for community biogas production and utilization, value addition of cow dung and urine, organic farming,

vermin-compost and production of bio-medicines and fodder seed production and distribution.

4.2.3 Small Ruminants

[4.2.3.1](#) Small ruminants play an important role in the rural economy. They are principally maintained by poor sections of rural community providing them a source of livelihood.

Sheep

[4.2.3.2](#) India possesses about 61.5 million sheep and ranks sixth amongst the countries of the world in sheep population. No reliable data regarding the contribution of sheep to the national income are available. Sheep farming provides employment opportunities to a large section of population particularly to the weaker sections of the community in hilly, drought prone and desert areas. Sheep farming can be introduced as a subsidiary occupation on a mixed farming basis in all agro-climatic regions excepting heavy rainfall areas. Because of their ability to graze very close, sheep can utilize sparse vegetation on which other species of livestock may not be able to subsist. Sheep dropping improves the fertility of soil considerably and penning of sheep in harvested fields (sheep folding) brings an additional income to the crop owners.

[4.2.3.3](#) Sheep rearing is extremely important in the rural economy in a number of states. But little information is available on the economics of sheep rearing in different agro-climatic regions. Sheep farming is mainly in the hands of weaker sections of the community, which either do not possess land, or their land holdings are so small that crop cultivation does not provide remunerative employment all the year round. Further, in the major sheep rearing areas, specially in North-Western districts of Rajasthan, grazing and stock watering resources are available only for few months in a year compelling shepherds to lead a nomadic life. Due to lack of education, the sheep owners are not able to appreciate and adopt improved sheep husbandry practices, which even, otherwise are not brought to them by extension workers. Sheep husbandry has thus remained in a neglected state. Migration and grazing practices have an impact on the present status of sheep husbandry in the country. In the last few decades, the Government policies of protecting forest areas and not permitting sheep flocks to graze have brought immense miseries to the sheep farmers. They are getting haunted from place to place and prosecuted by the forest officers for grazing in the reserved areas.

[4.2.3.4](#) The sheep population has been constant during the last two decades. However there has been a small increase in the population between 1997 and 2003. About 36% of total sheep population is slaughtered annually for meat purposes. Estimates are not available on any increase in the carcass weight of the sheep. Consequently, precise estimates on mutton production are not available. The wool production has also remained constant at about 45 million kgs out of which around 4 million kgs is of fine quality while the remaining is of medium and coarse quality. The requirement of industry is estimated at around 35 to 40 million kgs of fine wool, which is met mainly through imports.

[4.2.3.5](#) In view of large demand of wool of fine quality by the industry, the developmental efforts during various plan periods have been to improve the quality of the wool. Northern temperate region, which includes Jammu and Kashmir, Himachal Pradesh, Uttarakhand and Sikkim constitute an area which is suitable for fine wool production and considerable progress has been made especially in J&K where almost two third of the sheep population has been converted into crossbreds generally known as Kashmir Merino. In states like Rajasthan, which have comparatively large population of sheep, attempts were made to produce medium quality wool suitable for carpet manufacturers. In order to provide the breeding rams for improving

quality of wool, a large central sheep-breeding farm was setup at Hissar, which produce 600 to 700 rams per year for distribution to sheep flocks. Large sheep breeding farms were also established in states of Rajasthan, J&K and Andhra Pradesh. The programme on increasing production of fine wool was satisfactory until 7th Five Year Plan. Himachal Pradesh, hilly areas of Uttar Pradesh and other states followed the model of J&K. However, with the liberalization of the economy under WTO regime, there were major changes made in the trade policies permitting import of wool under OGL. Traditionally there was duty of 30% imposed on the import of wool, which was also abolished. As a result, there were large-scale imports from Australia and New Zealand by the industry not only for worsted sectors but also for manufacturers of carpet. The traditional Indian Wool market collapsed leading to a sharp fall in the prices of Indian wool and the sheep breeders were left with no market for their wool. Consequently, the sheep breeders in Rajasthan, Haryana, and Madhya Pradesh were left with no option to abandon the programme of improvement for wool quality and instead crossed their sheep with mutton breed especially with "Patanwadi" for their survival. The entire programme of improving indigenous breeds of sheep for fine wool production except in J&K has been given up.

[4.2.3.6](#) There is a large unsatisfied market for mutton in the country. There is also a great potentiality for export of mutton especially to Gulf and Middle East countries. The sheep development programme should, therefore, concentrate on improvement for mutton production. However, there is no well-organized marketing system for livestock in India. Since poor farmers mostly graze sheep, there is a need to organize them into cooperative groups on the pattern of Dairy Cooperative Societies to take advantage of organized sale. This would prevent exploitation by traders and help them to get appropriate share of consumer price. In many parts of the country, the current practice is to purchase the crop of sheep or goat many months ahead of their sale on an arbitrarily settled price. Consequently the Shepard have no control on what price they get for their stock and at what age they are required to sell them. Invariably most stock is sold by the time they are six months and weigh around 10 to 12 kgs while the recommended standard weight for sale should not be less than 25-30 kgs. if these animals have to fetch commercially attractive price. One of the reasons for early sale of animals by the shepherds is non-availability of required credit leaving farmers at the mercy of traders.

Goat

[4.2.3.7](#) Goat population in India during the last four decades has increased at the fastest rate amongst various livestock species, in spite of the fact that nearly 41% of goats are slaughtered annually. The current goat population is estimated to be around 124.4 million (Livestock Census 2003). The increase in goat population from 47.2 million in 1951-52 to the current level of 124.4 million show that it offers great potential in terms of population growth making it most important species of animal for meat production. Hardly any serious development programmes for improving meat production have so far been undertaken in the country. Experiments on cross breeding Indian goats with exotic breeds like Alpine and Anglo-Neubian were not very encouraging. There was however, little improvement in body weight, efficiency of feed conversion for meat and dressing percentage. No exotic germplasm is available for increasing the yield of meat since superior goat breeds found in foreign countries are essentially dairy breeds. Consequently the approach for raising the meat production from goats should be selective breeding along with proper management, fattening, rationing and better health cover.

Central Sector Scheme

[4.2.3.8](#) The Department of Animal Husbandry and Dairying, Government of India is running a

“Large Central Sheep Breeding Farm” at Hissar. The farm was established during the 4th Five Year Plan for production and dissemination of stud rams to various state sheep farms for crossbreeding and genetic stock up gradation. The farm has also been providing training to farmers and officers in mechanical shearing and organizing farmers in sheep management and other activities. The Government of India appointed a high level committee for assessing functioning of the farm. The committee in their assessment report (2001) found that the performance of the farm was unsatisfactory primarily due to problems of low production, higher mortality and poor farm and management practices and recommended that the farm may be re-allocated to a temperate location preferably in the hilly region of the country. Since then there has not been any improvement in the working and performance of the farm. Since, the programme for production of fine wool have received a serious setback due to change in the trade policies following WTO, the farm has lost its importance. The farm therefore should be closed and the existing stock of the exotic animals distributed amongst the states of J&K, Uttaranchal and Himachal Pradesh.

Centrally Sponsored Scheme

9. At present there is no centrally sponsored scheme on sheep and goat except that some assistance has been given for goat breeding under scheme on conservation of threatened breeds of livestock. A national project for improvement of poultry and small animals, which had a component on small ruminant development prepared by Department of Animal Husbandry, Dairying and Fisheries in the 9th Plan has not so far been approved.

4. Poultry Development

[4.2.4.1](#) The Indian Poultry industry has transformed from meager backyard farming to a well-organized scientific techno commercial industry. Majority of Poultry industry is in organized sector contributing nearly 70% of the total output while rest 30% is coming from unorganized sector. The Status of poultry sector during 10th Plan was significant by contributing about 11,000 crores to national GDP, ranking 4th in egg production and 19th in broiler production in the world. The production was 45.2 billion eggs and about 2.0 million tons of chicken meat.

[4.2.4.2](#) Poultry utilizes substantial quantities of non-edible agricultural and industrial bi-products and converts into high quality nutritious protein rich food. It helps to bridge the gap between requirement and availability of high quality protein for the human population in the country. Eggs and poultry meat are the cheapest source of animal protein. Further, Poultry manure is one of the best alternatives for chemical fertilizers. It is estimated that 1 ton of poultry manure provides 40 kgs of nitrogen, 28 kgs of phosphorus and 23 kgs of potash. The total availability of nitrogen from poultry manure is equal to more than 3 lakhs tons of urea.

[4.2.4.3](#) The sector provides a great employment opportunity. It is estimated that more than 2 million people are employed directly or indirectly in this sector. It is further estimated that an increase of one egg and 50 gms of meat per capita consumption would create an employment opportunity for about 25,000 and 20,000 persons, respectively. It is important to note that this sector provides employment to even unskilled labourers and women thereby providing income generation for the vulnerable group.

[4.2.4.4](#) The organized sector of the industry comprises of broilers, layers and breeding farms with logistics namely hatchery, feed mill, equipment manufacturer, feed supplements manufacturers, drugs and vaccine manufacturers etc. The broiler industry is well dominated in the Southern states of the country with nearly 60-70% of the total output coming from these States. The recent introduction of contract farming / integration has been playing a significant role in stabilizing broiler industry. However, marketing of the final product is still under the control of traders.

[4.2.4.5](#) The layer industry is once again represented more in Southern States especially Andhra Pradesh, Tamil Nadu and Maharashtra producing nearly 70% of the country's egg production. To illustrate the growth, Nammakkal district in Tamil Nadu is a very significant example of organized layer farming. Over the years while the number of farms in Namakkal has reduced but the average size of the farm has increased with some of them having up to two to three lakhs population of layers. The total estimate of layer population in Nammakkal is about 30 million, producing 20 million eggs per day. The same trend is expected in other high producing areas.

[4.2.4.6](#) The other organized farming activity is breeder industry. There are about 700 to 800 hatcheries operating in the country. Many of them having both pure line and grand parent operations to supply majority of the broiler and layer known breeds in the country.

[4.2.4.7](#) The productivity in both broilers and layers has improved tremendously due to implementation of good management practices, optimum nutrition and scientific breeding. Today, a broiler is able to achieve a body weight gain of 2 kgs and more within 42 days with a Food Conversion Ratio (FCR) of 1.8 to 1.9 and a layer is capable of producing on average about 315 to 320 eggs in 52 weeks of production.

[4.2.4.8](#) The unorganized sector of the poultry represents rural poultry. Presently the work related to rural poultry is carried out mainly by Government organizations, Universities, ICAR for developing suitable rural varieties capable of producing more eggs and gaining faster body weight with low input technology. This activity would make availability of protein food for the rural population as well as the source of supplementary income for the village poor particularly leading to upliftment of women in the rural areas.

[4.2.4.9](#) Under diversification of poultry - turkey, duck, guinea fowl, quails and Emu farming has got lot of potential for sustained farming activity.

Central Sector Scheme

[4.2.4.10](#) Under the Central Sector Scheme, Central Poultry Development Organization, the Department operates 4 Central Poultry Breeding Farms, a Central Duck Breeding Farm, a Central Poultry Training Institute, 3 Regional Feed Analytical Laboratories and Random Sample Poultry Performance Testing Centers to support various development activities in the poultry sector. These institutes play an important role in the development of rural poultry. The Department should play a regulatory and monitoring role and create necessary infrastructure for quality control of poultry products in order to promote export and control import of sub-standard/contaminated products.

Centrally Sponsored Scheme

[4.2.2.11](#) The ongoing Central Sponsored Scheme assistance to state Poultry/Duck Farms is being implemented in all the States and UTs. The pattern of assistance is 100% in the case of

North-Eastern states including Sikkim whereas, it is 80:20 in respect of other states between centre and state respectively and the assistance is limited to of Rs.85.00 lakhs for each farm. In the existing premises of the State poultry farms, guinea fowl, quail, turkey can also be taken up as a new activity. The scheme also applies to the farms of the State governments running in collaboration with cooperatives/private sector/NGOs etc. One time assistance is provided to strengthen them in terms of hatching, brooding and rearing of the birds with provision for feed mill and their quality monitoring and in-house disease diagnostic facilities. These farms maintain the parent stock of low input technology birds duly identified by this Department. Revolving fund for purchase of replacement of breeding stock, feed ingredients, transportation, medicines and vaccines is also provided under the scheme.

[4.2.4.12](#) In the light of comparatively large expenditure incurred on the Centrally Sponsored Scheme, there is a need to carry out an evaluation and impact analysis of the scheme by an independent organization.

4.2.5 Piggery Development

[4.2.5.1](#) The pig husbandry is the most important activity in the north eastern region especially in the tribal areas. Pork is an important item in the daily food habits of these people with little exception in the state of Assam. A very high consumption in the rate of pork has been reported in the region. The region has also a substantial pig population, which constitutes around 25% of the country's pig population. The bulk of the population is, however, indigenous type whose growth and productivity is very low. The region however, has a type of pig called "Pigmy Hog", the meat of which is highly preferred. The unique feature of this pig is that it is smaller in size (around 15 kgs at furrowing) and produces its first litter around 9 months of age.

[4.2.5.2](#) In spite of sizeable population, the local pigs are not able to meet the demands of North-Eastern regions. The region therefore imports large number of pigs from other parts of the country including Andhra Pradesh, Uttar Pradesh, Bihar and West Bengal. No serious attempts have been made to take up pig production on a commercial basis by developing financially viable production units in the Northeastern region.

6. Meat and Abattoirs

Present Status of Meat Industry:

[4.2.6.1](#) The meat production in India has been estimated as 6.4 Million Tonnes (FAO 2005 estimates). The value of meat produced accounts for Rs.21, 900 crores and meat products for Rs.828 crores. Meat production has increased at the rate of 4.1% annually during the last five years.

Export Earning From Meat & Meat Products:

[4.2.6.2](#) India exported 306970 and 8885 metric tonnes of buffalo and sheep/goat meat respectively in 2004-05 valued at Rs. 1616 and Rs. 79 crores respectively. The total export

earning from animal products during 2005-06 has touched Rs. 2647 crores against Rs.2252 crores during 2004-05.

[4.2.6.3](#) Meat Industry in India is a by-product of livestock production in bovines by utilising spent animals at the end of their productive life whereas in other species like sheep, goat and pig the animals are primarily raised for meat production. Livestock population, slaughter rate and meat production data indicate that buffalo population of 96 million produce an equal quantity of meat, namely, 1.2 million tonnes as that of cattle. This is due to effective culling practiced in buffaloes for both domestic and international markets.

Replacement of Old Slaughter Houses:

4. There are about 3894 registered and 25754 unregistered slaughter houses, which have outlived their utilities due to many fold increase in slaughter rate and poor maintenance. There is an urgent need for replacement of existing slaughter houses by establishing modern abattoirs for producing safe meat. The initial efforts made during 70's and 80's for establishing slaughter house corporations by providing as equity share capital to the extent of 1/6th of the cost could not make any head-way. Similarly the centrally sponsored schemes for modernization of slaughter houses from 1988-89 to 2004-05 on 50:50 grants (Centre: State) was also not successful because States/local bodies failed to provide the matching funds. Other reason of failure include, people objections for location near habitations and inadequate manpower for project implementation at Centre and State levels. A few projects on modernisation were completed but could not operate for a long time due to one or the other reasons.

Export Oriented Modern Integrated Abattoirs And Meat Plants:

5. There are 15 export oriented modern integrated state-of-the art world-class abattoir-cum-meat-processing plants registered with Agricultural Processed Food Export Development Authority (APEDA) and meeting phyto-sanitary requirement of the importing countries. During the last one-decade in private sector 12 modern abattoirs have been set up and another 15 are in pipeline. In addition there are about 35 meat processing and packaging units (including 12 registered with APEDA), which receive, dressed carcasses from the approved municipal slaughter houses for export of meat.

Constraints To Quality Meat Production:

[4.2.6.6](#) The impediments to modernisation of slaughter houses include socio-economic and religious factors, poor returns on high investments, inadequate allocation of funds by the States, indifferent provision of State Motor Vehicles Transport Acts resulting in harassment to the animal traders, unspecified vehicles for transport of dressed carcasses, lack of training facilities and trained manpower, inadequate cold chain facilities, etc. Although slaughter of old cattle and buffaloes is permitted beyond 14 or 15 years of age in most of all the States, the recent Judgment of Supreme Court of India has banned slaughter of all category of cattle and its

progeny in Karnataka and Jharkhand which have an adverse impact on other States.

7. Animal Health Services and Bio-security

[4.2.7.1](#) With the improvement in the quality of livestock through launching of extensive developmental programmes, especially cross breeding of cattle the susceptibility of the stocks to various diseases has increased. In order to reduce morbidity and mortality amongst livestock, efforts are being made to provide better health care. The country has a network of 26,717 Polyclinics / Hospitals / Dispensaries and 28,195 Veterinary aid centers (including Stockmen Centres), which are supported by about 250 disease diagnostic laboratories, for reliable diagnosis of diseases. Further, for control of major livestock and poultry diseases by way of prophylactic vaccination, the required quantity of vaccines are produced in the country at 26 veterinary vaccine production units. Of these, 19 are in the public sector and 7 in the private sector. Import of vaccines by private agencies is also permitted as and when required.

[4.2.7.2](#) The Indian livestock production system operates on low input - low output basis. Therefore, curative measures as the option for control of diseases in livestock and poultry are not feasible. Hence the control and prevention of diseases through immuno- prophylaxis along with other systematic measures is the most suitable method in Indian context. However, over the years, it has been experienced that the state governments are finding it difficult to provide adequate funds for implementing the schemes even though they have all the manpower needed to implement the same.

[4.2.7.3](#) While efforts are made to ensure better livestock health in the country, efforts are also made to prevent ingress of diseases from outside the country and maintenance of standards of veterinary drugs, vaccines and formulations. The economic impact of the diseases in livestock results in both morbidity and mortality and the consequent production losses. This includes the direct losses due to mortality, reduced production in terms of milk, meat, wool, hide and skins as well as indirect loss due to abortions, subsequent infertility, sterility and deterioration of semen quality. Prevention of losses due to various diseases and nutrition deficiency require proper health care system that include reducing losses due to deficiencies like minerals, vitamins etc. and diseases – bacterial, viral and parasitic.

[4.2.7.4](#) Loss of production due to various diseases cannot be exactly quantified. However, successful implementation of the various schemes would result in better status of livestock health, prevention of losses due to morbidity and mortality of animals, improvement in the quality of livestock and livestock products. For example in case of Foot and Mouth Disease (FMD), the direct loss due to milk and meat is estimated at Rs. 20,000 crores per annum. Indirect losses due to reduced work capacity abortions, subsequent infertility and sterility (that account for the reduced milk production subsequently) have not been quantified (ICARs Task Force Report, 2005).

[4.2.7.5](#) The prevalence of diseases reduces the market access to our livestock sector, in spite of the fact that we have ample scope to participate in the global trade. The animal disease status of a country or territory is part of its basic livestock infrastructure. The presence of animal diseases like FMD and PPR has proved to be a strong deterrent for domestic and foreign investments in livestock sector. These diseases not only wreak havoc on existing stock but also essentially prevent international trade altogether. Therefore the distinction between countries or regions recognized as free from FMD and not free from FMD largely defines world trade flows in milk,

fresh, chilled or frozen buffalo meat and pork. FMD is endemic in most Asian countries and severely limits the region's ability to participate in International trade.

Review of the Existing Schemes

[4.2.7.6](#) Department of Animal Husbandry, Dairying and Fisheries is implementing the following two major schemes on Animal Health:

1. Livestock Health and Disease Control (LH & DC)

[4.2.7.7](#) During 10th plan, a centrally sponsored macro-management scheme called "Livestock Health and Disease Control" is being implemented. The Scheme has the following components.

(i) Assistance to States for Control of Animal Diseases

[4.2.7.8](#) Under this component, assistance is provided to State / Union Territory for control of economically important diseases of livestock and poultry by way of immunization, strengthening of existing State Veterinary Biological Production Units, strengthening of existing State Disease Diagnostic Laboratories, holding workshops/seminars and in-service training to Veterinarians and Para-veterinarians. The programme is being implemented on 75:25 sharing basis between the centre and the states; however, 100 % assistance is provided for training and seminar/workshops. The states are at liberty to choose the diseases for immunization as per the prevalence/importance of the disease in their state/region. Besides this, the programmes also envisage collection of information on the incidence of various livestock and poultry diseases from States and Union Territories and compile the same for the whole country.

ii) National Project on Rinderpest Eradication (NPRE)

[4.2.7.9](#) Rinderpest is a highly infectious viral disease inflicting heavy mortality in bovine population as well as in small ruminants. Control efforts were started as far back as 1971 and the present National Project for Rinderpest Eradication (NPRE) was launched May, 1992. The objective of the scheme is to strengthen the veterinary services and to eradicate Rinderpest and Contagious Bovine Pleuro - Pneumonia (CBPP) and to obtain freedom from the infection following the pathway prescribed by Office International des Epizooties (OIE), Paris.

The country was declared "Provisionally free from Rinderpest" on March, 1999 and "free from Rinderpest disease" on May 22, 2004. For attaining the third and final stage of "Freedom from Rinderpest Infection" the dossier was submitted to the OIE on August 22, 2005. The International Committee of the World Organization for Animal Health (OIE) has recognized India as "Free from Rinderpest infection" on 25th May 2006

iii) Contagious Bovine Pleuro Pneumonia (CBPP)

[4.2.7.10](#) In addition, Contagious Bovine Pleuro Pneumonia (CBPP) eradication programme was initiated in 8 districts of Assam in association with the IVRI, Izatnagar. This disease had been prevalent in three districts (now reorganized to eight) of upper Assam. The disease has, however, not been reported after 1986. The clinical and sero-surveillance work pertaining to CBPP were carried out in these districts. Provisional freedom from CBPP has been declared in October 2003. The dossier for attaining "Freedom from CBPP infection" has already been submitted to OIE for consideration.

iv) Peste de Petitis Ruminants (PPR)

[4.2.7.11](#) PPR is a disease of small ruminants – sheep and goat, akin to Rinderpest. Both IVRI (Mukteshwar) and Tamil Nadu University of Veterinary and Animal Science (TANUVAS), Chennai have developed a live attenuated vaccine against PPR. The vaccine has undergone extensive field trials and has given very good results in protecting the animals against this disease. In order to have more vaccine available for use in the field, six state biological production units – namely – Bangalore, Hyderabad, Mhow, Kolkata, Pune and Hisar have been identified to produce the vaccine. The vaccine production has been already started in these stations. Beside it is expected that commercial production of PPR vaccine will also start soon in private sector.

v) Foot and Mouth Disease Control Programme (FMD-CP)

[4.2.7.12](#) This programme started during 2003-2004 of the Tenth Five Year Plan with the objective to prevent economic losses due to FMD and to develop herd immunity in cloven-footed animals. Foot and Mouth Disease Control Programme (FMD-CP) is being implemented in 54 specified districts of the country in the first phase with 100% central funding as cost of vaccine, maintenance of cold chain and other logistic support to undertake vaccination. All the Cattle and Buffaloes numbering about 300 lakh animals, in the identified 54 districts are being vaccinated twice a year (every 6 months). The State Governments are providing other infrastructure and manpower. Five rounds of vaccinations will be done during the tenth plan.

vi) Professional Efficiency Development

[4.2.7.13](#) The objective of the scheme is to strengthen the veterinary services for eradication of Rinderpest and Contagious Bovine Pleuro-Pneumonia (CBPP).

2. Directorate of Animal Health

[4.2.7.14](#) This is a Central Sector Scheme comprising of the following four components:-

a) Animal Quarantine and Certification Services

[4.2.7.15](#) This scheme was initiated during the Fourth Plan as a Central Sector Scheme and is continuing as a component of Central Sector Scheme; Animal Disease Management and Regulatory Medicine since 8th Plan. The main objective of this scheme is to prevent the entry of any exotic disease through import of livestock and to issue export health certificate as per international norms for livestock originating from India. At present four Animal Quarantine Stations are functioning one in each at Mumbai, Delhi, Calcutta, and Chennai. Establishment of two more Quarantine Stations one each at Bangalore and Hyderabad is in progress.

b) National Institute of Animal Health

[4.2.7.16](#) The need to set up a Centre for assessing the quality of veterinary biologicals in the country was felt since 6th Plan period. This, however, could not be materialized due to number of reason including non-availability of suitable land. In the 10th Plan, it has been decided to set up the Centre at Baghpat, Uttar Pradesh. For this purpose, a suitable land has been acquired and the construction work is nearing completion. It is expected that the Institute will be

functional by the end of 2006.

c) Central / Regional Disease Diagnostic Laboratories

[4.2.7.17](#) This is a Central Sector Scheme approved during 8th Plan and since then continuing. The Regional Disease Diagnostic Laboratories are providing expert disease investigation to States and UTs on regional basis. The Central Laboratory coordinates the technical execution of the Regional Laboratories. The Central Laboratory is located at IVRI, Izatnagar and the Regional Laboratories are located at Kolkata (East), Pune (West), Bangalore (South), Jalandhar (North) and Guwahati (North -East).

d) Directorate of Animal Health (Headquarter Cell)

[4.2.7.18](#) Though creation of this cell was proposed during 8th Plan, it could not materialize because the posts could not be created.

4.2.8 Dairy Development

[4.2.8.1](#) India is the world largest milk producer since 1998-99. According to estimates of the Central Statistical Organisation (CSO), milk accounted for 68% of the total value of output from livestock. In terms of value of output, milk is now the single largest agricultural commodity in India.

[4.2.8.2](#) Dairying is a secondary occupation for about 69 percent of India's farming community. It contributes close to a third of the gross income of rural households and in the case of those without land, nearly half of their gross income. Women constitute about 70 percent of the labour force in livestock farming. Based on the small holder milk production system, domestic per capita availability of milk was around 229 grams per day in 2004-05. An estimated 70 million rural milch animal households - of which about 75 percent are landless, marginal or small farmers. Most of the rural milch owning households own only one to three animals and it is estimated that only around 15 percent households own more than 4 milch animals.

[4.2.8.3](#) Even after trade was liberalised under the WTO framework, India's imports and exports of milk products have remained at less than 0.2 percent of domestic milk production. The entire requirement of the country is met essentially from domestic production. India's cost of milk production is competitive with the world's advanced dairying nations.

[4.2.8.4](#) Milk as an item of livestock product is steadily gaining importance in the basket of products produced from the livestock sector. At current prices, the relative share of milk grew from 64.8% in 1993-94 to 67% in 2003-04, while contribution of meat dipped from 18.7% to 17.8%.

[4.2.8.5](#) The approach to further develop Indian dairying will have to be based on the gains made so far clearly recognising that the small-holding milk production system is not a disadvantage and can be in fact strengthened through the use of appropriate technology to both improve productivity and lower the cost of milk production. Also, the approach to further develop

Indian dairying would have to suitably address issues that directly impact agricultural and food business around the world viz., free trade, food safety and the linkages between production systems and the environment. In a market driven economy, the future of the small holder rural milk producer will rest secure only when consumer needs and wants are effectively and efficiently connected with the functions of milk processing and milk production. However, since rural producers are at a potential disadvantage to benefit from a changed world, given their generally limited assets, resources, education and access to advanced technology, it will be important to empower them by offering choice in the nature of institutional structures they may like to organise themselves into, to not just better organise themselves but to carry out their businesses in a much more superior way.

Present Status of Indian Dairying

6. After a period of stagnation in the sixties, India's milk production showed rapid growth of between 4 and 5 percent per annum during the last 35 years. This was largely possible due to the efforts made by the Central Government, State Governments and the National Dairy Development Board (NDDB). India produced close to 91 million tons of milk in 2004-05. About half this production was consumed/ used in the villages and the balance portion flowed to urban areas. Broadly speaking, the urban milk markets are served by what has come to be commonly referred to as the 'organised' and 'unorganised' sectors respectively. The organised sector, comprising cooperatives, government and private dairies, has steadily increased its share of milk handling and they currently handle about one third of the marketable milk surplus (i.e. 16 to 17 percent of the country's milk production).
7. The dairy cooperative movement received a major boost under Operation Flood. Since the early seventies, the vertically integrated three tier dairy cooperative structure in various states has played an important role in increasing the proportion of milk handled in the organised sector. There are currently about 1.2 crore milk producers who are members of about 1.2 lakh village dairy cooperatives that are federated into around 170 district milk unions. These milk unions in turn are federated into 22 state cooperative dairy federations. There are presently 246 cooperative dairy units with an aggregate processing capacity of about 366 lakh litres per day. This dairy cooperative network collected about 215 lakh kilograms per day and paid an aggregate amount of about Rs 9000 crores to the milk producers in 2005-06.
8. During the first four years of the 10th Five Year Plan, milk procurement by cooperatives grew at a compound annual growth rate (CAGR) of about 5.1 percent. This increase in milk procurement has been aided by growth in the number of organised village cooperatives by a CAGR of 4 percent and that of membership by a CAGR of 2.9 percent. Milk marketing by dairy cooperatives grew at a CAGR of about 5.8 percent and this has had a favourable impact in efforts to grow milk

procurement.

Achievements of dairy cooperatives

Particulars	Unit	2001-02	2005-06	CAGR %
Procurement	Lakh kg. Per day	175.96	214.47	5.1
Milk sale	Lakh liter per day	133.92	168.08	5.8
Organized Dairy Cooperative Society	Number	100,662	117,575	4.0
Total farmer members	(000)	11,060	12,416	2.9

9. Even though cooperatives have grown over the years, the proportion of the marketable surplus of milk that is handled by them is still low. In the 14 major milk producing states, cooperatives procured about 17 percent of the marketable milk surplus (procurement share) in 2004 - 05 by reaching out to 15 percent of milch animal owning households in around 20 percent of the villages. The proportion of milk handled by cooperatives varies across regions with the states in the Western and Southern regions having a high coverage as compared to the states in the North and East.
10. Overall, since 1993-94, dairy cooperatives have been generally exhibiting a slow down in their core functions of milk procurement and liquid milk marketing. Generally speaking, most village dairy cooperatives are viable and are managed by their primary milk producer-members. The bulk of the district cooperative milk producers unions are also viable and most have elected Boards and Chairmen. However, the performance of the state cooperative dairy federations vary from state to state and their role and performance is being impeded by various institutional and management weaknesses. A summary analysis of the information on the financial performance of 156 milk unions/federations for 2004-05 indicated the following:
 - 49 milk unions/ federations reported both net profit for the year and accumulated profit. Together, these 49 dairy cooperatives account for about 63 % of the milk procured and about 49 % of the membership.
 - 54 milk unions/ federations reported net profit for the year and an accumulated loss. These 54 milk unions/ federations together account for about 21 % of the milk procured and about 27 % of the membership.
 - 50 milk unions/federations reported a net loss for the year and carry an accumulated loss in their books. These dairy cooperatives account for about 16% of the milk procured and about 24% of the membership (3 unions reported loss for the year and accumulated profit).
11. After the announcement of the new economic policy in 1991 and the consequent delicensing of the dairy industry, there has been a growing interest by the private sector in the nation's dairy business. Presently, there are about 493 private dairy units with an aggregate processing capacity of 460 lakh litres per day.

12. As on 31st March 2006, 791 dairy establishments were registered under Milk and Milk Products Order (1992), having an installed capacity of about 982 lakh litres of milk per day (LLPD). More than 40% of the processing capacity exists in the north, close to one third of the country's processing capacity is located in the West and around 20% of the processing capacity is situated in South India. Registrations with the Central Authority include 47 per cent by the cooperatives sector and 35 per cent by private sector. At the State level, private sector accounted for 73 per cent of total registrations, as compared to 23 per cent registration by cooperative dairies. States like Haryana, Punjab, Uttar Pradesh, Karnataka, Kerala and Tamil Nadu, Madhya Pradesh and Maharashtra, registered majority of plants under the State Registration. There appears to be a very high correlation between the capacity creation in the private sector and the marketable surplus where such private capacities have been created.

13. Most of the processing capacity is used for either liquid milk processing or for manufacture of western milk products like butter, milk powders and cheese. However, some plants also produce and market traditional Indian milk products.

Issues confronting Indian dairying

14. The growth rate of milk production has been around the 4 percent mark during the last two decades. However, there has been a general decline during the 9th and 10th Five Year Plans. In the first three years of the 10th Five Year Plan, the growth rate in milk production has been less than 3 percent per annum. This is shown in the graph below.

15. The implication of the decline in the growth rate of milk production is that it will affect the overall growth of the livestock economy and in turn the growth of the agriculture sector.

16. With the completion of Operation Flood Project by NDDDB, the pace of investment in the dairy sector has slowed down. The allocations for the dairying sector by the Central and state governments too have diminished over the last two plans. While delicensing and the subsequent decision to do away with the concept of milksheds was expected to boost private sector investment in dairying it has not happened. Further more, there appears to have been no concerted efforts in investing on technology for value added and innovative milk products.

17. On the marketing front, adequate efforts have not been made to understand the emerging needs and wants of domestic consumers. Similarly, there has been the absence of a strategic plan in building the

necessary infrastructure and putting in place relevant institutional mechanisms for marketing and branding exports of milk and milk products.

18. Indian milk products constitute an integral part of the Indian diet. They include products such as Peda, Barfi, Gulab Jamun in the North, Shrikhand in the West, Payasam in the South and Sandesh, Rasogolla in the East. Similarly, there are a number of homemade milk products like Dahi, Ghee, Kheer and Paneer that are widely made and consumed in the country. While there are no reliable estimates regarding the demand for Indian milk products it can safely said that about 20 percent of India's milk production is used for the production of Indian milk products. The market for Indian milk products is the largest in value after liquid milk and is estimated around Rs. 15,000 crores. Such production is carried out on a small scale/ cottage industry basis and little efforts have been made to adopt mechanised manufacturing processes. Consequently, it has also been difficult to maintain consistent quality.
19. There has been hardly any appreciable R&D effort in the process and packaging technology for Indian milk products both in the private and public sectors. Also, there has not been any large scale effort in marketing branded Indian milk products.
20. While the number of dairy plants that are reporting accreditations under ISO and HACCP are growing, the fact of the matter is that a large number of plants do not as yet have the required quality systems in place and this continues to be an important issue that needs to be addressed on a war footing. Other wise, it would be difficult to build consumer confidence and brand equity as also gain a reputable foot hold in the international market for milk and milk products.
21. The deployment of appropriate technology for improving productivity and reducing the cost of milk production as also improving the quality of milk at the farm level—such as cooling, avoiding contamination, machine milking of high yielder—has not been addressed on an appreciable required scale.
22. Dairy cooperatives in general and milk unions in particular face three critical and interrelated challenges: First, cooperatives are no longer the only major players in our milk markets. The result is that they are capturing an increasing share while the rapid growth of cooperative marketing has slowed. Around 92% of India's marketable milk surplus comes from 14 major dairying states. Today, cooperatives handle only about 17 per cent of the marketable milk surplus in these states and reach out to around 18 percent of milch animal owning households in around 20 percent of the villages. Third, many dairy cooperatives need to substantially renew as also enhance their leadership and professional

skills to face the twin challenges of growth in market share and expansion of service.

A review of the ongoing central sector schemes for dairy development

1. Intensive Dairy Development Programme

23. This centrally sponsored scheme has *inter alia* the objectives of milch cattle development, increasing milk production by providing technical input services, procurement, processing and marketing of milk in a cost effective manner and ensuring remunerative prices to the Milk Producers. The scheme is being implemented in hilly and backward areas and includes districts that received financial assistance of less than Rs. 50.00 lakh under the Operation Flood. The approved outlay for the scheme till 31 March 2006 was Rs. 407.58 crores. However, the allocation for the first four years of Plan under the scheme was Rs. 109.38 crores and the expenditure till 2005-06 was Rs. 98.27 crores.

24. Individual Projects under this scheme were sanctioned by Government of India without conducting proper feasibility study and implemented without proper technical supervision. At the instance of the Department of Animal Husbandry and Dairying, Ministry of Agriculture and Planning Commission; the scheme was evaluated by the Programme Evaluation Organisation (PEO). The evaluation indicated that even though the scheme is supported through 100% grant-in-aid, there have been various limitations in implementing the scheme. The scheme was revised in the 10th Plan to release funds directly to the implementing agencies i.e. the State Milk Federations/Milk Unions. However, it appears this has not made much difference in the implementation of the scheme and most of the organisations continue to remain unviable due to poor management.

25. It is recommended that the existing scheme of 'Intensive Dairy Development Project' should be recast as 'Dairy Development in Low Milk Production Potential Areas' and future funding should be a part of an enhanced and duly restructured Dairy Venture Capital Fund. The classification of Low Milk Production Areas should be based on sound and rationale criteria and the existing system of categorising areas as OF or non-OF should be dispensed with.

2. Strengthening Infrastructure for Quality and Clean Milk Production

26. The scheme was launched in October 2003 with the objective of creating necessary infrastructure for the production of quality milk and milk products at the farmers' level up to the points of consumption. Since the scheme was approved in October 2003, 98 projects have so far been approved i.e. till 31 March 2006. Bulk Milk Cooling Capacity of 3.23 LLPD has been created and about 65,200 farmer members have been

imparted training. Under the scheme, a total cost of Rs. 125.18 crores, having central share of Rs. 102.92 crores, had been approved till 31 March 2006.

27. It would be desirable that these funds are made available to deserving milk unions that have the potential to benefit from the scheme but are not financially strong and not capable of allocating their own resources to quality and clean milk production activities. Further more, it is recommended that all future funding/ assistance for clean milk production activities should be a part of an enhanced and duly restructured Dairy Venture Capital Fund.

3. Venture Capital Fund for Dairy/ Poultry sectors

28. The basic objective of the scheme is to provide financial assistance for the organised development of the dairy and poultry sector. The target group under the scheme are individuals, NGOs, public sector undertakings and the private sector, cooperatives and SHGs. During 2005-06, about Rs.12 cores were disbursed to banks for both dairy and poultry sector activities. Of this amount, about Rs. 10 crores (88%) were for the dairy sector. The activities funded under the dairy sector were mostly for procurement of milch animals in non-OF areas. A relatively small portion of the funds provided to the dairy sector went for activities such as milking machines, milkotesters, automatic milk collection centres, weighing scales, bulk milk coolers and indigenous milk product manufacturing units.
29. Considering that the GoI is already making available funds to meet the cost of concessional interest through the Dairy /Poultry Venture Capital Fund, it is proposed that the financial assistance and the cost of concessional finance required for Dairy Development in the 11th Plan should be made available by the GoI by separating the poultry component of the Dairy/ Poultry Venture Capital Fund and creating a new Revolving Fund for Dairy Development.
30. It is recommended that the Venture Capital Fund should not be used to provide assistance for loans to purchase animals since this requirement is already being met by NABARD/ banks through its priority sector lending activities and that other items such as milk machines should be included for funding under the scheme.

4. Assistance to Cooperatives scheme

31. The scheme was approved in January 2000 with a view to revitalise sick

dairy cooperative unions. It is being implemented on a 50:50 sharing basis between the Centre and the respective State Governments. Since the inception of the scheme, GoI has approved plans of 31 cooperative milk unions across 12 states with a total project cost of Rs. 192.50 crores. So far, Rs. 66.49 crores have been released to the milk unions out of the sanctioned GoI share of Rs. 96.24 crores, while Rs. 3.15 crores is the balance, which is to be released to the unions on receipt of matching share of the concerned state governments. Out of the 31 milk unions under rehabilitation, 20 are either on the revival path or have significantly improved their performance. While five unions are yet to make discernible progress, for the remaining six unions the process of rehabilitation has just commenced.

32. It is recommended that the scheme 'Assistance to Cooperatives' should be discontinued as it appears to have covered most of those cooperatives who were eligible to receive such assistance and no further purpose would be served by continuing the scheme.

5. Capital subsidy scheme of the Department of Agriculture & Cooperation

33. The Department of Agriculture & Cooperation had announced a scheme in 2005-06 to provide capital subsidy for the establishment of agriculture processing units (including milk processing plants). Subsequently, the scheme was modified to delete milk processing plants from the benefit of the scheme on the reason that similar assistance would be available through schemes of the Department of AHD&F. However, no such scheme has yet been announced by the Department of AHD&F.

4.2.9 Trade and WTO

[4.2.9.1](#) India is not a major player in the international trade in livestock products. India's share in the world trade of dairy products is negligible (0.25%) and in case of meat and poultry also India share is very low (0.5%). The world livestock trade is plagued by high degree of distortions, especially by the EU, USA and Canada. The WTO was expected to put some discipline on these protectionist policies but still distortions in world market are very large.

[4.2.9.2](#) Although India's export of livestock products is small it has increased over the last five years from Rs.1500 crores in 2000-01 to around Rs.2253 crores in 2004-05. Buffalo's meat constitutes the major items of export. The main destinations for export of frozen buffalo meat are Malaysia, Middle East and Gulf Countries. Although India's export of milk products is small it has also increased over the last five years from Rs.95 crores in 2000-01 to around Rs.390 crores in 2004-05.

Export of Livestock Products from India 2001 -2005

(Quantity in Tonnes and value in Rs. Crores)

	2001-02		2002-03		2003-04		2004-05	
<i>Animal Products</i>	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Buffalo Meat	243355.58	1144.42	297897.26	1305.45	343817.08	1536.77	306970.81	1615.59
Sheep / Goat Meat	3915.06	33.07	4973.55	39.95	16820.53	110.39	8885.28	79.36
Poultry Products	19876.02	130.07	26450.01	156.47	415228.17	202.40	264607.54	154.11
Dairy Products	24774.13	182.45	21439.81	153.59	15882.67	155.19	48426.79	389.14
Animal Casings	464.28	9.63	8296.17	140.27	732.84	12.43	552.33	12.57
Processed Meat	267.13	1.29	669.48	4.8	986.13	7.63	107.45	1.57
Total for Animal Products	292652.20	1500.93	359726.28	1800.53	793467.42	2024.81	629550.20	2252.34

Source: APEDA

4.2.9.3 Export Policy and Incentives for Export of Dairy Products

- Export of dairy products is presently regulated under the Export (Quality Control and Inspection) Act, 1963 (22 of 1963) and its Export (Quality Control and Inspection) Rules, 1964 and Export of Milk Products (Quality Control, Inspection and Monitoring) Rules, 2000.
- For export of dairy products, a manufacturer would need two types of certification: a certificate by the Export Inspection Council of India (EIC) approving the manufacturing unit, and a health certificate by an Export Inspection Agency (EIA), controlled by the EIC, for the dairy products processed in the approved plant. As on 31 March 2006, 52 dairy plants have been registered by the EIC.
- Fees for approving a processing plant and a product health certificate are nominal: Rs.5000 for the former and Rs.100 for each health certificate. Additionally, the merchant/exporter is required to pay Rs.0.2% of F.O.B. value as inspection fee.
- The regulation also stipulates that the dairy products for exports shall meet all statutory requirements imposed by central/state government with respect to commercial/environmental conservation measures. These are:
 - The Water (Prevention and Control of Pollution) Act 1974, including Rules 1975.
 - The Air (Prevention and Control of Pollution) Act 1981, including Rules 1982 and 1983.
 - Other regulations that apply to the dairy processing plants are as follows:
 - Prevention of Food Adulteration (PFA) Acts and Rules: This is mandatory regulation for production, storage and sale of food products.
 - Milk and Milk Products Order (MMPO) 1992
 - Infant Milk Substitutes, Feeding Bottles, Infant Feeds (Regulation of Production, Supply and Distribution Act 1992) and its Rules 1993
 - A new Food Safety and Standards Bill 2006 have been passed by the Parliament recently and are awaiting endorsement by the President.
 - The Agricultural Produce Cess Act 1940 provided for a cess on butter, among other agricultural produce, by way of customs duty on export. However, the Parliament has recently approved the Produce Cess Laws (Abolition) Bill 2006, which when enacted

would repeal the above mentioned Act.

- For export of dairy products, there are no tariffs, taxes or levies other than those mentioned above. There are no significant non-tariff measures like licensing, quotas, minimum export prices etc. for export of milk products. Also, there are no restrictions on the export of any dairy product.

4.2.9.4 Incentive Schemes for Export

Schemes providing incentives for promotion of export of livestock products have been offered by several government and semi-government organizations. The important ones are outlined below.

- Agricultural and Processed Food Products Export Development Authority (APEDA) under the Ministry of Commerce and Industry, approves financial assistance to the exporters under various schemes as mentioned below:
- Scheme for the grant of Transport Assistance for Export of Identified Horticulture, Processed Food and provides assistance for Poultry Products.
- Scheme for Market Development: For activity for development of packaging standards and design through involvement of institutions / organizations in India and abroad with the cost sharing by exporters or organizations involved in export promotion; for making surveys, feasibility studies etc.
- Scheme for Infrastructure Development. Financial assistance is provided for purchase of specialized transport units for animal products; setting up of environment control systems such as pollution control, effluent treatment etc; setting up of specialized storage facilities such as humidity controlled cold storage, deep freezers, controlled temperature storage.
- Scheme for Quality Development. For setting up / strengthening of laboratories; for installing quality management system; up-gradation of laboratory for export testing ; testing of water, soil, toxins, contaminants in agricultural produce/products; organizing seminars/group activities including study tours and to bring out information literature.
- Scheme for Research and Development. Assistance for relevant R&D to enhance export.
- Vishesh Krishi Upaj Yojana (Special Agricultural Produce Schemes) provides interest free funds at the rate of 5% the value of exports.

Impact of WTO Agreements on the Indian Livestock Sector:

Impact on Indian Dairy Sector

4.2.9.5 India's trade in milk products – both exports and imports – is highly influenced by the world trade policies. High production and export subsidies provided by several developed countries distort international dairy market to the disadvantage of many developing countries including India. It was expected that the implementation of Agreement on Agriculture (AoA) would substantially reform the trade of agricultural products. This has, however, not happened and high market access barriers are being maintained.

4.2.9.6 The total domestic support provided by many developed countries to their producers continues to be very high. Producer support estimates for milk in OECD countries was 42 % during 2002-04 as compared with 61 % in 1986-88, indicating that producers continue to get nearly half of their earnings from transfers due to governments actions. On the other hand,

Indian milk producers do not enjoy any significant levels of such support.

[4.2.9.7](#) Export subsidies also continue to be a significant factor in world dairy trade. The quantity of dairy products eligible for export subsidies, even after reduction commitments, is close to 60% of estimated world trade in all products. The global prices are significantly influenced by these subsidies.

[4.2.9.8](#) Tariff barriers maintained by several developed economies include: high *ad-valorem* duties; specific duties that afford a higher level of protection as compared to *ad valorem* duties; and special agricultural safeguards. Several developed countries have maintained very high level of tariffs on dairy products, such as Norway (more than 300%), Finland (200-480%), Japan (180 to 500%). Further, special agricultural safeguard (SSG) mechanism, designed for import control in cases of surges in imports and decline in world market prices, is being used as an integral part of market management system by many developed countries.

[4.2.9.9](#) The subsidies provided by some major dairying developed countries depress world prices of dairy products substantially and to levels that make Indian dairy products uncompetitive. While on the one hand, this affects exports of Indian dairy products adversely, on the other, this encourages increased imports of subsidized products damaging domestic industry.

[4.2.9.10](#) Under the Government's major trade policy reforms, the dairy industry was de-licensed in June 1991. In April 2001 all quantitative restrictions (QRs) on dairy products were removed. These developments exposed Indian dairy sector to the highly distorted world markets along with the threat of imported products bringing exotic diseases into the country. Accordingly the government, immediately after the removal of the QRs, amended the Livestock Importation Act, 1898 in July 2001 to allow the import of the livestock products, including milk products, against Sanitary Import Permit after conducting risk analysis, as per the SPS Agreement.

[4.2.9.11](#) Effective April 2006, imports of Genetically Modified Organisms (GMOs) and Living Modified Organisms (LMOs) are governed by the provisions of the Environment Protection Act, 1986 and Rules 1989. Further, import of any food, feed, and food materials that contains GM material is allowed only with the approval of the Genetic Engineering Approval Committee (GEAC). All such consignments will have to carry a declaration stating that the product is genetically modified.

[4.2.9.12](#) The applied basic custom tariffs are 40% for butterfat products, and 30% for all other major dairy products except milk powders. At the time of WTO Agreement, India had agreed to zero tariff on milk powders. Subsequently however, considering the interest of the domestic milk producer, the bound rate of duty was re-negotiated to 60% with a tariff rate quota of 10000 tonnes at 15% tariff.

Impact of WTO on Meat and Poultry Sector

[4.2.9.13](#). International Trade in meat depends on a combination of factors which should be taken into account to ensure unimpeded trade, without incurring unacceptable risks to human and animal health. On account of likely risks the internal trade and marketing under the WTO environment requires the exporting country to comply with certain responsibilities. An exporting country is required to supply the following information to importing countries on request –

- a. information on the animal health situation and national animal health information systems to determine whether the country is free or has free zones of listed diseases, including the regulations and procedures in force to maintain its free status;
- b. regular and prompt information on the occurrence of transmissible diseases;
- c. details of the country's ability to apply measures to control and prevent the relevant listed diseases;
- d. information on the structure of the Veterinary services and authority which they exercise;

[4.2.9.14](#) Poultry and poultry products are highly subsidized by countries like USA and EU and this factor has impeded India's export of such products not only to these countries but to other countries where they compete with us.

Impact of WTO on Wool

[4.2.9.15](#) Following the WTO agreement, the import of wool in India has been allowed under OGL. Traditionally, India has been importing fine quality wool for the woollen industry at an import duty of 20- 30%. Under new dispensation the duty was abolished. This has adversely effected the domestic wool production resulting in sharp fall in the domestic crises. At present almost all the requirement of wool by the industry is met through imports from Australia and New Zealand. Indian Sheep breeders finding no market for the fine and medium quality wool have crossed their animals with mutton breeds. Consequently, all programmes relating to improvement of wool quality in the country except in J & K and upper reaches of Himachal Pradesh and Uttranchal States have been closed.

Sanitary and Phyto-sanitary Measures

[4.2.9.16](#) The SPS Agreement has provisions in the Agreement which amount to non-tariff barriers to trade. Article 3.3 allows a member to introduce SPS measures more stringent than stipulated in the relevant international standards. Further, Article 5.7 allows a member to introduce SPS measures even if relevant scientific evidence is insufficient to justify them. Some developed countries have taken advantage of these provisions and set several very stringent SPS measures not justified by science just because they can achieve them. These include very low levels of chemical contaminants, very stringent health rules, very low levels of bacterial counts in raw milk etc., especially by EU and also by Australia, Canada, Japan, New Zealand and USA. All these act as non-tariff barriers to India. SPS Agreement requires exporting country to provide evidence to importing countries that the product, which is intended for export, has originated from disease free areas. In a vast country like India, it is very difficult to provide evidence that a product has originated from disease-free area or zone.

[4.2.9.17](#) Every country is required to undertake the import risk analysis in terms of its consistency with the sanitary and phyto-sanitary agreement of the WTO. The fundamental purpose of the SPS Agreement was to introduce a mechanism whereby restrictions on trade that are based on SPS measures could only be applied if there was an analysis undertaken of the basis of risks involved rather than taking decision so in an arbitrary manner. It is commonly believed that the risk assessment process has to be consistent with the SPS Agreement and can only be based on scientific facts.

Article 5(2) of SPS Agreement mentions that in the assessment of risks, members shall take into account available scientific evidence but also series of other factors including relevant processes and production methods, relevant ecological and environmental conditions. However, this

dictates the extent to which the economic factors will be considered in a way that is far narrower than the adopted SPS measures itself.

Article 5(3) of the Agreement states “in assessing the risk to animal or plant life or health and in determining the measures to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk, member shall take into account as relevant economic factors the potential damage in terms of loss of production or sales in the event of the entered establishment or spread of a pesticide or disease, the cost of control or eradication in the territory of the importing member and the relative cost effectiveness of alternative approaches to limiting risks”.

Further, the SPS Agreement does not envisage that losses in production should be limited to the losses applied in the industry in which the disease occurs i.e. the poultry industry alone or one sub-sector viz. the growing or processing. Therefore, there is nothing in the SPS Agreement preventing consideration of losses in other industries or sectors of the economy in the event of disease occurrence. Accordingly, all losses whatever industry suffers in the event of the disease should legitimately be considered in the economic analysis.

[4.2.9.18](#) Considering the above factors, Government of India should continue to retain as retained duties equivalent to bound rates under WTO obligations the import duties should be maintained at the bound rate level as long as the developed countries continue their domestic support and export subsidies.

4.2.10 Extension and Technology Transfer

[4.2.10.1](#) Whereas public extension played a major role in technology and knowledge transfer in the crop sector, in the livestock sector the concept of extension service delivery has been very weak. Despite its growing importance, livestock extension is a field neglected both by policy makers and by researchers. It continues to be a part of overall agricultural extension system. Agricultural extension services have developed around crop production, and remain tied largely to the seasonal nature of cropping. Such system is less useful for livestock production, with a longer time-scale and a lack of synchronization of different animals and herds. The institutional arrangement in the state departments of animal husbandry which are mainly run by veterinarians have primarily emphasized the clinical and diagnostic aspects of animals health rather than the preventive and extension aspects. The veterinary officers operate from their veterinary dispensaries to treat animals rather than approach farmers to educate and inform them about feed, fodder and animal health. There is no separate livestock production extension service.

[4.2.10.2](#) The National Sample Survey Organization (NSSO) in its survey of 55000 farmers households conducted during 2003-04 found that only 5 percent of the households were able to access any information on animal husbandry against 40 percent of households accessing information on modern technology for crop farming (GOI, 2005). Moreover, livestock farmers sought information largely from private rather than public sources for information relating to livestock production. The NSSO survey reveals that public sector extension services are not the preferred option for accessing information on modern technologies on livestock production.

4.2.11 Credit and Insurance

[4.2.11.1](#) The formal financial sector comprises of Reserve Bank of India and National Bank for Agricultural and Rural Development (NABARD) at the apex level. The formal financial sector has played a vital and significant role in credit flow to the rural sector. The RBI has a statutory

mandate to be closely involved in matters relating to rural credit and banking. NABARD performs major role in rural credit, both supervisory and developmental. Credit function of NABARD primarily covers provision of short term refinance for production and marketing to co-operatives and Regional Rural Banks, refinance to co-operatives and RRBs for conversion, rephrasing of short term loans, provision of investment refinance to all eligible banks including commercial banks, loans to state governments for purchase of shares of co-operatives, and financing of rural infrastructure.

[4.2.11.2](#) Apart from the above institutions, the National Cooperative Development Corporation (NCDC) plays an important role by supplementing finance, and by planning, promoting and financing for production, processing, marketing, storage, export and import of agricultural produce, certain other notified commodities, collection, processing, marketing, storage and export of minor forest produce through cooperatives, besides income generating stream of activities such as poultry, dairy, fishery, sericulture, handloom etc.

[4.2.11.3](#) Though several efforts have been made to increase the flow of institutional credit for agricultural and rural lending, there have been mismatches in credit requirement and its availability. Field studies conducted to determine the reasons for such a mismatch revealed that it was due to absence of effective local level planning. Some of the major measures to increase the flow of credit to rural areas included introduction of Lead Bank Scheme, Service Area Approach (which is now applicable only for Government sponsored schemes), and fixing of priority sector lending targets to ensure directed credit by commercial banks. In terms of the priority sector lending norms, the commercial banks are required to extend credit to the extent of 40 per cent of their total net bank credit to priority sector as a whole, of which 18 per cent should be specifically for agriculture. Out of the target 18 per cent for agriculture, at least 13.5 per cent should be by way of direct loans to agriculture. Loans to Animal Husbandry sector come within the "Direct Lending to Agriculture" category. If a bank fails to fulfill its commitment towards priority sector lending, the deficit is required to be deposited by the bank into the Rural Infrastructure Development Fund administered by NABARD. Even though Rural Infrastructure Development Fund is created for infrastructure in agriculture and allied activities, the share of Animal Husbandry is as low as 0.1 per cent. A review of the projects financed from RIDF shows that major part of the fund has been used by the road and bridge sector. Some progressive Governments have however availed RID fund to establish veterinary dispensaries and livestock aid centers.

[4.2.11.4](#) Precise estimates on level of credit flow to animal husbandry sector are not available. However under the various Rural Development Programme the financial institutions have been providing term loans for induction of the animals which constitutes above 10 per cent of the total term loans in the agriculture sector.

Credit Provided to Agriculture Sector

(Rs. In crore)

Purpose	1999-2000	2000-01	2001-02	2002-03	2003-04
Total Agri. Loans	46268	52872	62045	69560	86981
Total Term loans	17303	19513	21536	23974	32004
Term Loans for Dairy, Poultry, Sheep, Goat	2522	2188	2221	2637	2928

[4.2.11.5](#) The perception of bankers is that the financing of livestock activities is a risky proposition and many loans are likely to become bad. Consequently the sector does not receive credit for production activities. No short-term credit normally is given for meeting the recurring expenditure of milch cattle sheep or goat units. It is desirable to provide some short term credit not exceeding cost of feed for one month, so that the farmers' liquidity position is not affected adversely immediately on investment.

Venture Capital Fund for Dairy and Poultry Development:

[4.2.11.6](#) Government of India created a fund during 2005-06 for Dairy and Poultry sector with the aim of promoting new entrepreneurs in these two areas. The fund provides infrastructure for processing and ensuring quality of products. This fund provides 50% of the project cost as interest free loan. It also reimburses 50% of the interest paid by the borrower as subsidy on regular repayment. The ultimate interest rate to the borrower works to be around 3-4%. The beneficiary farmers have to meet 10% of the project cost as margin money. All type of borrowers like individuals, firms, cooperatives and Self Help Groups are eligible for assistance under the scheme. During 2005-06, Rs.12 crores were disbursed. The demands for the fund is very large, However, 88% of the amount has gone to dairy sector and out of it, 80% has gone for purchase of animals of dairy units.

Livestock Insurance

[4.2.11.7](#) Loss of livestock due to deaths caused by diseases and /or calamities gives a great setback to the poor livestock farmers. Lack of access to formal coping mechanism such as protective cover through insurance become a critical gap for the poor to face the situation. At present the number of animal insured are very low, being around 4% in spite of a large population of crossbred productive cattle. The report of the task force set up to suggest measure to improve coverage of animals under cattle insurance also indicates that the present coverage is abysmally low for both scheme and non-scheme animals. The reasons observed are several that include lack of awareness, affordability, lack of delivery channels that provide access at the doorsteps, problem in claims settlements etc from the view points of livestock holders and high cost of transaction and service from the view points of the insurance industry.

[4.2.11.8](#) In recent years the public insurance companies have offered many policies that cover not only the animals but also the farmers and other assets owned by them. This may help in bringing down the cost of transaction. Government support to insurance is normally given in the form of part of the premium for animals financed under the sponsored schemes. The insurance companies cover mostly such animals only except for large and organized units. Few State Governments have launched schemes for the benefit of certain sectors. This includes Avikavach of Rajasthan for the benefit of sheep flock owners. Such schemes though have laudable objectives are not implemented effectively, mainly due to lack of awareness among the beneficiaries. It is important that the farmers are made aware of the benefits of such schemes and as the value of animals maintained by them improves they will be inclined to pay the required premium to insure them.

[4.2.11.9](#) Department of Animal Husbandry and Dairying has formulated a new scheme for livestock insurance to be implemented during the last 2 years of 10th Five Year Plan and during the 11th Five Year Plan on pilot basis in 100 districts of the country. The pilot project would be implemented in the districts where the national project for cattle and buffaloes breeding (NPCBB) is in operation. The state implementing agency (SIA) and livestock development boards(LDB) would be implementing the private scheme, to bring about synergy between

NPCBB and Livestock insurance. Where there are no SIAS the live stock insurance scheme would be implemented through State Animal Husbandry Departments.

12. The above mentioned scheme is restricted to high yielding cows and buffaloes. The 50% of premium cost is borne by the farmers and the remaining 50% and the administrative charges including cost of the ear tags are borne by the Government of India. The scheme has started in the month of March, 2006 and its results are still to be assessed.

13. Animal Husbandry Statistics

1. The livestock statistics is based on two Schemes of the Government of India.
 - a. Livestock Census-This Census held every five years is intended to have a picture of the number of various species of animals. But suffers both qualitatively and quantitatively.
 - b. Integrated Sample Survey (ISS) - The main purpose of the Schemes is to collect data on production of important livestock products. It has been providing reasonably good estimates of milk, egg and wool.
 2. The 17th Livestock Census was conducted by the Department of Animal Husbandry Dairying & Fisheries. The census was conducted after every five years and was due in 2002. However, due to procedural delay and other reason in transfer of the work to Department of Animal Husbandry & Dairying from Agriculture and Cooperation, the Census could be conducted in 2003 with reference date to 15th October, 2003. However, all efforts were made to compensate the delay by early release of census results.
 3. The Integrated Sample Survey Scheme is a Centrally Sponsored Scheme having expenditure on salary shared between Centre and State on 50:50 matching basis. In case of Union Territories, except Pondichery 100% Central Assistance is being provided. It operates through out India round the year. The broad objectives of the scheme are to collect data for the following:
 1. Estimates of livestock numbers by species-season-wise, State-wise.
 2. Estimation of productivity/average yield per animal (in respect of milk, eggs wool and meat).
 3. District level estimates of production milk and eggs including average yield per animal.
 4. Products utilization patters at production stage
 5. Animal Husbandry practices.
 6. Estimation of cost of production per unit milk and eggs in the selected districts and other ancillary information.

4. At the formulation of the 10th five-year plan, the estimation was available upto 1998-99. There was a backlog of 3 years which has been cleared and the estimates for the year 2004-05 have been published and available on the website. The tentative estimates for 2005-06 are ready and preparation for its approval is in progress.

5. Assesment of Schemes taken up in 10th Plan

Sl. No.	Name of the Scheme	Recommendations for continuation in 11 th Plan
1	2	3
I.	ANIMAL HUSBANDRY	
A.	Central Sector Schemes	
1.	Central Cattle Development Organization	
i)	Central Cattle Breeding Farms	It would not be possible for these farms to achieve the desired objectives and these will remain a burden on public exchequer. These farms should therefore be closed and the scheme terminated.
ii)	Central Frozen Semen Production and Training Institute.	With the implementation of NPCB the requirement of frozen semen as well as training of the technical staff in AI technique has increase many folds. Therefore the activities of the Institute need to be strengthened and the institute should be allotted sufficient funds during the 11 th Plan.
iii)	Central Herd Registration Schemes	The scheme has been in operation for the last many years and needs re-evaluation and assessment of its impact on cattle and buffaloes development. The scheme may however continue during 11 th Plan.
1	2	3
2.	Central Sheep Breeding Farm, Hisar	The farm has lost its relevance. The farm should be closed and the animals distributed among the states of J & K, Himachal Pradesh and Uttranchal.
3.	Central Fodder Development Organization:	
i)	Regional Station for Forage Production and Demonstration	As recommended in the evaluation study undertaken by Centre for Management Development, Thiruvanthapuram, the three stations at Hyderabad (Andhra Pradesh), Almadhi (Tamil Nadu) and Sahema (Jammu &

- | | | |
|----|--------------------------------|--|
| 6. | Integrated Sample Survey. | The scheme should continue in 11 th plan. |
| 7. | Livestock Census and Insurance | The scheme should continue in 11 th plan. |
| 8. | Livestock Health | The scheme should continue in 11 th plan. |
| 1 | 2 | 3 |

II. DAIRY DEVELOPMENT

A. Central Sector Scheme

- | | | |
|----|------------------------------------|--|
| 1. | Assistance to Cooperatives | The scheme should be discontinued as it appears to have covered most of those cooperatives who were eligible to receive such assistance and no further purpose would be served by continuation the scheme. |
| 2. | Delhi Milk Scheme | DMS is incurring heavy losses and has no social role to perform. It should be closed, disinvested and disposed off. |
| 3. | Dairy/Poultry Venture Capital Fund | The scheme is quite popular and should be expanded in the 11 th Plan. |

B. Centrally Sponsored Scheme:

- | | | |
|----|---|--|
| 4. | Integrated Dairy Development Project | The existing scheme should be discontinued and a new scheme "Dairy Development in Low Milk Production Potential Areas" should be launched. The classification of low milk potential area should be based on sound and rationale criteria and the existing system of categorizing areas as OF or non OF should be dispensed with. |
| 5. | Strengthening Infrastructure for Quality and Clean Milk Production. | Since most of the components under this scheme are now covered under the venture capital funds for dairy, this scheme should be discontinued. |

5. Eleventh Five Year Plan

5.1 Goals and Objectives

5.1.1 Growth Potential:

The contribution of livestock sector to National GDP is estimated at 4.4% (2004-05) and varied between 4.8 to 6.5% during the last two decades. Milk group accounts for 66.7% of livestock GDP while meat and poultry groups account for 17.5 % and 6.8% respectively and wool contributes less than 1% of GDP. The growth in livestock sector would therefore, mainly depend on growth achieved in milk and meat groups. The Planning Commission has suggested a growth rate of 8% in livestock sector during the 11th Five Year Plan period. Achieving such a high growth especially in milk group would not only be difficult but would require huge investment in the processing, value addition and market development including exports. The two growth scenario with an overall 7% and 6% growth rate in livestock sector are presented in the table below:

Growth Potential in Livestock Sector (Annual Growth in Percent)

Sector/Sub-Sector	Annual Growth 1981-2000	Potential Growth	
		Situation I (High Growth)	Situation II (Moderate Growth)
Overall for Sector	4.5	7	6
Milk Group	4.7	6	5
Meat Group	6.7	10	10
Buffalo Meat	9.6	10	10
Poultry Meat	3.9	5	4
Goat Meat	8.0	8	8
Pig Meat			
Eggs	6.7	10	10
Wool	1.5	2	0

In the light of above it is recommended that the goals during the 11th Five Year Plan for the livestock sector should be based on the following considerations:

- i) To achieve an overall growth between 6.0 to 7.0% per annum for the sector as a whole, with milk group achieving a growth of 5.0 % per annum and meat and poultry achieving a growth of 10% per annum.
- ii) The benefit of higher growth should be equitable, benefiting mainly the small and marginal farmers and landless labourers who maintain bulk of the livestock in the country. It should also benefit poorly endowed areas like drought prone, arid and semi-arid areas.
- iii) The livestock sector should provide additional employment opportunities to people in the rural areas especially to the female population who manage the livestock in the household, thereby empowering rural women with livestock providing as a source of economic empowerment.
- iv) Livestock production should provide major source of income in the selected areas of the country having potential for mixed crop-livestock farming and it should provide a supplementary source of income in all other areas and also provide sustenance during calamities like famine, floods and failure of the agricultural crops.
- v) The growth in the sector should result in the improvement of environment especially in the rural areas by building cleanliness and sanitation in the villages.

5.2 Strategy for Development

5.2.1 Accelerating the GDP growth in livestock sector to 6-7% during XIth Plan would not be an easy task. Actual growth during the first four years of Xth Five Year Plan has been less than 4%

per annum. The challenge posed is to almost double the growth rate during the 11th Plan. The strategy would require a number of actions on both supply side and demand side and the institutional restructuring. The strategy should be based on the following considerations.

1. In past, the development programmes have been primarily based on public initiatives. With the increase in coverage, these programmes have overgrown in size. Their institutional structure has not changed to suit the changing requirement and the fast changes in the technology. An institutional restructuring needs to be brought about in the existing developmental machinery both at the national and state level. This would require removing policy distortions that artificially favour economics of scale in livestock production and build participatory institutions' collective action for small scale production that allow small farmers to get vertically integrated with livestock processors and input suppliers;
2. A sustainable and financially viable livestock farming, which will generate wealth and self employment through entrepreneurship, is the need of the day. Creating an enabling environment in which farmers will increase investment in ways to improve productivity of livestock and building participatory institutions that allow livestock farmers to get vertically integrated with processors of livestock products and input suppliers/service providers are the nuts and bolts for such transition.
3. Market opportunities have opened up for the livestock sector following the economic liberalization. There are expectations of faster growth in demand for livestock products due to expected increase in incomes combined with the high-income elasticity of demand for livestock products. But the sector's availability to capitalize on new market opportunities is constrained by the ability and quality of support services. Despite liberalization, private sector has not shown much interest in the livestock sector especially on the supply side. However, there are few successful examples of public - private partnership initiative, which need to be expanded during 11th Five Year Plan.
4. The success of producers' organization like Dairy Cooperative Societies organized on 'Anand' pattern have shown that strong strategy can be built for increasing the production in the milk group which takes care of both demand and supply side of the production chain. Similar initiatives need to be taken up in other livestock products specially meat and poultry.
5. The livestock production requires a number of services especially on the production side. At present, Government is the major provider of these services. The quality of these services is however, unsatisfactory and these services are not available at the doorstep of the producers. Government Institutions at times are not able to deliver due to financial as well as bureaucratic constraints. The livestock farmers are, therefore, not able to take full advantages of these services in increasing their production. There is need for providing efficient and effective decentralized services in tune with the demand emanating from the users. Such services should be delivered at farmer's doorstep and linked with cost recovery for economic viability.
6. The present structure of livestock improvement is based on fixed model of a veterinary hospital/dispensary being the key nodal structure at the ground level from where services and goods are currently distributed. In the National Project on Cattle and Buffaloes Breeding, a model has been adopted which is a slight improvement over the fixed model.

The Bhartiya Agro-Industries Foundation (BAIF) model has been more successful in delivery of services and goods under many situations. The cooperative structure has also been successful under various conditions. There is a need to restructure service delivery mechanism to become conducive to the requirement of rural livestock producers and create an environment, which farmers will improve productivity of their stock.

7. In the livestock sector, there is hardly any mechanism to provide transfer of technological development to the producers. There does not exist effective linkage between the agricultural universities and the farmers; the extension system has virtually collapsed in most states. The objective should be to build a farmer friendly extension system for the livestock production based on linkages with National Research Institutes and Agricultural Universities. Sustainable rapid growth and development of livestock sector can only be ensured if the approach of livestock owner, service providers, veterinarians and planners become knowledge based and they acquire the ability to absorb, assimilate and adopt the spectacular development in the animal science and livestock production related technologies. A massive programme encompassing village schools, veterinary colleges and universities should be taken up in collaboration with ICAR to improve the skills and competence of all the stakeholders.
8. Lack of credit for livestock production has been a major problem in all parts of the country. Public sector lending in livestock sector is abysmally low. The commercial banks are not favourably disposed to providing credit to livestock farmers; the cooperative credit system is very weak resulting in non-availability of credit to the sector. The failure of organized credit system in extending credit has led to excessive dependence on informal sources usually at exorbitant interest rates. In the 11th Five Year Plan there is a need to build a line of credit to meet the requirement of livestock sector.
9. Livestock farming is a major player in dry lands and hill regions. But the focus of investment and development strategy in these areas has been on crop agriculture. The focus in these regions should be on livestock production as more than half of family income is derived from livestock. This will help to alleviate poverty and increase the family income of those who are poorest of poor.
10. External markets are an extremely important source of demand and these should be tapped much more aggressively. In order to encourage exports, all licensing control for processing of livestock products/by-products should be repealed and all restrictions on the export of livestock and its products need to be removed. The immediate focus should be on export of Indian dairy products, buffalo meat and poultry products to Asian and African countries. The minimum requirements for sustainable export are creation of disease-free zones, organic farming and potable water; these should be made available in selected areas having large marketable surplus.
11. Quality and safety of livestock products depend upon quality and safety assurance system for which legislation is an obligatory mechanism for setting up standards, which should correspond to Codex standards. The Government of India has recently notified integrated food safety law which would also be applicable to livestock products. An infrastructure

needs to be created to implement these laws in livestock sector. This would include infrastructure facilities for testing food quality and safety which needs to be harmonized with OIE and SPS system.

12. Indian livestock possess great biodiversity, which needs to be maintained. Conservation of threatened breeds of livestock and their improvement should be a major goal of the plan. It should be national priority to maintain diversity of breeds and preserve those showing decline in number or facing extinction.

5.3 Institutional Restructuring

5.3.1 The key pillars of Institutional structure providing services in Animal Husbandry and Dairy Sector are; i) Government, ii) Private Sector, iii). Producer Institution, iv) Autonomous Bodies and v) NGOs. These institutions do not have a well defined role and their functions overlap each other making assessment of their performance difficult. There is a need to define the role of various institutions to make them more effective.

A role restructuring is indicated below:-

Government: (Central and State Governments) should concentrate on following:-

1. Policy formulation and implementation.
2. Provision of public goods including physical infrastructure.
3. Regulation of private activity and promotion of competition.
4. Technology development
5. Overall governance and promotion of credible and secure legal environment.
6. International interfacing.

Private Sector: should concentrate on following:

1. Production, marketing, input supply and service support.
2. Technology development.
3. Compliance with regulatory structure.

Producers Institutions: should focus on following:

1. Representation of producer interests in policy making and resource allocation decisions.
2. Promotion of producer interests in emerging markets.

Autonomous Bodies: should focus on following:

1. Information generation and dissemination.
2. Policy analysis and promotion of stakeholder dialogue.
3. Technology development.
4. Capacity building.

NGOs: should keep their focus on following:

1. Information generation and dissemination.
2. Complimenting government's development role.
3. Equitable participation.
4. Capacity building.
5. Watchdog function.

5.3.2 Livestock services are critical for enhancing productivity and competitiveness. The Government maintains a large public infrastructure on livestock services but there are questions about the service utility and reach to the livestock producers. The services are provided free following the concept that livestock producers are small and poor but the experience shows that these poor section of society hardly have any access to the free services. The services are neither sufficient nor free. The Department of Animal Husbandry and Dairying both at Centre and in the States maintain a large infrastructure, which is outdated, and not in tune with the technology required for efficient livestock production system. This infrastructure requires institutional restructuring to become effective.

Restructuring at National level:

5.3.3 The Government of India maintains large infrastructure which is not fully utilized because of financial and bureaucratic procedure followed by these institutions. Many of the infrastructures are out dated and have not kept pace with the development in science and technology. Following restructuring is suggested at the national level:

1. Establishment of a National Institute for Livestock Information and Policy Studies:

5.3.4 One of the major weakness of the livestock sector is lack of information on various production systems and policies relating thereto. Most of the information is based on livestock census. A number of surveys are being conducted regularly for estimation of major livestock products including the cost of production but these studies hardly form the basis for taking policy decision. There are also many gaps both in coverage especially in case of the less important products. There is also lack of mechanism to coordinate various studies and survey in the sector. **A National Institute for Livestock Information and Policy Studies** should be set up in the 11th Five Year Plan. The institute should be an autonomous body and work as an independent think tank for the livestock sector. It would perform following functions:-

- i). Set up a Network on Livestock Sector Information relating to Production, Health Situation, Services, Trade etc.
- ii). Sponsor studies on livestock sector, feasibility studies, evaluation studies, concurrent evaluation of the schemes and programme, cost of production of commodities, economics of livestock farming etc.
- iii). Help states in establishing Networks and organizing information collection.
- iv). Have a team of experts fully qualified in Livestock Economics and Statistics to advise the Ministry in all policy matters relating to Livestock. They should also undertake follow-up studies once Census results are out.

- v). Take necessary action to organize and improve the data system - Livestock Census Input Survey and Integrated Sample Survey for the estimation of the number of various livestock and production of major livestock products, viz. Meat, Milk, Eggs and Wool in the States/UT and create a suitable data warehouse/storage and retrieval system with the help of all States and UTs.
- vi). It would serve as a store/clearing house for all type of livestock statistics and conducting various types of survey studies.
- vii). Publish available data collected under various schemes and with the various public/private organizations and disseminate the same.
- viii). It would have independent cell to monitor and evaluate all the existing schemes being run by the Department.
- ix). It will serve with database support / mechanism in helping Central Government to watchover issues relating to W.T.O.
- x). Establish a channel of communication and coordination with all the State Governments and the Public / Private Organizations - both national and international, dealing with Livestock.
- xi). Encourage development of the Livestock Economics / Statistics discipline at the University level, by creating a separate Department of Livestock Economics and Statistics in the Veterinary Colleges/Agriculture Universities.
- xii). Bring out a monthly periodical - Livestock Situation in India covering various aspects of the livestock sector and publishing research articles on livestock.

2. Authority for quality control on Breeding Material.

5.3.5 Need for establishment of an authority for quality control on production of breeding bulls, semen, embryo and other breeding material has been suggested since 8th Five Year Plan. At present, besides public sector institutions, a number of private sector bodies, ICAR and NGOs are engaged in the production of material required for breeding of cattle, buffaloes and other species of animals. In the absence of any regulatory authority there is no enforcement of standard required for production of frozen semen embryos and other breeding material. In the 11th Five Year Plan an authority needs to be created which would enforce these standards.

5.3.6 The centrally sponsored National Project on Cattle and Buffalo Breeding should be modified to the extent that the production of frozen semen should be centralized under the authority and individual state project authorities should not be assisted for setting up of freezing units.

3. Restructuring of National/Central Livestock Farms:

5.3.7 Government of India is maintaining 7 Cattle Breeding Farms, a Large Sheep Breeding Farm and breeding farms for other species of livestock and poultry. The farms have not been able to achieve their objectives and face problem of management and manpower. It is suggested that the infrastructure which is required for production of frozen semen and other breeding material should be transferred under the control of Authority for Quality Control for Breeding

Material and the infrastructure not required by the authority should be dis-invested and sold or transferred to private sector or NGOs.

4. Authority for Quality Control for Production of vaccine and other Biological:

5.3.8 There is a need for a body to control quality in the production of vaccine and other biological both in the public and private sector. It should be an autonomous body having legal powers to supervise and control quality of production and production processes in public and private sector. It should also prepare manpower required for quality control, should undertake and sponsor studies relating to quality but should not in any manner take up production of vaccine and biologicals.

5. Dis-investment of Forage Production Farms:

5.3.9 Under the Central sector scheme 7 Regional Stations for Forage Production and Demonstration are functioning at Mamidipally, Hyderabad, Gandhi Nagar, Hisar, Suratgarh, Sahema (J & K), Alamadhi (Tamil Nadu) and Kalyani (West Bengal) and a Central Fodder Seed Farm at Hasserghatta (Bangalore). These stations are catering to fodder related requirement of the states in their respective regions. The evaluation study made by Centre for Management Development, Thiruvananthapuram reveals that the performance of these farms is not satisfactory and the impact of their activities on the farming community and the society as a whole is too little especially when compared to the extent of funds spent. The above study suggest that the fodder seed production strategy should envisage production of foundation seed and breeder seed by Agriculture Universities and commercial seed production through producer's contract farmers. Therefore the existing infrastructure may be transferred to the Agriculture Universities, who are better equipped for producing foundation seeds.

6. Dis-investment of Delhi Milk Scheme:

5.3.10 DMS operating under Department of Animal Husbandry, Dairying & Fisheries is marketing about 2.5 lakh litres of milk per day, which constitute about 5 per cent of the total milk demand in Delhi. DMS is suffering huge losses despite it keeping price parity with Mother Dairy who is marketing about 22 lakh liters per day and is operating on commercial basis. There is no justification for DMS to continue as a public sector loss-making unit. DMS should be dis-invested and sold to cooperative or private sector, who may be able to operate it more efficiently.

7. Establishment of a separate Indian Council for Veterinary and Animal Science Education and Research (ICVAER)

5.3.11 The ICVAER should be established by carving out the Animal Science Institutes of ICAR and placing them with Department of Animal Husbandry, Dairying and Fisheries (DAHD&F). The proposal is reported to have been approved by the Planning Commission in the 10th Five Year Plan. Working Group reiterates it again. Creation of ICVAER would overcome the shortage of technical manpower and infrastructure in the DAHD&F for carrying out the regulatory and certification authority functions including conservation of endangered breeds of livestock. This will also help the Department to undertake problem linked research and revitalization of state veterinary colleges as per the norms of Veterinary Council of India. This would require amendment to the list of subjects allocated to the Department of Agriculture Research and Education and Department of Animal Husbandry Dairying and Fisheries under list 1 of the Seventh Schedule to the Constitution of India. The research and education in

Veterinary and Animal Sciences may be deleted from the list of subjects allotted to Department of Agriculture Research and Education and added to the list of subject allocated to Department of Animal Husbandry, Dairying and Fisheries.

Restructuring at State Level:

5.3.12 State Departments of Animal Husbandry are also operating huge infrastructure mainly for the production of inputs and services. However, these institutions are not operated economically and the Departments are suffering financial losses. There is a need to restructure the state departments so that their function is restricted mainly to supervision and quality control of the services provided by the various organizations. Following restructuring is suggested:-

1. Production of vaccine and other biological material.

5.3.13 The production of vaccine and other biologicals should be transferred to private sector and the government should withdraw from these activities. Privatization of Veterinary Vaccine and biologicals is being recommended in successive Five Year Plans since last two decades but the suggestion have not been implemented by the states, who continue to maintain and operate these units. As a result, private sector has no initiative to produce animal vaccine and biologicals. Government of India should advise all states to privatize their production of vaccine and other biologicals. In any case Government of India should not assist the states for such activities under Centrally Sponsored Scheme.

2. Dis-investment of State livestock farms:

5.3.14 Large number of livestock farms are managed for the purpose of (a) production of breeding bulls and (b) preservation of various breeds of different species. These programmes are neither cost effective nor have been able to achieve their objectives. The production of breeding males and conservation of breeds should be done using farmers' animals. All livestock farms should be phased out. These should be closed or leased to private sector or NGOs.

3. Establish Livestock Economics and Statistics Wing.

5.3.15 The state departments of animal husbandry should establish livestock economics and statistics wing under an agricultural economist within the department of animal husbandry. The wing should have sufficient qualified staff. It should establish networking for information on animal health and production system.

Reorganization at Grass-root Level:

5.3.16 Rural youth should be trained to work as Gopalmitra (Paravet) and entrusted with the responsibility of providing A.I. and minor veterinary services. They should be linked to existing infrastructure of A.I. and animal health services. Gopalmitra institution has been successful in providing services at the farmers' doorstep in many states. Section 30(b) of Veterinary Council of India Act, leaves it to the State Governments to notify the activities that are considered to be minor veterinary services in the state. However, only a few states have notified such a regulation. All states should be encouraged to notify these services. The State Governments along with the respective State Veterinary Councils should also develop a mechanism for regulation of Minor Veterinary Services.

5.3.17 The preventive disease control should be carried out through participation of producers, NGOs and other stakeholders. Such a strategy besides being cost affective would ensure participation of livestock and others farmers working in the rural area.

5.4 Public Private Partnership

Present Constraints

5.4.1 In India, the public sector continues to be primary provider of animal husbandry services. Both the central and state governments have created an elaborate infrastructure for providing necessary input services to farmers for enhancing and optimizing the production in livestock sector. However, it still is unable to reach a desired percentage of users. The key animal husbandry services are generally failing in the rural areas and wherever these are delivered their quality is poor. Generally the service delivery centers are established on considerations other than need. The source of the problem is not as much in the lack of funds and programmes, but rather the poor performance and expenditure management of many of these programmes. The system has further deteriorated because of prevailing labour laws, cumbersome governmental procedures and non-accountability for poor performance and mismanagement in implementation of various programmes.

5.4.2 In line with the growth in demand, it is expected that the livestock sector could become the driving force for the overall growth in the agriculture sector. With the expectation of higher growth, the investments under the Eleventh Five Year Plan for the livestock sector is envisaged to be much higher than that in the Tenth Plan. However, such a growth cannot be achieved by the government, cooperatives and the participation of private sector on a limited scale, each functioning independently alone. In this direction, Public Private Partnership (PPP) could play a crucial role and contribute immensely to growth.

Public Private Partnership (PPP)

5.4.3 PPP is considered as a partnership among public and private institutions/individuals and NGOs to achieve a mutually agreed goal in the interest of defined target group and the partners. PPP blends social equity and efficiency in development. By stimulating higher production and growth, PPP is expected to contribute in the following manner.

- i. Effective multiplier effect; “win-win for all”; “best of all”
- ii. Better outreach, horizontal spread, synergy and complementation.
- iii Higher asset base and resource mobilization.
- iv. Enhanced output, income, employment and growth.
- v. Efficient and effective operations, improved productivity and cost effectiveness.
- vi. Better services and responsiveness.
- vii. Effective problem solving.
- viii Access to knowledge, technology, skills and capital.
- ix Blend social concern and efficiency – not to exclude the poor.

x. Empower the poor, ensure their participation, enable them to share the benefits of growth.

5.4.4 PPP blends the strength of various partners, Government, Private and NGOs, as indicated below:

A Government

1. Welfare and Social equity
2. Financial resources and infrastructure
3. Governance
4. Wider coverage and spread

B Private

1. Efficiency
2. Effective Management
3. Concern for Viability and sustainability
4. Access to skills, 'K' and technology
5. Access to capital

C NGOs/Civil Society Organizations and Farmers' Cooperatives

1. Proactive and committed
2. Outreach to remote areas
3. Passion for social justice
4. Flexibility
5. Cost effective operation

Opportunities Identified for PPP:

5.4.5 PPP has already demonstrated its contributions and effectiveness in a number of areas around the country. Some of the successful examples in the livestock sector are:- Livestock Service Delivery: Livestock Breeding and Health Services, (Gopalmitra / Paravet / Village level Worker), milk procurement, transportation and distribution, marketing of milk and other agro-products, development, manufacture and distribution of vaccines, biological and feed additives.

5.4.6 Livestock sector throws up immense opportunities for supporting higher production, employment, income and growth through PPP. The sector also offers immense opportunities for innovations in PPP. Important sectors where PPP can be promoted on priority are listed below:-

- i. Public Private Partnership for Joint Management of Public Infrastructure and Resources.
- ii. Role of PPP and NGOs in Delivery of Livestock Services;
- iii. PPP for stimulating milk production and marketing in areas not covered by the organized sector including tribal areas;
- iv. PPP for Production and Marketing in Low Potential / Backward / hilly / arid regions: Promoting sustainable livelihoods through Poultry productions;
- v. PPP in Integrated Small Ruminant Production and Marketing;

- vi. Management of Community Pastures through PPP;
- vii. Establishment of Community Fodder Banks linked with Complete Feed Production;
- viii. Human and Institutional Development through Public-Private-NGOs Participation;
- ix. Organisation of Animal Trade and Freeing of Animal Movement across the Country;
- x. Processing of Fallen Animals and Animals Products;
- xi. Collections, processing and marketing of skin and hides;
- xii. Disease surveillance, prevention, control and eradication;
- xiii. Disease investigation and diagnosis;
- xiv. Extension and technology transfer;
- xv. Research and Development;
- xvi. Data Collection, Information Management and Sharing.

PPP in 11th Five-Year Plan:

5.4.7 In the 11th Five Year Plan following initiatives are proposed on PPP. These are the areas where programmes implemented in Public Sector have not been very effective.

1. Livestock services delivery.
2. Small Ruminant Production and Marketing.
3. Sustainable livestock through Poultry Production..
4. Development of Community Pasture for Fodder Production.
5. Establishment of Fodder Bank cum Complete Feed Units
6. Integrated Buffalo Calf Rearing for Meat Production.

5.5 Sector wise Initiative

1. Feed and Fodder Development

Enhancing Fodder Production

[5.5.1.1](#) Adequate availability of quality fodder is essential for enhancing livestock productivity. With proper planning and programme, the fodder production, particularly, the cultivated green fodders can be doubled. For this, there is a need to target at least 10% of the net cultivable land for growing fodder crops.

[5.5.1.2](#) Appropriate strategies are needed for effective utilization of existing grasslands based on carrying capacity and nutritive status. Institutional mechanisms have to be developed for active community participation and adoption of optimal system of rotational and deferred grazing. Grasslands can be better utilized by intermittent grazing of cattle, sheep and goats. In fact, it will be most valuable to restrict cattle and goats to in-house rearing conditions since these species are most amenable to stall-fed maintenance. Large scale reseedling of pasture lands with legumes and non-legumes, introduction of fodder trees and shrubs in grasslands and wastelands, use of orchard interspaces for forage production and forage leaf meal production

are among the strategies which need to be taken up extensively. There is a need for greater collaboration among forest, agriculture, animal husbandry departments and local bodies for development and implementation of these strategies.

Grazing Resources in India (2000 - 2001)

Resources	Area (Million Ha.)	Percentage
Forests	69.41	22.70
Permanent pastures, grazing lands	10.90	3.60
Cultivable wasteland	13.66	4.50
Fallow land	24.99	8.10
Fallow land other than current fallows	10.19	3.30
Barren uncultivable wastelands	19.26	6.30
Total common property resources other than forests	54.01	17.70
Livestock units / Ha. of Common Property Resource	6.07	

[5.5.1.3](#) However, there are formidable limitations in exploiting the scope for enhancement of green forage production. In cultivable lands, green fodder production is marginal, subsidiary and non-commercial unlike food, horticultural and other field crops. Lands utilized for fodder cultivation are invariably uncultivable, semi-cultivable or arid which, though may be reasonable from land use perspective, would naturally limit the forage production and productivity. Lack of data and inventory on fodder production scenario is a hindrance to planning and formulation of schemes. Fodder production is primarily a land use activity. It however does not attract crop scientists for research and technology development since fodder crops are still considered as low priority crops.

Fodder seed production

[5.5.1.4](#) The demand for forage seeds is increasing and the availability is very low, meeting only 15-20% of the requirement. A number of promising forage varieties have been developed which can be incorporated into the production chain. At present, fodder seed market is not very organized. Timely availability of quality seeds is also a major constraint. Often seeds produced by agencies against specific requisitions are also not lifted, creating difficulty in utilizing these seed materials. One other important handicap is that the quality standards for forage seeds and database on requirement and availability have not been adequately developed.

Estimated Seed Requirement for Selected Fodder Crops in the XI Plan

(2007 - 2012)

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Crop	Area (in million ha)	Average Seed Rate (Kgs/ Ha.)	Total Seed Used (Qtls.) (2*3)	Average Seed Yield (Qtls./ Ha.)	Area for CS Prod. (Ha) (4/6)	FS Resulted (Qtls.) (6*3/100)	Area under FS Prod. (Ha.) (7/5)	BS required for FS Prod. (Qtls.) (8*3)	Area under BS Prod. (Ha.) (9/5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Maize	0.9	20	180000	20	9000	1800	90	1800	90
Jowar	2.6	10	260000	10	26000	2600	260	2600	260
Bajra	0.9	10	90000	8	11200	1120	140	1400	175
Oats	0.25	75	187000	15	12500	9375	625	46875	3125
Berseem	2	20	400000	5	80000	16000	3200	64000	12800
Lucern	1	15	150000	4	37500	5625	1400	21000	5250
Total			1267000		176200	36520	5715	137675	21700

Remarks:

- I. Col.5 indicates the estimated seed consumption / use for raising the relevant fodder crops and the other Cols. reveal the seed production scope through CS-FS-BS Chain.
- II. For the present, only straight varieties are considered for the plan estimates. However, in Jowar, based on seed sales by the organized sector about 10% area is estimated to be under hybrids.

Fodder preservation

[5.5.1.5](#) Fodder preservation methods such as wet preservation in the form of silage and dry preservation in the form of hay are well known, established, time-tested technologies adopted all over the world. The objective of preserving green fodder or forage is either to save the surplus material for use in the lean period or to harvest the green forage in right time to recover maximum nutrients and preserve them so that the preserved material can be used separately or as part of a total mixed ration. Under Indian conditions, the adoption of these preservation techniques is by and large limited to organized government farms. The non-adoption of these methods are due to several reasons, the chief among which being, cultivation of fodders is scanty and hardly any surplus is available and small and scattered land holdings with few herds of livestock do not enthruse the farmers to undertake such laborious and manual tasks, particularly, when the livestock rearing is not a primary occupation with most farmers. However, large scale commercial production of fodders, their timely harvest and preservation into hay or silage will help in the manufacture of feed blocks and total mixed rations by the industry for delivery of the same to the doorsteps of intensive, commercial livestock units which are emerging of late, in many parts of the country. In many parts of the country, however, large quantities of paddy straw, wheat straw and sorghum stalks are stored in dry condition and used throughout the year.

Crop residues

[5.5.1.6](#) Paddy straw and wheat straw are abundantly available in the country within the farm holdings. They constitute the basic, bulk, roughage materials for large ruminants like cattle and buffaloes. Other cereals and millets also yield substantial quantities of residues of which sorghum and bajra straws are very important. Various pulse crops and oilseeds also provide residual material in the form of their stems and stalks to form part of the roughage material. Sugarcane, one of the important agricultural crop yields both sugarcane tops and bagasse which are quite edible for the ruminant stock. Availability of these crop residues depend by and large on the acreage under the main products. It must be kept in mind that competitive demands for crop residues from paper, cement and packaging industries exist and may increase. Most of the edible biomass in future may be diverted to bio-fuel production, which would require the livestock industry to formulate alternate futuristic strategies. Crop residues can be improved in their nutritive value through ammoniation and urea treatment. Baling, densification, making of blocks, pellets, briquettes etc. and nutritional enrichment by microbial means and incorporation of other ingredients to crop residues to make balanced rations are the various feed technology measures available for their better utilization.

Biotechnology interventions

[5.5.1.7](#) Biotechnology measures have become a handy tool for improvement of nutritive value of feeds and better nutrient utilization. Feeds, particularly crop residues are improved through microbial, chemical and physical processes by splitting of ligno-cellulosic bonds of the fibrous matter. This improves digestibility and better availability of cellulose and other digestible fibre for rumen microbial degradation. Microbial processing also enriches the crude fibrous material with microbial protein. The rumen metabolism can be manipulated with advantage by using anaerobic fungal probiotics, resulting in better fibre digestion and microbial protein synthesis. Microbial fermentation invariably results in some methane production, to the tune of 5 - 7% of the calorific value of the dry matter consumed. This is wasteful and environmentally detrimental. Reduction in particulate size, higher concentrate or grain feeding and introduction of propionic bacteria into the rumen along with the feed can control methane production. Use of ionophores and unsaturated fatty acids also helps in reduction in methane production. Biotechnological means can also be employed for multiplication of plant material through tissue culture and genetic improvement of forage plant varieties.

Regulatory mechanism for feed quality control

[5.5.1.8](#) Presently, standards and specifications for several feed ingredients and compounded feeds for livestock and poultry are available under the Bureau of Indian Standards. However, there is no control or regulatory mechanism available for imposing these standards as mandatory. CLFMA has evolved its own standards for cattle feeds. However, there is an urgent need for formulation of standards and specifications for large number of feed ingredients and feed formulations for different categories of livestock and poultry. Accredited laboratories have to be established and the equipment and procedures adopted in these laboratories must be uniform and highly sophisticated. There is also a need for development of adequate human resources to undertake quality control work through, chemical, physical, biological and micro-biological methods. Since the whole exercise encompasses the monitoring of food chain to ensure sanitary and phyto-sanitary safety, the quality control measures should invariably include several pollutants, contaminants and toxicants either natural or those introduced into the food chain.

[5.5.1.9](#) The programmes, projects and activities to be undertaken involves several agencies of which the chief ones include (a) farming community and households (b) public institutions and governmental agencies (c) industry and entrepreneurs and (d) R & D Institutions such as State Agricultural Universities and Indian Council of Agricultural Research Institutions.

[5.5.1.10](#) Farming community and households must be actively involved in establishment of intensive farming units, fodder seed production, production of coarse grains, cultivable and commercial fodder production and storage and utilization of farm byproducts such as straws, stovers, brans, oil meals, vegetable byproducts and other edible biomass. Public institutions, governmental agencies and local bodies must be collectively engaged in the monumental task of grassland and community land development and development of forest lands for fodder production, establishment of fodder banks, fodder seed production, agro-processing infrastructure, support for the establishment of commercial feed supply units and intensive livestock / poultry farm units.

[5.5.1.11](#) Industrial participation and entrepreneurship building are most valuable to undertake and execute several innovative schemes which incorporate within them latest technologies on feeds and fodder development. Their tasks are related to scaling up the production of concentrate mixtures, total mixed rations, complete feeds, high-energy ration and pellets. New technologies such as bypass nutrients, probiotics and feed enzymes can be taken up on industrial production scale. Production of location specific mineral mixtures, trace element supplements, urea-molasses-mineral blocks, granules and salt licks have to be enhanced by the participation of the industry. Manufacture of feed blocks using crop residues, briquettes, utilization of agro-industrial byproducts, brans, oil meals, coarse cereals, vegetable, fruit byproducts, sugarcane, distillery, meat, milk byproducts in large organized scale is possible only through industrial involvement. Even fodder seed production, production of novel feeds like azola, leaf meal and incorporation of preserved fodders such as hay and silage in total mixed rations can be taken up through intense entrepreneurship and organized industrial efforts.

[5.5.1.12](#) R & D institutions have great stakes in feeds, fodder and pasture development. Research and technology interventions are needed in the aspects of feed technology and processing, determination of nutrient requirements, evaluation of economic feed formulations, nutrient utilization studies, post harvest measures for feeds, fodder and seeds, feed supplementation, feed additives, novel feeds and agro-industrial byproducts. Extensive evaluation and performance studies have to be carried out under in-house rearing systems of livestock. Field level pilot projects, training and demonstration activities have to be undertaken. It is also important to take up studies of feeds-livestock-environment relationship.

Public Private Partnership Initiative:

[5.5.1.13](#) The strategy for development of Common Property Resources (CPR) and fodder banks has not been successful primarily because such projects were implemented without public participation. It is proposed to take up these projects through PPP in the 11th Five Year Plan.

1. Development of Community Pasture for Fodder Production:

[5.5.1.14](#) The Common Property Resources (CPR) consisting of revenue wastelands, Panchayat land and the forest land which constitute the most important input for livestock production and subsistence for the poor. These are under depletion and degeneration affecting the livelihood security of the poor. There are innumerable successes in CPR development and management

through community participation. Based on these models, broad frame work/norms for investment of resources, community contributions and inputs (e.g. labour), use of outputs, distribution of income, stocking rate, breed improvement, interagency coordination, etc. should be agreed by the local community and formalized. The Panchayat, and the Departments of Forests, Revenue and Animal Husbandry should endorse these and cooperate. Local NGOs/Civil Society Organizations should be encouraged and trained to facilitate.

[5.5.1.15](#) The common land should be delineated on the ground and tenurial, usufruct and long term management rights given to the user groups/ associations. All communities dependant on CPRs including the landless, livestock and non-livestock owners should actively participate. CPRs available should be divided in to sections, some fenced and developed for regeneration and the others for immediate continued /controlled grazing until the first part starts yielding. Community controlled social norms and codes should be followed to generate revenue through distribution of produce for sustainability. Continuous degradation of CPRs are already reaching a point of no return, jeopardizing the livelihoods of lakhs of landless. It is high time that government took steps to reverse the trend at costs, which are not very high.

[5.5.1.16](#) CPR user groups/ Associations to be organized through facilitation by local NGOs and Panchayats. The Government support would be mainly for (i) delineation of the land and assigning user rights, (ii) Facilitation support through the three Deptts. and (iii) Initial financial support for land development, live fencing, pasture regeneration, watch and ward, institutional support and costs of Civil Society Organization etc. until reasonable yield begins to emerge (in about 4 years). Further sustainability would be on contributions from user groups as labour inputs, payment for produce etc.

[5.5.1.17](#) A financial support at the rate of Rs.20,000/- per ha. is expected to meet the costs. Thus, a total allocation of Rs.200 crores is proposed in the form of grant assistance for coverage of 100,000 ha.

2. Community NGO-Government Partnership for Management of Fodder Banks

[5.5.1.18](#) Acute fodder scarcity is a common phenomenon in arid zones in different parts of the country, where fodder prices rise steeply during drought periods and small and marginal farmers are compelled to get rid of their livestock due to inability to feed them. In such areas, establishment of community fodder banks can be a boon to sustain their livelihood even under distress conditions. In spite of its importance and direct benefit to small farmers, operation of fodder banks is not economically viable, particularly during the period of good monsoon seasons. In the absence of buyers, the fodder bank has to write off degenerated fodder stored for long period. Therefore, it is necessary to provide financial assistance from time to time to compensate the loss. Suitable strategy should be developed to sustain the activities of fodder banks in arid regions.

[5.5.1.19](#) The operation of fodder bank on economically viable scale is essential. The responsibility of fodder bank management should be entrusted to local community or dairy farmers' organizations or NGOs who are active in this field. With fodder bank, the production of complete feed can also be undertaken as it has good demand in the local market as well as in peri-urban areas, even during normal seasons. Depending on the availability of crop residues, the surplus fodder can be converted into complete feed, while avoiding the wastage and recovering the cost of operation. The organisations setting up fodder banks can also establish their procurement units in fodder surplus areas, where agriculture by-products are burnt due to lack of demand.

[5.5.1.20](#) Livestock is the main source of livelihood for small farmers and landless in drought prone areas. However, in the absence of adequate fodder supply, particularly during scarcity, these farmers are compelled to either migrate and discard their livestock, which will force them into chronic poverty. Therefore, it is necessary to support them through supply of fodder at affordable price.

5.4.21 In the proposed initiative the organizations / District level Dairy Farmers' cooperative or NGOs would set-up the fodder bank cum complete feed production units. The District Rural Development Agencies would provide finance to cover the shortfall for operating the fodder banks. The Forest and Revenue Departments will facilitate collection and transportation of fodder from various sources. The Animal Husbandry Department will monitor the quality of the feed, provide information on demand and supply of fodder and assist in disbursement of surplus fodder in other scarcity areas.

22. The 11th Five Year plan the project may cover about 100 fodder banks in fodder / by-products surplus areas, each with a stock of 5000 tons. A financial support of Rs.2.00 crores per unit for procurement of fodder, equipment and machinery is needed. The total cost for supporting 100 fodder banks is Rs. 200 crores.

5.5.2 Cattle and Buffaloes Development

[5.5.2.1](#) Strategy

To achieve a reasonable genetic progress in the target population, the population of breedable cows and buffalo covered under AI is proposed to be increased from the present level of 14 million to 35 million by 2011-12. To achieve the targeted coverage, the number of AIs to be carried out will be raised from the current level of 34 million to 87 million and the total production of semen doses from the present level of 37 million to 92 million. In order to produce 92 million doses, the number of bulls required for semen collection should be raised from the present level of some 2400 to 4400, and the annual bull replacement from the current level of about 1000 to 2000.

[5.5.2.2](#) The National Project on Cattle and Buffalo Breeding (NPCBB) would continue to be major initiative in the 11th Five Year Plan. Emphasis would be required on the following aspects of NCBBP:

- i. The genetic progress would depend on quality of the bulls used in AI programme. Ordinarily only progeny tested bulls should be used in such a breeding programme. Unfortunately progeny tested bulls are not available in the country. Therefore, the attempt should be to identify best male from the available sources. A programme of production of quality bull should be initiative on State Livestock Farms and through use of farmers' herds. The embryo transfer technology (ETT) should be made use of in production of bulls, in absence of progeny testing.

- ii. Progeny testing should be taken up in the field using farmer's herds. This would provide a wider genetic material for testing a large number of males of indigenous breed of cattle and buffalo as well exotic and crossbreds.

iii. Import of frozen semen and embryo should be made from high producing herds in case of exotic breeds like Jersey and Holstein – Friesian for breeding of the exotic herds maintained in the country for the purpose of production of breeding bulls.

Breeding programme for production of superior bulls and bull mothers

[5.5.2.3](#) The type of breeding programme that one can develop and the rate of genetic progress that can be achieved in a target population primarily depends on the extent of AI infrastructure available in the population. The breeding programmes that could be developed for production of high quality bulls for semen production are briefly described in Table below. The number of bulls required annually for semen production and how they could be produced through different breeding programmes are also summarized in the Table.

Choice of breeding programme

Target Species/Breed	Genetic Improvement Programme		
	Pedigree	Field PT	ONBS
Well-defined Indigenous cattle breeds	Rathi, Tharparkar and other important dual and draught breeds	Gir, Kankrej, Sahiwal, Tharparkar and Hariana	Sahiwal and Red Sindhi
Exotic Breeds	-	HF and Jersey in selected pockets	HF and Jersey
Crossbreds	-	HF crosses and Jersey crosses	HF crosses
Well-defined buffalo breeds	All buffalo breeds	Murrah, Mehsana and Jaffarabadi	Murrah and Jaffarabadi

PT=Progeny Testing, ONBS=Open Nucleus Breeding System, HF=Holstein-Friesian

Production of quality bulls for semen production

Sr. No.	Breed	Annual requirement of bulls by 2011-12	Genetic Improvement			Import
			Pedigree	Field PT	ONBS	
1	Indigenous dairy breeds – Sahiwal, Red Sindhi, Gir and Rathi	150	100	25	25	
2	Dual purpose	50	50			

	indigenous breeds- Kankrej, Tharparkar, Hariana and Ongole					
3	Important draught cattle breeds	50	50			
4	HF	250		100		150
5	Jersey	150		50		100
6	HF crossbred	450		400	50	
7	Jersey crossbred	250		200	50	
8	Buffalo breeds - Murrah, Mehsana and Jaffarabadi	350 100 100	120 40 40	200 50 50	30 10 10	
9	Other buffalo breeds	100	100			
	Total	2000	500	1075	175	250

[5.5.2.4](#) The progeny testing programmes implemented by the existing institutions should be strengthened to produce the part requirement of the quality bulls. In addition, a few new institutions could be set with private-public partnership including NGOs for specific breeds in the specified pockets to produce the desired number of quality bulls.

[5.5.2.5](#) **Strategy for semen production**

The requirement of semen doses by year 2011-12 is estimated to be about 92 million doses. At present, there are 54 functional semen stations in the country out of which ten bigger stations should be strengthened with state-of-the-art facilities to produce annually 4 to 5 million doses each. Another 15 medium stations could be strengthened to produce annually 2 to 3 million doses each. Efforts would be made to encourage establishing bigger semen stations with public-private partnership for quality semen production. Efforts should also be made to produce sexed semen to have progeny of desired sex from genetically superior bulls.

[5.5.2.6](#) For ensuring the disease free germplasm production, disease diagnostic laboratories at regional level would be strengthened. The bulls would only be put to semen production only after obtaining disease free status from the designated laboratory. All bulls selected for breeding programme should be subjected to test for health status once every year by employing the primary / confirmatory test procedures.

[5.5.2.7](#) **National Germplasm Grid (NGG)**

Generally semen stations in a region are expected to fulfill the requirement of that particular region. However, because of excessive demand / supply of semen of a particular breed or breed of high genetic potential, a region, may face transient shortage of semen. To cope up with such

situations, it is proposed to set up a 'National Germplasm Grid', which will maintain the information regarding availability of semen of different frozen semen laboratories in the country. The grid will be a central co-coordinating agency for different germplasm units including bulls and frozen embryos available with different frozen semen / bull production stations. This agency can also be assigned the responsibility for producing the required quantities of semen needed including import of germplasm in the form of frozen semen / embryos / bulls. This agency should also prepare strategies to ensure production and supply of liquid nitrogen across the country.

5.5.2.8 Information Network for breeding services

The breeding services provided to farmers should be monitored effectively to help them improve reproductive efficiency and production potential of their animals. There is an urgent need to establish an information network using computing technologies by establishing a National network of database. This shall include identification of all animals covered under AI and milk recording.

5.5.2.9 The cattle and buffalo breeding programme in the 11th Five year plan should be based on following consideration

- I. Stabilization of livestock numbers should be attended through reduction of low producing cattle and buffaloes. The number of cattle and buffaloes in milk should be reduced from present 65 million to 50-55 million to meet our future needs and these further improved through suitable technological interventions.
- II. NPCBB has greatly help in providing breeding infrastructure in the country. Large gaps between targets and achievements still exist. Efficiency of system needs to be improved. Since breeding programmes with large animals have long gestation period, it is essential that NPCBB should continue for further period of 10 years.
- III. Although, National and State breeding Policy existed, many States have failed to operationalise the Policy. The Policy should be revisited and implemented strictly with a necessary legislative backup.
- IV. Out of the existing 54 functional semen stations, ten relatively large and efficient stations should be strengthened to produce 4-5 million doses each. Out of the remaining stations, 15 should be strengthened to produce 2-3 million doses each. All semen stations should follow the minimum standards laid down for semen production and a semen certification scheme should be introduced to ensure that only certified semen is used for AI in the country. A national semen grid by linking all semen stations should be established.
- V. At least one crossbred bull production centre, one exotic bull production centre and one buffalo bull production centre should be established preferably with public-private-partnership to produce about 200 bulls every year by each of these institutions and establishing a large field progeny testing programme covering about 50,000 breedable animals. The progeny testing programmes implemented by existing institutions for crossbred and buffalo bulls should be strengthened and these institutions assigned specific targets to produce some 500 bulls per annum by 2011-12.
- VI. Exotic HF and Jersey bulls/semen need to be imported as per the requirement as a short-term measure. Required embryos should be imported to breed HF and Jersey bull mother.
- VII. A massive field performance recording and evaluation system should be established for Murrah breed in its native tract and other parts of the country. For better participation of the farmers in field performance recording programme, suggestions from the States, Co-operatives, NGOs and the farmers should be invited through meetings and discussions. Incentives to be given should be discussed with participants and given to the farmers in

the form of kind and services.

- VIII. The Open Nucleus Breeding System (ONBS) programme needs to be set up for Sahiwal, Red Sindhi, Jersey crossbred cattle and Jaffarabadi buffaloes. The ONBS programme being implemented by existing institutions should be strengthened. Modern reproductive technologies such as estrous synchronization, sexing of semen and embryos, ovum pickup (OPU), *in vitro* maturation of embryos (IME), *in vitro* fertilization (IVF) etc need to be pursued for their standardization and used in large scale breeding programme.
- IX. Indigenous breed improvement programmes should be established for Rathi and Tharparkar cows in Rajasthan; Kankrej and Gir cattle and Jaffarabadi buffalo in Gujarat; Haryana cattle in Haryana and UP; Sahiwal in Punjab; Ongole cattle in Andhra Pradesh; Deoni cattle and Pandharpuri buffaloes in Maharashtra; Bhadawari in UP; and Toda buffaloes in Tamil Nadu in their native tracts.
- X. An efficient liquid nitrogen delivery system should be evolved in each State and a professional organization given the responsibility of delivering Liquid Nitrogen.
- XI. New AI centres should be established preferably with public-private-partnership to provide efficient door-step breeding services to farmers. In the places where AI is not feasible, to provide natural service required number of quality bulls of various breeds should be made available to farmers, cooperatives or NGOs.
- XII. Focused attention on improvement of selected dual-purpose draft breeds is required for the development of Draught Animal Power (DAP). Improvement programmes for dual and draught breeds should be initiated in their native tract on priority basis.
- XIII. Resources of the Gaushalas should be made use of for conservation and improvement of indigenous breeds, organic farming, bio-fertilizers, bio-pesticides, bio-energy, panch-gavya medicines and fodder seed production. Baseline data on Gaushalas, their activities and mandate should be revisited for better planning.
- XIV. An information network using computing technologies should be evolved to ensure close monitoring of all breeding operations. All animals under breeding should be identified, vaccinated and their performance recorded.
- XV. A coordinating agency should be established to monitor and regulate the functioning of all semen stations, genetic improvement programmes and AI delivery systems. This agency should facilitate coordination among institutions and establish linkages with them.

10. AI delivery at farmers' door step

In order to achieve the target of AI coverage, around 25000-30000 new AI centres would be needed by 2011-12. All new AI centres should be established preferably with public-private partnership to provide efficient door-step breeding services to farmers. Professional breeding service providing organizations like BAIF, JK Trust, and the Cooperatives should be encouraged to set up these centres and expand their operations to provide quality AI services to farmers. All existing Government centres should be converted into mobile centres. All private inseminators should be registered for providing AI services in the State. An efficient liquid nitrogen delivery system should be evolved in each State; and the State Implementing Agency (SIA) be given the responsibility of production and supply of breeding inputs and delivering LN₂ and these linked to national grid.

PPP for Livestock Service Delivery:

[5.5.2.11](#) Presently, the State Animal Husbandry Departments are the main provider of services such as livestock breeding, vaccination, primary veterinary treatment, etc. However, due to limited resources, lack of human resources, inadequate technological back-up and non-availability of superior quality inputs, these services are not available at the doorsteps of the farmers. Further, most of the livestock owners being smallholders and poor, they are hesitant to take active part in expanding their Animal Husbandry enterprise, in the absence of motivation, training and timely guidance. Considering the drawback of the on-going services provided by the AHD, several Voluntary Organizations and Cooperatives have promoted alternative livestock services in different parts of the country. The experiences over the last three decades have shown that such services are superior and cost effective. They can also be self sustainable in the long run.

[5.5.2.12](#) The project would encourage Dairy Cooperatives, Breeders' Associations, Producer Companies, NGOs and Private Agencies to replicate successful models to provide essential livestock services, while avoiding duplication. The State Government may discontinue these services and take a new role of providing disease surveillance, referral services and monitoring of the field programme in phases. The operationalisation of the Scheme would include:

- Identification of implementing agencies like dairy cooperatives / companies / Breeders' Associations or NGOs.
- Selection and training of paravets.
- Establishment of service centers and motivation of farmers.
- Service at the doorsteps recovering partial cost to be maintained as corpus.
- Priority for establishing services in remote areas and hilly terrains to serve the weaker sections of the society.
- Disease surveillance and control by Government.
- Provide market access for stimulating production.
- Regular joint monitoring.

5.5.3 Small Ruminants

Sheep

[5.5.3.1](#) Sheep are traditionally reared in India for production of wool and mutton. The local annual production of fine quality wool is around 4 million kgs. per annum against requirement of over 30 million by the industry. In view of large demand for fine wool, the development programmes have concentrated on improving sheep for wool production. These programmes were successful to a great extent especially in J&K, hilly regions of Uttar Pradesh (now Uttaranchal), Himachal Pradesh and some parts of Rajasthan. However, with the liberalization of International trade under WTO regime, India has been permitting import of wool, duty free under OGL (Open General License). The imported wool is better in quality and relatively cheaper than the indigenous production. Large scale imports of wool from Australia and New Zealand has destroyed Indian market for wool. Consequently, rearing of sheep for wool production is no longer economically viable. All programmes relating to improving the quality of wool in states other than J&K and high regions of Uttaranchal and Uttar Pradesh have therefore become irrelevant. Therefore, in future, the developmental strategy should concentrate on improvement of Indian sheep for mutton production which otherwise has a large demand both in the country and abroad.

[5.5.3.2](#) The breeding for mutton production should be based basically on selection within the

Indian breeds. Since the characters correlated with mutton production like growth and body weight are moderately to highly heritable and the generation interval in sheep is short, selection within the indigenous breed will bring considerable improvement in mutton production. Some of the Indian breeds like Mandya have dressing percentage comparable to those of exotic mutton breeds and can be used in the improvement of inferior indigenous sheep through grading up. Application of artificial insemination and progeny testing in sheep would improve the rate of improvement.

Goats

[5.5.3.3](#) Goats contribute about 35% to the total meat and about 3% to the total milk production in the country. Goat meat and other products contribute to the country's foreign exchange. However, because of its habit of nibbling at young plants and grasses, it can cause damage to the areas under afforestation. As such, if the economic value of goat is to be fully exploited, suitable management systems have to be devised to exercise greater control over their movement and feeding habits. It would also be necessary to reduce their numbers in areas where afforestation, soil conservation and pasture development infrastructure have been introduced.

[5.5.3.4](#) The goats, like sheep, are hardly provided any housing and it is usual practice to herd them together in an enclosure along with sheep or separately. Goats are generally maintained on browsing at natural grazing and are hardly given any supplementary feed. The goats are reared mainly for meat production. The milk production from goats is used for domestic consumption or marketed in adulteration with cow/buffalo milk. No attempts have been made to produce milk products from goat milk on any commercial scale.

[5.5.3.5](#) The future development programme in goat should be directed in improving its meat producing ability. In case of goats no exotic germ-plasm is available for increasing the yield of meat since superior goat breeds found in foreign countries are essentially dairy breeds. Consequently, the approach for improving meat production from goats should be selective breeding amongst taller and medium size breeds and out crossing the non-descript types with selected meaty type bucks. In addition, proper management, fattening and better health cover should be provided to improve returns from goat farming.

Development Programme in 11th Five-Year Plan

[5.5.3.6](#) Major policy reforms are required to provide support to small ruminant development programme. The grazing policy for livestock in forest, joint forest management with particular reference to high attitude forest needs to be developed and jointly implemented by Animal Husbandry and Forest Departments. Regeneration and development of common property resource and wastelands with involvement of Panchayats and NGOs need to be given greater attention.

[5.5.3.7](#) A project on the development of small ruminant should be formulated and launched as a centrally sponsored scheme. This should include organizing sheep and goat farmers into cooperatives or self help groups, creating marketing infrastructure of small ruminants, reduce the number of intermediaries, extension on fattening of animals before sale / slaughter and improving health cover to reduce mortality including measures to control diseases like Goat Pox, PPR and Blue Tongue.

PPP for Small Ruminant Production and Marketing:

[5.5.3.8](#) Small ruminant like sheep and goat make significant contribution to the livelihood of small farmers, particularly women headed families in remote areas, where the infrastructure for dairy husbandry is not adequate. These species being hardy, can manage on free grazing on community lands. However, the profitability of small ruminant production has been steeply declining due to absence of breeding services, declining accessibility and productivity of common property resources, lack of supplementary feeding, high mortality due to various diseases and absence of organized market linkages. The development of small ruminant has been given very low priority by the Government in spite of growing demand for the products consequent the of small ruminant owners are losing their livelihood opportunities especially in the vulnerable hilly arid and semi-arid areas.

[5.5.3.9](#) It is proposed to promote Small Ruminant Owners' Associations such as Federation of SHG, Cooperatives, Producer Companies and Associations at the grassroots level for promotion of goat production, procurement and marketing. Under this programme, the goat / sheep keepers' groups will be formed for providing breeding services through superior bucks, vaccination, deworming, improved feeding, development of common property resources and direct marketing. The private sector can be invited for procurement, processing and marketing, while NGOs can be involved in motivation, facilitation, capacity building and hand holding of goat keepers.

[5.5.3.10](#) It is proposed to launch this programme in 40 backward districts in six states where goat population is high covering about 5000 goat keepers in each district.

5.5.4 Poultry Development

[5.5.4.1](#) The commercial poultry sector is well developed in India. It however requires policy support. The thrust for poultry production in the 11th Five Year Plan should be on Rural Poultry Development and Women Empowerment. The Central Sector Scheme under 10th Five Year Plan" on Venture Capital Funds" which envisaged good response should be expanded during the 11th Five Year Plan.

[5.5.4.2](#) A large genetic pool of native germ plasm is available in different zones of the country which should be conserved. The Central Avian Research Institute, Izatnagar can be considered as a nodal agency to carry out the activities relating to conservation of native germ plasm.

[5.5.4.3](#) Feed being a major component (70%) in the production cost in poultry farming, price stabilization plays a major role for optimizing cost of production. Maize and Soya forms the major part of poultry feed and feed cost. The cost of maize and Soya are very high in India due to lower productivity per hectare of land in comparison to China, USA and Brazil who are the world leader in poultry production.

[5.5.4.4](#) The expected requirement of maize is about 10-12 million tons in 2010 compared with 7 million tons as in 2005 and requirement of Soya is expected at 3 million tons in 2010 as compared with 2.1 million tons as in 2005 exclusively for poultry consumption. However, the production of maize is stagnating around 10-11 million tons of which more than half goes for brewery industry. Therefore increase in production of maize and Soya crops in the country should get high focus. Suitable market intervention and provision of minimum support price for these commodities would facilitate stabilization of prices thereby ensuring sustainable poultry production. Import of duty free maize and Soya should be allowed when prices of these commodities go beyond normal level in order to ensure viability of poultry production and to discourage hoarders exploiting the shortages in production.

5.5.4.5 Thrust for Poultry Production in Poultry deficit areas:

There are several states not having adequate egg production to meet their demand depend on the import eggs and chicken meat from other states. A provision should be made to encourage for setting up of layer and broiler farms in the States of Bihar, Jaharkhand, Chhattisgarh, Madhya Pradesh, Uttranchal and North Eastern States. Assistance should be provided through venture capital fund.

5.5.4.6 Creation of Disease Diagnostic facilities and Referral Laboratories: - Strengthening of existing regional laboratories and establishment of new laboratories with sufficient infrastructural facilities for analytical work relating to feed and feed ingredients, poultry products for pesticide and toxin residues, chemical residue and antibiotic residue as per international guidelines. These laboratories should act as referral labs accredited and recognized with global status. These labs could provide certification for poultry to meet requirement of export.

5.5.4.7 Status of agriculture for poultry farming: - The ambiguity regarding the status of poultry sector whether agriculture or industry has lead to the sector not being entitled to various benefits applicable either to agriculture or to the industry. Though the Central Government has advised the State Governments to give agriculture status to the poultry, most of the State Governments have not followed this. Consequently in these the States, poultry industry has been denied benefit and the concessions offered to agriculture sector.

PPP for Sustainable livestock through Poultry Production.

5.5.4.8 Poultry is a boon for small farmers and landless. Because of short gestation and low investment, poultry production is a success story where the technology has been demystified and the activities have been systematically operationalised with forward and backward linkages. Fortunately, the demand for poultry products is high. However, it is only the large-scale poultry units, which have flourished while displacing backyard poultry and small-scale units. Considering this disadvantage, a few Voluntary Organizations, in collaboration with poultry enterprise have promoted small-scale poultry units with 500-1000 birds and collectivized the operations under the cooperatives to ensure economic viability. The critical inputs for success of small-scale poultry is hand-holding and forward and backward integration by committed Voluntary Organization or Farmers' Cooperatives.

5.5.4.9 It is proposed to promote 50 Poultry Breeders Cooperatives in the identified areas. Each Cooperative would have 200-300 members' mainly landless women and small holders belonging to BPL categories. Each member may own 300-500 birds. The programme would benefit 10000-15000 members. An investment of Rs.40000/- would be required per family, which can be provided through venture capital funds.

5.5.5 Pigs and Other Animals

Pigs

5.5.5.1 Pigs are of special importance in North Eastern States where consumption of pig meat is relatively high. In this region black colour pigs are preferred. At present the local production of pig is not sufficient to meet the requirement. Therefore large number of pigs produced in Andhra Pradesh, Uttar Pradesh and other states are marketed to North Eastern Region. A special project should be taken up on pig development in the NE region. Under this Breeders'

villages' should be created to remove the shortage of breeding males (both exotic and crossbred) in the area. The whole village should produce breeding males and females and sell them to prospective buyers. In this manner they could effectively generate their own breeding stock, which is stable and sustainable.

[5.5.5.2](#) For rest of India, the present scheme of providing exotic males for upgrading the local stock can be continued. This needs to be associated with finding young entrepreneurs who can develop financially viable farms of 10, 20 and 30 sow units for which credit and technology underwriting should be an integral part of the project. The venture capital scheme for dairy and poultry should be expanded to cover pig production.

Horses, Donkeys and Mules:

[5.5.5.3](#) The sports particularly Horse Racing has become a big business. It is necessary to regulate the health status of the horses, which are essential for this enterprise. Animal Husbandry Department needs to continue its current programme of providing better studs both for horses and donkeys for the production of mules for transport in hilly areas. Conservation of threatened breeds, their breed census and evaluation as well as initiation of stud books; creation of disease free zones around breeding tracts; programme for production of mules; setting up service stations for indigenous horses as well donkeys for mule production-should be taken up in the 11th Five Year Plan. Similarly, inspection and registration of thoroughbred stud in collaboration with Stud Book Authority of India should continue.

Camel

[5.5.5.4](#) Study of impact of declining population of camel on livelihood of desert people as well as shifting utility pattern (milk, meat, skin, etc.); training programme of field functionaries and investigation facilities on camel diseases in collaboration with NRCC / Agricultural Universities in camel rearing states should be created in the 11th Five Year Plan.

Yak:

[5.5.5.5](#) Resolving issues concerning prohibition of grazing in high altitude forest with Ministry of Environment and Forest and State Forest Departments, organizing joint participatory Forest management and sedentarization of Yak at around 12000 feet altitude should receive focus. The development progress should include providing for shelter and animal health cover; high altitude rangeland development; transfer of technology for sustainable management of yak herds; supply of nutritional supplements during lean season and free vaccination in collaboration with National Research Centre for yak (NRCY). Semen of wild and domesticated yak from China should be imported to improve Indian Yak. In addition, improved breeding males should be supplied to Brokpas.

Mithun:

[5.5.5.6](#) The development programme should include propagation of promising perennial fodder trees and shrubs, joint forestry management for access to forest produce' support to rearers organizations including nutritional supplementation and health cover.

5.5.6 Meat and Abattoirs

[5.5.6.1](#) The meat sub- sector, although is an important source of nutrition to a large a section of non-vegetarian population of the country and an important source of foreign exchange continues to remain un-organised. The objectives in the 11th Plan should be to modernise the sector and improve quality of meat production so that safe meat and meat products are produced for meeting the domestic requirement as well exports. It is proposed to undertake following scheme-

(i) Salvaging of Male Buffalo Calves:

[5.5.6.2](#) As per an estimate about 8 million buffalo male calves are intentionally killed (to save milk for feeding of calves) by starvation and neglect by the farmers/ dairies each year. This practice results in loss of valuable genetic material for up-gradation of livestock. The salvaging of male buffalo calves particularly from the big cities and rearing in villages will not only lead to retaining genetic material but would also boost buffalo veal export. The fattening of male buffaloes, goats, sheep and pigs for meat purposes and forward linkages to modern abattoir will provide both employment to the small and marginal farmers and landless unskilled labourers by creating additional employment and stability to the rural economy. Some companies have initiated such project for male buffalo and their expertise could come handy in carrying forward the proposal. A venture capital fund should be set up and the project implemented on public private partnership basis.

(ii) Disease Free Zones:

[5.5.6.3](#) India has already established a niche in the international buffalo meat market after eradication of Rinderpest disease. In order to boost further export of meat, it is proposed to expand 'FMD control programme' from existing 54 specified districts to 200 new districts having sizable ruminant population during 11th Five Year Plan.

(iii) Modernisation of existing municipal abattoirs

[5.5.6.4](#) To meet the demand of the domestic and international consumers there is an urgent need to modernize at least 500 existing slaughter houses with facilities of effluent treatment, livestock market and rendering plant at the cost of Rs. 5.00 crore each during 11th Plan. The Government may consider providing 25% of capital cost as grant-in-aid, 25 % may be provided by the associations of meat contractors and private traders under BOLT (Build, Operate and Lease Transfer) and the balance 50% provided as loan from financing institutions. The whole project should be public-private partnership in which Ministry of Agriculture will be identifying suitable locations, provide technical know how and prepare projects details and; local bodies will provide land at existing or new location; State Animal Husbandry and Veterinary Department will provide ante-mortem and post-mortem inspection and certification services and management and operations will be in the hands of private/ associations/ cooperatives.

(iv) Establishment of Export Oriented Abattoirs and Meat Units

[5.5.6.5](#) The central sector scheme for "development of infrastructure and technology for export oriented abattoirs and meat units" which was in operation during 1994-97 for providing grant-in-aid to the extent of 25% of the project cost, may be revived in the 11th Five Year Plan to set up 50 export oriented units, with a ceiling of Rs.20 crores for a unit.

(v) Carcass Utilization Centres:

[5.5.6.6](#) The scheme for establishment of carcass utilisation centres and hide flaying units is required to be revived during 11th Five Year Plan by involving of NGOs and on PPP system of operation.

[5.5.6.7](#) There is need to create awareness of clean and safe meat production and humane treatment of animals to ward off the negative publicity by non-meat eaters on religious grounds. The assistance of electronic media and associations and NGO's could be utilised.

[5.5.6.8](#) There is a need to restrict the movement of animals from the disease infected area to the safe areas as per provisions made in the "Control of Infectious Diseases Bill 2005". There is immediate need to enforce provisions by getting the said Bill passed in Parliament.

(vi) Single Agency to deal with Meat:

[5.5.6.9](#) There is need to establish National Meat and Meat Product Development Board on the lines of NDDB. Similarly State Governments may be financially assisted to establish the State Meat and Meat Products Development Boards on similar lines.

PPP for integrated male Buffalo Calf rearing for Meat Production:

[5.5.6.10](#) Among the various species of livestock in India, Buffalo has been registering a high rate of growth in the past forty years. Indeed, this growth has been more centered around growth in female buffaloes than males indicating that, male buffaloes, which probably find a lower use as compared to females, disappear from the population at a much faster rate. This indeed is a potential loss for the country and a high livelihood opportunity lost for the poor.

[5.5.6.11](#) While consumption of meat within the country poses high potential, its exports are registering even a higher rate of growth. India's share in the global meat trade is indeed negligible but considering the preference for buffalo meat in many selected high meat consuming countries, it offers immense opportunity for exploitation and for livelihood protection.

[5.5.6.12](#) It is noteworthy that such growth was witnessed in the absence of worthwhile efforts to stimulate either bovine meat production, consumption or export. In this respect, some essential support as indicated in the proposal on "Public Private Partnership in Integrated Small Ruminant Production" would go a long way in stimulating high growth in buffalo meat particularly through rearing of male buffalo calves. The support required will be in the nature of building an institutional structure, organization of procurement, processing, marketing, delivery of livestock services including supplementary feeding, preventives vaccination, breed development, extension, training and capacity building and cash credit and risk coverage.

[5.5.6.13](#) The high density of population of buffaloes in a number of states offers excellent prospects for growth in the production, consumption and export of buffalo meat. It is proposed that a total of 50 integrated units for buffalo male calf rearing and meat production covering 50-100 districts be supported under the 11th Plan. The meat processing units proposed under the project should have the facilities for processing both small ruminants and buffaloes.

7. Animal Health and Bio-security:

[5.5.7.1](#) The livestock sector has immense potential for growth. The biggest impediment to growth of this sector is the large-scale prevalence of diseases like FMD, PPR etc., which affect the productivity drastically. The prevalence of disease also reduces the market access, in spite of the fact that there is ample scope to participate in the global trade. In case of FMD it is estimated that the loss in production of milk following an episode of the disease could be as much as 30% and the production loss continues for the rest of the animal's life span. The losses due to FMD in milk production are estimated between Rs.15000 to Rs.30000 crores per annum. In case of PPR which is prevalent widely in many parts of the country the losses are much higher as in this case the mortality is more and could reach 100 % levels. This directly affects the sustenance of the marginal and landless farmers whose livelihood depends on these few animals.

[5.5.7.2](#) Controlling the animal diseases is the best way to take the rural poor out of poverty. It offers them employment and a definite source of income as it improves the productivity of the animals on which they depend for their livelihood. In the XI plan it is proposed to continue the existing Centrally Sponsored Scheme on Livestock Health and Disease Control in its present form with expansion of the control programmes for FMD, PPR and Brucellosis.

Continuation of the Existing Scheme on Livestock Health and Disease Control and Directorate of Animal Health

(i) Assistance to States for Control of Animal Diseases

[5.5.7.3](#) The scheme is being implemented on 75:25 Central: State sharing basis. The components include immunization of livestock and poultry against economically important diseases; strengthening of state veterinary biological production centers; strengthening of disease diagnostic laboratories; collection, compilation and dissemination of livestock disease incidence data and in-service training to veterinarians and para-veterinarians 100% central assistance is being provided for in-service training of veterinarians/para-veterinarians. In 11th Five Year Plan assistance should continue on all the components but the production of Veterinary biologicals should be privatized.

(ii) National Project on Rinderpest Eradication

[5.5.7.4](#) The country has been declared "Free from Rinderpest infection" on 25th May, 2006. However, the surveillance programme has to be continued and the strategic reserve of vaccine need to be maintained, therefore it is recommended that the scheme should continue. Surveillance programme for CBPP also has to be continued.

(iii) Professional Efficiency Development

[5.5.7.5](#) The objective of this scheme is to regulate veterinary practice and to maintain register of veterinary practitioners as per the provisions of Indian Veterinary Council Act, 1984 (IVC Act 1984). The scheme envisages establishing Veterinary Council of India (VCI) at the centre and the State Veterinary Councils in those states, which adopted the Indian Veterinary Council Act, 1984. At present it is implemented in all the States and Union Territories except Jammu and Kashmir. The Scheme is proposed to be continued with more emphasis on Continuing Veterinary Education (CVE).

(iv) Animal Quarantine and Certification Services:

6. The main objective of this scheme is to prevent the entry of any exotic disease through import of livestock and to issue export health certificate as per international norms for livestock originating from India. At present four Animal Quarantine Stations are functioning one in each at Mumbai, Delhi, Calcutta, and Chennai to achieve the objectives. Establishment of two more Quarantine Stations one each at Bangalore and Hyderabad is in progress. The Scheme is proposed to be continued

(v) National Institute Of Animal Health:

[5.5.7.7](#) The Institute will be functional by November, 2006 and the actual work starts by December, 2006. As the activity will be on continuous basis, therefore, the scheme is proposed to be continued.

(vi) Central / Regional Disease Diagnostic Laboratories:

[5.5.7.8](#) The Regional Disease Diagnostic Laboratories are providing expert disease investigation to States and UTs on regional basis. The Central Laboratory coordinates the technical execution of the Regional Laboratories. The Scheme is proposed to be continued.

Foot and Mouth Disease Control Programme

[5.5.7.9](#) During the 10th plan period a control programme has been initiated in selected 54 districts spread over 8 states with the objective of creating FMD free zones. All the cattle and buffaloes numbering about 30 million animals, in these target districts are vaccinated twice a year. This programme has already started showing the desired results in terms of reduction in the incidence of the disease in these districts compared to the other areas where a systematic vaccination is not undertaken.

[5.5.7.10](#) It is proposed to continue the vaccination in 54 districts where the FMDCP is operational and expanding it further to include another 200 districts covering about 120 million heads of cattle and buffaloes and other susceptible livestock.

Peste Des Petits Ruminants (PPR) Control Programme

[5.5.7.11](#) PPR virus infection in sheep and goats in India and South Asia over the last one-decade is a major constraint in animal health management. Small and marginal farmers, for whom goat or sheep rearing is a major source of income, face a serious threat from PPR control strategies may vary between countries but in India, stamping out by slaughter is not feasible, both for economic and sentimental reasons. Since the disease is already endemic the only option is to control the disease by vaccination.

Brucellosis Control Programme

[5.5.7.12](#) Brucellosis is considered by FAO, WHO and OIE as the most widespread zoonosis in the world. The importance of this highly contagious disease is due to its economic impact on the animal husbandry and the severe hazard it represents to human health, through either direct contact with infected animals or, more frequently, the consumption of contaminated milk and

dairy products.

[5.5.7.13](#) Brucellosis affects cattle, buffalo, sheep, goat and pigs. The losses due to brucellosis are on account of abortion, retention of placenta, repeats breeding. Vaccine manufacturers will need to be encouraged to undertake the production of these vaccines.

Strengthening laboratories for Diagnosis of Animal Diseases employing internationally approved tests

[5.5.7.14](#) The animal disease diagnostic laboratory network in the country has around 250 District level disease diagnostic laboratories in different states, state-level laboratories, centrally sponsored five regional disease diagnostic laboratories (RDDDLs) and a Central disease diagnostic laboratory (CDDL). There are also other laboratories belonging to various veterinary colleges, agricultural universities and of other organizations like NDDDB. The existing laboratory infrastructure of CDDL, RDDDL and of the state government need to be up-graded so as to function in a laboratory having internationally acceptable facilities, infrastructure and standards. It is also proposed that suitably qualified (at least post graduate) officers for specific post in the diagnostic laboratory be recruited. Frequent transfer of such officers could be prevented so that professionally qualified manpower could be posted for each area of work.

Strengthening of Veterinary Services Infrastructure

[5.5.7.15](#) Professional Efficiency Development is an important component for the success of any developmental programme and the investment made by the Central Government during the last four Plan periods on this account has shown the results in terms of establishment of the VCI and State Veterinary Councils. It is, however, needed that a holistic approach is adopted encompassing all the components of education under the ambit of a regulatory mechanism. This would be a forward step in line with the resolutions of the 74th General Session of the International Committee of the Office International des Epizooties (OIE), the world animal health organization, held during May, 2006 at Paris. It has resolved to promote worldwide the development of Veterinary curricula both for initial training and for continuing professional development that include the subjects dictated to the Veterinary organization by the emerging societal demand. It has been emphasized that collaboration between universities, Veterinary services and other stakeholders, is essential to achieve the above objectives.

The Continuing Veterinary Education (CVE) Programmes:

[5.5.7.16](#) The Continuing Veterinary Education Programme for the field Veterinarians, Para-Veterinary personnel and senior level professional managers is an essential pre-requisite for not only sustained professional development but also for improving the quality of service delivery to the clients. Most of the Veterinarians working in the field are deprived of the current developments and tackle the problems within the limits of their skill and knowledge acquired during their professional trainings during their formal education programmes. The immediate need of updating the knowledge of field Veterinarians and para-Veterinary personnel can hardly be over emphasized. Implementation of CVE programmes will go a long way in improving the quality of the personnel and their competence to contribute qualitatively in meeting the newer challenges in livestock production and health.

Establishment of Veterinary Drug Control Authority

[5.5.7.17](#) The Veterinary health products industry which had a modest beginning in India with a mere Rs.50 million sales turn over in 1965, has now grown to Rs.12000 millions. There are about 450 pharmaceutical firms engaged in manufacturing and marketing of animal health products (Drugs, vaccines, feed supplements additives / premixes). Baring multinational and few leading organizations, no formulator in India is investing in basic research or for introduction of new molecules. More than 400 local formulating companies are involved in generic copying. These companies mostly purchase raw material in open market and formulate products simulating certain established products. These firms also focus on animal feed supplements, which are perceived as non-medical and formulate them without any quality checks or any regulatory approvals.

[5.5.7.18](#) The registration of a New Chemical Entity (NCE) in India is time consuming since it has to travel between different ministries. Even the companies dealing with livestock health products are expected to deal with drug authority, which is under the ministry of health. Since drug authority does not have required infrastructure to deal with livestock related products, they depend on Animal Husbandry Department in taking decisions. Though Ministry of Agriculture (Animal Husbandry Department) plays a major role, it has no direct control over these issues.

[5.5.7.19](#) The vaccine production for livestock diseases has mostly been with the Government institutions in the Country. With the enhancement of productivity in livestock there is parallel increase in demand for livestock health products. This has motivated the private organizations to enter into the field of vaccine production for livestock health care. Most of the poultry vaccines and foot and mouth vaccines are now produced in the private sector. In order to ensure quality of the products, there is need to have a regulatory system in the country. Therefore, a separate Veterinary Drug Control Authority is not only desirable but also essential in India. The proposed Veterinary Drug Control Authority will handle quality control, registration of new products and approval of manufacturing and marketing Veterinary drugs, Veterinary vaccines, feed supplements and other substances which are generally used for feeding animals.

[5.5.7.20](#) In order to implement the proposal, each state would have to establish a full-fledged state level Veterinary Drug Control Authority. This will include necessary field staff to enforce the drug laws. Each state should have an attached drug analytical laboratory set up on regional basis since there are only about 450 pharmaceutical companies engaged in Veterinary formulations.

National Animal Disease Reporting System

[5.5.7.21](#) Disease Reporting has enormous importance. Prompt reporting of any epidemic is essential not only for undertaking immediate control measures to prevent the further spread of the disease, but also for formulating long term disease control strategy in the country or region. At present, animal diseases are primarily recorded by the veterinary officers working in government veterinary dispensaries / hospitals on the basis of clinical diagnosis. This information is passed to the district and veterinary authorities of the state. Disease information is also generated from the disease diagnostic laboratories at district, state or regional levels on the basis of laboratory diagnosis. Finally, from the state governments the information on diseases is sent to the Department of Animal Husbandry and Dairying (DAH&D) at the centre. These reports are compiled and passed on to the Office International des Epizooties (OIE) and other international agencies by DAH&D. However, the existing system is not very efficient and

instances of many diseases remain either unreported or under reported. There is also considerable delay in processing data at various levels.

[5.5.7.22](#) To overcome the present situation, it is proposed to introduce an online disease reporting system in the country in the form of National Animal Disease Reporting System. In the proposed system a dedicated computer network will be established linking each Taluka of the district to the district head quarter, each district of the state to the state headquarter, and each state to the country's Central Unit. The information available at the Taluka would be electronically transmitted to the district veterinary office as well as the state office. Finally from all the states the information would be compiled and transmitted to the centre at DAH&D. The computer linkages would reduce data transmission time as well as data compilation and report generation.

Reorientation of veterinary service delivery - Privatization of Veterinary Services

[5.5.7.23](#) Veterinary services throughout India have traditionally been rendered by the public sector, leaving few areas where cooperatives and other NGOs provide the service. Most of the government dispensaries, hospitals and AI centres are stationary. An estimated 85 per cent of the annual non-plan state budgets are spent on salaries and other establishment cost, leaving little for drugs and vaccines. All curative as well as AI services are considered a private good and ideally be paid by the beneficiary. At present the focus of the state veterinary services is curative. At the same time, there is need to take measures related to disease prevention, control, quarantine, epidemiology, monitoring and surveillance by the state which cannot be done efficiently due to shortage of manpower. In the 11th Plan Veterinary Graduates would be assisted in setting up private clinics and providing health and AI services at the doorsteps of the farmer under a venture capital fund.

[5.5.7.24](#) Section 30(b) of Veterinary Council of India Act leaves it to the State governments to notify the activities that are considered to be Minor Veterinary Services (MVS) in the state. Only a few states have notified such a regulation for MVS. All the states should be encouraged to notify these services. The State governments along-with the respective State Veterinary Council should also develop a mechanism for regulation of MVS. In addition, there is the need to develop minimum standards for the institutes engaged in providing such education for MVS in terms of faculty, facilities, and minimum qualification of the trainee to follow. In many states the institution of Gopalmitra(paravet) has been successful and the concept would be expanded to other areas in the 11th Five Year Plan through a Centrally Sponsored Scheme.

5.5.8 Dairy Development

Dairy Development Strategies

[5.5.8.1](#) The dairy development goal for the 11th Five Year Plan should be to achieve a growth rate of at least 5 percent per annum. The per capita availability of milk/milk products in 2004-05 was about 232 grams per day. There have been no large-scale imports of milk products in recent years and this would suggest that milk production is generally matching the demand. The growth rate in milk production during the nineties has come down as compared to the growth rate in the eighties and this would appear to be due to lower investment in the dairy

sector and a readjustment of the supply to the demand. The slowing down of milk production can also be due to lack of purchasing power especially among the millions of rural and urban poor. In the case of milk production unlike grain production there is no system of subsidized procurement by the Government. Therefore any attempt to accelerate the growth rate without a corresponding increase in the purchasing power of the rural and urban poor would result in a drop in procurement prices, adversely affecting the incomes of millions of marginal and small milk producers.

[5.5.8.2](#) In order to facilitate rapid dairy development upto 2011-12, it will also be equally necessary to critically look at issues such as creating adequate processing capacity with modern, cost-effective technology; facilities to ensure safety and quality of products throughout the milk chain; competitiveness; manpower development (training) in food safety management; analytical facilities and basic common facilities in villages like water, roads, electricity and sanitation.

[5.5.8.3](#) The real strength of the dairy cooperative structure is in the village. The majorities are self-reliant, growing businesses that serve their members well. The weakness found in the cooperative unions/federations is however more pronounced. Despite committed and vigorous efforts, state governments and other stakeholders have not been persuaded to ensure that cooperative enterprises enjoy the same autonomy, sound governance and competent professionals, as do their competitors in the private sector. Faced with serious competitive challenges in a rapidly changing environment, cooperatives can no longer afford the luxuries of taking their own time to surmount the new challenges and transform themselves to become truly competitive in times to come.

[5.5.8.4](#) Dairy cooperatives will thus have to seriously address organisational development issues relating to member ownership, vesting governance exclusively in active members, patronage/user rights, putting in place and delineating the role of professional management and looking at innovative ways for marketing (in fact there are now some instances of cooperative-private initiatives for mutual economic benefits), contracting with forward linkages, capital formation and the advantages in amalgamations and mergers. Further more, while dairy cooperatives will have to play a much more significant and important role in the Indian dairy industry, it should not mean that chronically unviable dairy cooperatives should be supported. They should be liquidated.

[5.5.8.5](#) It will also be necessary to pursue complementary strategies that uphold producer interests and empower their institutions. It would be important to reach out to the potential of facilitating voluntary conversion of those dairy cooperatives that are interested and willing to become producer companies so that they can overcome some of their current critical limitations and work to expeditiously build their cooperatives as member driven and professionally managed economic enterprises enjoying the same flexibility and freedom as do their competitors under the companies Act. Also, in areas where cooperatives have not been formed, and in areas where there is a need that is beyond the capacity or will of existing cooperatives, it would therefore be relevant to consider planning and promoting producer institutions/companies, comprising dairy farmers, managed by competent professionals.

[5.5.8.6](#) Overall, the organised dairy sector has a registered capacity to process around 65% of the country's rural marketable surplus and about one third of the national milk production. While these figures are based on the registrations granted and therefore may possibly be much higher than the actual capacity on the ground, it would be fair to assume that the entire cooperative capacity as reported to be registered under the Milk & Milk Product Order (M&MPO) is indeed

present on the ground while no more than 50% of the registered processing capacity in the private sector is actually present and functional on ground.

[5.5.8.7](#) In 2005-06, the cooperative sector procured about 215 lakh kilograms per day. It is projected that if dairy cooperatives could marginally improve their current rate of procurement, say by 2 percentage points, they could target a milk procurement volume of more than 400 lakh kilograms per day by 2011-12. Liquid milk marketing through the cooperative strategy is expected to grow to about 270 lakh liters per day by 2012.

[5.5.8.8](#) Accordingly, it is estimated that during the 11th Five Year Plan, investments would be required to refurbish existing capacities and create additional processing capacities to the extent of around 100 LLPD together with drying capacities of about 120 metric tons of milk powders per day. An emphasis will also have to be made to encourage investments in creating appropriate cold chains for milk procurement and for distribution of milk and milk products.

[5.5.8.9](#) Concentrated efforts will have to be made in the 11th Five Year Plan to modernise the dairy industry. At the heart of any effort to modernise the dairy sector will be programmes that can effectively put in place robust milk procurement/ collection systems in the hinterland. Stainless steel should replace aluminum as the preferred metal for milk collection through cans. Bulk Milk Coolers (BMCs) that are installed in the villages contribute substantially to maintain the quality of raw milk. It becomes a vital requirement when milk has to be transported to a dairy from villages that are located at considerable distances. However, the deployment of BMCs has been greatly impeded because of poor and irregular power supply and the high cost of operations by relying on DG sets.

[5.5.8.10](#) Wherever feasible, and based on good logistics, milk collection through cans-in-truck will have to give way to single and cluster village Bulk Milk Coolers from where milk would be collected in tankers. In order to ensure fairness and transparency, milk collection would have to be through computerised Automatic Milk Collection Units. Similarly, it would also be relevant to encourage technologies such as the use of milking machines and village milking-machine parlours based on good economics i.e. in areas where there are high yielding milch animals and where milk producers are open and more receptive to such new methods.

[5.5.8.11](#) It is generally observed that there are instances of lack of commitment, initiative and appreciation of the food safety problems in the organised sector. There are also quite a few instances where HACCP accreditation does not necessarily translate into good food safety practices and standards. It will therefore be necessary to: (i) Augment analytical facilities that are duly certified and accredited by an international certification body for testing of important chemical and microbial contaminants in milk; (ii) Training manpower to undertake such analyses and; (iii) Launch a nation-wide awareness programme to improve the quality of raw milk encompassing all persons involved in handling milk and milk products from milk producers to the Raw Milk Reception Dock of a dairy; (iv) create an awareness and understanding about the concepts and principles of approved quality assurance systems and facilitating their adoption/ implementation by each unit in the dairy industry and; (v) Ensure regular and periodic inspection of all dairy units registered under the M&MPO.

[5.5.8.12](#) Viewed in the context of the measures required for rapid dairy development and improvement in the quality of milk production, a national campaign to promote and encourage consumption of packed/ branded milk coupled with legal restrictions on sale of loose milk in urban areas could form the corner stone of a series of new initiatives to modernise the dairy sector. If this strategy is pursued it would trigger a process whereby dairies will have to

increasingly rely on collecting/ purchasing milk in an organised manner which in turn would provide new opportunities for the promotion of a plurality of village milk producers institutions that could facilitate pooling/ collection of milk in a fair and transparent manner and ensure timely payments to milk producers in as direct a manner as possible.

[5.5.8.13](#) The above strategy to modernise the dairy sector will have to be complemented by enabling different institutional structures to have easy access to finance on reasonable terms coupled with a package of incentives that will spur investment and growth in the dairy sector.

[5.5.8.14](#) In the context of value addition of milk and milk products through technological development, it would be relevant to strive for increasing milk consumption by exploring ways and means of bolstering the supply of indigenous milk products. It is estimated that around 20 per cent of India's milk production is possibly utilized to make indigenous milk products such as Ghee, Makkhan, Khoa, Paneer, Chhana and Dahi. Manufacture and marketing of these traditional milk products in an organised and modern manner has the potential to considerably expand the demand for milk. Quite a few dairy cooperatives have small-scale arrangements to manufacture milk products such as Burfi, Gulabjamun, Rasogolla, Shrikhand, Kheer, Paneer, Peda, Curd, Lassi. Some of these products have registered a high growth rate in recent years.

[5.5.8.15](#) For mechanized production of indigenous foods, technologies available for manufacture of western milk products have been mostly adapted to suit local requirements. However, there is a need for encouraging applied R&D in the production of appropriate and energy efficient machines and equipment for manufacture of indigenous milk products.

[5.5.8.16](#) The sectoral information that is available on the Indian dairy sector is sketchy and hardly any study on its economics has been done. Therefore, studies should be commissioned in the following areas:

- Milk consumption.
- Demand estimation for milk and milk products.
- Innovations required in marketing milk and milk products.
- Transaction costs in the supply chain from producer to consumer.

[5.5.8.17](#) It is also recommended that as a part of the package of incentives to boost growth in the dairy industry, GoI should reduce the taxes and duties on dairy equipment since it would contribute significantly in making dairy operations more cost effective and spur investment. Further more, a reduced tax regime on milk and milk products would facilitate greater consumption of both milk and milk products.

[5.5.8.18](#) Substantial investment needs to be made in appropriate technology to both improve productivity and lower the cost of milk production in areas such as (i) Improving the genetic make-up of milch animals; (ii) Integration of agriculture with milk production with special emphasis on fodder production and (iii) Reducing the incidence of diseases. Similarly transportation of milk from the villages to processing plants is a critical cost component. Measures will have to be taken to improve infrastructure that can reduce haulage costs through better road connectivity, regular availability of electricity in the villages for milk cooling, adequate availability of potable water etc.

Suggested Dairy Development Programmes

[5.5.8.19](#) Basically, dairy cooperatives now have to compete with a growing number of players from the private sector. This competition has to be in a liberalised economy—with no preferential treatment in an increasingly globalised market—and a growing entry of foreign players into the domestic market. The all-India share of the marketable milk surplus of dairy cooperatives grew by just 5 percentage points in the last 15 years. It was 12 percent in 1991–92 and grew to 17 percent in 2004–05. Given this trend and with intense competition that now exists in India, dairy cooperatives may at best grow their procurement share by another 5 percentage points - to 22 percent in the next 15 years.

[5.5.8.20](#) The growth of the organised private sector is fast outpacing cooperative presence. Over the last 15 years the organised private sector is estimated to have more than doubled their procurement share to nearly catch up with the current procurement share of cooperatives. If milk producers and their institutions should continue to have a major say in the milk business, the cooperative strategy should aim for all forms of cooperative institutions to have a total procurement share of at least 40% by 2021-22. If so, cooperatives must aim for a procurement share of at least 25 percent by the end of the 11th Five Year Plan. For this purpose, dairy cooperatives will have to urgently reform themselves and become competitive. It will also be necessary for complementary cooperative strategies in the form of New Generation Cooperatives to be launched.

[5.5.8.21](#) For the purposes of accelerating dairy development, districts may be geographically categorized into two types:

- a) Medium or higher potential dairying districts that lend themselves to commercial operations with some soft assistance – about 350 districts.
- b) Low and very low potential dairying districts that currently do not lend themselves to commercial dairying and require substantial assistance – about 250 districts.

[5.5.8.22](#) In the medium or higher potential dairying districts numbering about 350, dairy development on commercial lines could be funded by a consortium of NABARD – NDDB – NCDC through (i) Loans at competitive rates; (ii) Grants for skill development, extension, training and VRS and; (iii) Soft assistance – as interest subsidy on specified '0% interest loans, for equipment used for milk pooling, collection, handling and cooling in villages. In the low and very low potential dairying districts numbering about 250 assistance on special terms should be provided to assist dairy development in order to bring it to a level where commercial dairying can be undertaken.

[5.5.8.23](#) The consortium of NABARD, NDDB and NCDC could catalyse the pace of milk handling by making future assistance to dairy cooperatives conditional to their (a) Hiring qualified and competent professionals to rapidly grow cooperative businesses and (b) Disengaging from the state government -- through repatriation of government equity and attaining freedom in operational and organisational matters.

[5.5.8.24](#) The consortium approach for developing dairying on commercial lines with some soft assistance is proposed to ensure that investments are commensurate with outcomes and with a view to combine the technical expertise available with NDDB in dairying and the experiences of NABARD and NCDC in funding agriculture. It would be prudent and desirable that dairy development project should be technically evaluated by the consortium/ NDDB.

[5.5.8.25](#) The consortium of NABARD, NDDB and NCDC could also catalyse the pace of milk

handling by assisting in the promotion of New Generation Cooperatives (Producer Companies) through NDDDB by deploying Spear Head Teams (like was done in OF) to mobilize milk producers and organize them into producers institutions and thereby accelerate the proportion of the marketable surplus of milk that is handled under the cooperative strategy.

[5.5.8.26](#) GoI assistance to the dairy cooperatives and NGOs under the cooperative strategy could be made available by the GoI to the consortium for onward disbursement. This could be considered through a fund to be managed by the consortium, which is replenished on actual utilisation and balance amount available. In the alternative the disbursements could be made on a periodic basis, as is being currently followed under the Dairy Poultry Venture Capital Fund.

Scheme 1: Support to cooperatives for dairy development

[5.5.8.27](#) The investment required in the 11th Five Year Plan under the cooperative strategy for dairy development is about Rs. 3,200 crores as per the details given below:

Particulars [at 2006 prices - in Rs. Corers]	2006-07 to 2011-12	Terms	Budgetary Support from GoI
Institution development Soft skill- Primary Level	72	100% grant	Rs. 30 crores p.a. = Rs. 150 crores
Institution development Soft skill- Primary Level	76		
Total - Village level ID	148		
Milk Pooling Equipment	103	Interest Free Loan	Interest subsidy of Rs. 110 crores p.a. = Rs. 550 crores
Milk Testing Equipment	389		
Bulk Milk Coolers	589		
Total- Milk Proc. Equipment	1081		
Processing- New Capacities	1349	Loans at Competitive rates	20% of Investment =Rs. 350 crores
Processing- Refurbishment	545		
Marketing	96		
Total - Dairy Infrastructure	1899		
Voluntary Retirement Scheme (VRS) in Milk Union/Federation	141	100% grant	Rs. 30 crores p.a. = Rs. 150 crores
Grand Total	3269		

[5.5.8.28](#) In the low milk potential areas, assistance to the cooperatives would be available on more favourable terms to be decided by the consortium. Individual project would be sanctioned by the consortium after a feasibility study has been conducted.

Scheme 2: Support to private initiatives for dairy development

[5.5.8.29](#) The organised private sector presently handles about 12 percent of the marketable milk surplus in the country. Considering that along with cooperatives they will have to play an important role in the development of dairying, they too would need to be provided incentives

to support milk producers in milk production enhancement, clean milk production and putting in place quality mechanisms and infrastructure that will bring better quality milk from the villages to their dairies. It is envisaged that if the organised private sector will have to contribute to dairy development by growing their aggregate milk procurement share from 12 percent to around 20 percent by the end of the 11th Five Year Plan, they will have to make an investment of about Rs. 2000 crores. To encourage this level of investment, it is recommended that like industrial units and as is being separately recommended for cooperative dairy units, private dairies too need to be provided capital subsidy at rate of 20 percent of the investment subject to a ceiling of Rs. 1 crore.

Scheme 3: Enlargement of the venture capital fund

[5.5.8.30](#) The existing scheme of the 10th Five Year Plan was operationalised only in 2004-05 and the outlay of Rs. 25 crores (which included both funding for poultry and dairying) was quite insignificant. This scheme needs to be expanded in the 11th Plan by first bifurcating the dairy poultry component into a separate scheme and emphasis should be on creating infrastructure at the producer level for clean milk production and its transportation to processing plants. The scheme should delete the provision for making funds available for purchase of milch animals.

Scheme 4: Encouragement for R&D

[5.5.8.31](#) There is an urgent need to incentives R&D in developing process and packaging technologies for Indian milk products as also other innovative milk products that have a focus on pro-biotic and micro-nutrients besides diet/health milk foods, convenience foods, etc. Initiatives in this direction need to be encouraged both in the public and private institutions. Assistance, up to a maximum of 100 percent of the cost, should be made available for each feasible project after it is duly sanctioned through an Experts Committee to be constituted by the Central Government.

Scheme 5: Promote consumer awareness on safe milk and milk products

[5.5.8.32](#) The awareness of consumer regarding the importance of consuming safe milk and milk products is low. There is a need to launch programmes for building awareness through multi-media, educational institutions etc. The programmes could be implemented by various NGOs and associations of consumers, industry and scientists, etc.

Scheme 6: Promote the role of women in dairying

[5.5.8.33](#) In most parts of India, rural women undertake most of the work relating to milk production. However, their involvement and role in the cooperative movement has not been in the same proportion. Self-employment opportunities in areas such as milk production empower women to improve both their own well being and those of their families. Accordingly, it is proposed that organisations and institutions that are involved in promoting women institutions/ groups in dairying should be provided assistance for extension/ training programmes.

Scheme 7: Support professional development/ HRD in dairying

[5.5.8.34](#) In an increasingly globalised economy it is becoming imperative to employ, as also nurture, the best talent to manage dairy businesses at all stages of the value chain. A special emphasis on job oriented training both in public and private institutions will have to be

undertaken on a regular basis. This would ensure adequate availability of senior managers and skilled/ semi-skilled manpower to ensure that dairy institutions are capable of effectively competing in both the domestic and international markets and in addressing consumer needs and wants in a satisfactory manner. Also, special knowledge and skills are required to successfully represent/ negotiate India's position in various forums like WTO, Codex Alimentarius Commission, OIE, etc. Special training programmes both in national institutes and state agriculture universities need to be organised for the purpose. It is therefore recommended that the following programmes need to be organised during the 11th Five Year Plan through the institutions as indicated:

Programme area	Institutions
Awareness on WTO	CII, IIMs and CITA
Training of the Technocrats on policy planning.	IIMs, IRMA, Training Academies
International Marketing & Export promotion	EIC, CITA, NDRI and NDDDB
Development of Business Ethics	IIMs, IRMA, Training Academies
Technology Demonstration and Dissemination Centres	R & D Institutions
Technology Business Incubators	NDRI and R & D institutions

CII = Confederation of Indian Industries

IIM = Indian Institute of Management

CITA = Centre for International Trade in Agriculture & Agro Based Industries

IRMA = Institute of Rural Management Anand

Scheme 8: Provide assistance for conducting studies and providing timely information.

[5.5.8.35](#) Timely information from all players is vital for the healthy growth of the dairy industry. The advanced dairying nations have laws that require all handlers and processors to file detailed information. The M&MPO provides for information to be filed by all registered units, but there is hardly any information available, especially on the private sector. It is important that information returns should be filed by all registered units through a single central window. However, this is not possible since both the Central Government and the State Governments are Registering Authorities. It may be pertinent to examine all registering authority to be vested centrally and making suitable budgetary provisions to provide for expenditure on this vital requirement.

[5.5.8.36](#) An effective system that can collect information related to incidences of food hazards/poisoning and its dissemination to different stakeholders such as producers, processors, distributors, consumers and law enforcing bodies is still evolving. Published information available is scanty. Also, it would be necessary to look at quality in terms of Maximum Residual Limit (MRL) and invest in setting up well-equipped modern laboratories to regularly conduct tests. This would also be relevant in the context of look at fixing the minimum quality standards for imports of milk products based on MRLs. Therefore, it is recommended that a comprehensive study on MRLs should be commissioned by Government

of India.

[5.5.8.37](#) The sectoral information that is available on the Indian dairy sector is sketchy and hardly any study on its economics has been done. Therefore, studies should be commissioned in the following areas:

- Milk consumption
- Demand estimation for milk and milk products,
- Innovations required in marketing milk and milk products and;
- Transaction costs in the supply chain from producer to consumer;

5.5.9 Trade and WTO:

[5.5.9.1](#) India is not a major player in the International Trade. The India's share in world trade of dairy product is negligible (0.2%) and in case of meat and poultry also India's share is very low (0.5%). The world livestock trade is plagued by high degree of distortions, especially by the EU, USA, Japan and Canada. The WTO was expected to put some discipline on these protectionist policies but still distortions in the world market are very large. Therefore, India needs to take a defensive position in international negotiation but also need to initiate reforms in domestic policy.

Major trade policy issues are as follows:-

- Maintain existing applied rates of tariffs on all livestock products as world trade in livestock products is highly distorted by production and exports subsidies in major producing countries in general and developed countries in particular
- As a part of Doha Development Agenda (DDA) negotiations, India should include selected livestock products (HS code 04.02, 04.05, 04.06, 02.07, 1602.40, 160242) as "Special Products" keeping in view the issues related to rural development, livelihoods, and food security associated with these products
- Under exiting FTAs/RTAs, Rules of Origin (ROO), should be properly defined and implemented, while in future negotiations efforts should be made to include sensitive livestock products under the "Negative List" as there are many loopholes in the existing ROO provision
- Efforts should be made to harmonize national standards with Codex standards wherever possible. Appropriate steps be taken to initiate revision of codex standards which are not based on scientific evidence and risk assessment
- Effective participation in International negotiations (WTO, Codex, OIE, etc.) and delegations to these meeting must include professional, technical and legal experts
- Complete elimination of production and export subsidies on livestock products by developed countries to be negotiated in WTO.
- In order to promote exports of selected livestock products, government should invest in infrastructure and also introduce export enhancement programmes
- Explore trade opportunities in livestock products in neighboring countries in South and South-east Asia, Middle-east countries, which are net importers of livestock products.
- Institutional arrangement (Govt. and Industry associations) to identify trade opportunities in livestock products in various countries; review of import policies of these targeted countries, provide information on trade opportunities, market prices, import requirements, and other related information to potential exporters
- Discourage exports of live ruminants (sheep and goat) through export cess/tax on exports

of live animals and encourage value-addition (meat processing) within the country through some incentives to generate employment and income and earn higher foreign exchange through exports of value-added products rather than raw materials

- Encourage trade in live animals for breeding purpose in order to take advantage of trade opportunities but concerns related to conservation of indigenous breeds need to be taken into account

Prospect of Dairy Sector Export

[5.5.9.2](#) The world trade in dairy sector is highly influenced by domestic subsidy for production, and export subsidies provided by major exporters of dairy products. In addition developing countries including India has to face non-tariff barriers imposed by developed countries.

[5.5.9.3](#) The Hong Kong Ministerial Declaration provides for the elimination of export subsidies by end of 2013. While there has been reduction in total volume of export products that have been subsidized, the per unit export subsidy continues to be significant especially in the case of butterfat products.

[5.5.9.4](#) In case of subsidies for production, no agreement could be reached on the levels, timeframe and category limits. Even if the developed countries shift from market price support measures to direct income support measures, it could still result in production not being governed by market forces, with the possibility of excess production depressing world prices. With the failure of Doha round of negotiation in Geneva, the possibility of resumption of talk on reduction in domestic subsidies appear uncertain. These developments are likely to have considerable impact on both the prospects of India's imports and exports.

[5.5.9.5](#) Due to artificially low global prices, Indian dairy sector would not be able to take advantage of export markets, as it cannot afford to provide high subsidies. Additionally the high tariffs by developed countries and tariff quotas to specific countries neutralize the cost competitiveness of India. Moreover, the food safety regulations imposed by many developed countries, more stringent than global standards, and in many cases not based on adequate scientific evidence, pose additional hurdles for exports from India. Such adverse situation would generally continue so long as the trade distorting provisions of WTO agreements are not corrected. In spite of these uncertainties and constraints, however, there could still be opportunities in enhancing India's exports of milk products, especially indigenous milk products, particularly to potential markets in Asia, Middle East, South and South East Asian countries. It must be noted that Indian dairy producers and the sector are not export-dependent, and hence can select markets and times to export when suitable.

Impact of Free Trade Agreements on Dairy Sector in India

[5.5.9.6](#) India has entered into trade agreements with a number of countries and regional/economic groupings, and is also in the process of finalizing a number of trade agreements with many others. India's current trade agreements, that also concern Indian dairy sector, include:

- India-Singapore Comprehensive Economic Agreement (CECA)
- India MERCOSUR Preferential Trade Agreement (MERCOSUR countries: Argentina, Brazil, Paraguay and Uruguay)
- Asia-Pacific Trade Agreement (formerly Bangkok Agreement)

- (India, Bangladesh, Republic of Korea, Sri Lanka and China)
- Agreement on South Asia Free Trade Area (SAFTA) (Non-Least Developed Countries: India, Pakistan and Sri Lanka; Least Developed Countries: Bangladesh, Bhutan, Maldives and Nepal)
- India-Nepal Treaty of Trade
- India-Sri Lanka Free Trade Agreement

[5.5.9.7](#) The significance or the impact of the trade agreements on the industry is determined by inclusion or exclusion of concerned products from the scope of tariff reduction or elimination, more so if such provisions in the agreements are not reciprocal in nature. The provision of concessions for trading of milk and milk products in some of the important trade agreements is listed below:

- *Agreement on South Asia Free Trade Area (SAFTA)*: India has offered duty concessions in some dairy products imported from both least developed countries (Bangladesh, Bhutan and Nepal) and non-least developed countries (Pakistan & Sri Lanka).
- On the other hand Nepal has included all dairy products (0401 to 0406) in the negative list. Bangladesh offers duty concession in fermented/curdled milk products and cheeses. Similarly Bhutan has offered reduced duty access to imports of dairy products from India except in the case of butter and processed cheese.
- In the case of non-least developed countries, Pakistan has included in its negative list all milk and milk products, except milk and cream – fat more than 1.5% - and powdered milk and cream – fat not exceeding 1.5%. Likewise, Sri Lanka has included in its sensitive list all milk and milk products, except graded and powdered cheese, processed cheese and blue veined cheese.
- *India-Sri Lanka Free Trade Agreement*: India has provided duty free access to imports of all dairy products from Sri Lanka.

[5.5.9.8](#) It is, therefore, noted that in case of some countries, specifically Sri Lanka and Nepal, India has offered reduced or no duty for some dairy products which are not reciprocated by the partners. Thus there are no concessions offered to Indian exports of such dairy products to these countries. It is, therefore, important that such provisions are reciprocal in nature to offer level playing for the industry in the member countries. Further, it is also possible that dairy products from other countries may come to India through these partner countries, using the duty free access arrangement. As the basic custom duties for dairy products levied by India range from 30 to 60%, this route can be quite attractive, as this entire amount may not be levied if dairy products are imported into India through partner countries. The simultaneous application of two criteria - a) minimum value addition (30 to 40%) and b) change to tariff heading at four digit level- in the rules of origins, provided in most of these agreements, could help in some protection against rerouting of trade, and hence they should be an integral part of the free trade agreements. However, this may not be fully adequate under certain circumstances and dairy products could be imported with reduced or no duty.

[5.5.9.9](#) Currently India is negotiating some more trade agreements with some other countries / regional groups. The important ones include:

- Framework Agreement on Comprehensive Economic Cooperation between the Association of South East Asian Nations (ASEAN) and India
- Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation

(BIMSTEC)

- Comprehensive Economic Cooperation and Partnership Agreement (CECPA) between India and Mauritius
- Free Trade Agreement between India and Gulf Cooperation Council (GCC)

[5.5.9.10](#) It is important that the agreements, once finalized, are balanced, provide adequate access to markets in other countries for dairy exports from India at reduced/no duty and provide for safeguard mechanisms to regulate unwanted imports of dairy products into India. At the same time no product should be taken out from India's negative list. It would be appropriate that in addition to application of two provisions under the rules of origin, as indicated in most of the Agreements, duty free access for dairy products be moderated, wherever applicable, through additional measures, such as tariff quotas and special safeguard mechanisms, in the trade agreements if not already included.

Prospect of Meat Export

[5.5.9.11](#) The export of meat of Indian buffaloes, sheep and goat is freely permitted subject to fulfillment of the conditions stipulated in the trade policy. India is cost competitive in buffalo's meat. It should make efforts to promote up gradation of quality and the required infrastructure (including cold chain) to meet the emerging world standard and increase competitiveness. Modernization and up gradation of meat production units followed by implementation of food quality and safety system like ISO, HACCP etc. would improve the quality of meat for export and improve India's image as a credible supplier of quality meat products. There is also need to strengthen the SPS enquiry points and the quarantine infrastructure in different states, particularly at the sea/air/land port station to monitor exports and imports of live stock products. There is also an urgent need to step up control of foot and mouth disease.

Impact of Free Trade Agreements on Meat and Poultry

[5.5.9.12](#) While entering into free trade agreements with the neighboring and other countries, the interest of domestic producers need to be safeguarded. These agreements should be entered into after discussions with the industry and their associations whose interest is at stake. The rules of country of origin should be strictly adhered to for livestock products, which should suggest that the animals are born, reared, slaughtered, processed, and further processed in the country of origin. The countries, which are having a history of exotic disease occurrence, should be avoided for free trade agreement. For these reasons, all live stock products should be placed in the sensitive list for the purpose of negotiating FTAs.

[5.5.9.13](#) While entering into Free-Trade Agreements with the neighboring and other countries one should ensure that the country entering into an agreement is a producing country and not just a trading one. In many earlier cases, it has been found that agreements have been entered without understanding the ground realities of that country as it happened in the case of Sri Lanka which allowed them export to India at 0% for poultry products while Sri Lanka placed India for the same products on the negative list. All these agreements should be entered into after having wide publicity and discussions with the industry and interested sub-groups whose interest may be at stake.

5.5.10 Livestock Extension and Technology Transfer:

Livestock Extension Services

[5.5.10.1](#) Livestock extension services to the farmers will be the key for improving livestock productivity and making the livestock sector competitive in the liberalized economy. Livestock extension service includes transfer of technology and also strengthening of locally relevant innovation systems; advisory service; the provision of access to a range of services that include input and output markets; and the strengthening and support of farmers' organizations. Livestock extension service assists livestock farmers through educational process, to improve livestock farming methods and techniques, increase production efficiency and income, better levels of living, and lift the social and educational standards of rural life through livestock enterprise. As such, livestock extension is assistance to farmers to enable them identify and analyse their production problems and to increase their awareness of the opportunities for improvements. Clearly, it is an extremely important process, which can accelerate technological, social and economic development through improvements in livestock production.

[5.5.10.2](#) It is becoming increasingly evident that extension services need to undergo a paradigm shift. The single-discipline, single-commodity based approach is gradually being replaced by an integrated systems-oriented research. Public funding for sustaining the vast extension infrastructure is also under considerable strain. Confronted with the constraints in budgetary source of departmental funding, innovations in managing multiple funding sources will be required. The earlier system of the public agency will need to give way to a multi-agency pluralistic extension delivery system.

[5.5.10.3](#) In particular, effective livestock extension service would include following

- i. help farmers in identifying and overcoming production, farm management and marketing constraints through exchange of information among farmers, extension staff, input suppliers, credit agencies and marketing agents;
- ii. assist farmers in making better use of existing technology, for example, through more efficient use of feed, fodder etc.;
- iii. facilitate transfer of modern technology to farmers, such as new breeds, new crops/ fodder varieties, and new equipment;
- iv. provide information to agricultural research institutions on farmers' production constraints so that appropriate basic, applied or adaptive research can be carried out to address them;
- v. build farmers' capacities and skills to enable them to meet their needs and interests in a way as to attain continuous improvement and self-satisfaction;
- vi. enable farmers to use the information in ways that result in improvements in their living standards;
- vii. empower farmers through the mobilization into producer organizations

Need for a Livestock Extension Policy

[5.5.10.4](#) While there is an agriculture extension policy in-built into the national agriculture policy as well as in several state agriculture policies, the livestock extension policy has not received its due importance. It appears to have fallen between two stools namely, agriculture extension and livestock veterinary services. There is a need to articulate within the overall national agriculture and livestock policy the importance and vital role of livestock extension. Since a large number of schemes emanating as a result of this will then be able to factor in the livestock extension component in their main-body.

[5.5.10.5](#) In the present climate of reducing/ rationalizing the public sector, it is unlikely to start

creating new institutions, or funding new public services, to deliver extension on livestock production, so this growing need must be met by (i) enabling the private sector to operate in areas where a competitive market exists (ii) engaging in innovative public-private partnerships wherever possible (iii) reforming the existing public institutions to deliver services in areas where the private services cannot be competitively delivered.

[5.5.10.6](#) To create an enabling environment for more private sector delivery of extension services, the role of government will be to create a level playing field, set up proper rules, regulations and procedures both for private extension service providers and their client farmers to protect the interest and rights of all parties. Cost-recovery from poorer crop-livestock producers will be difficult to implement, but recovering costs from better-off producers may free public resources for extension to poorer producers.

[5.5.10.7](#) The elements of a national livestock extension policy should include the following key components:

- Integrated and holistic extension support to all categories of farmers;
- Decentralization of extension services;
- Farmer participatory need based extension approach;
- Client oriented and demand-led extension;
- Gender sensitive extension;
- Increased role of private and Non Governmental Organizations in extension;
- Public-private partnership in livestock extension and technology transfer;
- Appropriate extension methodology and use of Information and Communication Technology;
- Increased use of para-veterinarians, para-extension workers and local resource persons for extension;
- Encouraging relevant and need based research and programmes to transfer research outcome to the field involving all stakeholders;
- Appropriate training of extension personnel;
- Adequate practical orientation of veterinary/ animal sciences students in extension service; and
- Cost recovery in delivery services to be factored in wherever appropriate

[5.5.10.8](#) The livestock extension policy will recognize the pluralistic nature of the new extension regime and the role of a multi-agency delivery system comprising different strengths. Policy environment will promote private extension to operate in roles that complement, supplement, work in partnership and even substitute for public extension. The three arms of the agricultural extension network are:

Public extension services

- State government line department operated extension (Departments of Animal Husbandry, Livestock and Dairy Development)
- Panchayati Raj Institutions
- State Agriculture Universities' based extension (Directorates of Extension, Krishi Vigyan Kendras (KVKs) and Krishi Gyan Kendras (KGKs)
- ICAR extension (Zonal Research Stations/ Krishi Vigyan Kendras, Agriculture Technology Information Centres (ATICs), Institute Village Linkage Programmes (IVLP) etc)

Private extension services

- Community-Based Organisation (Farmers' Organisations, Farmers' Cooperatives, Self-Help Groups, Farmer Interest Groups, Livestock farmers' Associations, etc.)
- Para Extension Workers (contact farmers, para- vets,)
- Private Agri-Clinics and Agribusinesses
- Non-Governmental Organisations, Foundations and Trusts
- Input Suppliers/Dealers (Pesticides, Seeds, Nutrients, Farm Implements, etc.)
- Corporate Sector (Contract farming arrangements)

Mass media and information technology

- Print Media - Vernacular Press
- Radio (local FM radio), Television, Private Cable Channels, etc.
- Electronic Connectivity through Computers, NICNET, Internet, V-SAT, etc.
- Farm Information and Advisory Centres (FIACs)
- Private Portals, Kisan Call Centres
- Public and Private Information Shops
- Satellite Communication - Wireless in Local Loop

Innovations in Public Sector Technology Dissemination - ATMA Model

[5.5.10.9](#) It must be noted that extension delivery lies in the domain of the state governments. While the central government through the Departments of Agriculture and Cooperation (DAC), Animal Husbandry, Dairy and Fisheries (DAH, D & F) provides funding to the states under various programmes, projects and schemes, the task of technology dissemination is to be carried out through the state delivery systems. The traditional system of extension in the State Governments suffered from several constraints. It operated largely in the inter- personal mode without planned and optimum utilisation of information support, low level of involvement of farmers, and without the complementing synergies of the private sector. The linkages between research-extension and farmer remained weak or non-existent. Media and information management was not suitably addressed. The system was supply-driven with scarcely any accountability to farmers. Technology generation systems were also largely in a top-down mode with very weak mechanisms for feedback from the client farmers.

[5.5.10.10](#) Under the current extension system in most states, the Departments of Animal Husbandry (DAH) have no extension machinery below the district. The veterinary officers at taluka/ block level have a clinical approach and are involved in the treatment and surgery of the animals, which are brought to them rather than in the delivery of extension services at the farmers' door-step.

[5.5.10.11](#) Despite the growing influence of the private sector, public extension would continue to remain central to technology dissemination and small and marginal farmers and economically backward regions will need to be serviced by it. This implies that public extension functionaries will have to be placed in new decentralized institutional arrangements which are demand-driven, farmer-accountable, bottom-up and have a farming systems approach. States have before them the model of the Agriculture Technology Management Agency (ATMA), which was pilot, tested under the National Agriculture Technology Project. The ATMA model has now been adopted in half the districts of the country. With supplementation from the private sector, media and information technology, the public extension service would be made leaner and more professional. Under this model, the public extension functionaries in the form of subject matter specialists will function only up to the block level, below the block extension activities will be carried out by the private service providers, community-based organizations,

farmers' cooperatives, agri-businesses, agri-clinics and private service providers, para-professionals.

[5.5.10.12](#) The advantages of the ATMA model are the following:

- decentralized decision-making to the district level
- increase farmer input into programme planning and resource allocation
- is to increase programme coordination and integration between departments
- addressal of the farming systems approach rather than single discipline
- linking marketing and agro-processing activities to extension
- technical backstopping provided by KVKs and SAUs

[5.5.10.13](#) The ATMA institution being a tested and proven decentralized model for effective delivery of agricultural related extension services, the same institutional structure with appropriate structural changes should be utilized for delivery of livestock extension services and transfer of relevant technologies. The scope of ATMA should be expanded nation wide so that by the end of 11th plan every district of the country is covered. The KVKs and SAUs would provide the technical backstopping. ATMA should be the designated institution to coordinate and monitor any other extension initiatives being carried out by other agencies like SHGs, NGOs and farmers' forum etc. Further, the ATMA institution shall encourage participation of private extension service providers in the district. The Management Committee of ATMA should have representation of private organizations/ NGOs involved in delivery of livestock extension. This will help decrease government role in providing services to farmers and expenditure.

Research-Extension Linkages: Validation of Technologies

[5.5.10.14](#) Currently, there is no formal system, which can be considered for livestock farmers' feedback. This requires establishing a system by which the research is field tested by various resource group livestock owners. This will bring out more location and resource specific scientific recommendations to suite the needs of the various livestock farmers. Livestock technology can only be passed on to the farmers with success, if the transfer of technology is undertaken under the supervision of qualified and trained livestock extension professionals. There should be institutional arrangement at each KVK to strengthen livestock component with placement of animal science qualified persons trained in extension methods to carry out the field trials on livestock production. In the absence of a proper formal mechanism for technology validation, the technologies developed by the scientists are being also self-validated by them, giving ample scope for exaggeration of their efficacy and impact for quick gains and popularity for self, which may be detrimental in long run. A system needs to be put in place where the technologies developed are validated independently through cross validation across organizations.

[5.5.10.15](#) A multidisciplinary Technology Validation Committee (TVC), comprising experts on animal health, production, extension and economics drawn from different organizations should be formed in each zone to look after the validation of the technologies developed by any institution falling in the given zone. The TVC may also assign the task of validation, if felt necessary to any other organization for independent verification of the claim made by the inventing organization/institution. Once validated and approved by the TVC, the technologies may be recommended for large scale popularization efforts. Additionally, the Department of

Animal Husbandry, Dairying & Fisheries (DAHDF) at the central government level should organize annual meet of the research and educational establishments for review of the various livestock technologies and give recommendations to the ministry/ departments before recommending the technologies for promotion among livestock farmers.

[5.5.10.16](#) Technology Assessment and Refinement (TAR) through Institute-Village Linkage Programme (IVLP) in 70 centers located at the ICAR research institutes and SAUs did appreciable work in agriculture extension during the X plan. It should continue in XI plan with emphasis on technology related needs of the livestock farmers by organizing farmer participatory meetings and farmer-scientists interface. Veterinary colleges, veterinary universities and animal science institutes of ICAR should take lead in this regard so that the technologies relating to animal health and production are properly assessed at farmers' field and if needed suitable amendments are made.

Capacity Building in Livestock Extension

[5.5.10.17](#) Capacity building at all stages needs to be undertaken as a high priority. This would include starting from the university level where students earn their undergraduate and postgraduate degrees. Capacity building would also include training para-professionals to supplement the work of the livestock professionals. Within the departmental officers, cross training would be an important component between disciplines to enable a farming systems approach to research and extension. Farmers need to be empowered through mobilization into groups, through training and linkages with institutions. Ranges of personnel are required to be trained in livestock extension education methods and techniques so that they can effectively transfer the technology to the livestock farmers. The budgetary allocations need to be made so that the manpower involved with extension services can effectively deliver the task.

11. Credit and Insurance

1. The venture capital fund for dairy and poultry development established in the 10th plan should be bi-furcated into following venture capital fund.
 - a. Venture Capital Fund for Dairy Development;
 - b. Venture Capital Fund for Poultry and other livestock
 - c. Venture Capital Fund for Processing Plants, dairy plants, abattoirs and meat plant etc.
2. NDDB is setting up a consortium with NABARD and NCDC for financing the dairy cooperatives. Similar consortium should be established to provide finance to other sectors of livestock. The venture capital fund should provide establishment of infrastructure by private entrepreneurs for veterinary clinics and AI centres, vaccine production units, feed mixing plants, fodder seed production facilities, processing plants for western and indigenous dairy products, meat and egg products, semen production units, for establishing network for delivery of semen to the farmers. These activities should also get credit under the head of Priority Sector Lending from commercial and cooperative banks.

The state government should provide assistance to livestock farmers and private entrepreneurs for establishment of livestock units and units for processing of livestock products under the scheme Rural Infrastructure Development Fund administered by NABARD.

3. At present short term credit to livestock farmers to meet the requirement for production purposes is not easily available. Livestock farmers, Credit Card (Like Kisan Credit Card) should be introduced to provide short term credit to solve the problem of working capital. Under this scheme, the farmers should get credit against the future production and they will be free to purchase the inputs at a competitive price from selective stocks. The Government should also start a margin money scheme on the lines of KVIC's Margin Money Scheme where entrepreneurs are required to contribute an amount equal to 5 or 10% of the cost of the project from their own sources.

Livestock Insurance :

[5.5.11.4](#) The livestock insurance scheme started by Government of India in the 10th five year plan covering 100 districts of the country should be expanded in the 11th Plan to cover the entire country. It should also cover small ruminants like sheep, goats and poultry with the pattern of assistance that is available for milch cows and buffalos.

5.5.12 Animal Husbandry statistics

1. The two schemes of Animal Husbandry Statistics; livestock census scheme and integrated sample survey scheme should continue during the 11th Five Year Plan.

Live Stock Census Scheme

2. The 18th Livestock Census would be conducted on a quinquennial basis. The efforts should be made to conduct the census through out the country simultaneously. Following points should be kept in view while conducting the census.
 - i. The collection of data under Livestock Census should be made mandatory.
 - ii. Publicity for Livestock Census is to be given due importance and funds for them should be provided in the scheme itself.
 - iii. Data collection cost provided in the present scheme at the rate of Rs.3.50 per household, should be increased to minimum of Rs.10 per household.
3. It is proposed that skilled local persons or Animal Husbandry persons or qualified youth capable of being trained should be engaged for survey and recognition of breed. The data collectors should be trained extensively in identification of breed characteristics by involving Breeders and concerned scientists/technical persons.
4. A certain percentage of post enumeration checks should also be provided in the scheme, which was not a component in the 17th Livestock Census.

5. The next Livestock Census should aim its conduction through computer intensive technology only. Data on Livestock Census should be scanned the moment it is collected and validated by immediate supervisor. For this, infrastructure and software required for verification, validation, howler checking, work file creation, tabulation and publication should be kept ready well in advance and before the scanning of data in order to make faster publication of results.
6. The schedule of livestock census should be modified so as to get the real ground situation with regard to all types of animals including poultry especially broilers.
7. Integrated Sample Survey Scheme
8. The ISS should be continued with 100% provision for the staff salary.
9. To strengthen collection process and increase accountability in the collection of livestock data, an office of livestock statistics should be created at each district having all infrastructure of converting the collected data into computer friendly media. At the state level there should be sufficient staff of data collectors, supervisors and field officers headed by Assistant Director (Livestock Statistics) having sufficient expertise in livestock statistics collection.
10. Data collected, henceforth, must be put on computer the moment it is validated by the first supervisor so that its processing becomes faster and its maneuverability get increased.
11. The aims of ISS Scheme should be broadened to cover all statistical activities related with livestock sector. The present schedule of Integrated Sample Survey Scheme should be revised by involving subject specific and/or other institutes of repute. Deficiency in information on broilers production and meat production from unorganized sector in the schedule should be removed.
12. A National Institute for Livestock Information and Policy Studies is proposed to be set up in 11th Five Year Plan. The Institute would be an autonomous body and provide the required technical inputs and guideline on Animal Husbandry Statistics and Economic studies.

13. Livestock Welfare and Disaster Management

Livestock Welfare

1. In India, livestock welfare is looked after by the Animal Welfare Board of India (AWBI) established under Prevention of Cruelty to Animals Act, 1960 enacted by the Parliament with the sole object of preventing infliction of unnecessary pain and suffering to animals. Though at the time of inception of AWBI in 1962 it was under the Ministry of Food and Agriculture, however, the subject of animal welfare was later on transferred to the Ministry of Environment and Forests in 1990 and later on to the Ministry of Social Justice and Empowerment in 1998. Presently the board is functioning under the Ministry of Environment and Forest. A number of rules have been framed under the said Act for the purpose of fulfilling its objectives. The Societies for Prevention of Cruelty to

Animals (SPCAs) Non-governmental organizations (NGOs) and Goshala are presently involved in the field of animal welfare, which are funded and monitored by the AWBI.

2. Functioning under a department, which is primarily concerned with the Environment, Forest and Wild Life, the growth and expansion of the AWBI has remained retarded to take care of the total livestock population in the country. Instead, their focus has remained confined mostly to Anti Rabies Vaccination in Dogs and to control their populations in the urban areas and Goshalas in rural areas. Further, there is no mechanism to involve or utilize the functional network and facilities of Veterinary services under Animal Husbandry Departments'. Strengthening and expansion of the AWBI and establishment of the linkages with the institutions of Animal Husbandry and Veterinary Departments would facilitate effective and better implementation of the Act and the Rules pertaining to animal welfare. This would also avoid creating additional set of infrastructure.
3. As have been documented in the relevant literature, livestock undergo sufferings in a variety of ways most of which is inflicted by mankind and avoidable at many occasions. The primary reasons of sufferings in day to day life are: stress and strain due to overwork; fatigue due to working with poor health, feed, water and nutrition; pain due to ill-fitting equipments, harness devices, poorly designed carts and agricultural implements; non-availability of proper veterinary care at the right time; working under hot and dusty environment; lack of proper shelter, care and management; crude castrating, restraining and tethering devices; walking long distance and overloading during transportation; poor handling, loading and unloading devices; and crude slaughter methods etc.
4. The livestock welfare activities need to be attempted in collaboration with the veterinary health services activities. There is need to the designs and manufacture of improvised cost effective agricultural implements, animal drawn carts and harnessing devices improving transportation and handling method of animals; ensuring implementation of animal welfare laws at the slaughter houses; and mass awareness on animal welfare through literature, books, seminars, inclusion of Animal Welfare in school books and sensitizing the citizens to be compassionate and caring towards animals reorganizing that they are living being capable of feeling pain and suffering.

Disaster Management

5. Notwithstanding that the Relief Manuals had been very useful for several decades in providing immediate relief and rehabilitation in the eventuality of natural calamities such as famine, drought, scarcity, flood etc., these manuals revolve around the central theme of welfare of human being and they have man-kind centric approach. After the enactment of Disaster Management Act, 2005, the strategy for disaster management has changed from relief centre approach to one based upon preparedness, prevention and mitigation approach. In the background of the fact that livestock welfare is now a global concern, it is the right time to initiate the concept of treating livestock as living beings and accord

them such concern from welfare angle of disaster management instead of treating them as property. It is, therefore, suggested that the entries relating to livestock in the existing Relief – Manuals need to be replaced by disaster specific relief guidelines for management relating to livestock treating them as living beings.

6. There is a need to integrate the disaster management initiatives for livestock with the existing National / State / District development plans. The possible ways of such integration are inclusion of the following components in the existing scheme: i) disaster mapping and disease forecasting, ii) management of disaster caused by outbreak of animal diseases, iii) strengthening and up-gradation of field Veterinary institutions including the diagnostic laboratories, iv) need based research and development for evolving breeds of livestock having higher productivity and suitability for disaster prone areas, v) mass vaccination, vi) capacity building for handling livestock related disaster and evolving it as a component of 'all hazard' approach. vii) mass campaign for community sensitization and viii) scheme for development and storage of special feeds, fodder bricks, drinking water and medicines for use in the different phases of disaster management cycle.

[5.5.13.7](#) Currently, in the relief and rehabilitation plan coordinated by district collectors, the livestock sector often lacks the required attention. Generally, the required immediate veterinary health care is left to be tackled out of the existing budget provision of the Animal Husbandry Department. Ironically, in a number of cases the services of veterinarians are requisitioned for supervising disposal of animal cadavers etc, which adversely affects their effects in providing livestock health, care and other relief aspects. Components of disaster management cycle should be evolved as preparedness / mitigation measures to make value addition to the livestock welfare activities.

6. XI Plan Financial Requirements, Resource Mobilization and Outcome

6.1 Financial Requirement

1. The financial requirement for the livestock and dairy sector during the 11th Plan is estimated at Rs.37770 crores. Out of this Rs.13075 crores should be provided in Government of India's budget for the sector and the balance made available through institutional finance. Sub-sector wise details are presented in the table enclosed.
2. The above estimates do not include the requirement of funds for the programme for natural calamities and disaster management which are outside the provision for Animal Husbandry and Dairy Sector. It is suggested that a provision of Rs.10000 crores should be made for providing relief to livestock farmers including providing Animal Health cover, feed and fodder support and other services during calamities like drought, famine, flood and disasters like earthquakes and Tsunami.
3. In addition to support from Government of India under various Central Sector and Centrally Sponsored Scheme, the State Governments would require to make considerable investment in the sector. It is estimated that the requirement of fund for Animal Husbandry through the State Plans would

require an assistance of Rs.10000 crores. Therefore, a total investment of Rs.57770 crores would be required in Animal Husbandry and Dairying Sector in the 11th Five Year Plan.

2. Resource Mobilization

6.2.1 The resource mobilization has to come through Institutional Financing, Capital Market and Private Investment. The venture capital fund for dairy and poultry development created in the 10th Five Year Plan has been very popular and should be expanded during the 11th Plan. Under the fund assistance should be available for establishment of infrastructure by private entrepreneurs for establishing veterinary clinics and AI centres, vaccine production units, feed plants, fodder seed production facilities, densification of grasses /agricultural waste and bi-products, processing plants for conventional and indigenous dairy products, meat and egg products, semen production station and delivery of semen to the farmers. These activities should also get credit under the head of priority sector lending from commercial and cooperative banks. Introduction of live stock farmers' credit card (like Kisan Credit Card) would solve the problem of working capital. In addition, the state government can make use of the existing scheme "Rural Infrastructure Development Fund" for creating infrastructure in Animal Husbandry sector.

6.3 Eleventh Plan Outcome

6.3.1 Livestock and dairy sector is expected to grow at 6 to 7 per cent per annum during the 11th five year plan. The GDP from livestock sector at the end of 11th five year plan is expected to increase from the present level of Rs.112579 crores to Rs.161104 crores at 1999-2000 prices.

6.3.2 The milk production is expected to grow at 5 per cent per annum, meat and egg at 10 per cent per annum and the wool at 2 per cent per annum. The level at end of 11th plan for these commodities is projected as follows.

Sl. No.	Livestock Products	Growth Rate (in percent)	Unit	Projection for the Year	
				2006-07	2011-12
1.	Milk*	5	Million Tons	99.05	126.42
2.	Meat**	10	Million Tons	6.50	10.47
3.	Egg*	10	Billion nos.	49.00	78.91
4.	Wool*	2	Million kg	43.33	50.04

* Source: Department of Animal Husbandry and Dairying, GoI

** Source: FAO, Food Outlook Global Market Analysis, No. 1, June 2006

XIth Five-Year Plan

ANIMAL HUSBANDRY & DAIRYING SECTOR

Suggested Financial Outlays for the proposed Schemes

Sr. No.	Name of Scheme	Proposed Outlay (Rs. in Crore)			
		Total	Budgetary	Institutional	Other
1	2	3	4	5	6
1.	Feed and Fodder Development				
1.1	Central Fodder Seed Production Farms	50.00	50.00	-	-
1.2	Central Minikit Programme	50.00	50.00	-	-
1.3	Fodder Seed Production by registered growers	150.00	75.00	75.00	-
1.4	Development of Community Pasture for Fodder Production through PPP	200.00	200.00	-	-
1.5	Establishment of Fodder banks and complete feed production through PPP	200.00	100.00	100.00	-
1.6	Establishment of Quality Control/Referral Labs and Regulatory Mechanism	50.00	50.00	-	-
1.7	Industry and Entrepreneurship				
i)	Enrichment of crop residue	150.00	50.00	100.00	-
ii)	Densification feed blocks	150.00	50.00	100.00	-
iii)	Manufacture of Mineral Mixture	25.00	10.00	15.00	-
1.8	Farming Community Programme				
i)	Promotion of chaff cutting and pulverizing of fodder and crop residues	50.00	25.00	25.00	-
ii)	Crop residue enrichment	100.00	50.00	50.00	-
1.9.	Technology Development	100.00	100.00	-	-
	Sub-Total	1275.00	810.00	465.00	-

* Others include contribution by the beneficiaries and participating states.

1	2	3	4	5	6
2.	Cattle and Buffalo Breeding				
2.1	NCBB Project	1000.00	1000.00	-	-
2.2	Large Semen Freezing Stations	150.00	150.00	-	-
2.3	Progeny Testing Programme	150.00	150.00	-	-
2.4	Improvement and conservation of indigenous breeds	200.00	200.00	-	-
2.5	Improvement of Goshalas for production of breeding bulls	500.00	250.00	-	250.00
2.6	PPP for livestock service delivery at Farmers door steps	200.00	100.00	-	100.00

	Sub-Total	2200.00	1850.00	-	350.00
3.	Small Ruminants Development				
3.1	Intensive Programme on Development of Small Ruminants	200.00	200.00	-	-
3.2	Venture Capital Fund for Small Ruminants	250.00	100.00	150.00	-
3.3	Small Ruminant Production and Marketing under PPP in 50 backward districts	100.00	50.0	50.00	-
	Sub-Total	550.00	350.00	200.00	-
4.	Poultry Development				
4.1.	Development of Rural Poultry/Backward Areas	100.00	50.00	50.00	-
4.2	Venture Capital Fund for Poultry and other livestock	500.00	200.00	300.00	-
4.3	Conservation of Native Germ Plasm	50.00	50.00	-	-
4.4	Central Sector Scheme (CPDOs and RSPPTC)	150.00	150.00	-	-
	Sub-Total	800.00	450.00	350.00	-
1	2	3	4	5	6
5.	Pig and Other Animals				
5.1	Development of Pig breeding villages through venture capital fund	100.00	50.00	50.00	-
5.2	Development of Yak etc.	50.00	50.00	-	-
	Sub-Total	150.00	100.00	50.00	-
6.	Meat and Abattoirs				
6.1	Establishing 500 Rural Abattoirs	2500.00	1250.00	1250.00	-
6.2	Salvaging and rearing of male buffalo calves (Venture Capital Fund)	1000.00	250.00	750.00	-
6.3	Establishment of 50 Modern Export Oriented Abattoirs	1000.00	-	800.00	200.00
6.4	Carcass Utilization Centre	100.00	50.00	-	50.00
6.5	National Meat Products Development Board	50.00	50.00	-	
	Sub-Total	4650.00	1600.00	2800.00	250.00
7.	Animal Health and Bio-security				

7.1	FMD Control Programme	1250.00	1000.00	-	250.00
7.2	National Programme of PPR	200.00	160.00	-	40.00
7.3	National Programme of Brucellosis	200.00	160.00	-	40.00
7.4	Continuing Scheme Livestock Health and Disease Control	250.00	200.00	-	50.00
7.5	Continuing Central Scheme Directorate of Animal Health	100.00	100.00	-	-
7.6	Establishment of Veterinary Drug Control Authority	50.00	50.00	-	-
7.7	National Animal Disease Reporting	100.00	100.00	-	-
7.8	Privatization of Veterinary Services	100.00	50.00	50.00	-
	Sub-Total	2250.00	1820.00	50.00	380.00

1	2	3	4	5	6
8.	Dairy Development				
8.1	Support to Cooperative	3200.00	1200.00	2000.00	-
	a. Medium and high potential areas	1000.00	500.00	500.00	-
	b. Low potential areas				
8.2	Support to private initiative for dairying	2000.00	400.00	1600.00	-
8.3	Scheme for enlargement of Venture Capital Fund	1000.00	350.00	650.00	-
8.4	Scheme to encourage R&D	200.00	200.00	-	-
8.5	Scheme to promote consumer awareness on safe milk and milk products	100.00	100.00	-	-
8.6	Scheme to promote rate of women in dairying	100.00	50.00	50.00	-
8.7	Scheme to support Professional development/HRD in dairying	200.00	200.00	-	-
8.8	Scheme to provide assistance for conducting studies and providing timely information	200.00	200.00	-	-
	Sub-Total	8000.00	32000.00	4800.00	-
9.	Livestock Extension and Technology Transfer				
9.1	Livestock Extension Technology Development-Package of practices	100.00	100.00	-	-
9.2	Farmers' School for livestock	50.00	50.00	-	-

	Extension				
9.3	Capacity building in livestock extension	100.00	100.00	-	-
	Sub-Total	250.00	250.00	-	-
10.	Animal Husbandry Statistics & Insurance				
10.1	18 th Livestock Census	710.00	710.00	-	-
10.2	Integrated Sample Survey Scheme	135.00	135.00	-	-
10.3	Livestock Insurance	1000.00	1000.00	-	-
	Sub-Total	1845.00	1845.00	-	-

1	2	3	4	5	6
11.	Institutional Restructuring				
11.1	National Institute for Livestock Information and Policy Studies	200.00	200.00	-	-
11.2	Authority for quality control on Breeding Material	100.00	100.00	-	-
11.3	Indian Council for Veterinary and Animal Science Education & Research	500.00	500.00	-	-
	Sub-Total	800.00	800.00	-	-
12.	Credit				
12.1	Long/Medium Term	10000.00	-	10,000.00	-
12.2	Livestock Credit Cards for short-term credit	5000.00	-	5,000	-
	Sub-Total	15000.00	-	15000.00	-
	GRAND TOTAL	37770.00	13075.00	23715.00	980.00

Annexure-I

Copy of letter No.M-12043/9/2006-Agri.dated 12.5.2006 (as amended on 05.06.2006), Government of India, Planning Commission (Agriculture Division), Yojana Bhavan, Sansad Marg, New Delhi110001

ORDER

Subject: Working Group on Animal Husbandry and Dairying for the Eleventh Five Year Plan (2007-2012)-Revision of its Composition.

In the context of preparing Eleventh Five Year Plan (2007-2012), it has been decided to constitute a Working Group on Animal Husbandry & Dairying as per the following composition and Terms of Reference:-

I Composition

1. Dr. NR Bhasin, Vice- President, Indian Dairy Association, Chairman
IDA House, Sector-IV, RK Puram, New Delhi – 110022
2. Representative of M.S.Swaminathan Foundation, Member
3rd Cross Street, Institutional Area, Taramani, Chennai
3. Prof. N.S. Ramaswamy, Director, CARTMAN, 870, Member
17E Main, Koramangala-6th Block, Bangalore-560095
4. Dr V.K. Taneja, Deputy Director General (Animal Husbandry) Member
Indian Council of Agriculture Research (ICAR), Krishi Bhawan,
New Delhi-110001.
5. Shri D. Tikku, Managing Director, National Dairy Member
Development Board (NDDB), Anand, Gujarat
6. Dr S.K. Bandyopadhyay, Animal Husbandry Commissioner, Member
D/o Animal Husbandry & Dairying & Fisheries, Krishi Bhawan,
New Delhi-110001
7. Director, Indian Veterinary Research Institute, Member
Izatnagar, Uttar Pradesh-243122
8. Dr Sushil Kumar, Director , National Dairy Research Member
Institute, Karnal-132001, Haryana
9. Dr R.P. Sharma, Project Director, Project Directorate on Member
Poultry, Rajendra Nagar, Hyderabad-500030
10. Shri Animesh Banerjee, President, Indian Dairy Association, C/o Member
IDA House, Sector-IV, R.K. Puram, New Delhi-110022
11. Shri K.S. Money, Chairiman, Agricultural Processed Food Export Member
Development Authority (APEDA), NCUI Building, 3, Siri
Institutional Area, August Kranti, Marg, New Delhi-110016
12. Shri P. Uma Shankar, Managing Director, National Cooperative Member
Development Corporation (NCDC), 4, Siri Institutional Area,
Hauz Khas, New Delhi-110016
13. Project Coordinator, National Research Centre on Pigs (NRC on Member
Pigs), Indian Council of Agricultural Research (ICAR), Guwahati,
Assam
14. Shri Dushyant Kumar, Managing Director, National Bank for Member
Agricultural & Rural Development (NABARD), 3rd Floor, 'C'
Wing, Mumbai-400051
15. Maj. Gen. (Retd.) Dr R.M. Kharb, AVSM, Chairman, AWBI, 3767, Member
Sector-23, Gurgaon-122017

16. Dr Anup Bhowmik, Secretary, Veterinary Council of India, A-Wing, II Floor, August Kranti Bhawan, Bhikaji Cama Place, New Delhi-110066 Member
17. Dr N.G. Hegde, Managing Trustree, Bhartiya Agro Industry Foundation, Dr Manibhai Desai Nagar, Warje, NH-4, Pune-411058 Member
18. Dr K.A. Singh, Director, Indian Grassland & Fodder Research Institute, Gwalior Road, Near Pahuj Dam, Jhansi-284003 (U.P) Member
19. Dr R.P.S. Tyagi, Ex Vice-Chancellor, Himachal Pradesh, Krishi Vishwa Vidhalaya At P.O., Palampur, Himachal Pradesh Member
20. Shri D.K. Raio, Secretary, Animal Husbandry & Dairying, Govt. of Gujarat, Secretariat, Gandhinagar, Gujarat Member
21. Dr Mohammad Deen, Secretary, Animal Husbandry & Dairying, Civil Sectt., Govt. of J & K, Srinagar Member
22. Shri U. Khobragade, Secretary, Agri. Animal Husbandry, Fisheries Deptt., Govt. of Maharashtra, Mumbai-400032 Member
23. Dr U.K. Thanvi, Director, Deptt. Of Animal Husbandry, Govt. of Rajasthan, Jaipur Member
24. Dr R. Krishnaraj, Prof & Head, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Madhavaram Milk Colony, Chennai-600051, Tamil Nadu Member
25. Prof. B.B. Mallick, Foremer Vice Chancellor, West Bengal University of Animal Science, Mira Bhawan, CJ-188, Salt Lake, Sector-II, Kolkata, West Bengal-700091 Member
26. Shri Atul Sinha, Member Secretary, NCF, Ministry of Agriculture, Krishi Bhawan, New Delhi-110001 Member
27. Dr V.V. Sadamate, Adviser (Agriculture), Planning Commission, New Delhi Member
28. Smt. Anuradha Desai, Chairperson of National Egg Co-ordination Committee and Chairperson of Venkeshwara Hatcheries Ltd., Pune, Maharashtra Member
29. Dr Shyam Zavar, Vice President (Cattle R&D) Raymond Limited and Secretary, J.K. Trust Gram Vikas Yojana, Pokharan Road No.1, Jekegram, Thane-400606 (Maharashtra) Member
30. Joint Secretary, M/o Food Processing Industries, Govt. of India, Panchasheel Bhawan, August Kranti Marg, New Delhi-100049 Member
31. Shri V.S. Chavan, Managing Director, Warana Dairy, Warananagar, Dist. Kolhapur Member

32. Smt. Rugmini Parmar, Director (PF-II), Ministry of Finance, North Member Block, New Delhi-110001
33. Shri Arvind Kaushal, Joint Secretary, Dept. of Animal Husbandry Member & Dairying, Ministry of Agriculture, Krishi Bhawan, New Delhi- Secretary 110001.

II. Terms of Reference

- i. To review the achievements of physical and financial targets under various Animal Husbandry and Dairy Development Programmes and Projects in the states during the Tenth Plan period and identify the reasons of shortfall, if any and suggest corrective measures.
- ii. To review critically the progress of on-going Central Sector and Centrally Sponsored Schemes with reference to their objectives, targets/achievement and recommend their continuance/ discontinuance/modifications and suggest new schemes for promoting the development of this sector.
- iii. To suggest ways and means for augmenting resource generation and fund flow for development of this sector and to assess the present role of different financial institutions like NABARD, NCDC, Public Sector and Cooperative banks etc. in this sector and suggest modes for their direct involvement.
- iv. To assess the impact of WTO and SPS (Sanitary and Phyto Sanitary) regulatory system on livestock production at large and products in particular so as to project perspective plan of infrastructure building, strengthening and regulatory mechanism through a broad based programme; identify measures for effective animal quarantine and disease control through installation of Q.A. (Quality Assurance) system for laboratories, clinics etc.
- v. To review the existing machinery and systems for estimation of animal husbandry statistics (including animal by-products) and to suggest measures for improvement in data collection method and primary estimation.
- vi. To suggest measures to attract and retain educated youth in these sectors and recommend for this purpose methods of technological upgrading of animal husbandry, processing and associated marketing infrastructure.
- vii. To evolve a contingency programme for replacement of livestock perished during natural calamities and to sustain productivity of surviving animals.
- viii. To review and suggest measures for control and eradication of animal diseases and to increase health cover facilities for optimizing livestock production.
- ix. To study the importance of animal welfare measures on the export of animal products and by-products and suggest measures to improve the well being of animals.
- x. To suggest measures for augmentation of feed and fodder resources for sustaining livestock, particularly in drought years.
- xi. To suggest an action plan for industrialization of commercial poultry sector and measures for intervention to improve the productivity of rural poultry production system.
- xii. To suggest measures for augmentation of demand for liquid milk through diversification of milk products and their marketing.
- xiii. To identify the mode of involving masses in the delivery of veterinary and animal

husbandry services through participation of women and NGO's at the grass root level so as to make this sector interactive and responsive to the requirement of the rural poor to upgrade their economic status.

- xiv. To address production and promotion of Small Ruminants. Keeping in view area specific approach.
 - xv. To develop an institutional mechanism for direct interaction among research institutions, state animal husbandry departments and NGO's; strengthening of animal husbandry extension programme.
2. The Working Group may co-opt any other official/non-official member or a representative of any organization as additional member of the Working Group, if required.
 3. The Working Group may also examine and address such other issues as may be considered important but are not specifically spelt out in the TOR. The Working Group may devise its own procedures for conducting its business including meetings.
 4. The expenditure of the official members on TA/DA in connection with the meetings of the Working Group will be borne by their respective organization to which they belong as per the rules of entitlement applicable to them. In case of non-officials, the TA/DA will be borne by the Planning Commission as admissible to Class-I Officers of the Government of India under SR 190(a)
 5. The Working Group will submit its Interim Report by the end of June,2006 and Final Report by the end of September, 2006 to the Planning Commission.
 6. Dr C.S. Sahukar, Deputy Adviser (AH), Planning Commission, Room No.320, Yojana Bhawan, New Delhi (Tel. No.23096731), will be the nodal officer in the Planning Commission for this Working Group and any query / correspondence may be made with him.

Under Secretary to the Govt. of India

Annexure-II

Summary record of discussions in the first meeting of the Working Group on Animal

Husbandry and Dairying for the 11th Plan held in New Delhi on 23.06.2006

The first meeting of the Working Group on Animal Husbandry and Dairying for the 11th Plan constituted by the Planning Commission vide its orders dated 12.05.2006 and 5.6.2006 was held in New Delhi on 23.06.2006. The list of participants is annexed.

2. Dr N.R. Bhasin, Chairman of the Working Group, in his brief overview, highlighted need for greater attention and budgetary allocation for the sector. He sought guidance of the Member (Agriculture), Planning Commission, as how to bridge the gap between the need-based financial requirement of the sector and the allocations being made available. He also wanted to know the likely resource availability for the sector in the 11th Plan so that the Working Group worked within the same.

3 Prof. Abhijit Sen, Member (Agriculture), Planning Commission stated that it was not possible to indicate any resource availability at this stage. He felt that it may also not be proper to do so. He was hopeful of enhanced allocations for this sector, which had earlier remained neglected, in the Eleventh Plan, both by the Central and State Governments. He, however, cautioned that except for a few core areas like disease control, it was unlikely that large Government sector programmes could gain support. Therefore, he suggested programmes with corresponding funding from private sector/financial institutions needs to be encouraged. Dr Sen also expressed that there was a need to correct allocation to States, which at present was skewed.

4. The Chairman, Working Group, made a detailed presentation on the status of the Animal Husbandry and Dairy Sector in which he brought out the contribution of the livestock sector to the national economy. He presented the growth in livestock products in the last three decades and potential for their future growth. Dr Bhasin also brought out the position of the allocation proposed by the last working group and the allocations actually made in the 10th Plan. He highlighted the five paradigm shift, which should be implemented as part of the development strategy for the 11th Plan so that the sector could realize its potential.

5. Dr S.K. Bandyopadhyay, Animal Husbandry Commissioner, highlighted a number of areas, which should engage attention of the Working Group. He made specific mention of the trace ability and identification of animals, privatization of services, setting up Central Quality Assurance Laboratories; labeling and quality control of feed, qualitative estimation of residues and toxins, HRD on SPF issues and disaster management in the context of livestock & poultry production. He also felt need for special funding, which the Department of Animal Husbandry, Dairying & Fisheries could utilize to sponsor need-based research / studies.

6. The Member (Agriculture), Planning Commission stressed that the Working Group should look at its assignment as an exercise in policy-formulation, rooted in economics and science, and not on sentiments. He stated that the Group should not hesitate to make appropriate recommendations on legal legislative provisions that should be put in place so as to achieve the targets. He suggested aiming at a growth rate of 8% and advised targeting resources to priority programmes instead of spreading them thin.

7. While discussing composition of sub-groups and their respective terms of reference, the members made a number of suggestions.

Dr Taneja, DDG (Animal Sciences), ICAR was of the view that the projections made for the

livestock sector should take into account the fact that the land and water resources were limited. Accordingly, he felt that the Working Group should take an integrated and holistic approach. He also suggested giving serious consideration to incentives for private sector participation in the livestock sector.

Prof. B.B. Mallick stated that demand for quality services was unlikely to increase without enhancement in productivity.

Dr N.G. Hegde highlighted need for giving serious attention to the need for elimination of diseased animals.

Sh. Animesh Banerjee stated that every sub-group should suggest changes that might be made to the TOR circulated in the meeting. He wanted that the sub-groups should critically examine the performance of various programmes in the Tenth Plan.

Prof. N.S. Ramaswamy stated that budgetary allocation for the Animal Husbandry sector in the earlier Five Year Plan have been far below the contribution of the sector to the national economy. He also wanted the Working Group to put due focus on the drought power.

Maj. Gen. Kharb wanted control of Rabies in dogs to be given attention.

Dr U.K. Thanvi suggested that each sub-group should essentially include the senior functionaries of the State Govt. who are to ultimately implement various programmes in the field.

Dr Bhaumik proposed that the sub-group number VII "Animal Health Services and Biosecurity" should be renamed as "Animal Health Services, Veterinary Practices and Biosecurity". He further wanted inclusion of 'to study the status of regulation of veterinary services in the country and suggest necessary strengthening' and 'to suggest improvement in professional efficiency development and its strengthening' in the terms of reference of the said sub-group.

8. It was decided to circulate minutes of the meeting and composition of sub-groups/TOR by 29.6.2006. In this connection, the Chairman suggested the following schedule:

- interim report (3-4 pages) by 31st July; and
- final report of sub-groups by 15.8.2006

9. In response to specific query made by the Member Secretary, Dr C.S. Sahukar, Deputy Adviser, Planning Commission and Nodal Officer for the Group, clarified that there was no constraint of TA/DA for payment to non-officials nominated on various sub-groups.

10. The meeting ended with vote of thanks to the chair.

List of participants in the meeting of the Working Group on Animal Husbandry and Dairying for the 11th Five Year Plan held in New Delhi on 23rd June, 2006

1. Dr N.R. Bhasin In Chair

Chairman

2. Prof Abhijit Sen Special Invitee

Member, Planning Commission, New Delhi

3. Dr V.K. Taneja,

Deputy Director General(Animal Sciences)

ICAR, New Delhi

4. Dr S.K. Bandyopadhyay

Animal Husbandry Commissioner, New Delhi

5. Shri Atul Sinha,

Member Secretary, NCF, New Delhi

6. Mr K.S. Money

Chairman, APEDA, New Delhi

7. Dr R. Krishnaraj

Prof & Head, Tamil Nadu Veterinary and Animal Sciences University(TANUVAS)

8. Prof. B.B. Mallick,

Former Vice Chancellor

West Bengal University of Animal Sciences

9. Dr Nem Singh

Director, Indian Veterinary Research Institute, Izzatnagar.

10. Dr Sushil Kumar, Director

National Dairy Research Institute, Karnal

11. Dr K.A. Singh,

Director, Indian Grassland & Fodder Research Institute

Jhansi

12. Shri Animesh Banerjee, President,

Indian Dairy Association, New Delhi

13. Dr Shyam Zavar,

Vice President (Cattle R & D), Raymond Limited

14. Dr N.G. Hegde,

Managing Trustee, BAIF

15. Major General (Retired), Dr R.M. Kharb, AVSM

Chairman, Animal Welfare Board of India

16. Shri U. Khobragade

Secretary, Dept. of A.H., Dairying & Fisheries, Government of Maharashtra

17. Prof. N.S. Ramaswamy,

Chairman, CARTMAN, Bangalore

18. Dr U.K. Thanvi

Director, Dept. of Animal Husbandry & Dairying,

Government of Rajasthan, Jaipur.

19. Shri Ravi Shankar,

National Dairy Development Board, Anand

20. Dr. R.P. Sharma

Project Director

Project Directorate on Poultry, Hyderabad

21. Shri P. Saxena

Chief Director, (F & TD), NCDC

22. Dr B. Sethuraman

General Manager, NABARD

23. Mr. R.K. Boyal

General Manager, APEDA, New Delhi

24. Dr G.N. Hariharan

Representative of M.S. Swaminathan Foundation

25. Shri Chandra Sekhar Sahukar

Deputy Adviser (Agriculture), Planning Commission

26. Sh. Arvind Kaushal Member Secretary

Joint Secretary,

Department of Animal Husbandry

Dairying & Fisheries, New Delhi

Annexure-III

No.25-4(14)/2005(Coord.-Pt.II)

Government of India

Ministry of Agriculture

Department of Animal Husbandry, Dairying & Fisheries

Krishi Bhawan, New Delhi

Dated the 12th July, 2006

ORDER

Subject:- Working Group on Animal Husbandry & Dairying for the 11th Five Year Plan - formation of Sub-Groups and inclusion of Co-opted Members.

The first meeting of the Working Group on Animal Husbandry & Dairying for the 11th Five

Year Plan was held in the Planning Commission, New Delhi under the Chairmanship of Dr N.R. Bhasin on 23.6.2006. The Working Group decided to formulate 15 Sub-Groups with their terms of reference as annexed.

2. The members of the 15 sub-groups who are not presently members of the Working Group are now being co-opted as members of the same in terms of Para 2 of the Planning Commission Order No.M-12043/9/2006-Agri., dated 12.05.2006. The sub-groups will hold meetings at the places convenient to the Chairman / Members of the sub-groups. Date, time and venue of the meetings of the sub-groups may be intimated to the Chairman and Member Secretary of the Working Group as well as to Dr Chandra Shekhar Sahukar, Deputy Advisor (Animal Husbandry), Planning Commission, Yojana Bhawan, New Delhi, Tel. No.:23096731 and Nodal Officer for the Working Group.
3. The expenditure on TA/DA in respect of the co-opted official members in connection with the meetings of the Working Groups/Sub-groups will be borne by their parent Ministry/Department/Organization. The non-official co-opted members will be paid TA/DA for attending meetings of the Working Group/Sub-groups by the Planning Commission s provided for in Para 4 of the Planning Commission Order No.M-1243/9/2006-Agri., dated 12.05.2006. Travel plan of non-official co-opted members may be communicated to the aforementioned Nodal Officer.
4. The Sub-groups will submit their final reports to the Chairman of the Working Group by August 31, 2001.

(Arvind Kaushal)

Joint Secretary (P&F) &

Member Secretary, Working Group

Circulation

1. The Chairman & Members of the Working Group
2. The Co-opted Members of the Working Group

Copy to:

1. Dr V.V. Sadamate, Adviser (Agriculture), Planning Commission, New Delhi
2. Sh. C.S. Sahukar, Deputy Adviser, Planning Commission & Nodal Officer
3. Sh. K.K. Chhabra, Under Secretary, Planning Commission, New Delhi

Composition and Terms of Reference of Sub-groups

I Cattle and Buffalo Breeding

- | | |
|---|--------------|
| 1. Dr V.K. Taneja, DDG (AS), ICAR-Chairman | |
| 2. Dr S.B. Gokhale, Vice Prresident, BAIF | Non official |
| 3. Dr Ramlinga Raju, Former CEO, APLDA | Non official |
| 4. Dr V.S. Raina, Principal Scientist, NDRI | |
| 5. Dr Shyam Zawar, Secretary, JK Trust | Non official |
| 6. Dr R.K. Sethi PC, CIRB, Hisar | |

7. Dr K.R. Trivedi, NDDB
8. Dr S.K. Dasgupta, Director (AH), Govt. of West Bengal
9. Shri L.N. Modi, BCRDF Trust Non official
10. Dr M.K. Agnihotri, Joint Commissioner, DAHDF- Member Secretary

Terms of Reference

1. To review the Breeding Policy for cattle (indigenous/crossbreds/exotics) and buffaloes based on presently available and developing technologies.
2. To critically examine the performance of National Project For Cattle And Buffalo Breeding Programme.
3. To identify the causes for scarcity of quality bulls and evolve integrated programme for production of highly pedigreed and progeny tested breeding bulls.
4. To suggest measures for improvement and conservation of important indigenous breeds of cattle and buffalo.
5. To assess relevance of draught breeds and evolve programme for their development.
6. To suggest programmes for sustainable development of animal resources in the country.
7. To suggest a regulatory mechanism for production & marketing of Semen, Embryo and other breeding material.
8. To examine possibility of using infrastructure of gaushalas for cattle development.

II. Small Ruminants, Rabbits, Equine, Camels, Yak, Mithun & Pack Animals

1. Dr R.M. Acharya, Former DDG (AS), ICAR- Chairman Non official
2. Dr V.K. Singh, Director, CSWRI
3. Dr N.P. Singh, Director, CIRG
4. Dr Mohan Bhattacharya, Director, NRC on Yak
5. Dr S.K. Dwivedi, NRC on Equine, Hisar
6. Ms Rebecca Katticaren, Inter-cooperation Non official
7. Dr(Ms).C. Nimbkar, NARI Non official
8. Dr U.K. Thanvi, Director, AH, Rajasthan
9. Dr A. Batobyal, Joint Commissioner,DAHDF-Member Secretary

Terms of Reference

1. To review of on-going programmes on development of sheep, goat, pigs, equine, camel and pack animals.
2. To suggest suitable programmes to be taken up by the Central and State Governments to develop these species.

3. To assess importance of pack animals to Draught Animal Power pool and to consider their development in consonance with their contribution.
4. To critically appraise the role of sheep breeds for fine wool production and the prospects of developing sheep and goat for mutton.
5. To suggest programme for development of Camel, Yak and Mithuns.
6. To look into existing arrangements of marketing Small Ruminants and products & suggest measures for improvement.

III. Feed, Fodder & Pasture Development

1. Dr N. Balaraman, Vice Chancellor, TANUVAS- Chairman
2. Dr K.A. Singh, Director, IGRI
3. Dr T.K. Taspas, Director, NIANP
4. Shri Bharat Tandon, CLFMA Non official
5. Dr Mangat Ram Garg, NDDB
6. Shri B.B. Patnaik, M.D., National Seeds Corporation
7. Dr P.C. Dash, Joint Commissioner, DAHDF - Member Secretary

Terms of Reference

1. To critically assess scope and limitation to enhancing fodder production.
2. To suggest means of pasture development and management of grasslands through involvement of communities.
3. To suggest programmes for production of quality seeds with respect to cultivated fodder varieties as well as grass.
4. To suggest means of improving availability of fodder through conservation programmes and to propagate conservation packages.
5. To assess requirement of feed commensurate with targets for livestock production.
6. To suggest suitable programmes for optimization of feed resources and augmentation of feed production.
7. To suggest areas of R & D to produce cost effective feeds utilizing biotechnology methods.
8. To suggest a regulatory regime for feed compounding plants in the country including creation of infrastructure Laboratory and trained manpower necessary for regulation.
9. Assessment of area under production of forage crops and crop residues.

IV. Dairying

1. Shri Animesh Banerjee, Chairman, IDA, New Delhi
2. Shri D. Tikku, Managing Director, NDDB
3. Dr Sushil Kumar, Director, NDRI
4. Shri Arun Kumar, Joint Secretary, MFPI
5. Shri Ravi Shankar, Sr. G.M., NDDB
6. Dr A.K. Joseph, Former, Sr. G.M, NDDB
7. Shri V.S. Chauhan, WARANA Dairy Non official
8. Capt. Amitav Roy, Dynamix Baramati Non official
9. Mrs. Amarjit Kaur, Director, DAHDF-Member Secretary

Terms of Reference

1. To review the ongoing schemes for dairy development in the country.
2. To study the performance, growth and financial health of dairy cooperative societies (including milk union/federation).
3. To identify measures for rapid dairy development all over the country as well as improve the quality of milk production.
4. To critically examine the role of MMPO (1992) in the post trade liberalization
5. To suggest measures for technological development for modernization of dairy sector and value addition of milk and milk products.
6. To suggest structure development of unorganized milk sector and possibility of bringing it into formal dairy sector in order to get the benefits of R & D and modern management technology.
7. To suggest a role of NDDDB and others vis-à-vis dairy development schemes being implemented by the Department of Animal Husbandry and Dairying.
8. To examine role of dairy cooperative and other groups in the development and empowerment of women in rural areas.
9. To suggest measures for attracting increased private sector investment in the dairy sector.
10. To suggest measures required for improving quality and food safety standards and assess requirement of human resource development.

V. Poultry & Piggery

1. Dr Rajbir Singh, Director, CARI- Chairperson
2. Ms Anuradha Desai, VHL Non official
3. Dr R.P. Sharma, Director, PD on Poultry, Hyderabad
4. Dr K.M. Bajarbarua, Director, NRC on Pig
5. Dr Ajit Singh, Executive Director, NECC Non official
6. Shri Shashi Kapoor, Poultry Federation of India Non official
7. Dr Iqbaluddin, Former Joint Commissioner, DAHDF - Non official
8. Dr Rajeswar Rao, CPDO(SR), DAHDF - Member Secretary

Terms of Reference

1. To examine the scope of improvement of productivity in both the organized and unorganized sector.
2. To suggest conservation programmes for indigenous poultry with special reference to potential of backyard poultry.
3. To examine constrains in the growth of poultry industry and suggest policy changes to remove these constraints.
4. To develop the programme for pigs in areas of their critical need with particular reference to NE region.
5. Bio-security precautions in the light of Avian Influenza.
6. Mechanism for registration of hatcheries, farms etc. and regulation.

VI. Meat & Abattoirs

1. Dr N.S. Ramaswamy, CATMAN – Chairman Non official
2. Shri Arun Kumar, Sr. G.M., MFPI
3. Dr N.S. Mahendra, CFTRI, Mysore
4. Dr S.K. Ranjhan, Hind Agro Industries Ltd., Non official
5. Shri Irfan Allana, Allanasons Non official
6. Dr T.R.K. Murthy, OSD, NRC on Meat
7. Sh. R.K. Boyal, GM, APEDA
8. Dr Babu Ram, Deputy Commissioner, DAHDF-Member Secretary

Terms of Reference

1. To critically examine the constraints effecting development of organized meat sector.
2. To suggest schemes for modernization of meat industry and establishment of modern abattoirs.
3. To suggest measures necessary for promoting meat export.
4. To assess the policies presently in force and changes needed to meet global challenges.
5. To suggest structural development of meat sector and introduction of R & D and modern management technologies.

VII. Animal Health Services and Biosecurity

1. Dr S.K. Bandyopadhyay, AHC, DAHDF-Chairman
2. Dr B.B. Mallick, Former Vice Chancellor, WBUAFS Non official
3. Dr R. Srinivasgowda, Vice Chancellor, Veterinary University Bidar.
4. Dr Nem Singh, Director, IVRI
5. Dr A. Bhaumik, Secretary, VCI
6. Dr R Krishnaraj, TANUVAS
7. Dr H.K. Pradhan, HSADL, Bhopal
8. Dr L. Mohan, Director,(AH), Govt. of Andhra Pradesh
9. Dr S.C. Suneja, Director, Veterinary Biological Institute, Hisar
10. Dr A.B. Negi, Member Secretary

Terms of Reference

1. To review the ongoing schemes of animal disease control in the central and the state sector and suggest measures for improving their effectiveness.
2. To critically assess the present status of disease control in the light of international regulatory mechanism concerning animal health.
3. To review the achievement of progress for creating disease free zone status.
4. To consider the feasibility of using existing infrastructure of NPRES for eradication and control of foot and mouth disease.
5. To suggest measures for bio-security, identify measures required for installation of quality assurance system for laboratories and animal quarantine.
6. To privatize animal health services and involve trained rural youth (Paravets/Gopalmitra etc.) in making available animal health services at the door step of the farmers.
7. To suggest a regulatory mechanism for production and marketing of vaccines and biologicals.

8. To study status of regulation of veterinary practice.
9. To suggest proficiency/efficiency development programme.

VII. Trade, Marketing and WTO

1. Prof. Vijay Pal Sharma, IIM, Ahmedabad – Chairman Non official
2. Shri N.N. Varshney, NDDB
3. Representative of Ministry of Commerce
4. Joint Marketing Advisor (MFPO), Directorate of Marketing & Inspection
5. Shri Tapeshe Pawar, Secretary (AH), Rajasthan
6. Shri S. Dave, Director, APEDA
7. Shri R.K. Chaudhary, Director, DAHDF – Member

Terms of Reference

1. To review existing export policy and incentive for export of livestock products.
2. To suggest present status of marketing of live animals and livestock products in the country and measures to improve the marketing systems.
3. To assess the impact of WTO and SPS Regulatory System on Livestock Production, in particular export of livestock products.
4. To suggest a perspective plan for infrastructure building in the context of WTO and SPS regime.
5. To identify bio-diversity concern relating to livestock species in open trade and SPS regime.
6. To examine impact of Free Trade Agreements on Livestock Sector in India.

IX. Livestock Welfare and Disaster Management

1. Maj. Gen.(Retd.) R.M. Kharb – Chairman
2. Prof. N.S. Ramaswamy, CARTMAN Non official
3. Shri L.N. Modi, BCRDF Non official
4. Representative of National Disaster Management Authority
5. Representative of RVC
6. Shri Vijay Kumar, Commissioner (AH), Govt. of Maharashtra
7. Dr V.K. Sharma, Prof. Disaster Management, IIPA, New Delhi
8. Dr Anup Bhaumik, Secretary, VCI – Member Secretary

Terms of Reference

1. To examine existing, Famine and Relief Code and suggest measures to mitigate effects of calamity on Livestock Sector.
2. To study the importance of animal welfare measures and suggest measures to improve the well being of animals.
3. To assess the importance of animal welfare measures in society in general and on export prospects of animal products in particular.
4. To suggest measures to improve implementation of animal welfare regulations.
5. To suggest mechanisms to ameliorate sufferings of farm animals during calamities.
6. To suggest measures to improve the working efficiency of the animals and reducing their sufferings.
7. To suggest measures for sustaining production and replacement of livestock during

calamities.

8. To suggest role of Goshalas and Gosadan and measures to improve their working.

X. Finance, Credit input and Insurance

1. Shri U. Khobragade, Secretary (AH), Government of Maharashtra-Chairman
2. Shri Viswanath Pillai, Dr M.S. Swaminathan Foundation Non official
3. Dr K.G. Karmakar, MD, NABARD
4. Shri Wasi Mallya, Dhan Foundation

5. Shri P. Umashankar, MD, NCDC
6. Joint Secretary (SGSY), Ministry of Rural Development
7. General Manager (Rural Credit), RBI
8. Dr Raj Kumar, Dy. GM, Agri. Division (RRB) SBI Central Office, Mumbai
9. Director (Insurance), Ministry of Finance
10. Director (PFII), Ministry of Finance
11. Dr B. Sethuraman, Gen. Manager, NABARD-Member Secretary

Terms of Reference

1. To assess the present status of availability of credit to livestock sector.
2. To assess the role placed by different financial institutions (NABARD, NCDC, Public Sector and Cooperative Banks etc.) in development of animal husbandry sector and suggest modes for their better involvement.
3. To suggest ways and means for augmenting resource generation and fund flow to supplement the state and central plan schemes.
4. To review the recently launched venture capital fund for dairy and poultry development.
5. To review the ongoing programme of livestock insurance of Government of India and States and suggest measures for making it more effective and increase its average.

XI. Public Private Participation and NGOs

1. Shri N.G. Hegde, BAIF Research Development Foundation - Chairman
2. Dr Mahammed Deen, Secretary (AH), Govt. of J & K
3. Representative of DG, CAPART
4. Representative of Ministry of Women and Child Development
5. Mr. Nivedita Narayan, PRADAN Non official
6. Dr Sagari Ramdoss, ANTHRA Non official
7. Dr A.K. Joseph, Former Sr. G.M, NDDB - Member Secretary

Terms of Reference

1. To review the existing status of public, private partnership in the livestock production and livestock based industries.
2. To examine the role of NGOs, self help groups and other partners in development.
3. To identify resource for the poor involvement of private sector and livestock production

and establishment of livestock based industries and measures to improve their participation.

XII. Livestock Technology Transfer Service

1. Dr Rita Sharma, FA, DARE, Chairperson
2. Dr D.N. Singh or representative of TIFAC
3. Dr S.K. Bhanja, Professor, NIRD
4. Dr P.V.K. Panicker, MD, Indiagen, Hyderabad
5. Dr P. Das, DDG (Extn.), ICAR
6. Dr Ramesh Rawal, BAIF Non official
7. Dr Mahesh Chandra, Extension Division, IVRI – MemberSecretary

Terms of Reference

1. To examine establishment of system for validation of technology and transfer of technology to livestock production and production of livestock products.
2. To suggest measures required to create an environment for easy adoption of technology by the livestock sector.
3. To identify the mode of involving masses in the delivery of veterinary and animal husbandry services at the grass root level.
4. To review the present system of livestock extension and to suggest new structure for the same based on development in the agricultural extension system.
5. To review technology for development of draft power use.

XIII. Institutional Restructuring

1. Dr N.R. Bhasin – Chairman
2. Dr V.K. Taneja, DDG(AS), ICAR
3. Dr S.K. Bandhyopadhyay, AHC
4. Prof. Vinod Ahuja, IIM, Ahmedabad
5. Shri N.G. Hegde, BAIF Research Development Foundation
6. Dr N.V. Belavadi, Sr. G.M., NDDDB
7. Shri Arvind Kaushal, Joint Secretary, DAHDF-Member Secretary

Terms of Reference

1. To review critically the progress of ongoing central sector and centrally sponsored scheme with reference to their objectives, targets, achievement and recommend their continuation, discontinuation, modification and suggests new schemes for promoting the development of the sector.
2. To examine the existing structure implementing these schemes, assess their effectiveness and suggest measures to improve their effectiveness or suggest alternative institutions for their better implementation.
3. To assess the role of private institution in the delivery of veterinary and animal husbandry services.

XIV. Animal Husbandry Statistics

1. Dr P.C. Bansil, TERI-Chairman Non Official
2. Sh. Arun Saxena, Advisor(Stat), DAHDF
3. Dr D.K. Jain, Principal Scientist, NDRI
4. Dr Pratap Birthal, NCEAP
5. Dr Mrithyunjaya, National Director, NIAP. ICAR
6. Shri S.K. Chakravarty, Director
7. Dr K.B. Rao, NSSO
8. Dr C.L. Dudhuch, Sr. G.M., NDDB
9. Dr V.K. Srivastava, Director, DAHDF-Member Secretary

Terms of Reference

1. To review the existing machinery and systems for estimation of animal husbandry statistics (including animal byproducts) and suggest measures for improvement in data collection method and timely estimation.
2. To suggest statistics required on categories of various livestock production system, pattern of use of livestock products, their prices spread in various marketing system and value additions at different levels of processing and marketing also suggest studies required for collection of these statistics/information.
3. To suggest measures required to build a continuous monitoring system in regard to various livestock development programme.
4. To suggest measures for incorporation of information technology in animal husbandry programme.

XV. Environment, Livestock Systems & Livestock-based Industries

1. Dr N.S.R. Sastry, Former, Professor, NIRB-Chairman
2. Dr R.S. Mahwar, Additional Director, CPCB
3. Shri Padmakumar, Programme Officer, CALPI
4. Dr K. Nachi Murthy, Director(Research), TANUVAS
5. Dr Subodh Sharma, Advisor, Ministry of Environment & Forerst
6. Dr R.P. Mishra, Principal Scientist, CIRG-Member Secretary

Terms of Reference

1. To critically examine various livestock production system in relation to their impact on environment and measures to control the adverse effect.
2. To examine the impact of livestock industries on environment and measures to suggest control of their adverse effect of the environment.

Annexure-IV

Summary record of discussions in the meeting taken by the Chairman of the Working Group

with the Chairmen and Member Secretaries of Various sub groups on Animal Husbandry and Dairying for the 11th Five Year Plan held on 31.07.2006 in New Delhi.

The second meeting of the Working Group on Animal Husbandry and Dairying for the 11th Plan constituted by the Planning Commission vide its orders dated 12.05.2006 and 05.06.2006 was held in New Delhi on 31.07.2006. The list of participants is annexed.

2. The meeting took up for discussion a note prepared by Dr N.R. Bhasin, Chairman of the Working Group, relating to the growth achieved in various sectors of the animal husbandry during the period 1981-2000 and the scenarios of possible growth in the 11th Plan. It was felt that annual growth of 5 or 6 per cent for the milk group, 10 per cent for the meat and eggs and 2 per cent for wool should be targeted to achieve an overall growth of 6 to 7 per cent for the sector as a whole.
3. Dr S.K. Bandyopadhyay, Animal Husbandry Commissioner agreed with the Chairman and stated that a target of 5 % growth for the milk group was appropriate.
4. Dr V.K. Taneja, DDG(Animal Sciences), ICAR, was, however of the view that the present strategy was not good enough to attain even 5% growth. He felt that concerted efforts were needed to sustain production and achieve quality improvement for realizing a growth of 5% rather than increasing production with increase in number of animals.
5. Dr N.G. Hegde, Chairman, BAIF Development Research Foundation stressed need for improving the quality of milk and milk products. He informed that at present milk availability in the country was much below the nutritional requirement. In order to achieve this, he was of the view that the Dairy Sector should be decentralized and private participation encouraged by the Government. Sh. Hegde also felt need for instituting a mechanism of single window for clearing various livestock based project proposals.
6. Dr P.C. Bansil expressed concern over deficiencies in product quality and inadequacies of marketing infrastructure, which constrained delivery of goods from the producers to consumers, both domestic and overseas.
7. Dr N.S.R. Sastry opined that a 5% growth of the milk sector was certainly attainable. In this connection, he cited the example of Andhra Pradesh.
8. Prof. Vijay Pal Sharma stated that the Working Group should aim at achievable targets and added that it would be advisable to target North and the East for achieving higher and a cost-effective growth.
9. Shri Animesh Banerjee, Chairman IDA, emphasized that the Planners should shift the current thrust from liquid milk to other value added products.
10. Prof. N.S. Ramaswamy stated that the growth rate can go up only if the livestock sector receives from the Government the attention it deserves. He decried the fact that there has been gross under investment in the sector and merely setting growth rate may serve no purpose. In order to achieve higher growth rate, it was necessary to provide higher inputs as well.
11. Major General R.M. Kharb mentioned that the procurement system should be streamlined to eliminate middlemen and more money should reach the farmers. Input costs should be reduced with infusion of technology so as to enhance profit margins of farmers.
12. Shri A.K. Joseph expressed that 70% of the inhabited villages did not have market access. Many lack minimal critical mass to make their activities remunerative and viable. Stimulus for production like market access and production incentive may lead to a change in the situation.
13. While discussing the growth potential of meat sector, Prof. Ramaswamy stated that if sufficient inputs are provided to this sector, the value of output would go up exponentially. He expressed his dismay over neglect of this sector and wanted situation to be urgently remedied.

14. Dr Bansil expressed concern over the fact that no reliable data on the meat sector was available though it held tremendous potential.
15. Dr S.K. Bandyopadhyay concurred with the view that meat sector indeed held huge potential and buffalo meat in particular was particularly suitable for export markets.
16. Shri A.K. Joseph mentioned that growth beyond 5% in case of small ruminants was not possible unless some revolutionary measures are taken.
17. Dr Taneja stated that a realistic estimation of nutritional requirement for meeting the meat production target has to be chalked out. He felt that an area development approach in prospective pockets might be rewarding.
18. Dr R. M. Acharya maintained that realized slaughter percentage in small ruminants is much higher than recorded which reflects the growth potential of the two species and their linkage to upliftment of poor people. He emphasized the need to look at an optimal and realistic population size of small ruminants.
19. Dr N.R. Bhasin mentioned that cross breeding of sheep for improving wool quality had railed due to large scale imports from Australia and New Zealand. Emphasis should be placed more on meat than wool. Quality wool production should be limited to high altitudes of India.
20. Dr Bansil stated that preventing wastage of animal by-products is equally important for growth of animal husbandry. Prof. Ramaswamy highlighted the gains of preventing slaughterhouse wastes.
21. Shri Animesh Banjerjee mentioned that there was a need to critically analyse constraints being faced by this sector so that appropriate measures are taken to remove them.
22. The Chairman reviewed the progress made by various Sub-Groups and underlined need for timely submission of reports by them. He suggested that various sub groups would make presentation of their reports in the next meeting of the Working Group, which may be held around 30th -31st August, 2006.
23. The meeting ended with a vote of thanks to the Chair.

List of Participants

1. Dr. N. R. Bhasin
Chairman
2. Dr S.K. Bandyopadhyay
Animal Husbandry Commissioner
DADF, New Delhi
3. Dr V.K. Taneja
DDG (Animal Sciences)
ICAR, New Delhi.
4. Dr N.S. Ramaswamy,
Director, CARTMAN
5. Dr R.M. Acharya

Former DDG (AS), ICAR

Non-official

6. Major General R.M. Kharb

Chairman, Animal Welfare Board of India
7. Prof Vijay Pal Sharma

IIM Ahmedabad
8. Shri Animesh Banerjee

President, IDA, New Delhi
9. Dr N.G. Hegde

President, BAIF Development Research Foundation
10. Dr P.C. Bansil

Techno Economic Research Institute
11. Dr R.V. Singh,

Director, CARI, Izatnagar
12. Dr N.S.R. Sastry

Former Professor, NIRD
13. Non-official
Dr Anup Bnhaumik,

Secretary, VCI.
14. Dr V.K. Srivastava,

Director, DADF, New Delhi
15. Dr Batobyal

Joint Commissioner, DADF, New Delhi
16. Dr A.B. Negi,

Joint Commisioner, DADF, New Delhi
17. Dr M.K. Agnihotri,

Joint Commissioner, DADF, New Delhi
18. Dr Mahesh Chander,

Sr. Scientist, IVRI
19. Shri A.K. Joseph,

Programame Coordinator, CALPI
20. Dr Babu Ram

- Deputy Commissioner, DADF, New Delhi.
21. Dr R.P. Mishra,
Principal Scientist,
Central Institute for Research on Goat,
Mathura, UP.
22. Dr B. Seturaman
General Manager, NABARD
23. Dr N. Rajeswara Rao,
Director, CPDO(SR)
24. Shri Arvind Kaushal, Member Secretary
Joint Secretary, New Delhi

Annexure-V

Record note of discussions in the meeting of the sub-groups of the Working Group on Animal Husbandry and Dairying held in Planning Commission, New Delhi on 7th & 8th September 2006

The list of participants is enclosed.

- Opening the discussion, Dr. N.R. Bhasin, Chairman of the Working Group, outlined agenda for the meeting. He observed that there has been a decline in investment in the animal husbandry sector over a period, which was a matter of concern. He observed that growth in the last three-four plans had come mainly from the dairy sector, which has seen deceleration in the 10th Plan. As a result, he felt, the growth rate in the 10th Plan was expected to be less than 4%. Dr. Bhasin felt that strategy alone could not yield the expected growth unless necessary resources are made available for implementing the required initiatives. He noted that animal husbandry was a State subject and many schemes get taken up in States, which are dictated by considerations other than their techno-economic soundness. As a result, only centrally funded schemes appear to be functioning in the states for development of the sector. He then invited the chairmen and secretaries of the sub groups to present their respective reports to the meeting.

Sub-Group I - Cattle and Buffalo Breeding

3. The presentation emphasized that sustainable milk production required stabilization of breedable bovine population at around 90 million, comprising a large proportion of buffaloes and crossbreds. It was stated that most of the States failed to operationalize the breeding policy due to inefficient breeding network, non-availability of quality bulls and poor economics of indigenous breeds. The presentation noted that there were large gaps in targets and achievements with regard to quality semen production, which the AI services needed to fill. The report, inter alia, recommended tapping resources of Gaushalas for conservation and improvement of indigenous breeds, organic farming, bio-fertilisers, bio-energy, panch-gavya medicines and fodder seed production. Regulating quality of germ-plasm supply and creation of Liquid Nitrogen (LN₂) Grid were also recommended. The presentation made a strong case for keeping semen and bull production programme exclusively with the Government of India and not allow proliferation of semen freezing stations by the States.

Sub-Group II - Small Ruminants, Rabbits, Equine, Camels, Yak, Mithun & Pack Animals

4. The presentation covered current interventions, interventions required during the 11th Plan in terms of policy reforms, institutional / organizational reforms, fiscal support and programme support so as to achieve desirable targets of growth. It recommended starting technology mission dedicated to the development of small ruminants. The report recognized the fact that in the background of the past experience, any major investment for improvement in the quality and quantity of wool was unlikely to be rewarding and hence may not be attempted. It was suggested in the meeting that instead of supporting Government farms, there was a need to encourage projects involving public-private participation for better delivery and results. It was mentioned during discussions that sheep rearing in large parts of the country would be unsustainable without migration and hence development plans are to be drawn accepting migration as an inevitable reality. Most of the members of the working group called for special attention to the North Eastern states for development of small ruminants, yak and mithun as these held high unrealized potential. For this, higher project costs should be allowed because of higher input and material costs in that region. Responding to suggestions, the Chairman of Subgroup II stated that the myth ascribing desertification to small ruminants has time and again been proved wrong by different committees and a thrust should be given during XI plan towards rapid development of this specie as meat animals. He also favoured a comprehensive programme to prevent further deterioration in numbers of other marginalized species.

Sub-Group III - Feed, Fodder & Pasture Development

5. The presentation suggested involvement of farming community, Govt./Public Sector infrastructure development, development of entrepreneurship and involvement of R&D institutions (ICAR/SAUs) for development of the sub sector during the Eleventh Plan. It also emphasised sufficient budget allocation for faster growth. It was suggested that coarse grains not consumed by the human population might be diverted for preparation of livestock feed. Simultaneously coarse grain production should be enhanced. Fodder

production should be intensified in different production zones - hills, mid hills, arid zones, peri urban belt for different species of livestock. Members of the working group suggested feeding of rock salt to meet mineral requirement of the livestock, improvement of the quality of crop residues by adoption of appropriate technology, control of internal and external parasites for maximum availability of nutrients to the animal system, prevention of wastage of crop residues and chaffing of green fodder for utilization of the whole fodder plants. A suggestion was also made to provide for Minimum Support Price for production of fodder seeds. Many members stressed need for taking steps to prevent waste of crop residues and for adoption of appropriate technology to reduce moisture in feed and fodder to avoid fungal growth and aflatoxin.

Sub-Group IV - Dairying

6. The presentation noted with concern that there has been significant slowing down in the growth rate of milk production in the 10th Five Year Plan and felt that it would be unrealistic to achieve a growth rate of more than 5% in milk production during the 11th Plan. It was stated that investment made by the Government for dairy development had been insufficient and private sector's contribution in this was negligible. The sub group suggested that the main focus for dairy development in the 11th Plan should be to increase the procurement share of the organized dairy industry and strengthening of cooperatives. The presentation recommended that the dairy portion of the existing Dairy-Poultry Venture Capital Fund should be separated and the Clean Milk Production Scheme of the Department merged with venture capital fund. Another recommendation made was that the Intensive Dairy Development Project should be recast as Dairy Development in Low Milk Production Potential Areas. It was suggested that the existing scheme Assistance to Cooperatives should be discontinued, as it appeared to have covered most of those who were eligible to receive such assistance and no further purpose would be served by its continuation.

Sub-Group V - Poultry & Piggery

7. It was mentioned that import of equipment relating to poultry production did not presently attract full or partial customs duty exemption available to some other sectors. Availability of such a concession will make commercial poultry production more economical. Concern was expressed over testing facilities for pesticide residues, including dioxin in poultry products and it was suggested that there was a need to strengthen existing regional laboratories with requisite facilities so as to enable testing of all poultry products as per international standards. Some members of the working group felt that promotion of other poultry species such as turkey, duck, emu etc. should be given special attention. In the context of contract farming, it was recommended that there was a need to give special attention to regulatory mechanism so as to protect interests of both the integrators and the farmers. The presentation recommended creation of a calamity relief fund so that poultry farmers could be given some protection during calamities. It was suggested that backyard poultry should be specifically promoted in the North-Eastern states so as to provide rural employment and also become an instrument of woman empowerment. A suggestion was also made that poultry husbandry should be

introduced as a subject at the higher secondary level so as to be an avenue for vocational training.

Sub-Group VI - Meat & Abattoirs

8. The sub group, in its presentation, expressed need for modernization of slaughterhouses in the country to ensure production and supply of safe meat, preventing suffering of animals during transportation and slaughtering. It was observed that there was a need to extend area of disease-free zones for FMD to boost meat export, single agency like Meat and Meat Products Development Board and revival of the central sector Export Oriented Abattoir Scheme. It was mentioned that the progress in the scheme implemented by the Ministry was very slow and that there was a need to improve basic infrastructure like water, hanging rails, flooring etc in slaughterhouses. The presentation suggested that there was a need to promote rearing of male buffalo calves, which can provide significant employment to rural youth. It was observed that there was a need to address issues of environment pollution caused by solid wastes in poultry processing plants, on the lines of carcass utilization plant at Namakkal University Campus. It was also felt that Government should invest in meat production for export purpose, as it was highly capital intensive. In regard to piggery, it was proposed that the Government needed to promote commercial pig farms by private entrepreneurs on the lines of commercial poultry. These farms should be assured supply of quality germplasm.

Sub-Group VII - Animal Health Services and Bio-security

9. The presentation informed that the direct annual losses due to FMD were more than Rs. 20,000 crores and the cost benefit of FMD control ranged from 1:8 to 1:32. Consequently, it was recommended that there was a need for an intensive control programme in respect of the FMD, Brucella, PPR under a Centrally sponsored scheme. The sub group suggested establishment of a regulatory framework for animal health care, privatization of health care services, strengthening disease information and reporting network. The presentation emphasized the need for supporting modernization and up gradation of infrastructure for biological production in public sector. The members of the working group appreciated the Veterinary Call Centre concept and were of the view that privatization of veterinary services should be extended to rural areas. It was also mentioned that there was a need to upgrade the RDDs and to network them with Veterinary Colleges for better monitoring. The sub group recommended that the programmes included in the 11th Plan should aim at reducing disease incidence in livestock, increasing productivity in livestock farming, enhancing quality assured vaccine production capacity, creation of a regulatory body for veterinary therapeutics and prophylactics, improved disease reporting and information network and enhanced professional efficiency and capacity.

Sub-Group VIII - Trade, Marketing and WTO

10. The presentation brought out that there was a need to reduce duties on packaging material and other inputs for livestock sector. It also underlined significance of identifying special products for inclusion in the WTO negotiations. It was also suggested that

products development issues relating to the R&D and investment should be facilitated. The members of the working group recommended that the incidence of taxes and cess on livestock products should be deliberated upon.

Sub-Group-IX - Livestock Welfare and Disaster Management

11. The presentation suggested that a Central Veterinary Service should be established for effective coordination of the Animal Husbandry and Veterinary Services. It brought out need for a scheme to provide compensation for humane killing of terminally ill animals and provision of animal carts to reduce animal suffering. The sub group stressed need for creating awareness about animal Welfare. It was recommended that a corpus fund for disaster management in livestock sector be created. The members of the working group felt that the effectiveness of Goshalas should be improved.

Sub-Group X - Finance, Credit input and Insurance

12. The presentation brought inadequate resource availability to the animal husbandry and dairy sector. It mentioned that less than 2% of total loans and 10% of term loans go to the animal husbandry sector. It was difficult for new technology projects and small ruminant sector to get institutional finance. It was suggested that the financial institutions should use MFIs to increase coverage, create calamity fund, promote use of RIDF by State Govts. The presentation also recommended increasing recourse to the venture capital fund for meeting needs of the sector. Creation of a dedicated fund for biotech projects in the animal husbandry sector was also recommended.

Sub-Group XI - Public Private Participation and NGOs

13. The presentation noted that the PPP and NGOs' have high potential to play a major role in the livestock sector in future. To ensure progress in animal husbandry activities, NGOs should be invited to participate actively. The meeting appreciated the good work being done by the NGOs in many areas and many parts of the country. However, the concern was that there are only a handful of NGOs of high credibility, reputation and track record which are competent enough to take on such responsibility. In this regard it was stated that reason for this was absence of encouragement in the past. It was brought up that the progress under the NPCBB was not uniform across the country. In many states, the progress has been negligible. It was generally perceived that breed improvement, except in a very few cases of cattle, is not given the desired attention, especially in the case of backyard poultry, small ruminants etc. Programmes like development of CPRs, integrated small ruminant production and marketing etc. should have an element of breed development linked to them. Some doubts were expressed about the production levels of improved animals projected in the presentation. It was pointed out that the lactation yield of 2000 lit. projected is not very high assuming that reasonable support services would also be extended. It was felt by one of the members that the 2000 livestock service centers (breeding and health) proposed is too small a number for a five year period for a vast country like India. It should be at least 10,000 centers in the five year plan. In terms of investment, the amount required is not much. This suggestion was generally accepted.

Sub-Group XII - Livestock Technology Transfer Service

14. The presentation brought out the need for formulating a National Livestock Extension Policy so that the roles are clearly delineated at different level and for different agencies. It was noted that at present, the livestock extension efforts were sporadic and highly unorganized for want of an institutional set up at central level as well as at the level of the states. It was felt that the animal husbandry institutions needed to orient themselves for new roles in addition to the clinical aspects by changing the mindsets so as to be more pro extension.

Sub-Group XIII - Institutional Restructuring

15. The presentation stressed need for setting up an autonomous institute to provide information on policy, trade & systems and carrying out surveys on cost of production as there are many data gaps. The same institute may organize the information technology at the state level. It was suggested that a 'National Meat Board', should be established, as export of Buffalo meat is likely to reach Rs.10,000 crore by the end of 11th Plan. It was suggested that a de-centralized mechanism for production of quality livestock, production of quality semen in private sector needed to be developed. The production of vaccines should be left to the NGOs/ Private sector, and the Government should exercise only a regulatory role in this area. It was observed that instead of manufacturing fodder seed by contract farming, the production might be shifted to registered farmers; and. Govt may ensure quality checks. The presentation made out a case for transfer of state livestock farms to Agricultural universities & Veterinary colleges. The presentation strongly felt that there was a need for reorienting the existing public sector institutions in a phased manner.

Sub-Group XIV - Animal Husbandry Statistics

16. The sub group proposed creation of a Directorate of Livestock Economics and Statistics (DLES) having with the long term mandate of developing the discipline of livestock economics in a systematic way in various institutes and universities. The presentation stressed the need of having Assistant Director (Livestock Economics) at each district level in order to strengthen data collection mechanism properly. The working group strongly supported need for suitable initiatives to promote the discipline of livestock economics and statistics.

Sub Group XV - Environment, Livestock Systems & Livestock-based Industries

17. The presentation discussed the present system of livestock production and livestock based industries, bringing out the various forms of pollutions caused by them. The sub group recommended establishment of Jan Pasudhan Kendra to take care of pollution through livestock production in the villages. It was felt that the Jana Pasudhan Kendra would be a good option and may also include the system proposed by the Sub group on Livestock

Welfare and Disaster Management and the Goshala System as these are quite similar to each other.

18. Meeting concluded with thanks to the chair

List of Participants in the 3rd Meeting of the Working Group on Animal Husbandry & Dairying for the 11th Five Year Plan held in New Delhi on 7th September 2006.

1. Dr. N.R. Bhasin

Chairman

2. Dr. V.K. Taneja

DDG (Animal Sciences)

ICAR, New Delhi.

3. Dr. S.K. Bandyopadhyay

AHC, DAD&F, New Delhi

4. Shri V.P. Sharma

IIM, Ahmedabad.

5. Dr. Anup Bhaumik

Secretary, VCI.

6. Major General R.M. Kharb

Chairman, Animal Welfare Board of India.

7. Dr. N.S. Ramaswamy

Director, CARTMAN.

8. Shri Animesh Banerjee

President, IDA, New Delhi.

9. Dr. A.K. Joseph

Programme Coordinator, CALPI.

10. Dr. N.G. Hegde

President, BAIF Development

Research Foundation.

11. Dr. P.C. Bansil

Director,

Techno Economic Research Institute.

13. Dr. K.A. Singh

Director, IGFRI (ICAR), Jhansi.

14. Dr. Mahesh Chander

Sr. Scientist, IVRI.

15. Dr. V.K. Srivastava

Director, DADF, New Delhi.

16. Dr. A. Batobayal

Joint Commissioner, DADF, New Delhi.

17. Dr. P.C. Dash

Joint Commissioner, DADF, New Delhi.

18. Dr. A.B. Negi

Joint Commissioner, DADF, New Delhi.

19. Dr. Babu Ram

Deputy Commissioner, DADF, New Delhi.

20. Dr. R.P. Mishra

Principal Scientist,

Central Institute for Research on Goats,

Mathura, UP.

21. Dr. Rajvir Singh

Director, CARI, Izatnagar.

22. Dr. B. Seturaman

General Manager, NABARD.

23. Dr. M.K. Agnihotri,

Joint Commissioner, DADF, New Delhi.

24. Dr. Bhushan Tyagi,

LO, DADF, New Delhi.

25. Dr. R.M. Acharya,

Former DDG(AS),ICAR

Non-official.

26. Dr. N. Rajeswara Rao,

Director, CPDO (SR).

27. Dr. Sushil Kumar,

Director, N.D.R.I. (ICAR), Karnal.

28. Dr. N. Balaraman,

V.C., TANUVAS, Chennai.

29. Dr. M.M. Roy

Principal Scientist, GSM Division, IGFRI, Jhansi.

30. Dr. J. Shanmugam

DMI, Chennai.

31. Dr. Nem Singh,

Director, I.V.R.I.

32. Dr. N.S.R. Shastri

Former Professor, NIRD

Non-official.

33. Shri. Ravi Shankar

Senior GM, NDDB.

34. Prof. B.B. Mallick

Ex-Vice chancellor,

West Bengal University of Animal & Fishery Sciences.

35. Dr. Shyam Zawar

Vice-President, Raymond Limited.

36. Dr. C.S. Sahukar

Dy. Adviser, Planning Commission, New Delhi.

37. Dr. H.R. Keshavamurthy,

Dy. Secy. (PC), DADF, New Delhi.

38. Shri Arvind Kaushal

Member Secretary

Joint Secretary, DADF, New Delhi.