

WORKING GROUP Sr. No. **42 /2001**

**REPORT OF
THE WORKING GROUP ON**

ANIMAL HUSBANDRY AND DAIRYING

***FOR*
THE TENTH FIVE YEAR PLAN
(2002-2007)**



सत्यमेव जयते

**GOVERNMENT OF INDIA
PLANNING COMMISSION
JANUARY - 2002**

**Report of
The Working Group On**

**Animal Husbandry and Dairying
For The Tenth Plan (2002-2007)**

**Dr. P. N. Bhat, Chairman
Dr. N. Das, Member-Secretary**

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Chairman

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25 January, 2002

Shri Sompalji

Member- Agriculture

Planning Commission

Yojana Bhavan

New Delhi-110001

Dear Sompalji,

I am writing to you today with great satisfaction of having completed a job assigned to me as Chairman of Working Group on Animal Husbandry and Dairying for Xth Plan. I wish to record our endeavour for the Xth Plan for the posterity and acknowledge with gratefulness the assistance provided by almost three hundred scientists, planners, thinkers in the preparation of this report.

2. Livestock production is an important source of income for the rural poor in developing countries. It enables poor and landless farmers to earn income using common-property resources, crop by-products that would otherwise become waste; use land that has no other sustainable agricultural use. Livestock products are an important source of nutrients. The addition of milk and meat to the diet provides protein, calcium, vitamins, and other nutrients that are lacking in their usual diets. Besides providing food, the driving force behind increased livestock production, they have other valuable uses. Livestock remain the most important if not the sole form of non-human power available to poor farmers. The poor, in particular, use fertilizer from livestock operations. Livestock also store value and provide insurance for people who have no other financial market available to them. Skins, wool, fat and other resources are used as inputs in other industries. The rapid growth in livestock production is critical to designing policies that promote the incorporation of the rural poor into economically and environmentally sustainable growth patterns.

3. Although traditionally livestock, dairying and fisheries sectors have been treated as integral parts of agriculture and allied sector, these sectors have some unique characteristics of their own. They have problems as well as opportunities, which need consideration individually without being allied with crop agriculture and/or industry. It is felt that the approach for achieving higher growth rate in this sector has clearly to be spelled out and the proportional investments made in infrastructure and reform in policy framework, a growth

rate of 6 to 8% in the livestock sector must be obtained in order that an overall growth rate of 4% is realized for agricultural sector as a whole.

4. The proportionate contribution of livestock sector (4.8 – 6.5%) to total Gross Domestic Product Growth (GDP) has remained constant; its contribution to agricultural GDP has gone up to 22.6% by 1998-99. This however does not include animal power, which is valued at between Rs.4,000/- and Rs.9,500/- crores in terms of fuel equivalent. The contribution of milk alone (Rs.82, 624 crores) was higher than paddy (Rs.68,230 crores), wheat (Rs.40,323 crores) and sugarcane (Rs.23,314 crores). Against this, the investments of the Government of India including share of States in Animal Husbandry and Dairying Sector is extremely low and varied between 0.4% and 1.0%. The investments in AH&D as a percentage to total investment of Government of India in 9th Plan was 0.4% only. This calls for revision and massive investments during 10th Plan.

5. Animal Husbandry sector provides large self-employment to millions of households in rural areas. Employment in Animal Husbandry sector was 9.8 million in Principal status (out of which 7.90 million were in rural areas) and 8.6 million in subsidiary status, this does not include persons employed in sale, re-processing and transport of animal products at secondary market level. Apart from these, large manpower is involved in livestock related activities viz., manufacture of animal food products and beverages, manufacture of woollens, tanning and dressing of leather, farming of animals, production, processing and preserving meat and meat products, manufacture of dairy products, retail and wholesale trade of livestock products, etc.

6. The rural women have a special place in this sector. They play a significant role in animal husbandry. Women constitute 71% of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in case of small ruminants, the sharing of work with men is almost equal. Decisions in livestock production lie with men while those of feeding and milk production, breeding of animal and fodder cultivation lie with women. Although, women are involved in most livestock operations, their knowledge level is low. Therefore, in order to further increase income from livestock farming, knowledge level of women has to be increased. Special programmes need be taken up to move this employment growth to 9% during 10th Plan.

7. Population growth, urbanization and income growth in developing countries are fueling a massive global increase in demand for food of animal origin. Twenty three percent of the world's population living in developed countries presently consume three to four times the meat and fish and five to six times the milk per capita as those in developing countries. A change has taken place, massive annual increases in the aggregate consumption of animal products are occurring in developing countries. From the early 1970s to the mid 1990s, consumption of meat in developing countries grew by 70 million metric tons, whereas consumption in developed countries grew by only 26 million metric tons. In value and caloric terms, meat consumption in developing countries increased by more than three times the increases in developed countries. Milk consumption in the developing world increased by more than twice as much as milk consumption in the developed world in terms of quantity, money value and calories. In India food consumption basket is also diversified in favour of non-food grain items like milk, meat, egg and fish. The consumption of food of animal origin is however small, income increases would make people consume more of these items resulting in improved overall nutrition, export potential is immense which should be realized.

8. The demand for foods of animal origin comes from changes in the diets of billions of people and could provide income growth opportunities for many rural poor. It has been designated as Livestock Revolution. Like the well-known Green Revolution, the label is a simple and convenient expression that summarizes a complex series of inter-related processes and outcomes in production, consumption, and economic growth. As in the case of cereals, the stakes for the poor are enormous. And unlike the Green Revolution, the transformation has been brought in by new biology, which has changed the technologies. The two revolutions differ in one fundamental respect; the Green Revolution was supply-driven, whereas the Livestock Revolution is driven by demand. The demand driven 'Livestock Revolution' will stretch the capacity of existing production and distribution systems and exacerbate environmental and public health problems. Governments and industry must prepare themselves for this continuing transformation with long-term policies and investments that will satisfy consumer demand, improve nutrition, direct income growth opportunities to those who need them most, and alleviate environmental and public health stress.

9. The rapid increase in the demand of livestock products presents crucially important policy dilemmas that must be resolved for the well being of both rural and urban people in our country. These dilemmas involve complex environmental and public health issues in the context of weak regulatory environment. Taken together, the many opportunities and dangers of the Livestock Revolution suggest that it would be foolish for us to adopt a "laissez faire" policy for livestock development. Many specific recommendations for concrete action are given in chapters ahead.

10. Technological progress in the production, processing, and distribution of livestock products will be central to the positive outcome of the Livestock Revolution. Rapid advances in feed improvement and genetic and reproductive technologies offer scope for overcoming many of the technical problems posed by increased livestock production. Institutional and regulatory development will also be critical to securing desirable environmental and public health outcomes. In sum, the demand-driven Livestock Revolution is one of the largest structural shifts to ever affect food markets in developing countries and how it is handled, Sir, is crucial for future growth prospects in developing livestock for food security and the livelihoods of the rural poor, and for environmental sustainability.

11. Livestock, as they are raised presently at subsistence farming level, is financially unviable but by increasing the unit size and using current technologies it has an opportunity of generating wealth and employment. Livestock enterprises with crossbred cattle and high yielding buffaloes have shown to be a remunerative business. Studies have shown that dairy enterprise as against crops in rural areas gave larger profit margins in marginal, small and medium holdings. Studies have also shown that dairying and crop production together for small farmers having irrigated land was more profitable than crop farming alone. Profitability of dairy farming for different herd sizes has also been demonstrated. Various animals' models (sheep, goat, pig and poultry) in different agro-climatic regions under specialized and mixed farming situations, depending upon people's preferences and under different systems (extensive, semi-intensive and intensive). Economic viability of these models has been demonstrated. On the macro level, the livestock sector in India looks bright and is steadily marching to prepare itself for the future challenges. In India the land-man ratio is low and distribution of land is skewed; diversification of a crop based rural economy into an animal husbandry, mixed farming system must be encouraged for rapid economic development and generating equitable income and employment in the country.

12. The key issue for future development of livestock is whether India can address her major weaknesses while remaining true to the basic principle that have been the foundation of this success. In the answers to the question lie the international competitive advantages that our farmers and our industry will get in 21st century. The task before us is not to become the bigger but the best. The building blocks of our success are well known, if not well understood. First is the partnership of farmer with the professional. The second block is the Indian consumers who constitute the largest domestic market. Third is our systems of livestock farming which contribute to crop farming, do not compete with human beings in terms of food and gives India a tremendous competitive advantage in terms of energy efficiency. Fourth block is quality of products. Science and Technology is extremely important so far as the first and the last blocks are concerned. This is not realized.

13. Productivity is the key to growth. We have no option but to raise the productivity of our livestock through breeding, feeding and management, the goal is no longer the farmers share of the consumers rupees; it is significant and sustained increase in farmer's income and employment. Quality is the bedrock of success for any enterprise and there is no substitute for consistent, superior quality. Our system has not yet built in quality at every stage from the udder to the consumer. Until India achieves world-standard quality, it will not only find access to markets abroad limited or difficult and will continue to be vulnerable to challenges at home. The wisdom and energy of the farmers combined with the knowledge and skills of the professionals would create the conditions of confidence and strength that has brought out success stories and instances of miracles.

14. Through meeting the needs of our domestic consumers demand, we, so far, expand and achieve superior economics in production, transport, processing and marketing. But the answers of 90's may no longer work today, much less tomorrow. We must restructure our total solutions uniquely appropriate to our own environment and accord highest priority to generation and dissemination of appropriate technologies. Our infrastructure, though strong and widespread, is aging and too often poorly used. The cost of traditional livestock based enterprises is increasing. Our research and design must provide new answers to new questions. Our support to client must help raising significantly their efficiency and economy. The future of livestock sector rests not only on the farmer, but also on the scientist, the technologist and the professional. We must equip a new generation to compete head on with the best human resources of the advanced nations. In this backdrop, it becomes difficult to remain divorced from the personnel and organizational structure, which is to formulate policies and execute programme for the development of the animal husbandry sector.

15. SAARC Poverty Commission Report in 1990 which has become the part of Dakha Declaration had made two significant points, it warns that open economy and the free markets were alright only so long it could carry along poor. South Asia, which is home to nearly half of the world's poor could not leave them to fend for themselves and hope their problems to disappear. The developmental process in the countries of this region could proceed ahead only if it stood on two legs. The second important point that the poverty commission made was that you don't have to make the poor dependent on the governments hand outs, if they have survived conditions of abject poverty, they must have their own capacity for survival and renovation. All you need to do is to make it work. What they need are some strategic inputs such as micro-credit, some basic training, access to technology underwriting, easy access to market in ways designated to incorporate them into the development process. They have the capacity to realize their productive potential if only they could be provided certain basic inputs and some economic space to operate in. In practical terms, that takes into accounts decentralization, grass-root organizations and relatively meager financial inputs.

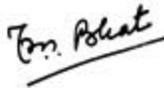
This is essentially the basic theme of this present report. The demand driven livestock revolution can easily be brought in and activated in a manner that the small and marginal farmers and landless labour who own livestock can move from the present non-viable occupation to a financially viable entrepreneurship through the provision of some organizational help, micro-credit training and access to technology underwriting through a service provider, he could participate directly in the growth process.

16. You have been the Minister of Agriculture and many of these concepts have been crystallized during that period. It would be our endeavour if we could introduce this transition in our system so that the 67% livestock owning farmers who have no access to land, credit and technology could be brought in to mainstream of developmental process.

17. We have tried to incorporate these concepts in this report, and I hope the government can find it useful in this transition. We had the benefit of 15 outstanding scientists which chaired the sub-groups and two hundred and fifty scientists who participated in discussions on which this report is based. I have a special word for the member secretary, Dr. N. Das, Deputy Advisor in Planning Commission for outstanding job of coordination and preparation of draft. I must also specially thank Mr. Asthana, Principal Advisor, Dr. V.K. Taneja, Animal Husbandry Commissioner and many members of Steering Committee namely Mr. Biswas, Secretary, Department of Animal Husbandry and Dairying, Dr. Swaminathan, Chairman, Steering Committee, Ms Amrita Patel for their suggestions.

With my best personal regards,

Sincerely Yours,

A handwritten signature in black ink, reading "P.N. Bhat", with a horizontal line underneath the name.

P.N. Bhat

**No. M-12043/3/2000-Agri.
Government of India
Planning Commission
(Agriculture Division)**

**Yojana Bhavan,Sansad Marg
New Delhi – 110001
Dated November, 2000**

ORDER

**SUBJECT:- CONSTITUTION OF WORKING GROUP ON ANIMAL HUSBANDRY
& DAIRYING FOR THE TENTH FIVE YEAR PLAN**

It has been decided to constitute a Working Group on Animal Husbandry & Dairying for the Tenth Five Year Plan. The composition of the Working Group will be as follows:

- | | |
|---|-----------------|
| 1. Dr. P. N. Bhat
Former Deputy Director General (Animal Science), ICAR
Chairman, World Buffalo Trust,
Flat No. 205, F64/C/9 Sector 40,
Noida - 201303 | Chairman |
| 2. Dr. M.L. Madan,
Vice Chancellor,
Punjabrao .Krishi.Viswavidyalaya
Krishinagar, Akola – 444104 (Maharashtra) | Member |
| 3. Dr. A. K. Chatterjee
Ex- Animal Husbandry Commissioner
E-286, Mayur Bihar Phase-II
Delhi 110 091 | Member |
| 4. Dr. Kiran Singh,
DDG (Animal Sciences)
Indian Council of Agricultural Research
Krishi Bhawan
New Delhi 110 001 | Member |
| 5. Dr. V. K. Taneja
Animal Husbandry Commissioner
Dept of Animal Husbandry &Dairying,
Krishi Bhawan, New Delhi | Member |

- 6. Dr. O. S. Tomar** **Member**
Former Director, National Dairy Research Institute
26 Nayay Puri,
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- 7. Dr. P.K.Uppal** **Member**
Former Director, Central Institute for Equine Research
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- 9. Dr. Punjab Singh** **Member**
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- 10. Mr. D. Tikku** **Member**
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- 11. Dr. Rajbir Singh** **Member**
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- 15. Shri Animesh Banerjee,** **Member**
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- 19. Shri R.K. Joshi *** **Member**
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 400 092
- 20. Dr. N. Das.** **Member-Secretary**
 Deputy Adviser (AH&D)
 Agriculture Division
 Planning Commission

2. The terms of reference of the Committee will be-

- (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 Ninth 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 review the achievements of Rinderpest eradication programme in the country and consider the feasibility of using existing infrastructure for eradication of FMD disease along with Rinderpest.
- (v) 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.
- (vi) To suggest suitable programme for feed & fodder production enhancement, its conservation, fodder seed production and pasture development.
- (vii) To identify the causes for non-availability of sufficient number of progeny tested quality bulls in the country and evolve an integrated programme involving Animal Husbandry Departments (both Central and State), Research Institutions, Universities, Co-operative Institutions, NGO's and other organizations for production of highly pedigreed and progeny tested quality breeding bulls.
- (viii) To suggest measures for improvement and conservation of different important indigenous breeds of cattle, buffalo, sheep, goat and formulate programmes to enhance productivity of milch animals with special emphasis on buffalo development and management of crossbred cows in Indian conditions.
- (ix) To study the performance, growth and financial health of existing dairy co-operative societies/milk union/federations during post-Operation Flood period, the impact of MMPO (1992) and trade liberalization on these institutions, identify measures for rapid dairy development all over the country as well as clean milk production and its availability to consumers; suggest the future role of NDDB vis-à-vis Department of Animal Husbandry & Dairying in this sector.

- (x) To critically examine the constraints affecting the development of organized meat sector for sustaining animal production, relevance of promoting meat export and suggest corrective measures.
 - (xi) To study the present utilization of draught animal power and other animal by-products and suggest measures for their optimum use.
 - (xii) To review the existing machinery and systems for estimation of animal husbandry statistics (including animal by-products) and suggest measures for improvement in data collection method and timely estimation.
 - (xiii) To evolve a contingency programme for replacement of livestock perished during natural calamities and to sustain productivity of surviving animals.
 - (xiv) To develop an institutional mechanism for direct interaction among research institutions, state animal husbandry departments and NGO's; strengthening of animal husbandry extension programme; examine the relevance of establishing Indian Council of Animal Science and Fishery Research.
 - (xv) 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 animal.
 - (xvi) To identify the mode of involving masses in the delivery of veterinary and animal husbandry services thorough 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.
3. The Chairman of the Committee may associate such official or non-official as its members and constitute sub-committees as may be felt necessary.
4. The non-official members of the Committee will be paid TA/DA by the Planning Commission as per SR 190 (a) for attending meetings of the Committee.
5. The Committee shall submit its report by the end of May, 2001.

(T.R.Meena)
Deputy Secretary to the Government of India

To

The Chairman & Members of the Committee

Copy to:

- i. PS to Deputy Chairman, Planning Commission
- ii. PS to Minister of State (Planning), Planning Commission
- iii. PS to All Members, Planning Commission
- iv. Sr. PPS to Secretary, Planning Commission
- v. PS to Pr. Advisers (Agri. & IE/Health/SW&BC/Education/S&T/HUD&WS), P.C.
- vi. PS to Advisers (RD/H&FW/SD&WP/PC/Statistics & Survey Division), P.C.
- vii. PS to Financial Adviser, IF Cell, Planning Commission
- viii. PS to Eco. Adviser (DPD), Planning Commission

* Shri Laxmi Narain Modi and Shri R.K. Joshi were inducted as member of the Working Group vide Office Order No. No.M-12043/3/2000-Agri. dated 17.4.2001.

1.0 Executive Summary

Tenth Plan: Animal Husbandry and Dairying

1.1 Livestock sector plays a crucial role in rural economy and livelihood. 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 6% and this has been achieved despite of fact that investment in this sector was not substantial. The rural women play a significant role in animal husbandry and are directly involved in major operations like feeding, breeding, management and health care. As the ownership of livestock is more evenly distributed with landless laborers, and marginal farmers, the progress in this sector will result in a more balanced development of the rural economy, particularly in the reduction of poverty ratio. Even many small & medium farmers who derive yearly savings from agriculture are dependant on livestock especially dairy & poultry for daily subsistence.

Animal Husbandry and Dairying sector contributes about 22 percent of the value of the output from total Agriculture and allied sector.

Employment (1993-94) in animal husbandry sector was 9.8 million in principle status and 8.6 million in subsidiary status.

Women constitute 71% of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in case of small ruminants, the sharing of work with men is almost equal

1.2 In India food consumption basket is being diversified gradually in favour of non-food grain items like milk, meat and egg. The consumption of animal origin food is however small in compared to ICMR norms and income increases would make people consume more of these items resulting in improved overall nutrition. The gradual changes in the diets of millions of people will create a massive increase in demand for food of animal origin, which could provide income growth opportunities for many rural poor. But such demand driven growth will stretch the capacity of existing production and distribution systems. Rapid advances in feed improvement and genetic and reproductive

technologies offer scope for overcoming many of the technical problems posed by increased livestock production. Productivity is the key to growth. We have no option but to raise the productivity of our livestock through scientific breeding, feeding and management. The goal is no longer the farmers share of the consumers rupees, it is significant and sustained increase in farmer's income and employment. Governments and industry must prepare themselves for long-term policies and investments that will satisfy consumer demand, improve nutrition, direct income growth and opportunities to those who need them most, and alleviate environmental and public health stress.

1.3 Review of Ninth Plan

1.3.1 Milk production in India more or less remained stagnant from 1950 to 1970 when the production grew at the rate of a mere 1 per cent per annum. Thereafter, it increased rapidly, reaching 81 million tones in 2000-01(anticipated).

India is currently the largest producer of milk in the world.

India ranks 4th in Egg production and 19th in Broiler production in the world.

Rinderpest, a dreadful disease of ruminants has been eradicated from the country

The per capita availability of milk increased from 112 gm per day in 1970-71 to about 214 gm per day in 2000-01. However, it is still below the world average of 285 gm per day. Poultry, which was considered as a backyard venture in the early 60's has now been transformed into a strong agro-based farming activity. It is estimated that the egg production in the country is about 32.5 billion (2000-01). Meat production was estimated at 4.6 million tones (1998) with annual growth rate of 4.1%. Wool production has increased from 43.3

million kg in 1996-97 to 47.4 million kg in 2000-01. Notwithstanding all the major livestock products showed an increasing growth rate during Ninth Plan, but the target for milk (96.49 million tones), egg (35 billion) and wool (540 lakh kg) is difficult to achieve.

Average Annual Growth rate of Milk and Egg Production 1950-51 to 1998-99

Year	Milk (%)	Eggs (%)
1950-51 to 1960-61	1.64	4.63
1960-61 to 1970-71	1.15	7.91
1970-71 to 1980-81	4.51	3.79
1980-81 to 1990-91	5.50	7.70
1990-91 TO 1998-99	4.14	4.59

1.3.2 Two schemes viz. I) Extension of Frozen Semen Technology and Progeny Testing Programme and II) National Bull Production Programme was continuing up to October 2000 when they were merged into a comprehensive scheme 'National Project for Cattle and Buffalo Breeding'. During the first four years of the Ninth Plan, the Department was able to spend only 59% of budget allocation under these schemes. Further one-third of the fund released to the States remained unspent indicating that this important and crucial scheme has not gained momentum. Broad frame-work of cattle and buffalo breeding policy recommended for the country since mid-sixties envisaged selective breeding of indigenous breeds in their breeding tracts and use of such improved breeds for upgrading of the non-descript stock. While the States accepted the framework, appropriate implementation of the same through field level programme could not be done. Lack of interest in promoting Breed Organization/Societies and related farmers' bodies contributed to gradual deterioration of indigenous breeds. That there had been large deviation from the laid breeding policy is quite obvious from the fact that crossbreeding which was to be taken up in a restricted manner and in

areas of low producing cattle has now spread indiscriminately all over the country including in the breeding tracts of some of the established indigenous cattle breeds.

1.3.3 Investment in the dairy sector has been reduced drastically in the Ninth Plan. In compare to 8th Plan investment of Rs. 821.43 (against the plan outlay of Rs. 900 crore), the maximum investment during 9th Plan would be 130.93 crore against the plan outlay of Rs. 469.52 crore. After the completion of Operation Flood Programme in April 1996, the two major programmes for dairy development are I) Integrated Dairy Development Programme (IDDP) in Non-Operation Flood, Hilly and Backward areas and II) Assistance to Cooperatives. The utilization of fund under the IDDP scheme during 9th Plan is not satisfactory; against the budgetary allocation of Rs. 135.1 crore (Plan outlay Rs.250 crore), only Rs. 94.62 would be spent. The scheme Assistance to Cooperatives has been approved in January 2000 for providing assistance in the form of grants for rehabilitation of loss-making district milk co-operative unions. Out of 168 Milk Unions, 119 Milk Unions (70.8%) were running in loss as on 31.3.1998. So far, the Government policy in dairy sector has been to give preference to the establishment of milk processing plants selling liquid milk particularly in urban areas. This policy was guided by an overall shortage of milk and the national milk production falling short of nutritional requirement during the earlier years of planning era. But the scenario has changed from a milk shortage environment to conducive environment that will enhance demand so that growth rate of milk production is stimulated. No policy measures were undertaken so far to give a fillip to the unorganized sector involved in the production of Indian dairy products (like ghee, paneer, channa, khoa etc.), which have tremendous potentiality for export market in Asian and African countries.

1.3.4 Since second plan the efforts were provided to control diseases namely, Rinderpest, Foot & Mouth Disease, Hemorrhagic Septicemia, Black quarter and Anthrax. Although Rinderpest has been eradicated from the country but other diseases are still continuing as the major problem in the animal production programme in spite of the fact that good vaccine against these diseases are available. Some of the emerging diseases like Peste des petits ruminants (PPR), Bluetongue, Sheep pox and Goat Pox, Classical Swine Fever, Contagious Bovine Pleuropneumonia, New Castle Disease (Ranikhet Disease) are causing substantial economic losses. Under the scheme National Project on Rinderpest Eradication, contingency plan is being implemented for surveillance of diseases and early warning system for Border States but the performance is not satisfactory. In the Assistance to State for Control of Animal Disease Scheme the Department would be able to spend only Rs. 40.60 crore against the budgetary allocation of Rs. 67 crore; the reason might be that many State Governments are unable to contribute their share due to financial crunch. Directorate of Animal Health, a Central Sector Scheme, spent only Rs.6.98 crore against the budget allocation of Rs. 21.25 crore during the first four year of the Ninth Plan. The situation is alarming because this scheme has the important components like Animal Quarantine and Certification

Services, National Veterinary Biological Products Quality Control and Disease Diagnostic Referrer Laboratories. There seems to be not more than 5 technical posts at Head quarter for animal health that have the responsibilities to manage India's animal disease control and certification system. Presently the Department of Animal Husbandry and Dairying is not well equipped with necessary infrastructure and qualified technical manpower to execute the programme and perform its mandatory duties and responsibilities.

1.3.5 In India, meat production is largely a byproduct system of livestock production utilizing spent animals at the end of their productive life. Cattle and buffaloes, which contribute about 60 % of total meat production, are primarily reared for milk and draught purpose and in the end utilized for meat purpose subject to many limitations. India has over 2000 animal markets where livestock are traded which are not developed on scientific lines. Market facilities are generally inadequate and if available are poorly maintained. There are 2702 slaughterhouses in the country, which are recognized or authorized by local bodies. In addition a considerable number of animals are slaughtered in unauthorized places. A rough estimate indicates up to 50 percent of animals slaughtered in any urban center are from unauthorized slaughter. Condition of many of the urban slaughterhouses is far from satisfactory. Under the CSS scheme Assistance to States for Improvement/Modernization of Abattoirs and Carcass Utilization Centers, assistance as grants in aid is provided to the State Govts to improve / upgrade the existing slaughter houses and to establish carcass utilization centers. Implementation of schemes has not been satisfactory; projects sanctioned during the 7th and 8th Plans in are still to be completed.

1.3.6 Central Sponsored Schemes related to small animals are National Ram/Buck Production Programme and Assistance to States for Integrated Piggery Development. The total expenditure in the two schemes would be Rs.22.62 crores against the total outlay of Rs.65.05 crore. Although small animals are reared by the poorest of the poor, this sector is being neglected since First Five Year Plan. Despite the least attention from the planners, goat population in India during last two decades has increased at fastest rate among all major livestock species. In spite of the fact that nearly 41 percent of goats are slaughtered annually with about 15.5 percent natural death in the rural areas. About 36% of the total sheep population is slaughtered every year for meat purposes. During last 4 decades there has not been much increase in sheep population. The fine wool production in the country is around 4 million kg and the demand from the industry is around 35 to 40 million kg of fine wool, which is mainly imported from countries like Australia. Pig husbandry is the most important activity in the Animal Husbandry sector in North Eastern Region inhabited by tribal people. The region also has 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.

1.3.7 The Indian poultry industry has come a long way – from a backyard activity to an organized, scientific and vibrant industry. The significant step in poultry development has come from the initiatives taken up by the private sector for commercial pure-line breeding in the country. Government intervention by way of various support mechanisms is now directed towards promotion of poultry in rural areas. Central Sponsored scheme ‘Assistance to State Poultry/Duck Farms had been cleared during 1999-2000 for strengthening the infrastructure facilities of one or two existing State Poultry Farms in each state for multiplication and dissemination of chicks. Initially, the scheme is being implemented on pilot basis in North Eastern States, with 100% grant in aid. The anticipated expenditure in the project during current plan would be Rs. 9.90 crore against the play outlay of Rs.16.20 crore.

1.3.8 Export earnings from livestock sector and related products rose from Rs. 1241 crores in 1993-94 to Rs. 2073 crore in 1998-99 showing an average annual growth of about 10.8 per cent. Leather and leather products accounted for as high as 54 per cent and meat and meat products for 37 per cent of the total export. Exports of milk and milk products accounted for less than 1 per cent. Although the potentiality for export of livestock products is immense but it is not realized because India is unable to adjust effectively to the open trade regime under the WTO particularly SPS regime.

1.4 Tenth Plan Focus and strategy

A sustainable and financially viable livestock and poultry farming

Technology support is imperative not only for enhancement of productivity but also for reduction of per unit cost

All licensing control for processing of livestock products /bye-products should be repealed and all restrictions on the export of livestock and its products need to be removed.

1.4.1 Animal husbandry and dairying will receive a high priority in the efforts for generating wealth and employment, increasing animal protein availability in the food basket and for generating exportable surpluses. A sustainable and financially viable livestock and poultry farming, which will generate wealth and self - employment through entrepreneurship, is need of the day. The overall focus will be on the four broad pillars viz. (i) removing policy distortions that is hindering the natural growth of

livestock production; (ii) building participatory institutions of collective action for small scale farmers that allow them to get vertically integrated with livestock processors and input suppliers; (iii) creating the environment in which farmers will increase investment in ways to improve productivity in the livestock sector; and (iv) promoting effective regulatory institutions to deal with the threat of environmental and health crises stemming from livestock.

1.4.2 Use of technological and marketing interventions in production, processing, and distribution of livestock products will be central theme of any future programme for livestock development. Technology support is imperative not only for enhancement of productivity but also for reduction of per unit cost. Generation and dissemination of appropriate technologies in the field of animal production as also health care to enhance production and productivity levels will be given greater attention.

1.4.3 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/bye-products should be repealed and all restrictions on the export of livestock and its products need to be removed. The immediate focus should 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 zone, organic farming and potable water; these should be made available in selected areas having large marketable surplus.

1.4.4 Sustainable rapid growth and development in this sector can only be ensured if the livestock owners, service providers, veterinarians and planners become knowledge based and acquire the ability to absorb, assimilate and adopt the spectacular development in the veterinary sciences and 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.

1.4.5 Besides the Ministry of Agriculture, schemes relating to animal husbandry and dairying are also being implemented by other ministries viz. Ministry of Rural development, Ministry of Non-conventional Energy Resources, Ministry of Culture (Animal Welfare Department) etc. Many schemes operated by these ministries have similar and overlapping objectives targeting the same population. Generic components like extension, training, and infrastructure get repeated in most of such schemes and are not complementary. Thus, there is a need for consolidation and convergence of all such activities, schemes and funds. Department of Animal Husbandry & Dairying being the nodal department should address all the issues in totality.

1.4.6 Most of the livestock services like A.I, vaccination, deworming etc. are time sensitive which Government institutions at times are not able to deliver due to financial as well as bureaucratic constraints. This necessitates the need for providing efficient and effective decentralized services in tune with demands emanating from users. Such services should be delivered at farmers door and linked with cost recovery for economic viability. However limited Government involvement should be continued for people below poverty line who are vulnerable, illiterate and unable to integrate with the mainstream.

1.4.7 The Department of Animal Husbandry and Dairying should play a role of

Strengthening infrastructure and programme for quality and clean milk production.

Economic utilization of surplus male buffalo calves

Establishment of rural abattoir

Compulsory registration of all slaughterhouses for clean meat production.

regulatory authority rather than disbursement of central kitty, which is the current focus. It should have legal authority for certification and enforcement of quality / standards of veterinary biological, feeds, pharmaceutical products and livestock and livestock products.

1.4.8 Capacity of the Department of AH&D to do effective monitoring of central schemes (both CS and CSS), which are highly technical in nature is limited and often does not exist. In view of the fact that entire sector

programmes are needed to be handled by the technical person from inception to monitoring, the present staffing pattern is highly distorted and ineffective. Declaring the Department of Animal Husbandry and Dairying as a Science Department and dovetailing the Animal Research Institutes of ICAR with the Department would not only improve its efficiency but also provide a effective delivery machinery to the Department enabling it to work as a regulatory body in post-liberalized era. These agendas of reform in governance should be taken on priority basis if we have to achieve 8% growth rate in this sector.

1.4.9 A national livestock breeding strategy needs to be evolved to meet the requirements of milk, meat, egg and other livestock products and transport. Major thrust will be on genetic up gradation of indigenous/native cattle and buffaloes using proven semen and high quality pedigreed bulls and by expanding artificial insemination network to provide services at the farmer's level.

1.4.10 Since animal disease eradication and quarantine is critical to exports, animal health system will be strengthened and disease free zones created. After the successful eradication of rinderpest disease, the major thrust will now be to

Conservation of threatened livestock breeds and improvement of draught animals.

Immunization Programme against important animal diseases and creation of disease free zones

Feed and fodder production enhancement and improvement of common property resources.

Building infrastructure for animal husbandry extension network (service providers).

adopt a National Immunization Programme against most prevalent animal disease (e.g. Hemorrhagic Septicaemia and Black Quarter in large ruminants, PPR and Poxes in small ruminants, Swine fever in pigs, Ranikhet in poultry).

1.4.11. Conservation of threatened breeds of livestock and improvement of breeds used for draught animal and pack should be the major goal of the Tenth Plan. It should be a national priority to maintain diversity of breeds and preserve those showing decline in number or facing extinction.

1.4.12 The importance of feed and fodder in livestock production hardly needs to be emphasized. Attention is needed for cultivation of fodder crops and fodder trees to improve animal nutrition. The area under permanent pasture and grazing land has been estimated at 11.06 million ha. However, actual availability appears to be much less. An integrated approach for regeneration of the grazing lands needs to be evolved. Due to improper management of common property resources and lack of coordination between different agencies involved, the productivity as well as carrying capacity of the present public and forestland are decreasing. This problem needs to be addressed on priority for sustainable and economic livestock production

1.4.13 Livestock extension is presently a part of agriculture extension. But livestock extension, which is primarily based on providing services and goods, needs to be treated differently from crop related extension activities that based on transfer of knowledge. Animal husbandry extension worker is basically a service provider. Panchayats, Cooperatives and NGO'S should play a leading role in generating dedicated band of service providers at the farmers doorstep in their respective areas.

1.4.14 Public sector lending in livestock sector is abysmally low and such inadequate credit support leads to poor capital formation. As the organized financial sector is unwilling to finance livestock programme that are not in their interest especially after the initiation of financial sector reform, the livestock

National Animal Health and Production Information System for generation of reliable and timely database.

Development of marketing infrastructure for all types livestock products

Dairy/Poultry Credit Card and Venture Capital Fund to meet the credit need of farmers and entrepreneurs.

Specific funding to solve field oriented problems through R&D.

Livestock care and well-being, relief during natural disasters and calamities.

farmers are mainly dependent on the financial intermediaries and they end up bearing a higher interest rate than that would be available otherwise. NABARD should ensure that at least 20% of the total agriculture sector lending is reserved for Animal Husbandry and Dairying Sector for both short term and long term capital requirement. Financing should be done against model projects that have demonstrated their economic viability. A conducive climate is to be created through favourable price and trade regime to promote farmer's own investment as well as private sector investment.

1.4.15 The country needs a computer based 'National Animal Health and Production Information System' with active involvement of Institutions, Government

Departments, Private industries, Cooperative, and NGO's.

1.4.16 Priority attention should also be given to improve the processing, marketing and transport facilities, with emphasis on modernization of abattoirs, carcass utilization and value addition thereon. Incentives for livestock production activities should be brought at par with incentives for crop production. Development of marketing network and remunerative price support to the producers will be a great incentive for higher animal productivity both in quantity and quality. Creation of a permanent institution, which will estimate the cost of production of various livestock products and suggest remunerative price is needed so that farmers are not exploited.

1.4.17 Issue of animal management and welfare during natural calamities and disaster will require attention and suitable programme need to be developed since such asset loss can drive the poor into destitution. Animal welfare is also related directly with the productivity of the animal. The well being of animal is hampered during management under intensive production system, in the animal market, during handling and transportation in animal market, rearing of newly born male calves in urban areas etc. There is a great deal of wastage and losses, as well as animal suffering due to ill designed agri-implements, carts and implements attached to animal. Veterinary universities/ colleges and other institutions like veterinary hospital, dispensary, NGOs working on livestock care system need to be strengthened so that they can ensure and promote animal care and well-being.

1.4.18 In India poultry neither enjoys the status of agriculture nor does it enjoy the status of industry. This uncertainty does not auger well for consistent development of the sector. Poultry establishments having less than 10,000 birds should be treated as agricultural activity for the benefit of the poultry farmer and extend the same benefit/incentives/concessions to this sector, as applicable to agriculture; for units having capacity greater than 10,000 birds it should be treated as industry with all the benefits as extended to industry

1.4.19 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 standard. These do not exist nor is there any method for reviewing and rationalizing the quality and safety guidelines. Enforcement of the legislation would also be one of the important areas of action. For these, infrastructure facilities for testing food quality and safety need to be harmonized with OIE and SPS system. It is needed to establish a permanent Directorate/ Regulatory agency in DAHD supported by an Expert Committee for review of WTO/SPS related issues, regulatory requirement vis-à-vis Indian Legislation, control of import if necessary, counter measures against unjustified/arbitrary WTO/SPS measures adopted by other nations, helping export of livestock products and matters related to trade of livestock and its product on a regular basis

1.4.20 Livestock farming is a major player in dry lands and hill regions. But the focus of investment and developmental strategy is on crop agriculture. The focus in these regions should have been on livestock production as more than 70% 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.

1.4.21 Ever since draught power was allocated to Ministry of Non-Conventional Energy Sources ((MNES), very little developmental work has been done. For the development and efficient utilization of draught animal power in the country, the Ministry of Agriculture should work as a nodal ministry. A National Center for Animal Energy Development can be established under the Department of Animal husbandry and Dairying as a Central Sector Scheme to coordinate all the activities related to the efficient utilization of DAP in collaboration with other Ministries/Departments. A new programme focused exclusively on improvement and conservation of draught breeds of livestock may be initiated during Xth Plan.

1.4.22 Remove the present restriction on establishing new milk processing capacity under MMPO. Rules and regulation regarding registration of milk plants as practiced globally should be framed. MMPO should concentrate on quality and food safety only. To enable the dairy and poultry cooperatives to compete with private companies, it is necessary that cooperatives are free of shackles of archaic laws and bureaucratic interference. Time has come to bring about structural changes in the unorganized sector; programme should be designed and implemented to.

1.4.23 Government should recognize that culling and utilization of surplus animals is an established norm for animal production and improvement. Animal preservation acts of the states need to be reviewed so that constraints, if any, affecting proper utilization of livestock could be removed. Registration of the all slaughterhouses in the city/town is must for clean meat production and protection of the environment. Establishing Rural Based Abattoirs (RBA) in animal tracts would drastically reduce the need for transportation of live animals to urban areas for slaughter.

1.4.24 The Livestock Census Scheme suffers from timeliness and quantitative as well as qualitative problems. Livestock census should be based on cent percent coverage of all households in the country on a specific date through the State Animal Husbandry Directorate and the Department of Animal Husbandry & Dairying at the Central level..

1.5 Resource Mobilizations

1.5.1 The Government should endeavor to create a favorable economic environment for increasing capital formation and private investment by removing distortions in the incentive regime for livestock production and bringing about external and domestic market reforms and backed by rationalization of tax structure. Resource Mobilization has to come through, institutional financing, capital market and private investments, which are to be tapped as a major drive to put the infrastructure in place.

1.5.2 This export surplus should be used to develop the infrastructure. Presently, country is exporting leather and leather goods worth Rs.17,000 crores a year. None of these are ploughed back into improvements of livestock so that quality skins and hides are produced nor in creating environmental friendly carcass utilization centers for dead and fallen animals. Similarly, country exports carpets worth Rs.1,500 crores a year and none of these goes back to growth of indigenous sheep industry. A cess on leather, leather goods and carpet should be imposed and this would be ploughed back to improve the related industries at the level of farmers. The delivery and input cost of all the services provided by State Veterinary Department should be recovered on commercial basis except for those farmers who are identified as being below the poverty line.

1.5.3 The venture capital fund should be created in the Department of Animal Husbandry and Dairying (in collaboration with NABARD) for establishment of infrastructure by private entrepreneurs like veterinary hospitals, vaccine production units, feed plants, fodder seed production facilities, processing plants for western and indigenous dairy, meat and egg products, semen production units including bull mother farms and network for delivery of semen to the farmers. These activities should also get credit under the head of Priority Sector Lending from commercial and co-operative banks. The concept of working capital loan is not in operation in the livestock sector. Like in small-scale sector, this sector requires a provision of working capital loan to enable the entrepreneurs to use it judiciously. Such provision will help the entrepreneur to avoid rushing to the bank for further financial help and make a long wait by which time the activity might suffer irreparable loss. Introduction of Dairy and Poultry Farmers Credit Card (Like Kisan Credit Card) would solve the problem of working capital. Under this programme the farmer will get credit against the future production and he will be free to purchase the inputs at a competitive price from his selected shop. Government should come out with a margin money scheme on the lines of KVIC's Margin Money Scheme where entrepreneurs are required to contribute only a sum equal to 5 or 10% of the cost of the project from their own sources. Alternatively, a soft loan scheme with concessional rate of interest to meet the margin money should be formulated with the help of NABARD.

1.5.4 The perception of bankers is that the financing of animal husbandry activities is a risky proposition and many loans are likely to become bad. It is this factor, which forces the financial institutions to go in for collateral security either in the form of mortgage of land or third party guarantee. Such units will be security oriented rather than commercially designed. In case of commercial units, where technology plays an important role and the size of land holding need not be large, the collateral becomes insufficient in the bankers perception. Removal of collateral security wherever warranted will prove to be of great help to qualified and skilled entrepreneurs to establish financially viable units.

1.5.5 The share of animal husbandry and dairying sector was only 5.7% of total ground level credit offered through NABARD for agriculture and allied activities during 1999-2000. Only term loan to the tune of Rs.2366 crore was given to

animal Husbandry and dairying; no production credit or short-term credit was given. NABARD should ensure that at least 20 percent of the total ground level credit becomes available to animal husbandry sector. Financing should be done against model projects that have demonstrated their economic viability. A reasonable unit size depending upon the capacity of an individual is to be determined and necessary schematic lending has to be provided to establish the same.

1.5.6 Besides the funding by Department of Animal Husbandry and Dairying, a minimum portion of the budget (10% of the budget or Rs.3000 crore per annum) of Ministry of Rural Development should be earmarked for animal husbandry and dairying activities as a legitimate share of rural development.

2.0 INTRODUCTION

2.1 Livestock production is an important source of income for the rural poor in developing countries. It enables poor and landless farmers to earn income using common-property resources. Livestock, crop by-products that would otherwise become waste; land that has no other sustainable agricultural use. Livestock products are an appealing and convenient nutrient source. Protein and micronutrient deficiencies remain widespread in developing countries because people subsist on diets that are almost entirely made up of starchy staples. The addition of milk and meat provides protein, calcium, vitamins, and other nutrients that are lacking in their usual diets. Besides providing food, the driving force behind increased livestock production, they have other valuable uses. Livestock remain the most important if not the sole form of non-human power available to poor farmers in much of the developing world. The poor, in particular, use fertilizer from livestock operations, especially when rising petroleum prices make chemical fertilizers unaffordable. Livestock also store value and provide insurance for people who have no other financial market available to them. Skins, wool, oil and other resources are used as inputs in other industries. The rapid growth in livestock production is critical to designing policies that promote the incorporation of the rural poor into economically and environmentally sustainable growth patterns.

2.2. **Status of Livestock Sector:** Although traditionally livestock dairying and fisheries sectors have been treated as integral parts of agriculture and allied sector, these sectors have some unique characteristics of their own. They have problems as well as opportunities, which need consideration individually without being allied with agriculture and/or industry. It is felt that the approach for achieving higher growth rate in this sector have clearly to be spelled out and the proportional investments made in infrastructure and policy framework leading to reforms. A growth rate of 6 to 8% in the livestock sector, in order that a growth rate of 4% for agricultural sector as a whole is realized. It is very strange that the performance of agriculture itself is not very substantial to generate a growth rate of 4% and has to depend on livestock and fisheries to move forward.

A growth rate of 6 to 8% in the livestock sector is needed in order that a growth rate of 4% for agricultural sector as a whole is realized

Contribution of livestock sector to agricultural GDP has gone up over the years and was 22.6% in 1998-99.

The investments in AH&D as a percentage to total investment of Government of India in 9th Plan was 0.4% only

2.3 **Contributions and Investments:** The proportionate contribution of livestock sector (4.8 – 6.5%) to total Gross Domestic Product (GDP) growth has remained steady; its contribution to agricultural GDP has gone up over the years and was 22.6% in 1998-99. This does not include animal power, which is valued at between Rs.4, 000/- and Rs.9, 500/- crores in terms of fuel equivalent. The contribution of milk alone (Rs.82, 624 crores) was higher than paddy (Rs.68, 230

crores), wheat (Rs.40, 323 crores) and sugarcane (Rs.23, 314 crores). Against this, the investments of the Government of India including share of States in Animal Husbandry and Dairying Sector was extremely low and varied between 0.4% and 1.0%. The investments in AH&D as a percentage to total investment of Government of India in 9th Plan was 0.4% only. Massive investments are called for during 10th Plan.

2.4 Employment: Animal Husbandry sector provides large self-employment to millions of households in rural areas. Employment in Animal Husbandry sector was 9.8 million in Principal status (out of which 7.90 million were in rural areas) and 8.6 million in subsidiary status, this does not include persons employed in sale, re-processing and transport of animal products at secondary market level. Apart from these, large manpower is involved in livestock related activities viz., manufacture of animal food products and beverages, manufacture of woollens, tanning and dressing of leather, farming of animals, production, processing and preserving meat and meat products, manufacture of dairy products, retail and wholesale trade of livestock products, etc.

2.5 Women and Livestock: The rural women plays a significant role in animal husbandry and are involved in operations like feeding, breeding,

Employment in Animal Husbandry sector was 9.8 million in Principal status (out of which 7.90 million were in rural areas) and 8.6 million in subsidiary status,

Women constitute 71% of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men

In India food consumption basket is also diversified in favour of non-food grain items like milk, meat, egg and fish. The consumption of animal origin food is however small in compared to ICMR norms

management and health care. The actual farm operations and participation of women vary from place to place with the system of production and socio-economic status. Women constitute 71% of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in case of small ruminants, the sharing of work with men is almost equal. Decisions in livestock production lie with men while those of feeding and milk production, breeding of animal and fodder cultivation lie with women. Although, women are

involved in most livestock operations, their knowledge level is low. Therefore, in order to further increase income from livestock farming, knowledge level of women has to be increased.

2.6 Population growth, urbanization and income growth in developing countries are fueling a massive global increase in demand for food of animal origin. The 23 percent of the world's population living in developed countries presently consume three to four times the meat and fish and five to six times the milk per capita as those in developing countries. But massive annual increases in the aggregate consumption of animal products are occurring in developing countries. From the early 1970s to the mid 1990s, consumption of meat in developing countries grew by 70 million metric tons, whereas consumption in

developed countries grew by only 26 million metric tons. In value and caloric terms, meat consumption in developing countries increased by more than three times the increases in developed countries. Milk consumption in the developing world increased by more than twice as much as milk consumption in the developed world in terms of quantity, money value and calories. In India food consumption basket is also diversified in favour of non-food grain items like milk, meat, egg and fish. The consumption of animal origin food is however small in compared to ICMR norms and income increases would make people consume more of these items resulting in improved overall nutrition.

2.7 Livestock Revolution: The resulting demand comes from changes in the diets of billions of people and could provide income growth opportunities for many rural poor. It has been designated as Livestock Revolution. Like the well-known Green Revolution, the label is a simple and convenient expression that summarizes a complex series of inter-related processes and outcomes in production, consumption, and economic growth. As in the case of cereals, the stakes for the poor are enormous. And unlike the Green Revolution, the "revolutionary" aspect comes from the transformations brought in by new biology, which has changed the technologies, which are now knowledge intensive. But the two revolutions differ in one fundamental respect: the Green Revolution was supply-driven, whereas the Livestock Revolution is driven by demand. The demand driven 'Livestock Revolution' will stretch the capacity of existing production and distribution systems and exacerbate environmental and public health problems. Governments and industry must prepare themselves for this continuing transformation with long-term policies and investments that will satisfy consumer demand, improve nutrition, direct income growth opportunities to those who need them most, and alleviate environmental and public health stress.

2.8 The rapid increase in demand for livestock products presents crucially important policy dilemmas that must be resolved for the well being of both rural and urban people in developing countries. These dilemmas involve complex environmental and public health issues in the context of weak regulatory environments. Taken together, the many opportunities and dangers of the Livestock Revolution suggest that it would be foolish for developing countries to adopt a "laissez faire" policy for livestock development. Many specific recommendations for concrete action are given in chapters ahead.

Ever increasing demand for livestock products is the basis for Future 'Livestock Revolution'.

Technological progress in the production, processing & distribution of livestock products will be central to the positive outcome of the 'Livestock Revolution'.

Diversification of a crop based rural economy into an animal husbandry; mixed farming system must be encouraged for rapid economic development and generating equitable income and employment in the country.

2.9 Technological progress in the production, processing, and distribution of livestock products will be central to the positive outcome of the Livestock Revolution. Rapid advances in feed improvement and genetic and reproductive technologies offer scope for overcoming many of the technical problems posed by increased livestock production. Institutional and regulatory development will also be critical to securing desirable environmental and public health outcomes. In sum, the demand-driven Livestock Revolution is one of the largest structural shifts to ever affect food markets in developing countries and how it is handled is crucial for future growth prospects in developing country agriculture, for food security and the livelihoods of the rural poor, and for environmental sustainability.

2.10 Economics of livestock enterprises: Livestock, as they are raised presently at subsistence farming level, is financially unviable but by increasing the unit size and using current technologies it has opportunity of generating wealth and employment. Livestock enterprises with crossbred cattle and high yielding buffaloes have shown to be a remunerative business. Studies have shown that dairy enterprise as against crops in rural areas gave larger profit margins in marginal, small and medium holdings. Studies have also shown that dairying and crop production together for small farmers having irrigated land was more profitable than crop farming alone. Profitability of dairy farming for different herd sizes has also been demonstrated. Various animals' models (sheep, goat, pig and poultry) in different agro-climatic regions under specialized and mixed farming situations, depending upon people's preferences and under different systems (extensive, semi-intensive and intensive). Economic viability of three models has been demonstrated. On the macro level, the livestock sector in India looks bright and is steadily marching to prepare itself for the challenges in the next millennium. In India the land-man ratio is low and distribution of land is skewed; diversification of a crop based rural economy into an animal husbandry, mixed farming system must be encouraged for rapid economic development and generating equitable income and employment in the country.

2.11 The key issue for future development of livestock is whether India can address her major weaknesses while remaining true to the basic principle that have been the foundation of this success. In the answers to the question lie the international competitive advantages that to our farmers and our industry will get in 21st century. The task before us is not to become the bigger but the best. The building blocks of our success are well known, if not well understood. First is the partnership of farmer with the professional. The second block is the Indian consumers who constitute the largest domestic market. Third is our system of livestock farming which contribute to crop farming, do not compete with human beings in terms of food and gives India a tremendous competitive advantage in terms of energy efficiency. Fourth block is quality of products. Science and Technology are extremely important so far as the first and the last blocks are concerned.

2.12 Productivity is the key to growth. We have no option but to raise the productivity of our livestock through breeding, feeding and management, the goal is no longer the farmers share of the consumers rupees. It is significant and sustained increase in farmer's income and employment. Quality is the bedrock of success for any enterprise and there is no substitute for consistent, superior quality. Our system has not yet built in quality at every stage from the udder to the consumer. Until India achieves world-standard quality, it will not only find access to markets abroad limited or difficult and will continue to be vulnerable to challenges at home. The wisdom and energy of the farmers combined with the knowledge and skills of the professionals would create the conditions of confidence and strength that has brought out success stories and instances of miracles.

2.13 Meeting the needs of our domestic consumers demand that we expand and achieve superior economics in production, transport, processing and marketing. The answers of 90's may no longer work today, much less tomorrow. We must restructure our total solutions uniquely appropriate to our own environment and accord highest priority to generation and dissemination of appropriate technologies. Our infrastructure, though strong and widespread, is aging and too often poorly used. The cost of traditional livestock based enterprises is increasing. Our research and design must provide new answers to new questions. Our support to client must help raising significantly their efficiency and economy. The future of livestock sector rests not only on the farmer, but also on the scientist, the technologist and the professional. We must equip a new generation to compete head on with the best human resources of the advanced nations. In this backdrop, it becomes difficult to remain divorced from the personnel and organizational structure, which is to formulate policies and execute programme for the development of the animal husbandry sector.

The future of livestock sector rests not only on farmer, but also on scientist, technologist and professional.

Equip a new generation to compete head on with the best human resources of the advanced nations.

3.0 REVIEW OF PAST PERFORMANCES AND ASSESSMENT OF FUTURE NEEDS

3.1 Growth Rate

3.1.1 Livestock sector plays a crucial role in its rural economy. According to CSO estimate, the value of output from livestock and fisheries sectors together at current price was about Rs. 148954 crore during 1998-99 (Rs. 123076 crore for livestock sector and Rs. 25878 crore for fisheries), which is about 27 percent of the value of the output of Rs. 553175 crores from total Agriculture and allied sector. Despite the fluctuating growth rate in agriculture, the growth rate in livestock sector is steady.

Growth rate in Gross Domestic Product (At 1993-94 price)

	Agriculture & Allied Sector	Livestock Sector
1994-95	5.01	6.36
1995-96	-1.13	4.95
1996-97	10.10	4.82
1997-98	-2.19	3.29
1998-99	7.62	6.90

The steady and sustainable growth in livestock sector has been achieved despite of the fact that the investment in this sector was not substantial compared to agriculture.

3.1.2 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 over 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 for quality genetic material and the animal health system

3.2 Employment Generation

3.2.1 The sector has high potentiality for alleviating poverty and unemployment in rural areas. About three fourths of India's population and almost three fourths of the poor population in India live in rural areas and over 70 per cent of rural households own livestock. A large majority of livestock owning households

comprise of small and marginal farmers and landless households, which also account for a large share of poor households. According to National Sample survey Organization's survey (1993-94), the provisional estimate of employment in animal husbandry sector was 9.8 million in principle status and 8.6 million in subsidiary status, which is 5% of the total working population. The distribution of livestock is much more equitable than that of land; the bottom 60 per cent of rural households owns 65 per cent of all milch animals. As the ownership of livestock is more evenly distributed with landless laborers, small and marginal farmers, the progress in this sector will result in a more balanced development of the rural economy, particularly in the reduction of poverty ratio

3.3 Veterinary Services

3.3.1 India has a large network of veterinary hospitals/dispensaries. At the end of 2000, there were 7749 veterinary hospitals/polyclinics, 15554 veterinary dispensaries, 27543 veterinary aid centers including mobile dispensaries. These institutions employed some 36000 professional staff and over 70000 para veterinarians. The primary emphasis is on clinical services and as a result, endemic disease such as Foot and Mouth Diseases (FMD) are still prevalent in India. The limited emphasis on preventive services contributes to India's inability to eradicate animal disease epidemics, which undercuts the country's competitive advantage in the global market place. Due to the prevalence of some diseases, the sanitary and phytosanitary regulations of many OECD countries deny entry of Indian livestock products, despite the "minimum access clause" of the world trade order, which is open to all countries. On the AI side, there were about 4.2 AI centers per 10,000 breedable bovines with Kerala appearing on the top of the list with 10.3 AI centers. Comparable figures for Gujarat and Rajasthan were 7.2 and 2.4 respectively.

3.3.2 Over the last decade or so, serious doubts have been expressed about the desirability and sustainability of this model of service provision. Free veterinary and AI services have resulted in an infrastructure that is vast and expensive. Low levels of cost recovery have further limited the revenue generating capacity of state departments to meet their operational needs, making it difficult to provide high quality services. Almost 85 per cent of the annual non-plan budgets are spent on salaries and other establishment costs, thereby leaving little funds for essential supplies and medicines.

3.4 Livestock Population

3.4.1 As per the 1992 livestock census, there were 204.5 million cattle, 84.2 million buffaloes, 50.78 million sheep, 115.28 million goat, 12.79 million pig and 307.07 million poultry. India ranked first in the case of cattle and buffalo population and accounted for 56 per cent of the world's buffalo population and 16 per cent of the cattle population. India's large livestock population has grown faster than the world livestock population. During 1951-92, the total cattle and

buffalo population increased by over 45 per cent, compared to the 37 per cent increase in the world bovine population.

3.4.2 The share of bovine population in India declined from approximately 68 per cent in 1951 to less than 61 per cent in 1992 and the share of goats increased from 16 per cent to over 24 per cent. Within the bovine population there has been a clear shift towards buffaloes. The share of buffaloes in the bovine population increased from 22 per cent in 1951 to 29 per cent in 1992. Within cattle there has been a marked shift from work animals towards milch animals. The proportion of male cattle in the population declined from 41.8 per cent in 1972 to about 36.4 per cent in 1992.

3.4.3 Crossbred cows have grown at a much faster rate than the indigenous stock. The population of crossbred cows increased at the rate of 7.5 per cent during 1982-92, compared to 0.1 per cent for indigenous cows. As a result, the number of crossbred cows more than doubled from 3 million in 1982 to 6.5 million in 1992. Northern region accounted for about 40 per cent of all crossbred cattle in the country followed by the south (34 per cent), the west (15 per cent) and the east (11 per cent). Among states, Kerala, Maharashtra, Tamil Nadu, Punjab, Uttar Pradesh and West Bengal accounted for nearly 70 per cent of total crossbred cattle in the country. Kerala had the highest (52.3 per cent) proportion of crossbred cattle population and Rajasthan the lowest (1.0 per cent).

3.4.4 Goat population in India during last two decades has increased at fastest rate among all major livestock species, in spite of the fact that nearly 41 percent of goats are slaughtered annually with about 15.5 percent natural death in the rural areas. The current goat population is estimated to be around 128 millions in 1999-2000. Combining the annual rate of population growth (around 3.6 per cent) with mean slaughter rate (41%) and mortality rates (15.5%), the goats have shown the potential of population growth of about 60.1 per cent per year. This is the single most important factor that makes goats as most desired species of animals for meat production.

3.4.5 The sheep population is around 50.8 million. About 36% of the total sheep population is slaughtered every year for meat purposes. During last 4 decades there has not been much increase in sheep population.

3.5 Livestock Production

3.5.1 Milk production in India more or less remained stagnant from 1950 to 1970 when the production grew at the rate of a mere 1 per cent per annum. Thereafter, it increased rapidly, reaching 81 million tones in 2000-01(anticipated). India is currently the largest producer of milk in the world. The per capita availability of milk increased from 112 gm per day in 1970-71 to about 214 gm per day in 2000-01. However, it is still below the world average of 285 gm per day.

Average Annual Growth rate of Milk and Egg Production 1950-51 to 1998-99		
Year	Milk (%)	Eggs (%)
1950-51 to 1960-61	1.64	4.63
1960-61 to 1970-71	1.15	7.91
1970-71 to 1980-81	4.51	3.79
1980-81 to 1990-91	5.50	7.70
1990-91 TO 1998-99	4.14	4.59

3.5.2 The major milk producing states in the country is Uttar Pradesh, Punjab, Rajasthan, Madhya Pradesh, Maharashtra, Gujarat, Andhra Pradesh and Haryana (5.8 per cent). These states account for about 70 per cent of milk produced in the country. The shares of Punjab, Haryana and Gujarat in the milk production are substantially higher than their share in the breedable bovine population. On the other hand, Andhra Pradesh, Madhya Pradesh, Maharashtra and Rajasthan have a lower share of milk production relative to their population.

3.5.3 There are significant inter state differences in productivity of cows and buffaloes. The milk yields of indigenous cows were highest in Gujarat (7.5 kg per day), followed by Punjab (7.4 kg per day) and Maharashtra (6.6 kg per day). The average yield of buffaloes was highest in Punjab (5.7 kg per day) In general, the milk yields of both cows and buffaloes were lowest in Orissa. The inter state disparity in milk production vis-à-vis population and average yields requires the development of appropriate strategies for equitable development of livestock sector in the country.

3.5.4 According to some study, average annual milk production per animal has increased substantially for both cows and buffaloes during the last three decades. Average milk yield per year per adult breedable cow increased from 528 kg in 1982 to 830 kg in 1995, while that of buffalo increased from 1041 kg to 1355 kg. However, the yields of Indian breeds are still far below the world average (2026 kg per year) and just one-third to two-thirds of productivity in many developed countries.

3.5.5 There was no TFP (Technical Factor Productivity) growth in milk production till 1970-71. In the eighties when the sectoral growth touched nearly 4 percent, TFP growth jumped to a very respectable 1.8 percent per annum indicating that the technical change became the driving force imparting dynamism to the livestock sector. In seventies technical changes accounted for 33 percent of output growth which rose to about 45 percent in the post-1980 period (1980 to 1996).

3.5.6 Over time, the relative share of different inputs (feed, labour and population stock) have remained same, but the technical changes has affected the composition of livestock feed. In 1970-71, dry fodder and concentrate accounted for around 58 and 2 percent of total livestock feed, respectively. This came down

to 35 percent in 1995-96. The share of green fodder increased from 40 percent to 57 percent during the above period. The share of concentrate remained stagnant up to 1981-82, but since then it increased significantly and reached 7.6 percent in 1995-96

3.5.7 In India, meat production is largely a byproduct system of livestock production utilizing spent animals at the end of their productive life. Cattle and buffaloes, which contribute about 60 % of total meat production, are primarily reared for milk and draught purpose and in the end utilized for meat purpose subject to many limitations. Meat production was estimated at 4.6 mt(1998) and annual growth rate of 4.1% was achieved during the last 10 years. Notwithstanding buffalo population was less than half of cattle population but buffalo meat production was equal to that of beef from cattle. This was due to effective culling practiced in buffaloes for meat both for domestic and export market. Slaughter rate as large as 20% is sustained in buffaloes with adequate growth in population. (Annual growth rate of 2.08 in buffaloes compared to 0.48 of cattle during 1987-1992). In case of other animals slaughter rates are considerably lower than can be sustained and followed in other countries.

3.5.8 At current prices (1998-99) meat group contributed Rs 21900 crores and meat products Rs 828 crores while byproducts comprising largely hide and skins contributed Rs 2232 crores. Though the contribution of meat group has increased by 74.67 per cent during 1993-94 to 1998-99 but its share to total value of output from livestock sector has decreased by about one percent mainly due to less performance of mutton, poultry meat and hides on their part.

3.5.9 Indian meat exports started with as small a quantity as 2000 tonnes in the year 1973-74 and increased to about 60,000 MT by 1987-88 valued at Rs.88 crores. During last decade (1991-2000) buffalo meat export was 93% of total meat export in quantity terms and 88% in value terms. The number of countries to which Indian meat is exported has increased from about 30 in 1994-95 to 50 in 1999-2000

3.5.10 The fine wool production in the country is around 4 million kg and the demand from the industry is around 35 to 40 million kg of fine wool, which is mainly imported from countries like Australia.

3.5.11 Today India ranks 4th in Egg production and 19th in Broiler production in the world. It is estimated that the egg production in the country is about 36000 million and poultry meat production is about .8 million tones per annum

3.6 Cattle and Buffalo Development

3.6.1 Central Sector Scheme

3.6.1.1 Central Cattle Breeding Farms: For rearing bull mothers of different breeds, seven Central Cattle Breeding Farms (CCBF) were established from 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 farm was to produce at least 10 progeny tested bulls in each farm 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 about Rs. 5.5 crore per year for producing about 350 bulls in these farms. But there are few takers to pick up the bulls from these farms indicating the doubts about their quality and usefulness. The farms are facing the problems inherent to any other Government farms like labour control, enforcement of discipline, filling of vacant posts especially the posts in critical positions, spending major portion of plan allocation for salary etc. Time has come to ponder over the ability of the scheme to achieve the declared goal. Else we may change the goal – these farms could be used either for conservation of indigenous breeds which are at the verge of extinction or NDDDB could take over these farms for implementing progeny testing programme using recent technologies like ETT /OPU-IVF.

3.6.1.2 Central Frozen Semen Production: Central Frozen Semen Production and Training Institute established in 1969 at Hesserghatta 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 and for this purpose the present allocation of fund, which is pegged around Rs. 1 crore per year is meager and needs to be enhanced substantially.

3.6.2 Central Sponsored Schemes

3.6.2.1 Two schemes viz. I) Extension of Frozen Semen Technology and Progeny Testing Programme and II) National Bull Production Programme was continuing up to October 2000 when they were merged into a comprehensive scheme National Project for Cattle and Buffalo Breeding (NPCBB). During the first four years of the Ninth Plan, the Department was able to spend only 59% of budget allocation for the two schemes. Further one-third of the fund released to the States remained unspent as on 1.1.2001. This shows the inapt handling of important schemes having direct bearing on national milk production. The merged scheme (NPCBB) was started with much fanfare and high promises but the indications

received during the first 8 months of implementation are not encouraging. The progress is tardy, even the Central Project Monitoring Unit (CPMU) which is responsible for spearheading the programme has not properly constituted despite the approval of Cabinet Committee on Economic Affairs (CCEA). There seems to be dearth of technically competent manpower to implement this programme, which needs to be addressed.

3.6.3 Breeding policy

3.6.3.1 Broad framework of cattle and buffalo breeding policy recommended for the country since mid-sixties envisaged selective breeding of indigenous breeds in their breeding tracts and use of such improved breeds for upgrading of the non-descript stock. While the framework was accepted by the States, appropriate operationalisation of the same through field level programmes could not be done because of various reasons. Lack of interest in promoting Breed Organization/Societies and related farmers' bodies contributed to gradual deterioration of indigenous breeds. Majority of owners having indigenous breeds were not willing to accept AI, which was the major Government intervention for breed improvement. Eventually, the availability of good quality bulls needed for natural mating in the breeding tracts became scarce, leading to further deterioration of indigenous breeds in these tracts.

3.6.3.2 That there had been large deviation from the laid breeding policy is quite obvious from the fact that crossbreeding which was to be taken up in a restricted manner and in areas of low producing cattle has now spread indiscriminately all over the country including in the breeding tracts of some of the established indigenous cattle breeds. Keeping in view current concerns for sustainability, maintaining environment and bio-diversity and conservation of energy, there is a rethinking on the development and use of indigenous breeds for milk and draught. The country since then has advanced in the area of newer reproductive technologies, which can be of tremendous advantage for rapid multiplication of elite germplasm. Therefore, a fresh look at the breeding policy is needed. The policy needs to be dynamic and consider inter-alia demand for milk, requirement of draught animal power for agricultural and transportation purposes, need to conserve breeds in their breeding tracts, farming systems, production environments and availability of inputs as well as marketing channels. If such a policy does not exist, the same has to be evolved and followed consistently for a reasonable period, say twenty years, after which the policy may be reviewed.

3.6.4 Breeding Strategies

3.6.4.1 Anyone concerned with livestock development should aim at his or her genetic improvement as a priority. Government, Semi-government and private initiatives for genetic improvement of livestock and poultry have been taken in past decades. All such programmes undertaken in the past were not successful, particularly those relying on up-gradation of indigenous breed through continuous crossbreeding for lack of backup support in the feed and fodder resources.

However State like Punjab where substantial progress been made, indicates that average milk production of 2500 litre per lactation in crossbred cows can be achieved under field conditions. At the same time, many conservative approaches also failed. Breeding programmes for genetic improvement of cattle and buffalo successfully used in developed countries will, therefore, have to be applied with certain adjustments/modifications because of major differences concerning (i) suitability of the programme and its benefits to the livestock enterprise, (ii) consequences of change in genetic make-up of livestock populations, which cannot be foreseen in the planning stage.

3.6.4.2 Since most of the female stock is needed for herd replacement, accurate selection of sires assumes greater importance. But a feasible cost effective and proven method for general adoption in the country is yet to emerge. Any programme for genetic improvement needs an organization/set-up that goes beyond the individual/herd. Absence of breeders' organizations and field recording network are serious handicaps in the emergence of viable and effective Breeding Service Organizations. Genetic measures undertaken to improve livestock will not be successful unless the livestock production system as a whole is considered. Availability of inputs and support services, marketing channels and economic viability will have to be considered as an important component of the whole system. Rapid genetic changes in livestock population for efficient commercial production will have to be brought about by a carefully planned and monitored process. Conditions congenial to private initiatives to aid the process for faster improvement in productivity will assume paramount importance because the central and state governments may not be in a position to provide financial support for programmes in the long run.

3.6.4.3 These efforts would need greater attention because breeding is a cost intensive, long-term exercise with a time horizon of 15 years in India. Unless those who undertake such breeding programmes do not have a full control over various facets involved for this period, they run the risk of wasting time, effort and resources. If livestock development sector is to be successful, in terms of generating income to farmers, returns to government expenditures, and in value addition in international prices, the focus of policy will have to shift from the "best" technology to the most productive technology that is appropriate for different regions and is in tune with their natural endowment and labour and capital resources.

3.6.4.4 The adoption of appropriate breeding programmes and technology will result in accumulation of comprehensive field data on farmers' preferences, productivity of animals, cost of feed and other inputs, animal responses to nutrition, and other similar biological factors. A major systematic effort in this direction is required if an all round sustainable genetic improvement of cattle and buffalo is to be effected in the in the country.

3.6.5 Quality of Goods and Services

3.6.5.1 Special attention is required to be paid towards quality of goods and services required for breeding cattle and buffalo. A system will have to be devised in consultation with involved agencies so that standards, protocols and manuals necessary for quality assurance and enforcement are widely available. A three-tier quality enforcement mechanism, that is, in-house, state and national levels is suggested. These measures initiated should cover live animals (cows and bulls), equipment, consumables / reagents, semen, embryo as well as activities like animal recording, progeny testing, embryos transfer etc. It is also suggested that a standing committee of experts be constituted to oversee quality enforcement mechanism and suggest measures towards improvement.

3.6.6 Certification of Sperm Stations and AI Bulls

3.6.6.1 The quality concepts cannot be brought in AI network unless there is a strong monitoring of the functions of sperm stations and only quality bulls are included in the system. It is recommended the setting up of a Monitoring Cell with a core group of personnel from the Department of Animal Husbandry specifically charged with over viewing the implementation of the mandate of certifying and monitoring quality of operations and bulls in sperm stations. The Cell may use the services of retired experts in the field of frozen semen technology to assist in regulating the working of the semen network in the entire country.

3.6.6.2. Some of the activities required for cattle and buffalo breeding, namely AI centres and liquid nitrogen storage system, will be eligible for funding from schemes of the Ministry of Rural Development provided that proposals for the same are supported by respective DRDAs. Therefore, the formulation of district plans in consultation with DRDAs would be necessary for augmenting fund flow for development of breeding infrastructure. There is also a need for adopting a similar approach in case of other multidisciplinary schemes of other Departments having a livestock development component.

3.6.7 Performance Recording of Animal

3.6.7.1 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. The herd performance recording system has immensely helped in improving the productivity of animals in dairy developed countries. Experiences of performance recording under field conditions in India have not been very encouraging and the progeny testing program for improving milk yields in various dairy cattle breeds have not yielded the desired results like those in European countries. An analysis of the progeny testing program undertaken for identification of bulls of Sunandni breed, developed from crossbred cattle under Indo-Swiss Project in Kerala, India, revealed that about

1500 test inseminations were needed to harvest 50 - 60 completed first lactation daughters records per bull because 60% of the identified and registered female calves were lost by the time of enrolment for milk recording in first lactation and 26% were lost during the milk recording period (Annual Report, 1985-86). Further, analysis of young bull production program under the project revealed that between 45% and 73% of the crossbred bulls up to 6 years of age were culled on account of their poor semen quality poor or no libido, and aspermia/oligospermia and another 4 to 19% were culled due to other reasons. These data suggest that much larger number of crossbred males need to be produced and research to select the required numbers for putting them to progeny test to ensure reasonable intensity of selection. Bulls were put to progeny test at 3 years of age and got proven by 8-9 years. Almost similar observations are available from other field progeny testing programs attempted in India.

3.6.8 Progeny Testing

3.6.8.1 Major constraints of any field progeny testing programs are, elimination of a large number of females before completion of their first lactation, poor semen quality/poor libido of higher production of crossbred males, 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 differences between herds. There is, therefore, a need for developing methodologies to standardize the field records for minimizing errors, biases for accurate sire evaluation. In addition to performance recording, the animal recording systems 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.

3.6.8.2 Sustained genetic improvement can be achieved only through continuous use of bulls of high genetic merit evaluated through progeny testing. This will necessitate radical improvement in the number of recorded animals which, at present, is abysmally low when viewed against the size of the population bred artificially. Even among the animals reported to be under recording, the quality and concept of recording vary widely. Maintenance of records of identity of animals and their pedigree and information about their production, breeding, feeding and diseases etc. are minimum requirement of an efficient recording system. However, except in a few cases, one or more important aspects of recording are frequently missing. Almost the entire breeding network under the State Governments (excluding Kerala State) do not have any regular milk recording system. Except seven Cooperative Milk Unions in Gujarat that run milk recording and progeny testing programme, the remaining cooperative network is devoid of any planned breeding network. The Central Herd Registration Scheme is also deficient in many ways i.e. animal identification, milk composition, pedigree records etc. 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 areas to improve breeding coverage and records of Milk Unions and take up milk recording in 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 Bull Stud of sperm-stations or their replacement.

3.6.9 Semen Production & Demand

3.6.9.1 The target for frozen semen production may be pegged at 65 million doses annually as against present production capacity of about 30 million doses. Even with the aggressive campaign for pedigree breeding and A.I. It will be difficult to increase the acceptability by the farmers beyond this limit by end of 10th Plan. This target for semen production can easily be achieved with modest additional investments in most of the existing sperm stations and their relocation/redesigning in case of a limited few. With improvement in the conception rate through A.I. And its doorstep delivery and propagation of pedigree breeding concepts, acceptability of A.I. is likely to increase rapidly.

3.6.10 Replacement of Bulls used in natural service

3.6.10.1 A programme for verification of bulls used for natural service may be launched so that those of inferior quality are gradually replaced with good quality pedigreed bulls. Additional natural mating centres may be set up through breeders where bulls will be supplied and services charged. This will generate employment and supplement income. Mating by such bulls will be recorded, bulls rotated at intervals to avoid inbreeding and checked annually for sexually transmitted diseases.

3.6.11 Sourcing of bulls

3.6.11.1 Exotic Bulls: Although exotic bulls are apparently not in short supply in quantitative terms, critical evaluation of their merit may bring out qualitative deficiencies, especially the replacement of a substantial proportion of the existing bulls. Similarly a proportion of bull mothers in the institutional farms may have to be replaced. This may necessitate import of cows and bulls in the initial years. Thereafter well managed bull mother farms and prosperous milksheds in Karnataka, Punjab and Maharashtra may be able to supply the required number of bulls of exotic breeds with limited import once in five years for maintenance of genetic variability.

3.6.11.2 Crossbred Bulls: As in case of exotic bulls, some of the existing crossbred. Bulls may also require replacement. The Military farms, bull mother farms of Kerala Livestock Development Board (KLDB), Sabarmati Ashram Gaushala (SAG), Animal Breeding Centre (ABC) Salon, BAIF and a number of private commercial dairy farms are the sources of excellent germplasm and should be able to supply about 550 good quality crossbred bulls every year. The

supply of crossbred bulls can further be supplemented by rearing sons of elite crossbred bulls and cows identified under various field performance recording and field progeny testing programmes to be taken up under the scheme.

3.6.11.3 Bulls of Indigenous breeds: This is a neglected area for a long time and would require a major thrust and a lot of efforts to harvest best male germplasm available in the country. Actual shortfall is difficult to estimate but it is assumed that except for a few pockets in important breeding tracts and those used in sperm stations, indigenous bulls are of unknown pedigree and quality. By conservative estimates, about 5 million adult cows belong to one or the other recognized breed. These are expected to produce 8.75 lakh male calves every year. Further assuming that only 50% of such calves reach breeding age and top 10% only are to be used for breeding, more than 40,000 bulls will be available annually if the breeding tracts are screened for good quality bull-mothers and their sons. The existing purebred institutional herds and a number of gaushalas together have also the potential to provide high quality progeny tested bulls of indigenous breeds. Best of all the indigenous bulls thus identified will be used in the breeding tracts for pure breeding, 500 through A.I. and 3000 for natural service. The rest will be used for grading up both by A.I. And through natural service in areas earmarked for such purposes.

3.6.11.4 Buffalo Bulls: Artificial Insemination is not very popular in buffaloes and the quality of bulls used for natural breeding is not much different from (c) above. A wide spread milk recording programme in the breeding tracts and milksheds of Punjab, Haryana, Andhra Pradesh, U.P. And Gujarat may be able to provide about 2000 high quality bulls to be used for A.I. The field progeny testing programmes and Open Nucleus Breeding Systems (ONBS), both ongoing and those to be initiated under the scheme, will further improve the availability of quality buffalo bulls for AI. A rapid screening of high milk yielding buffaloes in the breeding tracts through milk yield competitions and harvesting their male progeny is also likely to give about 35000 buffalo males which can be distributed for natural breeding. Keeping in view the contribution and potential of buffaloes in milk production special emphasis is required towards large-scale production of quality buffalo bulls for breeding.

3.6.12 Relevance of draught breeds and options for improvement

3.6.12.1 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 water logged fields tractor tiller is not suitable. In narrow terraced fields and hilly regions tractors cannot function. Animal drawn vehicle are suitable for rural areas under certain circumstances/conditions viz, uneven terrain, small loads (less than 3 tons), short distances and where time of loading and unloading is more than travel time or time is not a critical factor and number of collection points / distribution points are large as in case of milk, 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.

3.6.12.2 The role of cattle as the main source of motive power for agriculture and certain allied operations would continue to remain as important as meeting the requirement of milk in the country. It has been estimated that about 80 million bullocks will be needed. There is, therefore, a need for improving the working efficiency of the bullocks through improved breeding and feeding practices.

3.6.12.3 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 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 rarely available and need to be collected.

3.6.13 Development of Draught Breeds

3.6.13.1 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 draft breed will not be possible unless a new scheme is formulated for this purpose. Improvement in draught breeds in terms of output and reproductive efficiency is sure to bring down the number of females required for producing draught animals and hence needs to be attempted. 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 definite programme.

3.6.13.2 In tracts where there are specialized draught breeds of cattle like Nagori in Rajasthan, Amritmahal and Hallikar in Karnataka, Khillar in Maharashtra etc., selection for improvement in draughtability should be undertaken on a large scale as the cattle breeders in these areas derive a large income by sale of good 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. There is need to intensify investigations to develop yardsticks for objective assessment of draught capacity of bullocks.

3.6.13.3 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 cattle cannot be extended. In such places grading up of local nondescript cattle with superior bulls of indigenous breeds like Mariana, Shawl, Sindhi, Tharparkar,

Kankrej, etc. may be attempted for helping the farmers to replace progressively the low producing cattle by general utility type animals.

3.6.14 Supplementation of fund-flow for Cattle and Buffalo Development:

3.6.14.1 It would be unreasonable under the prevailing circumstances to expect that the entire cost of expansion of the breeding network programmes will be made available from the Plan Schemes. The states will have to augment fund flow from their resources towards the recurring costs of maintaining and operating the expanded network by providing higher allocations under State Plan, besides tapping other possible resources. The possibility of augmenting fund flow through bilateral/multilateral projects having livestock component as well as multidisciplinary schemes of the Ministry of Rural Development, Department of Agriculture & Cooperation, Department of Women & Child Development, Department of Biotechnology etc. will also have to be explored. Creation of District level implementation committees may further facilitate the implementation of this project by way of drawing up concrete district plans under such schemes.

3.6.14.2 A number of organizations like NABARD, NDDDB, NCDC etc are also likely to be interested in funding activities relating to cattle and buffalo development in the form of term as loan provided timely return is ensured. Time has now come for exploring such avenues seriously at least on pilot basis in selected areas, where better prospects of recovery of cost of breeding inputs and services exists.

3.6.15 Monitoring of Programme

3.6.15.1 Development and dissemination of appropriate software for continuous monitoring of all the activities carried out under various programmes is a pre-requisite for successful implementation of the programmes. The software must capture data of all events as they happen in the programme, validate all data entry through appropriate validation checks, produce outputs for all concerned to evaluate performance of different components of the programme. The software should also be capable of creating a database for all historical data.

3.7 Feed and Fodder

3.7.1 Central Schemes

3.7.1.1 Under the Central Sector scheme Central Fodder Development Organization, the Department operates 7 Regional Stations for Fodder Production and Demonstration, a Central Fodder Seed Production Farm to increase the production of foundation seeds of fodder crops, pasture grasses and legumes and a Central Minikit Demonstrations for educating farmer. Rs.21.05 is expected to be spent under this Central Scheme.

3.7.2 Centrally Sponsored Scheme

3.7.2.1 Under the centrally sponsored scheme 'Assistance to states for fodder development', assistance is provided to the State Governments for the following activities:

- i) Strengthening of State Fodder Seed Farms
- ii) Establishment of Fodder Banks
- iii) Enrichment of straws and cellulosic waste
- iv) Establishment of silvipasture for biomass production
- v) Development of Grassland and Grass reserves
- vi) Estimation of area and production under fodder crops.

3.7.2.2 As against the 9th plan outlay of Rs. 50 crore, the budget allocation and expected expenditure are Rs. 23.9 and 17.6 crore respectively. State Governments are unable to spend more than 50% of money provided to them. The job of fodder seed production and its distribution, enrichment of straws etc. can be better handled by ICAR and State Government organizations including State Agriculture Universities. The Department of Animal Husbandry should develop a comprehensive programme during 10th Plan for improvement and maintenance of area under permanent pasture and grazing land, treatment of culturable wastelands and area under problem soils, development of fodder banks to meet the exigencies like flood and draught. Animal Husbandry sector is the major user of pasturelands, grasslands, wasteland, but their management and development lies somewhere else. The question, therefore, as to who should manage these lands needs to be addressed.

3.7.3 Fodder Demand

3.7.3.1 The scenario of future fodder requirements worked out @ 7 kg dry matter (DM) consumption per Adult Cattle Unit (ACU) per day (i.e. 2% of the body weight of 350 kg) is shown below

Demand of green and dry fodder – projected estimates

Year	Total Dry Matter Requirement	Green Fodder*	Dry Fodder**
1995	710.3	947.0	526.1
2000	741.5	988.6	549.2
2005	768.8	1025.0	569.4
2010	796.0	1061.4	589.6
2015	823.2	1097.6	609.8
2020	850.7	1134.2	630.1
2025	878.1	1170.8	650.4

*Green fodder demand is estimated based on the norm that ideally one third of the dry matter requirement should come from green fodder and that the dry matter in green fodder is 25% of the biomass

** Dry fodder is estimated on the assumption that dry matter forms 90% of the biomass.

3.7.4 Fodder supplies

3.7.4.1 The data/estimates of fodder production in the country vary widely. Fodder production and its utilization depend on the cropping pattern, climate, social economic conditions and type of livestock. The cattle and buffaloes are normally fed on the fodder available from cultivated areas, supplemented to a small extent by harvested grasses and top leaves. Grazing and harvested grasses are the chief fodder source for equines. While camels usually subsist on top feeds, either browsed or lopped from shrubs and trees.

3.7.4.2 There are several reports regarding availability of fodder in the country. Most of such reports show an alarming gap between demand and supply. The National Commission on Agriculture (1976) estimated the availability of fodder in the country for the year 2000 AD as 256.8-million t dry fodder and 575 million t green fodders. The Committee on fodder and grasses (1986) estimated production of 441 and 150 million tones dry and green fodder respectively. It is generally accepted that demand for livestock feeds far outstrips the availability.

3.7.5 Match between demand & supply

3.7.5.1 Likely future scenario of demand and supply position in relation to forages is given below. It reveals a huge deficit (prevailing and expected) in green fodder in the country. The available fodder can meet the demand of only 46.7 per cent of total livestock.

Supply and demand of green and dry fodder – projected estimated

(in million ton)

Year	Supply		Demand		Deficit as % of Demand	
	Green	Dry	Green	Dry	Green	Dry
1995	379.3	421	947	526	59.95	19.95
2000	384.5	428	988	549	61.10	21.93
2005	389.9	443	1025	569	61.96	22.08
2010	395.2	451	1061	589	62.76	23.46
2015	400.6	466	1097	609	63.50	23.56
2020	405.9	473	1134	630	64.21	24.81
2025	411.3	488	1170	650	64.87	24.92

3.7.5.2 Projected balance between demand for and supply of green and dry fodder presents a challenge for fodder production in the coming years. While the deficits are anticipated to increase as a proportion of the requirements in both the cases, the situation appears all the grimmer in case of green fodder. Focused strategies and concerted efforts are the need of the hour to face up to this challenge.

3.7.6 Source of Fodder

3.7.6.1 Three major sources of fodder supply are crop residues, cultivated fodder and fodder from common property resources like forests, permanent pastures and grazing land.

3.7.6.2 Future scenario related to potential supply of crop residues. For rice and wheat especially in states like Punjab and Haryana due to the extensive use of combine harvesters a large portion of the stover is either left in the field and burnt or becomes unfit for fodder purpose. In the coming years, the use of machinery is projected to increase from their present levels as labour is becoming more and more scarce. This will further affect the availability of residues. About 30% of the residues are discounted from the available production in case of rice and wheat to account for this.

3.7.6.3 In case of pulses, wastage of 15% is assumed. Though oilseed crop residues are used in some parts of the country for livestock feeding, the use is more in the form of oilcakes than as stover. In some cases, this is due to the unawareness and in others it is because the livestock does not prefer feeding on oilseed residues. Therefore, they are not included in these estimates.

3.7.6.4 The most important sources of green fodder production are the forests, permanent pastures and grazing lands, which include the village common property lands and the cultivated forages. The forest area has shown increasing

trend in the last few years, especially in some states. Not all forest area produces fodder. In the area with good canopy cover, there is not much grass cover and this forms about 50% of the forest area. Therefore, fodder production is estimated only from 50% of the reported forest area.

3.7.6.5 The area under permanent pastures has been declining over the years and the trend could well continue in the future. Due to overgrazing, the productivity of the pastures has been declining too. The area under fodder crops has almost remained static for the last 3-4 decades. This is mainly for the want of proper land cover data reporting. In areas that have developed intensive dairy production systems during the past years, the area under fodder crops has increased.

Niches with possibilities for improved fodder production utilizing improved technologies and policy support

Areas which could be exploited	Potential increase in production
<p>Bringing larger areas under JFM – About 10.25 million ha of forest area is currently under JFM programmes in the country being managed by the communities, after the government notification in 1990. This trend is likely to continue in the coming years. Enhanced fodder and fuel wood availability is reported from these communities from different parts of the country where these programmes are in operation. Currently, a dry grass production of 1-2 t/ha is estimated in these areas.</p>	<p>Assuming the trend in expansion of area under JFM continues, the area could be expected to increase by at least 15 million ha in the next 25 years. With participatory management and better technical support, a dry grass production of 4t/ha can be achieved. This will add about 60 million t of dry fodder each year.</p>
<p>Treatment of culturable wastelands and area under problem soils – About 13.94 million ha of the area in the country is under culturable wastes and another 11 million ha is classified as problem soils being plagued with salinity, alkalinity and water logging.</p>	<p>Appropriate technologies available if promoted during the efforts to regenerate these areas will enhance fodder production and also contribute to environmental regeneration and sustainability. Treatment of these land classes say even on about 15 million ha with improved silvi-pastoral systems will result in an annual fodder production of 90 million t of dry matter/annum.</p>
<p>Promotion of intensive/improved fodder production technologies in cultivated fodder areas – The area under fodder crops has reported to be static for the last 2-3 decades</p>	<p>Even if improved technologies are adopted only in the area currently under fodder cultivation, the production can be at least doubled. An increase in green fodder production to the tune of 300-350 million t/annum is possible.</p>
<p>Scientific utilization of traditional pastures – About 2.59 million ha is under pastures in Western India in the states of Gujarat and Rajasthan. In H.P. it is about 1.2 million ha, accounting for 35.5% of the total area in the state. These are especially important for the landless livestock keepers whose livelihoods depend on the health and productivity of these pastures.</p>	<p>If the fodder production from these pastures can be doubled using improved technologies and grazing management, there can be an addition of 36 million t of fodder from these areas. Regulating grazing in tune with the capacities will ensure the sustainability of these pastures. There is a need to upgrade information on grazing lands and grazing resources with the help of remote sensing and GIS approach.</p>

Strategies for improving the efficiency of fodder supplies

Strategy	Anticipated Impact
<p>Establishment of fodder banks: This should be the strategy for drought and flood prone areas of the country and should aim at transporting economically baled dry fodder from surplus areas –</p> <p>8 major river valleys spread over 40 million ha in the country and 40 million population is affected by floods annually, 74 districts in the country in 14 states and 86 million people are affected annually by droughts.</p>	<p>The resource poor livestock owners most often lose their livestock to the fodder scarcity caused by these natural disasters. Establishment of fodder banks will serve the purpose of easing these scarcities. In addition, the surplus forages produced in other parts of the country, currently wasted will also be efficiently utilized and will contribute to reducing regional imbalances.</p>
<p>Conversion of fodder into feed blocks</p>	<p>This will support the initiative of setting up fodder banks and will facilitate the economical transport of fodder from surplus areas.</p>
<p>Enrichment of straw/stover with urea</p>	<p>This will help in alleviating the nutritional deficiencies to some extent in the absence of availability of adequate quantities of fodder to fulfill the nutritional requirements of the livestock and contribute to increased production and incomes of rural population.</p>
<p>Hay/Silage demonstrations</p>	<p>This will help in easing the fodder scarcities during lean season and bring about an even distribution of available fodder through out the year</p>
<p>Use of chaff cutters</p>	<p>This improves the nutritive value of the available fodder and will reduce the wastage currently experienced while feeding.</p>
<p>Fodder seed production – emphasis on seed processing and storage facilities</p>	<p>Quality forage seed in adequate quantities is the key to increasing fodder production in India. This will help in making seed of new cultivars available to the majority of people and aid in extensive adoption of intensive production technologies.</p>
<p>Watershed development programmes</p>	<p>Most watershed programmes have a component of pasture development. There is a need for such programmes to liaise with R&D institutions engaged in developing technologies for silvi-pastoral development to maximize the impact of such efforts.</p>

3.7.7 Feed

Availability, requirements and deficit of concentrates for livestock (million tones)					
Concentrates	2002-03	2003-04	2004-05	2005-06	2006-07
Available	41.96	43.14	44.35	45.63	48.27
Required	117.44	120.52	123.59	127.09	130.55
Deficit (%)	64.27	64.21	64.12	64.10	63.03

3.7.1 Considering the livestock population, production targets and the trends in the consumption of livestock products, it is necessary to fill up the gaps in the requirements of feeds in quantitative and qualitative nutritional terms for which there is a need for shift in the strategies to be adopted. The most common resources for concentrate feeds are i. coarse grains, ii. oil meals, iii. cereal brans, hulls, husks, iv. agro-byproducts, v. fish meal and vi. bone Meal

3.7.8 Feed grains

3.7.8.1 The utilization of grains for livestock feeding is mostly limited to poultry feeding since most of the grains such as rice, wheat, sorghum, ragi, maize, barley and oats are also primarily used as human food. If the human food is to be balanced, it is inevitable that foods of animal origin also must find a place in the human diet chain. The enhancement of production of foods of animal's origin such as meat, milk and eggs can be greatly achieved by diverting substantial amounts of grains for livestock feeding. At present (hardly 3%) very small portion of the total grains produced in our country is utilized for livestock and poultry feeding. Rain fed and arid zone areas present enormous prospects for production of feed grains. It is important that most of the so-called grains produced in our country must be made available for organized manufacture of compounded livestock and poultry feeds.

3.7.9 Oil Seed cakes/meals

3.7.9.1 The various oil meals and cakes used for livestock feeding in our country include groundnut cake, mustard cake, cotton seed cake etc. The mustard cake is substantially used in the northern and eastern parts of the country, but the quality of the cake varies widely and in many cases adulterated with rapeseed meal or taramira cake. Groundnut cake is also exported from the country. The availability of oil meals for livestock feeding is related to the enhancement of oil seed production and the availability of the residual meals for domestic consumption. There is no gain saying the fact that oil meals play a very important role as excellent protein cum energy supplements in livestock feeding. Soybean

is coming up in a large way as an oil seed crop in our country and the prospects of availability of soybean oil meal is increasing. De-oiled cakes are increasingly used since the oil finds other commercial applications. To that extent, the energy availability through these meals is limited, though the de-oiled meals are stored better and they undergo much less deterioration under stored conditions. The oil seed cakes/meals, which are rich protein sources for livestock and poultry feeds, must be made available introducing strict export import regulatory measures.

3.7.10 Cereal byproducts

3.7.10.1 They are traditionally one of the principal ingredients in animal feeds. Rice bran, rice polish, wheat bran, maize bran etc. largely used at farm level as well as commercial ingredients in feeds. Their availability is again directly related to the production levels of main cereals. De-oiled rice bran is increasingly used since the oil is demanded by competitive industries. Rice husk is an inedible cereal waste often used as an adulterant in the brans. This requires strict quality control measures.

3.7.11 Agro byproducts

3.7.11.1 In view of the limited feed resources for livestock, livestock rearing is more an adjunct activity to crop production than an independent commercial enterprise. Alternate resources for feeding livestock have been explored for several years. Many agro byproducts have been identified and evaluated for inclusion in the compounded feed mixtures. They include mango seed kernel, mahowa cake, neem cake decorticated cotton seed cake, de-oiled rice bran, sal seed meal, apple pomace, soya pulp, whey powder, vegetable residues, leucaena leaf meal, karanjia cake, taramira cake etc. It is important that they find their use in the compounded feed manufacture. There is a need to develop specifications for these feed ingredients for their nutritive value as well as their nutritive limitations.

3.7.12 Future Needs

3.7.12.1 There is no realistic availability data of feeds in quantitative and qualitative term. Therefore, there is an urgent need for assessment of feeds and fodder resources so that location/region specific and season specific measures can be taken for their optimum utilization. Natural calamities such as droughts, floods, cyclones and famines call for special efforts for storage and conservation of feeds to meet such emergent situations.

3.7.12.2 In view of prospects of massive and organized animal production, there is an urgent need for monitoring of inputs, especially the feeds that constitute over 70% of the inputs in the livestock sector. Adulteration in animal feeds is an acute problem, which calls for strict quality control regulations. In the context of WTO regulations at the international level as well as increasing quality consciousness of

animal products at national level, these measures become all the more important. Establishment of reference laboratories for detailed investigation and field laboratories for routine analysis is a pre-requisite in this direction. Development of critical parameters in respect of feed quality control must be introduced. Rapid screening methods have to be evolved and applied in practice for moisture, fibre, protein, silica and various intrinsic and extraneous contaminants. Such regulatory measures may require both legislative and administrative sanction by the Centre and the State Governments.

3.8 Dairy Development

3.8.1 In 1998-99 the value of the output by the milk group was Rs. 82,264 crores (National Accounts Statistics, 2000, CSO, GoI). This accounted for 21 per cent of the value of agricultural output in that year. The milk group is the highest contributor to the total output of the agricultural sector. Milk production in India is growing at 4.16 per cent CARG (1996-97/1999-00) annually. The rate of growth of population (1991-01) and per capita real net national income (1996-97/1999-00, at 1993-94 prices) are 1.95 per cent and 4.33 per cent respectively. Wholesale price index of Food commodities (RBI bulletin) as given below indicates that among the food commodities milk prices are most stable.

WPI Index (Averages): 93-94=100						
	94-95	95-96	96-97	97-98	98-99	99-00
Food	112.8	122.3	137.7	141.1	159.4	165.5
Meat, Fish, Egg	116.1	125.8	147.2	161.9	169.4	174.0
Fruits & Veg	108.0	122.9	148.6	140.0	185.4	154.5
Milk	110.3	114.2	119.8	125.9	136.0	147.6
Source: RBI Bulletin, June and Dec' 2000						

3.8.2 Per capita availability of milk/milk products is presently about 214 gms per day (1999-00). However, it appears that growth of milk production is slowing down even before the per capita availability of milk can match the minimum daily nutrition that should be obtained from milk consumption as per the recommendations in this regard. The slowing down of milk production appears to be mainly 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 should be linked with

corresponding increase in the demand. Measures are needed to increase the purchasing power of the rural and urban poor and also to exploit the market of Indian dairy products for both internal and external consumption.

3.8.3 Central Sector Scheme

3.8.3.1 Third phase of the Operation Flood programme was completed on April, 1996, but the programme continued till March, 1999.. Annual Report (2000-2001) of Department of Animal Husbandry and Dairying says ‘ At the end of Phase 3 (of Operation Flood), there was a balance of Rs.34 crore out of the EEC contribution of the Operation Flood project. The EED approved utilization of these funds on the following two major components

- i) Women Dairy Cooperative Leadership Development Project
- ii) Strengthening of Dairy Cooperatives to meet the competitive challenges of the next decade.

3.8.3.2 These components are primarily aimed at strengthening cooperatives at the grassroots level. The Programme Implementation Agreement (PIA) was signed between the EEC and the NDDB and was endorsed by the Government of India on August 22, 1997. Consequently, measures were initiated from September, 1997 and are continuing during 2000-01.

3.8.3.3 In 1999-2000, the country had about 84000 organized primary village dairy cooperatives with an aggregate membership of 1.1 crore producers. These primaries are federated into 183 district cooperative milk unions and state cooperative dairy federations. The dairy cooperative network collected about 160 lakh kg per day (LKPD) and paid an aggregate amount of about Rs.6000 crores to the milk producers during the year. Post-Operation Flood-III (which coincides with the first four years of the Ninth Plan, 1996-97/1999-00), milk procurement by cooperatives registered a Compounded Annual Growth Rate (CARG) of 8.3 per cent. The number of organized village cooperatives during the Ninth Plan registered a growth of 3.81 per cent per annum. By 1999-2000, over 20,000 village cooperatives were covered under single/cluster Artificial Insemination (AI) centers. During the year, nearly 4.8 million AIs were performed and more than 1.3 million MT of cattle-feed was sold. All these efforts were effective in enabling producers to sustain both milk production and income from milk during the Ninth Plan. 85 dairy cooperative unions/federations have established strong linkages with the markets. Most of them have been reporting net profits though some have been reporting cash profits. As a result, all of them have an accumulated cash profit as on March 1999. They can be considered to be on a sound financial footing with the strength to compete in the market place. They account for nearly 74 per cent of the total milk procured by all the cooperatives, 62 per cent of the total membership and would continue to play a significant role in the country's dairy development.

3.8.3.4 Milk procurement under OF region was highest in the Western Region followed by Southern and Northern region. Eastern region had lowest Dairy Cooperative Societies (DCS) (8%) and milk procurement (3.3%).

Year 1999-2000	North	South	East	West
DCS formed	31549	24172	6748	21820
Milk Procurement (Ton kg/day)	2563	4890	524	7803

3.8.3.5 There are many villages having the potential for milk production but not covered in OF programme. For example, the percentage of villages covered by OF in UP, Rajasthan, MP, WB and Bihar was 21, 15, 9, 5 and 9 percent respectively. Out of 168 Milk Unions, 119 Milk Unions (70.8%) are running in loss. The major causes, which may explain the closer of societies/unions are i) active price competition with informal trader especially in the villages around city, ii) single milk collection point: this increase travel time and waiting time in the line, iii) village politics, iv) dishonesty, v) alternative opportunities like soybeans cultivation (in Madhya Pradesh) provide higher income than dairying; and also fewer byproducts for cattle feed than the cotton and groundnuts they replace, vi) rejection by politicians and bureaucrats of the Anand principles of farmer control in many states, vii) underutilization of processing capacity in some of the loss making unions resulting high overhead cost and huge interest burden to these unions, ix) milk unions fail to dispose all milk collected during flush season through their own channels or National Milk Grid, as a result, they are compelled to convert the surplus milk into milk powder and butter oil to be used only in the lean season. In this process, a large sum of milk union's money is blocked and create shortage of working capital which further leads to non-payment of milk producers, a major cause for poor procurement performance of many loss-making unions.

3.8.3.6 Among the loss making unions, 22 dairy cooperative unions have the capability and the potential to become self-sustaining entities in time. Their performance has been mainly constrained by insufficient growth in milk procurement and marketing. They can effectively turn themselves around through appropriate interventions and many of them have already initiated steps to do so. 44 cooperative milk union/federations have suffered losses due to internal factors such as lack of professional management, overstaffing, poor capacity utilization and external factors such as the negative impact of government pressures to increase milk procurement prices, withhold upward revision in sale prices, increased competition and restrictive cooperative legislation. Their turnaround seems possible with the infusion of external financial assistance since they are endowed with significant procurement and marketing potential. Their rehabilitation is envisaged under the GoI's Central Plan Scheme on "Assistance to Cooperatives". 12 Milk unions are defunct and another 20 milk union indicates that they do not have the potential to be turned around. The performance of dairying in the cooperative sector could not be compared with the performance of

the private sector, as no reliable data on the operational and financial parameters of the private dairy industry is available. It is necessary to put in place a mechanism that can regularly collect reliable data on the performance of the organized private sector dairy industry of the country. To enable the cooperatives to compete with private companies, it is necessary that cooperatives are free of shackles of archaic laws and bureaucratic interference.

3.8.4 Central Sponsored Scheme

3.8.4.1 Investment in the dairy sector has been reduced drastically in the Ninth Plan. In compare to 8th Plan investment of Rs. 821.43 (against the plan outlay of Rs. 900 crore), the maximum investment during 9th Plan would be 130.93 crore against the plan outlay of Rs. 469.52 crore. After the completion of Operation Flood Programme in April 1996, the major programmes for dairy development Integrated Dairy Development Programme (IDDP) in Non-Operation Flood, Hilly and Backward areas and Assistance to Cooperatives. The utilization of fund under the IDDP scheme during 9th Plan is not satisfactory; against the budget allocation of Rs. 135.1 crore (Plan outlay Rs.250 crore), only Rs. 94.62 would be spent. Since the starting of IDDP programme, 42 projects with a total outlay of Rs.215.97 crore have been sanctioned up to November 2000 in 20 states and one UT. A sum of Rs. 148.01 crores has been released to various State Governments up to December 2001. Up to March 2000, over 6485 DCS have been organized under the project with total milk procurement of about 3.39 lakh per day. Notwithstanding that the scheme is being implemented in areas where milk production potentiality is poor, performance of the scheme is not good. Although on an average Rs. 2 lakh is being spent for establishing a DCS (including the average cost of procurement and processing infrastructure), the daily average milk procurement is around 50 liter per day, which is not sufficient enough for viability of a DCS. It appears that milk production enhancement through providing technical inputs and timely payment of milk price to the producers are not taking place properly. For sustainable dairy development in those areas where the tenure of the scheme has been completed, NDDB has a role to play.

3.8.4.2 The scheme Assistance to Cooperatives has been approved in January 2000 for providing assistance in the form of grants for rehabilitation of loss-making district milk co-operative unions. The scheme is expected to assist in the rehabilitation of around 70 sick unions, located in different parts of the country. In this scheme, Rs.36.31 crore would be against 9th plan allocation of 150 crore.

3.8.4.3 The M&MPO was notified in June 1992 mainly to (a) increase the supply of liquid milk of desired quality (b) ensure quality through inspection of premises and certification and (c) maintain a database on the status of the organized dairy sector. The operation of the M&MPO has been by and large limited to the registration of units. It is often used to restrict the establishing of new milk processing capacity. Registration of units under the M&MPO is only a means to an end. The ends are; improvement in the quality of processes for production,

storage, collection, processing and packing of liquid milk, improvement in the entire set of processes for manufacture and packing of milk products and an improvement in the quality of the milk and milk product offered to the consumer. However, the M&MPO has many significant provisions that are much more important than mere registration of units. These provisions are aimed at establishment of proper standards and norms for production and handling of milk and milk products and the maintenance of high standards of sanitary and hygienic conditions in the manufacture of milk and milk product. The M&MPO also provides for units to ensure that the milk or milk product manufactured conform to standards of quality prescribed by the Government and containers meet specified packing, marking and labeling requirements. To ensure that these requirements are complied by the registered units the M&MPO provides for initial and periodic inspection of dairy premises. However, periodic inspection of dairy premises (and even initial inspection in many cases) have not been carried out. The Registering Authorities are unable to do so ostensibly due to lack of adequate manpower. The important provisions of the M&MPO like periodic inspection and data collection are delegated to appropriate agencies and bodies like the NDDDB, CFTRI, and NDRI etc. Data shows that 390 private plants with a total processing capacity of 301 LLPD have been registered under M&MPO as against 212 cooperative dairies with a total capacity of 284 LLPD. Further, nearly 80 per cent of the private dairies (in terms of number of units as well as capacity) are concentrated in the four states of Haryana, Punjab, UP and Maharashtra. These four states are amongst the highest milk producing states in the country.

3.8.4.4 The utility of MMPO is being debated since its introduction. The proponents argued its continuation till a level playing field is created for co-operatives, which are not eligible for various tax concessions available to private industries. Further, co-operatives have to operate in a much more paternalistic and interference prone environment under the Registrar of Cooperatives than private companies that answer to the Registrar of companies. The Dept. of AH&D and NDDDB consider that it does not seem proper to revoke MMPO at this stage. Ensuring availability of liquid milk, which receives priority over milk products manufacture, is the responsibility of the State government/UT. So far, the Department wants to ensure that the 3-tier cooperative structure set up under Operation Flood programme does not collapse due to unhealthy competition. The opponents want to ensure a healthy competition among processors. Due to monopoly, cooperative become inefficient to cater the needs of farmers. Cooperatives are also misused and mismanaged. Only liberalized trade regime can create an environment in which the dairy processing industries can succeed in tapping the potential for exports on a large scale as well as pay the remunerative price to the milk producers. Although both the groups are right in their argument, but the fact is that MMPO has many significant provisions that are much more important than mere registration of units. There is a crucial need to effectively implement the relevant provisions of the MMPO to ensure food safety, quality and hygiene. A mechanism has to be evolved for accelerated growth of dairy industry in both public and private sector.

3.8.4.5 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 and this point should be considered while determining the future growth rate in milk production. Government policies and investments should aim to achieve the growth rate for milk production in the Tenth Plan largely through the smallholder dairying system. There is however scope and space for resource rich farmers who have greater risk taking ability to adopt capital-intensive large scale type dairying. For rapid dairy development in our country, the emphasis needs to be on improving the quality of milk and increasing productivity. In order to ensure production of good quality milk, Government, either directly or through financial institutions, should ensure that all weather roads, regular supply of electrical power and availability of potable water are made available in the villages which have a good potential to produce milk. The Department (AH&D) and other statutory bodies should be empowered to implement vigorously laws pertaining to quality standards in production and distribution of milk. Department (AH&D) and other statutory bodies should ensure that the relevant data and statistics regarding dairying and animal husbandry are collected and compiled and utilized to take policy decisions and also for implementing various programmes. Change is required in the legal and regulatory framework of Cooperative Law, including the setting up of Producer Companies to enable smallholder dairy producers to manage their business in a professional manner. Department of Animal Husbandry and Dairying and NDDDB mutually agree on the areas of funding and the terms and conditions of funding so that there is no overlap and the recipient organizations do not use one against the other.

3.8.4.6 Although the organized sector, which produces western type products, has shown fast growth in the last three decades, it still accounts for only 30-35 per cent of the total milk marketed in the country. On the other hand, a far larger proportion of milk continues to be marketed by the unorganized sector -- comprising innumerable vendors, small processors, merchants, manufacturers and retailers of indigenous milk products like khoa, paneer, dahi etc. But the main problem in the unorganized sector is quality, which creates a serious threat to the health of consumers. Unsanitary local conditions, unhygienic containers, sub-standard processing equipment, poor handling methods, breaks in the cold chain etc contribute to poor quality and at times unsafe milk in the unorganized sector. To bring about structural changes in the unorganized sector, the measures like processing at village level. process and market pasteurized milk in a cost effective manner, quality up gradation and up gradation of traditional technology to handle commercial scale using modern equipment and management skills. Small-scale manufacturers of indigenous products should be trained at NDRI, CFTRI and NDDDB in the modern methods of processing and quality up gradation. NABARD should set up a line of credit for modernization and up gradation of the unorganized dairy sector for purchase of equipment and infrastructure

development. A working group should be setup to prepare a detailed programme that can be funded through NABARD in the Tenth Plan.

3.8.5 Clean milk production and its availability to consumers

3.8.5.1 In India, the bacteriological quality of raw milk at the time of milking is comparable with that in advanced dairying nations. Deterioration in the quality of milk occurs due to the way the milk is handled. Apart from a lack of awareness on the part of the producer regarding the effect of improper handling of milk on the quality of the milk, there are the following basic infrastructural constraints in the rural areas where milk is produced :

- Lack of all weather roads
- Lack of regular supply of electrical power for chilling milk
- Lack of potable water supply and
- Lack of sewage disposal.

There are well documented reports available on the lack of availability of these infrastructural facilities in most of the villages in the country.

3.8.5.2 Governments in all advanced dairy nations provide the basic infrastructure necessary for milk producer to produce clean milk, so also it is necessary for our Government to put in place the above infrastructure that is so essential for the production, transportation and processing of good quality milk. Further for producing clean milk, it is important to keep animals in good health and free from diseases like FMD, brucellosis and others laid down by the OIE. In order to achieve the above, the Government needs to:

- Enact “Prevention of Infectious and Contagious Disease in Animals Bill”
- Amend the “Livestock Importation Act” to prevent disease coming into India from other countries
- Put in place an epidemiological information system
- Establish and enforce quality control of vaccines and biologicals and
- Ensure production and distribution of good quality semen.

3.8.5.3 Due to inadequate enforcement of food and hygiene laws, poor quality and unsafe milk often drives good milk from the market. The oft-cited reasons for poor enforcement are limited staff and lack of co-ordination between agencies and Departments. It is necessary to evolve an appropriate policy to ensure effective implementation of the food and hygiene laws. Enforcement of food and hygiene

laws in respect of milk and milk products should be the responsibility of Department of AH&D. The Department should be strengthened by inducting adequate number of qualified technical staff. Statutory bodies like NDDB, NDRI and CFTRI should be entrusted the responsibility of supporting and assisting the Department in the implementation of the food laws in respect of milk and milk products.

3.8.5.4 The dairy industry itself should take action in the following areas:

- Create an awareness and understanding among the producers about the need for clean milk production, educate them about the steps to be taken to produce good quality milk such as washing hands, udder, a clean vessel etc. and the consequences otherwise one has likely to face in the market place.
- Invest in milk chillers and appropriate collection and transportation systems to avoid deterioration in the quality of milk.
- Implement a system of bonus/penalty to encourage clean milk production and procurement.
- Invest in milk plants and equipment that meet food standards to ensure processing of milk/milk products hygienically to meet the quality standards laid down.
- Invest in a cold chain to distribute processed milk/milk products so that the consumers receive high quality milk/milk products.

3.8.6 Structural development of unorganised milk sector

3.8.6.1 Traditionally, two-thirds of production is consumed at the household level and only the balance quantity is sold or marketed. The traditional producer-vendor-consumer and producer-vendor-sweet manufacturer-consumer channels are being replaced by marketing systems of both privately owned processing plants and dairy cooperatives. Although the organised sector has shown fast growth in the last three decades, it still accounts for only 30-35 per cent of the total milk marketed in the country. On the other hand, a far larger proportion of milk continues to be marketed by the unorganised sector -- comprising innumerable vendors, small processors, merchants, manufacturers and retailers of indigenous milk products.

Milk Marketing Channel

No	Marketing Chain	Sector
I	Producer – Vendor – Consumer	Unorganised

II	Producer – Vendor – Sweet Manufacturer – Consumer	Unorganised
III	Producer – Vendor – Contractor – Processing Plant – Consumer	Private / Organised
IV	Producer – Primary Cooperative – Cooperative Union – Processing Plant – Consumer	Cooperative / Organised
V	Producer – Primary Society – District Union – State Federation – Consumer	Cooperative / Organised

It is estimated that the unorganized sector annually produces indigenous milk products containing 8 lakh tonnes of khoa and 2 lakh tonnes of paneer.

3.8.6.2 Quality: Limitations in the affordability and purchasing power of the consumers, coupled with a large demand for milk and milk products places pressure on the unorganized dairy sector to offer products by compromising on quality. While the cooperatives have set up a net work for collection of milk, milk handled by privately owned firms is largely purchased through a net work of local buyers, contractors and brokers. To meet the demand, many of these intermediaries resort to illegal methods of extending supplies of milk with preservatives, often compromising its quality. This creates a serious threat to the health of consumers. Small manufacturers of indigenous products, such as Halwais, should be assisted to upgrade their processing and improve product quality through hygienic practices and use of improved equipment. Since milk production is primarily and predominantly a small producer activity, collection of milk twice a day in remote areas is both cumbersome and uneconomical. There are methods now available to organise primary processing at the village level. In Mynmar, under a World Bank assisted project, primary milk cooperatives condense milk to avoid its daily transportation. Manufacture of certain milk products can also be undertaken in the villages. This would however require development and standardization of technology.

3.8.6.3 Enforcement of quality: It is the responsibility of either local bodies or the Health Department enforcing the PFA Act. The PFA standards for minimum standards in the quality of milk and products were formulated in the early fifties and are outdated. The methods in place to enforce these standards are neither transparent nor effective. Due to inevitable harassment and other problems created by the enforcement personnel, the unorganized dairy industry considers compliance with food laws a burden and a chose to be dispensed with rather than adopting a more progressive stand to improve not just their own quality in particular but the overall quality standards of the dairy industry in general.

3.8.6.4 Liquid Milk Marketing: Effective and efficient marketing of liquid milk in the metros and other large cities would continue to require movement of milk from the hinterland over long distances under the national and state milk grids. While such dense urban areas would remain as the major markets for sale of liquid milk, there is a significant potential for marketing pasteurised milk in local and nearby areas of milk production. The unorganised sector could be encouraged to undertake initiatives through small and simple capital investments to process and market pasteurised milk in a cost effective manner in areas near to the rural centres where milk is produced. Apart from enabling the development of the unorganised sector, such an approach would help in expanding the marketing of quality liquid milk in pockets traditionally dominated by middlemen and vendors who pay scant attention to milk quality.

3.8.6.5 R&D for indigenous products: Most of the indigenous products fall in the category of traditional milk products such as paneer, khoa, all channa based sweets and all frozen products, such as kulfi. These products in India are in great demand. Their large-scale manufacturing is impeded by lack of mechanized systems, limited shelf life and total absence of continuous packaging machines. In order, that these products are manufactured in a large scale modern and hygienic manner it would be essential that the technology for the manufacturer of these products is upgraded to handle commercial scale using modern equipment and management skills. The inputs that came in from consecutive Five Year Plans were inadequate for R&D support. Manufacturing of milk products – as followed by the organised dairy industry comprising dairy cooperatives, private dairies and the MNCs - has proved to be highly remunerative primarily because of technology applications. New product development and upgradation of existing technologies for traditional indigenous products would require development of equipment for continuous production. Some work in this direction has already been done at NDRI and NDDB. This activity needs to be strengthened during the Tenth Plan at these centres. Development of machines would require inputs from the Food Engineering Center of CFTRI, Mysore. A collaborative R&D programme should be developed. In addition equipment manufacturers need to be encouraged to support this effort by giving them incentive through rebate in income tax. Development of packaging machines for traditional Indian milk products: One of the constraints in large-scale marketing of indigenous milk products has been the lack of continuous packaging systems. No research organisation is currently doing any work in this area due to limited budgets and other research priorities. Limited shelf life due to lack of packaging systems and materials has remained the greatest impediment in realising the potential for development and marketing of indigenous milk products. Continuous packaging system and suitable package material needs to be developed to match international packaging standards. The import duty on packaging machines attracts 35 to 40 per cent duty and this acts as a significant barrier to import and modify such systems to pack indigenous milk products.

3.8.6.6 Training: There is a general lack of awareness about quality assurance at all stages of milk production and processing. Quality control staff is not properly

trained in the modern method of testing of dairy products. Selected research institutions must be supported to improve this area by providing them with infrastructure and suitable manpower. Small-scale manufacturers of indigenous products should be trained at NDRI, CFTRI and NDDB in the modern methods of processing and quality upgradation. The Industrial Training Institute (ITI) should start a course in basic dairy technology for entrepreneurs in the unorganised sector.

3.8.6.7 Consumer Education: Importance of quality and nutritional value of dairy products is not fully realised by Indian consumers. To promote consumption of good quality products, it will be desirable to impart consumer education by using multi-media including Doordarshan, Radio and literature development.

3.8.6.8 Line of credit: NABARD should set up a line of credit for modernisation and upgradation of the unorganised dairy sector for purchase of equipment and infrastructure development. A working group should be setup to prepare a detailed programme that can be funded through NABARD in the Tenth Plan.

3.8.7 Impact of trade liberalization

Trade liberalisation impacts prices, imports and exports.

3.8.7.1 International prices of dairy products: With the WTO mandating the elimination of various subsidies for exports and the removal of non-tariff barriers by the EU and the US, international prices of milk products should have increased substantially after 1995. On the contrary, however, international prices of milk products have declined during the past six years. Between 1995-99, prices per ton declined from US\$ 2051 to 1467 in WMP, US\$ 2045 to 1408 in SMP and US\$ 1800 to 1225 in Butter ("FAO Commodity Markets Review 1999-2000", FAO). This decline can be attributed to the continuance of high subsidies by countries such as EU and US. The experience to date from the implementation of the Uruguay Round has demonstrated that Dairy Sector policy reform is difficult to achieve.

3.8.7.2 Imports of dairy products: One of the key problems since the implementation of the WTO is that domestic support, measured in terms of Aggregate Measure of Support (AMS) was to be reduced, however, overall levels of support have increased, rather than decreased. Green Box subsidies have increased for the EU from 9 billion ECU in 1986-88 to 22 billion ECU in 1996. For the US, these subsidies have likewise more than doubled, from US\$24 billion in 1986-88 to US\$51 billion in 1997 (WTO, 2000, 'Agreement on Agriculture: Green Box/Annex 2 Subsidies' Proposal to the June 2000 Special Session of the Committee on Agriculture by Cuba, Dominican Republic, Honduras, Pakistan, Haiti, Nicaragua, Kenya, Uganda, Zimbabwe, Sri Lanka and El Salvador, G/AG/NG/W/14, June 23, 2000, World Trade Organization, Geneva). The estimates show that in 1996, developing countries provided only 12.5 per cent of all Green Box supports, with developed countries providing the remaining 87.5

per cent. Three countries, namely, the EU, US and Japan, accounted for about 80 per cent of domestic support reported to WTO in 1996. The US is by far the largest provider of Green Box supports (40.9 per cent of the total in 1996), followed by the EU (22.4 per cent) and Japan (19.7 per cent). Moreover the support is concentrated on a few commodities; e.g., in the US dairy products accounted for about 69 per cent of the total domestic support. In many countries, government supports in the form of an administered pricing system for domestic production of milk often creates a situation of periodic surplus. Notifications to WTO reveal that domestic support for dairy production, as a percentage of value of production, was 13.8 per cent in Canada and 20 per cent in USA in 1997.

3.8.7.3 The main users of export subsidies from 1995 to 1998, as reported to the WTO, were the EU (89.4 per cent), followed by Switzerland (5.1 per cent), the United States (1.5 per cent), and Norway (1.2 per cent). According to notifications to the WTO, the average EU subsidy applied to SMP exports in 1998-99 was the equivalent of 42 per cent of average wholesale domestic price of the product. Similarly, in the same year the average subsidy applied to the US SMP exports represented about 44 per cent of the average domestic market price (ABARE, 2001, "Trade Liberalization in World Dairy Markets", ABARE Current Issues, 01.1, Australian Bureau of Agricultural and Resource Economics, Canberra, Australia, February 2001). Moreover, dairy products accounted for the largest expenditures on export subsidies in the post-WTO period. In 1998, the US provided export subsidies on dairy and poultry meat with dairy reaching 90 per cent of the US volume limit. The level of subsidies offered by the US and the EU for SMP and Butter respectively account for 55-65 per cent of the domestic price of these commodities in India.

3.8.7.4 Indian tariffs for dairy products are low as compared to major countries. For SMP, the bound tariffs are 237 per cent in Canada and 176 per cent in Korea - - as against the renegotiated 15 per cent on the first 10,000 MT and 60 per cent thereafter for India. For Butter the bound tariff works out to a phenomenal 648 per cent in Japan, 351 per cent in Canada, 113 per cent in the EU and 100 per cent in the US -- as against 40 per cent in India. These computations are based on current international prices, exchange rates and other relevant assumptions. The tariff on butter/butter oil and cheese needs to be increased from 40 per cent to at least 75 per cent.

3.8.7.5 A study sponsored by the Department of Food Processing Industries in early 2001 revealed that 81 per cent of the samples of imported food products, including milk products, did not meet PFA Rule 32 (labeling requirement) and Packaged Commodities Rules 33. About 69 per cent of the samples did not have the importer's address, 64 per cent did not have the MRP printed on their pack, 22 per cent were found adulterated due to use of non-permitted colours/flavours and vegetable fats, 55 per cent were found not to carry a batch/lot number and 58 per cent of the products did not declare the month and year of manufacture. The Director General of Food Trade, Ministry of Commerce, Government of India should therefore issue directions to ensure that imported products meet domestic

food regulations at the port of entry in terms of such laws and rules as the PFA, Packaged Commodities Rules, and M&MPO etc.

3.8.7.6 Since world trade is distorted by entry barriers such as quotas and subsidies and non tariff barriers such as arbitrarily higher standards for food quality, it is difficult for any emerging country to acquire a major share in the world market. The EU is the world's largest exporter of dairy products and its use of substantial export subsidies has a depressing effect on world market prices. Practically all milk powder and butter exports as well as a substantial portion of cheese exports by the EU are subsidized. Subsidized exports by the EU and the US alone have a major impact on the global dairy market because they represent a significant proportion of total trade. In 1998-99, as much as 35 per cent of SMP, 27 per cent of butter and 20 per cent cheese entering world market was subsidised. Moreover, the world trade in dairy products was about 4.4 million tons ("World Dairy Situation 2000", IDF) and about 36 per cent of this (accounting for about 1.5 million tons) was through the quotas maintained by 27 countries ("Summary of the results of the Uruguay Round in the dairy Sector", GATT, 1994).

3.8.7.7 In the quota system, only certain countries can sell their product under the quota. Quotas are often allotted to specific countries because of past commitments under bilateral or regional trade agreements such as NAFTA. For example, EU's butter quota of about 75000 tons is allotted to New Zealand ("European Union: Dairy products annual 2000", USDA). Similarly in milk powder, 40,000 tons of Mexico's tariff quota of 120000 tons is reserved for the US ("Summary of the results of the Uruguay Round in the dairy Sector", GATT, 1994).

3.8.7.8 Further, the quantity of dairy products that could avail export subsidies in 1998 was estimated at 2.97 million tons, representing 68 per cent of the total world dairy trade in that year. (Document G/AG/NG/S/5, WTO). Export subsidies are offered by major dairy countries to cover the difference between high local and low international prices, to dispose surplus stocks and thus to prevent any fall in local price. For example, export subsidy per ton of dairy product by EU and US was US\$ 934 and 1047 respectively in 1998 when prices of SMP and Butter were at US\$ 1444 and 1715 respectively. The budget outlays on direct export subsidies were US\$ 1.4 bn in EU and 0.14 bn in US (WTO document G/A/NG/S/5). Consequently, it is difficult for countries that do not provide export subsidies to sell their products in the international market.

3.8.7.9 In addition, arbitrarily higher standards for food safety and quality are imposed by many importing countries, encompassing animal health requirements, standards on microbiological quality, environmental contaminants etc. It could be difficult for India to meet these standards due to lack of infrastructural facilities. For producing safe milk, it is necessary that milk is produced hygienically and then chilled at low temperature and transported in the quickest possible time for processing.

3.8.7.10 Given the distortions in world trade and the legislative and infrastructural problems indicated above, it is unlikely that India will be in a position to acquire a significant share in the international market particularly for western dairy products like SMP, butter oil etc. The efficiency of cooperative milk plant is not good enough that it can compete globally with developed countries in export of skimmed milk powder and butter oil. However, India would still emerge as a net exporter in the near future, while bulk of the domestic production would be consumed within the country itself. In the country export turnover in dairy products increased by 139% from 2567 MT (1998-99) to 6134 MT (1999-2000). Export turnover of Gujrat Milk Federation has registered a 93 percent increase during the year 2000-01. The possible road map for export of milk products is directed at indigenous milk products like ghee, khoya, paneer, sweet meats which are popular in one form or the other in South East Asia, Middle East and North Africa, where we have comparative advantage in sailing Indian dairy products and we determine the standards for these products. This group of countries (35 to 40 developing countries) would be able to absorb any surplus milk and milk products, that India export.

3.8.7.11 Department (AH&D) and other statutory bodies should ensure that the relevant data and statistics regarding dairying and animal husbandry are collected and compiled and utilized to take policy decisions and also for implementing various programmes. Department of AH&D may constitute a working group which should include representatives from the dairy industry. This working group should; (a) review market intelligence on prices, imports and exports of dairy products, (b) assess and analyze the impact of actions by major dairying groups in the international market and (c) recommend proactive steps to promote exports and safeguard the interests of the domestic dairy industry.

3.8.8 Funding of dairy projects

3.8.8.1 Both the Department of AH&D and NDDDB are funding dairy related activities. However, unlike NDDDB's development funding where the dairy cooperatives are required to pay back their loans, funding from the Department of AH&D is normally on the basis of grants. Further more, funding by the NDDDB is based on considerations of viability and the ability of the project to operate as a self sustaining activity. Funding by the Department of AH&D is often meant to develop the potential for dairying in a particular area or region so that over time that area or region attains the requisite scale and volume of operations -- to enable further dairy development on commercial lines. Therefore, it is desirable that the Department and the NDDDB mutually agree on the areas of funding and the terms and conditions of funding so that there is no overlap and the recipient organizations do not use one against the other. This co-ordination would also maximize the benefits from the funds disbursed. Presently NDDDB's funding is restricted in the OF area and is functioning like a financing, training, marketing and consultancy institute. But NDDDB has the duty and function to promote plan and organize programmes for dairy development on an intensive and nation-wide basis. It has the responsibility to adopt the co-operative strategy in a more

efficient manner and intensive and nation-wide basis so that regional disparity is abolished. NDDDB may also finance for establishing and maintaining a chain of laboratories all over the country to estimate the quality of milk and milk products as per the standard recommended by Codex committee.

3.8.9 Changes in Cooperative Law:

3.8.9.1 There are multiplicity of Departments/Authorities in the states for the implementation of the dairy development schemes. In order to avoid duplication and lack of coordination, it is recommended that the responsibility and functions of the Registrar of Cooperative Societies should be delegated – in so far as they apply to all dairy cooperatives in the state – to a suitable official in the Department of Animal Husbandry and Dairying of the respective state governments or the Managing Director of the concerned state cooperative dairy federation. Change in the legal and regulatory framework of Cooperative Law, including the setting up of Producer Companies is required to enable small holder dairy producers to manage their business in a professional manner

3.9 Animal Health

3.9.1 Central Sector Scheme

3.9.1.1 Directorate of Animal Health, a Central Sector Scheme, spent only Rs.6.98 crore against the budget allocation of Rs. 21.25 crore during the first four year of the Ninth Plan. The situation is alarming because the scheme has the following important components like Animal Quarantine and Certification Services Centres, National Veterinary Biological Products Quality Control Centres and Disease Diagnostic Referrer Laboratories. The responsibility of this Directorate is to support the diagnostic laboratories, animal quarantine stations, disease surveillance and monitoring and other regulatory works. This programme is supposed to be run by a Deputy Commissioner and two Assistant Commissioners. With the present staff strength at DAHD it is impossible to undertake the assigned duties of regulatory activities and other legal responsibilities. Even eleven technical posts (2 Joint Commissioners, 2 Deputy Commissioners and 5 Assistant Commissioners) as approved in the EFC Memorandum of the Scheme 'Assistant to States for Control of Animal Diseases) during the 8th Plan have not yet been created. The Health Division has not been able to formulate a scheme on Creation of Disease Free Zone, which has been approved, in the 9th Plan.. It is now all the more necessary that the regulatory functions of the department should be in place. If the department of animal husbandry cannot have technical staff for its assigned duties of regulation of veterinary profession and its other legal responsibilities one does not see the necessity of continuing this department in the government if it cannot do its mandatory functions. Should the government decide then it should reformulate the 8th Plan schemes (1) Animal Disease Management and Regulatory Medicine which has 4 components (123 posts) and (2) Professional Efficiency Development (12 posts) in place during the Xth Plan and it should be clearly understood that the

scheme should be implemented only when the requisite staff is in place with the following revised mandate. Further it is proposed to create a post of Additional Animal Husbandry Commissioner who will be responsible for enforcement of regulatory mechanism in the country. The original scheme approved in the 8th Plan had a staff strength of 47 officers headed by Additional Commissioner of Animal Husbandry in the rank of Joint Secretary who was supposed to develop an animal quarantine and certification system enforcement authority and to develop diagnostic laboratories both referral and central as per the Bool Report. It was also to develop a data management system for Animal health and production information system, which was initiated in 1993. The working group records with regret that the 8th Plan proposals approved by Planning Commission and Finance over the last two decades have been converted into the present joke which allows these three technical officers to only disburse the small money available, to the states without any sensible and coherent programme of action. This central sector scheme should have the following components:

- i) Animal Disease Monitoring and Surveillance
- ii) Disease free zone (Foot and Mouth Disease Control Programme).
- iii) National Preparedness for exotic and emerging diseases.
- iv) The Animal Disease Certificate System.
- v) Animal disease diagnostic centers, accreditation, quality assurance, and surveillance programme;
- vi) Drug Controller including Veterinary Biological Product Quality Control Laboratory.
- vii) Animal Quarantine and Enforcement Authority
- viii) Directorate of SPS and WTO related issues.
- ix) Animal Health and Production Information System

3.9.2 Central Sponsored Scheme

3.9.2.1 During second plan the efforts were provided to control diseases namely; Rinderpest, Foot & Mouth Disease, Haemorrhagic Septicaemia, Black quarter and Anthrax. However, during the successive plans especially 6th plan (1980-85) special intension was directed on the control of Rinderpest, Foot & Mouth disease and contagious bovine pleuro pneumonia in cattle, Marek's and pullorum disease in poultry and rabies in dogs and this trend has been continued till 9th plan. At present two CSS schemes related to animal health are Assistance to States for Control of Animal Diseases and National Project on Rinderpest Eradication.

3.9.2.2 The scheme 'Assistance to States for Control of Animal Diseases' was formulated in the 8th plan. It was a conglomeration of three ongoing schemes viz. systematic control of livestock diseases of national importance, Foot and mouth disease control programme and animal disease surveillance; each scheme became a component in the conglomerate scheme. Ninth Plan allocation for the scheme is Rs. 119.0 crore. The Department would be able to spend about Rs. 41 crore against the budgetary allocation of Rs. 67 crore. The reason for inability of the

Department to spend the budgetary allocation might be that many State Government facing financial constraints were unable to contribute state share. The components and sub-components of the scheme 'Assistance to states for control of animal diseases are:

I. Systematic Control of Livestock Disease of National Importance and other related aspects. (50:50)

- a) Control of TB and Brucellosis
- b) Control of Swine Fever
- c) Control of Pulloram
- d) Control of Canine rabies
- e) Strengthening of state Vety. Biological Units
- f) Control infertility, sterility and abortions
- g) Poultry disease diagnostic Lab.
- h) Control of emerging/exotic diseases

II. Foot and Mouth Disease Control Programme (25:25:50)

III. Animal Disease Surveillance (50:50)

IV. Headquarter Cell (100%)

3.9.2.3 Under the scheme National Project on Rinderpest Eradication, contingency plan is being implemented for surveillance of diseases and early warning system for Border States. The department of animal husbandry needs to be congratulated for its excellent work under eradication programme on Rinderpest. This programme was primarily responsible for Green Revolution and making operational flood a success and moving the country to the current milk production of 78 million tones from 22 million tones in early sixties. This disease is no longer with us. This is one of the success stories comparable to eradication of smallpox from humans. It is therefore recommended that the government should initiate action to transfer the technology and management skills learnt from this programme to the countries neighboring our border starting with Nepal, Bhutan, Bangladesh in that order. This is likely to cost Rs.200 crores and should be the first priority of the animal husbandry department rather than to introduce quarantine on animal movement between the states which would be an impractical proposition given the present political scenario. It would be much more costlier to control the trans-border movement of animals than to eradicate the disease from these countries. We therefore recommend that the present CPU of NPRES is enlarged and given a revised mandate to complete the leftover work on Sero surveillance for two years in the country and to finalize the documentation for final declaration of eradication of Rinderpest and transfer the technology and help implement programmes in all these countries. It would be desirable for the government to request the European Union to continue this project in the neighboring countries on the Indian model for eradication of Rinderpest from South-Asia. The same infrastructure could also be used for control of Foot and Mouth Disease.

3.9.3 Important Animal Diseases:

3.9.3.1 It appears that amongst cattle and buffalo diseases Haemorrhagic Septicaemia, which was considered important in the 2nd plan and ignored subsequently, still continues to be the major problem in the cattle production programme. There had been as many as 706 & 584 outbreaks of Hemorrhagic Septicemia (Pasteurellosis) in 1999 & in 2000 respectively, in spite of the fact that good vaccine against Pasteurellosis is available since 1955. After foot and mouth disease control programme, Hemorrhagic Septicemia needs prior attention. Country could launch “brucella free India mission” for the welfare of the farmers, which can be achieved creditably without much financial involvement under the supervision of an advisor/consultant or even on contractual basis. Besides Brucellosis, Bovine Tuberculosis and Anthrax are well known in the country for major economic losses. However, there has been a vital neglect on the control of sheep, goat, equine and camel diseases. During Tenth Plan Foot and Mouth Disease which incurs heavy economic losses to the farmers needs priority measures for control followed by other diseases namely Peste des petits ruminants (PPR), Bluetongue, Sheep pox and Goat Pox, Classical Swine Fever, Contagious Bovine Pleuropneumonia, New Castle Disease (Ranikhet Disease).

3.9.3.2 Foot and Mouth disease: The economic losses to the livestock industry attributed due to Foot and Mouth disease are large. Direct losses estimated in 1990-2000 were more than Rs.4000 Crores per year. However, the estimated losses in 2000-2001 with current rate of outbreaks is about 4500 Crores per year. FMD is the major disease constraint to international trade in livestock and animal products. Countries free of the disease enjoy access to world market, but countries endemically or sporadically affected by FMD suffer productivity losses within their territory and their opportunities for export trade are reduced. During the year 2000-2001, there had been 1543 outbreaks of FMD recorded in the different species in India by the Dept. of Animal Husbandry and Dairying. However, there are alleged report of 3000 outbreaks of foot and mouth disease under the All India Coordinated Research Project on Foot and Mouth Disease. We do not have a regular vaccination programme covering the entire country. Presently the vaccination coverage is about 20 million animals per year. Considering the total population of livestock, which is about 470 million in the country (196 million cattle, 84 million buffaloes, 46 million sheep, 114 million goat and 12 million pigs), the total vaccination coverage against FMD is grossly inadequate. FMD need to be controlled effectively and judiciously creating social, political, economic environment with a sound scientific and veterinary support. The control programme could be taken up in phased manner by the Central Government in specified areas, target areas organized sectors and in disease free zones followed by covering the whole country since it involves huge financial input.

3.9.4 Disease Control

3.9.4.1 Thrust for Animal Disease Control in the country should be on the control of “List A diseases” proposed by OIE which has serious implication in the International trade of livestock and livestock products which exists in the country and disease of National importance of economics by the Central Government. Amongst the list A diseases seven out of sixteen most serious and fast spreading disease exists in India. Amongst these diseases priority should be given to foot and mouth disease and followed by Contagious bovine pleuropneumonia Pest des Petits ruminants (PPR), Bluetongue Sheep Pox and Goat Pox and classical swine fever and New Castle Disease (Ranikhet Disease). Contagious bovine Pleuropneumonia should be controlled by using –imported good quality vaccine and Proper vaccination, imported reliable diagnostic reagents, and defining a agency (IVRI) to follow up the diagnostic and surveillance programme involving state of Assam on the contractual basis. Vector control programme for blue tongue, appropriate vaccination programme for Sheep Pox and Goat Pox and Peste des Petits Ruminants are to be adopted. It is proposed, that live attenuated PPR vaccine of Asian lineage virus or vaccine from other sources (IEMVT), France could be used under the control of central agency. Swine fever control programme in certain part of the country need usages of vaccine which is available in the country

3.9.4.2 Besides List A diseases, the diseases of economic importance like Haemorrhagic Septicaemia, Black Quarter, Brucellosis, Anthrax and Tuberculosis in cattle and buffaloes, Enterotoxaemia in Sheep and Goat, Fowl Pox, Infectious bursal diseases and Salmonella infections in poultry. Swine Fever in Swine and glanders and EIA in equines, Trypanosomiasis (Surra) and camel pox in camel. In addition, the funding could be given to Zoonotic diseases, parasitic, nutritional deficiencies diseases and disease caused by environmental pollution. Haemorrhagic Septicaemia control Programme with uniform standardized oil adjuvant or double oil adjuvant vaccine and “Brucella free India Mission” with Crash Programme for testing all the bulls in the country need to be launched for the welfare of the farmers. National expert could develop approach document for the control of Brucella for organized farms and villages. New Castle Disease, Fowl Pox, Infectious bursal diseases, vaccination strategies could be adopted with success & monitoring could be done by the State agencies in consultation with Central Agencies. Sallmonella pullourm control programme need to be given priority.

3.9.4.3 Freedom status of African Horse sickness which is not occurring for the last more than 20 years is to be obtained from OIE by preparing the dossier indicating that no vaccination for African horse sickness is being done in the country and provide 10% of the serological data on horse sera obtained from various part of the country. This is possible because both ELISA based

technique as well as CF test technologies are available in the country. Various state authorities should follow the eradication programme for Glanders and Equine infectious Anemia which have already been controlled and India need to aim for the freedom from these diseases. The state agencies should adopt accredited complement fixation test for the diagnosis of Glanders and avoid using mallein so that the reactors which do happen due to mallein test could be avoided. For camel diseases, camel pox vaccine could be imported and can be used with advantage. However, for Trypanosomiasis (Surra) treatment regime, could be adopted.

3.9.5 Accreditation of Veterinary laboratories

3.9.5.1 The foundation of disease control and prevention depends on the accurate recognition of the disease so that the results can be relied upon. In 1977 FAO/IAEA recommended accreditation of veterinary laboratories for disease diagnosis and for surveillance data to control diseases. It is now clear that accreditation would be the prerequisite for any laboratory, which conduct testing for international trade or international recognition of freedom from a particular disease. Central referral laboratory should be the apex body with designated regional diagnostic laboratories linked with their peripheral district level diagnostic laboratories. Other defined and specialized laboratories should be permitted by the department of animal husbandry and dairying for specific purposes. All are directed to develop internationally agreed set of principles and procedures that will form the basis for their accreditation. The regional and district laboratory should be clean and demonstrative to the farmers for their acceptability. Central referral laboratory and regional laboratory must have minimum containment facilities for P3 level for virus isolation work. Veterinary colleges in various universities whose primary role is teaching and research should not be given responsibility for the diagnosis of Animal Infectious and Contagious Disease listed in OIE List –A Disease, certain list B Diseases and not to handle infectious pathogens and those which are genetically modified. If allowed, there should be at least facilities of containment of P3 status and follow code of conduct good laboratory practices.

3.9.5.2 Till 1990, the concept of quality assurance process was not being adopted in India. Recently the Dept. of Animal Husbandry and Dairying has designated one central and four regional diagnostic referral laboratories under the Animal Disease Management and Regulatory Medicine Scheme. The Centre for Animal Disease Research & Diagnosis (CADRAD) of the Indian Veterinary Research Institute, Izatnagar has been identified as the central laboratory. The State Disease Investigation Section of the Government of Maharashtra has been designated as the Regional Laboratory for the Western region. The Institute of Animal Health and Veterinary Biological, Calcutta, Govt. of West Bengal and the Institute of Animal Health & Veterinary Biological, Bangalore, Govt. of Karnataka and The Animal Disease Institute of Govt. of Punjab at Jalandhar has been designated as the Eastern, Southern and Northern Regional Laboratories. There are district level

diagnostic laboratories in the country is about 100. It is time that India moves towards standardized laboratory practices. There is no doubt that the use of quality assured diagnostic system, surveillance and monitoring would assist regional or national control and eradication programme of many diseases in India which could be operated through the Central, Regional Laboratories, Specialized and other laboratories defined by the Ministry.

3.9.6 Harmonization of Veterinary Immuno Biologicals in India

3.9.6.1 It is became pertinent after the Uruguay Round of the General Agreement on Tarrif & Trade (GATT) and the World Trade Organization (WTO) stated that nations are expected to use risk assessment techniques to regulate the production and movement of veterinary immunobiologicals on the basis of scientific of the risk involved. Presently India is producing 21 viral, 13 bacterial and 1 protozoa vaccine and 11 diagnostic reagents. These immunobiologicals are being produced in about 27 biological production units. Presently in India majority of biological production units does not observe Good Manufacturing practice for manufacturing of biologicals. Moreover, there is no follow up mechanism in the field to know the protective value of vaccines. Briefly speaking, most of the biologicals produced in the state unit lack of consistency for quality products and suffer from appropriate technical input and inspection system. No vaccine production unit in the country should be allowed to produce vaccine without following Good Manufacturing Practices (GMP). Animal Husbandry Department may form a committee to identify biological units from the existing units who could be assisted to follow Good manufacturing practices (GMP), Good Laboratory practice (GLP) and ISO 9002 and to assess the requirements and production capacity. The remaining vaccine units in other states could develop storage facilities for stocking the vaccine are other facilities for the follow up of vaccine responses. Indian Veterinary Research Institute biological product Division in the first phase should stop production of all bacterial vaccines except those vaccines which are not being manufactured by any organization and some viral vaccines like Foot and Mouth Disease (FMD), PPR, Distemper, and Sheep Pox and any newly developed product. Quality production of reagents and sera by the Indian Veterinary Research Institute would be the key factor for the success for National Disease Control programme.

3.9.7 Quality Control of Veterinary Biologicals

3.9.7.1 The department of Animal Husbandry and Dairying is already having a scheme on National Veterinary Biological Product Quality Centre, which was supposed to be established at Bhubaneswar but due to certain reasons it was not implemented. Recently it is proposed to establish the center at Ludhiana (Punjab). In view of the recent WTO regulations, sanitary and phytosanitary provision and risk analysis it has now become important to make a harmonization in the vaccine production for live stock and poultry. Keeping in view these requirements a consolidatory scheme on harmonization of veterinary biological should be

introduced during the Tenth Plan. The division of Standardization at Indian Veterinary Research Institute, Izatnagar should be upgraded as National Veterinary Biological Product Quality Centre. Twelve-selected biological unit of the country should develop their infrastructure, meeting GLP requirement including automation in implementation and harmonization of biological. All these units should have autonomy.

3.9.7.2 The statutory function of the Department is to regulate the standards of all biological used in the veterinary field and implement through the aegis of Drug Controller of India. However, this statutory function is handicapped in the absence of the testing facility under the direct control of the Department of Animal Husbandry and Dairying. Ministry should create a position of Controller Veterinary Vaccines Biological and Drugs, who would be responsible for the harmonization of veterinary vaccines, drugs and diagnostic reagents. Controller Veterinary Vaccines has to examine critically the licensing of live and killed vaccines coming to this country to prevent the ingress of infection or unwanted vaccination which gives antibody titers indicating that the country has positive status of the disease.

3.9.8 Animal Quarantine Certification Station

3.9.8.1 Animal Quarantine Certification Station (AQCS) needs update in the country. The Animal Quarantine, Certification and Enforcement Authority should be created and necessary autonomy, authority to function as an independent body should be empowered with legislative authority so that the movement of animals risking infection/ disease could be adequately controlled through important airport, seaport, international land routes and movement within the states. Authority should consist of Additional Animal Husbandry Commissioner, Deputy Commissioner, Quarantine Officers, two Assistant Commissioner, on surveillance officer with other minimum staff. It could be established at Delhi Quarantine Station. Considering the financial constraints and to meet the required standards, for large animals exports, large farm quarantine concept with minimum facilities for testing, isolation and observation for a defined period should be permitted. There is no need for creating additional quarantine stations except one quarantine station at Bangalore. However, border posts at land routes on western and eastern international borders and small quarantine station at seaport like Mumbai, Madras, Calcutta and Goa can be created. In addition inter-state check posts are strengthened and more are created if necessary.

3.9.9 Trans Boundary Animal Disease

3.9.9.1 Food and Agricultural Organization (FAO) recommended in World Food Summit Meeting in 1994 that there should be preparation/initiation of emergency prevention system for Trans Boundary Animal Disease (TAD) to prevent and protect the food security of the World in those countries whose population depended on the livestock resources. Rinderpest in India today is of “zero level”

occurrence since October 1995 and African Horse Sickness Since 1964. It is known that Rinderpest in cattle, avian influenza in poultry, do exist in Pakistan and therefore emergency plan need to be developed. In addition, the preparedness for the diagnosis of Bovine Spongiform Encephalopathy (BSE) are taken up especially when India exports around 250000 Metric tones of meat and stands 8th in the World market.

3.9.10 Disease Free Zone :

3.9.10.1 This concept was conceived in 6th Five Year Plan (1980-85) to create such zones in the southern most and northern most region of the country. Subsequently, this model concept was introduced in to Nilgiri Hills and was discontinued with inherent problem that disease emerged frequently. Recently, South Africa identified geographical area for zoning and buffer zoning keeping international view of OIE and WTO, which needed phytosanitary and zoo sanitary requirements. The programme was launched to have disease free zone against South African Horse Sickness involving huge financial input. The initial stages the concept of disease free zone worked and the horses were exported to many countries inspire of the fact that South African Horse Sickness was present in other parts of the country. However the concept of disease free zone later failed since disease was reported signaling that microbes does not respect any frontiers until and unless rigid measures are adopted. In order to be successful in India with the positive attitude, it would be pertinent that geographical boundaries like (rivers, mountains, deserts, difficult terrains and created boundaries) rather than political boundaries of the state are initiated in the first phase. The zone concept should be focused to the areas where there are high quality milch animals as well as where there is export potential or the area from where the disease could be easily controlled and animals and animal products could be exported. While considering these factors, the movement of animals needs to be kept in mind. Proper planning and identification of zone would be the key factor for the successful control of Foot & Mouth Disease. Initial steps in this direction would be I) formation of commission/authority or central command for the control of Foot and Mouth Disease II) establishment / creation of National or International Center on Foot and Mouth disease as a nodal agency to coordinate and control FMD with adequate staff funded by the Ministry of AH & Dairying and III) appointment of consultants/experts to develop a document on the structuring of Foot and Mouth Disease Control Programme. Minimum cost for the control of Foot and Mouth Disease in 50 districts including infrastructural facilities for national center would cost about Rs. 850 crores.

3.9.11 Zoo-sanitary Regulations:

3.9.11.1 International Zoo-sanitary Regulations developed by the Office International des Epizooties (OIE), Paris says that the countries, Veterinary Administration must ensure that the Frontier Posts and the Quarantine Stations in their Territory are regulated by the Organization having efficient Machinery for

the application of national regulatory measures. Accordingly Animal Quarantine Certification is issued by the Central/ Federal Government. In India the activities of Animal Quarantine Certification Station (AQCS) are being regulated as per the Livestock Importation ACT, 1898 (as amended in 1953) to ensure that the new diseases do not enter into the country. Accordingly, four AQCS were established namely Delhi, Mumbai, Calcutta and Chennai. During the last two years more than 500 pigs, 120 cattle, 160 goats, 400 dogs, 50 cats, 40 zoo animals, 2 lacs day old chicks and other animals were imported in India. It appears that due to lack of effective quarantine measure many exotic diseases entered into the country from time to time like African Horse Sickness (1960-61), Swine fever, Avian Infectious Bronchitis (1964) Marek's disease and Avian encephalomyelitis (1970) Infectious bovine rhinotracheitis and Blue tongue (1972-75), Reo viral arthritis, Gumboro disease and Egg drop syndrome (1981-82) Equine Influenza, Equine Infectious Anemia (1986-87), Egg drop syndrome German Strain, infectious anemia, leechi disease (1995). African Horse sickness resulted into death of more than 23000 horses; Equine influenza more than 83000 horses and equine infectious anemia resulted into direct loss of Rs. 10 crores to the equine industry. In spite of the fact, India controlled African Horse Sickness, equine influenza and equine infectious anemia and recently rinderpest, but international authorities have not yet accepted our assessment that India is free from diseases. In order to bring transparency OIE certification is becoming mandatory with authenticated data to support our claim for the freedom from the diseases. It needs no emphasis that Marek's disease came to India along with gift of imported chicks and now continues to stay. Similarly, blue tongue emerged with the coming of Australian and Russian sheep in the country and now posing serious threat to sheep development programme. Considering these implications, receiving a gift is a lesson to be learnt for the future strategies to control exotic and emerging diseases.

3.9.12 Semen microbiology

3.9.12.1 Examination of semen is a must for effective disease control programme. Alternatively they could spread infectious and contagious diseases. All bovine bulls used either for AI or natural services must be subjected to microbiological scrutiny before use. In order to prevent losses due to infertility and sterility and transmission of infectious/contagious diseases, hygienic semen should be used for better productivity of livestock.

3.9.13 Nutritional Deficiency Diseases

3.9.13.1 These are more in rural livestock where there is no definite system for providing balanced feeds. Some of the areas has wide spread mineral imbalances in soil-plant system vis-à-vis their effects on production and reproductive health of animals reflected in poor growth, unthriftiness, weakness, decreased productivity, anoestrus and repeat breeding.

3.9.14 Environmental pollution

3.9.14.1 results into wide spread diseases in livestock resulting in morbidity, inflicting drastic reduction in productivity, toxicity of food and mortality. Specific toxicity such as plumpism and flurosis is posing serious health problem.

3.9.15 Professional Efficiency Development

3.9.15.1 With the advent of Indian Veterinary Council Act, 1984 (52, of 1984) Professional Efficiency Development scheme came into existence to establish Veterinary council and state/union territory Veterinary Council. The objective of the act is to regulate Veterinary Practice to maintain the veterinary practitioners register and to frame various regulations from time to time for the above purpose. Indian Veterinary Council Act has been extended to all the states except in Tamilnadu and Jammu & Kashmir and in three newly formed states (Uttaranchal, Chattisgarh & Jharkhand). The Veterinary Council of India has developed nine regulations under the act and amongst them seven are in Command. The remaining two are in the process of getting approval of Government of India for notification. However, the Council is preparing of the 10th regulation, which will be useful for the regulation of veterinary practice. One of the major problems faced by the Veterinary Council of India is that some of the states are unable to establish the state veterinary councils because of shortage of staff and infrastructure facilities.

3.9.16 Financing Animal Health Programme

3.9.16.1 All previous plans have given much emphasis on Production (conservation, improvement of native breed, breeding, AI facilities and Dairy development programmes) rather than on protection. Similarly allocation of fund has been very little to the Health sector compared to other livestock programme. It has been observed that livestock health programmes received 12.11% of the total Ninth Plan allocation of the Department and about 18% of the Animal Husbandry sector including dairy development programmes. It is time that the 10th Plan focuses on effective protection for better production in livestock sector programmes, specially when sanitary and phyto-sanitary concept has come in to existence. Moreover, “zero level of occurrence” of Rinderpest and adequate protection of poultry due to Ranikhet Disease brought India’s image in commanding position both in milk and milk production.

3.9.16.2 Enhanced and sustainable productivity through improved animal health should be one of the major strategies during Tenth Plan. 470 million animals contribute (Rs.123,076 crores to the GDP, 1998-99), to the National Economy; nation spent Rs. 4 per animal per year while the cost of the cheapest vaccine today exceeds Rs. 5. It is necessary that universal immunization programme like the one

in operation in Health Ministry should be taken up during 10th Plan. This one programme would add Rs.36,923 crores to National Income. If the government can get its act together and vaccinate against these diseases at a cost of Rs.4,700 crores (@ Rs. 100 per animal per year), it would add additional income of more than Rs.30,000 crores annually to the GDP. The group recommends that besides the allocation for DAHD, the government should also locate a sum of Rs.4,700 crores from Rs.30,000 crores it spends through Ministry of Rural Development every year as a legitimate share of rural development on livestock sector oral protection.

3.9.16.3 Animal disease diagnosis and accreditation as per the international standards, development of an effective surveillance and monitoring system for animal diseases, animal quarantine, certification and enforcement are the function and duty of the Central Government. A directorate was created in 8th Plan for undertaking this work; the schemes under it have been continued during 9th Plan. Of the 250 positions agreed to in the EFC none were created. Consequently DAHD is unable to meet its responsibility. Keeping in view the importance of animal health control in the post-WTO era, these functions of the Department should get top most priority while allocating the funds during Tenth Plan and sanctioning the necessary manpower.

3.10 Poultry Development

3.10.1 The Indian poultry industry has come a long way – from a backyard activity to an organized, scientific and vibrant industry. The growth achieved so far is only a fraction of its immense potential. Poultry, which was considered as a backyard venture in the early 60's has now been transformed into a strong agro-based farming activity. Poultry occupies an important place in the Indian economy, as it contributes nearly Rs. 11000 crore to the National GDP. Today India ranks 4th in Egg production and 19th in Broiler production in the world. It is estimated that the egg production in the country is about 36000 million and poultry meat production is about .8 million tones per annum. Poultry utilizes substantial quantities of non-edible Agricultural and Industrial by-products and converts them into high quality, nutritious, protein—rich food. It helps to bridge the gap between the requirement and availability of high quality protein for the human population of the country. Eggs and poultry are the cheapest source of animal proteins. Besides, poultry yields as a by-product approx. 3 MMT of manure every year, which is a rich organic fertilizer.

3.10.2 Central Sector Scheme

3.10.2.1 Under the Central Sector Scheme Central Poultry Development Organization, the Department operates 4 Central Poultry Breeding Farm, a Central Duck Breeding Farm, a Central Poultry Training Institute, 3 Regional Feed Analytical Laboratories and Random Sample Poultry Performance Testing Centres, to support various development activities in the poultry sector. The

expected expenditure in this project during 9th Plan would be Rs.25.16 crore. Considering the commendable performance of private poultry farms in the country, the Center's involvement in the poultry breeding farms and feed testing laboratories is no longer relevant; these could be either closed down or transferred to the State Government/ICAR. 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.

3.10.3 Central Sponsored Scheme

3.10.3.1 The ongoing Central Sponsored scheme 'Assistance to State Poultry/Duck Farms. had been cleared during 1999-2000 for strengthening the infrastructure facilities of one or two existing State Poultry Farms in each state for multiplication and dissemination of improved variety of chicks. The scheme seeks to encourage backyard poultry among small and marginal farmers. Initially, the scheme is being implemented on pilot basis in North Eastern States, with 100% grant in aid. The anticipated expenditure in the project during current plan would be Rs. 9.90 crore against the play outlay of Rs.16.20 crore.

3.10.4 Status of poultry sector

3.10.4.1 The status of poultry sector – whether agriculture or industry – is somewhat ambiguous. Administratively it is under the jurisdiction of the Department of Animal Husbandry, Ministry of Agriculture, both in the Central Government and the State Governments. NABARD and nationalized banks also recognize it as an agricultural activity. However, most of the benefits/concessions available to agriculture – such as concession in electricity tariff, subsidized water – are not extended to poultry sector. The Income Tax Act also does not recognize poultry as an agricultural activity; the income from poultry is fully taxable. Different State Governments apply different yardsticks – and even in the states, which have accorded the status of agriculture, while some benefits are made available, certain others applicable to agriculture are denied to poultry farmers. This ambiguity has led to the poultry sector not being entitled to various benefits applicable either to agriculture or to industry. There is therefore, a need to define clearly the status of poultry as part and parcel of agriculture.

3.10.5 Backyard Farming

3.10.5.1 There seems to be some confusion with regard to poultry production in rural areas versus rural poultry / backyard poultry. Some people try to explain that poultry production in rural areas is a low input poultry production i.e. broilers and layers can produce eggs and meat through scavenging. This concept is redundant in the 21st Century. We must make a clear distinction between organized poultry production using the technology of today and backyard poultry production practiced through scavenging. We should encourage indigenous

poultry breeds to exist in whatever manner they do under the backyard poultry management scheme. The failed genotypes of improved breeds cannot be salvaged for production of poultry and its products in rural areas. This view should be discarded. Attention on birds like Quail, Turkey, Guinea fowl and Duck has been minimum and all these birds hold considerable potential for development especially in certain parts of the country where they are already popular among the less privileged segment of society. The attention of Government farms may, therefore, be turned almost exclusively towards breeding and upgrading of these birds for identifying high producing germplasm and their multiplication.

3.10.6 Organized Farming

3.10.6.1 The single most significant step in poultry development has come from the initiative taken up by the private sector for commercial pure-line breeding in the country. The growth in this direction has been substantive. The country has thus reached a stage in which commercial pure-line poultry breeding may be left exclusively to the private sector. The pure-line breeding program for the production of commercial hybrid broilers and layers i.e. high-input high-output chicken may be confined to the private sector only. Due to the fragile nature of poultry production it is not attracting major investment from the private sector particularly in the R & D activities. Pure-line research and breeding operation being a highly technical and scientific orientated activity, it should be entitled to weighted deduction under Sub Section – 2(AB) of Section 35 of Income Tax Act. Private sector organizations taking up poultry production program, and especially those including integration and processing should be provided liberal loans and working capital at a lesser rate of interest which is in line with those applicable to developmental activities such as food processing, and soil conservation etc. To make poultry farming in India globally competitive easy access, to the best in technology, equipment, finance capital infrastructure, processing etc. even from abroad, at globally competitive interest rates is needed.

3.10.7 Employment Opportunities

3.10.7.1 It is estimated that more than 25000 people in different parts of the country are directly dependent for their livelihood on layer farming. Similarly broiler farming provides direct sustenance to more than 1 lakh farmers. In addition, more than one million people are employed by or directly or indirectly dependent on poultry farming. Thus, it is estimated that the poultry sector is providing direct and indirect employment to about 1.6 million people in the country. It is further estimated that the cost of creating one job opportunity in the egg sector is approx. Rs. 40,000/- and Rs. 75,000/- in the Broiler sector. These figures are far below the investment required to create a similar job opportunity in most other industries. In engineering or manufacturing industries, the cost is estimated at approx. Rs. 5 lakhs. It is also important to note that unlike other industries, the Poultry sector provides employment opportunities even to unskilled

laborers and women. An increase of just one egg in per capita egg consumption will provide an additional 25,000 jobs. Likewise, a 50 gms increase in per capita poultry meat consumption will create an additional 26,000 jobs. Our present per capita availability is 35 eggs and about 1 kg of poultry meat. It should be our target to produce 180 eggs and 11 kgs of poultry meat per capita, in as short time as our resources and the markets permit. When achieved, not only will India produce its required egg and poultry consumption needs, but will also create over 6 million jobs.

3.10.7.2 Small farms which were set up under various employment guarantee schemes were not so successful – mainly due to lack of technical and marketing support. This obstacle can be removed, if we encourage the concept of poultry estates – comprising of a central unit, or a “mother unit”, and a number of beneficiaries attached to it. The mother unit rears the birds up to point of lay; takes care of all the critical aspects like brooding, vaccination etc. It supplies feed and other inputs to the beneficiaries and also takes care of marketing and repayment of loans out of the sale proceeds. The beneficiaries will be required to handle only the simple operation of feeding and watering the birds and collection of eggs etc. Such poultry estates can be successfully operated by rural women – and can play a very important role in economic empowerment of women.

3.10.8 Promotion of poultry production & consumption

3.10.8.1 The pattern of market for poultry products in India is confined mostly to the metro cities and urban areas. Nearly 75% of egg production and almost 100% of broiler production is consumed in urban areas. 70% of the population living in Rural India, gets just about 25% of egg production, and practically no broilers at all. They have to depend on the meager production from the Desi birds. Consequently, the price of eggs and chicken is much higher than in the cities. Non-availability and high price limit the consumption – and the low volume of trade in turn, discourages the growth of rural distribution channels, thus resulting in a vicious circle

3.10.8.2 Demand for eggs and chicken drops drastically during the festival seasons – like Shraavan and Ganesh Chaturthi in Western India; Navratri in North India; Ayyappa festival season in South and during summer months all over India. Markets being limited to urban areas and the perishable nature of the products and exploitative trade practices, further compound the problem; and for nearly six months in a year, farmers are forced to sell at prices below the cost of production. One of the possibility of boosting the demand of egg is introduction of egg in Mid Day Meal scheme of the Government. Under this program, the central government provides the cereals – and the state governments are expected to provide other inputs. If eggs are included as part of the diet under this scheme it will have a tremendous impact on the health and nutrition of the children. As the eggs produced in the organized sector are infertile, there should be no objection

even from the vegetarians. In any case, in Tamil Nadu which is the only state where eggs are given in the Mid Day Meal, there has been no objection.

3.10.9 Feed Ingredients

3.10.9.1 Maize is the most critical ingredient of poultry feed, followed by soyameal. At the present level of production, poultry sector requires about 4 million tons of maize and when the production increases to the level of targeted per capita consumption of 180 eggs and 9 kgs of meat, requirement of maize will be around 28 million tons. As against this, maize production in our country currently stands at about 10 to 11 million tons. The area under maize cultivation has remained more or less unchanged at about 6 million hectares and the yield per hectare at approx 1.4 tons. In terms of area under cultivation India ranks 5th in the world: but, in terms of yield per hectare we rank 105th. Compared to our average yield of 1.4 tons per hectare, the world average is 4.2 tons in USA, it is 8 tons and the highest yield was 18.6 tons in UAE. In the All India Coordinated trials and National Demonstrations the yield was as high as 6 tons per hectare. This shows that given proper direction and right inputs, production can increase up to 40 million tons, even without increasing the area under cultivation. This calls for a determined effort, supported by public policy.

3.10.10 Poultry Processing Units

3.10.10.1 The poultry processing industry is still in a nascent stage of growth. Presently 97% of the production is sold as live birds. Only 3% is processed and sold as fresh chilled or frozen. The share of further processed and ready to cook products is even lesser at about half a per cent. The market for processed chicken is confined to the metro cities and a few large urban areas. This limited market is shared by more than a dozen processors. Several plants have been imported from abroad at substantial cost to the country. The poultry-processing sector is limping along, incurring large losses. Any country that has a developed and viable poultry farming activity has also a very developed poultry processing industry. An expert committee, constituted from the public and private sector must be set up to identify the causes for the set backs in this sector of Indian Poultry. One of the major obstacles in the way of growth of poultry processing industry is high incidence of duties and taxes – both on the processed products as well as on the equipment for processing e.g. the cumulative impact of Excise Duty Sales Tax, Surcharge on Sales Tax, Octroi and turn over Tax. If the processing industry has to expand it would be necessary to reduce the burden of duties and taxes substantially, at least until such time as the market share of the processed products grows to a level of 25-30% of the total volume of the production.

3.10.10.2 A huge investment has been made mostly by the private sector in the Poultry Processing sector. Several plants have been imported from abroad at substantial cost to the country. The poultry processing sector is limping along, incurring large losses. Any country that has a developed and viable poultry

farming activity has also a very developed poultry processing industry. An expert committee, constituted from the public and private sector must be set up to identify the causes for the set backs in this sector of Indian Poultry. Is legislation required to ban the unorganized slaughter of poultry all over the country and confine the same to hygienic processing plants? If so, should it be in a phased manner or abruptly? These are questions that such a committee, must answer.

3.10.11 Exports

3.10.11.1 India has the potential to export various poultry products like table eggs, hatching eggs, day old breeding stock processed chicken products and egg powder. Exporters face several difficulties and these vary from product to product and country to country. In case of table eggs, the difficulties are I) subsidies given by European Union II) Non-conformity of our health regulatory procedures with those obtaining in Singapore and Hong Kong III) Absence of automatic grading, candling, washing & packing, cold storage facilities IV) non-availability of air cargo space in the required volumes V) requirement of approval of import of egg products from India, every year (The Government of India notified the standards for egg products which are similar to the EU standards. Based on this India was included in the list of approved countries by EU. However, this was to be followed up by notifying the Residue Monitoring Plan. Since this was not done for almost two years. EU has de-listed India from the approved countries.)

3.10.12 Price support/market intervention

3.10.12.1 If poultry for egg and broiler is to be encouraged the broiler industry must get a preferential treatment in the market based on the quality of meat produced. Today, the cost of producing 1 kg of broiler meat on live weight basis ranges between Rs.29/- to Rs.30/- and while the market price for the Broilers range from Rs.25 to Rs.40 with an average of Rs.35/- most of the months and little higher when spent hens are generally not available in Delhi markets. No sensible farmer can undertake this as a livelihood option given this market price structure, while the consumer pays Rs.70 to Rs.80/- for a kg of poultry meat in the consumer market. The organized broiler market run by poultry companies offer the same for about Rs.125/- a kg. The middlemen take the major portion of the income of about Rs.40/- per kg and at the farm gate price the poultry producer runs into a net loss. Introducing a price control mechanism is therefore a major necessity. At present there is no market intervention or price support programme undertaken by government agencies. NAFED intervenes occasionally and to a limited extent – but subject to the condition that losses in such operation are borne by the farmers themselves: this is of no help. If the farmers are to be assured of a remunerative return on their investment and toil, there should be a “minimum price support” scheme.

3.11 Meat and Meat products

3.11.1 Meat and byproducts have played an important role in man's development from the earliest times. At current prices (1998-99) meat group contributed Rs 21900 crores and meat products Rs 828 crores while byproducts comprising largely hide and skins contributed Rs 2232 crores. Though the contribution of meat group has increased by 74.67 per cent during 1993-94 to 1998-99 but its share to total value of output from livestock sector has decreased by about one percent mainly due to less performance of mutton, poultry meat and hides on their part. Meat production was estimated at 4.6 mt (1998) and annual growth rate of 4.1% was achieved during the last 10 years compared to 4.3% for milk and 4.7% for eggs. Livestock population, slaughter rate and meat production data indicate that the buffalo population was less than half of cattle population but buffalo meat production was equal to that of beef from cattle. This was due to effective culling practiced in buffaloes for meat both for domestic and export market. Slaughter rate as large as 20% is sustained in buffaloes with adequate growth in population (Annual growth rate of 2.08 in buffaloes compared to 0.48 of cattle during 1987-1992). In case of other animals slaughter rates are considerably lower than can be sustained and followed in other countries.

3.11.2 Central Sponsored Scheme

3.11.2.1 Under the CSS scheme Assistance to States for Improvement/Modernization of Abattoirs and Carcass Utilization Centres, assistance as grants in aid is provided to the State Govts to improve / upgrade the existing slaughter houses and to establish carcass utilization centers. Implementation of schemes has not been satisfactory; projects sanctioned during the 7th and 8th Plans in are still to be completed. Rs.20.37 crore was released in the first four year of 9th plan and the unspent balance is about Rs.12 crore indicating some inherent problem in the programme, which could be rectified by replacing the existing scheme with a new scheme. The new scheme should focus on I) buffalo meat export through scientific rearing of male buffalo calves which are either dying or starving due to negligence and assistance to states for improvement of abattoir hygiene (clean meat production) II) mitigation of animal suffering at animal market and during transportation and III) creation of a co-operative network of carcass utilization centers to make use of hides, bones and other body parts of dead animals and value addition thereon.

3.11.3 Culling and Utilization of Surplus Animal

3.11.3.1 Culling and utilization of surplus animals need to be recognized as an established norm for scientific animal production. In India, meat production is largely a byproduct system of livestock production utilizing spent animals at the end of their productive life. Cattle and buffaloes, which contribute about 60 % of total meat production, are primarily reared for milk and draught purpose and in

the end utilized for meat purpose subject to many limitations. Cow slaughter is banned largely in the country except in West Bengal and Assam where slaughter of cows is restricted to animals over 14 years of age and unfit for work or breeding, or the animal is permanently incapacitated from work or breeding due to age, injury, deformity or any incurable disease. The States of Arunachal Pradesh, Kerala, Meghalaya, Mizoram, Nagaland and Tripura and Union Territory of Lakshadweep Islands do not have any legislation on cow's slaughter. Social acceptability of buffalo as a triple purpose (draught, milk, meat) animal is higher than cattle and production economics work out more favorable to buffaloes as compared to cattle. Buffalo population, buffalo milk production and buffalo meat export have increased in the recent years indicating better prospects at the current rate of utilization. A few states have made laws restricting slaughter of buffalo calves and productive buffaloes. Salvaging buffalo calves in urban areas from early death is an important requirement as the mortality in urban buffalo calves is reported to be 60-90 per cent for various reasons. There are about 5.74 million buffalo calves that need to be saved from early death after allowing a mortality of 10 per cent in the country. Meat production potential of buffaloes could be considerably increased under an ideal management and efficient production system.

3.11.3.2 In case of sheep and goat, which contribute to considerable domestic meat demand extensive and nomadic system of rearing, are practiced without serious concern for productivity improvement. Sheep and goat meat has a high domestic demand and returns from sale of skin are considerable due to the growth in leather industry. Slaughter of under weight lambs/kids is adversely affecting meat production potential which need to be corrected with appropriate programmes.

3.11.3.3 Pig rearing has largely remained under nomadic system of rearing (scavenging) with the weaker sections of the society both as a source of income and a choice of meat for consumption. Cost of inputs and returns were not a serious concern in this system. However, availability of quality pork for a variety of consumers is a scarce item. In the recent years, entrepreneurs have shown interest in pig production, processing and marketing activities as an organized enterprise. Pork products industry has to develop to meet the requirements of the three categories of consumers - traditional consumers, local area consumers (small scale pork processing units) and elite consumers, hotels, restaurants, etc. (Modern processing units on a factory scale). India could consider exporting pork products, as potential markets exist in Southeast Asian countries. Bacon factories have to be brought under private management for improving piggery prospects.

3.11.3.4 Poultry industry is an organized one compared to other livestock and the country has adapted modern production system. However, processing sector is largely under traditional system in spite of increase in volumes of processing. Improvements in small-scale processing of poultry are required to process chicken under aesthetic conditions and ensure consumer demand.

3.11.4 Meat Export

3.11.4.1 The Indian meat export industry has not developed on pragmatic lines due to the controversies against meat sector development in the country. Indian meat exports started with as small a quantity as 2000 tonnes in the year 1973-74 and increased to about 60,000 MT by 1987-88 valued at Rs.88 crores. Meat and preparations have shown an annual compound growth rate (%) of 22.49 during 1991-98, and 11.65 during 1974-98. Export performance of meat during the last decade indicate that buffalo meat export was 93% of total meat export in quantity terms and 88% in value terms. During the decade 1991-2000 buffalo meat exports increased by 163% registering an average annual growth rate of 16%. However, the growth rate was considerably higher during the first 5-year period 1991-95 as compared to the later 5-year period. Sheep and goat meat export increased by 49 % during the decade registering a 5 percent growth rate. In value terms buffalo meat exports increased by 560% during the decade as compared to 191% increase in sheep and goat meat exports. Realization per ton of buffalo meat increased by 66% during first half of the decade while in the second half the increase was by 51%. And for sheep and goat meat increase in per ton realization was by 63% and 20% first and second 5-year periods of the decade. The number of countries to which Indian meat is exported has increased from about 30 in 1994-95 to 50 in 1999-2000. During the year 1998-99 buffalo meat exports have declined by 13% in quantity and 5.2% in value terms compared to the previous year due to economic crisis in South Asian countries. In the following year buffalo meat exports have increased by 11% in quantity and 3.8% in value terms and in the current year (2000-01) the meat exports are estimated at Rs1200 crores, an increase of 50% in value terms.

3.11.4.2 Lamb and sheep meat formed about 4.9 per cent in quantity and about 9.7 per cent in value terms of the total meat exports. Export of goat meat, pig meat, poultry meat, and edible offal's and meat products is in small quantities. Buffalo meat constitutes the major item of Indian meat exports due to domestic availability, price differential between domestic and export markets and export policy (buffalo meat is permitted for export while beef is banned). The potential advantages of Indian meat exports include: large raw material resource, price competitiveness, cheap labor costs, proximity to importing countries, and preference for Indian lean meat produced on natural grazing and liberalized economic policies. Major constraints affecting Indian meat exports include: livestock disease situation (prevalence of foot and mouth disease), in adequate modern abattoir facilities, negative propaganda of some social groups against meat exports and lack of pragmatic slaughter policy for effective utilization of livestock resources.

3.11.4.3 A number of organizations are working for imposing total ban on meat exports. The consequences of ban on meat export would be more on buffalo production as buffalo meat export forms 92 per cent of total meat export. A marginal effect on goat production could be observed. However, sheep production

gets adversely affected fetching decreased returns to sheep farmers. The demand for mutton (sheep), particularly in Northern India is limited and a ban on meat export would adversely affect sheep producers of Rajasthan, Uttar Pradesh, Haryana and Gujarat States. Consideration of ban on meat export is neither in the interest of the livestock producers nor in National interest. A study on the economics of meat export would be desirable to critically examine the benefits of meat exports in National interest and answer the frequent criticism-demanding ban on meat exports.

3.11.5 Livestock Market

3.11.5.1 India has over 2000 markets where livestock are traded. Livestock markets are under the jurisdiction of the state governments although the direct operation and supervision would generally fall within the purview of the local bodies. There are a few privately owned markets. State Acts regulate marketing of agricultural produce and the marketing committees are responsible for implementing and enforcing the provisions of the Act.

3.11.5.2 The market for live animals in the country unfortunately has not developed on scientific lines. There are no separate markets for different species of animals. There are no separate enclosures for different species/animals. Brokers facilitate most of the trade. Vertical linkages between the processors/butchers and livestock producers are rare. Wholesale marketing margins amount to about 30% of the consumer price. Market facilities are generally inadequate and if available are poorly maintained. Weighbridges, ramp facilities for loading and unloading, feeding and watering and veterinary facilities are not available. Revenues generated under the act are supposed to be allocated to the markets for operations and improvement but not happening.

3.11.5.3 The development of live animals market information system is vital as data is a key input to informed planning and decision-making. Thus it is virtually a public good and the Government should actively support this activity. Appropriate scheme should be formulated to strengthen the market facilities and introduce a scientifically managed market for conducting marketing operations as well as collecting proper data on livestock marketing. No such effort was made in the previous plans and hence need to be given priority.

3.11.6 Improvement of Slaughterhouses

3.11.6.1 There are 2702 slaughterhouses in the country, which are recognized or authorized by local bodies. In addition a considerable number of animals are slaughtered in unauthorized places. A rough estimate indicates up to 50 percent of animals slaughtered in any urban center are from unauthorized slaughter. Over the years, the facilities and hygienic conditions in most of the slaughterhouses have deteriorated. Compared to 1951, livestock population increased by about 62 percent and human population increased by 134 percent but the number of

authorized slaughterhouses have not increased to meet the demand for meat production. The increased demand for meat is met either through over crowding operations in the existing slaughterhouses operating at much higher capacity than feasible in the facilities or through unauthorized slaughter at many places. In both these situations not only meat hygiene is a casualty, increased pollution and adverse public reactions are observed. The existing slaughterhouse capacity in the country is unable to meet the growing public demand for clean and hygienic meat. This can be achieved by improving existing slaughterhouses to accommodate higher capacities and creating new slaughterhouses with modern facilities.

3.11.7 Carcass Utilization centers

3.11.7.1 During 8th Plan a Centrally sponsored scheme “ Assistance to states for establishment of carcass utilization centers and hide flaying units” was implemented to effectively utilize dead animals and prevent environmental pollution through proper disposal of the animal waste materials. Continuation of the scheme on dead animal disposal in an appropriate manner is a necessity for recovery of hide and skins and prevent environmental pollution. A critical assessment of the established centres is necessary to evaluate viability and continuation of the scheme. A concerted effort is required for popularizing appropriate disposal of dead animals including their burial in the event of unsound economics of modern rendering for prevention of environmental pollution and livestock disease control.

3.11.8 Rural abattoirs

3.11.8.1 Condition of many of the urban slaughterhouses is far from satisfactory. Improvement of these slaughterhouses is facing more number of problems and efforts to establish new abattoirs or improving and expanding the existing abattoirs have not been successful. With large number of meat consumers living in urban areas, it has become necessary to critically examine the supply of hygienic meat to urban consumers. Production of meat in rural areas and transport of meat to cities has been viewed as an alternative with many added advantages.

3.11.8.2 For comparison of economics of rural and city abattoirs additional cost of meat in terms of chilling of meat and refrigeration transport need to be considered incase of supply of meat to city consumer from rural abattoir as compared to the transportation of animals to city abattoirs and retransportation of hides and skins to tanneries and other waste to out side city limits. A preliminary estimate of the comparative economics has indicated that additional cost of sheep/goat meat due to chilling and transport from rural abattoir comes to Rs. 2.18 per kg as compared to the additional cost of Rs. 4.03 per kg. when the same meat is produced in city abattoir. Similarly in case of buffalo meat additional cost from rural abattoir comes to Rs. 1.56 per kg as compared to Rs. 2.72 when produced from city abattoir. Thus, there is a possibility of reduction in consumer cost of

meat and better prices to the meat animal producers. This would also be one of the major steps toward animal welfare, which save millions of animals from stress and pain while transportation from place of production to place of consumption.

3.12 Small Animal Development

3.12.1 Central Sector Scheme

3.12.1.1 The Department is running a Central Sector Scheme 'Central Sheep Breeding Farm, Hissar'. It produced 600 to 700 rams per year for distribution, which is not commensurate to the average annual expenditure of Rs. 2 crore. The farm also found difficulties in searching buyers for stud rams. The utility and continuation of the farm need to be debated

3.12.2 Central Sponsored Scheme

3.12.2.1 There are two Central Sponsored Schemes viz. National Ram/Buck Production Programme and Assistance to State for Integrated Piggery Development are related to the development of goat, sheep, pig. The anticipated expenditure in the two schemes is Rs. Rs. 6.97 14.57 crore respectively. Under the ram/buck production programme, central assistance is provided to State Governments for strengthening sheep/goat/rabbit and state wool boards and to assist them in improving genetic potential of small ruminants. As the assistance is on 50:50 basis, many state governments failed to participate in the programme due to paucity of fund. Under the piggery scheme, the Department in consultation with the State Governments imported 89 exotic pigs during 1989 and 280 exotic pigs during 1999-2000 to assist the genetic upgradation of indigenous pigs.

3.12.3 Goat

3.12.3.1 Goat population in India during last two decades has increased at the fastest rate among all major livestock species, in spite of the fact that nearly 41 percent of goats are slaughtered annually with about 15.5 percent natural death in the rural areas. The current goat population is estimated to be around 128 millions in 1999-2000, it has been estimated that goat population may reach a figure of 137 million by 2005, where it may stabilize. The goat population increased from 47.2 millions in 1951-52 to 115.3 millions in 1992. This gave a mean rate of increment of 1.7 millions per annum and an annual percent rate of increase of 3.6. Combining the annual rate of population growth of around 3.6 per cent with the mean slaughter rate and mortality rates, the goats have shown the potential of population growth of about 60.1 per cent per year. This is the single most important factor that makes goats as most desired species of animals for meat production.

3.12.3.2 Growth and milk production in goat can be further increased by framing a national breeding policy, ban in slaughtering below 10 month of age, production

of vaccine against infectious diseases, development of feed resources, providing suitable shelters and other appliances, using physiological approaches and reproduction bio-technology, strengthening human resources development in the area (education, specialized training to trainers, farmers and specialists) and developing awareness to adopt new technologies by the farmers. There is no need to increase goat population, emphasis should be given on productivity per animal, increase in slaughter rate and organized marketing. Emergence of new diseases like PPR has led to higher mortality and abortion in goats. There is lack of proper diagnostic tools and immuno-prophylactic measures. Incidence of Rinder Pest and Foot and Mouth Disease in Indian livestock is a major problem restricting the export of meat.

3.12.4 Sheep

3.12.4.1 The sheep population is around 45 million. About 36% of the total sheep population is slaughtered every year for meat purposes. During last 4 decades there has not been much increase in sheep population. It was about 39.1 m in 1951 and 44.8 m in 1987. Since there has not been much increase in the carcass weight, the increase in total meat production is not very high. The mutton production was about 130 m kg in early 80's and about 170 m kg in early 90's constituting hardly 2% of the total meat production from sheep in the world. However, the export of mutton from India has increased from 2 m kg in 1987-88 to 3.6 m kg in 1993-94. There is a possibility of further increase in the export of mutton in future amounting to about 7.8 m kg by 2000 AD.

3.12.4.2 The fine wool production in the country is around 4 million kg and the demand from the industry is around 35 to 40 million kg of fine wool, which is mainly imported from countries like Australia. Attempts are also made to utilize the short staple fine wool in cotton system and the trials undertaken are quite successful and it invites the attention of the industry. The Indian subcontinent can be divided into three major regions (i) Northern temperate region, which includes J&K, Himachal Pradesh, Utranchal, Sikkim and parts of Northeast. This is an area, which is suitable for fine wool production, considerable progress has been made in J&K where 65% of the sheep population has been converted into crossbreds generally known as Kashmir Merino. The Department of Sheep Husbandry has essentially achieved this by maintaining a few exotic farms. Private breeders have also been encouraged to raise good quality higher crosses. These ram centers move the rams to higher alpine pastures where the shepherds for grazing send most sheep. These rams are left with the flocks from April to October and are brought back to these ram centers in October. This model, which has been extremely successful, should be introduced in Himachal Pradesh, Utranchal and upper regions of Sikkim. Available exotic rams be placed at ram centers by respective state governments and in the event of shortfall this be made up through purchase of rams of higher crosses from J&K state. The Alpine pastures need to be seeded and fertilized by aerial spray during early April and in late October.

3.12.4.3 In the north western region, it is recommended that flock size be increased and a scheme be introduced by which farmers who normally sell the male lambs at the age of 6 to 9 months for slaughter are assisted through cash support to raise them up to age of 1 and a half year and sold as breeding rams. The current practice of using older rams for several years continuously for breeding should be replaced by young and better rams. In this way the carpet wool quantity and quality would also increase. In the southern peninsular region and West Bengal, where hairy sheep are in abundance, better carpet wool breeds from northwestern region should be introduced by simply providing ram lambs in the larger flocks so as to improve the body weights and wool quality.

3.12.4.4 The overall economic development, rapid growth of population and social outlook has resulted in increased domestic and international demand for meat in general and that of sheep in particular. However, there is no well-organized marketing system for livestock and meat in India. Since, sheep are mostly raised by poor farmers, there is need to organize them into cooperative groups so as to operate organized selling. This should prevent exploitation by traders and help them to get appropriate share of consumer's price. All the slaughterhouses in the state must be delinked from the local administrative control and should be run by state level sheep development corporations. Along with modernization of urban slaughterhouses in urban areas, small rural or semi-urban slaughterhouse should be established to process and distribute meat and meat products, to ultimate consumers.

3.12.4.5 The current practice is to purchase the crop of sheep or goat kids, a year ahead of birth by the traders. Consequently, the shepherds 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 kg while the standard weight for sale should not be less than 30 kgs if these animals have to be commercially viable. The required credit should be made available so that farmers are not at the mercy of the traders and are able to raise their stock to a body weight of 30 kg.

3.12.4.6 Groups of entrepreneurs willing to take up commercial production of these animals with intensive management/production systems can be encouraged for fat lamb production and thereby increasing scope for export of mutton. Within the district or state level slaughter houses can be started at very reasonable costs by channelising the labour available within the vicinity and providing infrastructures including processing units through grants and subsidized loans from the government. The big commercial houses can participate in a wider perspective in all the above activities and subsequently compete in the international market. The raw material may also be provided to the bigger establishments through the markets at the village level. Where the lambs at appropriate age and weight can be purchased and intensive fat lamb production

activity can be started. The required technologies are available and they are further developed also. This will lead to overall economic development.

3.12.5 Pig

3.12.5.1 Pig husbandry is the most important activity in the Animal Husbandry sector in North Eastern Region inhabited by tribal people. Pork is an important item in the daily food habit of these people with little exception in the state of Assam. A very high consumption rate of pork has been reported which is roughly around 15% of the country's total pork production of 469000 metric tones. The region also has a substantial pig population, which constitutes around 24.85% 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 germplasm is that it is smaller in size (around 15 kg at first farrowing) and produces its first litter at around 9 1/2 month of age.

3.12.5.2 In the north eastern region there is acute shortage of breeding males. The farmers prefer exotic/crossbreds of breeding males. It is recommended that breeders' villages be created to remove these shortages. The whole village would 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. 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 units of 10, 20 and 30 sow units for which credit and technology underwriting should be an integral part.

3.13 Synchronization of Livestock Production Systems in the Country with International Regulatory System (WTO/SPS)

3.13.1 Policy Reforms

3.13.1.1 In the early 1990s the Government of India introduced major trade policy reforms, which favored increasing privatization and liberalization of all sectors of the economy. The livestock sector was no exception to this. Dairy industry was delicensed in June 1991. In June 1992, the Government of India promulgated the Milk and Milk Products Order (MMPO). The MMPO prescribes certain provisions for orderly development of the dairy industry including sanitation and hygiene of dairy plants.

3.13.2 WTO Agreement

3.13.2.1 The second related development was India's signing of the Uruguay Round Agreement (URA) of the General Agreement on Tariffs and Trade (GATT) in April 1994, which was re-christened as the World Trade Organization

(WTO). However as a part of commitment under WTO and domestic market reforms all quantitative restrictions and other non-tariff barriers on the import and export of livestock products were removed and most of livestock products were put under Open General License (OGL) by April 1, 2001 and the Indian markets have been opened up to the world markets. The above developments exposed Indian livestock sector to the highly distorted world markets.

3.13.3 Current Situation

3.13.3.1 The world trade in livestock products, mainly dairy and poultry has been distorted to decades by both domestic and border policies. In spite of regional and multilateral trade agreements, livestock policies of the developed countries continue to distort resources use and world market prices. The level of producer subsidy equivalent (a measure of economic assistance through subsidies) has remained high in many developed countries throughout the 1980s and 1990s accounting for significant proportions of the value of milk production. Most of the developed countries provide heavy export subsidies under their export subsidy programmes to increase their exports, which creates unhealthy competition in the world market.

3.13.3.2 No other nation in the world has as much potential as India has to emerge as one of the world market leaders for export of milk products. The potential for export of other livestock products is immense. Meeting domestic consumption growth and export demand, therefore poses a special challenge for the Indian livestock sector. For the livestock industry to capture the demand led growth opportunities policy review is required to improve the quality and safety of livestock products including efficiency and productivity growth of the entire food chain from farmer to consumer in conformity with the international regulatory requirements and industry norms.

3.13.3.3 It is important to understand the impact of globalization of Indian livestock sector and suggest measures to help the Indian livestock sector adjust effectively to the open trade regime under the WTO particularly SPS regime.

3.13.4 Current Regulatory Provision

3.13.4.1 There are several regulations and agencies in the country, which are involved in the administering quality of foods, both domestically produced and imported. These are:

- Prevention of Food Adulteration (PFA) Act and Rules:
- Bureau of Indian Standards (BIS): BIS
- Export Inspection Council of India (EICI)
- Milk and Milk Products Order (MMPO)
- Livestock Importation Act
- Meat Food Products Order 1973

3.13.4.2.. Export (Quality Control and Inspection) Act, 1963 and Rules framed there under 1964 – (a) Export of egg products (Quality Control, Inspection and Monitoring) Rules 1997 and (b) Export of Chilled/Frozen Poultry and Poultry Products (Quality Control, Inspection and Monitoring) Rules 1998.

3.13.4.3 It may be observed that the important issues of risk assessment risk monitoring and risk management of foods are not being fully and effectively addressed by the current regulatory agencies mainly because these are not their mandate.

3.13.5 Impact of WTO Agreement

3.13.5.1 The global trade follows the guidelines of the World Trade Organization (WTO). The WTO Agreements were signed in 1994, and their implementation started from January 1995. Among several WTO Agreements, most important with regard to livestock product are: Agreement on Agriculture (AoA) and Sanitary and Phytosanitary (SPS) Agreement. The Agreement on Agriculture (AoA) as a part of the WTO Agreements incorporates obligations and disciplines related to the following three aspects of livestock production:

- Market access/Tariffication
- Domestic Support
- Export competition/subsidy

3.13.6 Market Access

3.13.7 Tariffs Only' Rule

3.13.7.1 On market access, the AoA primarily envisages a tariffs only' rule for agricultural products including livestock products. Thus all non-tariff barriers like quantitative restrictions (QRs) – quotas – import and export-licensing variable levies, minimum import prices and voluntary export restraints are required to be converted into equivalent tariffs. These tariffs are subjected to binding and/or reduction within the implementation period. The base period taken for tariff estimation was 1986-88.

3.13.8 Special Safeguard (SSG)

3.13.8.1 The AoA includes another provision of 'Special Safeguard (SSG)' under which members that have tariffed non-tariff measures are entitled to impose additional duty on a product in any year when either the volume of imports exceeds or the price of imports falls below the reference trigger levels. This provision is not available to India because at the time of multilateral negotiations it did not opt for Tariff Quotas.

3.13.9 Dirty Tariffication

3.13.9.1 With dirty tariffication, countries exaggerated their base levels of tariffs. This was done by many developed countries by the selective use of prices for determining tariff equivalents in the based period. According to Ingco (1995) European Union had set its initial tariff bindings at un-weighted average levels of 61 per cent higher than actual tariff equivalents while the United States set its initial binding at 44 per cent above actual levels.

3.13.10 Selective Tariff Cuts

3.13.10.1 Under the AoA countries had a great deal of flexibility in deciding how much each agricultural tariff would be cut so average reductions vary by country. The required un-weighted average of 36 per cent tariff reductions with the only constraint being a 15 per cent cut on each tariff left countries with much freedom to decide how to allocate their tariff reductions. This provision opened up the possibility of spreading the reduction commitments rather unevenly across products e.g. reduction was bare minimum for sensitive products. Included in this category for Canada are dairy and poultry products; for Japan, grain and dairy products; and for the US, sugar, peanuts and dairy products.

3.13.11 High Tariff Protection

3.13.11.1 Some of the highest tariffs are for dairy products in Japan, EU and US. Japan and the EU maintain rates over 100 per cent on certain dairy products. The out-of-quota tariff rate for the EU is 94 per cent while those for Japan are over 200 per cent. The rates set by Canada exceed 200 per cent and those set by Japan on butter and milk powders are also very high.

3.13.12 Domestic Support

3.13.12.1 The AoA has categorized domestic supports provided by governments to their producers into three categories based on whether they have minimal trade distorting effects or high trade distorting effects. Those measures that are considered to have minimal trade distorting effects, such as 'green box', 'blue box' and 'special' measures are exempted from requirement of reductions. However, other measures that have high trade distorting effects known as 'amber box' or total 'aggregate measurement of support (AMS)' measures, are subjected to reduction requirements.

3.13.13 Green Box Measures

3.13.13.1 'Green box' measures have minimal effect on trade and can be used freely. These measures include government services such as research, disease control, infrastructure, extension and buffer stocks for food security purposes, domestic food aid, direct payments to producers, decoupled income support,

government assistance in income insurance and income safety net programmes, payment under environmental and regional assistance programmes, payments for relief from natural disasters, assistance to help farmers restructure agriculture, marketing and promotion services.

3.13.13.2 Also regrettably exempted are measures grouped under 'blue box'. These include direct payments to producers to limit production or towards deficiency payments. These measures are more often than not are exploited by the developed countries to safeguard their vested interests.

3.13.13.3 Another group of measures exempted from reduction requirement includes government assistance to encourage agricultural and rural development in developing countries, agricultural input subsidies to low income and resource poor producer in developing countries. These measures can be used freely as per Special and Differential Treatment for Development Countries clause. However, most of the developing countries are handicapped to effectively use this provision due to their serious financial constraints.

3.13.14 Production Subsidy in India

3.13.14.1 India does not provide any product specific subsidy to any livestock product. The only product specific subsidies provided are market price support to 22 crops, which in almost all cases are negative. The main non-product-subsidies provided in India are fertilizer subsidy, irrigation subsidy, subsidy on electricity, subsidy on seeds and credit subsidy, which were around 7 per cent during 1999-22000 lesser than the de minimis of ten per cent. India therefore is not required to reduce levels of producer subsidies.

3.13.14.2 Some support measures provided by the government are also exempted from any reduction commitment for developing countries. These measures are subsidies for milch animals, small farmer development assistance and assistance to small holders for easy access to inputs.

3.13.14.3 As noted above, the various domestic support boxes have not been helpful in lowering overall protection levels. The reality is that huge amounts of domestic support will mostly be production limiting and trade distorting. The present structure of domestic support boxes should, therefore, be re-negotiated. Dismantling all domestic support into one box category would eliminate the existing loopholes and bring rationale and structure to the Agreement.

3.13.15 Export Subsidies

3.13.15.1 Export subsidies are provided by a country to make its commodities globally competitive. The AoA has listed six types of export subsidy measures subjected to reduction requirements from the 1986-1990 base period levels.

Developing countries are exempted from reduction commitment in respect of export marketing costs, internal and international transport and freight charges.

3.13.16 Indian Subsidy

3.13.16.1 India does not provide any of the export subsidies listed for reduction commitments in the Agreement. The only subsidies available to exporters are in the form of (a) exemption of profits from export sales in income tax (under section 80-HHC) and (b) subsidies on costs of freight, marketing and international and internal transport on export shipments of livestock products.

3.13.17 Subsidy in Developed Countries

3.13.17.1 The main users of export subsidies from 1995 to 1998 as reported to the WTO were the EU, followed by Switzerland, the United States and Norway. All countries spent over US\$ 2,700 crore on export subsidies during 1995-98. The EU Accounts for about 89 per cent of expenditures, Switzerland 5 per cent, Norway 1.2 per cent and the United States for about 1.5 per cent and rest of the WTO Members for just 2.7 per cent. Dairy and meat products accounted for the largest expenditures on export subsidies.

3.13.17.2 Many countries 'roll over' unused subsidies on the pretext that the WTO Rules do not specifically prohibit its use. High world prices in 1995 and 1996 kept countries export subsidies below their commitments and some countries carried over unused portions against overruns in later years. The EU is the world's largest exporter of dairy products and its use of substantial export subsidies has a depressing effect on world market prices. Practically all milk powder and butter exports as well as a substantial portion of cheese exports by the EU are subsidized. According to notifications to the WTO, the average EU subsidy applied to SMP exports in 1998-99 was the equivalent of 42 per cent of average wholesale domestic price of the products. Similarly, in the same year the average subsidy applied to the US SMP exports represented about 44 per cent of the average domestic market price. Moreover, the dairy products accounted for the largest expenditures on export subsidies in the post-WTO period. In 1998 the US provided export subsidies on dairy and poultry meat with dairy reaching 90 per cent of the US volume limit.

3.13.17.3 Subsidized exports by the EU and the US alone have a major impact on the global dairy market because they represent a significant proportion of total trade. In 1998-99, as much as 35 per cent of SMP, 27 per cent of butter and 20 per cent cheese entering world market was subsidized.

3.13.17.4 Where export subsidy limits have been binding, some countries have adopted schemes that circumvent them. For example, the EU has been exporting processed cheese under URAA export subsidy commitments in substitution of skim milk powder and butter. The EU claims that this is permissible through the

modified version of the “Inward Processing Relief” (IPR) system (USDA/ERS, 1999). It is imperative that Indian industry also understands WTO rules as well as the industry in the developed countries does.

3.13.17.5 In August 1995, Canada initiated a different scheme for milk pricing. It introduced a two-tier price system that prices milk cheaper when it is used in manufactured dairy products for exports than when it is used domestically. The United States and New Zealand complained to the WTO that Canada’s milk pricing system allowed to circumvent its export subsidy commitments. On October 13, 1999, the WTO Appellate Body affirmed that Canadian dairy products benefited from export subsidies in excess of Canada’s WTO obligations by the end of December 2000. Although India has suffered at times from the arbitrary directives introduced by some developed countries in contravention of the WTO Rules, it has yet to take any such nation to the WTO Dispute Settlement Panel.

3.13.18 Consequence of High Export Subsidy

3.13.18.1 The extensive use of export subsidies (mainly the EU and the US) in world trade in dairy, meat and poultry products depresses the world market prices and makes the products from all non-subsidizing exporting countries such as India uncompetitive. The size of export subsidies and the high proportion of world trade to which exports subsidies are applied both suggest that there is a need to negotiate complete elimination of export subsidies in the upcoming WTO rounds.

3.13.19 Sanitary and Phytosanitary Measures

3.13.19.1 Consequent to the establishment of the WTO, the agreement on the application of Sanitary and Phytosanitary Measures (the SPS Agreement) entered into force. The SPS Agreement concerns the protection of animal, plant or human health or life from food borne risks and animal and plant carried diseases. The Agreement sets important parameters governing the adoption and implementation of food quality/safety and animal health measures and recognizes the standards, guidelines and recommendations determined by the Codex Alimentarius Commission (CAC) and International Office of Epizootics (OIE) as the minimum basis for international trade in livestock sector, while permitting the members to introduce a level of protection higher than that is recommended by the above mentioned international reference organizations provided it is scientifically justified.

3.13.19.2 The SPS Agreement provides guidelines to countries on measures to be taken to protect human, animal or plant life or health from the global trade or unsafe food, animal or plant. There are however, some provisions in the Agreement which amount to non-tariff barriers to trade.

3.13.19.3 Likewise SPS – recognized Codex standards stipulate that quality assurance systems such as HACCP, good hygienic practices should be employed in the entire food chain, including primary production. Although some flexibility has been granted to the developing countries in the primary production, it is in India's interest to ensure conformity with the HACCP System throughout the chain i.e. from farmer to consumer to enhance image of Indian livestock products.

3.13.20 Codex Standards

3.13.20.1 The WTO has recognized the standards set by international organizations namely the Codex Alimentarius Commission (CAC) and the International Office of Epizootics (OIE) as reference for food safety and animal health respectively in global trade.

3.13.20.2 Codex Standards: The main focus of Codex standards and guidelines has been quality and food safety for human consumption. Codex standards are expected to be based on science. However, in some cases, this principle has been ignored. Moreover, most standards have been set without considering data from the developing countries. Therefore, the standards set, at times, are very stringent from India's point of view. Testing facilities for analyzing of all the contaminants, too are not easily available to livestock products' processors. Codex has MRLs for 10 veterinary drugs residues and is considering MRLs for some more. PFA has not as yet set MRLs for veterinary drugs although it is now considering to do so. Codex is also seriously concerned regarding the microbiological quality of livestock products, and has recommended measures to minimize microbiological contamination. Codex guidelines stipulate that the raw material should be produced in a way, which minimizes bacterial load, growth and contamination. Codex advocates measures to be taken from farmer-to consumer to ensure that livestock products are safe for human consumption.

3.13.21 Hazard Analysis and Critical Control Point (HACCP) System

3.13.21.1 To achieve this, Codex recommends the application of the Principles of Hazard Analysis and Critical Control Point (HACCP) System. It is expected that application of HACCP system and other codes, guidelines and recommendations as mentioned at 3.42 would be made mandatory for the international trade in near future. The Indian livestock products export units must gear themselves to meet the international regulatory requirements and ensure that only their plants get certified under HACCP system but also their primary production system. Codex is also considering a Code of Practice on Good Animal Feeding. The proposed code includes provisions of application of HACCP in feed manufacturing and of traceability of raw materials and quality defects to processes.

3.13.21.2 The main focus of Codex standards and guidelines has been quality and food safety for human consumption.

3.13.22 OIE Standards

3.13.22.1 The major focus of OIE requirements is animal health related concerns as follows:

- General Provisions: Notification of Animal Diseases, Veterinary Ethics and Certification for International Trade, Import Risk Analysis Import/Export Producers and Risk Analysis for Biologicals for Veterinary Use (A)
- Recommendations Applicable to Specific Diseases: List A
- Diseases, Multiple Species Diseases in List B, Bovine Disease in List B, Ovine & Caprine Diseases in List B, Equine Diseases in List B, Swine Diseases in List B, Avian Diseases in List B, Lagomorph Disease in List B, Bee Diseases in List B, Diseases not covered by List A and B
- Diagnostic Tests for International Trade Purposes: Prescribed and Alternative Diagnostic tests for list A and B Diseases.
- Collection and Processing of Semen
- Epidemiological Surveillance System: Recommendations for Rinderpest, contagious bovine pleuropneumonia, bovine spongiform encephalopathy
- Model International Certificates

3.13.23 Consequence of SPS

3.13.23.1 Taking advantage of SPS provisions, some countries have adopted regulations that include unjustified, stringent SPS measures, which are difficult for most of the developing countries including India to comply with European Union regulations on health rules for the production of milk on maximum levels of Aflatoxin M in milk and on provisional list of countries authorized for export products into EU are some examples.

3.13.24 OIE requirements

3.13.24.4 The WTO has recognized the standards set by international organizations namely the Codex Alimentarius Commission (CAC) and the International Office of Epizootics (OIE) as reference for food safety and animal health respectively in global trade. The major focus of OIE requirements is animal health related concerns as follows:

- General Provisions: Notification of Animal Diseases, Veterinary Ethics and Certification for International Trade, Import Risk Analysis Import/Export Producers and Risk Analysis for Biologicals for Veterinary Use (A)
- Recommendations Applicable to Specific Diseases: List A
- Diseases, Multiple Species Diseases in List B, Bovine Disease in List B, Ovine & Caprine Diseases in List B, Equine Diseases in List B, Swine

Diseases in List B, Avian Diseases in List B, Lagomorph Disease in List B, Bee Diseases in List B, Diseases not covered by List A and B

- Diagnostic Tests for International Trade Purposes: Prescribed and Alternative Diagnostic tests for list A and B Diseases.
- Collection and Processing of Semen
- Epidemiological Surveillance System: Recommendations for Rinderpest, contagious bovine pleuropneumonia, bovine spongiform encephalopathy
- Model International Certificates

3.13.25 Key Issues to be Addressed

Key WTO issues can be divided in two categories

- (i) commercial issues affecting competitiveness and
- (ii) SPS issues which are likely to act as non tariff barrier to trade:

3.13.26 Commercial Issues

3.13.26.1 It is evident that the reduction commitments made by various countries under the WTO are not only unequal, but also unfair and un-equitable. At the end of six years of implementation of the URAA the expectation of free and fair trade have been belied. Most of the developing (emerging) countries including India did not fully understand the Rules of WTO regime. It is difficult for these countries to achieve international competitiveness when heavy export subsidies, domestic support mechanism and other distortions including non-tariff barriers affecting world livestock product market still persist. India has already lost a lot during the Uruguay round of negotiations. Most of issues relating to market access, domestic support and export subsidies are under re-negotiation during the current round of multilateral negotiations under the WTO regime, which is at initial stage. India would stand to gain substantially if it adopts a well formulated aggressive strategy and mobilizes adequate support from countries with common interest through diplomatic and other channels and negotiate for substantial reduction commitments in all the three areas namely access, domestic support mechanism and export subsidies.

3.13.27 SPS Issues likely to act as Non-tariff barriers to trade :

- Lack of harmonization of national standards, guidelines and recommendations falling under the category of SPS with those of international Reference Organizations namely the Codex Alimentarius Commission (CAC) and the Internal Office of Epizootics (OIE).
- SPS developments are taking place on a continuous basis. India's representation has so far not been very effective at highly technical meetings of the Committees/Commissions of the CAC the OIE and the SPS Committee of the WTO.
- Some of the Codex decisions are not based on scientific risk assessment after considering global data and systems of livestock production

including those practiced by the developing countries. India must officially protest against such arbitrary decisions e.g. lead content of 0.05 ppm in butter.

- Some nations have taken undue advantage of provisions of Article 3.3 and 5.7 of the SPS Agreement and determined some levels of protection arbitrarily, which are much higher than those determined under relevant international standards. Some of the examples are the directives issued by the EU (refer paragraph 3.52).
- Lack of awareness and understanding of the concept and principles of the approved quality assurance system i.e. HACCP system by the livestock processing industry at large.
- Lack of testing facilities duly certified and accredited by an international certification body for testing of heavy metals. Aflatoxins, pesticide residues, veterinary drug residues and pathogens and trained manpower for undertaking analysis of the contaminants.
- Lack of adequate number of livestock production facilities capable of assuring quality and safety of their products from farmer to consumer duly certified for ISO 9002 and HACCP system.
- Lack of compliance with the OIE Requirements (refer paragraph 3.42)
- Lack of data based on collaborative clinical studies and epidemiological surveillance regarding actual levels of contaminants in Indian livestock products for the purpose of negotiation at the international forums.
- Important issues of risk assessment, risk management and risk monitoring lack adequate attention. Therefore there is an urgent need to set up mechanism to address these issues effectively.
- Lack of adequate infrastructure facilities for collecting food samples and carrying out required analysis to ensure quality and safety of food. This needs to be created suitably.
- Multiplicity of government agencies involved in addressing SPS issues and lack of coordination with each other.

3.13.28 How to meet Challenge

3.13.28.1 Both in global and its domestic markets, Indian livestock industry faces basically two challenges

- (i) to be price competitive and
- (ii) to produce products conforming to international quality and safety standards.

3.13.28.2 A comprehensive strategy is required to be formulated and implemented with suitable legal backup and appropriate government support and action. An effective network of institutions responsible for commerce/export, quality and safety related aspects and which function in close coordination with each other is necessary. These institutions should suitably address issues of exports and imports and take actions on SPS standards or take counter action if any nation

determines arbitrary/unjustified WTO/SPS measure or decide to take such nations to the WTO Dispute Settlement Panel whose unjustified WTO/SPS measure hurts India's trade interest, import duties etc. as deemed necessary from time to time.

3.13.28.3 The government should evolve a mechanism to monitor the international prices and other developments in the world market and take corrective actions such as anti dumping duties and suitable tariff rates, to protect domestic industry from unfair competition. Indian livestock industry should take a lead role in studying and monitoring the trends in the global market (especially related to domestic support, export subsidy levels and international prices) and provide the relevant information to help the government in formulating strategies for the negotiation.

3.13.28.4 Commerce related issues are already included in the Agenda for the next round of multilateral negotiations which is likely to begin shortly. India would stand to gain substantially if it is able to negotiate substantial reductions in protectionism due to market access restrictions, domestic support and export subsidies:

- A change in the present structure of domestic support boxes by dismantling all subsidies into one box. The largest benefit from domestic support reduction would be achieved by targeting the countries with the largest market distorting policies and by targeting the commodities sensitive to India. For example, key areas include dairy products and sugar in the US rice wheat and dairy products in Japan and milk, beef and sheep meat in the EU.
- A base period for support reductions representative of normal years or cuts must be sufficient to achieve actual reductions in support.
- The access to the provision of Special Safeguard be either made universal or this provision be abolished.
- Phased, but accelerated total elimination of export subsidies because these are the most trade distort
- Most of the WTO issues concerning livestock sector are being addressed to by the existing institutions and systems mostly independently. However, there is little coordination among them. Therefore, several important issues remain unaddressed and even those that are addressed lack effectiveness. It is essential that all institutions function in an integrated manner. The important broad issues in each of the two above mentioned categories and effective integrated systems to address them are outlined in the following paragraphs

3.13.29 Commerce and Trade Gaps

3.13.29.1 This information can be collected by the Department of Foreign Trade, Ministry of Commerce. The information collected should be analyzed to project

the future global market situation in respect of livestock products. The function therefore includes the following:

- Collect information on global trade, production and demand
- Collection information on global prices, subsidies provided
- Collect information on projected future productions, demands and subsidies commitments in major countries
- Analyze the above project future global price and assess its effect on our trade.

3.13.29.1 Domestic Market Intelligence: This function can be carried out by the Department of Animal Husbandry and Dairying. The function would include the following:

- Collect information on production, demand, import and export
- Future projections for the above
- Collect information on domestic prices and project future prices
- Assess the concerns of bio-diversity and animal diseases and make suitable suggestions.

The DAHD would be required to coordinate with the Ministry of Commerce, DGCIS and other relevant organizations.

3.13.29.2 WTO provisions analysis: Based on the information collected as per paragraph 4.4 and 4.5 the Ministry of Commerce should analyze the various provisions of AoA and formulate future strategy for WTO negotiations in consultation with the Advisory Committee proposed below;

3.13.29.3 Indian Trade Intelligence: This function includes information on imports and exports of livestock products and DGCIS would continue to do it. It is necessary however, that information be up to date and not old as it is the case at present.

3.13.29.4 Import Management: The specific function included is:

- Setting up quality standards for imported products
- Checking conformity of imported products with the PFA/National standards. This would be done with the help of customs authorities; designated food laboratories etc to restrict entry of all non-conforming imported products.

3.13.29.4 Export management function would be carried out by the Ministry of Commerce with the help of other agencies. The function would include:

- To set up infrastructure requirements for plants producing products for export. The Export Inspection Council of India (EICI) is responsible for this function.
- To organize inspection of plants. This also is the responsibility of EICI.
- To suggest measures to improve quality of products. This may be done by the EICI in coordination with NDDDB, NDRI, IVRI and such other organizations.

3.13.30 Quality and Safety Management

3.13.30.1 Quality and safety assurance system: Necessary quality assurance measures need to be implemented in the entire livestock product chain, from farmer-to consumer, to ensure that livestock products produced meet international standards. Some of the measures are Good Hygienic Practices (GHP), Good Agricultural Practices (GAP) Good Manufacturing Practices (GMP), HACCP and Cold Chain. NDDDB has already initiated move in this direction with comprehensive programme of quality and plant management in the cooperative dairy sector with encouraging results. Some twenty-five cooperative sector dairy/chilling plants have already received HACCP/ISO 9002 certification. Some other export oriented meat and egg-processing units have also obtained ISO 9002/HACCP certification. It is high time Ministry of Food Processing makes HACCP certification mandatory for all export oriented units.

3.13.30.2 Legislations: Setting up standards where corresponding to Codex standards to not exist, reviewing and rationalization of quality and safety standards/guidelines based on risk analysis, including harmonization with international standards/guidelines be taken up by the Ministry of Health on a war footing basis to ensure that harmonization exercise is completed as soon as possible, but not later than 31 December, 2002. A similar exercise would be necessary in the Department of Animal Husbandry & Dairying in respect of OIE standards, guidelines and recommendations.

3.13.30.3 Enforcement: A present enforcement of the legislations is one of the weakest links in the food chain. The enforcement authority be revamped and restructured to make it fully responsible and accountable.

3.13.30.4 Infrastructure Facilities for Testing: Besides Food Quality and Safety Council being established at the Central Food Technological Research Institute, Mysore, a laboratory for undertaking microbiological risk assessment in foods with international accreditation be established. Further some of the existing laboratories be identified and be upgraded by creating necessary facilities for analysis of all the contaminants as per Codex requirements.

3.13.30.5 Effective Participation: New SPS measures and developments are expected to take place globally on a continuous basis. India's participation in the meetings of the CAC, the OIE and the SPS Committee has been far from effective. India must safeguard its interest by ensuring enough homework on the agenda, mobilizing sufficient support well before the meeting and representation at all meetings by highly competent experts.

3.13.30.6 Training: Regular programmes of training of manpower regarding application of the concept and principles of HACCP throughout the food chain from farmer to consumer should be implemented.

3.13.30.7 Database: Sound database be created based on collaborative clinical studies and epidemiological surveillance on actual level of contaminants in livestock products and appropriate levels of protection under Indian conditions.

3.13.30.8 Amendments to the SPS Agreement: Some of the provisions of the SPS Agreement are highly biased in favour of advanced nations. Examples are Articles 3.3 and 5.7. India should request the SPS Committee of the WTO for a review of the Agreement and ask for deletion of these two unfair unjustified provisions.

3.13.30.9 Tit for tat: While preparing Indian livestock industry to meet the WTO/SPS challenges is a must, the policy of tit for tat needs to be implemented at the same time to protect the industry from any unfair/unjustified WTO/SPS decision of a nation. This is because the SPS rules are biased towards the advanced nations and tendency to determine SPS measures which is not based on science but on international trade politics, has already been noticed. Countering such an unjustified provision with a well-conceived SPS measure is a prudent option.

3.13.30.10 Implementation: A time may be set up for the implementation of the recommendations in a time bound manner. Surveillance audit be arranged of all the identified laboratories and export oriented units from time to time.

3.13.30.11 While current regulatory agencies have been addressing quality related issues, safety related issues are not being addressed suitably and effectively. It is necessary that a mechanism be set up to address all these issues in a unified manner. A Food Quality and Safety Council set up under the Central Food Technological Research Institute (CFTRI) can effectively address these issues. The Council will coordinated the functions of other regulatory agencies.

3.13.30.12 The important issues arising out of the international regulatory system (WTO/SPS) with reference to livestock products that need to be addressed are:

- WTO provisions analysis
- Global market intelligence
- Indian trade intelligence
- Import management
- Export management
- SPS notifications
- SPS gaps and concerns
- Non-tariff export barriers

Each of the above mentioned issue is required to be addressed suitably and adequately and unified to produce measures to be taken for optimum results.

Most of the above-mentioned functions are being discharged by government departments and other organizations currently, but there is a lack of coordination and unified policy direction. This body can be an Advisory Committee on International Regulatory Matters (WTO/SPS) pertaining to Livestock Products.

3.14 Conservation

3.14.1 Despite great economic value and significant contribution of domesticated animals to the extent of 30-40% in terms of total value of global food, precise inventories and description of all the diverse breeds of animals do not exist. It is now held that over 30% breeds among the 7 major domesticated species have not been even documented. It is a matter of great concern that nearly 40% of the global domestic animal genetic resources are currently at high risk of extinction. In a large number of cases the endangered breeds are having less than 1000 breeding females and less than 20 breeding males. According to FAO, 4000-5000 livestock breeds are at risk with the rate of extinction estimated one breed per week. Few rare and archaic breeds in the world now exist only in conservation centers and zoos. Each breed in ultimate analysis is a repository of an unique gene pool. The loss of such a gene pool is implicit in the process of extinction of the breed. The conservation and judicious use of resources created by human kind even if they are no longer profitable is a relatively new concept.

3.14.2 Unfortunately the 20th century had witnessed serious erosion and even extermination of umpteen domesticated animal breeds. Many existing breeds are facing varying degree of threat, endangerment and heading towards eventual decimation. These developments alongwith commercialization of livestock industry have led to the creation of the so called super breeds which now occupy a dominant position in the production system all over the globe. Unfortunately in the process of commercialization, the native traditionally well adapted breeds have suffered wilful neglect with progressive elimination from the production system. The unimproved breeds owing to lack of economic sustainability are likely to loose ground in the competitive animal agriculture enterprise.

3.14.3 Consequent upon signing of the global bio-diversity convention in 1992, the livestock wealth of our country has been relegated to the status of the national wealth. In the light of this convention, national conservation strategies consistent with the global initiatives would be necessary. India is bestowed with rich domestic animal biodiversity having 30 breeds of cattle, 10 of buffalo, 42 of sheep, 20 of goats, 9 of camel, 6 of horse, 3 of pig and 18 of poultry, in addition to other species like equine, mithun, yak, turkey, ducks, etc are also endowed with diversity. A vast spectrum of agro-ecological zones in India has perhaps contributed in the development of large number of breeds of various livestock species. This diversity of domesticated livestock and poultry breeds is thus a culmination of years of evolution within a specific ecological and economical niche. The large livestock population generally consist of a small percentage of recognized breeds having marked by specific characteristics and a very large proportion of non-descript animals not conforming to any specific breed

characteristics. It has been globally recognized that for sustainable development in agriculture and animal husbandry, conservation of animal genetic resources is essential. Each breed in ultimate analysis is a repository of unique genes or gene complexes. It cannot be said with certainty at this juncture as to which form of gene combinations would be required in future

3.14.4 Characteristics of Indian Livestock

3.14.4.1 Majority of domesticated animals breeds of cattle, buffaloes, sheep and goats are native to the Indian sub-continent. Indigenous breeds/types are rich in variability and are endowed with many positive traits like superior disease resistance, better tolerance to high heat and humidity and other characteristics suitable to particular agro-climatic environments. It has also been noted that indigenous breeds are more efficient in feed conversion particularly the crop residues and naturally available low quality roughages. The Indian bovines since time immemorial have been selected and developed to provide draft animal power for agriculture operation and excel in this trait. However, productivity levels of indigenous breeds are low as far as important products are concerned. The population of farm livestock is exceedingly high, while their productivity is markedly lower than that of European and American animals. Apart from explosive population already reaching to the saturation level, the rate of increase in the population of various livestock species is also very high vis-à-vis resources

3.14.4.2 The increasing trend in mechanization is limiting the use of animal draft power in agriculture as well as transport sector. The various draft livestock breeds and other pack animals are gradually losing ground cattle breeds like Nagori, Khillari are declining substantially in the breeding tracts.

3.14.4.3 The rich biological diversity in farm animals and poultry is progressively getting eroded in the last few decades especially in cattle, poultry, sheep and pigs where a large percentage is either being replaced by exotic or crosses of the exotic and native breeds. Further, there is a marked decline in the availability of unique animals conforming to the true attributes of native breeds. Since early 60s, breed substitution or breed modification programmes have gained prominence in poultry, cattle, sheep and pigs. It was originally envisaged that the advent of programme for producing high yielding farm animals would also have a concurrent programme for the reduction in the number of inferior animals. However, the programme for the reduction in the population were not implemented. In fact population further increased to meet the demand for food and other products of animal origin. This trend too caused both quantitative and qualitative depletion of animals indigenous breeds over the years.

3.14.5 Absence of mandate for conservation

3.14.5.1 Plethora of agencies, institutes, government departments, deal with diverse aspect of animal genetic resources. The major thrust in their programmes

is to provide health services, management and breeding practices to increase production and to provide extension services to the farmers regarding new technologies. The animal genetic resources conservation and sustainable utilization is not included in their activities. Further, the adoption of the breeding plans or strategies recommended by Govt. of India to various states are neither mandatory nor backed by the support. Under the circumstances breeding is done what suits to a state or available to a farmer. There is inadequate control on the export of indigenous Animal Genetic Resources from the country. Further, it is not mandatory to involve the animal husbandry personnels dealing with the conservation and characterization of the farm animals.

3.14.6 Survey and evaluation of genetic resources

3.14.6.1 Breeds which are rare or endangered should be taken up on priority alongwith those which have a large population, wide distribution and possess great economic potential. Many native breeds have superior disease resistance, adaptability, hardiness to survive and perform under low inputs and adverse circumstances. These traits have not been standardized for their genetic variability among and within breeds. A number of variants (types/strains) of a given breed in different species have been reported over time. The quinquennial census of livestock have hitherto been carried out without proper identification of breeds and their population. In the absence of precise information, it is difficult to ascertain the exact status of a breed that needs conservation.

3.14.7 Breed accreditation and identification

3.14.7.1 Majority of the indigenous breeds of farm animals and poultry were given some sort of accreditation (identification) between 20s and 30s based on recordings by imperial civil and military officials. However, the descriptions were not based on extensive surveys designed to reveal the extent of variability in the animals of a breed. The breed inventories are sketchy and reveal many discrepancies. Many types (or breeds) having distinctive attributes remain omitted, while in some other cases perceptible differences have not been recorded among closely related types; yet they possess different names. Apart from these discrepancies, new breeds have been described in the publications emanating from State Animal Husbandry Departments without proper surveys and back up laboratory analysis of gene marker traits. Accreditation of indigenous breeds by State Govt. by way of registration is warranted. The registration programme should be expanded for all breeds and strive to identify animals with higher productivity. Field recording of performance of the animals should be carried out by State Govt. with help of other agencies and state Animal Husbandry Departments.

3.14.8 Publications

3.14.8.1 It is a matter of common knowledge that whatever little information is currently available is scattered and needs consolidation and documentation. In this context, publication of monographs on the native breeds giving their description, information on their production parameters, location and strength of herds maintaining these breeds. Size of testing population, number of breeding males being tested and selected and availability of their semen assumes considerable significance. This activity can also generate global interests in some of our unique breeds and promote their market value.

3.14.9 Indian watch list

3.14.8.1 It is generally held that warning signals on the loss of bio-diversity emanate when considerable damage has already taken place. To avoid this situation, country watch list on the pattern of FAO, based on reports of surveys/studies needs to be published and regularly updated. The model population size needed for conservation of breeds in Indian context should be worked out. Indigenous breeds at risk are

Cattle:	Red Sindhi, Sahiwal, Tharparkar, Punganur and Vechur.
Buffaloes:	Nili-Ravi, Bhadawari and Toda.
Sheep:	Nilgiri, Muzaffarnagri, Malpura, Chokla, Jaisalmeri, Munjal, Changthangi, Tibetan, Bonpala from Sikkim and Garrole sheep
Goat:	Beetal, Jamunapari, Chegu, Changthangi, Surti and Jakhrana. Jamunapari goats
Camel:	Bacterian, Jaisalmeri and Sindhi.
Yak	
Mithun	
Poultry:	All the 17 indigenous breeds of poultry are facing extinction. The three important breeds Aseel, Kadaknath and Naked Neck,

3.14.10 Conservation agencies

3.14.10.1 Various agencies are involved in livestock work such as Department of Animal Husbandry and Dairying, Govt. of India, State Govt. Animal Husbandry Departments, State Agricultural Universities, Animal Science Institutes of ICAR, NDDB, BAIF and other agencies should have clearly defined role proactive to foster conservation. The conservation set up for the India should be decentralized and each state/adjointing states where a breed exists should take necessary steps. Same efforts should however be effectively coordinated centrally. It is proposed that each state should have a livestock conservation board and the whole country should be served by regional conservation centers. As a nodal agency, NBAGR may be given responsibility on behalf of the Govt. of India, Department of Animal Husbandry & dairying to monitor the progress of conservation programmes, formulate policies and provide technical support..

3.14.11 Live gene repositories

3.14.11.1 Department of Animal Husbandry & Dairying, Govt. of India, State Animal Husbandry Departments, State Institutes, Animal Husbandry and Veterinary, Animal Science Research and Education Departments, Gaushalas, Pinjarpoles, NGOs like BAIF, NDDDB have farms of specific breeds of the region. These can become conservation Units of live animals. Actual conservation and improvement should be the responsibility of Animal Husbandry Department and various organizations/agencies (public as well as private). The Overall responsibility should be of Animal Husbandry Department, Govt. of India and State Animal Husbandry Departments. These organizations should undertake the following activities.

- Complete Inventorization of *in-situ* conservation herd
- Strengthening of *in-situ* open nucleus breeding centers
- Linking such centres in a manner that can follow open nucleus centers so that larger numbers of males can be tested and confounding of genetic merit and environment which happens in farms can be avoided.
- Field recording of performance of pedigreed progenies. This would supplement the information from institutional herds and help to improve the accuracy of selection.

3.14.12 Dovetailing of breeding programmes with conservation

3.14.12.1 All the breeds of livestock & poultry should be identified and need based specific conservation programme undertaken on top priority. In-situ conservation should be done by using sufficient number of males and females. At least 10 males should be used for in-situ conservation on 100 females. It should be ensured that each male contributes one male progeny and each female contributes one female progeny to the next generation. It is crucial that genetic variability should be maximized and chances of inbreeding reduced or obliterated.

3.14.13 Role of NGO and Breed Societies

3.14.13.1 To generate awareness and interest in rare breeds, survival trusts have been established by the conservationists and voluntary agencies in several parts of the world. Similar initiatives are necessary in our country also. The breed organizations and societies have played a notable role in Europe and America in maintaining the purity of the breeds as well as their improvement. Similar bodies do not exist in India except for few breeds of cattle and buffaloes that too are playing an insignificant role in breed conservation and improvement. More breed societies should be contemplated. These organizations must champion the cause

of conservation with the involvement of the farming community in particular and public in general.

3.14.13.2 India has 675 gaushalas and a large number of pinjrapoles and a few farms owned by private individuals who on voluntary basis maintain animals of a particular breed which generally have low production. Many times these organizations keep animals which are abandoned or left off by the farmers due to drought and other difficulties in upkeep. The gaushalas, if properly organized and managed in a scientific manner, can emerge as a major resource of native domestic breeds of cattle. These organizations can play a pivotal role in the conservation of cattle genetic resources.

3.14.14 Ex-situ Conservation

3.14.14.1 Research activities on ex-situ conservation, genetic characterization, long term storage and methodology for the revival of breeds after long cryo-conservation warrant indepth research. It becomes important for India which has large genetic resources which are uneconomical and would need ex-situ conservation. Utilisation of more advanced reproductive technologies and biotechnology developed for embryo transfer, embryo splitting, embryo cloning and other such techniques should be undertaken. These would intensify and hasten conservation endeavour. Training programmes for the conservation needs to be strengthened so that conservation activities do not suffer due to paucity of trained personnel.

3.14.15 Legal frameworks

3.14.15.1 It has often been felt that legal measures relating to conservation of animal genetic resources are grossly inadequate and lack punitive measures. Appropriate legal instruments need to be worked out related to all the aspects of conservation, maintenance, trade and sustainable utilization of genetic resources. The legal instruments at national level on domesticated animals are inadequate and suffer from weak application in the absence of stringent punitive measures. These laws should cover all aspects of conservation, benefit sharing, transfer, acquisition, accession, generation and sharing of information on diverse aspects of animal resources. In the absence of proper legal framework, misuse, abuse, over-exploitation and non-judicious utilization of genetic resources is rampant. The following aspects deserve special consideration:

- Laws regarding trusteeship/ownership of animal genetic resources in gene banks, outside the country.
- Laws prohibiting/permitting use of genetic resources/genetic material including punitive measures for infringements.
- Third party and further on transfer of genetic resources – terms, conditions, rights and obligation in such transactions.

- Transfer of genetic resources for commercial use and for research – rights/obligations and benefit sharing.
- Laws on the piracy, acquisition of classified data on animal genetic resources.
- Regulations on networking with global agencies.
- Legal guidelines on negotiations for bilateral agreements.
- Legal framework for the establishment and working of data banks.
- Laws regarding benefit sharing by parties and local communities.
- Rules and monetary obligations of non-government organizations handling animal genetic resources conservation programmes.
- Laws covering breed registration societies and other similar organizations.

3.14.16 Potential intellectual property and patentable areas of farm animals

3.14.16.1 There are umpteen unique traits of the farm livestock species inhabiting Indian sub continent which hold considerable potential application or utilization through biotechnologies. A priori, the distinctive attributes or breeds can be exploited for profits by getting some form of Intellectual Property Rights or protection. The notable areas for IPRs could be the following in Indian context:

- Alleged disease resistance;
- Adaptation to withstand tropical heat and far greater climatic fluctuations;
- Better potential to utilize course quality feed and fodder resources;
- Better survivability under more recurrent drought conditions;
- Superior growth and higher fecundity in some species/breeds;
- Potential to yield of certain unique products which have economic potential after value addition or de novo technological processing;
- Alleged therapeutic and nutritional value of certain livestock products;
- Geographical appellation of breed associated with traits or products;
- Indigenous technical knowledge on animal husbandry which can be further upgraded through research and intervention of technology;
- Utilization of unique genes through bio-technologies for noval use.

With further advances in bio-technologies and processing techniques many more IPR relevant areas would emerge.

3.14.17 Absence of a system in farm species comparable to sui generis

3.14.17.1 Under the GATT agreement (of which India is a signatory), members must provide for protection of a plant variety either by patent or by an effective sui generis system. The latter is a milder form of patent and provides a framework for safeguarding plant breeder's rights. It covers privileges of the farmers and researcher's right. In respect of domestic animals, no comparable system for the protection of varieties or breeds exists in any part of the world. However, in America, Australia and some European countries, the distinctive animals which meet certain clearly laid specifications of breed are permitted for registration. The breed registration, however, does not provide in any manner

IPR's to the community or individuals. However, a breed registration act is under formulation.

3.15 Extension

3.15.1 Generally livestock is integrated into the farming system, several species are raised on the same farm and livestock is still being used for multiple purpose. Most production systems however are still characterized by low input use and productivity. Intensification has only occurred on a wide scale in the poultry industry and on a more limited scale in the dairy industry. For several years recommendation have been made in piece meal for Animal Husbandry extension nevertheless it is a fact that when we think or talk of extension, agriculture extension is addressed. This is for the first time that a separate sub group has been constituted for Animal Husbandry Extension and this is a great opportunity to streamline the most neglected discipline of Animal Husbandry the extension nevertheless most important one. There is no gain saying that the Animal Husbandry Extension play a most pivotal role in livestock productivity.

3.15.2 Central Sector Scheme

3.15.2.1 Animal Husbandry Extension Programme was started in the year 1992-93 with the objective to promote and propagate of latest animal husbandry practices and technologies and create awareness among the farmers and breeders about the potential of livestock. In the Ninth Plan Rs. 10.41 crore would be spent against the allocation of Rs. 20 crore. The different components of the scheme are:

- i. National Demonstration Unit of Animal Husbandry and Fodder Development:
- ii. Organization of Seminars/workshop and training of field staff
- iii. Training for breeders and farmers including women farmers.
- iv. Organization of All India Milk Yield Competition
- v. All India and a Regional Livestock and Poultry show
- vi. Participation in the National Exhibition

The progress of the scheme itself in an indicative of performance.

- Only 5 National Demonstration Units have been established in Manipur, Kerala and Meghalaya
- Organization of 9 seminars/workshop/training for field staff of the Karnataka, Gujarat, Kerala and Meghalaya and 48 training programme for the farmer/breeder including women in the state of Karnataka, Kerala, Gujarat, Manipur and Mizoram.
- Organization of All India Livestock and Poultry show in Karnataka and regional livestock and poultry show in each of the states of Meghalaya and Himachal Pradesh.

- Participation and installation of partition in Agriculture Exhibition cum IITF during March 2000 Agri Expo during March 2001 at New Delhi.

3.15.3 Livestock Extension vis-à-vis Agriculture Extension

3.15.3.1 Presently livestock extension is attached with agriculture extension. Livestock extension needs to be treated differently from crop related extension activities for the following reasons.

- Livestock are kept with multiple objectives ranging from income generation, food, fuel and fertilizer production to social and cultural aspects.
- Livestock have stronger socio cultural linkage, which makes change process that much more difficult.
- Involvement of women is more in livestock keeping, compared to crop production and their perceptions about livestock are different from men. Most training and TOT programmes are men oriented, so is the extension material and these do not suit women in view of different perceptions, priorities other duties and higher illiteracy amongst them.
- In livestock production it takes much longer time for impact of technological intervention or change in management to be visible compared to crops.
- Livestock production has always been secondary to crop production, mostly kept at subsistence level and was not considered as a major contributor to family income or employment. It is only since last few years that its potentialities are being realized. Hence adoption of new technologies and messages by farmers is influenced by many factors besides economic benefits.

3.15.3.2 The above aspects indicate that extension in livestock to be effective, will need more sustained effort, greater interaction with farmers with participatory and systems approach and due consideration of socio cultural aspects. Gender issue acquires much more importance in livestock development processes and inclusion of women in the extension team is necessary for faster impact.

3.15.3 Constraints

Following constraints are being felt in the Animal Husbandry extension

- a) Lack of trained extension staff and in adequate infrastructure
- b) Lack of planning, training and communication skills
- c) Lack of extension equipments
- d) Inadequate operational expenses
- e) Lack of farmer feed back and participation in priority settings
- f) Narrow focus or research extension system

g) Lack of research extension system

3.15.4 Coordination between Central and State Agencies

3.15.4.1 Animal production and health as well as the agriculture are state subjects and the policies of the Central Government are not binding on the State Government. The extension and support system is with the state government and research with central agency. Lack of mechanism for proper coordination is resulting into poor dissemination of knowledge and technology to end user and feed back from grass root level to research system. The negligence of interface between central and state agencies both at policy making level and at functional level is resulting into lack of demand driven research and development and poor adoption and utilization of technology.

3.15.5 Interaction Between Research and Development Institutes

3.15.5.1 Extension is the bridge between research and farmers through the departments. For effective use of research it is essential that we should assess the area needs and plan our research accordingly. There should be a regular interaction between research and development institutions for the regular feed back from the farmers. Extension is the least addressed discipline at state veterinary colleges and is merely a minor subject. Therefore a full fledged faculty is required for effective education. Besides this every state requires an Extension Education Institute on the pattern of Nilokheri, Haryana and MANAGE, Hyderabad for effective training in communication and extension skills for department personals NGOs & farmer.

3.15.6 Cyber Extension

3.15.6.1 It is well known that the area of Technology Dissemination is vital for getting across the benefits and fullest use of any technology to the farmer. Therefore this is need of the day to prioritize this area of technology dissemination at a fast speed, where maximum value can be derived from information technologies for the farmer. The CYBER EXTENSION shall be grounded in a faced manner and all block level veterinary hospital shall be apart of IT Network connected towards central repository of technologies./ Facility of On Line buying and selling of produce by farmers is the dream of this intervention.

3.15.7 Involvement of Non-Governmental Organization

3.15.7.1 For intensification and effective coverage, improving accessibility of livestock services for breeding, health and extension it is necessary to encourage involvement of agencies like farmers Cooperatives NGOs and private individuals. Agencies who are effectively working should pay these provided funding support for extending service, farmers should pay these services, since these are private

goods. Paid service will have better accountability. Govt. which is presently the main agency providing these service, should gradually change its role from monitoring agency. It should ensure that there is no duplication of services followed. However the Animal Husbandry Department should continue to be involved but should also consider promoting private practitioners for providing services to farmers in areas where conditions are conducive and demand for service is created.

3.15.8 Network of Para Extension Workers and Paravets

3.15.8.1 Considering the facts that even after decades of efforts only a fraction of farmer families have taken the benefit of livestock services, even though these are subsidized there is need to seriously consider alternate approaches to delivery systems of services. Services like those for breeding and health are tools for development and unless majority of farmers are involved and take their benefit, development will be slow. Effective extension service can bring about improvement in farmer awareness (about livestock development and management), their innovative, allocative and working abilities so crucial for achieving desired results with livestock development. Experience of a few NGOs and Dairy Milk unions indicate that delivery of breeding health, extension and advisory services can be effectively organized through properly trained and oriented para extension paravet workers chosen from farmer families. Lessons from earlier experiments with such initiatives indicate need for care and proper approach at all the stages of developing these teams. The person should be from farmer family and very carefully chosen in consultation with farmers. The training and orientation of these persons should be intensive and practical oriented with plans for retraining at regular interval. If well nurtured the private extension workers would be effective since their innate farmer wisdom would be supplemented by technical training.

3.15.9 Women Extension Worker

3.15.9.1 As women play an important role in AH. These can be deployed as Women Extension Worker at selected Gram panchayat after short training in extension method communications skills required for transfer of technologies. Gender issue is as important for extension and training as it is for development. Studies have shown that most conventional training and extension programmes, which are usually men oriented do not suit women. These should be of short duration, practical, deal with limited topics of current interest and executed in discussion mode. The programmes should be organized in consultation with women, considering their convenience, in view of their multifarious responsibilities. It is desirable of women resource persons is desirable to make the programmes more effective. While there are many development programmes planned for extending economic benefits directly to women, there are very few livestock related extension and training programmes specially designed to suit women.

3.15.10 Messages Packaged in Understandable Form

3.15.10.1 One of the major drawbacks in livestock production related extension and farmer training programmes is lack of appropriate messages packaged in understandable and assimilable form. Extension material is usually prepared centrally and is based on technical literature and hence it loses relevance in many cases. In many cases the messages in local languages are literal translations of English text and are not understandable by rural folk. Studies and field experience has shown that drawings and figures used for posters, usually made out with the help of commercial artists do not make much sense to rural people. There is need for great care in selecting messages/recommendations and package them in many spoken language in extension and training and more so with women. It is parts of the country to develop extension and training material in a participatory manner, relevant to different situations. Farmer cooperatives, NGOs selected research Institutes and SAUs should be involved and help of number of NGOs who have environment related programmes and would be useful in livestock field.

3.15.11 Krishi Vigyan Kendras

3.15.11.1 Strengthening Krishi Vigyan Kendras (VKK) is suggested to enable them to handle livestock extension. There is a large network of KVKs in the country, with the mandate of training extension staff, however, they are very weak in livestock related subjects. Moreover most of their staff is not oriented to extension. However, this network is difficult to duplicate and hence it is suggested to strengthen it by providing adequate staff and training and orienting them in extension. In some areas where livestock contributes substantially to family income, like some districts in Rajasthan and Gujarat states, livestock based KVKs should be developed by providing staff qualified in livestock production and health subjects.

3.15.12 Establishment of a National Institute of Livestock Extension (NILE)

3.15.12.1 The AH extension has been not given its due in previous plan. As there is an enormous scope of AH extension to contribute towards poverty alleviation and self employment scheme been implemented in the country. The establishment of this institute will fulfil the requirement of skill upgradation for AH personals, farmers, NGOs and put in the country.

Human Resource Development

3.15.12.2 A preliminary study on generation of veterinary graduates and their absorption in the country by Institute of Applied Manpower (IMAR – 1999) has revealed that 94% of total veterinarians are employed by the government. Only 6% go in to private and commercial sectors. However. it is being observed that progressively more and more veterinarians are absorbed by the private sector

Present admission scenario has revealed that about 1,878 new admissions in the veterinary colleges have taken place. This may not be enough even to meet the teaching requirements of colleges which has to follow the guideline of Veterinary Council of India. It has been suggested that a minimum of 3,000 veterinarians will be required in the country annually in order to meet the growth rate of 10% by the year 2020. Current vacancy levels of 6,000 veterinarians will be filled within the next three years and in the next ten years the required number of veterinarians will be produced; such that by 2024 we will reach self sufficiency target of 1:5000 (one veterinarian for 5,000 adult units of livestock) for effective animal health care and production a target fixed by the government.

3.15.12.3 In 2025 we will need to reexamine and readjust the admission requirements of colleges to be synchronus with the annual outflow. In addition we would require an input of 3,560 of dairy graduates in order to sustain a growth rate of 10% in the sector. This would call for an institutional growth of higher than 10% by the year 2020. Consequently, it would be necessary to have an input of a minimum of 5,000 crores in the sector of livestock development in education alone if the targets given by the government are to be realized.

3.15.12.4 The current scenario demands that the present educational system should be able to meet the knowledge needs of the commercial farmers besides small and marginal farmers. The service and goods sector should be so developed that the subsidized government efforts should be dispensed with completely by the end of the Plan. Therefore, it is necessary that the future veterinarians should be able to be knowledge intensive and practical oriented in order to effectively service three arms of livestock sector (Animal Production, Animal health and Livestock Product Technology). He should be able to utilize the knowledge for meeting the needs of the two livestock production systems those of (i) commercially viable and wealth and employment generating entrepreneurships and also (ii) the low input small units systems which should be converted into an entrepreneurial system through intensive knowledge and technology driven system. In order to obtain these it is recommended that veterinary and dairy science educational systems should be made autonomous with respect to governance of educational systems and should be given an autonomous status by implementing the Swaminathan's Committee's recommendation in letter and spirit.

3.15.12.5 Following veterinary council of India notification on regulation of veterinary education which came in force in 1994, the veterinary colleges under the ICAR system were supposed to strictly follow the "minimum standards of veterinary education – Degree Course – BVSc and AH - Regulation 1993". The subgroup had noted that none of the veterinary colleges is at the present moment following the regulations. The situation is so bad that deregulations of these colleges both under SAUs as well as under State Veterinary Universities is imminent. They will have their degrees de-recognized by the Government. This may create a major crisis in the country in the near future. It is therefore

recommended that during the Xth plan each veterinary college should be provided a sum of Rs.300 lacks for upgrading its facilities and faculties to be at par with the government regulations in order to avoid de-recognition by VCI.

3.15.12.6 The Post Graduate Educational programme needs to be completely revamped and broken up into two streams (i) the current stream which prepares candidates for research and teaching; and the second stream which caters to the clinical and para-clinical aspects of the veterinary profession. This stream will be based on hospital/clinic/diagnostic center focused programme, leading to a professional masters and Ph.D. degree. It will be necessary therefore to develop this second stream as the primary stream for training at post graduate level.

3.15.13 Professional Efficiency Programme

3.15.13.1 In order to meet the professional upgradation needs of veterinarians in private and public sector employment essentially managing clinical, para-clinical and prophylactic aspects of livestock sector, it is necessary that programmes in veterinary colleges be initiated to upgrade the skills of these professionals through a series of PG diploma courses which can spread over a period equivalent to Masters or Ph.D. level. This should become a major post graduate activity in the veterinary colleges.

4.0 Tenth Plan Focus and Strategy

4.1 Focus

4.1.1 Technology supported and demand driven livestock revolution will be the

Technology supported and demand driven livestock revolution will be the future engine for growth that ensures nutritional security, livelihood of rural poor and women empowerment

A sustainable and financially viable livestock and poultry farming, which will generate wealth and self-employment through entrepreneurship, is need of the day

External markets are an extremely important source of demand and these should be tapped much more aggressively

future engine for growth in this sector that ensures nutritional security, livelihood of rural poor and women empowerment. Population growth, urbanization and income growth both in India and developing countries are fueling a massive increase in internal and external demand for food of animal origin. Even for the rural poor, a significant portion of total energy and protein intake comes from animal products and this is increasing over the years. The demand-driven 'Livestock Revolution' should be used for food

security and livelihoods of rural poor, and for environmental sustainability. Use of technological and marketing interventions in production, processing, and distribution of livestock products will be central theme of the Livestock Revolution. Technology support is imperative not only for enhancement of productivity but also for reduction of per unit cost.

4.1.2 The overall focus, however, is on the four broad pillars on which to base a desirable livestock development strategy.

- i. Removing policy distortions that artificially magnify economics of scale in livestock production;
- ii. Building participatory institutions of collective action for small scale farmers that allow them to get vertically integrated with livestock processors and input suppliers;
- iii. Creating the environment in which farmers will increase investment in ways to improve productivity in the livestock sector; and
- iv. Promoting effective regulatory institutions to deal with the threat of environmental and health crises stemming from livestock

4.1.3 A sustainable and financially viable livestock and poultry farming, which will generate wealth and self-employment through entrepreneurship, is 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.

4.1.4 Public sector lending in livestock sector is abysmally low and such inadequate credit support leads to poor capital formation. As the organized financial sector is unwilling to finance livestock programmes that are not in their interest especially after the initiation of financial sector reform, the livestock

Public sector lending in livestock sector is abysmally low that leads to poor capital formation

For sustainable development, livestock owners, service providers, veterinarians and planners should absorb, assimilate and adopt the spectacular development in the knowledge of veterinary sciences and related technologies.

Need for consolidation and convergence of all animal husbandry related activities and schemes operated by different ministries.

Animal husbandry services need to be delivered at farmers door and linked with cost recovery for economic viability

farmers are mainly dependent on the financial intermediaries and they end up bearing a higher interest rate than that would be available otherwise. NABARD should ensure that at least 25% of the total agriculture sector lending is reserved for Animal Husbandry and Dairying Sector for both short term and long term capital requirement. Financing should be done against model projects that have demonstrated their economic viability.

4. 1.5 Sustainable rapid growth and development in this sector can only be ensured if the livestock owners, service providers, veterinarians and planners

become knowledge based and acquire the ability to absorb, assimilate and adopt the spectacular development in the veterinary sciences and 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.

4. 1.6 Besides the Ministry of Agriculture, schemes relating to animal husbandry and dairying are also being implemented by other ministries viz. Ministry of Rural development, Ministry of Non-conventional Energy Resources, Ministry of Culture (Animal Welfare Department) etc. Many schemes operated by these ministries have similar and overlapping objectives targeting the same population. Generic components like extension, training, and infrastructure get repeated in most of such schemes and are not complementary. Thus, there is a need for consolidation and convergence of all such activities, schemes and funds. Department of Animal Husbandry & Dairying being the nodal department should address all the issues in totality.

4.1.7 Livestock farming is a major player in dry lands and hill regions. But the focus of investment and developmental strategy is on crop agriculture. The focus in these regions should have been on livestock production as more than 70% 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.

4. 1.8 Most of the livestock services like A.I, vaccination, deworming etc. are time sensitive which Government institutions at times are not able to deliver due to financial as well as bureaucratic constraints. This necessitates the need for

providing efficient and effective decentralized services in tune with the demands emanating from the users. Such services should be delivered at farmers door and linked with cost recovery for economic viability. However limited Government involvement should be continued for people below poverty line who are vulnerable, illiterate and unable to integrate with the mainstream.

4. 1.9 The Department of Animal Husbandry and Dairying in the years to come will cease to be implementer of projects and programme. The role of the Government in future will be as policy maker and policy regulator rather than disbursement of central kitty, which is the current focus. It should have legal authority for certification and enforcement of quality / standards of veterinary biological, feeds, pharmaceutical products and livestock and livestock products

Department of Animal Husbandry and Dairying should play a role of regulatory authority rather than disbursement of central kitty

Declare the Department of Animal Husbandry and Dairying as a Science Department

Dovetailing of Animal Research Institutes of ICAR with the Department would provide a effective a delivery machinery for working as a regulatory body in post-liberalized era.

Creation of a permanent institution in the line of Commission on Agricultural Costs and Prices (CACP) for estimation of cost of production of various livestock products and suggest remunerative price exploited.

4.1.10 Capacity of the Department of AH&D to do effective monitoring of central schemes (both CS and CSS), which are highly technical in nature is limited and often does not exist. In view of the fact that entire sector programmes are needed to be handled by the technical person from inception to monitoring, the present staffing pattern is highly distorted and ineffective. Declaring the Department of Animal Husbandry and Dairying as a Science Department and dovetailing the Animal Research Institutes of ICAR with the Department would not only improve its efficiency but also provide a effective delivery machinery to the Department enabling it to work as a regulatory body in

post-liberalized era. These agendas of reform in governance should be taken on priority basis if we have to achieve 8% growth rate in this sector.

4. 1.11 All the items of the livestock sector, which figure in the Restricted List of Imports, should be freely allowed, subject to Sanitary and Phytosanitary rules and regulations, which should be strengthen and enforced rigorously.

4. 1.12 Many items, which relate to the livestock sector, still continue to figure in the Restricted List of Exports e.g. export of cattle, buffaloes, indigenus breeds of horses, frozen semen, etc. Such restrictions are unwarranted and need to be removed. Government should have a closer look at the quality of products that are being exported. The role of the Government in the emerging scenario should be seen to be promoting exports through improving, streamlining and strengthening the quality standards of exports

4. 1.13 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/bye-products should be repealed and all restrictions on the export of livestock and its products need to be removed. The immediate focus should 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 zone, organic farming and potable water; these should be made available in selected areas having large marketable surplus.

4. 1.14 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 standard. These do not exist nor is there any method for reviewing and rationalizing the quality and safety guidelines. Enforcement of the legislation would also be one of the important areas of action. For these, infrastructure facilities for testing food quality and safety need to be harmonized with OIE and SPS system. It is needed to establish a permanent Directorate/ Regulatory agency in DAHD supported by an Expert Committee for review of WTO/SPS related issues, regulatory requirement vis-à-vis Indian Legislation, control of import if necessary, counter measures against unjustified/arbitrary WTO/SPS measures adopted by other nations, helping export of livestock products and matters related to trade of livestock and its product on a regular basis

4. 1.15 Since animal disease eradication and quarantine is critical to exports, animal health system will be strengthened and disease free zones created. After the successful eradication of rinderpest disease, the major thrust will now be to adopt a National Immunization Programme against most prevalent animal disease (e.g. Hemorrhagic Septicaemia and Black Quarter in large ruminants, PPR and Poxes in small ruminants, Swine fever in pigs, Ranikhet in poultry).

4. 1.16 A national livestock breeding strategy needs to be evolved to meet the requirements of milk, meat, egg and other livestock products and transport. Major thrust will be on genetic up gradation of indigenous/native cattle and buffaloes using proven semen and high quality pedigreed bulls and by expanding artificial insemination network to provide services at the farmer's level.

4. 1.17 Even after over fifty years of independence and presence of a number of indigenous breeds consisting a sizeable part of global domestic animal biodiversity, there is no breed organization worth the name. Conscious efforts are needed to promote such organizations.

4. 1.18 Ever since draught power was allocated to Ministry of Non-Conventional Energy Sources ((MNES), very little developmental work has been done. For the development and efficient utilization of draught animal power in the country, the Ministry of Agriculture should work as a nodal ministry. A National Center for

Animal Energy Development can be established under the Department of Animal husbandry and Dairying as a Central Sector Scheme to coordinate all the activities related to the efficient utilization of DAP in collaboration with other Ministries/Departments. A new programme focused exclusively on improvement and conservation of draught breeds of livestock may be initiated during Xth Plan.

4. 1.19 Conservation of threatened breeds of livestock and improvement of breeds used for draught and pack animal should be the major goal of the Tenth Plan. It should be a national priority to maintain diversity of breeds and preserve those showing decline in number or facing extinction.

4. 1.20 Remove the present restriction on establishing new milk processing capacity under MMPO. Rules and regulation regarding registration of milk plants as practiced globally should be framed. MMPO should concentrate on quality and food safety only. To enable the dairy and poultry cooperatives to compete with private companies, it is necessary that cooperatives are free of shackles of archaic laws and bureaucratic interference.

4. 1.21 Disposal of livestock for slaughter at a salvage value is one of the means of balancing the economics of livestock rising. It also provides means of natural culling of animals with substandard productivity. Slaughter of animals being an emotive issue in the country, alternative methods of providing salvage value to animal owners and keeping inferior animals out of breeding cycle is to be explored seriously. The policy on this is also to be linked with carrying capacity of the land. National Cattle Commission may examine the issues and give recommendation

4.1.22 Government should recognize that culling and utilization of surplus animals is an established norm for animal production and improvement. Animal preservation acts of the states need to be reviewed so that constraints, if any, affecting proper utilization of livestock could be removed. Registration of the all slaughterhouses in the city/town is must for clean meat production and protection of the environment. Establishing Rural Based Abattoirs (RBA) in animal tracts would drastically reduce the need for transportation of live animals to urban areas for slaughter.

4. 1.23 The importance of feed and fodder in livestock production hardly needs to be emphasized. Mid Term Appraisal of Ninth Five Plan says ‘ Attention is needed for cultivation of fodder crops and fodder trees to improve animal nutrition. The area under permanent pasture and grazing land has been estimated at 11.06 million ha. However, actual availability appears to be much less. An integrated approach for regeneration of the grazing lands need to be evolved.’ Due to improper management of common property resources and lack of coordination between different agencies involved, the productivity as well as carrying capacity of the present public and forestland are decreasing. This

problem needs to be addressed on priority for sustainable and economic livestock production.

4.1.24 In India poultry neither enjoys the status of agriculture nor does it enjoy the status of industry. This uncertainty does not auger well for consistent development of the sector. Poultry establishments having less than 10,000 birds should be treated as agricultural activity for the benefit of the poultry farmer and extend the same benefit/incentives/concessions to this sector, as applicable to agriculture; for units having capacity greater than 10,000 birds it should be treated as industry with all the benefits as extended to industry.

4.1.25 Livestock extension is presently a part of agriculture extension. But livestock extension, which is primarily based on providing services and goods, needs to be treated differently from crop related extension activities that based on transfer of knowledge. Animal husbandry extension worker is basically a service provider. Panchayats, Cooperatives and NGO'S should play a leading role in generating dedicated band of service providers at the farmers doorstep in their respective areas.

4.1.26 Issue of animal management and welfare during natural calamities and disaster will require attention and suitable programmes need to be developed since such asset loss can drive the poor into destitution. Animal welfare is also related directly with the productivity of the animal. The well-being of animal is hampered during management under intensive production system, in the animal market, during handling and transportation in animal market, rearing of newly born male calves in urban areas etc. There is a great deal of wastage and losses, as

National Immunization Programme against most prevalent animal diseases

Conservation of threatened breeds of livestock and improvement of breeds used for draught

Livestock extension is primarily based on providing services and goods; it needs to be treated differently from crop related extension activities

Integrated approach for regeneration of the grazing lands.

To promote animal care and well-being, veterinary institutions like universities, colleges, hospital, dispensary and NGOs working on livestock care system need to be strengthened.

well as animal suffering due to ill designed agri-implements, carts and implements attached to animal. Veterinary universities/ colleges and other institutions like veterinary hospital, dispensary, NGOs working on livestock care system need to be strengthened so that they can ensure and promote animal care and well-being

4.1.27 Development of marketing network and remunerative price support to the producers will be a great incentive for higher animal productivity both in quantity and

quality. Creation of a permanent institution in the line of Commission on Agricultural Costs and Prices (CACP) should be formed which will estimate the cost of production of various livestock products and suggest remunerative price so that farmers are not exploited.

4.1.28 The country needs a computer based 'National Animal Health and Production Information System' with active involvement of Institutions, Government Departments, Private industries, Cooperative, and NGO's. Livestock Resources Mapping in line with Food Insecurity Map of India" conceptualized by Swami Nathan Foundation in order to guide investment decisions and bring about a change from current species-based programme to area-based programmes

4.1.29 The Livestock Census Scheme suffers from timeliness and quantitative as well as qualitative problems. Livestock census should be based on cent percent coverage of all households in the country on a specific date through the State Animal Husbandry Directorate and the Department of Animal Husbandry & Dairying at the Central level..

4.2 STRATEGY

4.2.1 The basic strategies to achieve eight percent growth rate in the livestock sector during the 10th Plan are:

- i. Undertake reforms in the livestock sector;
- ii. Ensure policy environment influencing a wide range of services and service providers which have a large employment potential.
- iii. Recognizing institutional lending and remunerative price are critical for rapid growth in livestock sector.
- iv. Supplement the impact of growth with special programmes aimed at special target groups, which may not benefit sufficiently from the normal growth process.
- v. Massive programme of human resource development

4.2.2 All the five strategies are appropriate and relevant to animal husbandry and dairying, a sector directly linked with the strengthening of the economy of the marginal and small farmers, unskilled workers and rural women. This is the sector where the poor contribute to growth directly instead of getting benefit from growth generated elsewhere.

4.2.3 Livestock sectoral reforms need to be examined in three major contexts i.e. (i) financial sector reforms, (ii) legislation and (iii) export.

4.2.4 The financial sector reforms should primarily be directed at lending institutions who have to change the lending structure of loans to resource poor farmers (small and marginal farmers, landless labourers, women, and unskilled workers and unemployed youth) who are not in a position to provide either the

collaterals or the guarantees. Consequently banking institutions have to make special efforts to arrange technology providers who will underwrite technology of these resource poor farmers as a part of scheme of lending so that financially viable livestock units can be receiving credit and technology through lending institutions. This would call for change in pattern of project evaluation, monitoring and ensure generation of wealth and employment.

4.2.5 In the area of legislation, the entire series of laws devoted to protection of livestock species need to move from protection to production as the basis. These laws have protected livestock to the extent of becoming totally surplus and a drag on the economy. It is therefore necessary that all the laws should be reexamined and perhaps modified or scrapped. The policy restrictions like MMPO fall into this category. There is also need to de-reserve manufacture of icecream from small scale sector. The removal of quantitative sealing is called for.

4.2.6 In the export sector there seem to be practically all livestock species on the restricted list with such large numbers one does not see any reason for putting cattle and buffaloes on restricted list. The restriction with regard to export of buffaloes need to be cancelled and export of buffaloes moved to OGL. Cattle commission has been constituted to look into laws relating to cattle and the problem can be examined by them. There is however need for strengthening regulatory regime for livestock products and also implementation of regulatory mechanism. This should also include veterinary biologicals, pharmaceuticals, feeds, feed additives, herbal medicines and pet foods.

4.2.7 It has to be recognized that in the general field of agriculture 70% of the farmers are made up by small and marginal farmers, landless labours and they have access to a total of 30% of the land in this country. By force of circumstance 67% of these own livestock and the general pattern is that these livestock units are distributed in two's or three's which are financially non-viable. These people are also poorest of the poor. Bulk of them live below the poverty line without any access to normal channels of credit and are unable to take advantage of government's benevolence through its various schemes. Despite the efforts of the government during last five decades, these poor are in continuous penury as they did not get a chance for making some marginal improvement in their lives. They remain poor because they have no access to the presently available technologies nor to the credit regimes, consequently they cannot increase their assets. What they market, is perishable and therefore the middlemen and traders exploit them by offering low prices, which are invariably below the cost of production. Farm gate prices are fixed by traders and these are quite often below the production costs.

4.2.8 This plan document is primarily targeted to this principal group by creating a transition from subsistent livestock farming to financially viable livestock and poultry farming which will generate wealth and self-employment through entrepreneurship such that the livestock economy becomes viable through

intensive use of technology and science. Consequently, the small livestock farmer without access to the land has to turn a new leaf in his livelihood option, should the government policy redress his basic constraints by creating a services and goods sector which can underwrite the technology a flexible credit line, he can make this transition. The concept is to initially use this farmer and his assets in a manner that livestock unit becomes financially viable through under writing of technology and credit. The critical input in to the system is that there has to be a service provider who will underwrite the technology and assist this farmer in generation of wealth and employment so that the service provider can in turn be benefited by being paid for the goods and services. These small entrepreneurs with financially viable units (eg. 5-10 cows/ buffaloes, 30-100 sheep/goats, 500-1000 broiler/layers, 5-10 sows) can uplink with processing units and downlink with a reliable service and goods provider, will transform the society, remove the poverty and act as a major growth engine of the future.

5.0 RECOMMENDATIONS

5.1 Institutional Restructuring and Linkages

5.1.1 Animal Husbandry activities currently being handled by departments of Rural Development, Social Justice and Empowerment and Non-Conventional Energy should be coordinated by Department of Animal Husbandry and Dairying along with human and financial resources.

5.1.2 The present structure of animal improvement is based on fixed model of a veterinary hospital being the key nodal structure at the ground level from where services and goods are currently distributed. A model has been adopted by

Establishment of a separate Indian Council for Veterinary and Fisheries Research (ICVFR)

The delivery and input cost of all the services need to be recovered on commercial basis

NDDB should mainly zero in on the dairy development activities all over the country both in organized and unorganized dairy sectors.

The MMPO should concentrate on its mandate of quality and food safety only.

Department of Animal Husbandry and Dairying (DAHD) in their program for cattle and buffalo development scheme, which is a slight improvement over the fixed model. The Bhartiya Agro Industries Foundation (BAIF) model has been successful in delivery of services and goods under some situations. The co-operative structure has also been successful under various conditions. It was felt that the final road map should end at village panchayat, which should arrange for a service provider through private entrepreneurship at the village level.

5.1.3 Establishment of a separate Indian Council for Veterinary and Fisheries Research (ICVFR) by carving at the Animal Science and Fisheries institutes/ICAR and placing them with DAH&D has been approved by the Planning Commission. Working Group reiterates it again. Creation of ICVFR would overcome the shortage of technical manpower and infrastructure in the DAH&D 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.

5.1.4 Departmental Restructuring: While reviewing the schemes of the department of animal husbandry and dairying certain startling facts came to our notice. Due to acute shortage of manpower, the Department is now disbursing funds to states without ensuring proper implementation and monitoring. The Department should have a fresh look at its staff structure, initiate measures to get

it declared as a Scientific Department as recommended by NCA and form a cadre of Technical manpower consistent with the present day need through appropriate restructuring.

5.1.5 The delivery and input cost of all the services need to be recovered on commercial basis except for those farmers who are identified as being below poverty line. Improved bulls for natural breeding should be made available to panchayats at the village free of cost provided they undertake to castrate all the scrub bulls in that village.

5.1.6 NDDB should continue to concentrate on the dairy development activities all over the country both in organized and unorganized dairy sectors. Its activities in other allied sectors should not come in way of its role in the dairy development.

5.1.7 Remove the present restriction on establishing new milk processing capacity under MMPO. Rules and regulation regarding registration of milk plants as practiced globally should be framed. MMPO should concentrate on quality and food safety only.

5.1.8 Enactment of a central 'Prevention of Infectious and Contagious Diseases in Animals Bill'. The draft bill is pending with the Department of AH&D for quite some time. It should be enacted on priority.

5.1.9 Animal Husbandry sector is the major user of pasturelands, grasslands, wastelands, but their management and development lies with the departments, other than user department. The question, therefore, as to who should manage these lands needs to be addressed.

5.1.10 Central Veterinary Services – Fifth Pay Commission has recommended that a Central Veterinary Service be created in order to ensure opportunities of promotion to animal husbandry specialists in the Department of Animal Husbandry and Dairying and other departments (Home Ministry, BSF, CRP, Planning Commission, SSB and various Indian missions where specialists in this field are recruited for jobs. The recommendations made by 5th Pay Commission should be implemented in letter and spirit without any further delay.

5.1.11 Reduction in Cattle Number – The Second Five Year Plan Document noted that the fodder and other resources of the country were grossly inadequate even for maintaining the existing cattle population. A complete ban on the slaughter of all cattle would tend to increase their number further and to jeopardize the well being of the limited number of good cattle, which the country possesses. In defining the scope of bans on the slaughter of cattle. States should take a realistic view of the fodder resources available and the extent to which they can get the cooperation of voluntary organizations to bear the main responsibility for maintaining unserviceable and unproductive cattle with a measure of

assistance from the Government and general support from the people. The present Working Group found that the above recommendation is valid even today.

5.1.12 A significant portion of the fluid milk requirement of the urban areas is derived from cattle maintained within the municipal limits. Earlier to dislodge cattle and their owners from cities did not succeed due to various economic and political reasons. In view of this, it is recommended that a Committee of Experts with a view to make recommendations to address the problem examine this mode of urban milk production.

5.1.13 Livestock farming is a major player in dry lands and hill regions. But the focus of investment and developmental strategy is on crop agriculture. The focus in these regions should have been on livestock production as more than 70% of family income is desired from livestock so as to alleviate poverty and increase the family income of those who are poorest of poor.

5.1.14 Problems of livestock sector are compounded by non-remunerative prices of livestock products an issue which has not received the attention of the government. The middlemen take the major portion of the income whereas by selling the products at farm gate price farmers often runs into a net loss. The market price is decided by the trader or by milk union and not by market. Introducing a price control mechanism is therefore a major necessity. An intervention by the government is called for. It is therefore necessary that investments be made for setting up, marketing networks of cold chain and livestock processing industries in rural areas if poverty alleviation and rural transformation is the aim of the government policy. Development of marketing network and remunerative price support to the producers will be a great incentive for higher animal productivity both in quantity and quality. Creation of a permanent institution, which will estimate the cost of production of various livestock products and suggest remunerative price is needed so that farmers are not exploited.

5.1.15 In keeping with the federal principles and the fact that Animal Husbandry is a State subject, the National Development Council as the supreme policy making body on planned development, recommended during successive plan periods, that the major centrally sponsored schemes whose implementation primarily rests with the State Governments should be transferred to the state sector. Quite a large number of schemes relating to Animal Husbandry Sector have been transferred to the states on such principles. The Intensive Cattle Development Projects (ICDPs) and Special Livestock Breeding Programme (SLBP) were transferred to the state sector at different points of time. As centrally sponsored schemes, both the schemes were very popular with State Governments as far as livestock farmers are concerned. Both contributed significantly towards enhancement of milk production as well as milch stock, particularly crossbreds. Focus on these schemes, however, appears to have been lost after their transfer. Allocation for these schemes under state plan also

diminished drastically. In short, transfer of such important schemes to state sector has practically led to poor implementation or virtual withdrawal of the programme. The state governments, barring a few exceptions, failed to make plan allocation for such schemes. The group recommends that an appraisal be initiated in Planning Commission on level of priority given by respective State Government in terms of allocation to the schemes transferred to the state sector and their current level of performances so that the schemes get more attention in the State Plan than they are receiving now.

5.1.16 Being a state subject appropriate management of the livestock wealth is primarily the responsibility of the state governments. In many of the states, the allocation provided to the Department of Animal Husbandry is barely sufficient for paying the salaries of the staff, leaving little for developmental programmes. Most of the states have become dependent for financial resources on centrally sponsored schemes or bilateral/multi-lateral projects. It is also observed that most of the centrally sponsored schemes of the department are meant for infrastructure development, meaning responsibility for maintaining the infrastructure created with Central assistance will have to continue with central government through receiving grants by the state governments. Unless there is adequate provision in the State plan for such purposes, here is a foreseeable risk of idle infrastructure, indications of which are already evident in a number of States (Bihar, Assam, Rajasthan, Uttar Pradesh to name only a few). To enforce a favourable trend, this group strongly recommends that actual provision in the State Plan for development work vis a vis grants received through centrally sponsored schemes should be reviewed critically during the state plan discussion and the states are persuaded to make available more funds under state plans rather than rely almost exclusively on Centrally Sponsored Schemes (CSS) or Externally Assisted Projects (EAP). Serious efforts are also necessary to augment fund flow in the sector by tapping multidisciplinary development projects or institutional finance (RIDE of NABARD, loans from other financial institutions etc.).

5.2 Resource Mobilisation

5.2.1 The potential for establishing employment and income generating livestock units with a total commercial outlook is enormous in rural hinterland and semi-urban areas of the country. A reasonable unit size depending upon the capacity of an individual is to be determined and necessary financial assistance has to be provided to establish the same. Arrangements for backward and forward linkages including credit to protect and prosper the asset need is to be made. To provide the necessary backward and forward linkages private participation is more significant than the Government efforts. However, the facilities already created by the Govt. such as milk plants, wool grading centers, regulated markets etc. can be used and exploited by the small and medium sized entrepreneurs to their advantage.

5.2.2 An awareness campaign about the lending schemes by the financial institutions among livestock owners and service providers be initiated which should lead to development of a service and goods sector at village, taluka and district levels. The pilot project of demonstration units of technology in participatory mode be developed and it should aim at schematic lending and not in tune with service area approach.

5.2.3 A qualified entrepreneur or an educated unemployed youth who possess the necessary skill and will to pursue the activity find difficulties in getting bank credit because he is normally short of funds to meet the margin money which is about 25% of the total cost of the project. In such cases, financial institutions choose to reduce the project cost either by reducing the unit size or the unit cost leaving the entrepreneur with no alternative but to accept the terms of the bank which is likely to generate less income and may force the entrepreneur to close down the activity after some time and look for an alternative job. In order, therefore, to make such units viable and such entrepreneurs productive, Government should come out with a margin money scheme on the lines of KVIC's Margin Money Scheme where entrepreneurs are required to contribute only a sum equal to 5 or 10% of the cost of the project from their own sources. Alternatively, a soft loan scheme with concessional rate of interest to meet the margin money should be formulated with the help of NABARD.

5.2.4 Creation of venture capital fund is needed to assist the private entrepreneur in establishing unit that would provide services and goods at district level. The venture capital fund should be used for establishment of veterinary hospitals, vaccine production units, feed plants, fodder seed production facilities, processing plants, for western and indigenous dairy, meat and egg products, semen production units including bull mother farms and network for delivery of semen to the farmers. These activities should also get credit under the head of Priority Sector Lending from commercial and co-operative banks, such that an alternative structure for services and goods sector gets developed. The target during the 10th Plan should be to cover at least 50 districts.

5.2.5 A separate scheme for infrastructure subsidy needs to be formulated to help individual to develop necessary facilities for a specific activity or a group of related activities in an identified area. Creation of a service unit headed by a group of veterinary doctors will help meeting the full requirements of medium sized units to be financed by commercial banks. If such services centers/institutions/service providers get infrastructure subsidy in addition to the loan from the financial institutions it will go a long way in developing a service and goods sector development in the area of animal husbandry activities.

5.2.6 The concept of working capital loan is not in operation in the livestock sector. Like in small-scale sector, this sector requires a provision of working capital loan to enable the entrepreneurs to use it judiciously. Introduction of Dairy

and Poultry Farmers Credit Card (Like Kisan Credit Card) will help the farmer to get credit against the future production and he will be free to purchase the inputs at a competitive price from his selected shop.

5.2.7 A comprehensive insurance policy covering almost every risk of livestock at reasonable amount of premium is necessary to help retrieve the unit in case of disasters. Instead of going for uniform insurance policy, a scheme at a concession rate of premium may be allowed in case of small and medium sized units to reduce the burden of premium and at the same time get the full benefit in case of loss of asset.

5.2.8 The perception of bankers is that the financing of agricultural/allied activities is a risky proposition and many loans are likely to become bad. It is this factor, which forces the financial institutions to go in for collateral security either in the form of mortgage of land or third party guarantee. In case of commercial units, where technology plays an important role and the size of land holding need not be large, the collateral becomes insufficient in the bankers perception. Removal of collateral security wherever warranted will prove to be of great help to qualified and skilled entrepreneurs to establish reasonably bigger units which are financially viable. This calls for change in the mindset of banker and knowledge of technology environment.

5.2.9 Private and foreign banks, which are operating in the country, should also participate actively in livestock credit programme.

5.3 Synchronization of Livestock Production Systems

5.3.1 In order to generate the necessary policy frame in respect to synchronization of livestock production systems, it is necessary that it should be directly linked with Commerce and Trade in Livestock products and livestock per se. Collection, collation and projection of future domestic and global market situation in respect of livestock and livestock products is not currently in existence. WTO provisions are not being analyzed nor is there any method to supply and feed the Ministry of Commerce, necessary data so that they can formulate future strategy for WTO negotiations. DGCIS does collect information on imports and exports of livestock products but the database is invariably behind by two to three years. Quality and safety management depends upon quality and safety assurance system for which legislation is an obligatory mechanism for setting up standards, which should correspond to Codex standard. These do not exist nor is there any method for reviewing and rationalizing the quality and safety guidelines. These should be based on risk analysis. Enforcement of the legislation would also be one of the important areas of action. For these infrastructure facilities for testing food quality and safety need to be harmonized with OIE and SPS system. There is a need for effective integration with the food industry so that there is a joint monitoring group, which can bring in the best experts in the country for advice and guidance.

5.3.2 Working Group recommend establishment of permanent Directorate/Regulatory agency in DAHD supported by an Expert Committee for review of WTO/SPS related issues, regulatory requirement vis-à-vis Indian Legislation, control of import if necessary, counter measures against unjustified/arbitrary WTO/SPS measures adopted by other nations, helping export of livestock products and matters related to trade of livestock and its product on a regular basis.

5.4 Animal Health

5.4.1 Enhanced and sustainable productivity through improved animal health should be one of the major strategies during Tenth Plan. 470 million animals contribute (Rs.123,076 crores to the GDP, 1998-99), to the National Economy; nation spent Rs. 4 per animal per year while the cost of the cheapest vaccine today exceeds Rs. 5. It is necessary that universal immunization programme like the one in operation in Health Ministry should be taken up during 10th Plan. This one programme would add Rs.36,923 crores to National Income. If the government can get its act together and vaccinate against these diseases at a cost of Rs.4,700 crores (@ Rs. 100 per animal per year), it would add additional income of more than Rs.30,000 crores annually to the GDP. The group recommends that besides the allocation for DAHD, the government should also locate a sum of Rs.4,700 crores per year for livestock protection from the fund spent through Ministry of Rural Development as a legitimate share of rural development.

5.4.2 The scheme on Assistant to State on Control of Animal Diseases can be closed and replaced by a new scheme 'National Immunization Programme Against Most Prevalent Animal Diseases (e.g. Hemorrhagic Septicaemia and Black Quarter in large ruminants, PPR and Poxes in small ruminants, Swine fever in pigs, Ranikhet in poultry) which is to be supported by the Central government to the extent of 100 percent.

5.4.3 The department of animal husbandry needs to be congratulated for its excellent work under eradication programme on Rinderpest. This programme was primarily responsible for Green Revolution and making operational flood a success and moving the country to the current milk production of 78 million tones from 22 million tones in early sixties. As Rinderpest is prevalent in neighbouring countries, government should initiate action to transfer the technology and management skills learnt from this programme to the countries neighboring our border starting with Nepal, Bhutan, Bangladesh in that order. It should be the first priority of the animal husbandry department rather than to introduce quarantine on animal movement between the states which would be an impractical proposition given the present political scenario. This is likely to cost Rs.200 crores. It would be much more costlier to control the trans-border movement of animals than to eradicate the disease from these countries. We therefore recommend that the present CPU of NPRE is enlarged and given a revised

mandate to complete the leftover work on Sero surveillance in the country and to finalize the documentation for final declaration of eradication of Rinderpest and transfer the technology and help implement programmes in all these countries. It would be desirable for the government to request the European Union to continue this project in the neighboring countries on the Indian model for eradication of Rinderpest from South-Asia. The same infrastructure could also be used for control of Foot and Mouth Disease.

5.4.4 Animal disease diagnosis and accreditation as per the international standards, development of an effective surveillance and monitoring system for animal diseases, animal quarantine, certification and enforcement are the function and duty of the Central Government. Due to acute shortage of technical manpower and fund DAHD is unable to meet its responsibility. Keeping in view the importance of animal health control in the post-WTO era, these functions of the Department should get top priority while allocating funds during Tenth Plan and sanctioning necessary manpower.

5.4.5 It has been observed that most of the firms (both public and private) producing veterinary biological products like vaccine, diagnostic kits etc. are not following Good Manufacturing Practices (GMP) and meeting Good Laboratory Practice (GLP) requirements. Ideally the production of veterinary biological should be in the private sector. The group recommends that all the state biological units should be closed in phased manner as they are not in a position to produce quality vaccines as per the International Standards.

5.5 Feed and Fodder Production Enhancement

5.5.1 Inadequate information is available on what feed and fodder livestock (cattle, buffalo, goat, sheep, pigs and poultry) consume daily under various field conditions in villages/towns/metro cities in different regions. In the absence of this information all kinds of estimates about feed grain intake, nature of feed grains used or its quality can at best be treated as informed guesses. There is thus a need of a central sector scheme for establishing a database on various feeds and fodder resources, feeding practices and consumption patterns in various agro-climatic zones and these data updated every two years. This also needs to be linked through input and output profiles of various animal products as cost benefit studies.

5.5.2 If animal industry and livestock sector has to survive in this country, it is necessary that serious efforts should be made at fodder production and conversion of crop residues into energy and oil meals into usable protein by animals. It is recommended that a separate distinct feed and fodder development authority be established within the department of animal husbandry with necessary technical manpower to undertake inter-agency coordination in fodder production, fodder seed production, conservation and transport.

5.5.3 The animal production in the Indian sub-continent can survive only if the Indian Scientists provide the mechanism for using plant cell wall in the crop residues as a source of energy for animal feeding. It is a paradox that India produces 500 million tons of crop residues and this has not been converted into energy to feed 400 million livestock. An effort was made to create an institution for this specific purpose to use biotechnology in breaking ligno-cellulosic ring in the plant cell wall to produce lignin and cellulose through a solid-state fermentation process. Oil cakes are the important source of protein for livestock. The major problem with these cakes is that besides containing proteins, it contains large number of incriminating factors like toxins, anti-growth factors and many oxidants, which bind the protein and make it unavailable for the animals. We need investment for the development of technology so that crop residues (mainly straw) and oil cakes could be used by animal efficiently.. This should be the priority of Animal Science Research in the country. The Department of Animal Husbandry and Dairying should have a special R&D fund to encourage institutions (both in public and private sector) to undertake result oriented and time bound projects in these areas.

5.5.4 It is also recommended that efforts should be made to change the mindset of agricultural scientists from crop culture to sustainable animal culture in rainfed areas of the country where livestock contribution more than 70% to the family income. In this connection it is recommended that in the states of Rajasthan, parts of Haryana, Punjab, Madhya Pradesh, Uttar Pradesh, Andhra Pradesh and Karnataka, the emphasis should shift from crops to animal husbandry as a major livelihood option.

5.5.5 The garbage of metros and large towns should be processed as a source of animal feed. The forest grasses be harvested during the monsoon season and be converted into hay and packaged compressed and transported to user destinations. This would reduce the fodder deficit to a large extent. Problem soils and wastelands should be developed into fodder resource banks. This should be done on war footing.

5.5.6 Fodder seed availability has been identified as a major constraint for fodder production in irrigated as well as rainfed areas. The quality seed is just not available. It is proposed that a scheme should be developed to produce fodder seed of high quality and this be available at reasonable price to the farmers.

5.5.7 It is recommended that legislation to regulate the quality of compounded feed sold in the market be put in place. As a start, all the bags of feed should exhibit the composition and the ingredients should be displayed on the packaging material. It is also recommended that at least 15 million tons of feed grain be separately allocated by Food Corporation of India at reduced rate to the feed compounded industry for producing good quality compounded feed(in pellet form) to be sold through cooperatives and Public Distribution System.

5.6 Cattle and Buffalo

5.6.1 A new programme focused exclusively on draught breeds of livestock may be initiated during Xth Plan.

5.6.2 The National Project for Cattle and Buffalo breeding may be continued and the stipulations made for its implementation may be followed in letter and spirit to realize the envisaged targets. It is necessary that adequate budgetary support be provided to this scheme to enable sequential development of the breeding networks in a given time frame. Targets for the project may be redrawn for the Tenth Plan in the light of achievements during 9th Plan. Schemes of the Department of Animal Husbandry and Dairying having a direct linkage with cattle and buffalo breeding should be integrated with the National project for Cattle and Buffalo Breeding. While expanding field of A.I. network, efforts should be to increase number of recorded animals.

5.6.3 National Livestock Policy, a well defined livestock breeding policy is in place which states that pure indigenous well developed breeds should be improved through selection while non-descript low producing populations should be improved by grading up with other superior indigenous breeds or crossbreeding with exotic males. It was observed that crossbreeding with exotic breeds is practiced even in home tract of elite important indigenous breeds. This is threatening the very existence of these breeds in their home tracts. It is recommended that the government should initiate steps to create incentives for breeding indigenous elite breeds and improve them through selection

5.6.4 An aggressive strategy is to be adopted to remove the hurdles in sourcing and use of quality bulls for breeding. Military dairy farms could be used as a major source of crossbred bulls. They can give 5,000-7,000 crossbred bulls every year for the national bull production programme.

5.6.5 Monitoring cell for certification of sperm stations and A.I. bulls should be established in each state. Only certified semen should be used for A.I; where certification of semen is not possible, bulls may be used for breeding

5.6.6 Institutional arrangements for production and delivery of breeding inputs may be reviewed and restructuring as required may be adopted on priority basis. Government may withdraw gradually from the production and delivery of breeding inputs and create a congenial environment and play a supportive role for private operators to grow. Government should recover the delivery and input cost of A.I service on commercial basis. However, improved bulls for natural breeding could be distributed free of cost by the government for the benefit of poor farmers. Rearing of such bull will be the responsibility of panchayat/cooperative societies/NGO's.

5.6.7 Field AI network (A.I. outlets), sperm stations, breeding farms and breeding programmes (Performance Recording, Progeny Testing, ONBs etc.) should constitute focal points for monitoring efficiency and progress.

5.6.8 Rapid computerization of the breeding network needs to be done in order to build up a reliable database and effective monitoring through a Management Information System (MIS) both at State and national Level.

5.6.9 Under the prevalent conditions in the country, the conventional method of producing progeny tested bulls has failed to achieve the desired results. Advance technologies like ETT and OPU-IVF should be used to support this programme.

5.7 Dairying

5.7.1 It is envisaged that investments for dairy development during the 10th Plan should aim to achieve a CARG in milk production of around 5 to 6 percent. This is a growth rate that can be accelerated through incremental investments. But the investment in the dairy sector has been reduced drastically in the 9th Plan, which is only 16 percent of the 8th Plan expenditure. Further, due to shortage of manpower, the Department is finding it difficult to implement and monitor the major ongoing schemes. The problems such as regional disparity in milk procurement and low capacity utilization of the processing plant created during OF programme have not been addressed and need to be sorted out. The mandate of NDDDB is to promote plan and organize programmes for the purposes of dairy development on nation-wide basis and to render assistance to implement of such programmes. NDDDB has to come out with dairy development programmes not only for areas where dairy unions exist but also for areas where dairying has not taken root. The Department of AH&D and the NDDDB should mutually agree on the areas of funding and the terms and conditions of funding so that there is no overlap and the recipient organizations do not use one against the other. This co-ordination would also maximize the benefits from the funds disbursed.

5.7.2 Dairying is a means to uplift the people below poverty line. Since the existing system in place for milk production also encourages income generation for millions of small rural milk producers, Government policies and investments should aim to achieve the recommended growth rate for milk production in the 10th Plan largely through small holder dairying system.

5.7.3 For rapid dairy development in our country, the emphasis needs to be on improving the quality of milk and increasing productivity. The Government should prepare and implement suitable programmes to encourage clean milk production by laying a special emphasis on the development of basic infrastructure like roads, regular power supply and potable water in the rural areas. Enforcement of food and hygiene laws in respect of milk and milk products should be the responsibility of Department of AH&D.

5.7.4 There is an urgent need for strengthening the dairying unit of the DAHD which has been paralyzed due to acute shortage of competent technical manpower. It is imperative to appoint adequate number of technical manpower (like Additional Commissioner, Joint Commissioner and Deputy Commissioner) for undertaking the regulatory role of the government in letter and spirit. Statutory bodies like NDDDB, NDRI and CFTRI could be entrusted the responsibility of supporting and assisting Department of Animal Husbandry and Dairying in the implementation of the food laws in respect of milk and milk products.

5.7.5 The National Milk Grid is unable to take all the surplus milk from milk unions during flush season of milk production; as a result, milk unions are compelled to convert the surplus milk into milk powder and butter oil to be used only in the lean season. In this process, a large sum of milk union's money is blocked and shortage of working capital which further leads to non-payment of milk producers, a major cause for poor procurement performance of many loss-making unions. This problem can be solved if private dairy plants are allowed to operate in milkshed areas, which currently is not possible.

5.7.6 It is necessary to put in place a mechanism that can collect on a regular basis reliable data on the performance of the organised dairy industry(public, cooperative and private) of the country. The country needs a computer based 'National Animal Health and Production Information System' with active involvement of Institutions, Government Departments, Private industries, Cooperative, and NGO's

5.7.7 Although the organized sector has shown fast growth in the last three decades, it handles only about 30-35% of the milk marketed and about 65-70% of the market share is still in the hands of unorganized sector. The sector is characterised by innumerable vendors, small processors, merchants, manufacturers and retailers of indigenous milk products. So far, the government efforts of dairy development are restricted to cooperative route only. Time has come to bring about structural changes in the unorganized sector, programmes should be designed and implemented to. In order to bring structural changes in the unorganized sector following programmes are to be undertaken:

- Processing at the village level: Since the production is primarily through small producers, it makes collection of milk twice daily a cumbersome and uneconomical in remote areas. Primary processing and manufacture of milk products can be taken up at village level. This would however, require development and standardization of technology.
- Quality upgradation in small sector manufacture: The small manufacture of indigenous products viz. Halwai should be assisted to upgrade his processing and improve quality of the products through use of hygienic practices and improved equipment.

- R&D Support for product development and packaging machines for traditional Indian milk products: Traditional milk products such as paneer, khoa, all channa based sweets and all frozen products, such as kulfi are in great demand. Their large scale manufacturing is impeded by lack of mechanized systems, limited shelf life and total absence of continuous packaging machines. In order, that these products are manufactured and cater to a large section of Indian population living in India and abroad it would be essential that the technology for the manufacturer of these products is upgraded to handle commercial scale using modern equipment and management skills. Continuous packaging system and suitable package material need to be developed to match international packaging standard. Import of machines attract 35% - 40% duty which acts as disincentive to imports. Further they have not been designed for indigenous milk products. R&D efforts for development of mechanical packaging support can be undertaken at NDRI, CFTRI and Indian institute of Packaging in a collaborative manner.
- Training: There is a general lack of awareness about quality assurance at all stages of processing. The quality control staff are not properly trained in the modern method of testing of dairy products. Selected research institutions would be supported by providing them with the infrastructure and manpower inputs. The small scale manufacturer engaged in manufacture of indigenous products should be trained at NDRI, CFTRI and NDDDB in the modern method of processing and quality upgradation. The Industrial Training Institute (ITI) should start a course in dairy technology for unorganized sector to prepare manpower .
- Consumer Education: The importance of quality and nutritional value of dairy products is not fully realized by the consumer in India. It will be desirable to impart consumer education by using multi-media including Doordarshan, Radio and literature development.
- Line of credit: NABARD should setup a line of credit for unorganized sector for purchase of equipment and infrastructure development. To workout their requirement a working group should be setup.

5.8 Development of Small Animals and Pack Animals

5.8.1 Sheep and Goat Development

5.8.1.1 Crossbreeding programme using exotic ram should continue in Northern temperate region.. Private breeders are to be encouraged to raise good quality higher crosses. The Alpine pastures need to be seeded and fertilized by aerial spray during early April and in late October. To enhance the carpet wool both in quantity and quality, farmers in the North Western region need incentive to raise the male lambs which are generally slaughter at the age of 6 to 9 months up to age of 1 and a half year so that they can be used for both breeding and carpet wool production.

5.8.1.2 The current practice is to purchase the crop of sheep or goat kids, a year ahead of birth by the traders. Consequently, the shepherds 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 kg while the standard weight for sale should not be less than 25 to 30 kgs if these animals have to be commercially viable. The required credit should be made available so that farmers are not at the mercy of the traders and are able to raise their stock to a body weight of 25 to 30 kg.

5.8.1.3 Common property lands (CPR) need to be managed by the farmers, associations or cooperatives and the technology of silvi-pasture introduced by NGOs who can provide breeding services, feed and health cover and markets and slowly these sheep breeders flocks are converted into commercially viable sheep farms who would practice stall feeding for the sheep and goats.

5.8.2 Pigs

5.8.2.1 It is recommended that breeders' villages be created to remove the shortage of breeding males (both exotic and crossbred) in the north eastern region. The whole village would 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.

5.8.2.2 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 units of 10, 20 and 30 sow units for which credit and technology underwriting should be an integral part.

5.8.3 Horses, Donkies, Mules

5.8.3.1 The sports particularly Horse Racing has become a big business. It is necessary to regulate the health status of the horses, which are essential ingredients of this enterprise. In addition, the sports using horses has now become an integral part of amusement parks and children enjoy horse riding both in plains and hills. This sport needs to be encouraged as a niche industry. 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. A project on conservation on specially endowed breeds of horses (Zanskar and Manipuri) need to be launched to save them from extinction.

5.8.4 Camel

5.8.4.1 Camel shall continue to be important in the desert areas for quite some time. It is recommended that effective measures for providing nutritional support be introduced besides providing adequate health cover.

5.9 Poultry

5.9.1 In India poultry neither enjoys the status of agriculture nor does it enjoy the status of industry. This uncertainty does not auger well for consistent development of the sector. The working group recommends that poultry establishments having less than 10,000 birds should be treated as agricultural activity for the benefit of the poultry farmer and extend the same benefit/incentives/concessions to this sector, as applicable to agriculture; for units having capacity greater than 10,000 birds it should be treated as industry with all the benefits as extended to industry.

5.9.2 The Government should give assistance to conserve and improve indigenous poultry birds and propagation of other birds like Quail, Guinea fowl and Duck in those parts of the country where they are popular.

5.9.3 The present system of production of commercial hybrid broilers and layers i.e. high-input high output chicken has become highly successful under the present system, which is highly competitive and has established both forward and as well as backward linkages. The sector has now come into its own and poised to become a major export oriented industry. It is therefore necessary that rules and regulations, tax structure be so modified that the export growth gets a flip. One of the important areas of government intervention is infrastructure for cold storage, pressured air cargo capacity, establishment of Reference Laboratory for certification of health and products in conformation to the international standards, rationalization in health certification fee on poultry products, tax relief for creating facilities like grading, candling, washing and packing.

5.9.4 Formation of Small Farmers Poultry Business Consortium to help the unemployed youth to take poultry farming as a vocation. Government may help the consortium by offering free training, extending easy available loan with low interest and creating marketing network.

5.9.5 It is necessary that government examine the marketing structure of the poultry as well as its products, eggs and broilers. In order for the small entrepreneur to succeed, a producer friendly market has to be available. For example, the present market particularly for broilers is not congenial for small

entrepreneurs who invariably ends up in getting prices lower than his cost price because the mandi organizers does not differentiate between spent hens and broilers. Development of marketing network and remunerative price support to the producers will be a great incentive for higher animal productivity both in quantity and quality.

5.9.6 Huge investment was made by private industry in establishing egg powder plants in India. They are unutilized due to non-tariff barriers set up by European and other countries against Indian egg powder. Suitable measures are needed to make these units viable.

5.10 Meat Sector

5.10.1 Government should recognize that culling and utilization of surplus animals is an established norm for animal production and improvement. A few states have made laws restricting slaughter of buffalo calves and young male buffaloes, which need to be reviewed. The buffalo population and milk production are not adversely affected in the states where there is no restriction. Animal preservation acts of the states need to be reviewed so that constraints, if any, affecting proper utilization of livestock could be removed. In spite of these controversies the paradox is that about 67% of all goats and 50% of all sheep are slaughtered in this country for meat, which accounts for Rs100 million. It is therefore necessary that this sector should receive assistance both in terms of policy as well as special attention to register an export growth of 20 to 30 percent annually.

5.10.2 Environment around the 2,733 Registered slaughterhouses and 5,035 unregistered slaughterhouses is highly polluted. Therefore, minor and major improvements are to be carried out urgently in order to protect the environment and health of meat eaters and to reduce wastage and animal suffering. A feasible solution is to establish Rural Based Abattoirs (RBA) in animal tracts. Instead of transporting live animals to urban areas for slaughter, meat from these RBA can be transported to urban areas in air cooled or refrigerated vans. A scheme for RBA needs to be introduced in the Tenth Plan.

5.10.3 The implementation of the present scheme for improvement/modernization of existing slaughterhouses is not satisfactory and it could be modified after identifying the reasons for the drawback of the scheme. Private sector industry can play an important role in establishing integrated export abattoir complexes. A national Directorate on meat needs to be established to look after the regulatory function of the Government so that human health is protected.

5.10.4 It is recommended that during 10th Plan at least one carcass utilization plant be established in each district so that dead and fall animals are processed

and farmers are paid for the hide and the bone and no aircraft are destroyed due to bird hits. This scheme would cost Rs.550 crores.

5.10.5 The buffalo male calf mortality is exceptionally high (more than three times of normal mortality rate) due essentially to starvation and negligence of the owners in city dairies. In cities, the man made mortality rate is about 95 to 98%. These calves could be saved and reared for meat production through economical feeding and providing critical inputs. A new scheme needs to be developed for salvaging buffalo male calves from early death involving panchayats, municipalities, private entrepreneurs, slaughter houses and NGOs.

5.10.6 It is proposed that 50 most buffalo population dense districts be targeted for development of buffalo for meat and milk during 10th Plan period. An integrated programme be launched based on a export abattoir linked to all villages where males would be reared for meat and females for milk and a feed factory, a leather complex, a milk plant be run along with service and goods company. This could come up in partnership of farmers, entrepreneurs and government.

5.10.7 One of the member of Meat Subgroup has different views on the programmes on meat production; his views are annexed separately with this report.

5.11 Draught Power, Animal Welfare and Relief During Calamities

5.11.1 Ever since this subject was allocated to Ministry of Non-Conventional Energy Sources ((MNES), very little developmental work has been done. For the development and efficient utilization of draught animal power in the country, the DAH&D Department should work as a nodal ministry. A National Centre for Animal Energy Development can be established under the Department of Animal husbandry and Dairying as a Central Sector Scheme to coordinate all the activities related to the efficient utilization of DAP in collaboration with other Ministries/Departments.

5.11.2 The welfare of animals is severely hampered especially in the animal market where livestock is generally used as commodity like other inanimate article. The conditions of 2000 animal markets in the country are pathetic and need to be improved on priority. Appropriate scheme should be formulated to strengthen the market facilities and introduce a scientifically managed market for conducting marketing operations as well as collecting data on livestock marketing.

5.11.3 Natural disasters like flood and draught become a perennial feature in the country when the animals severely suffer due to starvation, disease and mortality. There is no effective preparedness in the country to mitigate the suffering of animals during calamities. It is proposed to establish a separate Central Animal Disaster Management Cell in the Department of Animal Husbandry with adequate

central funding to meet the expenditure like salvaging and rescuing animals, temporary animal shelter, feeding and medication of animals, formulating a comprehensive insurance scheme for compensation of lost animals (both scheme and non-scheme) belong to people under poverty line.

5.12 Conservation

5.12.1 A national livestock conservation act needs to be enacted.

5.12.2 The existing livestock farms (Department of Animal Husbandry and Dairying, Government of India, State Animal Husbandry Departments, State Animal Husbandry and Veterinary Institutes, Animal Science Research and Education institutes, Gaushalas, Pinjarpoles, BAIF, NDDDB) of specific breeds should become conservation units of live animals. Actual conservation should be linked with improvement and should be the responsibility of Animal Husbandry Department and various organizations/agencies (public as well as private). A Central Sponsored Scheme with an outlay of minimum of Rs. 250 crores need to formulated in Tenth plan for conservation of threatened livestock breeds and improvement of draught breeds in association with State Governments, autonomous bodies, Goshalas and NGO's. These organizations should undertake the following activities:

- (i) Complete inventorization of in-situ conservation herd.
- (ii) Strengthening of in-situ open nucleus breeding centers and linking such centers in a manner that can follow open nucleus breeding systems so that larger number of males can be tested and confounding of genetic merit and environment, which happens in farms, can be avoided.
- (iii) Field recording of performance of pedigreed progenies. This would supplement the information from institutional herds and help to improve the accuracy of selection.

5.12.3 The Department of Animal Husbandry and Dairying has not evolved an accreditation system of breeds of various species of livestock in this country so that registration programmes of accredited breeds could be translated into development of breeders' societies which would undertake methods to record the productivity of the animals and as well as the selection. These societies would also be able to conserve breeds and special genotypes as a community action.

5.12.4 Modern reproductive techniques utilizing genetic engineering should be used for ex-situ conservation of livestock. Some of these are now being commercially used e.g. embryo transfer technologies including splitting, cryo-preservation and cloning. Apart from cryo-preservation of embryo and sperms, DNA fragments and tissues and such constructs which contain structural genes can be utilized in distant future. This would call for building up institutional

structure and human resource development in advanced reproductive technology as an important part of ex-situ conservation strategy.

5.12.5 Some breeds of livestock, which were developed for some economic niches, have slowly decline in numbers due to change in either the eco-system or in social structure. Many of these breeds are now dwindling in numbers. It is recommended that NBAGR may do an exercise to list such breeds, which deserve consideration.

5.13 Animal Husbandry Statistics

5.13.1 Integrated Sample Survey Scheme for Estimation of Production of Major Livestock Products should be continued in the Tenth Plan with improvements. Computerization of the work relating to data analysis, report preparation in ISS will improve the timeliness in preparation of tables and reports. Dynamic Online Network Transmission of Management Information System needs to be created for livestock related data. A component needs to be added for providing Training and supervision for the field staff from time to time to ensure accuracy and efficiency in the field level data collection.

5.13.2 The Livestock Census Scheme suffers from timeliness and quantitative as well as qualitative problems. The present arrangements for conducting the Livestock Census in the States and Union Territories are not found satisfactory. Various organizations, not necessarily connected with livestock development, are handling the operations relating the census in the States/UTs, resulting in unsatisfactory quality of data and also delays in data collection and reporting. It is suggested that the livestock census may be conducted through a single agency. The Group felt that this work should be entrusted to Directors of Animal Husbandry in all States and the Department of Animal Husbandry & Dairying at the Central level. The existing Animal Husbandry Statistics unit may be upgraded into a Livestock Statistics and Economics Division

5.13.3 During the Tenth Plan, efforts should be made to carry out the livestock census work in all the States/UTs simultaneously as per prescribed time schedule. In the same manner as is done for human census which is conducted successfully; the Census Act 1948 forms the legal basis for conduct of census in Independent India. In the scheme of its execution the State Governments provide the administrative support for the actual conduct of the census. For conducting Livestock census, statutory basis (like Human Census Act 1948) is required.

5.13.4 There are at present a large number of data gaps. The existing methodology needs to be modified by incorporating the following information.

- i. Breed-wise milk yield of different species viz. cattle buffaloes and goats.
- ii. Information of egg production from commercial poultry farms.
- iii. Information on poultry meat be included to get the total meat production.

- iv. Breed-wise wool yield from various sources like sheep and wool extension centers, wool shearing centers and sheep breeding farms, etc.
- v. Cost of production studies on milk and eggs should be undertaken in selected districts of different States and different sampling frame be used for this study.
- vi. Estimates for livestock by-products.

5.13.5 Creation of Livestock Statistics and Economics Division - An increasing need is felt for not only improving qualitative and quantitative aspects of livestock data system, but also analysis of the same. For a proper coordination of all the aspects of livestock statistical and economic activity and to guide the Ministry on all policy matters, the existing statistical unit may be upgraded into a Livestock Statistical and Economics Division.

5.14 Extension

5.14.1 Livestock extension is presently a part of agriculture extension. But livestock extension, which is primarily based on providing services and goods, needs to be treated differently from crop related extension activities that based on transfer of knowledge. While in crops, the assumption is transfer of knowledge from laboratory to the farmer through an extension medium; in animal sciences the knowledge transfer is the least, while the services (like treatment of sick animals, A.I. deworming etc) made available are the main platform for action. Unfortunately the current programmes of extension are not taking this basic structure in to account. The present emphasis is on knowledge transfer where the client is not identifiable.. The group is of the view that the extension in veterinary and the livestock sector should be driven by technology underwriting in addition to technology transfer. Animal husbandry extension worker is basically a service provider. Panchayats, Cooperatives and NGO'S should play a leading role in generating dedicated band of service providers at the farmers doorstep in their respective areas.

5.14.2 The group recommends that a fully operational Directorate of Extension be established in the Department of Animal Husbandry and Dairying during the Xth Plan. DAHD may constitute a working group to examine this issue and get the impact studies commissioned in respect of the two models currently being used in the field (a) Fixed model of the government (b) Farm door model of dairy cooperatives and NGOs. It would also be ideal to examine the linkage model, which has been successful for poultry production in the country. Separate wing of Animal Husbandry Extension at State Directorate headed by Additional Director and supported by Joint Director and Deputy Directors needs to be created to restructure the existing programmes and infrastructure pertaining to extension.

5.14.3 Extension is the bridge between research and farmers through the departments. There should be a regular interaction between research and development institutions for the regular feedback from the farmers. Establishment

of a National Institute of Livestock Extension (NILE) will fulfill the requirement of skill upgradation for AH personals, farmers, NGOs.

5.14.4 Extension is the least addressed discipline at state veterinary colleges and is merely a minor subject. Therefore a full-fledged extension faculty is required for effective education. Besides this, every state requires an Extension Education Institute on the pattern of Nilokheri, Haryana and MANAGE, Hyderabad for effective training in communication and extension skills for department personals NGOs & farmer.

5.14.4 Every state has numerable markets catering to the needs of farmers for selling and purchasing livestock but these are unorganized. These can be used as technology dissemination centers where farmers can get information about market trends and new technologies. Therefore there is a need to involve local self-governments/village panchayats to part with some of their income made from animal markets towards animal husbandry extension activities

5.14.5 While there are many development programmes planned for extending economic benefits directly to women, there are very few livestock related extension and training programmes specially designed to suit women. Gender issue is an in-extension and training. Studies have shown that most conventional training and extension programmes, which are usually men oriented do not suit women. As women play an important role in AH, they can be deployed as women extension worker (WEW) at selected Gram panchayats after short training in extension methods, and communications skills required for transfer of technologies. The investment shall be made in the form of training, refresher training, extension kit and stipend for the plan period on tapering basis. These WEW shall operate as link women between farmer and AHD, NGO personnel.

5.14.6 One of the major drawbacks in livestock production related extension and farmer training programmes is lack of appropriate messages packaged in understandable form. Extension material is usually prepared centrally and is based on technical literature and hence it loses relevance in many cases. Messages/recommendations could be prepared in spoken languages in a participatory manner, relevant to different situations and with the involvement of farmer cooperatives, NGOs, selected research Institutes SAUs and NGOs.

5.15 Human Resources Development

5.15.1 The current scenario demands that the present educational system should be able to meet the knowledge needs of the commercial farmers besides small and marginal farmers. It is necessary that the future veterinarians should be able to be knowledge intensive and practical oriented in order to effectively service three arms of livestock sector (Animal Production, Animal health and Livestock Product Technology). He should be able to utilize the knowledge for meeting the needs of the two livestock production systems viz. (i) commercially viable and

employment generating entrepreneurs and (ii) the low input small units systems which should be converted gradually into an entrepreneurial system through intensive knowledge and technology. In order to obtain these, the educational system in veterinary and dairy science should be made autonomous by implementing the Swaminathan's Committee's recommendation in letter and spirit. Following veterinary council of India notification on regulation of veterinary education which came in force in 1994, the existing veterinary colleges were supposed to strictly follow the "minimum standards of veterinary education – Degree Course – BVSc and AH - Regulation 1993". At the present moment, majority of the veterinary colleges are not following the regulations. The situation is so bad that deregulations of these colleges both under SAUs as well as under State Veterinary Universities is imminent. It is therefore needed that each Veterinary and Dairy college should upgrade its facilities and faculties to be at par with the government regulations.

5.15.2 The Post Graduate Educational programme needs to be completely revamped and broken up into two streams viz. the current stream which prepares candidates for research and teaching; and the second stream which caters to the clinical and para-clinical aspects of the veterinary profession. It will be necessary to develop this second stream as the primary stream for training at postgraduate level by introducing Resident Doctor Scheme in each veterinary colleges. This stream will be based on hospital/clinic/diagnostic center focused programme. It is also necessary that every college starts a continuing veterinary education programme for the in-service veterinarians in the state.

5.15.3 Animal Science Education at school level should be the major focus in the present schools in the country. It is proposed that ICAR should take up this matter with the Central Board of Secondary Education and emphasize the importance of introducing the Animal Science Education (Poultry breeding, pig breeding, dairying, sheep, goat etc.) as subjects from grade VI to grade XII of our educational system so that after class XII these people become livestock entrepreneurs and do not look for jobs in the national pool of unemployed.

5.15.4 The training programmes for para-veterinarians and similarly placed personnel like pharmacists, AI technicians, X-ray and Scan Analysis programmes, Laboratory technicians are either not available nor are they organized. While emphasis is being laid on lay inseminators and similarly placed other extension workers, their training needs have not been taken seriously. It is therefore recommended that each veterinary college should start vocational training courses varying from one to two years on a regular basis to train this cadre of technicians on a regular basis.

6.0 Tenth Plan Thrust Areas

6.1 A national livestock breeding strategy needs to be evolved to meet the requirements of milk, meat, egg and other livestock products and transport. Major thrust will be on genetic up gradation of indigenous/native cattle and buffaloes using proven semen and high quality pedigreed bulls and by expanding artificial insemination network to provide services at the farmer's level.

Conservation of livestock to maintain diversity of breeds

Immunization Programme against important animal diseases and creation of disease free zones

Enhancement of feed/fodder production and improvement of common property resources.

National Animal Health and Production Information System'

6.2 Conservation of livestock should be the national priority to maintain diversity of breeds and preserve those showing decline in number or facing extinction.

6.3 After the successful eradication of rinderpest disease, the focus will now be to adopt a National Immunization Programme against most prevalent animal disease (e.g. Hemorrhagic Septicaemia and Black Quarter in large ruminants, PPR and Poxes in small ruminants, Swine fever in pigs, Ranikhet in poultry).

6.4 Development of feed and fodder through cultivation of fodder crops and fodder trees, regeneration of the grazing lands and proper management of common property resources.

Development of marketing infrastructure for all types livestock products

Dairy/Poultry Credit Card and Venture Capital Fund to meet the credit need of farmers and entrepreneurs.

Specific funding to solve field oriented problems through R&D.

Livestock care and well-being, relief during natural disasters and calamities.

Creation of a permanent institution for estimation of cost of production of various livestock products and to suggest remunerative price

6.5 The country needs a computer based 'National Animal Health and Production Information System' with active involvement of Institutions, Government Departments, Private industries, Cooperative, and NGO's.

6.6 Public sector lending through Venture Capital Fund, Dairy Credit Card, Poultry Credit card etc. is imperative for emergence of entrepreneurships in the livestock sector.

6.7 Livestock management and relief during natural disasters and calamities.

6.8 Building infrastructure for animal husbandry extension network. Panchayats, Cooperatives and NGO'S should play a leading role in generating dedicated band of service providers at the farmers doorstep in their respective areas

6.9 Economic utilization of surplus male buffalo calves and effective utilization of carcass by-products and value addition thereon; production of quality meat.

6.10 Strengthening infrastructure and programme for quality and clean milk production and processing for value addition.

6.11 Priority attention should also be given to improve the processing, marketing and transport facilities. Creation of a permanent institution, which will estimate the cost of production of various livestock products and suggest remunerative price so that farmers are not exploited.

6.12 Animal welfare is related directly with the productivity of the animal. Veterinary universities/colleges, veterinary hospital/dispensary, NGOs working on livestock care system need to be strengthened so that they can ensure and promote animal care and well-being.

6.13 Strengthening of Veterinary colleges as per the norms of Veterinary Council of India. Strengthening of Department of Animal Husbandry and Dairying is also crucial if it has to work as a regulatory and monitoring authority.

6.14 Research and development to solve field problems identified by the Department of Animal Husbandry and Dairying.

6.15 Declaring the Department of Animal Husbandry and Dairying as a Science Department and dovetailing the Animal Research Institutes of ICAR with the Department would not only improve its efficiency but also provide a effective delivery machinery to the Department enabling it to work as a regulatory body in post-liberalized era.

7.0 Plan Requirement and Resource Mobilization

7.1 The Government should endeavor to create a favorable economic environment for increasing capital formation and private investment by removing distortions in the incentive regime for livestock production and bringing about external and domestic market reforms and backed by rationalization of tax structure. Resource Mobilization has to come through, institutional financing, capital market and private investments, which are to be tapped as a major drive to put the infrastructure in place.

7.2 This export surplus should be used to develop the infrastructure. Presently, country is exporting leather and leather goods worth Rs.17,000 crores a year. None of these are ploughed back into improvements of livestock so that quality skins and hides are produced nor in creating environmental friendly carcass utilization centers for dead and fallen animals. Similarly, country exports carpets worth Rs.1,500 crores a year and none of these goes back to growth of indigenous sheep industry. A cess on leather, leather goods and carpet should be imposed and this would be ploughed back to improve the related industries at the level of farmers. The delivery and input cost of all the services provided by State Veterinary Department should be recovered on commercial basis except for those farmers who are identified as being below the poverty line.

7.3 The venture capital fund should be created in the Department of Animal Husbandry and Dairying (in collaboration with NABARD) for establishment of infrastructure by private entrepreneurs like veterinary hospitals, vaccine production units, feed plants, fodder seed production facilities, processing plants for western and indigenous dairy, meat and egg products, semen production units including bull mother farms and network for delivery of semen to the farmers. These activities should also get credit under the head of Priority Sector Lending from commercial and co-operative banks. The concept of working capital loan is not in operation in the livestock sector. Like in small-scale sector, this sector requires a provision of working capital loan to enable the entrepreneurs to use it judiciously. Such provision will help the entrepreneur to avoid rushing to the bank for further financial help and make a long wait by which time the activity might suffer irreparable loss. Introduction of Dairy and Poultry Farmers Credit Card (Like Kisan Credit Card) would solve the problem of working capital. Under this programme the farmer will get credit against the future production and he will be free to purchase the inputs at a competitive price from his selected shop. Government should come out with a margin money scheme on the lines of KVIC's Margin Money Scheme where entrepreneurs are required to contribute only a sum equal to 5 or 10% of the cost of the project from their own sources. Alternatively, a soft loan scheme with concessional rate of interest to meet the margin money should be formulated with the help of NABARD.

7.4 The perception of bankers is that the financing of animal husbandry activities is a risky proposition and many loans are likely to become bad. It is this factor, which forces the financial institutions to go in for collateral security either in the form of mortgage of land or third party guarantee. Such units will be security oriented rather than commercially designed. In case of commercial units, where technology plays an important role and the size of land holding need not be large, the collateral becomes insufficient in the bankers perception. Removal of collateral security wherever warranted will prove to be of great help to qualified and skilled entrepreneurs to establish financially viable units.

7.5 The share of animal husbandry and dairying sector was only 5.7% of total ground level credit offered through NABARD for agriculture and allied activities during 1999-2000. Only term loan to the tune of Rs.2366 crore was given to animal Husbandry and dairying; no production credit or short-term credit was given. NABARD should ensure that at least 20 percent of the total ground level credit becomes available to animal husbandry sector. Financing should be done against model projects that have demonstrated their economic viability. A reasonable unit size depending upon the capacity of an individual is to be determined and necessary schematic lending has to be provided to establish the same.

7.6 Besides the funding by Department of Animal Husbandry and Dairying, a minimum portion of the budget (10% of the budget or Rs.3000 crore per annum) of Ministry of Rural Development should be earmarked for animal husbandry and dairying activities as a legitimate share of rural development.

7.7 **Outlay for Tenth Plan:** The objective of approach paper is to attain an overall growth rate of 8%. This necessitates that agriculture and allied sector should grow at the rate 4 to 4.5%. As the growth in the agriculture sector is below 4 percent, allied sector particularly animal husbandry and dairying has to grow at about 8% in the 10th plan. This requires massive investment in the livestock sector. The Ninth Plan allocation was Rs.1545.64 crore (at 1996-97 price) which is equivalent to Rs.2083 crore at current price. If livestock sector has to deliver, four to five fold increase in the investments over and above the Ninth Plan is required. **Thus the total outlay required for animal husbandry and dairying sector is about Rs.9000 crore in the Tenth Plan.**

PROPOSED PLAN REQUIREMENT

Sr. No.	Description	Allocation (in Crores)
	PART A DEPARTMENT OF ANIMAL HUSBANDRY & DAIRYING	
1.	ANIMAL PRODUCTION	
	Cattle and Buffalo Development	900.00
	Sheep and goat	400.00
	Other animals	100.00
	Sub-total	1,400.00
2.	ANIMAL HEALTH	
	National Immunization Programme (Total investment Rs. 17000 crore) *	2000.00
	Directorate of Animal Health and its six components	800.00
	NPRES and FMD Control	800.00
	Sub-total	3,600.00
3.	MEAT	500.00
4.	DAIRYING (TOTAL INVESTMENT RS.2000 CRORE)**	1000.00
5.	FEED AND FODDER	850.00
6.	CONSERVATION	200.00
7.	POULTRY	100.00
8.	DIRECTORATE OF SPF/WTO REGULATORY	50.00
9.	EXTENSION	200.00
10.	STRUCTURAL REORGANIZATION OF DAH&D (CENTRAL VET. SERVICES)	50.00
11.	PROFESSIONAL EFFICIENCY & VETERINARY COUNCIL OF INDIA	50.00
12.	ANIMAL CARE AND WELL-BEING	250.00
13.	UTILIZATION OF DRAUGHT ANIMAL POWER****	250.00
12.	HUMAN RESOURCE DEVELOPMENT (TOTAL INVESTMENT RS. 5500 CRORE)***	5,00.00
	GRAND TOTAL (PART A)	9,000.00
	PART B INVESTMENT BY FINANCIAL INSTITUTION	
	TRANSITION FROM SUBSISTENCE TO FINANCIAL VIABLE LIVESTOCK FARMING - SECTORAL CHANGE	
1.	Financial Institutions (Target 5 districts for total change)	10,000.00
2.	Rural Infrastructure Development Funding (Target 5 districts for total change)	10,000.00
3.	Venture Capital Fund	5000.00
4.	Dairy/Poultry Credit Card	5000.00
	Total (Part B)	30,000.00

Notes:

- * National Immunization Programme (Total cost Rs.3400 crores per year) to be met by Rural Development to the extent of Rs.3,000 crores and DAH&D Rs.400 crores annually.
- ** The total investment(Rs. 2000 crore) in Dairying would comprise of Rs.1000 crores by NDDDB and Rs.1000 crores by the Department.
- *** Total Human Resource Development (Rs.5500 crore) includes ICAR's own budget of Rs.5,000 crores earmarked for Animal Science Education in ICAR institutions and SAUs.
- **** It is envisaged that utilization of Draught Animal Power would be transferred from MNES to DAHD in the Tenth Plan.

**No.M-12043/3/2000-Agri
Government of India
Planning Commission
(Agriculture Division)**

**Yojana Bhavan, Sansad Marg,
New Delhi, the February, 2001**

ORDER

Subject:- Working Group on Animal Husbandry & Dairying for Tenth 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 formulation of the Tenth Five Year Plan was held on 19.12.2000 at Planning Commission, New Delhi under the chairmanship of Dr. P.N.Bhat. The Working Group decided to formulate fifteen Sub-Groups as follows:

Sub-Group I – Institutional Restructuring and Linkages

- | | | |
|-------|--|-------------------------|
| i) | Dr. P.N. Bhat,
Chairman, World Buffalo Trust, New Delhi | Chairman |
| ii) | Dr. Kiran Singh.
DDG (Animal Sciences), ICAR , New Delhi | Member |
| iii) | Dr. K. Pradhan,
Secretary, NAAS, Avenue II, IARI Campus, New Delhi | Member |
| iv) | Dr. V.K. Taneja,
Animal Husbandry Commissioner, Deptt. of
Animal Husbandry & Dairying, New Delhi | Member |
| v) | Prof. S.K. Sinha,
Former Director, IARI | Member |
| vi) | Dr. G.S. Chahal,
Director of Animal Husbandry, Chandigarh | Member |
| vii) | Dr. N.G. Hegde,
President, BAIF Development Research Foundation, | |
| viii) | Dr. P.V.K. Panicker,
Regional Director, NDDB, Mumbai | Member |
| ix) | Dr. K.R. Viswanathan, Swiss Development Corporation
Agency, New Delhi | Member |
| x) | Dr. N. Das
Deputy Adviser (AH&D), Planning Commission | Member-Secretary |

Terms of Reference:

- a) To review the achievements of physical and financial targets under various Animal Husbandry and Dairy Development Programmes and Projects in the states during the Ninth Plan period and identify the reasons of shortfall, if any and suggest corrective measures.
- b) To review critically the progress of on-going Central Sector and Centrally Sponsored Schemes with reference to their objectives, targets / achievements and recommend their continuance / discontinuance/ modifications and suggest new schemes for promoting the development of this sector.
- c) To critically examine the present status of interface among education, research and development departments as well as extension agencies and the relevance of establishment of Indian Council of Animal and Fisheries Sciences Research and Education.
- d) To assess the role of Local Self Government and Panchayati Raj Institutions in delivery of veterinary and animal husbandry services.
- e) To assess the need for creation of an interactive forum with participation of Non-Government Organizations in order to build up sustainable delivery mechanism for the above services.
- f) Marketing of animals/animal products and processed item, food, fodder and genetic materials.

Sub-Group II – Resource Mobilization

- | | |
|--|-------------------------|
| i) Dr. M.V. Rao,
Chief Manager, SBI Staff Training College, | Chairman |
| ii) Dr. K. R. Rao,
General Manager & Head, Animal Husbandry Division | Member |
| iii) Dr. Mruthyunjaya
Director, NCAP, IASRI Campus, Library Avenue, | Member |
| iv) Dr. Jagdish Ghosh,
Divisional Manager, National Insurance Company | Member |
| v) Representative from Ministry of Rural Development | Member |
| vi) Representative from Schedule Caste and
Schedule Tribe Development Finance Corporation | Member |
| vii) Mr. S.K. Chakrabarti,
Joint Director (Statistics) | Member Secretary |

Terms of Reference:

- a) To critically assess the credit requirement in the animal husbandry sector.
- b) To assess the role played by different financial institutions (NABARD, NCDC, Public Sector and Cooperative Banks etc.) in development of animal husbandry sector and suggest modes for their direct involvement.

- c) To suggest ways and means for augmenting resource generation and fund flow to supplement the state and central plan schemes.

Sub-Group III– Synchronization of Livestock Production System in the country with International Regulatory System (WTO and SPS)

- | | |
|---|-------------------------|
| i) Mr. N.K. Chawla
Former Executive Director, NDDB, Anand | Chairman |
| ii) Prof. Vijay Paul Sharma,
Indian Institute of Management, Ahmedabad | Member |
| iii) Shri N.N. Varshney
NDDB, Anand | |
| iv) Dr. P.K. Uppal,
Technical Director | Member Secretary |

Terms of Reference:

- To assess the impact of WTO and SPS Regulatory System on Livestock Production at large and livestock products in particular.
- To suggest measures for disease control through installation of a quality assurance system for laboratories, clinics, etc. and an effective animal quarantine system.
- To suggest a perspective plan for infrastructure building in the context of WTO and SPS regime.
- To identify bio-diversity concern relating to livestock species in the open trade regime.

Sub-Group IV- Development of Small Ruminants, Pigs, Equines, Camels and other Pack Animals

- | | |
|---|-------------------------|
| i) Dr. K.P. Pant
Director, Central Institute for Research on Goat, | Chairman |
| ii) Dr. M.S. Sahani,
Director – NRC on Camel, Bikaner-334001, | Member |
| iii) Dr. K.M. Bujarbaruah
Director, NRC on Mithun | Member |
| iv) Dr. S.K. Singh,
Professor of Animal Genetics and Breeding | Member |
| v) Ms. Chanda Nimbkar
Director, Animal Husbandry Division | Member |
| vi) Dr. Surinder Kumar | Member |
| vii) Dr B.U. Khan
Director, CSWRI, Avikanagar 304501 | Member Secretary |

Terms of Reference:

- a) To review of on-going programmes on development of sheep, goat, pigs, equine, camel and pack animals.
- b) To suggest suitable programmes to be taken up by the Central and State Governments to develop these species.
- c) To assess importance of pack animals to Draught Animal Power pool and to consider their development in consonance with their contribution to DAP.
- d) To critically appraise the role of fine wool sheep breeds and prospects of developing sheep for mutton.
- e) To develop the programmes of pigs in areas of their critical need more specific to NE region.

Sub-Group V – Fodder Production Enhancement

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|------|---|-------------------------|
| i) | Dr. Punjab Singh
Director, Indian Agricultural Research Insitute, | Chairman |
| ii) | Dr. Bhagmal
IPGRI, Office of South Asia, | Member |
| iii) | Dr. Bimal Misri,
Regional Station of IGFRI, HPKVV Campus, Palampur, H.P. | Member |
| iv) | Dr. A.K. Singh,
NDDDB, Sector II, Salt Lake, Calcutta - 700091 | Member |
| v) | Dr. P.S. Pathak, Director, IGFRI, Jhansi - 284003 | Member Secretary |

Terms of Reference:

- a) To critically assess scope and limitations of enhancing fodder production.
- b) To suggest means of pasture development and management of grasslands through involvement of communities.
- c) To suggest programmes for production of quality seeds with respect to cultivated fodder varieties as well as grass.
- d) To suggest means of improving availability of fodder through conservation programmes and to propagate conservation packages.

Sub-Group VI – Feed Production Enhacement

- | | | |
|------|---|-----------------|
| i) | Dr. K. Pradhan,
Secretary, NAAS, Avenue II, IARI Campus, | Chairman |
| ii) | Dr. S.K. Ranjan
Former Head of the Division
Animal Nutrition & FAO Expert | Member |
| iii) | Dr. D.V. Rangnekar, | Member |

- | | |
|--|-------------------------|
| iv) Dr. S.V. Vadiya,
President, Cattle Feed Manufacturing
Association (CLFMA) & Chief Executive, Agro Div. | Member |
| v) Dr. Bikas Basak,
North Bengal Feed Industries | Member |
| vi) Dr. N.N. Pathak
Director Central Institute of Research for Buffalo | Member Secretary |

Terms of Reference:

- a) To assess requirement of feed commensurate with targets for livestock production.
- b) To suggest suitable programmes for optimization feed resources.
- c) To suggest measures to be taken up for augmentation of feed production.
- d) To suggest areas of R&D to produce cost effective feeds utilizing biotechnology methods.
- e) To suggest a regulatory regime for feed compounding plants in the country.

Sub-Group VII – Cattle and Buffalo Breeding

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|---|-------------------------|
| i) Dr. V.K. Taneja
Animal Husbandry Commissioner, Deptt. of
Animal Husbandry & Dairying, Govt. of India | Chairman |
| ii) Dr. O.S. Tomar,
Former Director, National Dairy Research Institute | Member |
| iii) Dr. Aswathanarayana
Director, Animal Husbandry, Karnataka | Member |
| iv) Prof. J.S. Dhillon,
Animal Genetics Division, PAU | Member |
| v) Prof. N.S. Ramaswamy
870, 17E Main, Koramangala, VI Block, Bangalore 560095 | Member |
| vi) Dr. K.R. Trivedi, NDDDB, Anand | Member |
| vii) Dr. N.R. Unnithan
Managing Director, KLDB, Trivandrum | Member |
| viii) Dr. A. Batobyal,
Joint Commissioner (AP) | Member Secretary |

Terms of Reference:

- a) To identify the causes for scarcity of quality bulls and evolve integrated programme involving all major players in production of highly pedigreed and progeny tested breeding bulls.
- b) To suggest Breeding Policy for cattle (indigenous/crossbreds exotics) and buffaloes based on presently available technologies and those of future.
- c) To assess relevance of draught breeds and evolve programme for their development.

Sub-Group VIII – Conservation and management of livestock genetic Resources

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|------|---|-------------------------|
| i) | Dr. R.M. Acharya,
Ex-DDG, Animal Science, ICAR | Chairman |
| ii) | Dr. D.S. Balain,
Ex-DDG, Animal Science, ICAR | Member |
| iii) | Dr. D. N. Jana,
Registrar. WBUAFS, 37, Belgachia Road, Calcutta – 37 | Member |
| iv) | Dr. R. Sahai, | Member |
| v) | Dr. S.K. Prasad,
Director, NBAGAR, Karnal – 132001 | Member Secretary |

Terms of Reference:

- To suggest measures for improvement and conservation of different important indigenous breeds of cattle, buffalo, sheep, goat & camel.
- To develop programme for sustainable management of animal resources in the country.
- To suggest mechanism for maintaining a watchlist of threatened breeds.

Sub-Group IX – Animal Disease Control and Certification System

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|-------|---|-------------------------|
| i) | Dr. P.K. Uppal, | Chairman |
| ii) | Dr. M.P. Yadav,
Director, IVRI, Izatnagar (UP) 243122 | Member |
| iii) | Dr. A.B. Negi,
Joint Commissioner, (Animal Health) | Member |
| iv) | Dr. H.K. Pradhan,
Joint Director, IVRI, Bhopal (MP) | Member |
| v) | Dr. S.N. Singh
Technical Director, Intervet Laboratory Limited | Member |
| vi) | Dr. D.K. Singh,
General Manager (PPD), NDDDB, Anand-388001 | Member |
| vii) | Dr. S.K. Banerjee, Head Virology Division
IVRI, Mukteswar | |
| viii) | Dr. A.K. Mukhopadhyaya,
AH&D Department, Krishi Bhavan | Member Secretary |

Terms of Reference:

- To critically assess the present status of disease control in the light of international regulatory mechanism concerning animal health.
- To review the achievement of Rinderpest Eradication Programme in the country and suggest measures for maintaining disease free status.

- c) To consider feasibility of using infrastructure created for eradication of rinderpest for eradication/control of foot and mouth diseases.
- d) To identify measures for effective disease control and animal quarantine through installation of quality assurance system for laboratories, clinics, etc.

Sub-Group X – Development of Poultry

- i) Dr. David Lobo - **Chairman**
Chairman & Managing Director, DeeJay Group
- ii) Dr. Rajbir Singh, **Member**
Director, CARI, Izatnagar, Bareilly 243122
- iii) Dr. Jagtar Singh **Member**
Professor of Animal Breeding
- iv) Mr. Ajit Singh **Member**
Chief Executive, NECC
- v) Sh. Vijay S Kapoor **Member**
President & Managing Director
- vi) Dr. G.C. Jain **Member**
Venkateshwar Hatcheries, Pune
- vii) Dr. A.L.Bhagwat **Member**
Director, Institute of Poultry Management of India
- viii) Dr. Iqbaluddin, **Member-Secretary**
Joint Commissioner (Poultry), Deptt. of AH&D

Terms of Reference:

- a) To examine the scope of improvement of productivity in both the organized and un-organized poultry sector.
- b) To suggest conservation programmes for indigenous poultry.
- c) To examine constraints in the growth of poultry industry and suggest policy changes to remove these constraints.

Sub-Group XI – Meat Sector

- i) Mr. Irfan Allana **Chairman**
Managing Director, Frigerio Conserva Allana Ltd
- ii) Dr. J.S. Bairwal **Member**
Joint Commissioner (Meat & Meat Products)
- iii) Mr. Satish Sabharwal **Member**
Alkabar Group of Companies, B-417 Somdutt Chamber-I
- iv) Mr. R.K. Boyal, **Member**
General Manager, APEDA, NCUI Building,
- v) Dr. N. Kondaiah, **Member Secretary**
Senior Scientist, ICAR

Terms of Reference:

- a) To critically examine the constraints affecting development of organized meat sector for sustaining animal production.
- b) To suggest measures necessary for promoting meat export.
- c) To assess the policies presently in force and changes needed to meet global challenge.

Sub-Group XII – Draught Animal, Animal Welfare and relief during calamities.

- | | | |
|------|---|-------------------------|
| i) | Prof. N.S. Ramaswamy
Director, CARTMAN,870, 17E Main, Koramangala, | Chairman |
| ii) | Secretary, AWBI, Chennai
P.O.Box No.8672, Third Seaward Road, Valmiki Nagar | Member |
| iii) | Dr. D.R. Marwah
All Lovers of Animal Society | Member |
| iv) | National Disaster Management (Chair)
Indian Institute of Public Administration | Member |
| v) | Dr. A. Batobyal
Joint Commissioner (AP), | Member |
| vi) | Prof. Ram Kumar,
Secretary, Veterinary Council of India | Member-Secretary |

Terms of Reference:

- a) To study the present utilization of draught animal power and other animal byproducts and suggest measures for their optimum use.
- b) To evolve a contingency programme for replacement of livestock perished during natural calamities and to sustain productivity of surviving animals.
- c) To study the importance of animal welfare measures on the export of animal products and byproducts and suggest measures to improve the well being of animals.
- d) To assess the importance of animal welfare measures in society in general and on export prospects of animal products in particular.
- e) To suggest measures to improve implementation of animal welfare regulations.
- f) To evolve mechanisms to ameliorate sufferings of farm animals during calamities.
- g) To suggest measures for sustaining production and replacement of livestock during calamities.

Sub-Group XIII – Dairying

- | | | |
|------|--|-----------------|
| i) | Dr. A.K. Benerjee,
President, Indian Dairy Association | Chairman |
| ii) | Dr. N.R. Bhasin,
Vice-President, Indian Dairy Association | Member |
| iii) | Dr. R.S. Khanna, | Member |
| iv) | Dr. Ashok Gulati
Prof. (NABARD Chair) | Member |
| v) | Dr, Vijay Pal Sharma
Indian Institute of Management | Member |
| vi) | Dr. Ravi Shanker,
Managing Director, NCDFI | Member |

- | | | |
|-------|---|-------------------------|
| vii) | Mr. D. Tikku, NDDB, Anand | Member |
| viii) | Dr. Shasank Vide,
Chief Economist, NCAER, Parisila Bhavan, | Member |
| ix) | Mr. B.M. Mahajan,
MD, PMF | Member Secretary |

Terms of Reference:

- a) To study the performance, growth and financial health of existing dairy cooperative societies /milk union/federations during post-operation flood period.
- b) To critically examine the impact of MMPO (1992) and trade liberalization on these institutions.
- c) To identify measures for rapid dairy development all over the country as well as clean milk production and its availability to consumers;
- d) To suggest the future role of NDDB vis-à-vis Department of Animal Husbandry and Dairying in this sector.
- e) To suggest structural 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.

Sub-Group XIV – Animal Husbandry Statistics

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|------|--|-------------------------|
| i) | P.C. Bansil,
Director, Techno. Economic Research Institute | Chairman |
| ii) | Dr. S.D. Sharma,
Director, IASRI, Library Avenue, Pusa, New Delhi | Member |
| iii) | Shri A.S. Chopra
Former Joint Director (Statistics) | Member |
| iv) | Dr. R.C. Garg,
Project Directorate Cattle, Phase II, Pallavpuram | |
| v) | Dr. M.S. Satyamurthy,
Adviser (Stat), Deptt. of AH&D | Member Secretary |

Terms of Reference:

- a) 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.
- b) To review the livestock census and suggest suitable implementing agency and methodology.
- c) To suggest measures for incorporation of information technology in animal husbandry programme.

Sub-Group XV – Extension

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|-----|--|--------------------|
| i) | Dr. Rita Sharma,
Joint Secretary (Ext.) | Chairperson |
| ii) | Dr. O.S. Varma
Head of the Division (Extn.) | Member |

- | | |
|---|-------------------------|
| iii) Shri S.N. Swain,
Deputy General Manager, Women's Dairy Project | Member |
| iv) Dr. D. Chattopadhyaya,
Regional Demonstration & Training Centre, | Member |
| v) Dr. R.N. Bhatnagar,
Retd. Director, Animal Husbandry, Rajasthan | Member |
| vi) Dr. P.N. Kaul,
Division of Extension, IVRI, Izatnagar, Bareilly – 243122 | Member Secretary |

Terms of Reference:

- a) To identify the mode of involving masses in the delivery of veterinary and animal husbandry services through participation of women and NGOs 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.
- b) To review the present system of veterinary extension/T.O.T system and to suggest new structure for the same

2. The members of the 15 sub-groups who are not presently members of the Working Group on Animal Husbandry & Dairying for Tenth Five year Plan, are now being co-opted as members of the Working Group. The sub-groups would hold meetings at the places convenient to the chairman/members of the sub-groups. Date, time and venue of the meetings for sub-groups may kindly be intimated to the Chairman and Member Secretary of the Working Group. Member Secretary of the Working Group will be attending these meetings to the extent possible.

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 the parent ministry/department/organization. The non-official co-opted members will be paid TA/DA by the Planning Commission as per SR 190(a) for attending the meetings of the Working Group/Sub-groups.

4. The sub-groups shall submit their final reports to the chairman of the Working Group by April 30, 2001.

(K.K.Chhabra)

Under Secretary to the Government
of India

To

The Chairman & Members of the Working Group
The Co-opted members of the Working Group

Copy to:-

- i. PS to Deputy Chairman, Planning Commission
- ii. PS to Member of State (Planning), Planning Commission
- iii. PS to All Members, Planning Commission

- iv. Sr. PPS to Secretary, Planning Commission
- v. PS to Pr. Advisers (Agri. & IE/Health/SW&BC/Education/S&T/HUD & WS), Planning Commission
- vi. PS to Advisers (RD/H&FW/SD&WP/PC/Statistics & Survey Division), Planning Commission
- vii. PS to Financial Adviser, IF Cell, Planning Commission
- viii. PS to Eco. Adviser (DPD), Planning Commission
- ix. Deputy Secretary (Admn.), Planning Commission

**No.M-12043/3/2000-Agri
Government of India
Planning Commission
(Agriculture Division)**

**Yojana Bhavan, Sansad Marg,
New Delhi, the March, 2001**

ORDER

Subject:- Working Group on Animal Husbandry & Dairying for Tenth Five Year Plan –Formation of Sub-Groups and inclusion of Co-opted members.

In continuation of the office order of even number dated 9th February, 2001 regarding the formation of Sub-Groups and inclusion of co-opted members, it has been decided to include the following as member of the respective Sub-group.

- | | |
|---|---|
| 1. Shri Laxmi Narain Modi
Secretary General,
Ahimsaa Research Foundation,
Ahimsa Sthal, Mehrauli
New Delhi – 110030 | Member, Sub-Group – Draught
Animal, Animal Welfare & relief
during calamities |
| 2. Dr. D.K. Rangnekar
Consultant, NDDB
Anand | Member, Sub-Group – Extension |
| 3. Dr. T.S. Sohal
. 2041, Phase – X, Mohali
Dist. Ropar,
Punjab | Member, Sub-Group - Extension |
| 4. Representative from Ministry
of Tribal Development/National
Scheduled Tribe Development
Corporation | Member, Sub-Group – Resource
Mobilization |

Dr. A.K. Singh, Director, Animal Husbandry, Uttar Pradesh will act as a Chairman of the Sub-Group, Extension instead of Smt. Rita Sharma, Joint Secretary, Department of Agriculture & Cooperation.

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 the parent ministry/department/organization. The non-official co-opted members will be paid TA/DA by the Planning Commission as per SR 190(a) for attending the meetings of the Working Group/Sub-groups.

(K.K.Chhabra)

Under Secretary to the Government of India

To

The Chairman & Members of the Working Group
The Co-opted members of the Working Group

Copy to:-

- i. PS to Deputy Chairman, Planning Commission
- ii. PS to Member of State (Planning), Planning Commission
- iii. PS to All Members, Planning Commission
- iv. Sr. PPS to Secretary, Planning Commission
- v. PS to Pr. Advisers (Agri. & IE/Health/SW&BC/Education/S&T/HUD & WS), Planning Commission
- vi. PS to Advisers (RD/H&FW/SD&WP/PC/Statistics & Survey Division), Planning Commission
- vii. PS to Financial Adviser, IF Cell, Planning Commission
- viii. PS to Eco. Adviser (DPD), Planning Commission
- ix. Deputy Secretary (Admn.), Planning Commission

**Planning Commission
(Agriculture Division)**

Sub: Proceedings of the 1st Meeting of the Working Group on Animal Husbandry And Dairying for the Tenth Five Year Plan held at Yojana Bhavan on 19th December 2000 at 11.00 a.m.

The meeting was held under the chairmanship of Prof. (Dr) P.N. Bhat, presently chairman World Buffalo Trust. Mr. Asthana, Principal Advisor to Planning Commission also attended the meeting. A list of participants is given in Annexure.

In his opening remarks the chairman stated that in order to obtain a growth rate of 9% in this sector, a transition has to be made from subsistence livestock farming to financially viable farming, which will generate wealth and self-employment. This transition has to base on technologies of today and tomorrow, which is knowledge intensive. The farmer has to be trained in these technologies and these have to be backed by a service and goods sector, which do not exist today.

The thrust has to be on export of surplus goods (livestock products e.g. milk, milk products, meat and meat products, skins and hides, wool and fiber products). This export surplus should be used to develop the infrastructure. This export led growth will fuel the economy and should produce milk and meat based industry, which will provide nutritional security for 1.3 billion Indians in 2020.

Principal Adviser in his remarks gave the views of Planning Commission about the development of this sector in the context of overall economic growth. He said that the contribution of this sector to agricultural GDP was around 24%. This sector is to be main link and plank for alleviation of poverty in rural India. There are full of opportunities and challenges, which have to be addressed in the plan document. New thinking and innovations are called for to make use of opportunities and meet new challenges. The Prime Minister has asked Planning Commission to gear the economy to a substantial growth rate of 9% in the Tenth Plan. This would call for massive investment. But the share of livestock sector in the total plan outlay remained more or less static at about one percent up to the Fifth plan and then declined sharply in the subsequent plans. Massive investments over and above investment by Government will be required if this sector has to grow at the rate of 9-10% and this appears to be possible is possible. Resource mobilization has to come through institutional financing, capital market and private investments. The Planning Commission recognizes that, it may be necessary to commission some studies in order to get real time data on the issues, which need more careful and in depth examination. Principal Adviser suggested that the working group would identify such studies, also the persons who could undertake and deliver the results in short time.

Dr. Punjab Singh, Director IARI, observed that if the shortage of fodder, currently evaluated at 30-40% is to be met, the research on fodder crop varieties/grasses should be intensified along with the development of adequate infrastructure for training of fodder specialists. A cadre of fodder development officers within animal husbandry departments is required. An organized seed production programme of fodder crops in the private sector and integration of fodder calendar with the present cropping system should be encouraged. A separate programme of pasture development should be developed both for plains and hills and valleys to generate surplus fodder, which could be banked.

Dr. Kiran Singh, DDG(AS) opined that the Census figures of livestock were not realistic. He emphasized the need for recording the data on animal numbers in right earnest. He was concerned about the continuous decline in the availability of cultivated land for growing fodder. The crop residues should exclusively be left for consumption of animal population. The policy of the government should be comprehensive and integrated while tackling the animal diseases. Instead of handling all diseases at a time, few important diseases are to be selected and eradicate them completely in a time bound comprehensive approach. Dr. Singh also suggested the necessity of the conservation of indigenous livestock resources; some of the breeds should be identified and suitable schemes of conservation prepared.

Dr. Ajit Singh, CEO, NECC, suggested that if the present annual growth rate (15% in eggs and about 22% in broilers) has to be sustained, establishment of small processing plants of 200 birds should be encouraged which would enhance farmer's remuneration and also help exports. He was of the view that the export potential of this industry alone was about Rs. 5,000 crores annually which could be achieved if investment was made in processing plants, egg powder plants and quality control of feeds and the supply products.

Dr. S.K. Ranjan suggested that the potential for export for meat industry was around Rs. 10,000 crores annually and it was the need of the day that an integrated approach of both backward as well as forward linkages was introduced in the buffalo meat export industry. It is also necessary to improve slaughterhouses within the country, which would require massive investment. The nation has a number of advantages in case of buffaloes but the present set of rules and regulations do not permit their proper utilization. State governments have their own guidelines, central government rules are different and national standards in respect to SPS and Zoo sanitary standards do not exist; they need to be harmonized with global standards. Private investments will be available in the sector if the government policies are transparent and simple. It is also necessary to create disease free zones for FMD and start with massive salvaging operation for male calves.

Animal feed industry has shown a growth rate of 10%, this is not good enough. The quality of feed is not as per the laid standards. No quality

regulations are available nor is there any mechanism for implementation of these regulations. This industry has a very large potential and can emerge as a major export earning industry. There is a need to help this industry by providing necessary R&D support. A bio-technological approach is needed.

Shri Banerjee was of the view that given 14% liquid milk being processed in the dairy plants, it became necessary that government should develop an incentive oriented scheme in the processing, procurement and marketing of dairy products during the 10th Plan. The dairy sector should be given loans at low interest. 86% of the milk in this country is used either for drinking or preparation of indigenous sweetmeats with paneer, khoya etc as the base under unorganized sector. There is no data available about the vast indigenous sweet meat industry. It is necessary to launch a study to find out what kind of structure, investments and outputs it has. Similar information is also required in terms of milk products other than sweetmeats. Statistics on marketing side are weak and needs to be strengthened. Value added products should become the hallmark of the industry. New technologies, which are likely to emerge, need to be monitored and suitable concessions in duty and taxes should be available for milking machines and other dairy equipments.

Mr. Rao of NDDDB was of the view that the Indian dairy industry should be given a level playing field for operating in the new global economy.

Prof. Ramaswamy gave a detailed survey of the entire sector. He made a suggestion that it would be necessary that output of livestock, livestock products including DAP, employment creation and GDP contribution should be studied in depth to help the planning process for the 10th Plan. The draft animal power is still used to plough 60-70% of land, which alone accounts for Rs. 70 million in terms of Petro-equivalent. Therefore investment should be made to make these bullocks useful in effective manner. He was of the view that it would be necessary to save 8 million buffalo calves from early death and use them for meat either internally or for export. This would need to create rural abattoirs and rural meat handling systems, cold storage and similar other infrastructure.

There was a general feeling that we should have a vision statement for the plan document as for every one rupee invested in livestock we get a return of Rs.10.00.

Dr. V.K. Taneja, Animal Husbandry Commissioner to Government of India suggested that livestock sectoral programmes couldn't fit into compartments of five years of the Plan period. They need to be planned for 30 to 40 year time frame in order to be useful and give returns on investments. A vision document for the next five decades for this sector be prepared as a part of 10th Plan so that continuity could be maintained in terms of technological innovations and monitoring. It is recognized that technology of futuristic nature will determine the profits to farmer. Therefore, the new farmer is going to be a person driven by

technology in knowledge intensive environment. It may also become difficult to be in the animal production business for persons who are not educated enough to adopt the technology platform to generate wealth and employment.

Referring to allocation not being utilized, he was of the view that the problem was not of development allocations given to the sector, but of worthwhile programmes with proper analysis being supported by the required manpower. He was of the view that if a growth rate of 9% was to be obtained, massive investments should be made by the government in this sector to support the infrastructure. His view was that if the money currently allocated to nine different departments could be directed in a programme mode to specific objectives, growth rate of 9% could be possible. It is therefore necessary that this group may do some serious thinking on how to link up the funds available in various departments.

States like Rajasthan, Himachal Pradesh, Jammu and Kashmir, Uttrakhand, and Northeastern states ought to be declared as Animal Husbandry and Dairying states and crop agriculture in dry lands should be transformed into animal agriculture. Animal husbandry departments in the states should be converted into the Science Departments.

There is a need to consider future role of government in the services and goods sector. We should have a clear vision on trade both between states and export trade under the liberalized regime. The department should have a very powerful monitoring agency to look at market statistics and market economics both internally as well as externally.

Dr. Jana suggested creation of an Indian Institute of Animal Resource Management, which would coordinate the development of sustainable animal resources including human resource skills in the country.

Dr. Tomer, former Director of NDRI observed that uniform pattern of livestock development in all states across the country was impracticable. Government should recognize this fact and develop tailor made programme to suit the need of each state. Farmers should be taken out from the mercy of traders, which includes the milk unions. Government should come forward with support price for quality milk. He also pointed out the pitfalls in the existing pattern of government funding like assistance to states for purchase of bulls for breeding; a wrong selection of bull would damage the developmental process immensely. He also suggested intensification of efforts on buffalo development.

Dr. Rajbir Singh was of the view that rural poultry was still important and needed to be supported in the context of livelihood sustainability. He was of the view that the modern poultry breeding was necessary for development of wealth and employment in the country.

Dr. S.N. Singh opined that it would be necessary to develop an overall animal health plan for important diseases of livestock; FMD should also receive the same attention as rinderpest. The group should identify the future requirement of veterinarian and kind of training they would receive to keep them abreast of the rapid changing scenario in technology and world trading system and regulations.

Dr. Uppal was deeply concerned about the probable impact of SPS procedures on livestock and livestock products trade of the country. He lamented over the lack of any regulations in regard to SPS and Zoo sanitary codes. The legal system regulating hatcheries, harmful residues in feed, milk and meat, and pesticide use is absent. The pollution standards are very weak. The Working Group should therefore give attention to these issues if the nation has to compete in the world market. Stringent regulation mechanism needs to be evolved to make an environment in consonance with WTO regulations. This would call for a series of diagnostic laboratories across the country which could be the focal point of regulatory system. There should be preparedness to deal with micro- and macro-depletion of elements which bring in toxicity into fodder plants and through them to animals.

Dr. M.P. Yadav, Director, IVRI who could not attend the meeting due to preoccupation, had submitted written suggestions relating to development of: (i) insurance schemes of pack animals, (ii) eradication of pox diseases, and (iii) strengthening of statistics and census enumeration of livestock and their products. He suggested that quantitative risk assessment of OIE list A diseases should form major terms of reference for the working group.

There was a general consensus on establishment of an Indian Council of Animal Science and Veterinary Research in the group. They also felt that restructuring the department is necessary. Food processing of livestock products should be transferred to animal husbandry department. Similarly, it was suggested that the animal Welfare Board and draught animal power should be transferred back to the Animal Husbandry Department.

In his concluding remarks, the chairman emphasized the need for preparation of a vision document as suggest by Dr. Taneja and invited suggestions from the members on this issue. Referring to the observation of Principal Advisor, Planning Commission on the growth rate of more than 9% of GDP, he stressed on the need of massive investments in this sector and urged for active involvement of private industry and financial institutions to fund the projects as government alone could not meet all the requirements. We have to move from subsistence farming to livestock entrepreneurship using futuristic sciences of biotechnology more particularly molecular biology, new reproductive technologies and heavy investments in science and technology. This would mean that animal husbandry departments structured as administrative units should be converted to science departments, so that new enterprises should be encouraged in wealth generation and employment.

In the meeting it was decided to commission the following studies:

1. Requirement of manpower (Research, Teaching, Extension) for the next 25 years in this sector and plan to meet it.
2. The impact of WTO on livestock and livestock production systems in India, including the regulations and requirements to meet the WTO's commitments.
3. To generate a **sue generous system** for conservation of livestock genetic resources. These three could be done under one head, given to WBT or National Veterinary Academy so that they could come up with a report in next six months.
4. The fourth Project, which was agreed to be commissioned, is related to the unorganized dairy industry, which processes about 86% of milk presently. It was decided to specifically address the issues of collection, processing and preparation of indigenous milk products (sweet meats as well as others) in terms of marketing, volumes traded in etc. Shri A.K. Banerjee will suggest a few names of consultants who will undertake the study.
5. A fifth study suggested was on Economic evaluation of livestock, livestock products and associated systems.

The working group also recognized that there was need to look into some of these issues raised in this meeting and also some of the terms of reference relating to specific issues need to be considered in smaller groups and therefore the working group identified the following sub-committees to examine each of the subjects in depth. These are:

Sub-Group I – Institutional Restructuring and Linkages

- | | | |
|-------|---|-----------------|
| i) | Dr. P.N. Bhat,
Chairman, World Buffalo Trust | Chairman |
| ii) | Dr. Kiran Singh,
DDG (Animal Sciences), ICAR | Member |
| iii) | Dr. K. Pradhan,
Secretary, NAAS, Avenue II, IARI Campus, New Delhi | Member |
| iv) | Dr. V.K. Taneja,
Animal Husbandry Commissioner | Member |
| v) | Prof. S.K. Sinha,
Former Director, IARI | Member |
| vi) | Dr. G.S. Chahal,
Director of Animal Husbandry, | Member |
| vii) | Dr. N.G. Hegde,
President, BAIF Development Research Foundation, | |
| viii) | Dr. P.V.K. Panicker,
Regional Director, NDDB, Mumbai | Member |

- ix) Dr. K.R. Viswanathan, Swiss Dev. Cooperation Agency **Member**
- x) Dr. N. Das **Member-Secretary**
Deputy Adviser (AH&D), Planning Commission

Terms of Reference:

- a) To review the achievements of physical and financial targets under various Animal Husbandry and Dairy Development Programmes and Projects in the states during the Ninth Plan period and identify the reasons of shortfall, if any and suggest corrective measures.
- b) To review critically the progress of on-going Central Sector and Centrally Sponsored Schemes with reference to their objectives, targets/achievements and recommend their continuance/discontinuance/modifications and suggest new schemes for promoting the development of this sector.
- c) Critically examine the present status of interface among education, research and development departments as well as extension agencies and the relevance of establishment of Indian Council of Animal and Fisheries Sciences Research and Education.
- d) To assess the role of Local Self Government and Panchayati Raj Institutions in delivery of veterinary and animal husbandry services.
- e) To assess the need for creation of an interactive forum with participation of Non-Government Organizations in order to build up sustainable delivery mechanism for the above services.

Sub-Group II – Resource Mobilization

- i) Dr. M.V. Rao, **Chairman**
Chief Manager, SBI Staff Training College,)
- ii) Dr. K. R. Rao, **Member**
General Manager & Head, Animal Husbandry Division
- iii) Dr. Mruthyunjaya **Member**
Director, NCAP, IASRI Campus, Library Avenue,
- iv) Dr. Jagdish Ghosh, **Member**
Divisional Manager, National Insurance Company
- v) Representative from Ministry of Rural Development **Member**
- vi) Representative from Schedule Caste and **Member**
Schedule Tribe Development Finance Corporation
- vii) Mr. S.K. Chakrabarti, **Member Secretary**
Joint Director (Statistics)

Terms of Reference:

- a) To critically assess the credit requirement in the animal husbandry sector.

- b) To assess the role played by different financial institutions (NABARD, NCDC, Public Sector and Cooperative Banks etc.) in development of animal husbandry sector and suggest modes for their direct involvement.
- c) To suggest ways and means for augmenting resource generation and fund flow to supplement the state and central plan schemes.

Sub-Group III– Synchronization of Livestock Production System in the country with International Regulatory System (WTO and SPS)

- | | | |
|------|---|-------------------------|
| i) | Mr. N.K. Chawla
Former Executive Director, NDDB, Anand | Chairman |
| ii) | Prof. Vijay Paul Sharma,
Indian Institute of Management, Ahmedabad | Member |
| iii) | Shri N.N. Varshney
NDDB, Anand | Member |
| iv) | Dr. P.K. Uppal,
Technical Director | Member Secretary |

Terms of Reference:

- a) To assess the impact of WTO and SPS Regulatory System on Livestock Production at large and livestock products in particular.
- b) Suggest measures for disease control through installation of a quality assurance system for laboratories, clinics, etc. and an effective animal quarantine system.
- c) Suggest a perspective plan for infrastructure building in the context of WTO and SPS regime.
- d) Identify bio-diversity concern relating to livestock species in the open trade regime.

Sub-Group IV- Development of Small Ruminants, Pigs, Equines, Camels and Other Pack Animals

- | | | |
|------|--|-----------------|
| i) | Dr. K.P. Pant
Director, Central Institute for Research on Goat, | Chairman |
| ii) | Dr. M.S. Sahani,
Director – NRC on Camel, Bikaner-334001, | Member |
| iii) | Dr. K.M. Bujarbaruah
Director, NRC on Mithun | Member |
| iv) | Dr. S.K. Singh,
Professor of Animal Genetics and Breeding | Member |
| v) | Ms. Chanda Nimbkar
Director, Animal Husbandry Division | Member |
| vi) | Dr. Surinder Kumar | Member |

- vii) Dr B.U. Khan **Member Secretary**
Director, CSWRI, Avikanagar 304501

Terms of Reference:

- a) Review of on-going programmes on development of sheep, goat, pigs, equine, camel and pack animals.
- b) Suggest suitable programmes to be taken up by the Central and State Governments to develop these species.
- c) Assess importance of pack animals to Draught Animal Power pool. Consider their development in consonance with their contribution to DAP.
- d) Critically appraise the role of fine wool sheep breeds and prospects of developing sheep for mutton.
- e) Develop the programmes of pigs in areas of their critical need more specific to NE region.

Sub-Group V – Fodder Production Enhancement

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|------|--|---|-------------------------|
| i) | Dr. Punjab Singh | - | Chairman |
| | Director, Indian Agricultural Research Institute, | | |
| ii) | Dr. Bhagmal | | Member |
| | IPGRI, Office of South Asia, | | |
| iii) | Dr. Bimal Misri, | | Member |
| | Regional Station of IGFRI, HPKV Campus, Palampur, H.P. | | |
| iv) | Dr. A.K. Singh, | | Member |
| | NDDDB, Sector II, Salt Lake, Calcutta - 700091 | | |
| v) | Dr. P.S. Pathak, Director, IFGRI | | Member Secretary |
| | Director IGFRI, Jhansi – 284003 | | |

Terms of Reference:

- a) To critically assess scope and limitations of enhancing fodder production.
- b) Suggest means of pasture development and management of grasslands through involvement of communities.
- c) Suggest programmes for production of quality seeds with respect to cultivated fodder varieties as well as grass.
- d) Suggest means of improving availability of fodder through conservation programmes and to propagate conservation packages.

Sub-Group VI – Feed Production Enhancement

- | | | |
|-----|--|-----------------|
| i) | Dr. K. Pradhan, | Chairman |
| | Secretary, NAAS, Avenue II, IARI Campus, | |
| ii) | Dr. S.K. Ranjan | Member |
| | Former Head of the Division | |
| | Animal Nutrition & FAO Expert | |

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|------|--|-------------------------|
| iii) | Dr. D.V. Rangnekar, | Member |
| iv) | Dr. S.V. Vadiya,
President, Cattle Feed Manufacturing
Association (CLFMA) & Chief Executive, Agro Div. | Member |
| v) | Dr. Bikas Basak,
North Bengal Feed Industries | Member |
| vi) | Dr. N.N. Pathak
Director Central Institute of Research for Buffalo | Member Secretary |

Terms of Reference:

- a) To assess requirement of feed commensurate with targets for livestock production.
- b) To suggest suitable programmes for optimization feed resources.
- c) To suggest measures to be taken up for augmentation of feed production.
- d) To suggest areas of R&D to produce cost effective feeds utilizing biotechnology methods.
- e) To suggest a regulatory regime for feed compounding plants in the country.

Sub-Group VII – Cattle and Buffalo Breeding

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|-------|--|-------------------------|
| i) | Dr. V.K. Taneja
Animal Husbandry Commissioner, | Chairman |
| ii) | Dr. O.S. Tomar,
Former Director, National Dairy Research Institute | Member |
| iii) | Dr. Aswathanarayana
Director, Animal Husbandry, Karnataka | Member |
| iv) | Prof. J.S. Dhillon,
Animal Genetics Division, PAU | Member |
| v) | Prof. N.S. Ramaswamy
870, 17E Main, Koramangala, VI Block, Bangalore 560095 | Member |
| vi) | Dr. K.R. Trivedi, NDDB, Anand | Member |
| vii) | Dr. N.R. Unnithan
Managing Director, KLDB, Trivandrum | Member |
| viii) | Dr. A. Batobyal,
Joint Commissioner (AP) | Member Secretary |

Terms of Reference:

- a) To identify the causes for scarcity of quality bulls and evolve integrated programme involving all major players in production of highly pedigreed and progeny tested breeding bulls.
- b) To suggest Breeding Policy for cattle (indigenous/crossbreds exotics) and buffaloes based on presently available technologies and those of future.

- c) To assess relevance of draught breeds and evolve programme for their development.

Sub-Group VIII – Conservation and management of livestock genetic Resources

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|------|---|-------------------------|
| i) | Dr. R.M. Acharya,
Ex-DDG, Animal Science, ICAR | Chairman |
| ii) | Dr. D.S. Balain,
Ex-DDG, Animal Science, ICAR | Member |
| iii) | Dr. D. N. Jana,
Registrar. WBUAFS, 37, Belgachia Road, Calcutta – 37 | Member |
| iv) | Dr. R. Sahai, | Member |
| v) | Dr. S.K. Prasad,
Director, NBAGAR, Karnal – 132001 | Member Secretary |

Terms of Reference:

- a) To suggest measures for improvement and conservation of different important indigenous breeds of cattle, buffalo, sheep, goat & camel.
- b) To develop programme for sustainable management of animal resources in the country.
- c) To suggest mechanism for maintaining a watchlist of threatened breeds.

Sub-Group IX – Animal Disease Control and Certification System

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|------|---|-------------------------|
| i) | Dr. P.K. Uppal, | Chairman |
| ii) | Dr. M.P. Yadav,
Director, IVRI, Izatnagar (UP) 243122 | Member |
| iii) | Dr. A.B. Negi,
Joint Commissioner, (Animal Health) | Member |
| iv) | Dr. H.K. Pradhan,
Joint Director, IVRI, Bhopal (MP) | Member |
| v) | Dr. S.N. Singh
Technical Director, Intervet Laboratory Limited | Member |
| vi) | Dr. D.K. Singh,
General Manager (PPD), NDDDB, Anand-388001 | Member |
| vii) | Dr. A.K Mukhopadhaya,
AH&D Department, Krishi Bhavan | Member Secretary |

Terms of Reference:

- a) Critically assess the present status of disease control in the light of international regulatory mechanism concerning animal health.
- b) To review the achievement of Rinderpest Eradication Programme in the country and suggest measures for maintaining disease free status.
- c) Consider feasibility of using infrastructure created for eradication of rinderpest for eradication/control of foot and mouth diseases.
- d) Identify measures for effective disease control and animal quarantine through installation of quality assurance system for laboratories, clinics, etc.

Sub-Group X – Development of Poultry

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|-------|---|-------------------------|
| i) | Dr. David Lobo
Chairman & Managing Director, Deejay Group | Chairman |
| ii) | Dr. Rajbir Singh,
Director, CARI, Izatnagar, Bareilly 243122 | Member |
| iii) | Dr. Jagtar Singh
Professor of Animal Breeding | Member |
| iv) | Mr. Ajit Singh
Chief Executive, NECC | Member |
| v) | Sh. Vijay S Kapoor
President & Managing Director | Member |
| vi) | Dr. G.C. Jain
Venkateshwar Hatcheries, Pune | Member |
| vii) | Dr. A.L.Bhagwat
Director, Institute of Poultry Management of India | Member |
| viii) | Dr. Iqbaluddin,
Joint Commissioner (Poultry), Deptt. of AH&D | Member-Secretary |

Terms of Reference:

- a) To examine the scope of improvement of productivity in both the organized and un-organized poultry sector.
- b) Suggest conservation programmes for indigenous poultry.
- c) To examine constraints in the growth of poultry industry and suggest policy changes to remove these constraints.

Sub-Group XI – Meat Secor

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|-----|---|-----------------|
| i) | Mr. Irfan Allana
Managing Director, Frigerio Conserva Allana Ltd | Chairman |
| ii) | Dr. J.S. Bairwal
Joint Commissioner (Meat & Meat Products) | Member |

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|------|---|-------------------------|
| iii) | Mr. Satish Sabharwal
Alkabir Group of Companies, B-417 Somdutt Chamber-I | Member |
| iv) | Mr. R.K. Boyal,
General Manager, APEDA, NCUI Building, | Member |
| v) | Dr. N. Kondaiah,
Senior Scientist, ICAR | Member Secretary |

Terms of Reference:

- a) Critically examine the constraints affecting development of organized meat sector for sustaining animal production.
- b) Measures necessary for promoting meat export.
- c) To assess the policies presently in force and changes needed to meet global challenge.

Sub-Group XII – Animal Welfare measures and relief during calamities.

- | | | |
|------|---|-------------------------|
| i) | Prof. N.S. Ramaswamy
Director, CARTMAN, 870, 17E Main, Koramangala, | Chairman |
| ii) | Secretary, AWBI, Chennai
P.O.Box No.8672, Third Seaward Road, Valmiki Nagar | Member |
| iii) | Dr. D.R. Marwah
All Lovers of Animal Society | Member |
| iv) | National Disaster Management (Chair)
Indian Institute of Public Administration | Member |
| v) | Dr. A. Batobyal
Joint Commissioner (AP), | Member |
| vi) | Prof. Ram Kumar,
Secretary, Veterinary Council of India | Member-Secretary |

Terms of Reference:

- a) To study the present utilization of draught animal power and other animal byproducts and suggest measures for their optimum use.
- b) To evolve a contingency programme for replacement of livestock perished during natural calamities and to sustain productivity of surviving animals.
- c) To study the importance of animal welfare measures on the export of animal products and byproducts and suggest measures to improve the well being of animals.
- d) To assess the importance of animal welfare measures in society in general and on export prospects of animal products in particular.
- e) Suggest measures to improve implementation of animal welfare regulations.
- f) To evolve mechanisms to ameliorate sufferings of farm animals during calamities.

- g) Suggest measures for sustaining production and replacement of livestock during calamities.

Sub-Group XIII – Dairying

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|---|-------------------------|
| i) Dr. A.K. Benerjee,
President, Indian Dairy Association | Chairman |
| ii) Dr. N.R. Bhasin,
Vice-President, Indian Dairy Association | Member |
| iii) Dr. R.S. Khanna, | Member |
| iv) Dr. Ashok Gulati
Prof. (NABARD Chair) | Member |
| v) Dr, Vijay Pal Sharma
Indian Institute of Management | Member |
| vi) Dr. Ravi Shanker,
Managing Director, NCDFI | Member |
| vii) Mr. D. Tikku, NDDDB, Anand | Member |
| viii) Dr. Shasank Vide,
Chief Economist, NCAER, Parisila Bhavan, | Member |
| ix) Mr. B.M. Mahajan,
MD, PMF | Member Secretary |

Terms of Reference:

- To study the performance, growth and financial health of existing dairy cooperative societies /milk union/federations during post-operation flood period.
- The impact of MMPO (1992) and trade liberalization on these institutions.
- Identify measures for rapid dairy development all over the country as well as clean milk production and its availability to consumers;
- Suggest the future role of NDDDB vis-à-vis Department of Animal Husbandry and Dairying in this sector.
- Structural 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.

Sub-Group XIV – Animal Husbandry Statistics

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|--|-----------------|
| i) P.C. Bansil,
Director, Techno. Economic Research Institute | Chairman |
| ii) Dr. S.D. Sharma,
Director, IASRI, Library Avenue, Pusa, New Delhi | Member |
| iii) Shri A.S. Chopra
Former Joint Director (Statistics) | Member |
| iv) Dr. R.C. Garg,
Project Directorate Cattle, Phase II, Pallavpuram | |

- v) Dr. M.S. Satyamurthy, **Member Secretary**
Adviser (Stat), Deptt. of AH&D

Terms of Reference:

- a) 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.
- b) To review the livestock census and suggest suitable implementing agency and methodology.
- c) To suggest measures for incorporation of information technology in animal husbandry programme.

Sub-Group XV – Extension

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|---|-------------------------|
| i) Dr. Rita Sharma,
Joint Secretary (Ext.) | Chairperson |
| ii) Dr. O.S. Varma
Head of the Division (Extn.) | Member |
| iii) Shri S.N. Swain,
Deputy General Manager, Women's Dairy Project | Member |
| iv) Dr. D. Chattopadhyaya,
Regional Demonstration & Training Centre, | Member |
| v) Dr. R.N. Bhatnagar,
Retd. Director, Animal Husbandry, Rajasthan | Member |
| vi) Dr. P.N. Kaul,
Division of Extension, IVRI, Izatnagar, Bareilly – 243122 | Member Secretary |

Terms of Reference:

- a) To identify the mode of involving masses in the delivery of veterinary and animal husbandry services through participation of women and NGOs 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.
- b) To review the present system of veterinary extension/T.O.T system and to suggest new structure for the same

ANNEXURE**Planning Commission
(Agriculture Division)****List of participants in the Working Group Meeting of Animal Husbandry & Dairying for the Tenth Plan held on 19.12.2000 at 11.00 A.M. in Yojana Bhavan, New Delhi**

Sl.No.	Name	Designation
1.	Dr. P.N. Bhat	Chairman, World Buffalo Trust
2.	Shri M.D. Asthana	Pr. Adviser (Agri.), Planning Commission.
3.	Dr. V.K. Taneja	Animal Husbandry Commissioner
4.	Dr. D.N. Jana	W.B.U.A.F.S
5.	Dr. O.S. Tomer	Ex-Director, NDRI
6.	Dr. Rajbir Singh	Director, CARI
7.	Dr. S.N. Singh	Tech. Director, Intervet Lab.
8.	Prof. P.K. Uppal	Ex- Director, Cen. Inst. Equine Res.
9.	Dr. Punjab Singh	Director, IARI
10.	Dr. Kiran Singh	DDG (Animal Sciences), ICAR
11.	Shri Ajit Singh	Chief Executive, NECC
12.	Dr. S.K. Ranjan	Ex- Head , Anim. Nutr. Divison, IVRI
13.	Shri Animesh Banerjee	President, Indian Dairy Association
14.	Shri U.N. Rao	NDDB, Delhi
15.	Prof. N.S. Ramaswamy	Director, CARTMAN
16.	Shri P.D. Mayee	Jt. Adviser, Planning Commission.
17.	Dr. N. Das	Deputy Adviser, Planning Commission.
18.	Dr. D.P.S. Chauhan	Deputy Adviser, Planning Commission

ANNEXURE**Planning Commission
(Agriculture Division)**

The 2nd meeting of the Working group of animal husbandry and dairying, was held on 20th February 2001. The members who attended the meeting are mentioned in Annexure I. In his opening remarks, the chairman informed that the basic purpose of present meeting was to discuss the terms of reference of sub groups and to consider the suggestions of members with regard to additions and alterations thereof. He also stressed on the framework and timed scheduling regarding the submission of the report on or before 30th May 2001, the deadline fixed by the Planning Commission. The Chairman invited the suggestions on short terms studies to be undertaken in sectors having inadequate or nil information. The matters regarding the quality assurance of veterinary biological and drugs (herbals, homeopathic and allopathic medicines), some of which are currently being used within the country as well as exported under various brand names (be it herbal or allopathic) might be considered by the group. The question of restructuring of the veterinary institutions at central, state and village level needs to be examined. The chairman also informed the communications received from both the members as well as persons of repute in the field of animal husbandry and dairying, especially from the chairperson of NDDB for consideration in the working group.

While taking up the terms of reference with regard to various sub-groups, Dr. Yadav, Director IVRI, was of the view that enough emphasis had not given on problems of environmental pollution vis-à-vis animal products, which according to Dr. Uppal could be taken up at three levels viz. veterinary control measures within present framework of the WTO and OIE, safeguarding the quality of livestock products and residues of drugs, antibiotics and chemicals like heavy metals and Alfa toxins and their variations on livestock products. He further stated that bacteria, fungus and virus of pathogenic nature, which infect these products, need to be considered while formulating regulations. It was decide to refer the issues to the respective sub-group viz. Synchronization of Livestock Production System in the country with International Regulatory System (WTO and SPS) and sub group on the dairying and meat sector.

While expressing his concern about the quality of livestock products particularly the quality assurance aspects, Dr. Ranjan urged to differentiate between quality assurance and the protocols of SPS. Chairman intervened by stating that members should interact and give suggestions on what could be done in this regard, particularly its implementation at village level. It might be possible

to adhere to the minimum standards of residues in milk and its products, poultry and meat products, but one was not quite sure as to how to introduce the hygienic components which requires identification of each animal, maintenance of disease records certified by the veterinarian in addition to performance recording for each animal at village level. As these are now the requirements of export of livestock products, Chairman invited suggestions as to how this could be put in to practice.

While discussing on the removal of quantitative restrictions in respect of livestock products, especially poultry meat and the government intervention needed to help the farmers, Chairman remarked that he was not quite sure as to what particular intervention could be made. Although increased import duty might protect the existing poultry industry from competition but the prevailing market is neither in favour of poultry farmers nor the consumers. As no differentiation is being made between a broiler and spent hen or any other kind of bird in the mandi, the broiler farmers do not get the right price for quality product. While the margin received by a broiler farmer is not more than Rs 5 per bird, a middleman earns Rs.20 to 30 per bird. Against the cost price of Rs 45 to 50 per kg, the consumer has to pay Rs. 70 to 90 per kg for any type of poultry meat (i.e. meat from spent hen or broiler). Under this situation, if free import of poultry meat is allowed, the consumer will get a fair deal without hampering the interests of poultry farmers. This whole issue needs consideration.

Prof. Ramaswamy was of the view it would be desirable to introduce economic and social development through livestock entrepreneurs. He advocated for up gradation of meat sector and proper utilization of draft animal. The idea of livestock development Board, Meat Corporation, Draught animal Power Board is still valid in this country.

The chairman pointed out two distinct problems which Ms. Patel, Chairperson, NDDDB had raised for consideration. One was the 9% growth rate as mentioned in the proceeding of the last meeting. She was concerned that such a high growth rate apart from large investments needed to go in to the sector would create more problems for small and marginal farmers than helping them. She was of the view that there was a total agricultural growth rate of 4.7% of which animal husbandry was a part and to make a target of 9% for AH sector alone perhaps was not very helpful and this matter be properly debated. She also pointed out that the general consensus at the last meeting was to slowly convert the small and marginal farmers, as this exists into livestock entrepreneurs. She thought this would create a problem in terms of finding employments for those who would no longer be required to have animals.

She intimated that Mr. Tikoo would project the views on these two points. Mr. Tikoo in his presentation made significant observations with regards to problems of high rate of growth. He was not very sure whether a high growth rate would eventually eradicate poverty. The experience from Latin America where high growth rate had not led to eradication of poverty needs consideration. He

suggested to make distinction between the growth for the sake of growth (wealth generation) or for the sake of eradication of poverty. With a targeted growth rate of 9%, the country would be having something like 108 million tones of milk produced every year. Mr. Tikoo was wondering whether this level of milk production was required and was there any demand for this and whether the income elasticity would be there, for people to purchase this milk. It would create a glut like situation like grains, at this moment the FCI is incurring a phenomenal expenditure to store about 40 million tons of grain. In the case of milk, the position would be for more difficult because it would need infrastructure to convert the milk into skimmed milk powder and butter oil and to store them. Further, it would be difficult for country like India to compete in the export market as the milk producers in most of the developed countries are being assisted with high subsidy for export their milk products.

A number of questions were raised on the issue of growth rate. Which would be the driving engine to achieve such high growth rate? Would there be vertical production, which according to Dr. Tomar could be the main thrust? Whether reduction in cattle numbers is required? Are the 200 million of cattle and buffaloes that are presently contributing to milk production of the country needed for a vibrant milk economy of the kind, which needs to be stabilized? The general justification given for such a large numbers is that it provides a means of livelihood to the landless laborers, but the moot question is what level of livelihood system is acceptable to the farmers. Would they like to continue having an income of about Rs.1500 a month from this kind of economic situation? Would it not amount to exploitation? Do you have an alternative livelihood system available for the poor farmers whose livelihood depends on the rearing of two to three cows? It is also desirable to look at the export markets, which are available for the milk production in our neighboring countries like Nepal, Bangladesh, Sri Lanka, Myanmar and Pakistan. It is quite possible to absorb considerable amount of milk within the country itself. There were suggestions from the members about these points and it was decided that all these should be referred to various sub groups.

Dr. S.N. Singh was of the view that the group on Animal Disease Control and Certification system should have an expert co-opted for herbal medicine who could provide necessary input on this sector.

The chairman asked the members about the present structure of the animal husbandry support services and structure of the institutional work. After the success of Operation Flood programme in milk sector, the cooperative structure could be a model for other sectors of livestock production. Dr. Ranjhan gave an input with regard to para veterinarians with two years training. Dr. Uppal gave emphasis on the integrated veterinary service. Dr. Jana suggested for establishment of livestock board/center in each district/panchayat. There was a considerable amount of discussions as to what were the various alternatives available; members agreed that this would be required to be discussed further.

The chairman in his summation said that it would be desirable that these issues be debated and looked at in depth by the members of sub-groups, which would come up with concrete suggestion. The members were requested by the chairman to write to him as what need to be made. With regard to suggestions for growth rate and so on, he was of the view that Planning Commission under the chairmanship of the Prime Minister decided to have growth rate of 9% in various sectors and the group would have to look the kind of planning required but it was also necessary to examine the medium term and long term effects on sustainability. In respect of Institutional structures, one would like to experiment with a number of innovations, which are available. It would therefore be necessary to put considerable amount of thought before deciding on issues. He thanks the members for their valuable input. The Meeting ended with vote of thanks to the chair.

Proceedings of the third Working Group on Animal Husbandry and Dairying held on 2nd and 3rd August 2001 at the Planning Commission.

Chairman welcomed the members of the working group and Chairman and Member Secretaries of sub-groups and various experts invited specially to interact with the working group members on specific issues identified by sub-groups while presenting their reports and recommendations. Chairman at the outset discussed the issues related to GDP growth rate, which have been pre-determined (8% per annum) by Central Government for the 10th Plan and also the problems highlighted by various sub-groups in achieving the targeted growth rate. The Chairman observed that different sub-groups were presenting in the reports various figures in respect to livestock population, production and products, which were not in consonance with each other. It is therefore necessary that all the sub-groups should use the data issued by the Planning Commission / Department of Animal Husbandry and Dairying / Directorate of Economics and Statistics. It is necessary to clearly spell out the source of information whenever sources other than mentioned above were used. In case of contradictory and conflicting statistics it is necessary that the areas of conflict be also spelled out. Based on the recommendations made by different sub-groups, a draft recommendation for the Working Group was prepared and circulated among the participants for consideration. Chairman requested the members of working group and others to send the suggestions / comments in writing to Dr. Das latest by 20th August so that these inputs could be used while finalizing the report.

On request of Chairman Dr. N. Das presented the recommendations of Group I. Shri L.N.Modi while appreciating the scheme on venture capital fund wanted that the meat and egg industries should be made ineligible to draw funds from venture capital. Shri. Modi was disturbed to know that NDDDB was doing consultancies for construction of slaughterhouses in the country and urged NDDDB not to undertake such consultancies. Members by and large were quite respectful about the feelings of Shri Modi and the organization he represents, but they were totally unambiguous in rejecting his contention. Meat and eggs and other slaughterer house by products are livelihood options for a large population of livestock farmers/traders/entrepreneurs and any argument/observation could not be brought into play, which impinges upon the constitutional guarantees that allow citizens to follow their food habits and livelihood. Mr. Modi extended his full support for establishment of Indian Council of Veterinary and Fishery Science Research and promised to follow up actions needed for its early formation.

Dr. Kiran Singh was highly appreciative of the alternative road map mentioned by the Sub-group. He was of the views that the venture capital fund should be directed at empowerment of farmers in addition to private industries. He opined that genetic improvement through using AI/improved breeding bulls could only be effective if scrub bulls were castrated in the concerned villages. He was of the view that the NDDDB had done pioneering work in fulfilling their

mission as far as operation flood was concerned and he did not feel any necessity that the Board should continue functioning now. It has entered a number of areas, which have no relationship with dairying giving an impression that their job in dairy sector is over. In fact, there are vast areas where dairying can be used as an instrument of poverty alleviation. Dr. Kiran Singh pointed out the overlapping activities of NDDDB, DAHD and ICAR and felt the need of complimentary and synchronized approach.

Mr. D. Tikoo was highly critical about the recommendations of sub-group I, particularly those related to NDDDB. According to him, these recommendations were beyond the terms of reference given to the Sub-Group. The working group has been given a mandate to examine the role of NDDDB vis-a- vis the Department of Animal Husbandry. Mr. Tikoo felt that the working group has no mandate to suggest what should be the activities of NDDDB in 10th Plan. It appeared to him that the Working Group was trying to review the activities of NDDDB; if so, then it should also review the working of DAHD and ICAR. Mr. Tikoo explained that NDDDB did not use any funds available to it for oilseed and vegetable project; the funds for these activities came from other sources. Mr. Tikoo was informed that the basic function of the Working group was to review the present activities in depth and suggest future role of the Department of Animal Husbandry & Dairying, which includes its arms like NDDDB and in that context, it was mandatory to suggest what should be the future role of DAHD as well as NDDDB.

Dr. Uppal was highly appreciative of NDDDB's work in the milk sector but he could not understand how they had taken up a project on disease free zones at Nilgiris in Tamil Nadu and in parts of Karnataka. He wanted to know the performance of the project and the reasons for its premature discontinuation. Dr. Uppal was of the view that all the major companies producing foot and mouth vaccine in the country were not following the international standard in respect of antigen content in the vaccine.

Dr Banerjee praised the venture capital fund proposed by the sub-group. However he was not sure about the response to such a scheme particularly in the area of livestock and its products and suggested that at least a study should be made on the likely impact of such scheme. Mr. Banerjee was of the view that the recommendations of sub-group I should be in consonance with those of sub-group 12, particularly in the issues of NDDDB and MMPO.

Prof. Ramaswamy made an observation that after listening to the recommendations of sub-group and follow up discussion, he was convinced that the Department should be renamed as Department of Animal Husbandry.

Group II: Resource Mobilization

Mr. Chakravarthy presented the report and the recommendations of the sub-group II. Shri Modi wanted that draught power, dung and urine should be

included in the scheme for cattle. For granting loan up to Rs.10,000, mortgage of land should not be made compulsory. It would be desirable to study how to help landless and marginal farmers to get credit.

Dr. Kiran Singh wanted that all the facilities available to small-scale industries should be made available to livestock farmers. Dr. Tomar asserted that majority of the livestock farmers were landless and therefore mortgaging of land for getting credit was totally impractical.

The Chairman indicated that the financial institutions did not find any problem to extend any amount of credit to the livestock enterprise if it was financially viable and somebody guaranteed the underwritten technology. But if institutional finance were to be tied with the parameters of social-justice, it would be not be a viable proposition for financial institutions. This is why a dairy credit card and poultry credit card had been proposed which would help the poor farmers to get short-term credit against the future production. The basic platform for the 10th Plan as agreed by the working group is primarily to promote livestock enterprises, which are financially viable and generating wealth and employment. This would demand stringent parameters in the service and good sectors that underwrite the technologies of the present century.

Group III: Synchronization of livestock production systems.

Dr P.K.Uppal presented the report and the recommendations. Mr. Modi wanted to know what 'tit for tat' approach meant in respect of WTO/SPS challenges. Chairman explained that it was used as counter measures to protect our industries from any unfair and unjustified decision of a nation. Dr. Banerjee emphasized the need for interaction with the industry while dealing with various clauses of WTO and suggested that the stakeholders should be part of the monitoring system. Dr. Ranjan also advocated that the industry should be linked in finalizing the recommendations under the WTO discussions. The suggestion that DAHD should have a division to deal with exports and problems related to SPF and Zoo sanitary codes is a welcome development. He wanted that a single window system for sanctioning project and regulating export and import should be introduced. This would end the pain of running livestock business through the maze of different ministries and directorates. Domestic standards for SPS measures need to be developed in India for effective regulation of imports. Chairman was of the view that we should make recommendations to the Government to commission experts for formulating standards for different livestock products within the country. Shri Ajit Singh proposed that dairy, poultry and meat industries should join together and assist the DAHD to look at the problems related to import and export of livestock products on day-to-day basis. Dr. S.N.Singh suggested that the manual on regulations should be made available.

Group IV: Development of Small Animals

Dr N .Das presented the report and the recommendations. Dr. Kiran Singh emphasized that the development of Common Property Resources (CPR) should be responsibility of village panchayat and they should ensure that the farmer raising sheep and goat should form the backbone of CPR management in a village. Prof. Ramaswamy informed that with the decreasing area under CPR, appropriate technologies should be adopted for wasteland development. Rural abattoirs would help effective utilization of small ruminant and improve employment potential. Donkeys should be given a place in the large scheme of things.

Group V: Fodder Production enhancement.

Dr. Pathak presented the report and recommendations. Dr. Panjab Singh supplemented the presentation by pointing out that if livestock sector seriously interested in fodder production, it should make a separate allocation in the budget for fodder production and a dedicated fodder development infrastructure including human resources in the States as well in the DAHD needs to be created. Unless that structure and budget is made available there would be no change in the scenario. Both the trained manpower and technology are available; the missing link is the will to enhance fodder production. In reply to the Chairman questions as to what should be the role of fodder farms of federal government as well as state government. Dr. Panjab Singh clearly stated that these should be converted into seed production units and any other activity should be banned. In response to Dr. A.K.Singh's revelation that the fodder seed production was financially unviable, he commented that fodder seed could not be produced and sold at a ridiculously low price; government ought to subsidize fodder seed production, besides efficient monitoring and management of these farms. Dr. Tomar was of the view that seed production was a risky proposition for small and marginal farmers and they should get subsidized seed. He was further worried about the quality control of fodder seed which he felt should be taken on priority basis. Dr. Ranjan mentioned that quality seed was an important ingredient of the production system and the existing farms needed to be strengthened along with better monitoring. He however was of the opinion that the deficit estimates on fodder availability needed to be tied up with the survey of fodder consumption by livestock over a 365-day cycle covering all the seasons and various regions of the country so that estimates could be realistic. Dr. A.K. Singh suggested that the feed and fodder development authority should be established with branches in all states. Dr. M.P.Yadav remarked that framers indeed produced fodder in the irrigated areas but the problem was, how marginal and landless farmers bought it from the local market. A scheme needs to be framed that enables these farmers to get fodder at subsidized rates. Dr. Pathak stated that availability of quality seed of fodder and grasses was the major problem in any fodder enhancement

programme. The Chairman appealed to agricultural scientists to change the mindset and invest in fodder production and livestock projects than crop production in rain fed areas. The rains fed areas in the country are the repositories of livestock wealth. The states of Andhra Pradesh, Maharashtra, Rajasthan, and Madhya Pradesh are the major producers of livestock and their products. The crop failure due to draught /shortage of water leads to total loss to the farmers while such vagaries of nature have very little effect on livestock and their products. This group should recommend that the watershed development programmes particularly in rain fed areas should centre on livestock instead of crop and therefore should be managed by Animal Husbandry Department. The experience of shivaliks and many projects in Rajasthan and Gujarat have shown it clearly that the prosperity in these areas is linked to livestock development. Dr Batobyal was of the view that these areas should have fodder banks in every village and these fodder banks should be maintained in normal course rather than as a part of disaster management programme.

Group VI : Feed Production

Dr. N. N. Pathak presented the report and recommendations. Dr. Bansil was distressed to note that the figures on feed availability, feed deficit and other parameters on the basis of which recommendations were made had been drawn from sources that were not very reliable. Feed consumption and feeding pattern of Indian livestock for 365 days under village conditions across agro-climatic zones / regions is not documented. He believed that this information should be the basis for estimation of deficits or availability of feed. Dr. Pathak agreed with Dr. Bansil that this information was not available in the form in which he wanted. Dr. Tomar said that was not correct. The information was available but has not been tabulated. He however agreed that systematic data was not collected and it should be done on a priority basis. Dr. Tomar was of the view that quality of feed produced by feed manufacturers should be regulated suitable legislation. He warned about the possibility of misuse of tax benefits as recommended by the sub-group. Mr. Tikko suggested that ingredients of the feed should be displayed on the packaging material. Dr. Satyamurthy while responding to Dr. Tomar and Dr. Bansal informed that this information on feed was available for a few districts under Drought Prone Areas Scheme. This data is also available in the integrated sample survey scheme but is not completed for want of staff and computer facilities. Dr. Prasad suggested that feed subsidy could be used as a conservation measures of indigenous breeds. Mr. Modi suggested that unconventional feed resources like crop residue, sugarcane tops etc., should be used in feed scarce areas. He felt that in place of importing oil, it was desirable to import oil seeds, which would produce oil as well as oil meal, a source of good protein for animals. There should be a ban on export of fodder even to Nepal. Dr Jana advocated for subsidy at the rate of 33 percent to be given to feed plants for purchase of feed ingredients from the national food grain pool.

Group VII Cattle and Buffaloes

Dr. Batobyal presented the report and the recommendations. Shri Modi complemented Dr. Batobyal for an excellent presentation. He observed that cattle development programme should be extended to 25 to 30 years otherwise no results could be obtained. There should be separate programme for cattle and buffaloes. While complaining about the negligence of indigenous breeds, he highly eulogized the special qualities of cow dung and urine as medicine milk having healing properties etc. He was of the view that a cess should be levied on milk production and used to fund cattle development. The Chairman was highly appreciative of Mr. Modi's concern for 'Gaumata'. He informed Mr. Modi that the group will recommend that ICAR should take up research work on the suggestions made by Mr. Modi and should come up with the data on these issues. He also requested Dr. Kiran Singh DDG (AS), ICAR to take note of Mr. Modi's suggestions. Dr. Kiran Singh was apprehensive about the success of the breeding policy suggested by the sub-group unless it categorically unraveled the problems related to the removal of surplus poor quality cattle from the system that is a globally accepted method for production of better quality animals. Dr. Ranjan while supporting the contention of Dr. Kiran Singh was categorical that the ban on cow slaughter should be removed from the states where it was in vogue. Meat industry in Indian should be allowed to grow as a major export thrust which would help to increase the productivity of cows by removing the surplus poor quality animals from the population. The Chairman intervened in the debate by stating that no one had raised the question of surplus cattle numbers after the third plan. Although everybody is aware of the advantage of reduction in cattle numbers, but no action plan has yet been developed due to the so-called sensitivity of this issue. The fact remains that no breeding programme would succeed in this country unless it is tied up with removal of inferior genotypes from the population. Quoting Dr. Bhattacharya from the National Commission on Agriculture the most humane way of removal is through slaughter. We should clearly state the economic and genetic of the situation if this investment is not to go to waste.

Group VIII: Conservation and Management of Genetic Resources

Dr. Prasad presented the report and the recommendations. Shri L. N. Modi suggested that the list of breeds to be conserved should be completed and the programme on conservation of these breeds should be specified. Central breeding farms established for indigenous breeds should not be used for cross breeding and indigenous improved breeds should be used for crossing of non-descript breeds. If the Government is unable to run these farms, these should be given to private entrepreneurs who have commitment for this purpose. Prof. Ram Kumar said that the Group should consider conservation by the farmers, as has been the history of conservation and breed development of both plants and animals in this country. It should be more useful if community participation is

energized for this particular purpose. Dr. Kiran Singh supported this. Dr. Jana proposed establishment of an institute for animal resource management that could conduct research on the sustainability of our assets and this would also develop livestock conservation centers across the country.

Group IX: Animal Health

Dr. Uppal presented the report and the recommendations. Dr. Kiran Singh was highly critical of OIE 's functioning and he made it clear that the Europeans have greater influence in this organization than the developing countries. The Department should work towards a situation where this inequality should be dispensed with. He was of the opinion that the programmes presented seem to be for the next fifty years and urged to prioritize the diseases to be tackled in the next five years. He said the experience of the present regime of FMD in Europe needed to be critically examined if we were to eradicate FMD from India. He was fully convinced that that FMD is a disease, which could be controlled but difficult to eradicate. England, which had eradicated this disease, is back with one major outbreak going across a number of countries. This matter needs to be given some priority. Dr. Uppal explained the priorities and highlighted the achievements of rinderpest eradication and Ranikhet disease. Prof. Ram Kumar said enough safeguards in training of manpower should be taken and a holistic approach in veterinary science could be made using the new Indian Council of Veterinary Research as the platform.

Group X : Poultry

The Chairman of this Sub-Group had requested for leave of absence in view of his having an accident. The Member-Secretary Dr. Iqbaluddin, Joint Commissioner (Poultry) neither attended the meeting nor informed about his preoccupation. In view of this, Dr N. Das was requested to present the recommendations of this Group. Dr. Kiran Singh said that poultry production was an important element in animal agriculture. The commercial poultry had grown to the commanding heights due to modern technology and research inputs in the system. He however thought that during Tenth Plan some attempts should be made to look at the poultry production in rural areas where backyard poultry with some innovations could be promoted to bring in higher income levels and nutritional securities of large population of tribal and others who still rear indigenous poultry. The Chairman congratulated Dr. Kiran Singh on his concern for indigenous poultry and the backyard system of management. He informed the members that the Working Group is considering making their recommendations with regard to conservation and improvement of indigenous poultry with specific emphasis on improvement in management system. However, a clear distinction is to be made between growth of poultry production in the rural areas, which relates to financially viable broiler and layer units and development of indigenous poultry, duckery as a source of income, improvement of the nutritional quality and wealth generation of rural and tribal population. It recognizes that breeds like

Kharagnath, Aseel, Siri, and others are very important for niche agriculture and have a role in poultry development. Dr. S.K. Ranjan supported this view, which gives clear option to people in this sector. Recently, some people are suggesting that specific genotypes be developed for low input agriculture like Giriraja, Girirani from failed exotic cross breeding programme. There is also a view that males produced from hatcheries from layer stock could also be reared in the villages at the low cost. This suggestion can be experimented with. Mr. Singh raised the question of treating the poultry either as industry or as agriculture so that it can get the benefits either under agriculture or under industry. The Sub-group has not recommended clearly whether it should be agriculture or industry. In some States it is treated as agriculture. In other States it is treated as industry. Dr. A.K. Singh from U.P. informed that farms up to 10,000 birds are treated as agriculture and capacity beyond 10,000 are considered as industry. The general consensus was that this pattern might be followed in other States also.

Mr. Modi said that there should be radical changes in the industry and it should be brought at par from the point of view of animal welfare. He was terribly upset about debeaking and starving the birds to molt and force molting to get better egg production. He was quite concerned that these cruelties should be stopped. He also suggested that while grading eggs there should be rigorous quality control, as there were reports of salmonella bacteria in eggs. Mr. Modi was deeply disturbed by the National Egg Coordination Committee giving an impression that it was a government body and this was misleading Indian public. He has found out that NECC was a registered society and they should mention this in all their publications and advertisements. Dr. Uppal was concerned about the hatchery hygiene in the country. He said that a host of bacteria and viruses pathogenic in nature were part of Indian hatchery culture and antibiotics and vaccines were given to day old chicks with the result that when they went to production units they suffered from a large number of dormant and not so dormant infections leading to financial losses to the farmers. He was of the opinion that Government should introduce a chick certification scheme. Mr. Ajit Singh informed the house that NECC was registered as a trust at Pune and it was not misguiding anybody by showing it as a government organization. It is, however, a fact that it is guarding the interests of the farmers in stabilizing the egg pricing and government does intervene through this coordination mechanism to keep the price line under control.

Group XI: Meat Sector

Dr. Kondaiah presented the report and recommendations. Prof. Ramaswamy who had earlier interacted with the Group was highly supportive of the recommendations and informed that he had been making these recommendations for the last twenty-five years without any response from authority. He would therefore like to appeal to the present Group to strongly recommend and support the scheme of rural abattoir not only for the production of clean, cheap meat but also as a developmental process at the village level for

creation of industrial infrastructure by value addition of the products in the form of forward linkages and to develop raw material from the farm gate to the abattoir in terms of backward linkages. This would create an employment through growth of quality raw material in terms of sheep, goat and buffaloes as viable units of production. The rural abattoirs would provide a processing facility for ten to fifteen animals that would produce skins, byproducts and clean meat for villages and something to spare for the nearest towns. Meat could be carried from the village to the nearest town or kasba and onward in refrigerated transport to district headquarters and metro towns. The consumers would not have to pay for the transport of animals; the city would not be overloaded with polluting industries and would get cheaper meat and meat products while keeping the wealth with the farmers. This is a basic requirement for animal welfare and eco-friendly city environment, which is today choking the large cities due to growth in consumers. This however will call for Prof. Ramaswamy to bring in awareness in this country that refrigerated meat is as good as fresh meat.

Dr Ranjan could not understand how the Sub-Group planned to ask the Government to salvage a large number of young buffalo calves from metro towns but also from the villages where buffalo male cows are starved within the first couple of months from birth. He was of view that private sector should somehow be motivated to take interest in salvaging the buffalo cows. The State governments and livestock boards could take up salvaging of these cows in association with meat processing plants. It is an important activity and we are losing good animals due to sheer neglect. The Chairman intervened by stating that it would be necessary to change the basic mindset of private industry that processed meat in the country. Since buffalo numbers is so large nobody is worried about the losses of this sector to the nation. What is required is to change the legal framework related to slaughter of aged animals and to change the concept of slaughtering useless buffaloes to generating good buffaloes for meat after their life as dairy animals is over. Dr Uppal informed the Group that equine meat had a large market in Europe, Mongolia, parts of China and Russia. The report does not mention that India can become a large exporter of equine and donkey meat besides camel meat to Middle East. Mr. Modi while complimenting Dr Kondiah and group for an excellent report said that it has not incorporated comments provided by Dr. Chiranjeev Lal Bagri, Chairman (E), Indian vegetarian Congress and member of the Sub-Group. He was of the view that his comments should form part of the report. Dr Kondiah suggested that if Working Group desired this suggestion could be accepted. Mr. Modi raised the issue on calculation of per capita consumption of meat in India where data on 80 per cent of vegetarian population was not considered. ICMR has recently issued a circular, which does not emphasize that the best protein comes from meat and therefore it is not necessary to eat meat. Mr. Modi was highly critical of economics of export of meat and he gave information that for one rupee earned from meat export, India was losing rupees fifteen. He was quite critical of subsidies given to the slaughterhouses. In view of water shortage in the country, the largest users were the slaughterhouses and they were also causing pollution.

Mr. Modi was also critical of processing of skins and hides, which were causing pollution of both soil and water. He was in favour of ban on all the leather and leather processing units in the country. He said that it was a shame that child labour was used in the slaughterhouses. He was giving a vivid account of how the buffaloes were beaten continuously and hot water was poured on them before they were slaughtered so that the skin remain full of blood which improves the texture of the skin. Having said all this, he however supported the Group's recommendation with regard to forward linkages for proper handling of hygienic meat. He was supportive of development of cold chain and refrigerated transport for meat. He was however against the establishment of national meat authority. The Chairman explained to Mr. Modi that the Sub-Group on Meat in its final report would append the submission made by Mr. Bagri the Sub-Group and his observations would form part of the report. However, comments of Mr. Modi would be reflected as his views in the proceedings of the present meeting. He however stated that the observations of Mr. Modi were based on newspaper reports that were not supported by scientific facts. As an example, no buffaloes are beaten continuously for hours after pouring hot water on them before slaughtering. It is quite possible that this may be a tribal ritual, which Mr. Modi has either seen or been informed about. One cannot develop a policy framework on gossips and rituals.

Group XII: Draught Power, Welfare and Calamities

Prof. Ramaswamy presented the report and Prof. Ram Kumar supplied the explanation for the recommendations. Shri Modi said that India's petroleum reserves would last for a period of twenty years. Therefore, the general belief that DAP will be phased out is not based on facts. We should try to deliberately promote draught animal power through research and development of bullock drawn agricultural implements and improve the transport devices in the villages. There is no magazine or journal devoted to draught animal power and it is a shame for a country like India that the only magazine is published in England on the subject. There is hardly any institution where training facilities are available to train the students in the area. Dr. Taneja brought to the notice of the Group that animal welfare board was proposing action that not only interferes with medical and veterinary education but also practical animal protection. There should be adequate linkages between animal welfare and animal husbandry. The Group should develop a project, which would take note of all these problems. He further suggested that one-third country is under either floods or drought and natural and man-made disaster have become more frequent. While the general concern for media, both print and electronic, are for human welfare, the animals that die or suffer as a result of these disaster are not taken care of by the societies and the Government in the manner in which they can sustain the economy. It is unfortunate that by the time human sufferings are alleviated, his economic problems arise as a result of loss of his animals. It is therefore recommended to create a major fund for effective disaster management on a permanent basis. Prof. Ram Kumar presented the report on disaster management and agreed with Dr.

Taneja. Dr. Tomar informed that on an average a bullock worked for 100 days but it had to be fed for 365 days. The economic of this is impossible to be viable in near as well as long-term future. This may be considered while examining the recommendations made by Mr. Modi.

Group XIII Dairy

Mr. Ravishankar presented the report and recommendations. Dr. Kiran Singh was of the view that the report had made an umbrella type recommendation on all aspects of animal Husbandry involving management and breeding of animal, health cover and processing. While it had left two major issues without going into any depth, one relating to the strategic function and role of NDDB in the tenth plan and the structural defects of MMPO during the ninth plan and what needed to be done in the tenth plan. Dr. Kiran Singh also wanted to know that if the dairying was going in a manner as presented by Ravishankar, then why dairy technology graduates were not getting employment in the dairy sector. He wanted the group also to appreciate the fact that the cooperative sector was collecting 7 to 8 % of marketable surplus milk produced in the country and if the organized private sector collected another 5%, then 87% of surplus milk was collected and processed in the unorganized sector. While the report had highlighted this fact but it had not proposed any programme except that some incentive should be given. Dr. Uppal was wondering whether animal health should be the responsibility of the dairy sector, which has no mandate for the same. He repeated the fact that Rs.65 crore were used in disease free zone project which came to nothing because of bad planning. He saw no role of NDDB in running a vaccine plant and a pharmaceutical project. He recommended that the group should have examined whether this was consistent with the platform NDDB was created for. Dr. Tomar was of the view that role of each of these agencies namely Department of AH, NDDB, Dairy Federations, ICAR and the State Government should be clearly stated. It is surprising that NDDB wants to become a technical arm of the department because department is short of staff as recommended by this group. Dr. A.K.Singh, Director of AH in UP was of the view that NDDB was not helping the dairy federations to really provide breeding services and health care services even in areas where their unions were in existence. Today the situation in UP is such that the AH department is requested to lift the semen from the federation's bull productions stations and deliver it to its milk unions which is their mandatory job. The group should have examined this problem, which are now not only in UP but also in Punjab and other northern states. One of the disadvantages of MMPO is that no private dairies can be established in milk-shed areas without permission. Consequently the non-union members have to depend upon unscrupulous traders for sale of their milk, which is a disincentive for milk production in those areas. Dr. Das made two major observations on the report. His basic point relates to Planning Commission's targeted growth rate of 8% during the 10th Plan. This is possible only if agriculture grows about at around 4%. That means that livestock sector, as a whole must grow at around 5 to 6%; dairying happens to be the major component

of this sector needs to grow at more than 5%. The position in the 8th plan was that dairying sector was growing at around 4.9% and during the 9th plan the growth rate has come down to about 4.3%. It is felt that with 16% of investment in the 9th Plan of the 8th Plan, the growth rate is likely to decline further. The group has not taken these facts into account. If investment cannot be increased, growth cannot be generated. NDDDB's investment in dairy sector during Ninth Plan is not visible in the sub-group report although the Chairman of the group said that Rs.500 crores programme for Tenth Plan was in the perspective plan of NDDDB. The major government programme on cattle and buffalo is not moving the project has been cleared but the Department has yet to constitute a central project management authority. Given the fact that there are regional disparities in dairy development, the dairying group has not come up with any strategy of investment to remove the disparities, which will increase during the 10th plan if corrective actions are not undertaken. The Group has not critically examined the IDDP run by the Department. A cursory examination reveals that the pattern of cooperatives followed by them is totally non-viable as majority of the societies are procuring less than 50 litres milk a day. We would have been happy if the group had recommended of it's taking over by NDDDB or suggest an instrument, which can make them viable. The long and short of the matter is that the group has not applied its mind to an increased growth rate of 5%. They believe that a growth rate of around 4% is more than enough for this sector and any higher growth rate is going to create problems. The other point made by Dr Das relates to MMPO. Group I had pointed out that MMPO was created to ensure clean milk production of high quality and safe for human consumption. For this registration of milk processing plants was made mandatory and a licensing procedure was evolved. It turns out that during its operation period only licensing part has been implemented. While the part relating to implementation of safe milk has been neglected, primarily due to shortage of manpower and infrastructure. Group I has recommended that the licensing part of MMPO be in direct conflict with Government policy of economic liberalization and should be dispensed with and MMPO should concentrate on creating a platform for production of clean milk safe for human use. This would also help the export of milk and milk products from India, which is bound to happen in near future. It is also proposed that if regulation is required at all, an independent regulatory authority like telecom regulatory authority, insurance authority, SEBI etc, should do it. The Chairman made two points apart from what was discussed by other participants. He appealed to the group that it would be desirable to develop a major investment strategy, which would take care of the unorganized dairy sector, which processes 85% of marketable surplus milk in India. It should also take into account of technology up gradation and development of indigenous milk products industry. Enough money has been invested in western type of milk products which Mr. Modi and Dr. Kiran Singh were telling in the morning are not compatible with India's food habits. He would like this group to pay urgent attention to this problem. The second major problem which needs to be attended on war footing is the additional milk produced by sixteen million cross bred which are now being added to milk herd at the rate of 5 million cows a year. This milk will be surplus

to our requirement and the dairy group must find a market for them. The traditional method is to convert the milk into SMP and butter oil for which you need investment in cold chain. The group has to apply its mind as to how this investment can be canalized to public good.

Mr. Tikko informed the Working Group members that they should restrain themselves to only the terms and reference given to the Working Group and they did not need to discuss and examine the affairs of NDDDB and what its mandate should be as this was not within the terms of reference given to dairy group. The Chairman explained that in looking at the terms of reference we should have to look at the problems of the entire livestock sector including Dairying. Any institutional structure within the ambit of the Government needs to be studied and reviewed and the Working Group is free to suggest any institutional restructuring following within its ambit. However, the points raised by Mr. Tikko, Managing Director, NDDDB was brought into record as he insisted that it should be done.

Group XIV: Animal Husbandry Statistics

Dr. Satyamurthy presented the report and the recommendations. Dr. Bansal presented the additional ties particularly in reference to the census of the livestock. He informed the Group that the complete questionnaire of census should be revised to meet the present day requirements. Dr. Taneja was of the view that the new Division of Animal Husbandry Statistics should be created and one of the major responsibilities should be the livestock census, which had been agreed to be transferred to the Department from Directorate of Economics and Statistics. He was of the opinion that the livestock census should be done exactly like the census for the human population and its relationship with the agriculture census became totally irrelevant. He would like the Sub-Group to clearly spell out the manpower and infrastructure facilities required by the Division of the Statistics in the Department. Dr. Bansal supported this argument and suggested that this would be done in a week's time. Dr. Taneja further stated that with the technological innovations in animal husbandry, the inputs of science and technology have become so important that unless this Department is declared a science department it would not be possible that it could implement present and future programmes. The Department needs to have a large manpower resource. Prof. Ramaswamy found the funds allocated by the group are far too inadequate for the job in hand. Dr. Banerjee suggested that a collaborative approach could be meaningfully adopted by involving other agencies for the detailed collection of data on livestock products particularly sweetmeat industry. The Chairman said that the Working Group has deliberated the two points made by Dr. Taneja. These are conversion of the present Department into a Science Department and redrawing the Departmental structure in terms of manpower resources to meet the challenges of present day and those of future. He requested Dr. Taneja to prepare two notes for the use of the Working Group. The Working Group is strongly suggesting that besides the monitoring and surveillance of animal diseases, Animal Husbandry Department should act as a regulatory department in respect

of livestock products and their certification for export, animal quarantine, certification and regulation of quality of drugs and pharmaceuticals (allopathic, ayurvedic, Unani, Homeopathic etc.) veterinary biological and diagnostic, import certification of bio-products like semen, embryos, animal cells, tissues, grafts, and their national production, monitoring of day-to-day changes as a result of changes in the international market and WTO protocols. The present staff strength in the Department is not even adequate for the job on hand.

Group XV : Animal Husbandry Extension

Dr. A.K. Singh presented the report and recommendations. Dr. Kiran Singh wanted to be clear about the platform in which integration of all the schemes currently in operation under rural development, animal husbandry were to be integrated for better efficiency of the system. Mr. Modi was highly complimentary of the report and he wanted the Pashu Vigyan Kendras be established in every district in India and one of the important responsibility should be popularization of bullock drawn agricultural implements and carts, the so called the indigenous bio-tractors. Dr Batobyal was of the view that milk competition and livestock shows should be integrated with the project on cattle and buffaloes rather than allowing them to stand-alone.

Other Issues

Chairman in his concluding remarks brought to the notice of the Working Group on which he wanted special discussion.

1. Development of a new road map for delivery system for services and goods
2. Underwriting of technology specifically targeting the small marginal and landless labourers who forms 67 per cent of livestock farmers.
3. The disposal of Government owned (State/Central) Veterinary Biological units.
4. Restructuring of IVRI in order to completely stop production of vaccines and diagnostics.
5. Conversion of DAHD into a Science Department.
6. Restructuring of DAHD in terms of manpower development and technological support system.
7. Establishment of Indian Council of Veterinary and Fisheries Research and Education.

8. Central Veterinary Service
9. Integration of funding sources related to livestock sector under the nodal ministry.

These issues were discussed in detail and it was agreed that these issues should form the core of the Working Group's document.

**Planning Commission
(Agriculture Division)**

**Meeting of the Working Group on Animal Husbandry & Dairying for the
Xth Plan in Committee Room No. 122 at 10 A.M. in Yojana Bhavan at
2.8.2001**

<u>Sl.No.</u>	<u>Name & Designation</u>	<u>Address & Tel. No./E-mail</u>
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2.	Dr. D.N. Jana, Registrar	W.B.U.A.F.S., 68, K.B. Sararu, Calcutta –37
3.	Dr. O.S. Tomar, Former Director	26, Mayay Puri, Karnal (Haryana) Tel. 0184-258484
4.	Prof. P.K. Uppal, Former Director	6, Arjun Marg (RWITC), Poona
5.	Dr. N.N. Pathak, Director	CIRB, Hissar
6.	Dr. P.S. Pathak Director	IGFRI, Jhansi
7.	Dr. S.N. Singh Tech. Director	Interwet, PUNE
8.	Dr. A.K. Singh Director	Animal Husbandry Dept. Tel.No. 374857, 382312
9.	Dr. Nalnees Tewari	P.I.U., UPDASP, Dir. Of AHD, Lucknow
10.	Dr. D. Tikku Managing Director	NDDB
11.	Dr. N. Kondaiah	Head, L.P.T. Div. IVRI, Izatnagar, U.P.
12.	Prof. N.S. Ramaswamy Director	CARTMAN, Bangalore – 95
13.	Shri Laxmi Narain Modi, Secretary	Ahimsa Bhavan, F-125, New Delhi -110030 General, Ahimsa Research Foundation
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15. Dr. P.C. Bansil, Director, TERI J-7, Saket, New Delhi – 17
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20. Dr. Kiran Singh I.C.A.R., Krishi Bhavan

Dy. Director General
- 21.. Dr. N. Das, Working Group on AH&D
Member-Secretary

**Planning Commission
(Agriculture Division)**

Meeting of the Working Group on Animal Husbandry & Dairying for the Xth Plan in Committee Room No. 122 at 10 A.M. in Yojana Bhavan on 3.8.2001

<u>Sl.No.</u>	<u>Name & Designation</u>	<u>Address & Tel. No./E-mail</u>
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15.	Dr. S.K. Ranjhan	H-334, New Rajendra Nagar, N.D.

16. Dr. N. Kondaiah
Former Chief Tech. Adviser (FAD) IVRI, Izatnagar
17. Dr. A. Batobyal J.C. (L.P.), DAHD, Krishi Bhavan
18. Dr. Punjab Singh, Director IARI
19. Dr. Ajit Singh, Chief Executive NECC, Chandigarh
20. Dr. N. Das, Member Secretary Working Group on AH&D

Annexure

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BC – 151
July 2, 2001

Dear Dr. Kondaiah,

Sub Group XI – Meat Sector

Kindly refer to your earlier letter dated June 12th, 2001 enclosing therewith a copy of the Draft Report and Subsequent Sub Group Meeting dated 25th June, as desired by you, I append here below my views, comments and observations on the draft report as well as on the terms of reference for the Sub-group. This also refers my earlier letter dated 22nd June to you on the subject.

You are requested to kindly incorporate my views/observations in your final report or annexed the same in toto to your final report.

Terms of Reference: First of all, I vehemently record by protest as regards the terms of reference for this sub-group is concerned, as any act of Government for promotion of organized meat industry and Meat Export is completely in violation of constitutional provisions vide article 47, 48 and 51A (g).

In the terms of reference, particularly ref. (a) is self-serving for meat sector. In my view the various constraints, which are being examined for development of meat sector are in themselves, valid and substantial reasons for disintegration/dismantling the meat sector, which has come of age. Various constraints represent independent and other point of view of very large sections of society based on law, ethics, tradition and culture and no one has a right to condemn in nay manner the other independent viewpoints.

The Article 47 of Constitution of India is being MISREAD, if it means that particular food choices can be dictated or imposed upon by organizing meat sector. Choices of food cannot be mixed with nutrition of any individual, especially on mass scale.

The Nutrition mentioned in the Article refers to Nutritional levels of Indian Population and has nothing to do with meat and meat exports.

There is nothing in the constitution, which could be argued or urged in support of large-scale killing of animals for export purposes, in race with other

countries. In fact the Constitution of India lays emphasis on the other viewpoint for not killing animals, by prescribing fundamental duty of every citizen for compassion for all living creatures.

Compassion in action will mean that our economic ambition should not become the cause for suffering of animals.

I feel that even Planning Commission should have refrained itself from associating with economic and cruel ambition of private traders exporters, whose only aim is to work towards improving profits in total disregard of Indian culture, ethics, values and law.

A detailed note is submitted herewith showing grounds for total dismantling of organized/unorganized meat sector is attached, in the context of Indian Conditions, poverty, agricultural economics and our population. If you go on to accept of the western view on meat, day is not far off for our meat lobby to get into meat of human for economic ambition – see [www manbeef. Com](http://www.manbeef.com), and news in Rashtriya Sahara of 29.06.01 (Encl: A).

Finally I suggest following for consideration

- a) The constraints as mentioned are real issues for expert/scientific independent study, particularly in regard to
 - Use of resources – water, land, energy
 - Environment – liquid effluents, solid waste, ozone
 - Health – Medical cost, Diseases, Harmful residues
 - Ethics

- b) Meat export is not in the interest of the nation even economically. It was reported in Times of India of April 3, 1994 that when we earn Rs. 1 from meat export, nation loses Rs. 15. So export of meat from the country should totally be banned (see Annex 18).
 - Import and consumption of [petroleum products/fertilizers have increased with high subsidies and oil pool deficit.
 - Heavy subsidies are required for meat production and export for which there is no justification.
 - There is in fact, no justification in carrying on subsidies on Slaughterhouse establishment, Meat Production and Processing and thereafter on Meat Exports. It should totally be stopped henceforth.
 - Large section of people is objecting, as it is hurting their sentiments.
 - If at all to continue with meat trade, meat sector be taxed heavily like Tobacco and Alcohol and stop all Government incentives.

- c) Strict compliance of standards/Rules

Mandatory compliance of Indian Standards as also required by Department of Animal Husbandry vide circular numbers 18-65/92-LD-III dated 23.8.1993 and 18-35/2000-Meat dated 17.7.2000 (Encl:B/C)

- Compliance of Pollution Control Rules for liquid effluents, solid wastes and atmosphere.
 - Elimination of child labour (up to 18 years)
 - Strict testing of meat to International standards, PFA and Meat Food Products order.
 - Subsequent handling of product from any kind of contamination.
 - Preventing measures to ensuring healthy animals provide for potable water, adequate feed/fodder, natural service, conservation of germ plasm of indigenous breeds.
- d) Animal Rights/Welfare
- Kerala High Court Judgment, requiring Animal Rights (Annexed with Note Annex 19)
 - Delhi High Court Judgment on closure of unauthorized slaughtering/shops
 - Article 47 should be used as intended and not for mis- interpretation.
 - Special Fund for retirement of animals after serving the Society throughout their productive life should be created.
- e) Modern Slaughterhouses: Recently opened slaughterhouse in Agra is causing unbelievable cruelties/barbarism, reported in a news paper (copy enclosed). Hence, the objective of human slaughter also is nothing but complete misrepresentation to Planning Commission to sub-serve private traders and exporters of Meat. (Encl. D)
- f) Vegetarian Insurance: Supported by British Medical Association, a gentleman in UK got life policy for 1.5 Million at half the normal rate, Nav Bharat Times dated 30.6.91 (see Annex 15)
- g) Carcass utilization scheme: I whole-heartedly support this scheme and suggest that government should involve NGOs to popularize the scheme, since there are many misconceptions in the minds of people on benefit.

- h) Meat Authority of India – We feel setting up of Meat Authorities of India is not at all desirable. In this regard you may also refer letter No. DO – 18/29/96-MEAT dated 13.8.1997 of Union Agriculture Minister whereby he has clearly denied any such proposal.

Detailed comments are submitted in the attached note.

P.S: So far as consumption of meat is concerned, ICMR does not recommend even 6 gms per day.

Sd/- Dr. Chiranjee Lal Bagra

Member Sub group – Meat Sector
President Indian Vegetarian Congress
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To

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