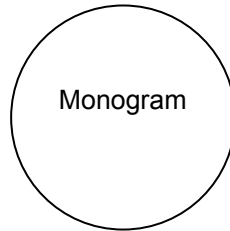


Government of the People's Republic of Bangladesh
Ministry of Fisheries and Livestock



NATIONAL LIVESTOCK DEVELOPMENT POLICY

2007

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NATIONAL LIVESTOCK DEVELOPMENT POLICY

1. Introduction

Livestock plays an important role in the national economy of Bangladesh with a direct contribution of around 3 % percent to the agricultural GDP and providing 15 percent of total employment in the economy. The livestock sub-sector that includes poultry offers important employment and livelihood opportunities particularly for the rural poor, including the functionally landless, many of whom regard livestock as a main livelihood option. About 75 percent people rely on livestock to some extent for their livelihood, which clearly indicates that the poverty reduction potential of the livestock sub-sector is high. According to Bangladesh Economic Review, (2006), the growth rate in GDP in 2004-05 for livestock was the highest of any sub-sector at 7.23%, compared to 0.15% for crops, and 3.65% for fisheries sub-sector. These changes have been prompted by a rapid growth in demand for livestock products due to increase in income, rising population, and urban growth.

It is an established fact that high quality animal protein in the form of milk, meat and eggs is extremely important for the proper physical and mental growth of human being. In Bangladesh, around 8% of total protein for human consumption comes from livestock. Hides and skin of cattle, buffaloes, goats and sheep are valuable export items, ranked third in earnings after RMG and shrimp. Surprisingly, Bangladesh has one of the highest cattle densities: 145 large ruminants/km² compared with 90 for India, 30 for Ethiopia, and 20 for Brazil. But most of them trace their origin to a poor genetic base. The average weight of local cattle ranges from 125 to 150 kg for cows and from 200 to 250 kg for bulls that falls 25-35% short of the average weight of all-purpose cattle in India. Milk yields are extremely low: 200-250 litre during a 10-month lactation period in contrast to 800 litre for Pakistan, 500 litre for India, and 700 litre for all Asia. Despite highest cattle densities in Bangladesh, the current production of milk, meat and eggs are inadequate to meet the current requirement and the deficits are 85.9, 77.4 and 73.1% respectively. If 5% GDP growth rate is considered then the current production of these commodities need to be increased 2.5 to 3.0 times by the year 2020 to feed the growing population in the country. This illustrates how urgent is the need to increase the production of milk, meat and eggs. The PRSP (Poverty Reduction Strategy Paper) stresses the importance of the livestock sub-sector in sustaining the acceleration of poverty reduction in the country. The dynamic potential of this emerging sub-sector thus requires critical policy attention.

In the past, due importance was not given to the development of the livestock sub-sector despite its significant contribution to the national economy. In the Financial Year 2006-07 the livestock sub-sector received only about 1.0 percent of the total budget allocation, or only about 3.5 percent of the agricultural sector budget. Though production of animal protein has maintained an upward trend, per capita availability of animal protein presently stands at around 21 gm meat/day, 43 ml milk/day and 41 eggs/year vis-a-vis the recommended intakes of 120 gm meat/day, 250 ml milk/day and 104 eggs/year. Shortage of quality inputs, inadequate services and physical infrastructure, institutional weaknesses in terms of weak regulatory framework and enforcement, limited skilled manpower and resources, and inadequate research and technological advancement are all continuing to act as constraints to livestock development.

The growth opportunities in the livestock sub-sector vary significantly among the species. Qualitative rather than quantitative development of large ruminants (cattle and buffalo), a parallel increase of the productivity and population size of the small ruminants (goat and sheep), and poultry keeping emerges as promising to offer substantial growth potentials with a positive impact on nutrition, employment and poverty alleviation. Research and technological development merit priority to counteract allied problems in the fields of feed, breed and disease and meet the challenge of the country's livestock sector in the 21st century

National Livestock Development Policy has been prepared to address the key challenges and opportunity for a comprehensive sustainable development of the Livestock sub-sector through creating an enabling policy framework.

2. Objectives of the National Livestock Development Policy

The general objective of the National Livestock Development Policy:

To provide the enabling environment, opening up opportunities, and reducing risks and vulnerability for harnessing the full potential of livestock sub-sector to accelerate economic growth for reduction of rural poverty in which the private sector will remain the main actor, while the public sector will play facilitating and supportive role.

The specific objectives of the National Livestock Development Policy:

1. To promote sustainable improvements in productivity of milk, meat and egg production including processing and value addition;
2. To promote sustained improvements in income, nutrition, and employment for the landless, small and marginal farmers; and
3. To facilitate increased private sector participation and investments in livestock production, livestock services, market development and export of livestock products and by-products.

3. Legal Status of the National Livestock Development Policy

All the government and autonomous organizations, multi-national institutions, NGOs, CBOs (community based organizations), and persons who are working within the geographical territory of Bangladesh for the management, development and conservation of Livestock resources, import-export or other business related to the livestock sub-sector will be under the perview of National livestock Development Policy.

4. Scope of the National Livestock Development Policy

The following ten critical areas have been identified for formulating the National livestock Development policy:

- i. Dairy Development and Meat Production;
- ii. Poultry Development;
- iii. Veterinary Services and Animal Health;
- iv. Feeds and Fodder Management;
- v. Breeds Development;
- vi. Hides and Skins;
- vii. Marketing of Livestock Products;

- viii. International Trade Management
- ix. Access to Credit and Insurance; and
- x. Institutional Development for Research and Extension

The key policy issues for each of these critical areas are outlined in the following section:

4.1 Dairy Development and Meat Production

Dairy Development

The opportunity for development of large-scale dairy is limited in Bangladesh due to scarcity of land. However, the potential for development of smallholder dairy is high. Over the last few years, small-scale dairy farming has increased significantly with the support of credit, feed, veterinary services and provision of self-insurance systems.

Small-scale dairy farming provides employment for the poorer segments of the population. The availability of this form of traditional self-employment to rural dwellers, particularly women, is important where there is scarcity of alternative income generating opportunities. Smallholder dairy thus widens the scope for the poor with limited access to land to enhance their income. Dairy animals can play a crucial role in household food security, through improved income and nutrition of the low-income groups.

Dairy farming in Bangladesh is affected by myriads of constraints such as: (i) limited knowledge and technical skills of smallholder dairy farmers; (ii) scarcity of feeds and fodder; (iii) poor quality of feeds; (iv) frequent occurrence of diseases; (v) limited coverage of veterinary services including poor diagnostic facilities; (vi) lack of credit support; (vii) limited milk collection and processing facilities and low prices at collection points; (viii) lack of insurance coverage; (ix) absence of market information; (x) lack of appropriate breeds; and (xi) absence of a regulatory body.

Policy framework for dairy development is:

1. Cooperative dairy development (Milk Vita model) would be expanded in potential areas of the country;

2. Successful pro-poor models for community-based smallholder dairy development including appropriate contract farming schemes would be replicated;
3. Smallholder dairy farming, integrated with crop and fish culture would be promoted;
4. Supply chain based production, processing and marketing of milk and milk products would be promoted;
5. A National Dairy Development Board would be established as a regulatory body to promote dairy development;
6. “National Dairy Research Institute” would be established to carry out research in various aspects of dairying.

Meat Production

Around 3.5 million cattle are slaughtered annually in the country of which 40 percent are imported through cross-border trade. Around 15 million goats are slaughtered annually mostly of local origin. Of the total slaughter of cattle and goats, around 40 percent is performed during Eid-ul-Azha.

Increased demand for quality meat, beef production has become an important income generating activity for small farmers, and a potentially important tool for reducing poverty. Beef production is considered to have high income generating potential, but faces constraints such as lack of appropriate breeds, knowledge gaps of farmers, lack of proper veterinary services and quality feeds.

Most meat is handled under unsatisfactory sanitary conditions in both rural and urban areas. Enforcement of legislation relating to slaughtering or meat inspection is weak. There is generally poor pre-slaughter conditions, sanitation, removal of waste materials, and disposal of offal.

The Black Bengal goat is a highly prolific native breed that can be easily raised on low quality feed and with little investments. Rearing of Black Bengal goat is an appropriate

option for many subsistence farmers. Its demand is growing in both domestic meat markets and internationally for its skins and high quality leather goods.

Policy framework for meat production:

1. Animal Slaughter Act and Animal Feed Act would be approved and enforced in order to promote hygienic production of quality meat;
2. Butchers would be trained on scientific methods of slaughtering, meat processing and preservation techniques;
3. Development of beef breeds for increased productivity at farm level;
4. Development of backward and forward linkage system to help improvement of existing cattle fattening system into private enterprises;
5. Private sector would be encouraged to establish mechanized slaughter houses with Static Flaying Frame around big cities; and Local Government would be encouraged to establish slaughter slabs in municipality and Upazila headquarters;
6. Production of Black Bengal Goats would be promoted by ensuring disease prevention, availability of quality bucks and semen for artificial insemination, and knowledge transfer through special projects;
7. Buffalo and sheep farming would be developed in selected high potential areas through special projects.

4.2 Poultry Development

The backyard poultry units require minimum inputs and are often part of integrated crop-aquaculture-livestock farming systems. Their level of production is relatively low but profitability can be high due to low inputs costs and recycling of on-farm by-products. Commercial production systems use birds of improved genetic stock and reared under semi-intensive or intensive management. There are currently an estimated around 100,000 commercial poultry farms in Bangladesh, supported by 08 Grand Parent Farms and 130 Parent Stock Farms.

While the growth of the poultry industry has contributed to economic growth and income of commercial farmers, indiscriminate and unplanned growth of breeder farms and commercial poultry farms, particularly in and around cities and towns is creating environmental hazards.

There are at present no guidelines for environmental protection and bio-security when establishing poultry farms. The use of antibiotics in feeds is thought to be common and a cause of public health concern.

The constraints facing the sector in general include: (i) lack of infrastructure beyond the Upazila Head Quarters for providing services to poultry farmers; (ii) shortage of skilled manpower; (iii) shortage of quality chicks and breeding materials; (iv) shortage of poultry , feed/feed ingredients and high prices; (v) poor quality of inputs; (vi) lack of quality control facilities for medicine, vaccines and biological products, feed and feed ingredients, chicks, eggs and birds; (vii) drug and vaccine residues in poultry meat; (viii) shortage of vaccines; (ix) lack of organized marketing systems; (x) poor provision of veterinary services; and (xi) insufficient credit and capital especially for the poor. The possible threat of Avian Influenza exacerbates some of these concerns and shortcomings and would require additional measures to be taken.

Policy framework or Poultry Development:

1. Successful pro-poor models would be replicated for semi-scavenging poultry development;
2. Formation of poultry smallholder groups, CBOs, and producers associations would be facilitated;
3. Quality control of poultry feeds and feed ingredients would be ensured through establishment of a legal body and enforcement of regulations;
4. Production and consumption of safe meat, milk and eggs would be ensured;
5. Organic meat, milk and eggs production would be promoted;
6. Criteria and guidelines would be established to ensure supply of quality day-old chicks;
7. Specific guidelines would be developed and enforced for establishing environment-friendly commercial poultry farms. Small commercial farms would be converted into profit oriented large farms following cooperative system;

8. Poultry farms of the DLS would be utilized as breeding and multiplication farms / centres for smallholder training, technology testing and demonstration etc;
9. Smallholder production and marketing of ducks and minor poultry species (e.g. Quail, Goose, Pigeon, Guinea fowl) in selected areas would be promoted;
10. Government has already declared BLRI as National Reference Laboratory for detection of Avian Influenza virus and other emerging diseases . It would be strengthened at International standard;
11. National Avian Flu Preparedness Plan would be implemented;
12. All Commercial Poultry farms will be registered with DLS;
13. Bio safety protocol developed by the MoFL should be followed by the concern stakeholders.

4.3 Veterinary Services and Animal Health

Inadequate veterinary services are one of the major obstacles for livestock development in Bangladesh. The ratio of Veterinary Surgeons to farm animals and birds was estimated at 1: 1.7 million and only 15-20 percent of farm animals receive routine vaccination. Private sector investment in the animal health sector remains low and is expanding gradually.

The quality and quantity of vaccines produced and delivered by the DLS are inadequate. The use of subsidies in vaccine production in present form is a possible deterrent to private investors. There is no independent authority to check the quality of domestically produced or imported vaccines. Vaccination is done in a haphazard manner without any strategic plan for controlling the targeted diseases. There are no provisions for movement control and quarantine during disease outbreak or epidemics.

No registration is required for feed additives such as toxins binder, antibiotics, and vitamin-mineral premixes, animal protein, many of which are potentially detrimental to human health. Most of the drugs traders and shop keepers have no formal training on drug handling, transportation, storing and dispensing, and readily sell drugs such as antibiotics, hormones, and sedatives across the counter without prescription.

Disease diagnostic facilities are limited. The DVH (District Veterinary Hospitals), Regional FDIL (Field Diseases Investigation Laboratories), and the CDIL (Central Disease

Investigation Laboratory of DLS are responsible for providing diagnostic services. However, due to shortage of skilled manpower and non-availability of funds they cannot provide the intended services. There is no provision for residue analysis of drugs, heavy metals, hormones, pesticides and toxins in foods of animal origin. There are only few local veterinarians trained in clinical pathology to diagnose diseases properly.

The disease surveillance system is almost non-existent. The Veterinary Public Health Unit in the DLS has the mandate to perform diagnosis, surveillance and control of zoonotic diseases, ensure food safety of animal origin, and liaison with the Health Department. The Unit is however, suffering from serious shortages of human capital, funding and laboratory facilities. It has no legal framework to implement its mandate. Coordination between animal and human health bodies is virtually non-existent.

Veterinary research is similarly constrained due to shortages of staff and funds. Very limited fund is available for veterinary research. There are important areas of public goods services like veterinary epidemiology, veterinary public health, food safety and diagnostic techniques within which research needs to be expanded urgently.

The Animal Quarantine Act enacted (Act no-VI of 2005) by the Parliament, but quarantine stations, manpower and funds to enforce the Act are not in place yet. Laws and Regulations are essential for high quality service delivery and quality assurance of products for trade. Some laws and regulations are in place but overall regulatory framework and implementation remain very weak.

Policy framework for Veterinary Services and Animal Health:

1. Soft loans would be provided to accelerate the development of private veterinary services;
2. Community-based veterinary service would be developed through special projects;
3. Mobile veterinary services will be provided by DLS;

4. An autonomous Quality Control Agency would be established to ensure quality of veterinary drugs, vaccines, feeds, feed ingredients and breeding tools and materials;
5. A licensing system for veterinary pharmacists and a quality monitoring system of veterinary services would be introduced;
6. Veterinary research would be strengthened in critical areas, particularly those related to provision of public goods and services;
7. Veterinary public health services would be strengthened and closer linkages with the Department of Health would be established;
8. Capacities of disease investigation network of DLS would be strengthened for disease surveillance, quarantine services and emergency planning to manage major disease outbreaks including Avian Influenza and other emerging diseases;
9. Specific strategy would be developed for controlling economically important trans-boundary animal diseases;
10. Veterinary Council would be strengthened to help ensure quality veterinary services;
11. “National Livestock Health Disaster Committee” would be formed including all trade organizations to combat crises related to animal and human health;
12. A separate “Veterinary Cell” would be established in Department of Drug Administration for facilitating decision making on veterinary drug registration and approval in Bangladesh. Animal Health Companies Association and related trade association would be included in the committee to represent the private sector.
13. Promote and encourage private sector to set-up compliant veterinary diagnostic center, clinics and hospitals to cater the needs of the farmers and other beneficiaries.

4.4 Feeds and Fodder Management

The acute shortage of feeds and fodder is one of the single most important obstacles to livestock development in Bangladesh. The main constraints for feeds and feed management include: (i) shortage of feeds and fodder; (ii) scarcity of land for fodder production; (iii) seasonal fluctuations in supply of feeds and fodder; (iv) low quality feed; (v) high feed prices; and (vi) poor husbandry practices.

Feed resources for large livestock are primarily derived from crop residues and cereal by-products as well as grasses, tree leaves and aquatic plants. Very little grain is available for animals. Feed concentrates contribute only a small portion of the feed. Feed resources for scavenging rural poultry comprise scattered grains from threshing floors, left over grains, pulses, broken rice, kitchen wastes, green grasses, insects, worms, left over boiled rice, etc. Because of increasing demand for human food land is intensively used for cereal production. Neither sufficient grazing land, nor spare land is available for growing fodder. This has resulted in shortages of quality forage for ruminant livestock, causing stunted growth, reproduction problems, reduced lactation, working inability, lower growth rates, and reduced productivity.

Most of the dairy and poultry farmers are facing the problem of adulterated and inferior quality of commercial feeds and feed ingredients. Feed labeling and control is inadequate. Most feed millers do not disclose the necessary information on the packaging with regards to feed composition, ingredients, date of manufacturing, date of expiry, storage guidelines, energy levels, and protein and vitamin contents. Feed millers are widely suspected of minimizing feed production costs either by use of inferior quality ingredients and/or inclusion of lower proportions of high value ingredients. Poor packaging materials contribute to reduced quality and shelf life.

Policy framework for Feeds and Animal Management:

1. Feed and fodder development strategy would be developed for community- based fodder cultivation along roads and highways, rivers and embankments, in Khas lands, and in combinations with crops;

2. Necessary support would be provided to the private sector for utilization and promotion of crop residues, agro-industrial by-products and unconventional feed resources as animal feed;
3. An Animal Feed Act would be approved and implemented to ensure feed quality; and
4. Resources would be provided for training of dairy farmers on improved animal management and husbandry practices.
5. Market driven industries should be developed on feed, feed additive, forage seed and forages;
6. Human resource should be developed for feed and fodder production.

4.5 Breeds Development

Livestock development through the application of science-led methods of breeds and breeding in Bangladesh is still at a rudimentary stage. There is, however, enthusiasm for applying breeds and breeding interventions to enhance livestock performance. Lack of a national breeding policy, use of inappropriate breeds, weak infrastructure (human capacity, national service delivery, breeding farms), and limited technical knowledge has constrained the development of improved breeds.

Available high yielding seed materials (in cattle and chicken industry) are mostly exotic and imported. However, not all of these imported exotic species adapt well under Bangladesh climatic conditions.

There are a number of promising well-adapted native livestock breeds in the country (e.g. Red Chittagong cattle, Black Bengal goat, Bengal sheep, Naked Neck chicken etc), which could be developed into high yielding breeds through cross breeding in a systematic manner. Importation of inappropriate genetic material coupled with indiscriminate crossbreeding and a clear neglect of indigenous breeds has created a situation, where a number of native breeds of livestock are under threat of extinction.

Unplanned and sporadic attempts that were made for breed improvement of various species failed, because the initiatives were not based on thorough breed/ genotype testing results and not based on well-thought out and sound breeding goals, breeding criteria, animal recording systems, animal evaluation procedures, and animal selection and mating plans. Breeds and breeding program inherently requires heavy initial investments and regular and timely flow of resources. Sustained funding support for breeding work has not been forthcoming. As a result, the limited expertise available in this field remains underutilized.

There is no regulatory body or National Breeding Act to regulate breed imports, prices of breeding materials, merits and quality of breeds, breeding materials and breeding services. Within the existing cattle breeding services (including artificial insemination), farmers have little or no idea of the merit and quality of the semen being provided for insemination. The same is true for other species such as goats and buffaloes, and applies also to imported germplasm (live animals, semen, embryos, etc).

Policy framework for Breeds Development:

1. Conservation and utilization program of potential indigenous breeds for subsistence farming would be developed;
2. A comprehensive human resource development program in animal breeding would be developed;
3. Frozen semen production unit would be established/extended for wide scale artificial insemination of Cattle, Buffalo and Goats to face the challenges of service shortage of proven buck throughout the country;
4. 'Breeders Association' would be established for monitoring and coordination of livestock breeding activities in the country.

Breeds and Breeding :

Policy Recommendations

Rapid improvement in animal productivity for food security and livelihood leading to poverty reduction is needed in Bangladesh. The need for planning to intensify livestock productivity is a crying need of the time. In order to maximize overall profitability, the herd/ flock must have appropriate combination of genetically high potential breeds along with good health

care, feeding and management system. Appropriate breeding program is an important part of livestock development strategy. Breeding strategy usually aims at maximizing production per animal / bird. Conventional animal breeding techniques are based on quantitative genetics, essentially a statistical science and this approach has been very successful in temperate part of the globe. However, pre-requisites for breeds and breeding program are (a) accurate recording, (b) large herds / flocks or cooperation between small herds / flocks, (c) efficient artificial insemination and breeding organizations, and (d) a well-trained extension service. Very few developing countries including Bangladesh can afford to have such an infrastructure for animal breeding program. But one can always proceed in gradual fashion with priority needs.

It is essential to understand that implementation of a breeding program is a joint function of all pre-requisites mentioned above. The scientific rationale of designing a livestock breeding program encompasses:

- i) Identification of production and marketing system
- ii) Defining economic merit i.e. breeding objective
- iii) Evaluation of available breeding stocks & crosses for economic merit
(to choose the best stocks)
- iv) Choice of appropriate breeding tools (pure breeding and crossbreeding)
- v) Application of breeding tools:
 - a) Development of animal recording system (pedigree & performance)
 - b) Estimation of genetic parameters for at least target traits
 - c) Development of genetic evaluation system (breeding value estimation)
 - d) Application of rigorous selection on the basis of higher estimated breeding values (EBV)
 - e) Designing mating plan (semen distribution strategy)
 - f) Sound AI program (quality of semen and actual AI)
 - g) Continuation of steps **a to f** generation after generation
- vi) Development of testing and selection systems for further improvement
- vii) Dissemination of improved stock to the industry or whole country
- viii) System for production of superior breeding males including better samples arising in the industrial layers of the livestock population.

Breeding policy for increasing Milk, Meat and Egg Production

The main aim of livestock development programme in Bangladesh should be to assist farmers to produce and sustain livestock of high economic potential. As mentioned before only a small proportion of cattle and poultry industry are under commercial operation, the rest of the livestock breeds / types are predominantly indigenous and are under traditional subsistence mixed farming systems. The future efforts should, therefore, be focused on the *in situ* development and conservation of potential breeds / types. Taking account the human population growth rate, socio-economic trend of the country and land available for agricultural operation of the country in future, the following cattle, buffalo, goat, sheep and duck & poultry breeding program is being recommended.

General consideration

To achieve the immediate and long-term goal, the implementation strategy should be partitioned into 3 action plans only for cattle and buffalo Viz.,

- Short-term activities (up to 5 years) for immediate effect on the existing production system
- Medium-term activities (6-10 years) for evaluating and intensifying the programme undertaken during the short-term period
- Long-term activities (11 years and beyond) for final evaluation and continuing the intensification process for sustainable development of the livestock industry

The total population (cattle and buffalo) should be categorized into 3 groups depending upon the management system:

- High level of input in which animals are confined full time in stall fed condition
- Medium level of input in which animals are confined partially in stall and are allowed for partial supplementary feed.
- Low level of input in which animals are maintained traditionally on crop residues and grazing with minimum supplement.

The following tools and techniques should be implemented:

- The breeding policy will be based on proper animal identification system
- Animal recording systems approved by ICAR (International Committee of Animal Recording) should be implemented and the semen of proven bulls/ pedigree bulls should be used.

- Attempts should be taken to produce bulls that are tested for growth, semen and are free from vertically transmissible infectious and hereditary diseases, and have quality and quantity semen, and finally have desired milk yield capacity.
- All stakeholders(GO, NGOs and private entrepreneurs) should follow this policy

1. Cattle

A. Short term policy (Up to 5 years)

1A(i) For cows reared under intensive system i.e. high level of inputs supply and zero grazing

Target/Goal:

To produce dairy cattle that will yield more than 6000 kg milk per lactation (305 days lactation period) at the end of 5 years.

Policy:

- Inseminate the top most cross bred Holstein-Friesian cows (daily yield 10 kg or more) reared under intensive management system with imported semen of progeny tested bulls of Holstein- Friesian cattle having milk yield capacity of 9,500 – 10,000 kg in 305 days lactation period. 1 million doses of such semen should be imported by DLS and inseminated maintaining proper records. Private sector should be encouraged to import such semen.

Action to be taken

- The farmers should be selected from 10% top farmers depending on the production performance of the registered farms of DLS, who wish to maintain animal identification and recording system, be trained on modern techniques and intensive management of dairy farming including recycling of farm wastages and environmentally friendly farming.
- The herd size of the farm should be 5 breedable cows or more.

1A(ii) For cows reared under semi intensive system i.e. medium level of inputs supply and minimum grazing

Target/Goal:

To produce dairy cattle that will yield more than 3000 kg milk per lactation (305 days lactation period) at the end of 5 years.

Policy:

- Inseminate cross bred Holstein- Friesian cows (yielding 6-10 kg milk a day) reared under semi intensive management system with semen of progeny tested 50 % Holstein-Friesian bulls (50% Holstein-Friesian X 50% Local) having milk yield capacity of about 4,500 kg in 305 days lactation period.
- The sahiwal or sahiwal cross bred cows should be inseminated with semen of Sahiwal bulls having at least 2,500 kg or more milk production potential per lactation.

Action to be taken

- The farmers should be selected from the registered farms of DLS, BMPCUL, CLDDP and NGOs who maintain animal identification and recording system, wish to be trained on modern techniques and management of dairy farming and interested to practice recycling of farm wastages.

1A (iii) For cows reared under low input production system

Target/Goal:

To produce native dairy cattle that will yield more than 1000 kg milk per lactation (305 days lactation period) at the end of 5 years.

Policy:

- Inseminate native cows reared under low input production system with semen of progeny tested/ pedigree bulls of Sahiwal, Pabna cattle, RCC, Munshigong, other improved deshi cattle.

Action to be taken

- The farmers should be selected from the registered farms of DLS, BMPCUL, CLDDP and NGOs who maintain animal identification and recording system, wish to be trained on modern techniques and management of dairy farming and interested to practice recycling of farm wastages.

1A (iv) Special breed test program for Jersey imported by BMPCUL (Milk Vita)

- The performance of Jersey should be tested by BLRI and BAU at Baghabari and in another operational area OF BMPCUL. If found suitable, this breed should be introduced under semi-intensive system.

1A (v) *Special conservation and improvement program for RCC, Pabna cattle and local variety*

- The existing conservation and improvement program on RCC run by BAU, BLRI and DLS should be continued.
- Another conservation and improvement program on Pabna cattle should be undertaken immediately by BLRI, DLS, BMPCUL and BAU.
- All local variety should be preserved.

B. Medium term policy (6 -10 years)

1B(i) For cows reared under high level of inputs supply and zero grazing

Target/Goal:

To produce dairy cattle that will yield more than 4500 kg milk per lactation (305 days lactation period) at the end of 10 years.

Policy:

- Inseminate the top most cross bred Holstein-Friesian cows reared under intensive management system with imported semen of progeny tested bull of Holstein-Friesian cattle having milk yield capacity of 9,500 – 10,000 kg in 305 days lactation period.

- The herd size of the farm should be 10 breedable cows or more.

1B(ii) For cows reared under medium inputs production system

Target/Goal:

To produce dairy cattle that will yield more than 15 kg milk daily in 305 days lactation period (4,500 kg per lactation) at the end of 10 years.

Policy:

- Inseminate cross bred Holstein- Friesian cows (yielding 6-10 kg milk a day) reared under semi intensive management system with semen of progeny tested 50 % Holstein-Friesian bulls (50% Holstein-Friesian X 50% Local) having milk yield capacity of 6,000 kg in 305 days lactation period.
- The sahiwal or sahiwal cross bred cows should be inseminated with semen of Sahiwal bulls having at least 2,500 kg or more milk production potential per lactation.

1B(iii) For cows reared under low inputs production system

Target/Goal:

To produce native dairy cattle that will yield more than 1500 kg milk per lactation (305 days lactation period) at the end of 10 years.

Policy:

- Inseminate the native cows reared under semi intensive management system with semen of progeny tested Pabna cattle, RCC and improved deshi bull etc.

1B (iv) Special breeding program for Jersey imported by BMPCUL (Milk Vita)

- A decision will be taken from the field trail (to be carried out by BLRI and BAU) whether jersey breed will be used for breeding purpose in Bangladesh as 4th breeding line.

1B(v) Special conservation and improvement program for RCC, Pabna cattle and local variety

- The conservation and improvement program on RCC run by BAU, BLRI and DLS should be continued.
- Another conservation and improvement program on Pabna cattle should be continued.
- All local variety should be preserved.

C. Long term policy (10 years and beyond)

A national seminar involving all concerned institutes will be organized to review the results of implementation of short and medium term breeding policy. Decision will be taken accordingly.

2. Buffalo For more Milk

2(i) For buffaloes reared under intensive system i.e. high level of inputs supply and zero grazing

- Continuous up gradation of dairy buffaloes in the plain land with imported semen of Murrah, Nili-Ravi or Mediterranean Breed having milk yield production potentiality of 3,000 kg per lactation.

2(ii) For buffaloes reared under semi- intensive system i.e. medium level of inputs system

- Use and fixed 50% gene of Murrah or Nili-Ravi 50% genes of native buffaloes. Practice of *inter se mating*.

2(iii) For buffaloes reared under low input production system

- Fix and use 50% gene of Murrah or Nili-Ravi Breed and 50% genes of native buffaloes. Practice *inter se mating*.

2(iv) For swamp buffaloes of greater Sylhet and Chittagong districts

- Special conservation program should be undertaken to conserve the swamp buffaloes of greater Sylhet and Chittagong districts through establishment of farms in respective regions.

3. Cattle for more meat-

- (i) Use dual purpose crossbred males (Friesian x Deshi) in the high input production system
- (ii) Use up-graded Brahman x Deshi (50 % - 50 %) germplasm under research trial
- (iii) Procure small doses of high merit Brahman semen from beef rich countries
- (iv) Use only improved Deshi males (Red Chittagong, Pabna and typical indigenous) in the subsistence low input production system

Suggested Breeding Policy for other species of Livestocks :

1. Goat for more meat -

- (i) Use high merit purebred Black Bengal buck or semen all over the country
- (ii) Ensure steady production of consistently superior pure Black Bengal buck or semen by government or other stakeholders

2. Sheep for more meat -

- (i) Use and fix up crossbred(Lohi/Romney Marsh x Deshi (50% X 50%)) in the sheep pocket areas of the country
- (ii) Ensure steady production of consistently superior Lohi/Romney Marsh xDeshi ram or semen by government or other stakeholders

3. Chicken for more egg

- (i) Use of specialized germ lines for high input production system
- (ii) Initiate programme for in-country strain development using exotic and Deshi chicken genetic resources (e.g.improved Deshi)

4. Chicken for more meat

- (i) Use of specialized germ lines for high input production system
- (ii) Initiate programme for in-country strain development using exotic and Deshi chicken genetic resources (e.g. Naked Neck, Aseel, improved Deshi)

5. Duck for more egg-

- (i) Use of specialized germ lines for high input production system
- (ii) Initiate programme for in-country strain development using exotic and Deshi duck genetic resources (e.g. Khaki Campbell and Deshi)

6. Duck for more meat-

- (i) Use of specialized germ lines for high input production system
- (ii) Initiate programme for in-country strain development using exotic and Deshi duck genetic resources (e.g. Khaki Campbell and Deshi)

D. Plan of action in supporting breeding policy

Tools and techniques

The following steps should be adopted and implemented in order to achieve desired results:

1. The mechanism for implementation of aforesaid breeding policy be developed and monitored by an independent National Breeding Task Force to be formed by MOFL.
2. A technical regulatory committee be formed to certify the breeding establishment, stud animals, release of breeding materials for use in public and private sectors.
3. To implement this policy necessary funds and development projects should be provided by the government with most priority basis.
4. The existing dairy herd in Central Cattle Breeding & Dairy Farm, Savar, Dhaka and herds in other Govt. dairy farms should be reformed to match with this policy.
5. A suitable animal identification system should be developed and applied for all farmers.
6. ICAR approved animal recording system should be implemented in all registered herds.
7. All the bulls under breeding programme should be screened for transmissible infectious (FMD, Brucellosis, Trichochoomonasis, Tuberculosis, BVD, MD) and hereditary (Translocation, Bovine leukemia) diseases.
8. Mass castration program should be in operation to inactivate the unused weaned male calves.

9. Advanced animal biotechnologies in the field of livestock breeding and reproduction particularly in the focal areas of embryo transfer, genetic engineering, production and use of sexed semen should be encouraged and implemented both at public and private sectors.
- 10 national gene bank for the conservation of genetic materials of local breeds / types of livestock species may be established. The national herd replacement system be introduced.
- 11.A defined roadmap of central and local semen distribution ensuring quantity and quality should be streamlined to match with the Policy.
- 12.The culled cows and bulls must be slaughtered to avoid negative effect on production.
- 13.Modern herd health and fertility management system should be implemented.
- 14.Modern feeding system should be introduced.
- 15.A special human resource development programme be developed for creating a pool of graduate with in-country M.S. and Ph.D. programmes in different areas of animal genetics, animal breeding, and animal reproduction to provide technical support to the breeding programs.
16. Export of cattle feeds should be banned.

E. Special Program for characterization of all livestock species

- a. There should be a data base center under BLRI in cooperation of DLS and BAU to document the characteristics of all livestock species.
- b. Concern scientists from DLS, BLRI and BAU should come together to form a scientific team for such compilation.

4.6 Hides and Skins

Leather including crust as well as finished leather and leather goods is an important export earner contributing about 6 to 7 percent of total export earnings. A large proportion of leather materials are however downgraded and rejected due to poor quality. Leather defects are reported to be responsible for a more than 50 percent cut in the value of leather. Cattle and goats are the major skin and hide producing species followed by buffalo and sheep.

Most slaughtering takes place with inadequate facilities for electricity, water, and sewerage. There are an estimated 192 improvised slaughter houses at district level, 1215 at Upazila

level and more than 3,000 slaughtering points in hats and bazaars as well as by road sides of cities and towns. Hides are in most cases removed by unskilled persons using inappropriate tools, giving rise to irregular shapes and flay cuts. Defects in goat and sheep skins have been significantly reduced in recent years with the introduction of hang and pull systems of flaying. Besides hides and skins, the slaughtering of animals generates potentially valuable by-products including blood, bones, hoofs, rumen and visceral contents, hairs, etc. Only a part of certain by-products, generated mainly in organized slaughter houses, are collected and processed by cottage level factories. Most of these by-products are discarded and thrown away, resulting in large economic losses and environmental pollution. Tannery operations are further impacting negatively on the environment.

Financing is a major problem, particularly the primary market intermediaries like *farias* and *beparis* suffer due to lack of adequate working capital and inadequate access to finance. The shortage of capital reduces the purchasing capacity of intermediaries and consequently, a large quantity of hides and skins are pilfered in the neighbouring country, especially during Eid-ul-Azha. Fullhennore, prices drop during Eid-ul-Azha, when large quantities of hides and skins are produced. The low prices in turn provide little incentive for proper flaying, handling and preservation.

Policy framework for Hides and Skins:

1. Butchers and merchants (Farias, Beparis and Aratdars) would be trained on basic knowledge of flaying, curing and storing for improved management and quality of hides and skins;
2. An autonomous agency would be established for quality control and certification of hides and skins;
3. Environmental legislation on slaughter and tannery operations would be framed and enforced;

4. Private sector would be encouraged to establish small to medium scale industries to utilize slaughter and tannery by-products for producing high quality feed supplement for animal feeds; and
5. Access to micro-finance and banking facilities would be improved for intermediaries.

4.7 Marketing of Livestock Products

Milk: There is no systematic marketing network and market information system for milk and milk products to support smallholder dairy farmers in the rural areas. Farmers sell milk either in the local market or to govt as (traditional milk collectors) who continue to render useful services to the rural community, and sometimes work as supplying agents to private firms.

Commercial marketing of milk started in the late 1970s by Milk Vita. Milk Vita has established milk-processing plants in various places and collects milk from its cooperatives members. BRAC, Pran and CLDDP (Community Livestock and Dairy Development Project) have also recently installed milk processing, and a small number of other private farms are dealing with pasteurized milk. These enterprises however, only cover a part of the country.

Most small-scale dairy farmers in rural areas sell their milk in local markets at around a third to half of the price at which milk is sold in the cities. Low prices and price fluctuations are found to be important constraints to increased production and higher income of milk producers. Milk production costs are largely determined by feed prices (wheat and rice bran), which are increasing, in some cases rapidly.

Meat: There is a high demand for meat in the local markets. In the past, the beef price was relatively low due the ready supply of cattle from neighbouring country. The supply has recently been restricted and as a result meat prices have increased sharply. Constraints to long-term development of the beef industry include lack of improved breeds, low meat quality, and limited access to credit and insurance amongst smallholders.

Eggs: The egg marketing system can be characterized as oligopolistic, under control of the

Aratdars who extend credit to the poultry farmers who in turn are obliged to sell through the *Aratdars* for loan repayment. The price of eggs in large city markets is usually not known to the rural poultry farmers. The time and distance from collection to marketing is often long with traditional means of transportation. Spoilage and broken eggs are common.

Policy framework for Marketing of Livestock Products:

1. Farmers groups and cooperatives formation would be encouraged and supported for collective marketing of livestock products by community based organizations and associations;
2. Organized marketing system should be established.
 - c. Access to micro-finance and insurance schemes would be introduced / improved with emphasis on smallholder and women entrepreneurs;
 - d. Farmer's information network for price data and processing of trade related information would be established with private sector support;
 - e. An Internet-based communication system would be established alongside regular broadcasting of trade related information and monitoring and forecasting of prices of livestock products;
 - f. Management Information Systems (MIS) would be established in the DLS on livestock product marketing;
 - g. Government if required will intervene the market to ensure minimum price of egg and meat for farmers;
 - h. Private sector would be encouraged to be involved in milk, meat and egg processing and other value added product manufacturing industries.

4.8 International Trade Management

In order to derive the full benefits of globalization and trade liberalization, Bangladesh must further develop its export products to satisfy product standard requirements of importing countries and obtain up-to-date information from different markets.

Bangladesh is signatory of the WTO (World Trade Organization) Agreement on Agriculture (AOA). The AOA provides a framework for the long-term reforms of agriculture trade and domestic policies to move forwards market orientation in agricultural trade. The obligations and disciplines incorporated in the AOA relate to four aspects, viz, i) agreement on market access; ii) agreement on domestic support; iii) agreement on export competition/subsidy; and iv) agreement on SPS (sanitary and phytosanitary) measures.

Bangladesh is not fully able to meet the recommended safety and quality standards for livestock products consistent with the SPS guidelines as regulated by the World Organisation for Animal Health (OIE) and the Codex Alimentarius Commission. The main problem stem from: (i) inadequate veterinary services; (ii) lack of skilled human resources; (iii) lack of diagnostic facilities; (iv) lack of financial support; (v) lack of disease surveillance and monitoring of animal health; (vi) lack of updated food legislation; and (vii) need for an improved national food export inspection and certification program.

Incidences of TADs (trans-boundary animal diseases), such as foot and mouth disease, are preventing Bangladesh from entering potential markets for livestock products. As the problem of TADs is being addressed on a larger scale, regional initiatives are becoming important and Bangladesh will seek the opportunity to enter into regional agreements to control TADs. This will necessitate significant changes in the veterinary service system, particularly within diagnostic services and veterinary public health.

Most export-oriented enterprises are small and medium size, with limited capacity to undertake market research, invest in technologies, and collect, store, and process trade information. Other important challenges relate to meeting labour and environmental standards, improving design and packaging, and accessing and using up-to-date information on consumer preferences and trends in global markets. Many enterprises have neither the in-house capacity to gather the necessary trade-related information nor the networks to access such information.

Policy framework for International Trade Management:

1. Focal points would be set up in the DLS (Department of Livestock Services) and the MoFL (Ministry of Fisheries and Livestock) to deal with the

international and regional trade agreements and ensure implementation of notifications and obligations;

2. Training would be provided to the officials in the DLS, MoFL and livestock related industries to enable them to fully appreciate and deal effectively with international and regional trade agreements;
3. Requirements of trade related technical assistance for the DLS, MoFL and private exporters would be assessed and required assistance would be provided;
4. The capacity of DLS would be developed through institutional reform to address SPS (Sanitary and Phytosanitary Measures) and HACCP (Hazard Analysis and Critical Control Point) requirements;
5. An Internet-based communication system would be established to facilitate international market networking for livestock products;
6. MIS (Management Information Systems) would be established in the DLS and MoFL for international trade management of livestock products; and
7. Private sector participation would be ensured in all activities of international trade management.

4.9 Access to Credit and Insurance Credit

The effective coverage of micro credit programs in Bangladesh was around 11 million households in 2002 of which around 80% were below poverty line. It is estimated that less than a fifth of the total micro credit disbursed by NGOs till June 2001, was given to the livestock sub-sector mostly to poor women in rural areas. Financing of agricultural and other rural economic activities have not in the past attracted adequate interest of banks and institutional lenders. As recently as 2003 livestock attracted less than 5% of the total credit disbursed in the agricultural sector by state-owned lending institutions, although the trend in

recent years has been sharply upwards.

The livestock development has accelerated the demand for concentrate feeds, drugs, vaccines, and veterinary services. These trends are expected to continue in the coming years with resultant increases in demand for credit support. Expansion of livestock operations among poor smallholders and commercial livestock producers, as well as input suppliers (feed mills, drug producers, etc.) and processors of livestock products is thus expected to increase the demand for finance throughout the sub-sector, and will be needed to help facilitate continued horizontal and vertical integration.

The following constraints and challenges in particular characterize the micro-credit sector: (i) insufficient funds; (ii) inappropriately packaged loans for production cycles of livestock; (iii) red tape and collateral requirements effectively reducing credit access for smallholders, notably the poor; (iv) inadequate loan supervision; (v) insufficient training in financial management and business planning (applies to both loan providers and takers); (vi) inadequate technical support; (vii) inappropriate interest rate policies and practices; (viii) conflicts of interest within NGOs providing both technical and credit support often to the detriment of the former; (ix) smallholder vulnerability and risk from natural and man-made disasters; and (ix) better servicing of the hard-core poor.

Policy framework for Increasing Access to Credit:

1. Formation of CBOs (Community Based Organisations) linking them with DLS, NGOs, commercial banks, and insurance companies would be encouraged for delivery of appropriate livestock credit packages to the doorstep of smallscale livestock farmers including poor women;
2. A Livestock Credit Fund would be established in the Bangladesh Bank for distribution of subsidized credit to smallscale livestock farmers through CBOs;
3. Micro-finance packages better tailored to the production cycles of various livestock species would be promoted;

4. Micro-finance packages targeted towards and appropriate for the hard-core poor including women would be promoted;
5. Training would be provided to smallholder groups in livestock-related business planning and financial management;
6. Monitoring and supervision of micro finance institutions would be enhanced for adherence to international best practice; and
7. Micro-finance services would be separated from technical services where necessary for clearer regulation.

Insurance

Livestock production is subject to the risks of animal disease, accident, and death. The result is often a serious decline in farm income and consequent failure on the part of especially poorer farmers to maintain their livelihoods. Livestock insurance can: i) provide protection against loss of livestock from accident or disease, stabilizing income; ii) raise credit worthiness; iii) contribute to a reduction in the incidences of animal death and accident by requiring certification of a minimum standard of animal husbandry practices; and iv) encourage development of cattle breeding and dairy industries.

Out of 62 insurance companies in Bangladesh, 60 are private companies of which none are involved in livestock insurance. Only a state owned insurance company, SBC (Sadharan Bima Corporation) has since 1980 been providing livestock insurance. It covers only projects financed by BKB (Bangladesh Krishi Bank) and other nationalized Commercial Banks. SBC insured 7.567 dairy animals between 1981 and 2003, indicating only very negligible insurance coverage for livestock. No modifications of the SBC insurance program have been made since 1985 to address the changing scenarios in the dairy and poultry industries.

There are at present none or only very few private sector companies with the skills or funds to initiate livestock insurance. There are no collaborative arrangements between insurance

companies and public sector organizations to assist the companies in setting up insurance schemes. Milk Vita and CLDDP have developed a self-insurance scheme for their cooperative members and farmer groups/associations, which appears to be working well, Smallholders may not, however yet fully recognize and appreciate the implications and potential benefits of livestock insurance. Experience suggests that some level of subsidy for smallholder livestock enterprises may be necessary, at least during the initial period.

Policy framework for Increasing Access to Livestock Insurance:

1. In consultation with insurance companies, CBOs and NGOs and other stakeholders, a strategy for expansion of livestock insurance coverage would be developed;
2. A Livestock Insurance Development Fund would be established in scheduled Bank on consultation with Bangladesh Bank,
3. Self-insurance systems for smallholder farmers through community-based livestock development programmes would be promoted;
4. A national database on livestock mortality, disease incidence and productivity of livestock would be developed and maintained at the DLS; and
5. Awareness among smallholders on the benefits of livestock insurance schemes would be raised.

4.10 Institutional Development for Research and Extension

Livestock Research

To carry out livestock research in the public sector BLRI (Bangladesh Livestock Research Institute) was established under a Presidential Ordinance in 1984 as a semi-autonomous body. It is organized into eight research divisions and an administrative division, called the support service division. The research divisions are: (i) Animal Production; (ii) Poultry Production; (iii) Animal Health; (iv) System Research; (v) Socio-economics; (vi) Goat and Sheep Production; (vii) Biotechnology; and (viii) Planning, Training and Technology Demonstration. The 1984 Ordinance was amended in 1996 as an Act in line with the amendment of the Act of the Bangladesh Agricultural Research Council (BARC).

The functions of BLRI are not sharply focused and its structure has a number of deficiencies. There are many important new issues that are not reflected in the functions. Dramatic changes that have taken place in recent years within Bangladesh and internationally (globalization and trade liberalization combined with WTO regulations and OIE requirements), which have changed both domestic and the international market scenarios. In the context of these changes, the functions of BLRI need to be sharpened.

Major deficiencies exist in veterinary research, planning and management, human resource management, and information management. There is no Unit and staff to deal with planning, evaluation and monitoring. Veterinary research is done only on a limited scale under the Animal Health Division, There is no provision of a Director (Research), responsible for research planning, coordinating and monitoring the implementation of research projects; evaluating and reporting research outputs on a regular basis; and maintaining direct contact with DLS and sister research institutions, as well as liaison with other concerned Departments. There is no management information system (MIS) for research at BLRI and Information management is generally weak.

The shortage of operating funds for research is acute in BLRI. The annual allocation shows a declining trend in real terms. BLRI has been entirely depending on the development budget and contract research grants from BARC (also under development projects) for carrying out research. This has restricted BLRI in developing and undertaking meaningful research programs to support the poverty reduction program of the Government.

BLRI has problems with training of its personnel. There is no provision for staff training or a built-in system of career progression within the research divisions like in the research institutes in the crop sector. This has created a high rate of attrition of qualified scientists.

Policy framework for Livestock Research:

1. Research capacity of BLRI headquarters and its Regional Stations would be enhanced to address national priority and untapped potential regional livestock resources;
2. Private and NGO initiatives in livestock research would be encouraged and supported;

3. The mandate, functions and structure of BLRI would be sharpened with a view to enhance the capacity to coordinate, maintain liaison with other concerned Departments; and conduct livestock research for pro-poor sustainable development;
4. Research capacities of BLRI and Universities/ Academic Institutes, would be extended to ensure safe production of animal products and by-products, animal protein supplement, feed additives, premixes, probiotics and mineral and vitamin supplements as inputs for poultry and livestock development;
5. The Act of BLRI would be amended to give greater autonomy to the Management Board and the Institute to bring it at par with the crop research institutes;
6. Enabling environment should be created to develop quality manpower in livestock research to undertake challenges for emerging livestock resource development in the context of global reformation;
7. Service structure and rules of business would be framed for BLRI to improve its management and to provide career development opportunities for talented scientists;
8. Livestock research budget would be increased to 40 to 50 percent of its total annual budget to meet the research operating costs.
9. National Avian Influenza Laboratory established in BLRI will be upgraded to BSL-3.

Livestock Extension

For the extension of livestock services The Directorate of Livestock Services was established in 1960 and renamed as the Department of Livestock Services (DLS) in the late 1980s.

The mandate and functions of DLS include all activities related to livestock development and control of livestock diseases. This includes provision of veterinary services, conservation and genetic improvement of livestock and poultry breeds, artificial insemination, development of feeds and fodder for improving livestock nutrition, extension of livestock services, vaccine

production, procurement and distribution of drugs and equipments, training, analysis and diagnostic services, collection of data and economic assessment of livestock production and the development of zoo animal and survey of wild life. Since 1960, the mandate and functions, structure, organization and management system of DLS have remained almost unchanged.

DLS is organized into five divisions, headed by five Directors. The five divisions are (i) Animal Health and Administration, (ii) Research, Training and Evaluation, (iii) Extension, (iv) Production and (v) Officers Training Institute. The divisions are functionally split into sections to deal with different subject matters. It has 5 Divisional Livestock Offices, 64 District Livestock Offices and 476 Upazila Livestock Offices. Divisional Offices coordinate and supervise the activities of the District offices and carry out liaison functions with the sister and other related organizations. DLOs (District Livestock Officer) supervise and coordinate the livestock development activities at the Upazila level and maintain liaison with the concerned departments and the district administration. ULOs (Upazila Livestock Officer) are charged with the following functions; (i) awareness building, motivation and technology transfer, (ii) vaccination and prevention of diseases, (iii) collection and documentation, (iv) artificial insemination, (v) reporting, (vi) farmers training, (vii) fodder cultivation, (viii) implementation of special projects, (ix) distribution of micro credit along with execution of PRSP. VS (Veterinary Surgeon) are charged with animal/poultry health management and disease control activities at the upazila level.

Other entities of DLS include a Livestock Research Institute (LRI), a Central Veterinary Hospital, Dhaka Zoo, Rangpur Zoo, 7 Field Disease Investigation Laboratories (FDIL), District veterinary Hospitals, 22 District Artificial Insemination Centers. Livestock Research Institute includes Veterinary Public Health Section, Central Disease Investigation Laboratory, Toxicology Section, Parasitology section, Pathology Section, Animal Rearing Section, Animal Nutrition Section, Quality Control Section and Vaccine Production Sections. DLS has a number of training institutes such as officers training institute (OTI), Veterinary Training Institute (VTI) and Livestock Training Institute (LTI), but remain grossly underutilized due to lack of funds. DLS also has 35 poultry farms, 4 duck farms, 7 cattle breeding and dairy farms, 1 buffalo breeding farm, 5 goat farms and 1 pig farm. The Director General is the executive head at the top of the line of command, followed by Directors, Deputy Directors, Unit Heads and so on. DLS follows a highly centralized management system.

The structure of DLS offers insufficient focus on the issues that matter most. The functional Divisions are not structured in a logical fashion. Front line services at the upazila level is thin and weak. Load and activities in the extension area at the upazila level increased significantly, but the number of technical manpower and staff is not increased. Recently, with the up gradation of ULOs creates a vacuum in the entry level extension service at the upazila level which hinders extension activities. Recruitment for front line extension service is not possible due to shortage of post in the entry level. District Artificial Insemination Center with well equipped modern laboratory facilities is not available in every district. Sound organizational structures for animal recording, genetic evaluation, conservation & improvement throughout the country is absent. District level mini-laboratory is now out of operation due to shortage of skilled manpower. Country faces acute shortage of feeds and fodder for livestock development, but long term fodder production plan is absent due to lack of proper organizational structure. The Veterinary public health section exists but it is neither equipped nor does it have the funds to deal with disease surveillance and reporting, control of zoonotic diseases, food safety and other public health issues. It does not have a supporting legal framework to implement its mandate. Almost nothing is done on disease surveillance, including trans-boundary diseases.

The major challenges faced by DLS were identified as.

(i) Inappropriate mandate and functions; (ii) Structural and Organizational deficiencies; (iii) Thin and weak frontline services at the upazila; (iv) Weak linkage with research organization including BLRI; (v) Weak management system and MIS (management information system); (vi) Lean recruitment and promotion system; (vii) Shortage of skilled manpower; (viii) Lack of regular skill development training; (ix) Limited budget allocation.

In the context of increasing participation by the private sector and NGOs in livestock development, there is an urgent need to redefine the mandate and functions of DLS in a fashion that will allow it to gradually withdraw from private goods services, engage increasingly in delivery of public goods services, viz. enforcement of laws and regulations, quality control of feeds / drugs / vaccines / semen and breeding materials, extension services, disease investigation and surveillance, veterinary public health, conservation and development of native breeds, policy formulation and strategy development.

Policy frame work of livestock extension :

- (1) Private sector, NGOs and CBOs (Community Based Organizations) would be encouraged to provide private goods livestock services viz. veterinary services, vaccination etc.
- (2) DLS would be reformed to enhance its role as a provider of public goods services, viz. regulatory measures, quality assurance and control, monitoring function, food safety function, disease surveillance etc.
- (3) Front line extension services of DLS would be updated and extended for rapid livestock development and sound service delivery.
- (4) Resource allocations to DLS would be increased to make it effective in delivery of public good services.
- (5) Autonomous unit/ institute would be established for quality assurance and certification of livestock products, vaccines and biologics, and consumers right protection.
- (6) Quality Control of breeding materials would be ensured by extending District AI centre with modern laboratory facilities to all districts.
- (7) Long term fodder development programme would be taken throughout the country to minimize the acute shortage of feeds and fodder.
- (8) Analytical and diagnostic facility in the district mini-laboratory would be strengthened for full time service with skilled manpower.
- (9) DVH would be further extended to UVH (Upazila Veterinary Hospital) to ensure better services.
- (10) A special cell in all DVH would ensure round the clock service for emergency purpose.
- (11) Retraining program would be developed and implemented to equip DLS staffs with modern knowledge and skills within the frame work of a clearly declined human resource development action plan.
- (12) Besides staff training, DLS training institutes would be opened for all eligible candidates from private sector NGOs and CBOs for livestock service extension training.

- (13) Extension-research-NGO linkage would be strengthened for field testing and dissemination of livestock technologies.
- (14) An MOU has been signed between DLS and BRAC to Provide / extend Artificial Insemination Programme throughout the country .
- (15) More Administrative and Financial power has been delegated/ give and to field level Official's to works smoothly.
- (16) The Procurement of Veterinary drugs and surgical instruments has been decentralized to District levels.

5. Implementation strategy of the National Livestock Development Policy.

The implementation strategy would be to provide support that specifically target sector productivity, investment and risks as follows:

- (a) Implementations of recommendations in the respective policy framework identified in the National Livestock Development Policy 2007 (section 4.1 – 4.10) would be ensured;
- (b) Implementation of the national Livestock Development Policy would be realistically Phased out;
- (c) Livestock sector should be consider as a thrust sector, because the sector proved to be a useful tool for poverty reduction, income generation and meet up the nutrition deficiency;
- (d) Adaptation of locally proven technology would be preferred;
- (e) Due consideration would be given for the conservation/ restoration of nature during implementation of the National Livestock Development Policy 2007;
- (f) Public investment would be increased for further development of the livestock sector infrastructure which will increase the capacity of public goods and services delivery and promote private investment in the livestock sector;
- (g) Public investment would be increased in live stock research for making up to date information on the sector available to the stakeholders and technology development to enhance productivity, income and employment;
- (h) An appropriate legal and regulatory frame work would be put in place;
- (i) Institutional reforms would be carried out by strengthening manpower and infrastructure of DLS and BLRI;

- (j) Good sectoral governance would be more effective, transparent, accountable and mutually supportive;
- (k) Market regulatory measures would be taken to shift in relative prices of inputs and outputs to correct market distortions, rationalize the incentive structures for investment and mitigate negative impacts on the sectoral environment.