

## Constraints of Livestock Sector Development and Low Economic Contribution to The Economy of Afghanistan

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### ABSTRACT

This manuscript explores issues related to constraints of livestock sector development and low economic contribution to the economy of Afghanistan. Livestock is a fundamental part of agriculture with the contribution of live animals and their products. In Afghanistan, most of the country's poor people are living in rural areas that are primarily dependent on this sector. Meanwhile, food costs, in general, and livestock product prices determine the cost of living for the urban poor. The agriculture and livestock sector employs about 80% of the population in Afghanistan; therefore, the income per capita must be strongly influenced by the income levels of this sector. Animals are a source of human diets, income, and employment. Considering the large livestock population of Afghanistan, its contribution to the country's economy is still low. In contrast, the country has no clear, applicable policies and strategies for livestock development. The traditional methods of livestock management and production, poor feeding, minor health care, poor breeds, lack of suitable institutions and technologies, poor services and low capital investment in humans, and lack of development policies are becoming major factors in the poor performance of the livestock sector in Afghanistan. Despite some improvements in the livestock sector in recent years, the sector remains regressive. Thus, continuous assurance is needed to reduce the limitations and increase the sector's economic contribution. Afghanistan's development depends on rural residents' financial self-sufficiency and high income.

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### Introduction

Agriculture and livestock play a crucial role in the economies of numerous developing nations. In Afghanistan, the agriculture and livestock sector provides a livelihood for more people than any other industry. Livestock is an essential component of agriculture, with live animals and their products accounting for 40% of the agricultural economy (Asresie and Zemedu, 2015). Livestock is key in reducing poverty because most of the country's poor

people live in rural areas that depend mostly on this sector. In contrast, livestock product prices determine the cost of life for the urban poor. Livestock is commonly essential for job creation, food production, processing, and selling products and byproducts. The low production level of livestock in the country is attributed to inefficient productivity of the sector as a result of the traditional methods of production, poor feeding, minor health care, poor breeds, lack of suitable institutions and technologies, poor services, low capital investment in human, and lack of development policies. This review additionally addresses several recommendations to promote sustainable livestock production and productivity and increase its contribution to poverty alleviation in Afghanistan.

### Livestock Production and Productivity

The global significance of livestock and their products is increasing due to population growth and rising incomes in developing countries, resulting in improved human nutritional status due to increased consumption of animal protein (Mehrabi et al., 2020).

Demand for food products derived from animals is rising quickly, placing pressure on the livestock industry, which must quickly adjust to meet this demand. The development of the livestock industry relies on breeding and management, as well as improvements in animal health and nutrition.

The livestock industry produces a wide range of food and non-food products. Afghanistan's most important livestock products are milk, meat, eggs, and wool. In 2020, Afghanistan's agricultural products/million tons were 9710158, livestock products were 2613796 million, and overall agricultural products/tons were 12323954 million (Ahmadzai and Kaur, 2022). Most developing countries typically have lower animal product intake than developed or industrialized countries. Skins, wool, and cashmere are the primary livestock exports of Afghanistan, but it imports much more significant amounts of live animals, various dairy products, eggs, and meat.

As the population increases, it will require more food and more animal products, given recent experience in Afghanistan. The livestock population in the country is increasing rapidly in both the rural and commercial sectors. A study conducted to review the economic size of the livestock sector during 2015-2019 in Kabul, Afghanistan, reported that the majority (84%) of respondents stated that cattle are their main source of income compared to other animal species (Karadal et al., 2021). The number of livestock has changed greatly over the last few years (Table 1).

Table 1. Changes in livestock population (million) between 1990 and 2017 in Afghanistan

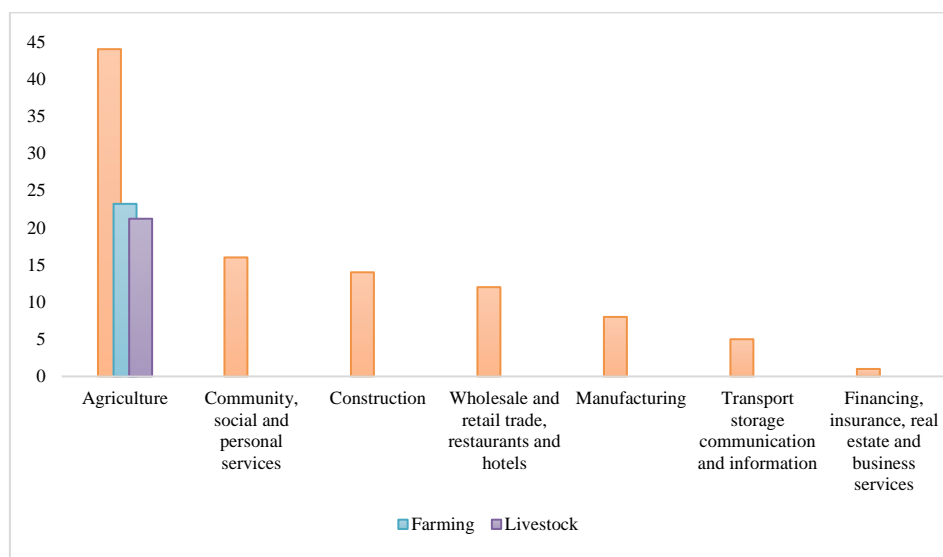
Species	1990 <sup>1</sup>	2000 <sup>1</sup>	2003 <sup>2</sup>	2017 <sup>3</sup>
Cattle	1.60	2.90	3.72	5.23
Sheep	14.17	15.00	8.77	13.32
Goats	3.35	7.30	7.28	7.41
Camels	0.22	0.26	1.75	0.17
Poultry	6.60	6.85	1.22	11.90

Source: MAIL, Afghanistan; <sup>1</sup>(Iwaasa et al., 2016); <sup>2</sup>(Zafar 2005), <sup>3</sup>(Muradi and Boz, 2018).

The processing and marketing policies are linked to investment in essential infrastructure for animal products, addressing concerns like structure design, equipment, training, and quality to meet current and future demand.

### Role of Livestock in Securing Livelihoods and Generating Employment

Livestock contributes more than 33% of the total agricultural product in developing countries. In addition to being one of the agricultural subsectors with the quickest growth rate, it provides a significant amount of food and nutrition security. It serves as a key source of income for about 1 billion impoverished people in developing nations (Karadal et al., 2021). Over 50% of the population in developing countries is dependent on agriculture and livestock. In contrast, this figure is over 80% (Bartels et al., 2017). Agriculture and livestock are the major industries in Afghanistan in terms of employment. The requirement for livestock sector development is to provide a source of revenue for the still-increasing population dependent on this sector in Afghanistan. Most of Afghanistan's rural population depends on agriculture and livestock. Afghanistan employs around 6.5 million individuals, with the most significant number (77.7% or 5.0 million) in rural areas. Almost 45% of the working population, or 2.8 million individuals, work in the agriculture and livestock sector (Figure 1). In contrast, employment in this economic sector is split between farming (23.2%) and animal production (21.2%) (Central Statistics Organization 2018).



**Figure 1:** Afghanistan employment type by sectoral contribution in percentage (Central Statistics Organization 2016 & 2018)

Livestock provide employment and investment opportunities. In Afghanistan, livestock generates approximately 1.1 million full-time equivalent jobs (World Bank, 2014). Most rural people are directly involved with livestock for the production of food, the provision of facilities, and contributions to crop production. Land-scarce poor households commonly keep small animals such as sheep, goats, and poultry for commercial purposes due to their cheap initial investment and operational expenses.

Livestock is an essential asset for Afghan households, whether for personal use or for selling animals and animal products on the market. In Afghanistan, 38% of households possess one or more cattle, 26 and 27% own goats and sheep, and chicken-owning households account for 43% (Central Statistics Organization, 2016). Most livestock firms in Afghanistan are small businesses with 5 to 10 employees and an annual income of 30,000 to 35,000 US dollars. (Karadal et al., 2021).

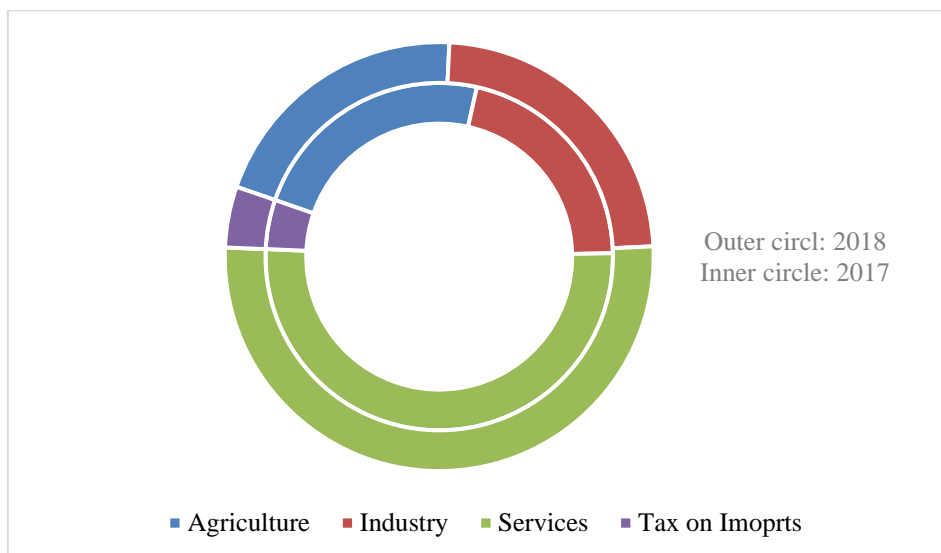
Livestock-crop interactions are crucial in integrated mixed farming systems, allowing for nutrient recycling and increased income from livestock products. This is achieved through animal feeding on crop residues and returning manure to the soil.

### **Role of Livestock in National Income and Poverty Alleviation**

The livestock industry is a vital global industry that has grown rapidly in recent decades. This industry has a comparative advantage in simplified management, increased productivity, and quick investment. According to the World Bank (2015) report, about 900 million people live with less than 1.9 US dollars/day income worldwide. Whereas almost half of them, livestock is the only source of income (Karadal et al., 2021).

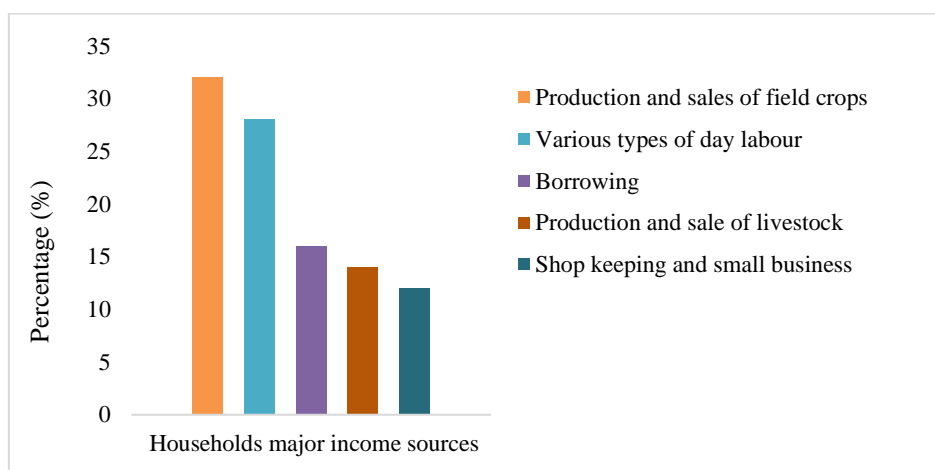
Based on international norms, the poverty line in Afghanistan is calculated using the cost of basic needs (Central Statistics Organization 2016). Afghanistan has a traditional economic structure in which agriculture accounts for more than half of economic development (Ahmadzai and Kaur, 2022). Afghanistan has a large livestock population, while its contribution to its economy is minimal. The livestock industry has long been of great economic importance in the country, supplying critical components of the daily meal as well as a source of income for more than 80% of the people (Bartels et al., 2017). Agriculture made 23.5% of the sectoral contribution of the Gross Domestic Product (GDP) in Afghanistan (Figure 2) (NSIA, 2019). Meanwhile, livestock contributed about 15% of the agricultural GDP, or 680 million US dollars annually (World Bank, 2014). Therefore, enhancing livestock sector productivity should increase national income per capita.

Consequently, income levels in this sector must significantly impact per capita income. Livestock are an essential source of income for smallholder farmers and pastoralist populations. Livestock serves the country's economy as a source of food, investment, cash income, foreign exchange earnings, and social and cultural identity (Asresie and Zemedu, 2015). Cash can be generated from sales of livestock products, live animals, and related services.



**Figure 2:** The sectoral contribution as a percentage of Afghanistan's GDP (NSIA 2019)

However, microfinance significantly affects livestock business sustainability in Afghanistan (Karadal et al., 2021). Livestock is one of the five significant sector households earn income (Figure 3).



**Figure 3:** The primary income sources from which households earn their income in Afghanistan (Central Statistics Organization 2016)

Increased livestock production is necessary, as livestock contributes significantly to the incomes and well-being of the rural poor. Rural poverty is mainly concentrated in the lives of most of the population, which depends on livestock. The relevance of livestock in economic development is based on its contributions to national revenue growth, rural livelihoods, and supplying the nutritional needs of growing populations.

The livestock industry generates capital assets, which can lead to increased income in the future. These assets are produced through livestock products like meat, milk, eggs, wool, hides/skins, and waste products used to raise income from crops. Livestock investment offers low business costs, as flock or herd growth follows from reproduction once the first breeding female is acquired and mated.

## **Main Constraints of Afghanistan's Livestock Sector Development**

Regarding the constraints of Afghanistan's livestock sector development, the fundamental issue may be the lack of a clear livestock industry development policy and strategy. The livestock sector faces limitations due to inadequate statistics, knowledge of livestock resources, malnutrition, disease prevalence, poor market development, and low genetic potential of indigenous animals for specific products.

Furthermore, the government's negligence, the private sector's poor role, and the lack of coordination among the government and nongovernmental organizations (NGOs) in livestock activities can also be mentioned as key constraints. Recent efforts have been undertaken to increase private sector participation in livestock development. However, more emphasis and attention must be paid to initiatives that enable active engagement of the private sector in livestock production, livestock input supply, marketing, and service provision.

### **Absence of Livestock Development Policy**

Policy gaps and priority agendas are critical for the livestock sector's achievement (Hegde 2019). There are no livestock breeding, nutrition, management, and marketing development policies and strategies in Afghanistan that have seriously affected the development and productivity of this sector. Policies in the livestock industry should be compatible with the broader institutional and regulatory framework steering agricultural and economic growth in general.

The use of appropriate technologies, enhanced support services, market access, and infrastructure development to drive greater productivity will ultimately determine the improvement of the livestock sector and increased livestock production (Mehrabi et al., 2020; Upton, 2016). However, a framework of comprehensive policies and development plans that allow such growth is required.

### **Poor feed and nutrition**

Feeding is the most significant financial expense in animal production. It has a direct impact on the animal's development rate and health state, as well as the quality of their production. Therefore, profitable and sustainable farming depends on the nutrition of the animals. Inadequate feed availability for the present livestock population and poor feed quality must be addressed as two major problems contributing to the country's low livestock production and efficiency (Ali 2007). It is well known that healthy and productive livestock require balanced feeding. Key constraints to livestock production in Afghanistan are insufficient feedstocks, lack of access to seeds of improved forage varieties, poorly developed feed and seeds markets, and insufficient knowledge among producers and service providers (Iwaasa et al., 2016).

The nutrient requirements of livestock vary between species (cattle, sheep, poultry, etc.) and within the same species at different stages and ages, such as pregnant cows, lactating

cows, broiler chickens, layer chickens, and so on, or under different conditions such as external temperature, health status, stress, and so on (Upton, 2016; Zafar, 2005).

### ***Poor Animal Breeding***

Afghanistan has a huge livestock population; however, their contribution to overall output has been minimal compared to their potential. This might be because they have a poor genetic potential for particular products. The critical reasons for the absence of characterized breeds of animals and poor animal breeding in the country are the absence of appropriate policy and strategy to work for the improvement of animal breeding, lack of research in breeding and development, traditional livestock keeping and breeding systems such as uncontrolled grazing (different classes of livestock are allowed to graze together), lack of record-keeping, which is the foundation of livestock breeding and development (Upton, 2016; Zafar, 2005).

Research and policies are required to promote indigenous breeds, particularly small ruminants, cattle, and poultry. Furthermore, attention is needed to introduce exotic breeds (Proudfoot et al., 2020) gradually.

Currently, little effort has been made to define the livestock breeds of Afghanistan and their real production capacities. Meanwhile, there are no parent breeder farms present in the country.

### ***Inadequate Animal Health Care***

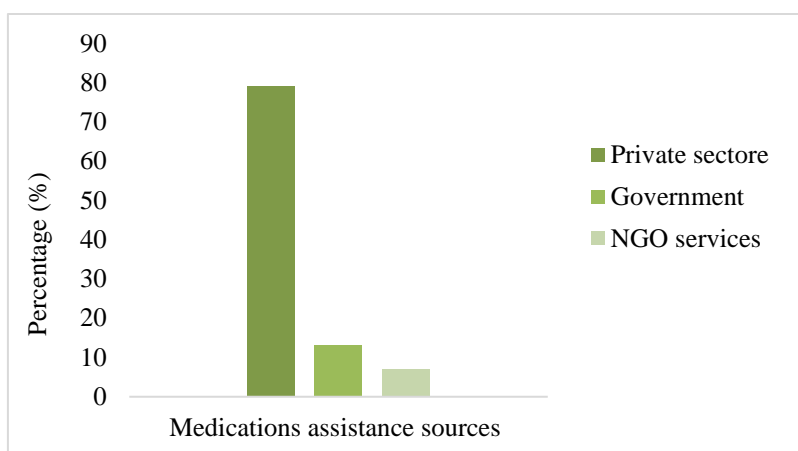
The country's agroecological zones have a significant incidence of various diseases and parasites, resulting in direct economic losses due to high animal mortality and low animal productivity and reproduction.

Livestock productivity is significantly influenced by the control of animal diseases and the provision of animal health services.

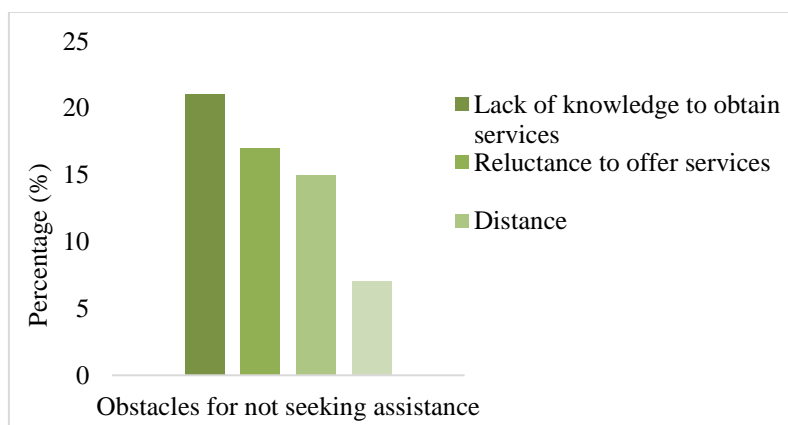
As a result of the periods of instability in the country, the animal health situation has been badly affected. Different infectious diseases in cattle, small ruminants, and poultry have spread throughout the country, although parasitic diseases have increased in all species. At the same time, new transboundary diseases like rinderpest, peste-des-petits ruminants, food and mouth disease (FMD) serotypes, and poultry diseases have been imported and are widespread in the country. Effective animal health services are vital for livestock production, and poor livestock health is one of the key reasons for losses in livestock production. The health of livestock typically depends upon the skilled workforce employed and equipped with related technologies and facilities for the diagnosis, prevention, and treatment of the animal's disease.

Approximately 20% of livestock-owning families acquired livestock medications or sought veterinary assistance or information. This number ranged from more than 50% in Bamyan, Jawzjan, Faryab, and Paktya to insignificant in Helmand, Kandahar, Nimroz, and

Nooristan. Meanwhile, the majority of livestock-owning households who sought assistance hired the services of a private veterinarian (Figure 4).



A



B

**Figure 4:** (A) Livestock-owning households' medication assistance sources. (B) Major obstacles for livestock-owning households not seeking Veterinary assistance (Central Statistics Organization 2016)

### Poor Marketing

Livestock markets facilitate specialization in production and exchanges with producers of staple food crops and other commodities, facilitating the exchange of livestock and their products (Hashem et al., 2021; Valerio et al., 2020). The country's animal products market is underdeveloped and unorganized. The country's poor marketing is influenced by factors like live animal export, disease prevalence, infrastructure issues, lack of specialized transport systems, market information, insufficient facilities for handling and processing animal products, and inadequate technology for production and processing.

Livestock products are continually growing due to the development of market links between rural farmers and urban consumers via the network of cooperatives in the country; nonetheless, productivity remains poor (Upton, 2016; Zafar, 2005). The potential increase in productivity, income, and foreign exchange earnings that could follow from implementing



enhanced production technology could not be achieved without recognizing the prospective market.

### ***Lack of Appropriate Modern Technology***

Technological advancements have significantly accelerated the growth and development of livestock in developing nations. There is a lack of appropriate technologies in breeding, feeding, and animal health in Afghanistan. On the supply side, improved livestock management, an efficient input supply system, and the development of new technologies for use in livestock production and management are necessary (Groher, Heitkämper, and Umstätter 2020; Monteiro, Santos, and Gonçalves 2021). Meanwhile, there have not been many efforts to develop technology to meet Afghanistan's fast-rising imports of powder milk and other dairy products or raise milk production to a functioning level.

### ***Lack of Research and Appropriate Statistics on the Livestock***

Research plays a crucial role in addressing the current problems and limitations and suggests suitable solutions for livestock growth and development. Therefore, extensive research is needed on animal genetics and breeding, feed and nutrition, management, animal physiology, livestock disease prevention, control and treatments, animal welfare and policy, and product quality in the country (Latino, Pica-Ciamarra, and Wisser 2020; Salmon et al., 2020).

Furthermore, no updated, reliable livestock census or proper national survey is carried out in the country to present reliable data sources. Additionally, there are no animal recording, evaluation, and reporting systems on livestock population, breeds, disease outbreaks, feeds, prices, supply and demand for livestock products, and marketing in the country that is accessible for future use.

## **Recommendations**

The government must finalize appropriate policies for livestock development, ensuring proper enactment and preparation for livestock growth. The Ministry of Agriculture, Irrigation, and Livestock will collaborate with several other ministries and stakeholders to implement livestock development policies and recommendations. Horizontal and vertical coordination among the key players in the sector is always essential. The following recommendations are suggested to promote sustainable livestock production and productivity and increase its contribution to poverty alleviation in Afghanistan.

**Recommendation 1:** As an important economic sector of Afghanistan, livestock needs to be provided with more governmental support.

- The government works as a policy and strategy maker and conducts reviews on the implementation of the livestock development progress with key stakeholders.
- The government ensures human resources development.

- The government develops and introduces certification and regulatory frameworks to ensure the efficient use of natural resources, including water and land, for agriculture, forestry, grazing, and other sectoral sectors.
- The government enables the private sector's business and investment environment to succeed and create opportunities for private-public partnerships.

**Recommendation 2:** Develop coordination among stakeholders and establish authorized steering and task force committees from all key players and organization representatives, whereas the steering committee will have sub-committees for each part.

- Ministry of Agriculture, Irrigation and Livestock: Play a leading role in coordinating the effective implementation of livestock developmental programs.
- Ministry of Higher Education: To play an important role in livestock research and provide ideas and innovations to promote sustainable development in the sector.
- Ministry of Finance: To facilitate and provide financial resources, livestock development requirements be funded through the annual budgets.
- Ministry of Economy: To promote the role of livestock in the national income growth.
- Ministry of Public Health: To promote zoonotic disease control and prevention and to encourage food safety.
- Ministry of Commerce and Industry: To promote livestock products marketing, processing, and preservation.
- Minister of Water and Energy: To work for the provision of water and electricity for livestock development.
- Ministry of Rural Rehabilitation and Development: To promote livestock's role in rural people's livelihoods.
- Ministry of Foreign Affairs: To promote the imports and exports of livestock, livestock products, and livestock byproducts.
- Ministry of Public Works: To promote the role of livestock in generating employment.
- Minister of Borders and Tribal Affairs: Implement a system of effective control for the illicit market that passes through the country's borders.
- Ministry of Justice: To work on drafting livestock development legislation and regulations.
- Private sector and Cooperating partners: Investment in the livestock industry for the sector development, job creation, and development of livestock value chains.

**Recommendation 3:** Improvement in livestock breeding, particularly in the case of cattle, sheep, goats, poultry, honey bees, silkworms, and fish.

- The first step should be situation analysis and determination of the production performances of the existing livestock breeds.
- Promote artificial insemination.
- Use cross-breeding.
- The gradual introduction of effective foreign breeds.

**Recommendation 4:** Improvement in feed and nutrition.

- Improve or restore access to traditional pasture.
- Increase artificial forage production to enhance animal nutrition, especially during winter and drought.
- Determination of the chemical composition of all national feed components.
- Promote investment in supplementary feed manufacturing.
- Preparing feed based on the livestock requirement (species, physiological condition, and various internal and external actors).
- Promote cost-effective feed formulation for livestock.

**Recommendation 5:** Improve animal health services.

- Contagious disease prevention and control.
- Development of research.
- Improvement of laboratories' diagnostic capacities.
- Public awareness programs.
- Support routine vaccinations.
- Promote the establishment of animal clinics.
- Employment of veterinarians across the country to address and manage disease-related issues.

**Recommendation 6:** Strengthen extension and advisory services and improve animal husbandry techniques.

- Providing advice to livestock owners regarding animal husbandry and management (shelter, hygiene, recording, etc.)
- Development of modern farming system.

**Recommendation 7:** Promote standards and quality of livestock, livestock products, and byproducts.

- Improve manufacturing practices.
- Promote the application of grading systems for livestock products.

- Promote investment in livestock products processing facilities.

**Recommendation 8:** Undertaking a complete and comprehensive evaluation of the statistics and efficiency of Afghanistan livestock for future use.

- Evaluation of livestock population.
- Evaluation of livestock breeds.
- Evaluation of livestock disease outbreaks.
- Evaluation of supply and demand for livestock products.

**Recommendation 9:** Adopt and efficiently implement modern livestock technology.

- Adopt and efficiently implement modern livestock technologies for livestock genetics and breeding, animal husbandry and management, livestock feed and nutrition, animal products and byproduct processing, disease diagnosis, treatment, control, and prevention.

**Recommendation 10:** Conduct comprehensive research studies in the country to address the current livestock sector problems and limitations, and find suitable solutions and recommendations for it.

- Strengthen institutional collaboration.
- Strengthen institutional capacity for livestock research and development.
- Promote research on animal breeding and genetics.
- Promote research on feed and nutrition.
- Promote research on animal husbandry, management, and precision livestock farming.
- Promote research on livestock disease prevention, control, and treatments.
- Promote research on livestock products and byproducts.

**Recommendation 11:** Promote livestock, livestock products, and byproducts marketing.

- Development of the imports and exports of livestock, livestock products, and livestock byproducts.
- Market connections are growing through the country's network of cooperatives between rural farmers and urban customers.
- Implement a strong regulatory framework to manage the illicit market within the country's borders.
- Development of an efficient national products support policy.
- Development of livestock value chains.

## Conclusion

The agricultural and livestock sector is the mainspring of Afghanistan's economic and social life. As a fundamental part of agriculture, livestock contributes to rural poverty alleviation, livelihoods, and employment. The increased productivity of the livestock sector must be reflected in an increase in national income per capita. The traditional methods of livestock management and production, poor feeding, minor health care, poor breeds, lack of suitable institutions and technologies, poor services and low capital investment in humans, and lack of development policies are becoming major factors in the poor performance of the livestock sector in Afghanistan.

**Conflict of Interest:** The author(s) declared no conflict of interest.

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