The Urban Unit
Urban Sector Planning & Management Services Unit (Pvt.) Ltd.

LIVESTOCK DEVELOPMENT STRATEGIES

DG Khan

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DISCLAIMER

Urban Sector Planning and Management Sector Unit (Pvt.) Ltd. has prepared this report on the Agriculture Development Plan of DG khan Division. Maximum care and caution have been observed while developing this document.

The opinions expressed in the document are solely those of the authors and publishing in any way constitutes an endorsement of the opinion by the Urban Unit.

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INTRODUCTION

Animal husbandry is a cornerstone of Pakistan's rural economy, with more than 8 million rural families deeply engaged in livestock production. This sector is a vital lifeline for these families, contributing significantly to their livelihoods by accounting for around 35-40 percent of their total income. In the broader economic landscape, the livestock sector has solidified its position as the primary driver of agricultural growth, comprising approximately 60.84 percent of the agricultural value added and 14.63 percent of the national GDP during FY2024. The gross value addition of the livestock sector has shown an increase, rising to Rs 5,804 billion in 2023-24 from Rs 5,587 billion in 2022-23, marking a growth rate of 3.9 percent. Moreover, the sector's net foreign exchange earnings make a meaningful contribution, accounting for approximately 1.6 percent of the total exports in the country. The government has recognized the inherent potential of this sector for economic growth, food security, and poverty alleviation in the country and has accordingly focused on its development. The overall strategy for livestock development revolves around promoting "private sector-led development with the public sector providing an enabling environment through policy interventions." Regulatory measures have been implemented to enhance per unit animal productivity by improving veterinary health coverage, husbandry practices, animal breeding practices, assisted reproductive techniques (Embro Transfer Technique, In Virto Fertilization, etc.), artificial insemination services, use of balanced ration for animal feeding, and controlling livestock diseases such as FMDE, PPR, LSD, and Avian Influenza. The primary objective is to leverage the potential of the livestock sector for economic growth, food security, and rural socioeconomic uplift. To address investment-related issues in the valueadded livestock export sector, the government is considering developing export meat processing zones and disease-free zones and compartments for FMD, PPR, and HPAI, among others, as well as facilitating the establishment of modern slaughterhouses based on the industry's requirements. The government also provides various schemes through the financial sector for a limited period to boost the livestock sector.

Livestock production has had a huge impact on the agricultural environment in recent decades, accounting for the majority of land resource consumption. Feed crops account for 26% of grazing area and one-third of arable land. Livestock is inextricably interwoven with the feed crop industry, producing byproducts such as dung and draught power. Livestock acts as a source of wealth storage and a safety net in many developing countries, contributing to the preservation of individual

communities' cultural identity and traditional behaviors. Land use patterns have changed as a result of the growing demand for food derived from animals, placing a great deal of strain on the cattle industry. Numerous systems for producing livestock coexist, including large-scale ones like ruminant grazing, intensive systems with lots of animals fed concentrated feed in regulated settings, and intermediate systems that combine elements of the two. By establishing suitable paths, it is imperative to maximize the livestock sector's positive contributions to the economy, society, and environment while limiting any negative effects.

Recent research into the role of livestock in ensuring food security in countries like Morocco and Saudi Arabia has revealed a growing demand for livestock-derived products. This surge in demand is driven by factors such as population growth, urbanization, and rising affluence. However, in developing nations, the increased reliance on pastoral livestock has heightened the vulnerability of rural households to food insecurity. This vulnerability is primarily due to changing precipitation patterns and a greater dependence on imported products among urban consumers. In peri-urban areas, households engaged in livestock farming incorporate a higher proportion of animal-derived food into their diets compared to those without livestock. These households rely heavily on products like milk, meat, poultry, and eggs, which are crucial for supporting their livelihoods. In Pakistan, the province of Punjab stands out with the largest human and livestock populations. Many individuals, especially women, depend on livestock not only for their livelihoods but also for ensuring food security in this region.

LIVESTOCK D.G. KHAN

Livestock has an important role to play in promoting socio-economic development, particularly in rural areas. Nearly eight million families are involved in livestock raising, from which they derive more than 35% of their income. Similar to other developing countries, the backyard rearing of small or large ruminants contributes to the livelihood of households in Pakistan. Like other parts of the country, particularly in Dera Ghazi Khan, a large number of households in rural areas are involved in livestock rearing. Provincially Administrated Tribal Areas (PATA) of Punjab are located in the Dera Ghazi Khan District in the Sulaiman mountain ranges. It is rich in minerals like uranium, gypsum, marble, in addition to proven oil and gas reserves in the Dhodak and Baghalchurr area, but there is little economic activity. In these areas the livestock, particularly small ruminants, are extensively reared as a potential source of income.

Figure 1: Livestock Population

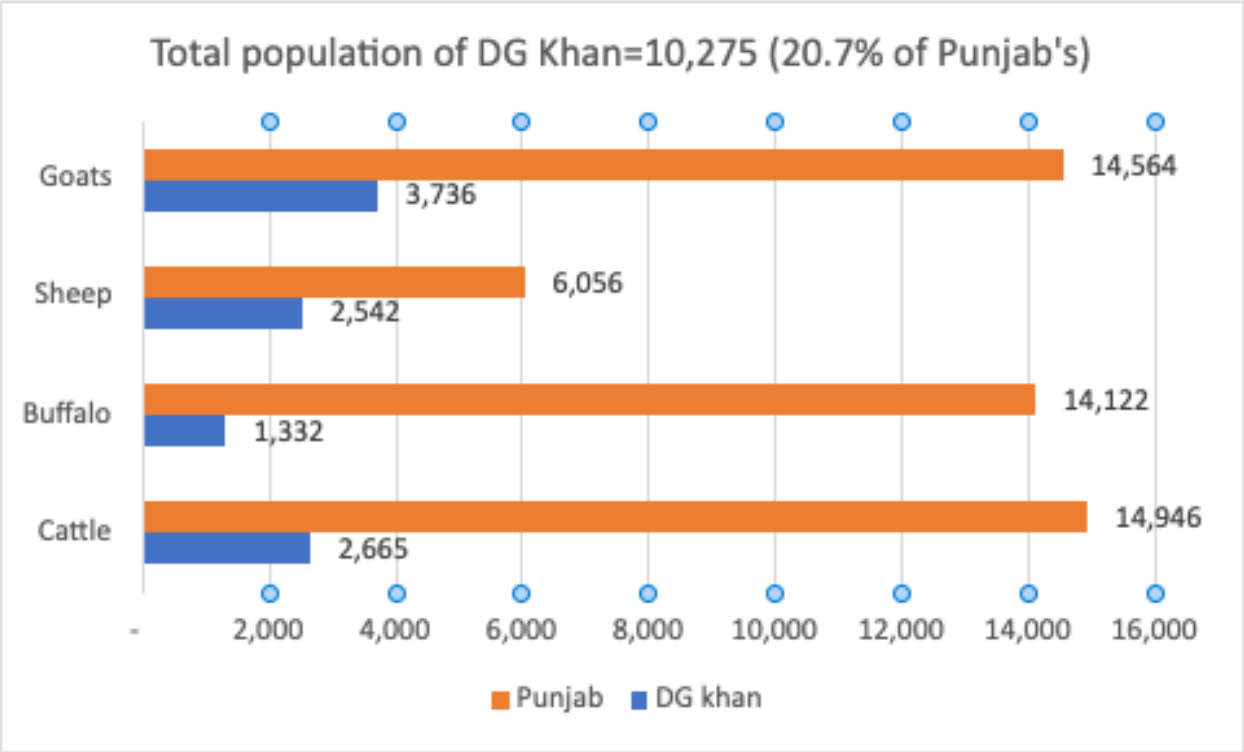


FIGURE 1: LIVESTOCK POPULATION D.G. KHAN DIVISION
SOURCE: **LIVESTOCK AND DAIRY DEVELOPMENT DEPARTMENT**

The data provided here focuses on the livestock population in D.G. Khan Division, expressed in thousands, rather than the overall livestock population in Punjab. D.G. Khan Division is home to 2,665,346 cattle, 1,332,796 buffaloes, 2,542,631 sheep, and 3,736,953 goats, totaling 10,277,726 livestock animals. Analyzing these numbers reveals the significance of D.G. Khan Division's livestock within the Punjab context. In this division, cattle constitute 17.8% of Punjab's total cattle population, buffaloes make up 9.4%, sheep comprise 42%, and goats represent 25.7%. Overall, D.G. Khan Division's livestock accounts for approximately 20.7% of Punjab's total livestock population. These statistics highlight D.G. Khan Division's substantial contribution to Punjab's livestock sector.

DG khan faces numerous challenges, with the most prominent being the unavailability of livestock feed, especially during winter. Most farmers in the DG Khan Division live in the remote areas of the Kohe Suleman region and are nomadic, migrating in the winter in search of livestock feed. Additionally, there are several other challenges, including the prevalence of disease, inefficient

infrastructure, and underdeveloped markets. These issues are discussed in detail in the following section.

To address these issues, the government has introduced various initiatives to strengthen the livestock sector in the DG Khan Division. These initiatives include providing technical support and offering training to small-scale farmers and breeders. The government has also allocated resources to improve infrastructure and services, such as establishing veterinary facilities. Furthermore, private sector organizations are contributing to the development of the livestock sector in DG Khan by investing in research and development and promoting best practices in breeding, feeding, and health management. However, while these efforts are valuable, they may not be sufficient for comprehensive sector development in the region. Prioritizing interventions through a value chain approach and strategically implementing them across the area is essential for achieving more favorable outcomes.

PRODUCT SNAPSHOT

In D.G. Khan, the livestock sector produces a wide array of products that significantly contribute to human consumption and well-being. This sector yields meat, dairy, eggs, and numerous animal by-products such as leather, wool, and feathers. Meat from cattle, sheep, goats, and poultry provides essential dietary protein, offering options like beef, mutton, lamb, chicken, and pork to meet diverse consumer preferences. Dairy products, mainly from cows and buffaloes, include milk, butter, cheese, yogurt, and other derivatives, supplying crucial nutrients like calcium and vitamins. Eggs from poultry serve as a versatile cooking ingredient and a nutrient-rich food item.

Additionally, the livestock sector produces non-food items, with leather used in footwear, garments, and accessories, and wool and feathers utilized in textiles and bedding. This broad range of products highlights the sector's vital role in meeting diverse human needs and improving overall quality of life. D.G. Khan has substantial potential for beef and dairy production, making it a prime candidate for development into a dairy hub. The region accounts for nearly 10 percent of Punjab's large animal population and is home to the elite DG khan cattle breed, renowned for its superior dairy and meat qualities. This potential can be harnessed to boost the local economy and meet the growing demand for high-quality livestock products.

DAIRY

Dairy products, rich in essential nutrients like protein, calcium, vitamins, and minerals, are vital for children's growth and overall nutrition. The dairy industry provides jobs and income for millions worldwide, particularly benefiting rural communities by alleviating poverty and enhancing economic stability. It ensures food security by offering a stable source of animal protein, especially in areas with limited alternatives. Sustainable dairy farming can improve soil fertility, reduce greenhouse gas emissions, and promote biodiversity. In the DG Khan Division, with about 3.9 million cattle and buffaloes, milk production is relatively low at 3.5 million tons annually. The area has a mix of small-scale and large-scale dairy farms, with a strong local market reliant on dairy products. Despite facing challenges like fluctuating milk prices, inadequate infrastructure, and animal health concerns, there are growth opportunities through modern farming techniques and market improvements. However, water scarcity and fodder unavailability remain significant issues.

MEAT

Meat is a crucial source of nutrients like protein, iron, zinc, and vitamin B12, essential for health and preventing malnutrition, especially for children and pregnant women. It contributes to a balanced diet and supports overall well-being. The livestock sector in Pakistan, including meat production, provides significant employment opportunities and improves economic conditions, enhancing food security at individual and community levels. Livestock such as cattle, goats, and poultry support agricultural activities by using crop residues and agro-industrial by-products for feed, boosting agricultural productivity and food security. Pakistan's abundant livestock resources offer potential for meat exports, which can strengthen the economy and national financial stability through trade.

In the DG Khan Division, livestock farming focuses on cattle, goats, and poultry. Annually, about 63,000 large animals and 116,000 small animals are slaughtered, producing around 13,000 tons of meat valued at 13 billion rupees. Livestock farming is a key income source for local farmers. The region has several slaughterhouses and meat shops, ensuring proper processing and storage standards. High meat consumption is integral to local cuisine and cultural practices, with market prices influenced by seasonal variations, supply, demand, and operational costs. Price fluctuations can affect affordability for some population segments. To ensure meat quality and safety, the

Pakistani government enforces regulations and guidelines for hygienic practices in slaughterhouses, transportation, and storage.

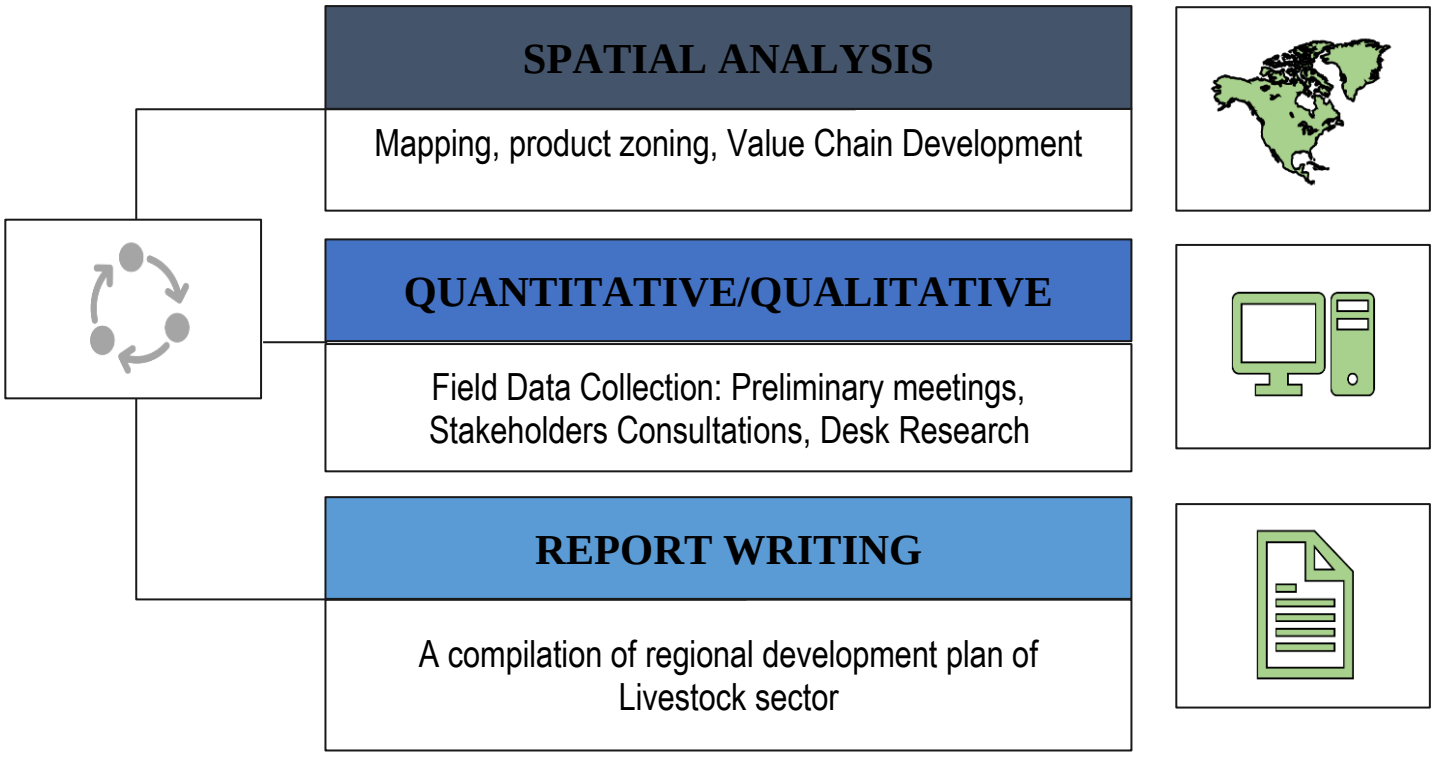
POULTRY

Poultry plays a crucial role in food security in Pakistan, providing affordable and accessible animal protein through chicken and eggs, which are widely consumed. It serves as a vital livelihood source, particularly in rural areas, offering employment in farming, hatcheries, feed mills, and processing plants, thereby supporting economic growth and income stability, especially for small-scale farmers. The poultry industry significantly contributes to Pakistan's national economy through revenue from meat, eggs, and related products, impacting GDP, foreign exchange earnings, and tax revenues. With a shorter production cycle than other livestock sectors, poultry farming offers quicker returns on investment, making it appealing for both small and large-scale farmers and promoting agricultural development and rural prosperity.

Poultry farming also creates employment opportunities for women and youth, requiring less physical labor and manageable within smaller spaces, making it ideal for women entrepreneurs and young individuals. Pakistan has potential for poultry exports, which can enhance foreign exchange earnings and trade balance while promoting Pakistani products globally. Technological advancements and modernization, such as controlled farming, have recently boosted poultry production in Pakistan.

METHODOLOGY

This section provides detail about the methodology used for the analysis.



DATA ANALYSIS

After collecting the data, the team proceeded to analyze and discuss all of the information. They ensured that any gaps in the collected data were addressed by cleaning, integrating, and reviewing the data. The Livestock departments were also contacted through email and telephone to gather additional information. Through a field assessment, the team was able to identify the issues and challenges and propose an intervention that focuses on developing a specialized value chain.

The Urban Unit Livestock sector team visited the D.G. Khan division during the month of April for stakeholder sessions and ground truthing.

ISSUES AND CHALLENGES.

There are several issues and challenges facing the livestock sector in D.G. Khan, Punjab, Pakistan. Some of these include:

Unavailability of the livestock feed: The farmers in the region reside in the remote areas of Koh e Suleman, where there is a shortage of livestock feed, particularly during the winter season. To sustain their animals, they are compelled to migrate in search of adequate feed.

Open Grazing Issues: Open grazing is a major problem in DG khan, leading to land degradation, loss of vegetation, and soil erosion.

Lack of Proper Infrastructure: Many farmers in DG khan lack access to essential facilities such as veterinary clinics, feed mills, and modern barns, which can limit the productivity and health of their animals.

Limited Market Access: Small-scale farmers in DG khan often face challenges in accessing markets to sell their animals, resulting in low prices and limited profits.

Disease Risk: Livestock in DG khan are susceptible to various diseases, such as foot and mouth disease, which can cause significant losses for farmers.

Insufficient Government Support: Farmers in DG khan frequently lack access to government programs and subsidies, making it difficult for them to compete with larger, more established farmers.

Impact of Climate Change: Climate change and variability significantly impact the livestock sector in DG khan, affecting pasture growth, water availability, and increasing the risk of diseases.

These issues are explained thoroughly in separately below.

LIVESTOCK STATISTICS

Following figure compares livestock population statistics from 2006 and 2018. Experts argue that the figures in the Economic Survey of Pakistan based on the 1996-2006 inter-census growth rate do not reflect the actual growth rate of the country's animal population. The 2018 census statistics were withheld because of a significant discrepancy between the published figure in the Economic Survey of Pakistan and the actual figure. There is a need of a new census soon, so that the population data verified for the development and actual figures could be used for analysis and forecasting.

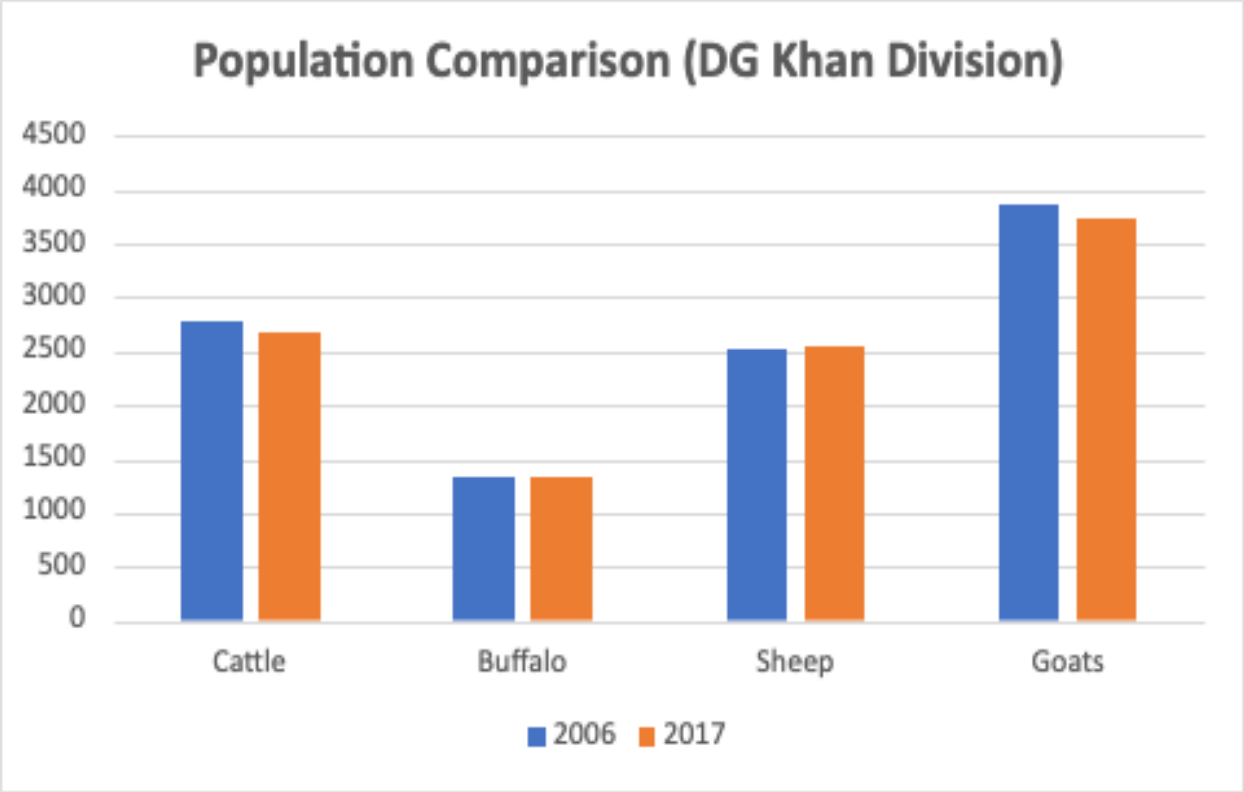


FIGURE 2: COMPARISON OF LIVESTOCK POPULATION
SOURCE: **URBAN UNIT**

The lack of accurate and up-to-date livestock statistics in Punjab, Pakistan, is a significant issue for the livestock sector. Without reliable data, policymakers, researchers, and industry stakeholders struggle to make informed decisions and effectively plan and implement development initiatives. One consequence of this data deficiency is the reliance on unreliable growth rate estimates for the livestock population. These estimates are often based on extrapolations and assumptions rather than accurate data, leading to inaccuracies and inconsistencies. This affects resource allocation and

the design of development programs, as they may not reflect the actual state of the livestock population. Additionally, the absence of accurate livestock data hampers the ability to monitor and assess the impact of development initiatives. Without a comprehensive livestock database, measuring the success of policies and programs aimed at increasing livestock numbers is impossible. Overall, the unavailability of reliable statistics and the reliance on questionable growth rate estimates for the livestock population in Punjab is a critical issue that needs to be addressed to ensure the sustainable development of the livestock sector.

LOW PRODUCTIVITY

The DG Khan region remains underdeveloped, with farmers adhering to traditional farming methods, resulting in notably low productivity. In the remote areas of Kohe-Sulman, the nomadic approach to farming, primarily based on grazing, is the key factor behind low productivity. Small-scale farmers do not employ modern breeding improvement techniques and fail to maintain progeny records, leading to over 80% of their animals being of nondescript breeds. Inappropriate crossbreeding practices have resulted in genetic dilution, adversely affecting overall milk productivity.

Low productivity in livestock production in DG khan, Pakistan, can be attributed to several factors. The most prominent among these is the small farm holdings and migration patterns, with almost 70-80% of milk production coming from smallholder farmers. This situation is exacerbated by the unavailability of the necessary feed. Small farmers often lack the knowledge and resources for breed improvement and do not maintain progeny records. Over 80% of the animals are non-descriptive, and indiscriminate crossbreeding without proper knowledge leads to genetic mixing, further reducing milk productivity. The primary reason for non-descriptive breeding is that smallholders produce milk mainly to meet family needs at minimal cost and have limited access to substantial milk markets. Consequently, they are less concerned about the yield of their animals, viewing farming more as a lifestyle than a commercial enterprise.. There are other factors that are also affecting the productivity in livestock given as follows;

- Lack of proper nutrition: Poor quality feed and inadequate quantity of feed can lead to low productivity in livestock.
- Poor genetics: Use of low-quality breeding stock can lead to low productivity and reduced offspring quality.

- Lack of veterinary care: Inadequate veterinary care, such as lack of vaccines and treatments for diseases, can lead to reduced productivity and high mortality rates.
- Unfavorable environmental conditions: Exposure to extreme temperatures, poor ventilation, and poor sanitation can negatively impact the health and productivity of livestock.
- Inefficient management practices: Poor management practices, such as overcrowding and inadequate waste management, can lead to reduced productivity and increased disease transmission.
- Economic constraints: Lack of financial resources to invest in proper infrastructure, feed, and veterinary care can also lead to low productivity in the livestock industry in DG khan.

The chart below illustrates the productivity gap of various milking and meat animals in D.G. Khan division compared to progressive and international benchmarks. The productivity of milking animals, particularly milk yield, is crucial for enhancing overall milk production. It is notable that milking buffaloes demonstrate a potential for higher daily yields per liter, while exotic cattle exhibit maximum productivity respectively. In summary, both cattle milk and meat have higher potential on the international scale. In contrast, camel milk and buffalo meat in D.G. Khan Division show the largest productivity gaps compared to international standards. This highlight historical efforts in augmenting milk yield through artificial insemination, which had minimal impact on overall milk production. To achieve higher milk yields, genetic advancements and cross-breeding of cattle with high-yielding exotic breeds are essential.

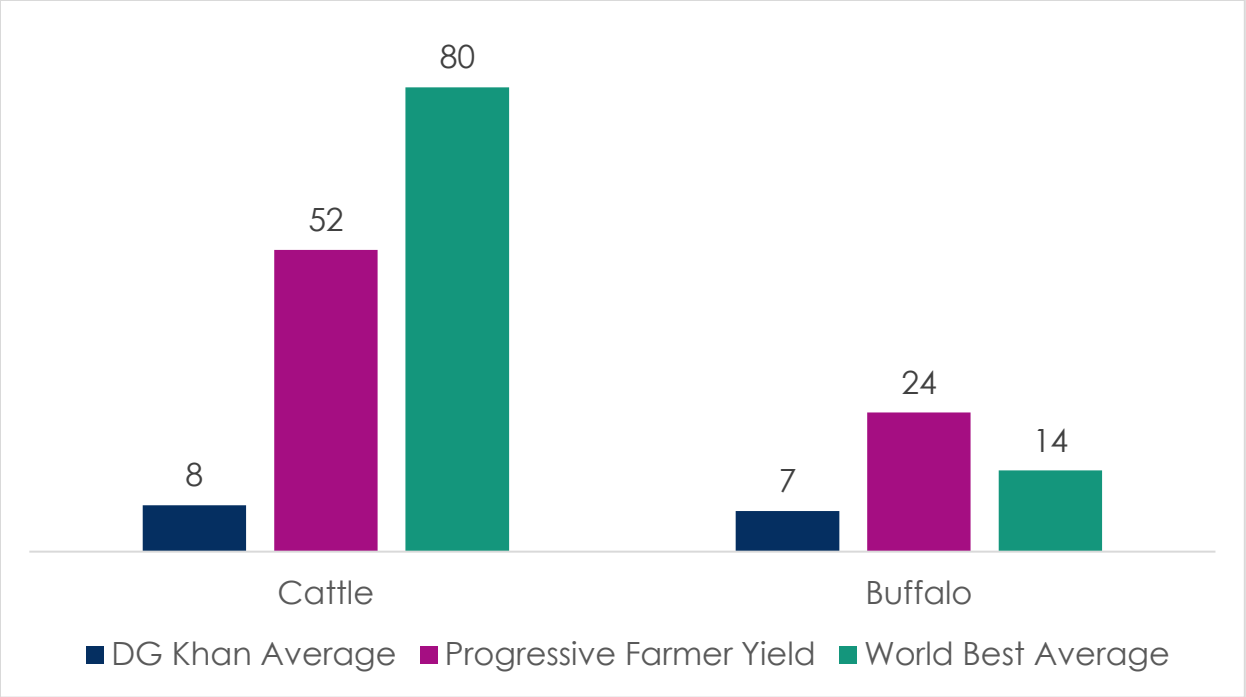


FIGURE 3: PRODUCTIVITY GAP OF MILKING & MEAT ANIMALS
SOURCE: **URBAN UNIT**

INEFFICIENT NUTRITION

In D.G. Khan, livestock health and productivity are severely compromised by limited fodder availability. Essential minerals like calcium and phosphorus, crucial for bone health and milk production, are often lacking. Seasonal variations exacerbate the problem, causing inconsistent nutrition for animals. Furthermore, high parasite loads hinder nutrient absorption, leaving many animals malnourished. A significant issue contributing to this inefficiency is the lack of coordination between the livestock department and the fodder research institute, which stymies efforts to develop and supply the necessary fodder varieties. This disjointed approach to nutrition management is detrimental to the wellbeing and productivity of livestock in the area.

This region is one of the country's major providers of small ruminant meat. However, indigenous farmers and shepherds in rural areas still rely on traditional fodders to raise their animals. A diverse range of plants, including trees, shrubs, herbs, and grasses, holds traditional significance for their fodder value. While various types of flora are used as fodder, regional grasses are considered a more reliable source for small ruminants. This preference is likely because grasses are more

palatable than other shrubby fodders. Additionally, grasses can grow abundantly in various seasons throughout the year, making them more accessible for ruminant feeding. It is reported that grasses constitute 53% of the total ruminant feed. Several factors contribute to this reliance on grasses, as detailed below.

- There is gap between the required and availability of feed and fodder for livestock
- The fodder domain is under the agriculture department while the livestock nutrition requirement varies by area and there is no integration between these departments.
- There is huge deficiency of required minerals in the animals causing low productivity and also low strain to the disease.
- Almost 50–60% of the feed requirements of these animals are fulfilled from grazing along with wheat straw and some green fodder which could not fulfilled the nutritional requirements

TABLE 1: MINERAL STATUS OF BLOOD, SOIL AND FODDER

Districts	Deficiency in Blood	Deficiency in Soil	Overall deficiency in the blood of animals in zone
DG Khan	Zn	K, Zn, Mg	Ca, P, Na, K, Cl, Zn, Cu, Fe
Muzaffargarh	Na	Na, K, Zn,	
Layyah	-	-	
Rajanpur	-	-	

DISEASE SPREAD

A significant gap exists between the demand for Foot-and-Mouth Disease (FMD) vaccines and local production in D.G. Khan. The Foot-and-Mouth Disease Research Center (FMDRC) produces only 8 million doses per annum, which accounts for less than 1% of the total requirement. Additionally, imported vaccines cover only 5% of the demand. To address this shortfall, the Livestock and Dairy Development (L&DD) department spends 1.8 billion Rs annually on vaccine imports. This inadequacy in vaccine availability contributes to the spread of disease and highlights the urgent need for increased local vaccine production to meet the vaccination requirements.

Livestock in DG Khan, Pakistan, are vulnerable to various diseases, both infectious and non-infectious due to high movements of the animals in the region. Common diseases include Foot and Mouth Disease (FMD), Peste des Petits Ruminants (PPR), Brucellosis, and Mastitis. These diseases significantly impact the health and productivity of livestock, leading to reduced income for farmers and decreased food security for communities. Effective disease control measures, such as vaccination, biosecurity, and early detection and reporting, are crucial for preventing and managing disease outbreaks.

However, there are significant challenges in the availability of vaccines for livestock diseases in DG Khan. There is a substantial gap between the demand for FMD vaccines and local production. The FMDRC currently produces 8 million doses per annum, which is less than 5 percent of the total requirement of 180 million doses, as illustrated in the graph below.

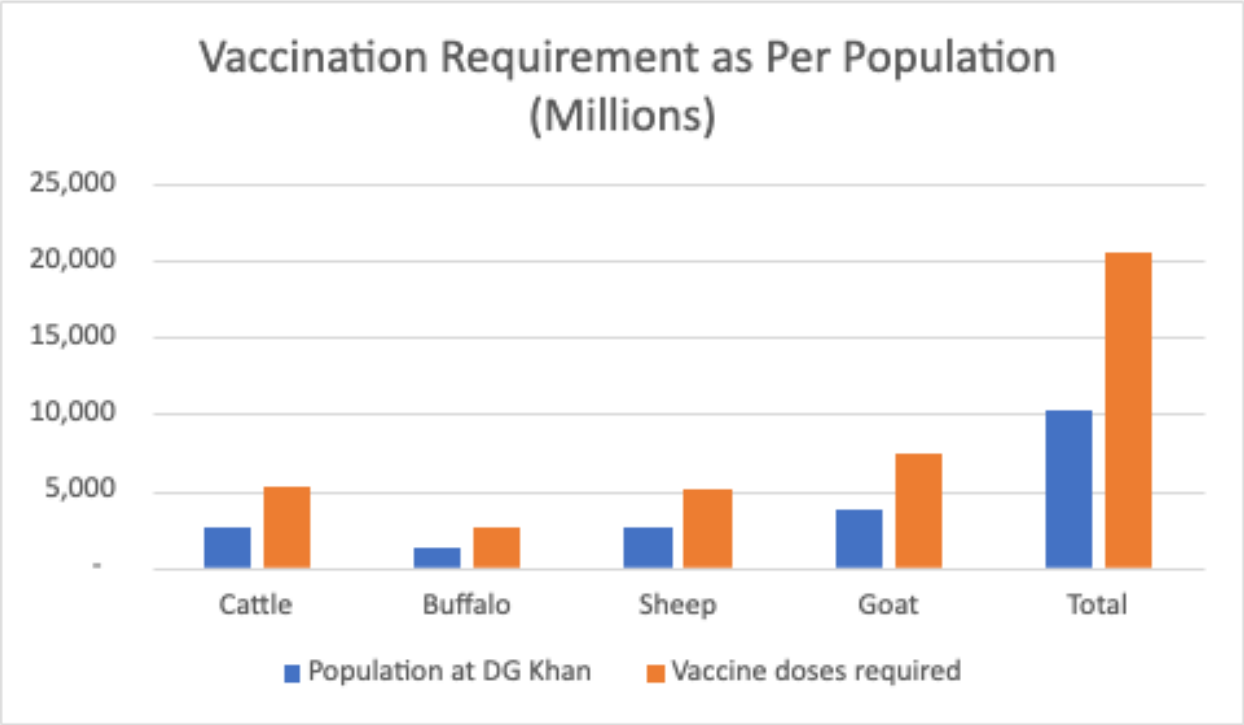


FIGURE 4: VACCINATION REQUIREMENT AS PER POPULATION
SOURCE: **LIVESTOCK AND DAIRY DEVELOPMENT DEPARTMENT**

The government import 54 million doses per year which is 25 to 30 percent of the total demand so, there is a huge gap exist in the vaccine requirement and availability although L&DD spending 1.8 B Rs per annum for vaccine import which is a huge pressure on the local exchequer. Moreover, there are certain other factors affecting the vaccination process and causing disease spread, including:

- Supply chain disruptions: Interruptions in the supply chain, such as production shutdowns or shipping delays, can affect the availability of vaccines.
- Financial constraints: The cost of vaccines may be a barrier for some farmers, particularly small-scale and low-income farmers.
- Lack of awareness: Some farmers may not be aware of the importance of vaccination or may not have access to information on available vaccines.
- Limited veterinary services: In some areas, there may be a shortage of trained veterinary professionals to provide vaccine administration and related services.

- Political and social instability: Political or social instability in the region can also affect the availability of vaccines, as well as the delivery of veterinary services.

It is important for the government and veterinary authorities to provide support and resources for disease control and to educate farmers on best practices for preventing the spread of disease. Additionally, international cooperation and exchange of information and best practices can help in addressing the issue of diseases in livestock in DG khan and other areas.

MARKETING PROBLEMS

Livestock marketing in DG khan division, like in other regions, faces several challenges. Most prominent of them is the contribution of the corporate sector is very restricted in the livestock sector, which is almost 1%, and Contribution of the commercial sector in the livestock sector is around 4%, due to this poor value chain linkages and low value addition and processing of the meat and dairy products as shown in the graph below.

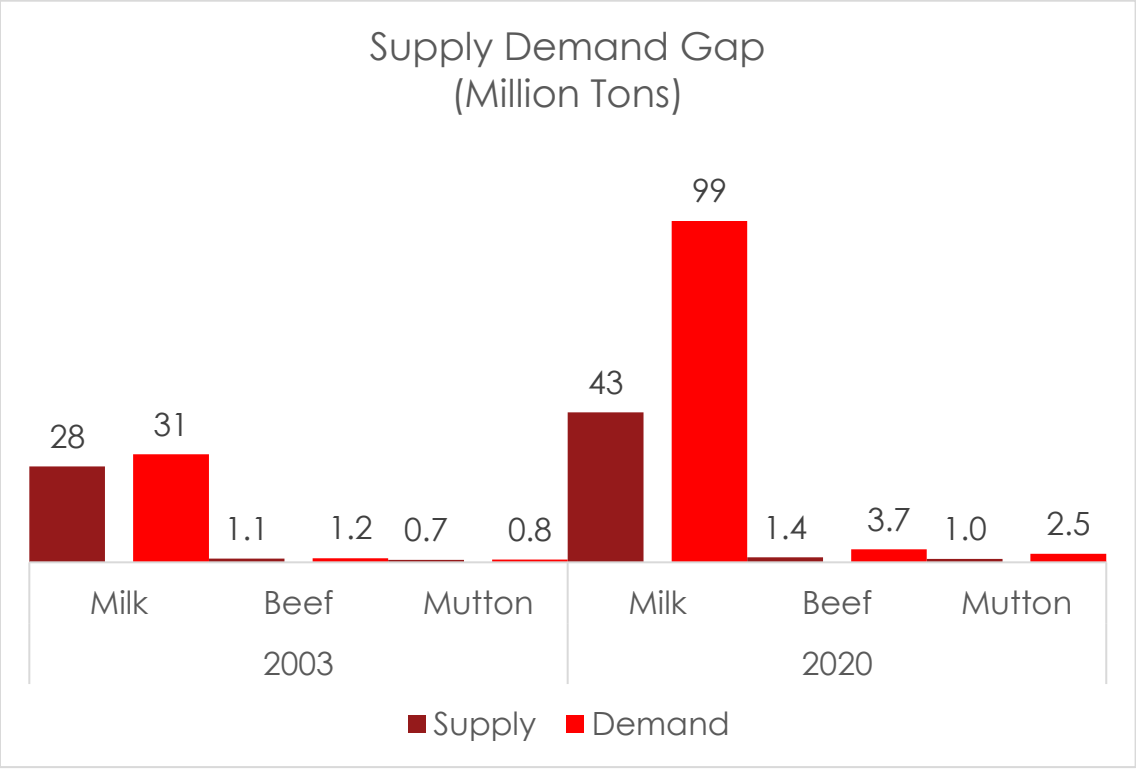


FIGURE 5: MARKET DEMAND & SUPPLY GAP
SOURCE: **LIVESTOCK AND DAIRY DEVELOPMENT DEPARTMENT**

Many other factors are also affecting as given below:

- Lack of proper infrastructure: A lack of proper facilities for the storage, transportation, and sale of livestock can create bottlenecks in the marketing chain and lead to price reductions for farmers.
- Information asymmetry: Farmers may not have access to current market information and prices, making it difficult for them to make informed decisions about when and where to sell their livestock.
- Middleman exploitation: Intermediaries, such as traders and commission agents, often play a significant role in livestock marketing and can exploit farmers by offering low prices.
- Health and disease management: Poor health management of livestock can lead to disease outbreaks and reduce the quality and price of animals.
- Regulations and policies: The existence of complex regulations and policies can create barriers to entry and restrict competition in the livestock market.

Addressing these issues requires a multi-stakeholder approach, including the development of better infrastructure, increasing access to market information, promoting competition, and improving health management practices.

INSTITUTIONAL CAPACITY

The current facilities are insufficient to meet the needs of the growing population. With the increasing number of residents, it is essential to establish facilities in every Union Council (UC) especially in the remote areas to address the rising demands. The data in the figure below shows the number of Veterinary Hospitals (VHs), Veterinary Dispensaries (VDs), Veterinary Clinics (VCs), and Slaughterhouses in the city of DG khan. According to the data, DG khan has a total of 41 Veterinary Hospitals, 161 Veterinary Dispensaries, 138 Veterinary Clinics, and 17 Slaughterhouses.

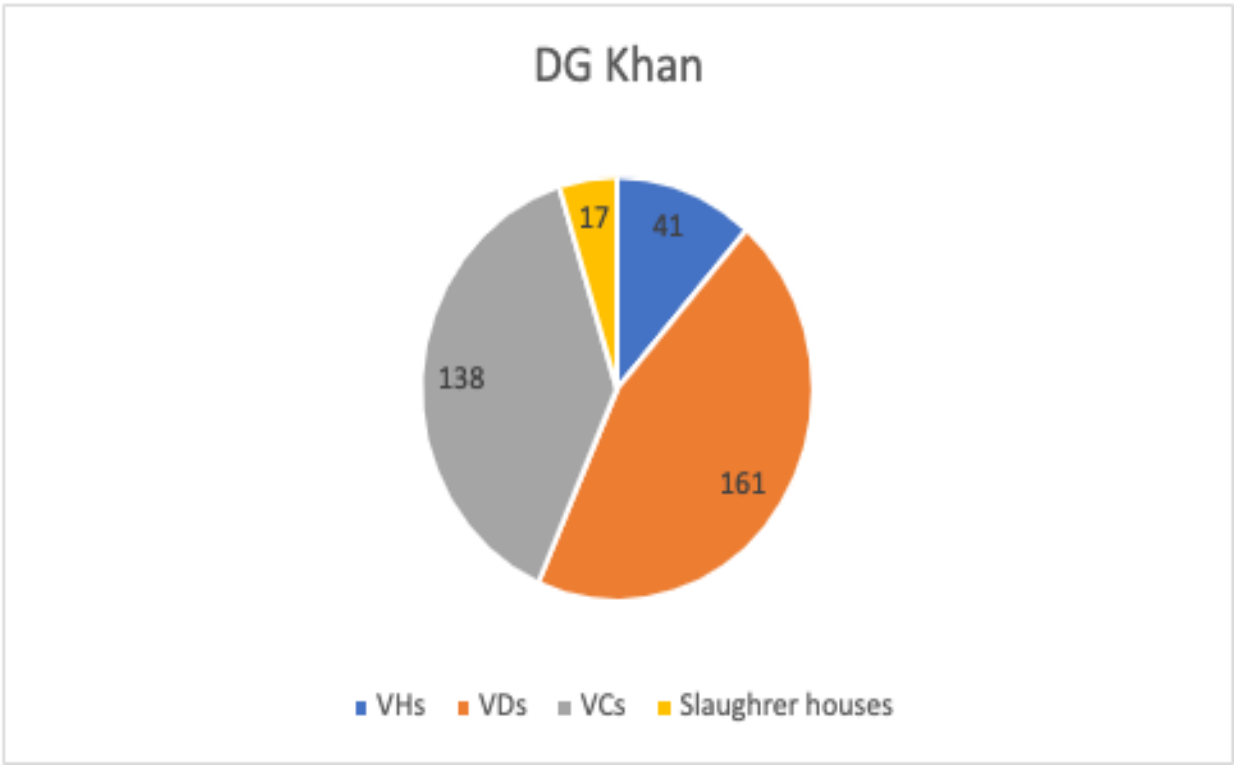


FIGURE 6: NUMBER OF LIVESTOCK FACILITIES
SOURCE: **LIVESTOCK AND DAIRY DEVELOPMENT DEPARTMENT**

This expansion is especially crucial for ensuring the availability of veterinary services, which have previously been insufficiently emphasized. Additionally, while the focus has primarily been on veterinary services, extension services have been neglected, creating a significant gap in comprehensive support. To address these shortcomings, it is imperative to revamp the departmental structure and implement necessary reforms to deliver improved and holistic services to the population.

OTHER ISSUES AND CHALLENGES

FARM MANAGEMENT

Poor farm management is a major issue in the livestock industry in DG khan division. It can lead to a range of problems, such as low productivity, reduced animal health and welfare, and decreased profitability. One of the key factors contributing to poor farm management is a lack of training and education for farmers. This can result in improper feeding and nutrition practices, insufficient animal health management, and inadequate housing and facilities. Furthermore, many farmers in the region struggle with limited access to credit and other resources, making it difficult for them

to invest in their farms and improve management practices. Addressing these challenges requires a combination of education and training programs, access to financial resources, and government support in the form of policies and infrastructure development. Improving farm management in the region will not only benefit farmers but also contribute to the overall growth and development of the livestock industry in DG khan division.

VALUE ADDITION

In DG khan division, there is a significant lack of value addition in livestock products, which results in lower prices for farmers and reduced competitiveness in the market. One of the key reasons for this is the absence of processing and packaging facilities for meat, dairy, and other livestock products. This results in a low-quality product that is often sold at a discount, and farmers receive a lower return for their efforts. Additionally, the lack of awareness about the benefits of value-added products and limited access to markets for these products can also contribute to the problem. To address this issue, there is a need for investment in processing and packaging facilities, along with training and education programs for farmers to improve their understanding of the value-added product market. This will not only increase the profitability of farmers but also help to develop a more sustainable and competitive livestock industry in DG khan division.

OBJECTIVES

01 Improving breed development, on-farm mechanisms, medical facilities and providing high-quality nutritional feed for enhanced productivity.

02 Contribute towards poverty alleviation and economic development of the province through the provision of an enabling environment and farmer support services in the livestock sector

03 Incorporating modern processing technologies to move towards high value-added meat and dairy products.

04 Strengthen local markets and price mechanism and increase accessibility to the international market by adopting international standards and certification

POTENTIAL BREEDS

Sr.	Animal	Potential Breed	
1.	Buffalo	Nili / ravi Kundhi Cross Breed	
2.	Cattle	Sahiwal Cholistani Foreign/Exotic Cross breed	
3	Sheep	Kajli Thalli Buchi	
4	Goat	Nukra (Rajanpuri) Teddy Beetal	

LIVESTOCK DEVELOPMENT STRATEGY

INSTITUTIONAL AND HUMAN RESOURCE DEVELOPMENT

In the context of DG khan Division's regional growth strategy, the Livestock Development in the region will be built upon strong institutional support and a well-qualified human resource capacity.

To establish this foundation, there is a need to identify and put into effect institutional modifications that focus on improving research, extension, and training capabilities. Within this framework, the government is committed to augmenting the capabilities of provincial livestock departments, suggesting a mechanism for implementing and coordinating Livestock Development, endorsing and reinforcing veterinary and livestock education and training, fortifying research facilities, and more. By equipping these institutions with the necessary capabilities, it is anticipated that all levels of these organizations will function at their best and play a role in fostering the advancement of the livestock sector. The strategy comprises the following strategic measures.

STRENGTHENING AND RESTRUCTURING LIVESTOCK INSTITUTIONS

With the enactment of the 18th constitutional amendment, provincial livestock departments are now tasked with an expanded role in backing the various elements set forth in the vision document. Several of these organizations, including those within the livestock department, grapple with shortcomings like inadequate staffing, constrained budgets and resources, and a dearth of training

prospects. To tackle these obstacles, it becomes imperative to enhance the capabilities of these institutions through a thorough institutional assessment and the execution of a robust plan for capacity and institutional development. This will empower them to make a meaningful contribution to the realization of the objectives.

CREATING A POOL OF ANIMAL HEALTH WORKERS

To address the limited presence of public veterinary staff across Division in relation to the growing livestock population, there is a need to establish a large pool of animal health workers who can effectively meet the needs of livestock farmers in their communities. These workers will serve as a crucial link between state-of-the-art research and on-ground livestock management practices. By providing first aid, regular vaccinations, and acting as liaisons between farmers and veterinary staff, and will contribute to improved husbandry practices and livestock productivity enhancement.

IN-SERVICE AND PRE-SERVICE TRAINING REGIME

Public sector universities across the country are currently providing training to undergraduate students in the DVM program, with graduates finding employment in both public and private sectors. However, there exists a capacity gap between these graduates and the sector's technological and research needs, except for a few universities that have improved their curricula recently. To address this, there is need to support veterinary and livestock faculties in public sector universities, enhancing their pre-service training programs and transforming them into centers of excellence. Collaboration with provincial livestock departments and extension staff will ensure the direct dissemination of the latest practices into the field. Additionally, international linkages, joint programs, study visits, and research projects could be facilitated.

COMPREHENSIVE CURRICULUM REVIEW AND IMPROVEMENT

To enhance in-service and pre-service training, a comprehensive review of all livestock training curricula is crucial, ensuring their alignment with the evolving needs of the sector. These curricula will encompass technical content as well as areas such as extension methodology, communication skills, small business management techniques, and participatory techniques for forming farmer organizations

TECHNOLOGY TRANSFER OFFICES AT LIVESTOCK UNIVERSITIES

Following advancements in livestock research infrastructure, the establishment of technology transfer offices in selected universities is crucial. These offices will facilitate effective coordination and synergy between research and technology development. This transfer will enable further development and utilization of technology, improving production, productivity, and value addition in the livestock sector.

STRENGTHENING LIVESTOCK RESEARCH AND ACADEMIA-INDUSTRY LINKAGES

Aim is to establish a connected research network among public sector institutes to overcome resource challenges and traditional management practices. A web-based platform will enable collaboration, while substantial government funding will upgrade infrastructure and align the research agenda with private sector needs, covering areas such as disease control, genetic improvement, feed resources, and value addition. Close coordination with farmers and extension services will ensure practical testing of research interventions.

DISEASE SURVEILLANCE, ANIMAL HEALTH AND EXTENSION SERVICES

The livestock sector in DG khan is impacted by various livestock diseases, and the strength of preventive and curative veterinary services is crucial in managing these infectious and non-infectious diseases. To effectively monitor the health and productivity of animal populations, as well as the attributes of animal products and veterinary biologics, the widespread availability of quality veterinary services is necessary.

Therefore, ensuring easy and unrestricted access to high-quality animal healthcare services for farmers is a fundamental pillar of the livestock for DG khan. The following interventions should be adopted to enhance animal health delivery across division.

IMPROVEMENT IN ANIMAL HEALTH SERVICES DELIVERY

The current field support animal health services fail to meet the increasing needs of livestock farmers, leading them to rely on unqualified private veterinarians. To address this issue, the establishment of a qualified animal health workforce, the enhancement of livestock assistants' skills, and the strengthening of provincial livestock departments. Monitoring mechanisms will be improved to ensure field staff delivers services at an acceptable quality level. To meet the growing demand, the government will involve the private sector in curative animal health services through the development of guidelines and accreditation for quality assurance.

IMPROVED DISEASE SURVEILLANCE AND ESTABLISHMENT OF DISEASE-FREE CLUSTERS

An important aspect is the creation of a knowledge base on disease prevalence in different regions and the maintenance of an updated disease map. This will enable the implementation of effective control measures, enhance disease surveillance capabilities, leverage ICT-based solutions, and establish a robust animal disease reporting and epidemiology system. Emphasis will be placed on controlling common infectious diseases such as Foot and Mouth disease, PPR, HS, enterotoxaemia in livestock. The government will also develop disease-free zones in selected regions to meet international market standards and facilitate the export of high-quality livestock products through improvements in vaccination, disease control, and investments in livestock breeding and marketing infrastructure.

INSTITUTIONAL MECHANISM FOR DISEASE OUTBREAK MANAGEMENT

Outbreaks of infectious diseases in livestock have severe consequences for food security, including the loss of livestock products, high-value genetic livestock, increased production costs, trade disruptions, and hindered investment. The government needs to establish a robust institutional mechanism to effectively manage and minimize economic losses during disease emergencies. This will involve early warning systems, contingency plans, training, and collaboration with relevant

stakeholders to ensure a comprehensive emergency response, as well as the establishment of legal and administrative structures to handle such situations.

IMPROVEMENT IN DIAGNOSTIC REGIME

To enhance disease surveillance, existing institutional structures such as divisional directorate of disease surveillance and district diagnostic laboratories need to be strengthened. These labs will not only have improved capacity for diagnosing livestock diseases but will also expand their scope to include testing the quality of feed, milk, meat, and poultry products. Special diagnostic facilities for poultry should be established in areas with high poultry concentrations. The government could also explore private sector participation in setting up diagnostic facilities to ensure better public health and increased exports.

STRENGTHENING EXTENSION AND OUTREACH SERVICES

A key aspect of this strategy involves enhancing and strengthening extension services to improve the education and awareness of livestock farmers, especially in rural areas, and facilitate the adoption of new technologies for livestock production and animal health. This will be achieved by establishing and reinforcing livestock farmers training centers, organizing regular farmer field schools, conducting model farming practice demonstrations, and providing capacity-building opportunities for extension staff. These initiatives aim to bridge knowledge gaps, address training needs, and ensure the availability of effective livestock extension services at the grassroots level.

ROBUST ICT-BASED FARMER COMMUNICATION PROGRAMS

Given the extensive livestock production and the widespread presence of millions of dispersed livestock farmers in Pakistan, it is essential to establish a strong communication program that complements formal extension services. This program will prioritize disease control, livestock nutrition, farming practices, and marketing. The government could collaborate with international donors to leverage information and communication technology, capitalizing on the country's high mobile phone usage and local radio channels, to develop a modern farmer communication program.

LIVESTOCK PRODUCTIVITY ENHANCEMENT & MARKET ACCESS

Enhancing livestock management and productivity, along with improving marketing systems, is a vital component of Livestock Development. Despite being among the top five countries in livestock population, the sector grapples with issues of low productivity and subpar yields. The aim is to optimize the genetic potential of local livestock breeds through effective management practices and a viable breed policy. Livestock department should give priority to nutrition, farm practices, and strengthening the connection between research and extension services to establish a modernized livestock sector. Additionally, a key objective is to enhance market access for livestock producers, ensuring they receive better value for their products. To get higher outputs throughout the division, the following measures should be implemented.

IMPROVING DOMESTIC FEED SUPPLY AND ANIMAL NUTRITION

Livestock's growth and reproductive efficiency are closely tied to their diet, making balanced nutrition crucial. A key initiative in this area is to enhance animal nutrition by ensuring the availability of quality fodders throughout the year, improving silage and hay production, and providing balanced concentrate feeds with proper mineral inputs. By meeting animals' nutritional needs, the expectation is to increase their yield by 20% to 25%, reduce calving intervals, and expedite puberty. To support this effort, livestock department should hire designated extension workers who will be trained in preparing balanced rations and disseminating this knowledge within their communities. This approach will be integrated into a dairy/meat hub model that combines yield improvement services with farm produce marketing.

BREED MANAGEMENT AND LIVESTOCK IDENTIFICATION AND TRACEABILITY SYSTEM

Pakistan possesses world-class dairy buffalo and tropical dairy cattle, but effective management and continuous improvement are necessary. Special emphasis on this area, implementing a national livestock breeding policy in collaboration with livestock research institutions to conserve

indigenous breeds. Priority will be given to buffalos, DG khan, Cholistani, Red Sindh, Thari cattle, Beetal, Kamori, Pateri, and Bari goats. Additionally, there is need to strengthen institutional infrastructure for breed improvement and AI services regulation, ensuring integrated collaboration among government agencies, calf raising centers, semen production units, and AI extension services. Furthermore, research will be conducted to address the challenge of lacking a well-defined beef breed for optimal feed conversion ratio and increased meat yield.

RURAL INFRASTRUCTURE DEVELOPMENT

An efficient and well-maintained rural infrastructure plays a crucial role in livestock development. Investments in rural roads, water supply, transportation, storage, markets, electrification, communication, water management schemes, auction markets, and abattoirs are essential for boosting livestock production. Currently, rural infrastructure is insufficient and unevenly distributed, hindering the development of the rural economy. This includes improving farm-to-market roads, market infrastructure, and promoting alternative energy sources such as solar and biogas.

ACCESS TO MARKET FOR SMALL FARMERS

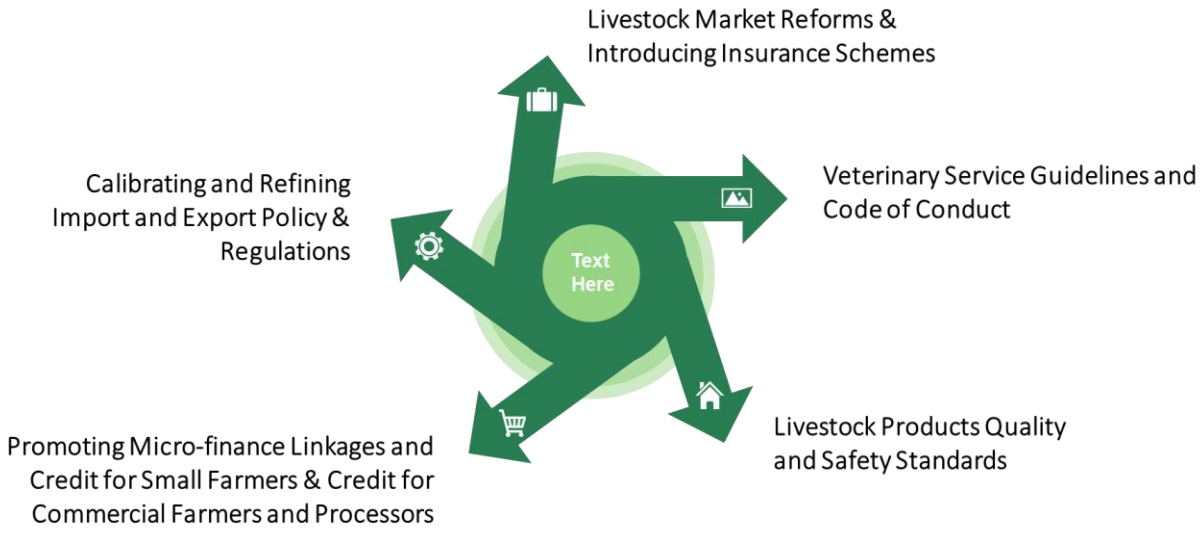
Efficient market access is a significant challenge for smallholder livestock farmers. In the dairy sector, the absence of milk cooling tank (Chillers) networks and limited presence of dairy cooperatives result in farmers selling their milk to informal middlemen at unfavorable prices. Livestock markets also face infrastructure issues and lack grading systems, affecting farmers' ability to obtain fair prices. To address these challenges, establishing systems for market information dissemination, fostering strong relationships between value chain players and farmers, implementing standards and grading mechanisms, and improving market infrastructure.

LIVESTOCK MARKET INFORMATION SYSTEM

Establishing livestock market information systems. These systems, potentially could be developed with private sector involvement, will deliver real-time market updates to farmers through SMS, radio, and digital displays within the markets. By collecting, analyzing, storing, and sharing livestock prices and volume information from multiple markets, including details on animal type, breed, age class, sex, and grade, these systems aim to empower farmers and traders to make informed decisions.

ACCESS TO FINANCE, SUSTAINABILITY, REGULATIONS & COMPLIANCE REGIME

The acknowledgment of the importance of certain prerequisites and cross-cutting considerations specific to the livestock sector in DG khan Division, which are vital for achieving the goals of the livestock Development. These include ensuring easy access to affordable financing, promoting sustainable development with a focus on gender and environmental aspects, and establishing a supportive regulatory framework that encourages compliance.



The following intervention could help the farmer's sustainability and growth.

LIVESTOCK MARKET REFORMS & INTRODUCING INSURANCE SCHEMES

In addition to the development of livestock market infrastructure discussed earlier, effective regulation of livestock markets is crucial to ensure fair pricing based on accurate weight measurements. The current regulatory system fails to address the exploitation of livestock owners and byproduct producers by intermediaries and middlemen. To address these issues, establish a regulatory framework with guidelines and standards for livestock markets, including provisions for housing, feeding, water availability, and disease monitoring. Performance contracting and public-private partnerships will be introduced to improve the quality of market services.

VETERINARY SERVICE GUIDELINES AND CODE OF CONDUCT

The government should establish and enforce guidelines and a code of conduct for both public and private veterinary service practitioners and para-vets. These guidelines will set standards for

service quality and outline their responsibilities in disease surveillance and outbreak management. It should include clear definitions of negligence, misconduct, legal obligations, and principles of animal welfare, extending to existing private sector individuals and diagnostic facilities.

LIVESTOCK PRODUCTS QUALITY AND SAFETY STANDARDS

To ensure that improvements in the livestock sector benefit consumers, the government should enhance food safety standards in accordance with international norms for dairy and livestock products. This includes regulations for milk chilling, the prohibition of milk adulteration, minimum pasteurization requirements, quality standards for milk handling and manufacturing facilities, as well as regulations for loose and processed meat, byproducts, and poultry farms. Strengthening institutional capacity in local governments will be necessary to ensure compliance with these standards.

CALIBRATING AND REFINING IMPORT AND EXPORT POLICY & REGULATIONS

A thorough assessment should be conducted to review the import and export policies and regulations regarding livestock, livestock products, and input support such as live animals, dry milk, whey, etc. The aim is to ensure that the policy framework is strategically aligned for sustained growth in the medium and long term, while eliminating any distortions that may hinder progress. To facilitate the growth of the livestock sector, active engagement with relevant public and private stakeholders will be undertaken, encompassing a comprehensive policy review that encompasses the entire sector, including machinery, equipment, feed ingredients, feed additives, medicines, vaccines, and more.

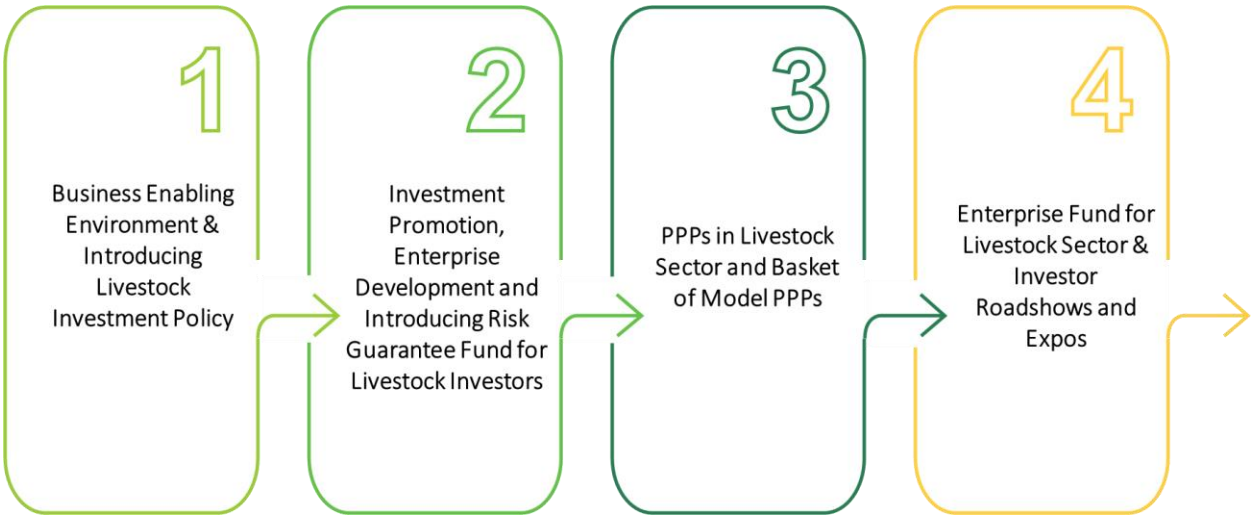
PROMOTING MICRO-FINANCE LINKAGES AND CREDIT FOR SMALL FARMERS & CREDIT FOR COMMERCIAL FARMERS AND PROCESSORS

In light of the livestock sector's structure, which involves numerous small farmers and lacks corporate farming, establishing connections with these farmers becomes crucial for private investors interested in the upstream value chain. To integrate them into modernization efforts and encourage investments, provincial governments should collaborate with microfinance organizations to ensure access to small loans. This approach not only relieves investors of the burden of supporting farmers but also promotes a seamless value chain and aligns livestock investments with the government's poverty alleviation agenda. Furthermore, a group-based

financing scheme for small farmers engaged in agri-related activities, and efforts should made to expand credit availability through drafted guidelines for livestock, fisheries, and poultry financing.

INVESTMENT PROMOTION AND ENTERPRISE DEVELOPMENT

The livestock sector's promotion and the successful realization rely heavily on adequate resources and investments. The government's role will be to act as a facilitator and catalyst, establishing a favorable environment that encourages the active and competitive involvement of the private sector in all aspects of livestock production, processing, and marketing at local, regional, and global levels.



Meanwhile, the private sector will capitalize on these enabling conditions by making strategic investments in the sector. The following steps needs to be taken for a better investment attracting sector.

BUSINESS ENABLING ENVIRONMENT & INTRODUCING LIVESTOCK INVESTMENT POLICY

Despite Pakistan's agricultural nature, there is currently no specific agricultural investment policy in place, including one for the livestock sector. So, there is need to develop a national livestock investment policy that encourages private investments in the sector. This policy will outline incentives for future investments in prioritized sub-sectors and strategic areas of the livestock value chain. Additionally, the government should make plans to collaborate with donors to establish supportive mechanisms for investment incentives and creating a business-friendly environment.

INTRODUCING RISK GUARANTEE FUND FOR LIVESTOCK INVESTORS

Investors often seek guarantees to mitigate risks associated with their investments. These guarantees provide reassurance and confidence to investors, reducing their potential downside. To effectively manage such risks, it is prudent for the government to only offer guarantees for risks it is well-equipped to handle. However, providing sovereign guarantees at this level can be complex and significantly increase the government's contingent liabilities. To address these concerns, the government, with the assistance of donors, could establish a guarantee fund that specifically offers risk coverage in selected areas for investments in the livestock sector.

PPPS IN LIVESTOCK SECTOR AND BASKET OF MODEL PPPS

Despite the existence of public-private partnership laws, and initiatives such as the IPDF at the federal level, Pakistan has seen limited success in implementing PPPs, particularly in productive sectors such as livestock and dairy. The main challenge lies in the absence of viable projects that the government can offer to the private sector through competitive processes. The government should produce more projects based on PPP model rather than implementing all on its own. This will also encourage the private sector investment in this sector.

ENTERPRISE FUND FOR LIVESTOCK SECTOR & INVESTOR ROADSHOWS AND EXPOS

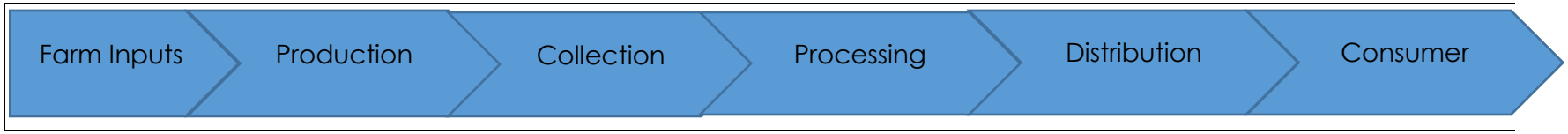
To generate national and international attention towards the livestock sector, organizing marketing roadshows and expos would be an effective approach. Some events would target specific national or international investors to attract private financing for selected projects, while others would create networking opportunities and foster linkages across the livestock value chain and different markets. Additionally, the government would establish an enterprise fund to encourage entrepreneurship among graduates by providing seed funding for selected students to start their own enterprises.

ECONOMIC IMPACT

By diligently employing these measures, the livestock sector can undergo a transformative improvement, significantly enhancing productivity for farmers. The expected results include a substantial increase in output, estimated to rise from 362 billion to 856 billion. Additionally, these initiatives are anticipated to lead to a notable increase in farmers' monthly earnings within the livestock sector, potentially rising from 75 thousand to 175 thousand.

Product	Population	Animal in Production	Yield	Output (tons)	Price	Value in PKR	Potential Yield	Potential Output (Tons)	Potential Value (Pkr)
Milking Cow	2,665,346	1,203,921	8	2,937,566	85	249,693,112,146	20	7,343,915	624,232,780,364
Milking Buffalo	1,331,796	601,564	7	1,052,737	95	100,010,034,207	15	2,255,865	214,307,216,159
Meat (Cow)	2,665,346	22,800	110	2,508	800	2,006,400,000	150	3,420	2,736,000,000
Meat (Buffalo)	1,331,796	41,400	130	5,382	700	3,767,400,000	160	6,624	4,636,800,000
Sheep	2,541,631	10,900	38	414	1,300	538,460,000	65	709	921,050,000
Goat	3,735,953	105,400	44	4,638	1,500	6,956,400,000	58	6,113	9,169,800,000
				4,003,245		**362,971,806,353**		**9,616,646**	**856,003,646,522**

DAIRY VALUE CHAIN



Farm Inputs	Production	Collection	Processing	Consumer
• *Land* • *Livestock Feed* • *Herd Mix* • *Machinery* • *Labor* • *Medication*	•*Informal: 95%* •*Formal: 5%*	**Informal** •*Katcha Dodhis* •*Pucca Dodhis* •*Contractors* •**Formal** •*Dodhis* •*Contractors* •*Direct Farmer Procurement* •*Commercial & Corporate Farming*	**Informal** •Producers •Processing Agents •Confectioners •Products Include: *Yogurt, Lassi, Ghee, Sweetmeats, Butter, Cream* •**Formal** •*Large Enterprises* •*Bakers & Confectioners* •*Products Include: UHT and Pasteurized Milk and Milk Products*	•**Informal:** •Direct Selling •Local Retail Shops & Confectioners •**Formal:** •Retail Stores •Company Owned Outlets •Home Delivery

KEY INTERVENTIONS

Sector	Breed Improvement	Nutrition and Feed	Farm Management	Marketing	Value addition
Dairy	• Conservation and preservation of indigenous breed • Provision of Stress free environment • Tagging, tracking and acquiring of elite male of Rojhan breed for Semen production • Provision of high yield breeder at community level for enhance breading	• Provision of Grazing spaces at community level with draught tolerant varieties • provision of silage making machine at community level • Providing feed (wanda) at subsidized rate at village level to ensure nutritional level in the animals	• Farmer training programs with the help of private sector to ensure proper livestock management • Excluding extension services from veterinary services and establishing a separate Institute for extension services of farm management and nutritional enhancement	• DE capping or ensuring market competitive pricing of the milk • Price flooring could be introduce for milk famers to sustain • Grading and Packing facilities and acts for buffalo milk	• Establishing milk collection points at community level for farmers to eliminate middle man from milk sale • Incentivize private sector to introduce value addition and exports in Dairy Sector e.g. Cheese

MEAT VALUE CHAIN

Livestock Input	Production	Marketing	Processing of Meat	Meat Market
• **Land** • **Feed and Nutrition** • **Herd Mix** • **Farm and Infrastructure** • **Farm Labor** • **Veterinary Care and Services**	• Production Systems • Large Ruminants: • Rural Subsistence Small Holdings –55-60% • Rural Market oriented Small Holdings 20-25% • Rural Commercial Medium-Sized Farming 10-15% • Peri-Urban Commercial Large-Seized Farming – 6-8% • Small Ruminants: • Nomadic • Transhumant • Sedentary Household • Occasion-specific (Eid-ul-Adha)	• Rural Farmers • Village Beoparis • Live-animal Market • Wholesales • Retailers • traders	• Recognized slaughterhouse • Unrecognized slaughterhouse • Formal-Meat Processors	• Recognized slaughterhouse • Rural Butchers • Urban Butchers • Wholesalers • Traders • Retailers • Export Market • Company related outlets

KEY INTERVENTIONS

Sector	Breed Improvement	Nutrition and Feed	Farm Management	Marketing	Value addition
Meat	• Import of Exotic A2A2 Semen for the non descript animals to enhance production. • Establishment of specialized breed and semen production unit for high milk yielders	• Goat & Sheep fattening program should also be introduced • Feed subsidy program for goat farmers could be introduced • specialized fodder crops could be introduced to fulfill nutritional requirement of the livestock	• Farmer training programs with the help of private sector to ensure proper livestock management • Excluding extension services from veterinary services and establishing a separate Institute for extension services of farm management and nutritional enhancement	• Small cattle mandi could be introduced to increase farmer outreach in the market • Price De capping or quality grading should be introduced • Modern slaughter houses with packing facilities needs to be introduced	• Incentivize private sector to introduce value addition and exports in meat Sector.

KEY INTERVENTIONS

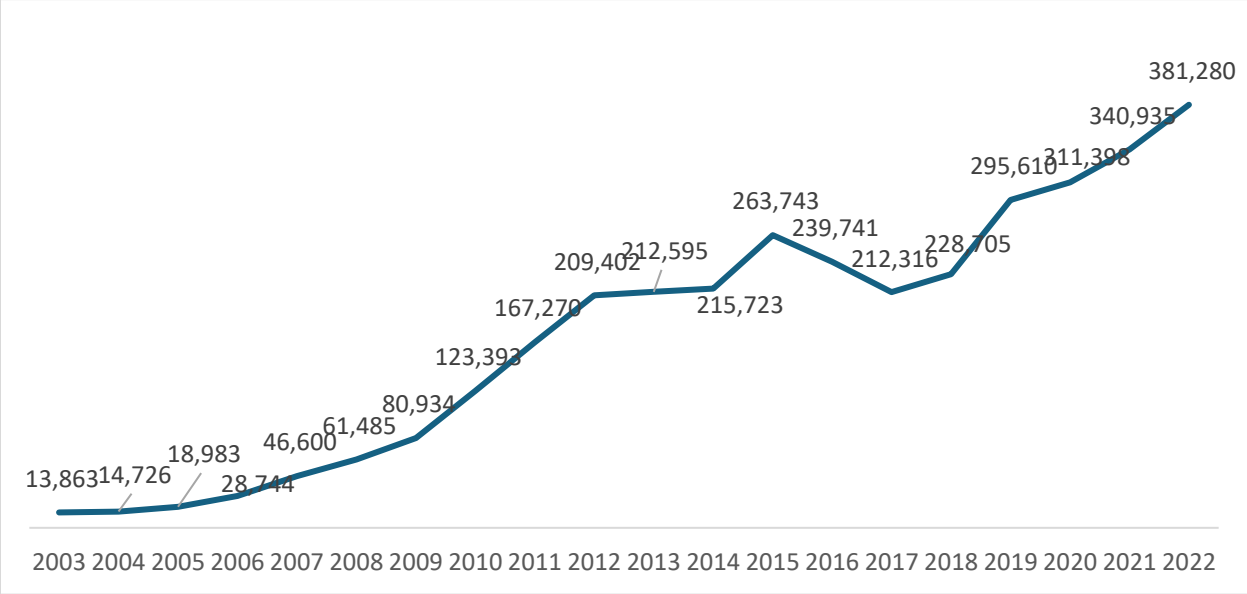
Sector	 Breed Improvement	 Nutrition and Feed	 Disease Control and Prevention	 Marketing	 Value Addition
Poultry	• Poultry research center should be introduced in the division to enhance poultry breed • Household poultry programs should be introduced and increased units in the existing programs	• Availability of Raw materials for commercial poultry should be ensured to cope price shocks in the poultry market I.e. GMO Soybean	• Strict enforcement of control measures such as biosecurity and vaccination at the national level to control and manage farm level endemic H9N2 AI outbreaks successfully.	• Involve private sector to introduce poultry meat packing and slaughtering units to ensure end level consumer health	• Incentivize private sector to introduce value addition and exports in poultry sector.

Mutton Hub Potential

DG Khan Division has a longstanding tradition of livestock farming, especially in small ruminants having around 30 % of Punjab share. The region's climate is well-suited for rearing sheep and goats, essential for producing high-quality organic mutton. There is a growing domestic and international demand for organic meat, driven by consumer preferences for healthier and environmentally sustainable food options. Proximity to major urban centers and improved infrastructure can facilitate access to both local and international markets, enhancing export opportunities for organic mutton from DG Khan. Establishing DG Khan as a brand for high-quality organic mutton can attract premium prices and differentiate its products in the marketplace.

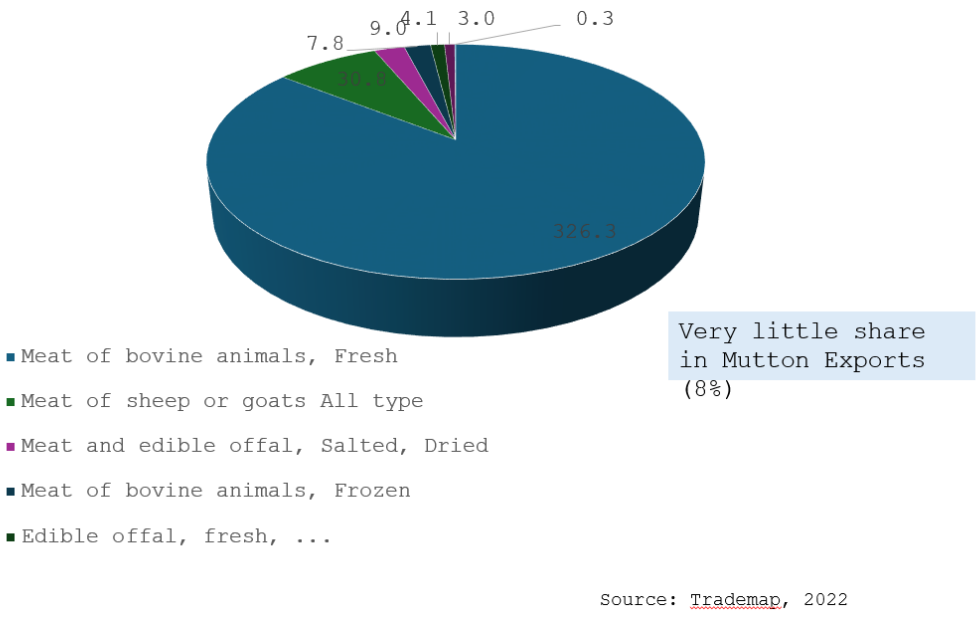
Pakistan Meat Exports Trend (US$ Million)

The trend in Pakistan's meat exports has shown a remarkable increase from 2003 to 2022. In 2003, the export value stood at $13.863 million, reflecting a modest beginning. However, over the years, there has been a consistent upward trajectory in the export figures. This steady growth highlights the country's expanding capacity and efficiency in the meat export industry. By 2022, the value of meat exports had surged to an impressive $381.280 million, underscoring Pakistan's significant progress and enhanced presence in the global meat market. This increasing trend not only demonstrates the sector's potential but also its growing contribution to the national economy.



Pakistan Exports, US$ Million, 2022

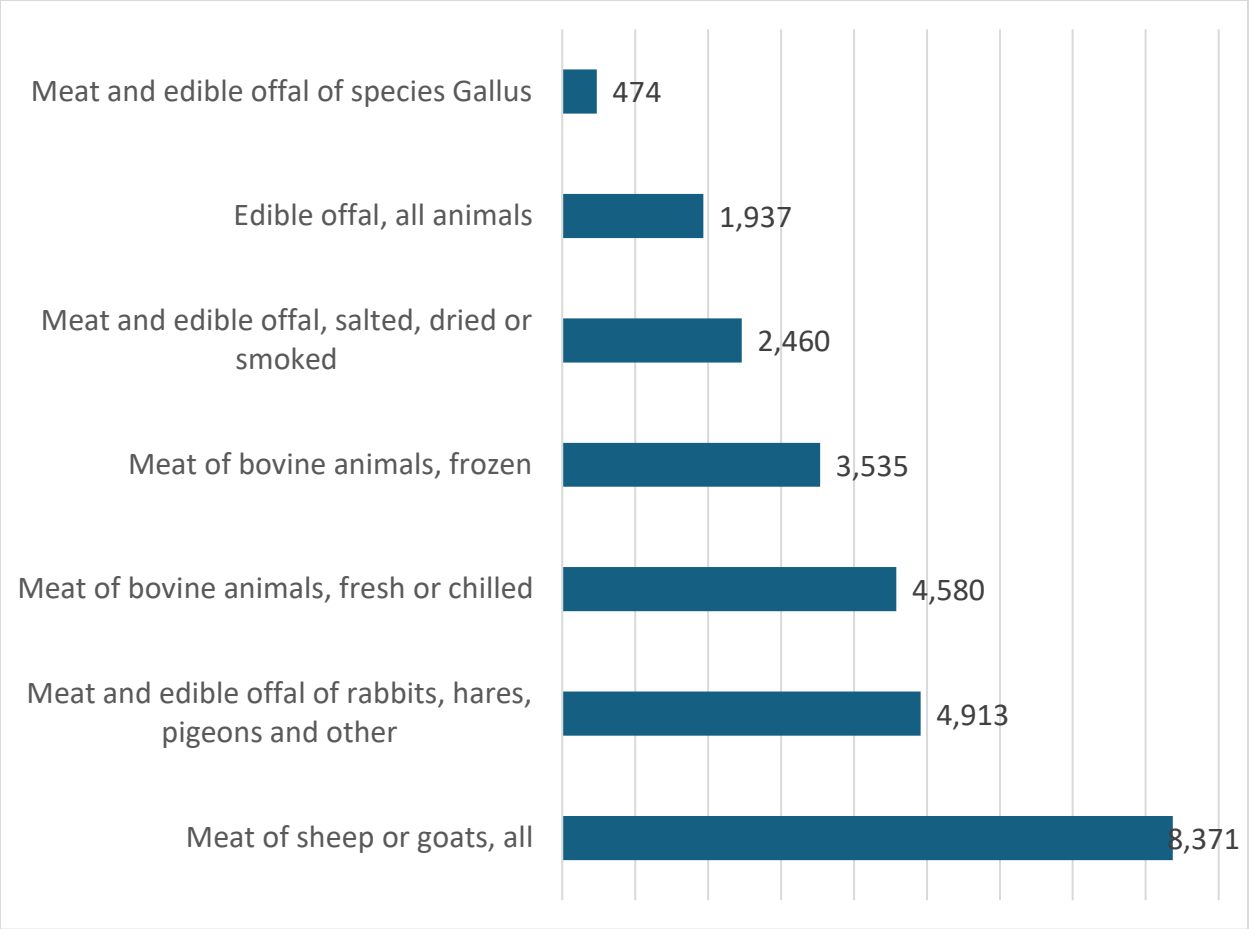
In 2022, Pakistan's meat exports showcased a diverse range of products, each contributing uniquely to the total export value. Among these, the export of fresh bovine meat emerged as the most significant, commanding the largest share of the market. In contrast, the export of edible offal from fowls of the species Gallus represented the smallest portion. Other notable categories included fresh and dried meat of sheep or goats, as well as various types of edible offal such as dried and fresh offal of rabbits, hares, and pigeons.



Source: Trademap, 2022

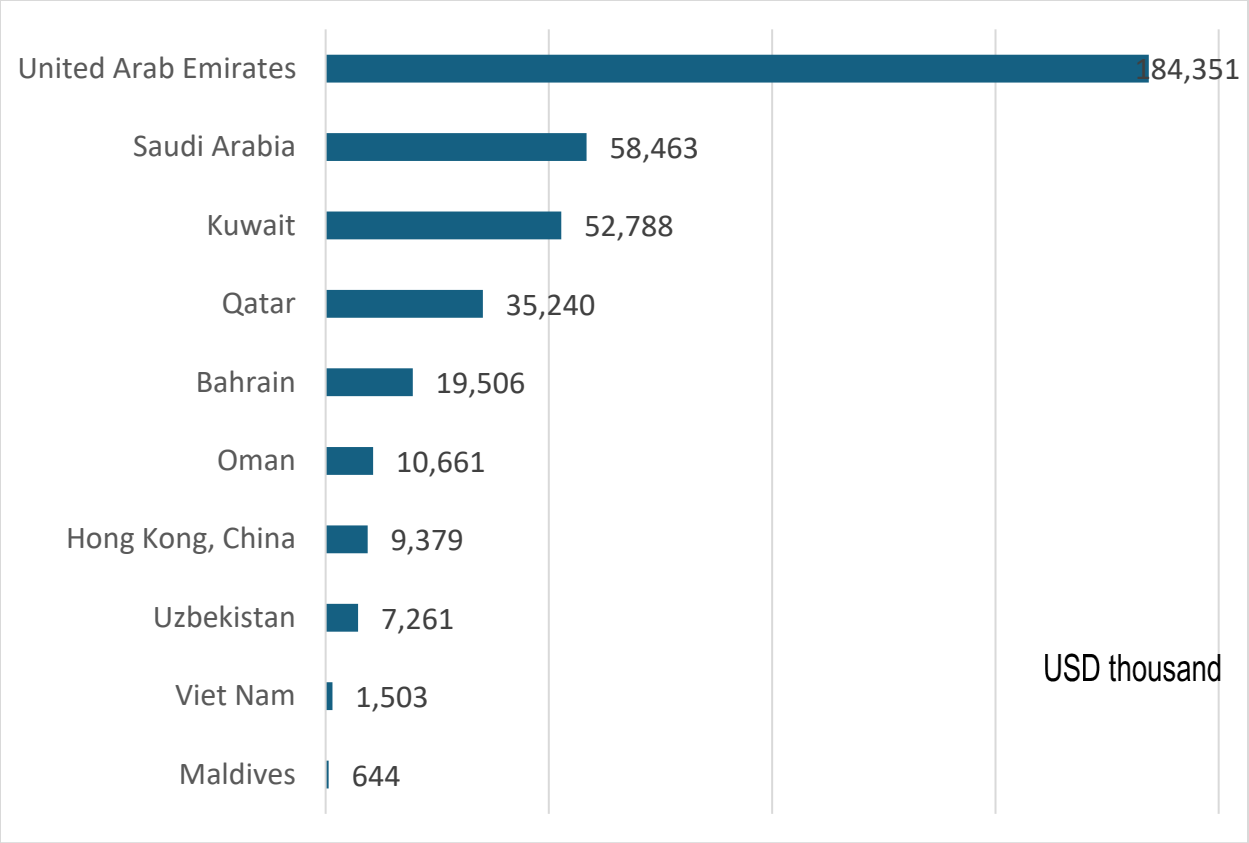
Pakistan's Export Value (USD/Unit)

In 2022, the export value of Pakistan's meat industry highlighted the premium positioning of sheep and goat meat in the global market. According to the graph, meat of sheep or goats achieved the highest value, commanding an impressive $8,371 per unit.



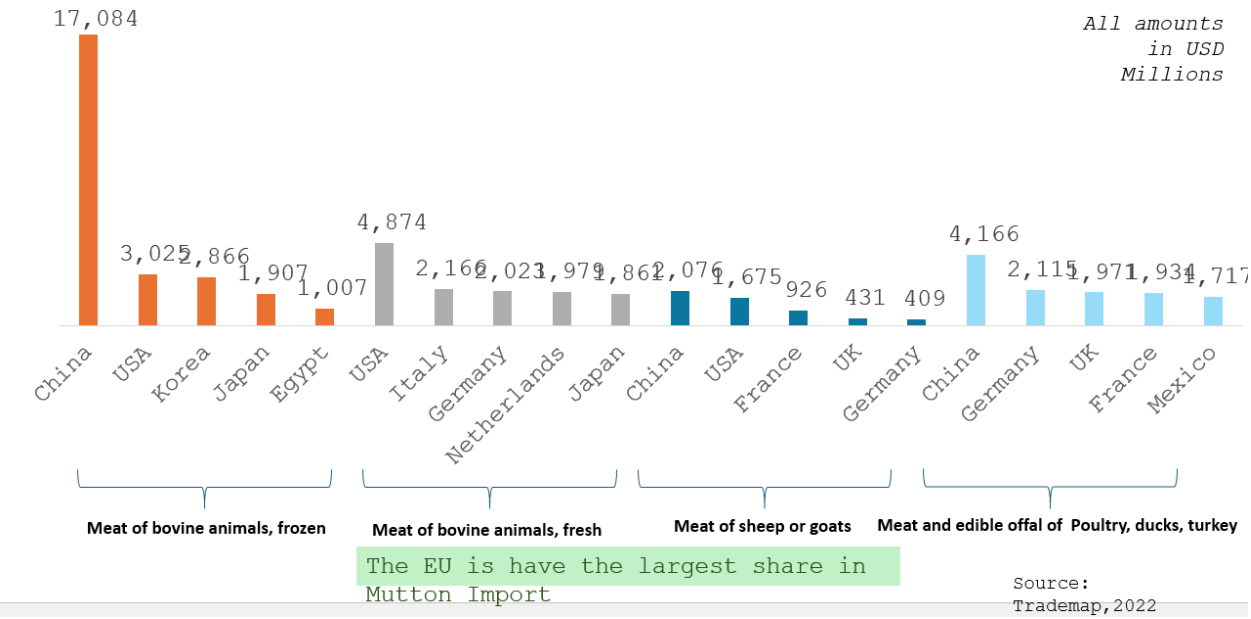
Pakistan's Top Ten Exporting Countries

Pakistan's top meat export destinations included the United Arab Emirates (UAE), Saudi Arabia, and Kuwait. The UAE was the largest importer, with an export value of $184.351 million. Saudi Arabia followed with $58.463 million, and Kuwait with $52.788 million.



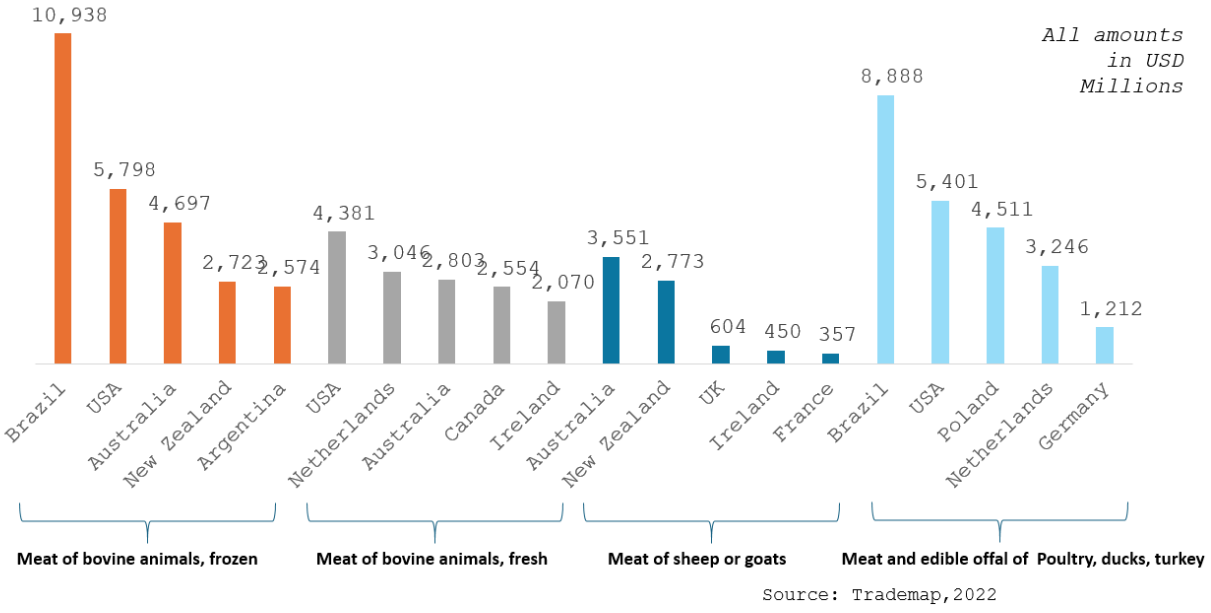
Importing Countries by Category

Different countries imported specific types of meat from Pakistan. China was the largest buyer of frozen bovine meat, poultry, ducks, turkeys, and sheep or goat meat. The United States, on the other hand, preferred fresh bovine meat and was the biggest importer in this category.



Exporting Countries by Category

Different countries led the export of various meat categories. Brazil was the largest exporter of frozen bovine meat, as well as meat and edible offal from poultry, ducks, and turkeys. The United States was the top exporter of fresh bovine meat. Australia stood out as the leading exporter of sheep and goat meat.

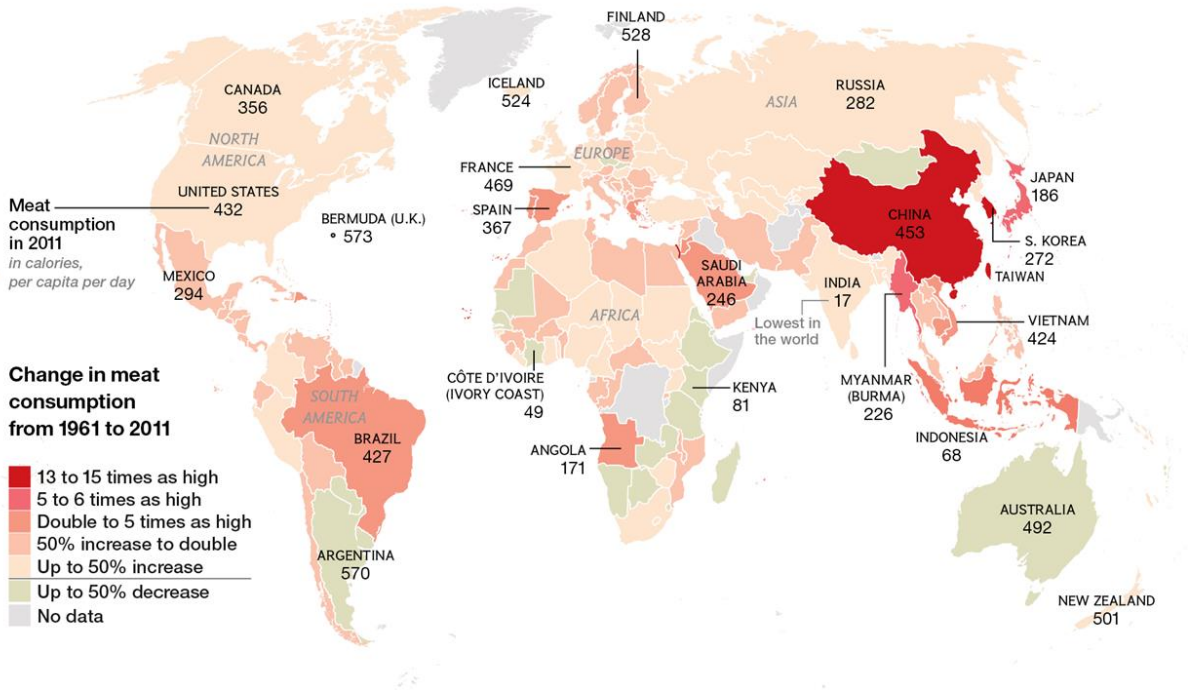


Global Meat Preferences

The past ten years have seen unprecedented growth in animal protein demand across the globe. Total global meat consumption rose by about 2 percent a year, nearly half of which came from China. Growth in aggregate population and per capita income are expected to continue to propel global demand for meat proteins. One set of countries—notably Anglo-Saxon markets, Argentina, Brazil, and China—displays a strong preference for meat. On the other hand, most countries in Asia–Pacific, much of the Middle East, Mexico, and the rest of Latin America show a low meat preference, with a higher share of protein coming from non-meat sources such as legumes and seafood.

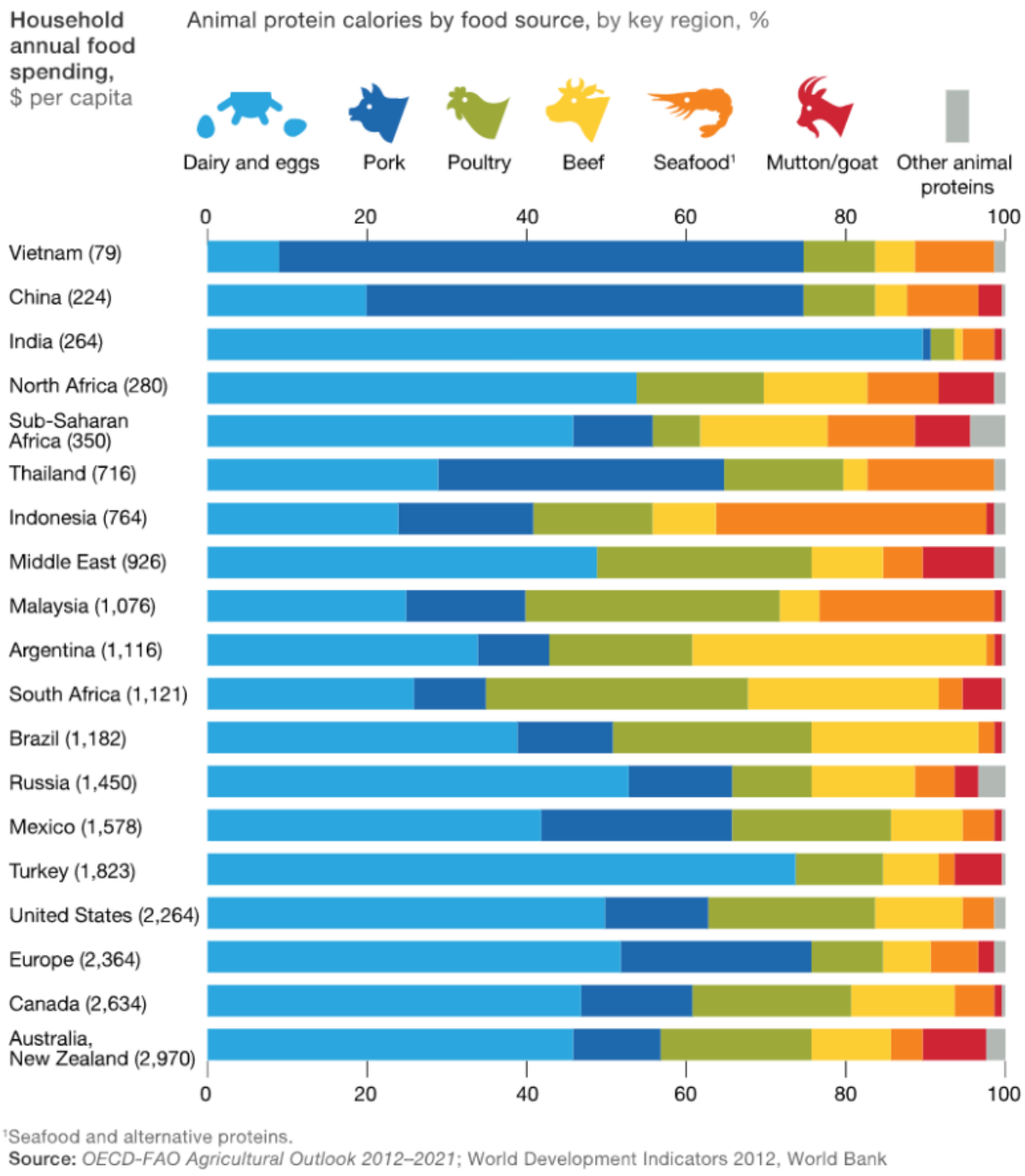
[1]Includes livestock derivatives (dairy, egg).
Source: *OECD-FAO Agricultural Outlook 2012–2021*; World Development Indicators 2012, World Bank

Changing Global Preferences



World Demand for Animal Protein

China and Middle East countries are expected to contribute more than 20 percent of incremental demand for beef and poultry. China is expected to contribute nearly 50 percent for pork and sheep meat. Although China's household spending share per capita is less than many countries in beef and poultry but its larger market size (1.386 billion) makes it the largest consumer in the world. Some growth pockets are driven largely by a cultural preference—for example, mutton and goat in the Middle East and Africa, or seafood and alternative proteins in Southeast Asia.

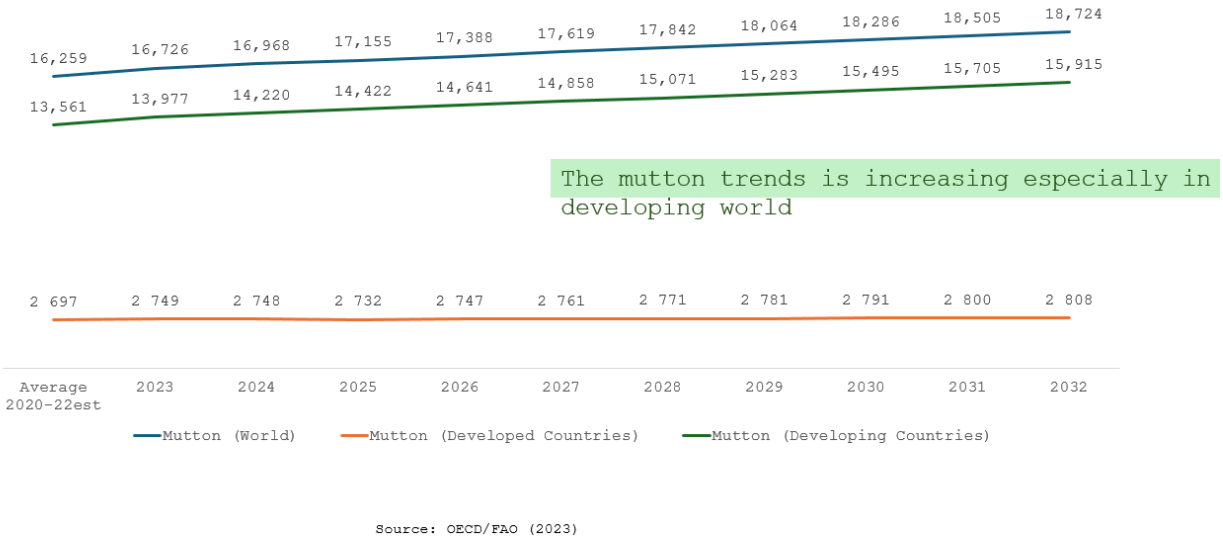


¹Seafood and alternative proteins.
Source: *OECD-FAO Agricultural Outlook 2012–2021*; World Development Indicators 2012, World Bank

Global Meat (Mutton) Trends/Forecast (Kiloton-Carcass weight equivalent)

The graph indicates a rising trend in mutton consumption, particularly in the developing world. This upward trajectory suggests a growing demand for mutton in these regions, possibly driven by increasing populations, rising incomes, and changing dietary preferences. As developing countries

experience economic growth, their meat consumption patterns are evolving, with mutton becoming a more significant part of their diet.

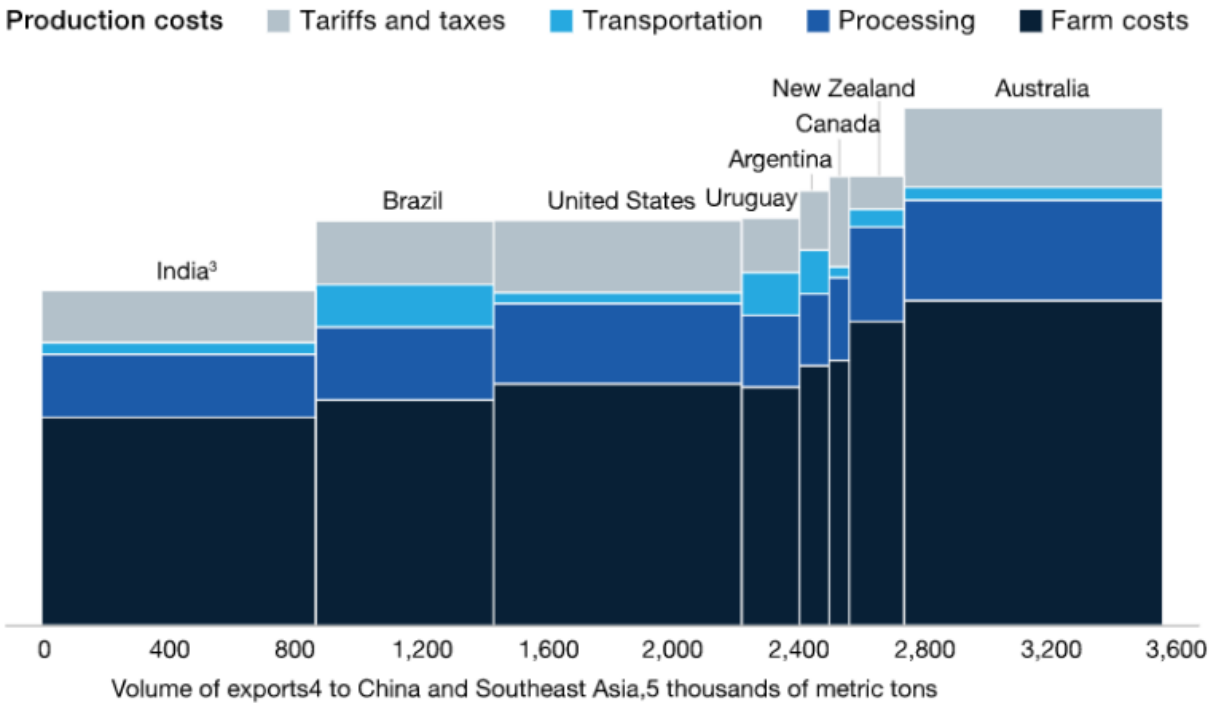


Source: OECD/FAO (2023)

Logistics for Animal Protein Export

At present, there is little difference in costs of delivered beef to Asia across producers in North and South America. Logistics costs for Brazil, Argentina, and Uruguay are higher so this creates demand for exports from Pakistan to Middle East and China. All in costs vary by less than $5 per 100 kilograms so there is little margin in processing and production.

Beef livestock all-in delivered cost curve, by country,[1] $ per 100 kilograms of beef (carcass weight) sold, 2016[2]



[1]Top exporters to China and Southeast Asia.
[2]Production cost data for Uruguay from 2014 (latest available data); data for India estimated as proportional to Latin American producers; all others from 2016.
[3]India's production is almost entirely buffalo and not cattle beef.
[4]Beef exports considered within cost curve include fresh, frozen, and dried meat (cuts and carcasses), as well as edible offal (harmonized system codes 201, 202, 20610, 20621, 20622, 20629, and 21020).
[5]Southeast Asia = Brunei, Cambodia, China, Indonesia, Japan, Laos, Malaysia, Myanmar, Philippines, Singapore, South Korea, Thailand, and Vietnam.
Source: agri benchmark; expert interviews; FAOSTAT; UN Comtrade; World Trade Organization; Agricultural Commodity Research Engine by McKinsey

Issues & Challenges

Breed	Nutrition & Disease	Production	Marketing	Processing of Meat	Export Market
• Unavailability of indigenous meat breeds • Lack of proper animal husbandry practices • Absence of R&D in meat breeds especially in mutton.	• The most prominent challenge for Pakistan to export meat is the disease outbreaks. • Inefficient nutrition and feed • Small scale farmers have low access and information to required feed. • The focus of open grazing of small ruminants in Pakistan	• Traditional farming practices. • lack access to extension services • lack of access to information and training • limited resources • lack of farmer participation • Small scale farmers with less than 5 heads.	• lack of cold storage facilities • transportation inefficiencies • Inadequate market infrastructure • Lack of farmer's access to markets	• Outdated infrastructure and a lack of advanced technology. • Issues related to sanitation, equipment maintenance, and training of personnel at slaughter houses. • Few processing facilities • Halal Certification and Compliance	• Quality Control and Standards • Diverse and complex regulations • International markets demand traceability in the supply chain to ensure the safety and quality of meat products • Lack of Cold chain infrastructure • Market Access and Trade Barriers • Documentation and Paperwork • Competitive Pricing

Strategy Interventions

The Strategy intervention for livestock to achieve growth and development is comprised of five important pillars:

I. Productivity Enhancement
II. Nutrition Improvement and Disease Prevention
III. Extension Services
IV. Technological Development
V. Bilateral Investment & Trade

Recommended Actions

Pillar	Action	Short Term	Medium Term	Long Term
Productivity Enhancement	• Increase productivity by adapting modern breeding practices	• Increase impostor production of quality semen	• Focus on the meat breads which have the international demand and potential	• Collaboration with international institutes to develop high yield local breeds
Nutrition Improvement and Disease Prevention	• Special fodder and nutrition for the small ruminants fatting varieties	• FMD vaccine production unit	• Establishment of a research center/ institute for livestock nutrition & forage research	• Establishment of disease-fre zones under joint collaboration
Extension Services	• Evolve the extension services to benefit livestock technology and innovative approaches for extension services	• Capacity building program	• Upscaling of existing knowledge of staff of L&DD department	• Innovative approach (whole family extension approach) should be replicated for the uniform understanding.
Technological Development	• Establishment of research and development institutes to attract large scale investments.	• Establishmen t of center for quality examination and standardizat ion	• Exchange of technology for value addition in meat products especially for mutton to enhance exports.	• Establishment of research and development centers for the development of new breed varieties and forage
Bilateral Investment & Trade	• Creation of business-friendly environment and encouraging B2B collaboration for local and international companies to indulge in livestock products value addition	• Incorporatin g and incentivizin g meat processing units in SEZs	• Certification of organic and halal meat products according to the international standard.	• Enhance cooperation between industries and institutions for research, development.

PROPOSED PROJECTS

RECOMMENDED INTERVENTIONS FOR LIVESTOCK (8,194) MILLION)			
Area of Intervention	Category	Intervention	Cost (Million)
Breed Improvement	Short term	Enhancement of Non-Descript Animal Production through Specialized A2A2 Semen Importation Program by Livestock Department's Production Wing	600
		IVF Technology Introduction for Breed Improvement in Commercial Farms through PPP Scheme	250
		Establishment a specialized R&D unit with integration of international research center on the development of indigenous breed.	200
		Revival of the Project "Establishment of Livestock Experimental Station for breed improvement & productivity enhancement in Taunsa District D.G.Khan."	574
	Medium-term	District-Level Record Keeping Units for Tagging, Tracking, and Acquisition of Elite Sahiwal and Neeli Ravi Males for Semen Production	150
		Backyard Poultry Program for the provision of Rural Household Poultry Units	245
		Upgrading and Maintenance of Fazilpur Research Station for R&D on Indigenous Livestock Breeds	100
	Long term	Establishment of R&D Unit for Small Ruminants, Focusing on the Nukra (Rajanpur) Breed, in Collaboration with International Institutes at Fazilpur Research Station	250
Nutrition and Feed	Short term	Introdcution of Specialized Unit for feed and nutrition with integration of Fodder research Institute at livestock directorate	200
		Provision of subsidized feed (wanda) at the village level during the winter to ensure nutritional levels in animals when fodder is unavailable.	250
		Development of Grazzing Spaces especially at Rangeland areas with the integration of forest department to enhance livestock health	100
	Medium-term	Goat and Sheep Fattening Program to Develop DG Khan Division into an Organic Meat Hub	125
		Specialized Fodder Crop R&D Unit in Collaboration with Fodder Research Institute to Meet Livestock Nutritional Needs in Local Environment	200

Area of Intervention	Category	Intervention	Cost (Million)
Disease Control and Prevention	Medium-term	State-of-the-Art Disease Diagnostic Laboratory with Ultrasound Facilities in Every Tehsil	200
		Establishment of Livestock Vaccine Production Unit for Region-wide Mass Vaccination to Foster Disease-Free Zone	350
	Long term	Molecular Investigation and Research Center for Field Strains of FMD, HS, ETV, PPR, Mycoplasma, Brucella, ND, and Avian Influenza	250
		Implementation of Technical Route Epidemiological Survey, Compulsory Immunization, and Barrier System with Quarantine Facilities to Control Livestock Movement	1200
Extension Services	Short term	Livestock Management Training Programs in Collaboration with Private Sector	100
		Establishment of a Dedicated Wing within the Livestock Department for Farm Management and Nutritional Enhancement Extension Services	200
	Medium-term	Modernization, Maintenance, and Facility Expansion under the Livestock Directorate DG Khan, including Solarization Include the establishment of new dispensiries at following Places Basti Khair Muhammad U/C Mubariki Tehsil Koh-e-Suleman Basti Khano Rind U/C Mubariki Tehsil Koh-e-Suleman Basti Nindwani U/C Theakar Tehsil Koh e Suleman Basti Mullah Saith U/C Mubariki Tehsil Koh-e-Suleman Basti Salim Jan U/C Mubariki Tehsil Koh-e-Suleman Basti Aldani U/C Theakar Tehsil Koh e Suleman Basti Ahmdani U/C Ahmdani Tehsil Koh e Suleman Repairing of Building of Veterinary Dispensary Murban Tehsil Koh e Suleman	500

Area of Intervention	Category	Intervention	Cost (Million)
Marketing	Short term	Incorporation of the corporate farming model as the community development scheme with the provision of milk collection and packing facilities at community level to uplift small farmers	300
		Standardization and Incentivization of Packed Milk Sales to Ensure Quality and Sustainable Prices at Farmer Level	150
	Medium-term	Development of Small Cattle Mandis at Union Council Level to Improve Farmer Access to Markets	100
	Long term	Establishment of Modern Slaughterhouses with Grading and Packaging Facilities under PPP models in each district.	800
		Establishment of Private Sector-Led Poultry Meat Packing and Slaughtering Units for Enhanced End-Consumer Health	200
Value addition	Long term	Stimulating Private Sector Engagement through Infrastructure Support, Tax Rebates, and Import Duty Reductions to Boost Value Addition in the Dairy Sector	200
		Stimulating Private Sector Participation through Subsidized or Tax-Free Access to Slaughtering and Processing Units and Machinery	200
		Incentivize private sector to establish poultry processing and value addition units especially in SEZs	200
Soft Interventions	Short term	Prvision of a Stress-Free Environment for Livestock to Boost Productivity	Soft
		Market-Driven Milk Pricing Initiative	soft
		Implementing Measures to Ensure Stable Supply of Raw Materials for Commercial Poultry Industry, Including GMO Soybeans	Soft

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