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# **USAID BUREAU FOR HUMANITARIAN ASSISTANCE (BHA) SUDAN**

## LIVESTOCK FEASIBILITY STUDY - DESK RESEARCH FINDINGS & INITIAL RECOMMENDATIONS

March 2022

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## ACRONYMS

BHA	U.S. Bureau of Humanitarian Assistance (Formerly FFP and OFDA)
COVID-19	2019 Novel Coronavirus or 2019-nCoV
GDP	Gross Domestic Product
IDP	Internally Displaced Populations
IFAD	International Fund for Agricultural Development
KIIs	Key Informant Interviews
MSMEs	Micro, Small, and Medium-Sized Enterprises
NGOs	Non-Governmental Organizations
PEPSE	Promoting Excellence in Private Sector Engagement (USAID project)
PSE	Private Sector Engagement
PSLA	Private Sector Landscape Assessment
RISING	Recovery in Sudan for Improved Nutrition and Growth project (USAID-funded)
SOW	Scope of Work
UN	United Nations
USAID	United States Agency for International Development

# Introduction

## I.1 Context

### I.1.1 Purpose of the Livestock Feasibility Study

The U.S. Bureau for Humanitarian Assistance (BHA) continues to explore opportunities to identify, engage with, and collaborate with the private sector in high-potential, action-oriented humanitarian assistance activities across key regions of its portfolio. In that regard, the Promoting Excellence in Private Sector Engagement (PEPSE) project recently conducted a private sector landscape assessment (PSLA) in Sudan, which mapped the country's private sector landscape and identified broad private sector engagement (PSE) or partnership opportunities. The PSLA findings revealed a strong private sector market push toward investment in the livestock value chains. Specifically, the PSLA team learned through its stakeholder interviews that conglomerates are especially interested in livestock as a strategic expansion, including research and development into the fattening process and quality enhancement, slaughtering, and export of live animals or processed meat products. The USAID/BHA team in Sudan confirmed these findings through recent, follow-up conversations with the private sector.

USAID/BHA sought to build on the initial USAID/BHA Sudan PSLA to conduct a feasibility study to better understand the potential role of USAID/BHA's target beneficiaries (i.e., farmers and pastoralists) in the expansion of the Sudanese livestock sector and opportunities and models for partnership with the private sector. The study primarily examined cattle but also explored other livestock, specifically sheep and camel value chains. The study aimed to specifically focus on private sector partnership opportunities and market-based models that will concurrently reduce poverty and build resilience for USAID/BHA's target beneficiaries and help the private sector to expand the livestock sector.

The objectives of the study include:

- Mapping the rural livestock sector value chain for cattle, sheep, and camel in Sudan, with a focus on small-scale producers, and identifying the challenges, bottlenecks, and potential entry points.
- Mapping the private sector actors (from micro-, small and medium- sized enterprises (MSMEs) enterprises to large conglomerates) interested in working within the livestock sector value chains of cattle, sheep, and camel, including their perceived barriers and needs for entering or expanding the sector.

- Understanding the potential engagement of and necessary buy-in from the Government of Sudan in expanding Sudan's livestock sector, including both federal- and state-level government agencies.
- Identifying how the livestock sector can help reduce poverty and vulnerability for USAID/BHA's target beneficiaries in Sudan, including farmers, pastoralists, disadvantaged women and youth, Internally Displaced Populations (IDPs), and host communities.
- Determining how best to engage USAID/BHA's target beneficiaries (i.e., farmers, pastoralists, disadvantaged women and youth, IDPs, and host communities) to expand the livestock sector, including the best potential entry points for engagement along the entire livestock value chain.
- Designing a potential engagement model for USAID/BHA support to expand the livestock sector, including the potential partners, roles, business models (e.g., farming and service contracts), entry points, and joint outcomes.
- Exploring and identifying intersections between livestock sector expansion and potential areas of conflict (e.g., the conflict between farmers and pastoralists) and ensuring that the Do No Harm approach/framework is used to analyze the impacts that the proposed engagement model may have on conflict.

## **I.2 Methodology**

### **I.2.1 Feasibility Study Design**

The PEPSE team and USAID/BHA co-created the focus and objectives of the feasibility study through an introductory kick-off meeting and subsequent conversations with USAID/BHA stakeholders based in Washington, DC and Sudan. Together, they designed the study context, objectives, implementation plan, deliverables, team composition, and timeline. USAID/BHA approved the final PSLA Scope of Work (SOW) on July 7, 2021.

### **I.2.2 Stakeholder Identification**

The team identified over 60 private and non-private sector stakeholders (**Annex I**) from throughout the livestock value chain (input service provision, financing, production, marketing, processing, distribution/export) as well as the enabling environment (local and federal government agencies, BHA implementing partners, NGOs and other humanitarian donors).<sup>1</sup> Mapping the stakeholders to the value chain and enabling environment functions within the livestock system, helped to identify any gaps in stakeholder identification. From there, the team

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<sup>1</sup> Inputs used in the stakeholder identification included the BHA/PEPSE PSLA stakeholder list, recommendations from USAID/BHA, the USAID/Sudan team, and contacts derived from the team's network and desk research.

ranked each contact as high, medium, or low priority to identify the preferred stakeholders for Key Informant Interviews (KIIs).

### **I.2.3 Desk Research**

The team conducted a desk review to gather baseline information of Sudan's livestock sector, focusing on cattle, sheep, and camel value chains in the Kordofan, Darfur, and the Blue Nile areas.

### **I.2.4 Interviews**

In conjunction with this desk research, the team conducted three remote, semi-structured interviews with federal government officials in Sudan as well as one in-person interview with a veterinary cooperative. These initial interviews focused on eliciting nuanced feedback and input on the potential engagement of and necessary buy-in from the Government of Sudan in expanding Sudan's livestock sector, including both federal- and state-level government agencies. See **Annex II** for the interview guides developed for each stakeholder group.

## **I.3 Limitations**

During the study, the Prime Minister of Sudan was detained by military forces in October 2021 which led to internet blockages and several rallies and demonstrations against the military coup and resulted in several deaths and injuries. The Prime Minister was reinstated at the end of November, but resigned shortly afterwards in January 2022. This has left the country without a functioning government and has led to frequent demonstrations and periodic restrictions to phone and internet access throughout the country. In addition, new conflicts erupted in Darfur and Kordofan since the start of the study. The fragility of the situation in Sudan made it impractical to proceed with the field visit or conduct further interviews with NGOs, donors, or the private sector as they were either not responsive or let us know that given the current situation, they were not available for an interview.

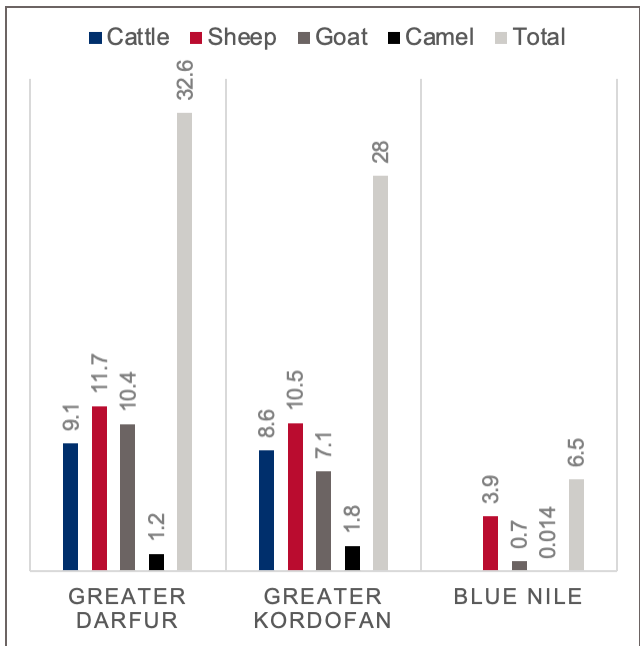
The team was only able to complete three interviews with public sector actors and one cooperative, prior to the political instability. Of the interviews the team conducted, three of the four were done by phone, due to concerns resulting from the ongoing COVID-19 pandemic. It is important to note that this report incorporates the aggregated opinions of a small number of interviewees. Together with the desk research, their insights and suggestions informed the recommendations but do not represent a complete stocktaking of the livestock sector in Sudan. The report is therefore designed to offer recommendations for next steps and initial high-level opportunities for USAID/BHA to explore further. Additional and/or follow-up conversations with potential stakeholders are needed to determine whether the opportunities are viable for both parties.

# 2. Desk Research

## 2.1 Characterization of the Livestock Sector in Sudan

Sudan ranks first to third among all African countries in the number of cattle, sheep, goats, and camels with an estimated total of 105.6 million heads (39.8 million sheep; 31 million goats; 30.1 million cattle; and 4.7 million camels). It is estimated that livestock accounts for 40% of livelihoods in Sudan and contributes around 25% to the national gross domestic product (GDP). Livestock has consistently provided more than 60% of the estimated value added to the agriculture sector GDP and is a substantially more important contributor than crop agriculture. The type of livestock also varies from region to region and, even in the same region, the type of livestock varies from state to state. As shown in **Figure I**, Greater Darfur has the largest number of total livestock among the three targeted regions. Sheep are the highest in number in all three targeted regions.

**Figure I. Number of livestock by Region**



Source: The Sudan Central Bureau of Statistics

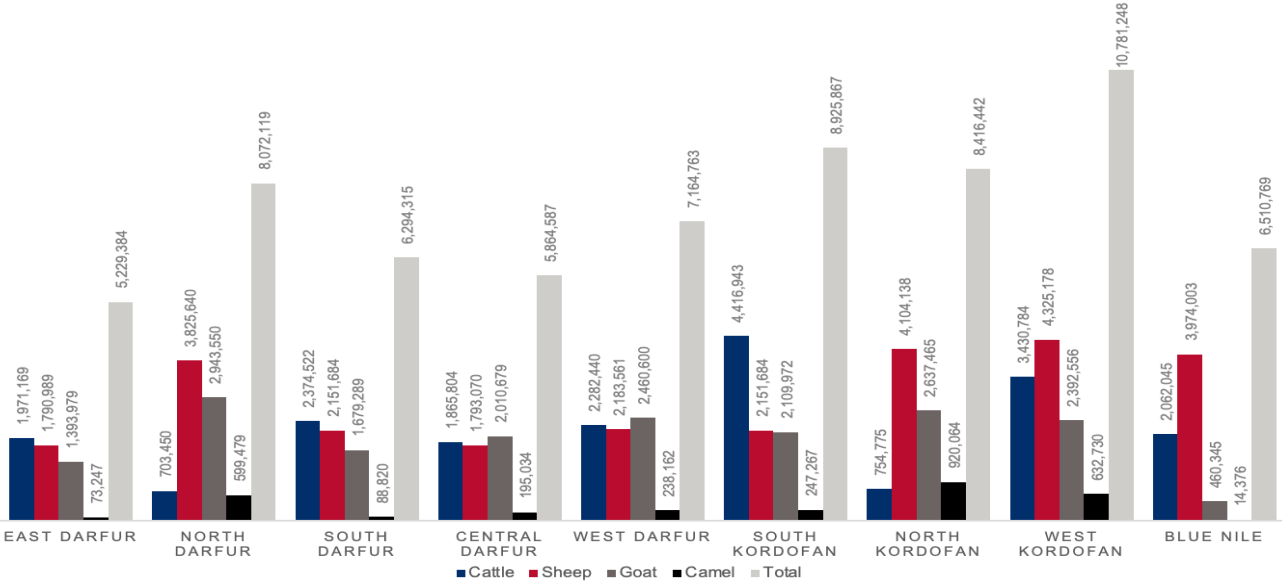
As shown in **Figure 2**, the Korodan states individually have the largest numbers of livestock as compared to states in Darfur or Blue Nile. Among all the states, West Kordofan has the largest number of livestock. In Kordofan, sheep are most prevalent, other than in South Kordofan where there are more cattle.

These figures have been gathered from The Sudan Central Bureau of Statistics, which are the numbers formally recognized by the Government of Sudan. With that said, there has not been a

national livestock census since 1975 (which covered the entirety of what is now Sudan and South Sudan). Since that time there have been a number of state level censuses which sometimes match and sometimes deviate from official estimates by a wide margin (based on modeling over generations). The 2010 International Fund for Agricultural Development (IFAD) livestock census in North Kordofan has shown a measurable shift to sheep, estimating over 22 million heads of sheep in North Kordofan, as compared to the 2.4 million reported by the 1975 census. This shift to sheep is also evident in South Kordofan (3.8 million heads of sheep estimated).

The majority of all livestock production, possibly 90%, although is difficult to determine due to the lack of updated data, comes from smallholders and migratory producers. The Sudanese economy is based on a combination of nomadic and sedentary pastoral and agro pastoral production by farming and herding households in almost every region and state. Although households engaged in agriculture have the highest rates of poverty, those that are engaged in animal husbandry, as compared to those in crop farming, have lower rates of poverty. For many of the landless poor, livestock are often the only assets they have and their products (milk, meat, eggs, wool) provide a direct or indirect source of income throughout the year. Livestock also provide a means for cash in times of need and rarely depreciate in value.

**Figure 2. Number of Livestock by State**



Source: The Sudan Central Bureau of Statistics

The local breeds, while adapted to the climate and the environment in the three areas, are characterized by low productivity in comparison with the region, especially for dairy production. The constant movement from one place to another makes livestock more muscular

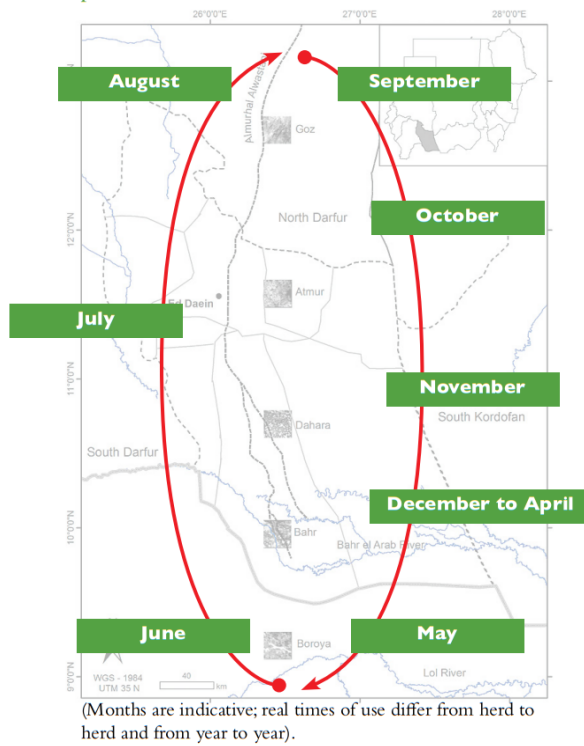


and less fattened, which reduces the quality of meat. In addition, there are limited veterinary services (animal health, disease control, vaccination, and veterinary extension) particularly in the three targeted regions.

Cattle and camel herders migrate seasonally, starting in the south at the beginning of the rainy season and moving north with the advancing rains (this migration pattern in eastern Darfur is shown in **Figure 3** and throughout the targeted regions in **Figure 4**). They stay in the north for better pasture and breeding conditions until the end of the rainy season or depending on availability of water and pastures. They then return south where there is more pasture, fodder, and permanent water sources to sustain their livestock through the dry season. This migration pattern also allows them to avoid the challenges that mud and flies present in the south during the rainy season. The migration back to the south at the end of the rainy season coincides with the post-harvest period, which allows livestock to graze on post-harvest crop residues and to fertilize farmer fields. Although it is a mutually beneficial relationship for herders and farmers, this interaction between farmers and herders during this migratory pattern has been undermined by conflict due to changing climatic patterns, competition over natural resources, changes from traditional to commercialized farming practices, and increasing monetary needs for production and livelihoods.

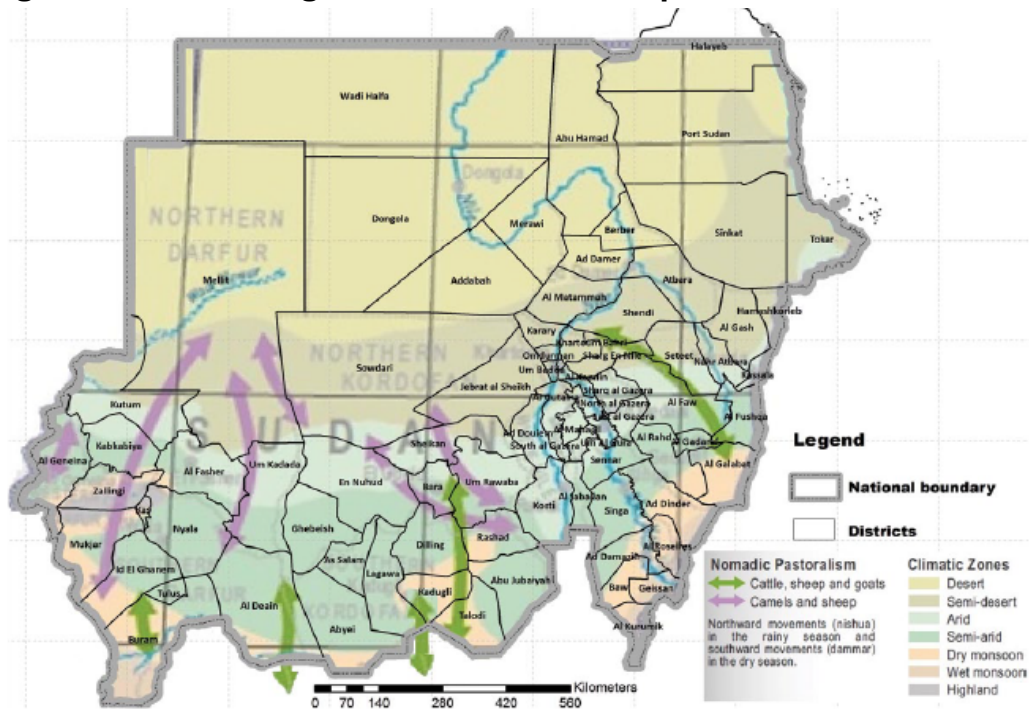
The pastoralist migrations routes, conflict, agricultural borders, and demarcation between land for farming and migration were historically managed through traditional leadership. When the government began allocating land for large, commercial farming areas, it became the role of the local or state government to regulate and formalize route demarcation. The allocation and demarcation processes included stakeholders and traditional leadership dialogues, however, there might have been instances when the government (the Bashir regime) acted in favor of farming area allocation which blocked routes for pastoralists.

**Figure 3. Migratory cycle for cattle pastoralists in eastern Darfur**



Source: Feinstein International Center: “Risk, Resilience, and Pastoralist Mobility” (2016).

**Figure 4. Seasonal Migration of Pastoralist Populations**



Source: IGAD Climate Atlas Sudan, retrieved from World Food Programme and Met Office, “Food Security and Climate Change Assessment: Sudan (December 2016).

Most producers sell their livestock in local weekly or seasonal markets which only offer limited business services and lack veterinary services in those regions. Large-scale pastoralists tend to sell mature livestock to traders in the larger markets along their migratory route and towards the northern end of the migration cycle, where prices are better. Small herd owners tend to sell what is on hand to meet immediate consumption needs, while richer pastoralists sell select animals from their herds to purchase younger breeding stock. The small herder owners in Darfur often sell to the closest markets to them which is usually a village market and can be temporary/not regular. The few main markets, which smaller markets feed into, are located in major cities like El Obeid, West Omdurman, and Forbaranga.

### **2.1.1 Livestock Raising Scenarios**

In Sudan, farmers and pastoralists utilize different methods to raise livestock depending on the community groups and their livelihood activities. In the first scenario animals are owned by pastoral groups (nomadic or semi-nomadic) where herders in Darfur and Kordofan travel vast distances (400 km or more in a single year) for better pasture and breeding conditions (as described above), including crossing the border of South Sudan and other countries like Chad and Central African Republic. This group is the most predominant and makes up the largest contribution to the country's GDP through their participation in the domestic and export markets. In the second scenario, animals are raised by farmers in the irrigated areas (mainly around the Nile river) and are used mainly for agriculture use, such as draft animals, or to satisfy other household needs, such as milk. In the third scenario, animals are raised in settled households (not nomadic) on the plains away from the irrigated areas and are used for dairy or sold in domestic markets. In the fourth scenario, animals are raised by the rain-fed scheme owners in a mixed farming system where farming byproducts are used as fodder. This is mainly found in the following areas: Kordofan, Blue Nile, Sennar, and Gadarif. Finally, in the fifth scenario, animals are raised by the commercial sector mainly to supply nearby urban areas with milk and meat. This is found mainly around Khartoum, El Obeid, or Madani.

The emphasis in this report focuses on the impact of the portion of livestock raised by pastoral ethnic groups including the nomads, semi nomads, and settled community. These scenarios are mostly found in the targeted communities of Kordofan, Darfur, and Blue Nile.

### **2.1.2 Recent Changes Impacting the Sector**

During the desk research, the team identified some recent changes impacting the livestock sector. This includes increased prices for livestock in the production areas, local/village markets, and the large markets in Khartoum and El Obeid, which might be driven by increases in livestock exports and local consumption.

In addition, increases in artisanal gold mining in Sudan and in the targeted areas have limited the available pasture land due to large mining operations and lack of access to land as well as contamination of water sources. Mining has also attracted labor from the livestock sector and provides much larger incomes for improved livelihoods. With increased incomes, communities have less of an urgency or need to sell their animals and keep them as social capital instead of economic opportunity.

The private sector (and armed forces-owned companies) has increased interest in the sector with greater involvement in primarily exports and some local processing, however they have limited involvement with producers and the production areas and utilize agents and middlemen to purchase livestock products. Companies owned by armed forces and other private sector firms are also making a few new investments in livestock infrastructure, mainly new slaughterhouses, quarantine facilities, fattening farms, and meat processing plants (for local consumption and export) but they are mainly located in or near Khartoum.

Recent developments in rural finance such as microfinance, bank loans, cooperative finance, and contract farming, do not specifically address the finance needs for the livestock sector. Except for large livestock traders and exporters, almost none of the livestock value chain actors benefit from formal finance through banks or other financial institutions. Formal inclusive finance would improve producer and cooperative capacity to access veterinary services, feed, water, and value addition activities (such as fattening or cheese making).

## 2.2 Overview of Value Chain Constraints

The team identified the following top constraints along the value chain:

- **Feed:** The main sources of feed for small-scale livestock raising is grazing from rangeland and fallow land as well as house waste and crop residues. The primary issue with this approach is that it lacks protein content to increase productivity. The available (alfalfa and sorghum) feed lacks enough protein and other essential nutrients for livestock fattening. This is true for feed from grazing as well as commercially developed feed, with the exception of a few (3-4) companies that produce quality concentrated feed. The commercially-developed feed is quite difficult to obtain as commercial farmers have contractual arrangements with these feed-producing companies and procure most of the produced feed. The remaining concentrated feed is sold through auctions.
- **Veterinary Services:** The main issues related to veterinary services include lack of personnel, technical knowledge, and capacity to provide quality services. Sudan's administrative and technical capacity to provide extension and veterinary services, especially to pastoral and agro-pastoral livestock communities, is limited and the shortage of skilled human resources is a result of many veterinary staff moving to Gulf countries in search of better employment opportunities and higher salaries.

- **Financial Services:** There are very few financial service providers in the traditional rain-fed areas where livestock, dairy, and horticulture crops are produced in large quantities. The Government of Sudan annually allocates and prioritizes agriculture finance for priority crops like sorghum, wheat, and cotton. As a result, there are few financial products available for the rest of the agricultural sector or value chains. Producers, primarily smallholder farmers, are largely without access to formal credit and rely on local money lenders and village traders with high interest rates.
- **Advisory and Extension Services:** Farmer cooperatives and associations are weak, only found in a few states, and provide limited inputs and services to producers. Public sector-led advisory and extension services are lacking and have limited outreach and irregular follow-up. The private sector advisory services are limited to contract and commercial farmers who cultivate and supply products exclusively to select processors, such as DAL group.
- **Marketing:** The marketing system in Sudan is complex, consisting of many small-scale actors (pastoralists, smallholder farmers, local traders, brokers, domestic meat processors) and exporters from private and semi-governmental institutions. Many players are involved in getting livestock from rural areas to the main market. First, pastoralists/smallholders sell the livestock to local traders at the village level. The livestock is then transported to larger livestock markets and are sold to brokers. The brokers then sell the livestock to the domestic meat processors and exporters. The inclusion of middle men (traders and brokers) creates significant price differences between local and main markets. For example, the price for sheep in production areas was 87% of the main market price in 2015. However, due to the high demand of livestock recently, the private sector and large traders have started to connect more directly at the producers level. This high demand might have also contributed to the increased prices, even for producers.
- **Transportation/Infrastructure:** Transporting animals on foot hundreds of kilometers from Darfur to the main market of Omdurman in the dry season is inefficient and expensive. Transporting animals on foot can also be hindered by conflict in certain areas (see one example from Darfur). Without facilities to slaughter and process meat locally, communities lose out on the economic benefits and job opportunities around value-addition. Physical infrastructure improvements are needed for cold storage facilities and improved air transportation facilities to further develop the export trade in meat and processing facilities for by-products.

## 2.3 Overview of Value Chain Opportunities

The team also identified the following key opportunities with the value chain:

- **Processing:** There is room for growth in the meat production and processing sector which is quite small compared to live animal sales, and is supported by increased consumer demand and rising urbanization in the country. Domestic meat markets also operate without strong competition from imports as the government has banned imports of processed meat. The traditional way of producing meat, which is widely practiced, is through livestock slaughtering and fresh meat sales. Currently, there are many slaughterhouses, small butcheries, and processors that serve the domestic market as well as three or four medium- to large-scale meat processing companies. With recent infrastructure investments by the private sector and army-owned companies, there could be opportunities to improve processing facilities and capacities closer to small scale livestock producers, which could help increase earnings for producers<sup>2</sup> and diversify their livelihood opportunities.
- **Export and Value Addition:** Building on the point above, there is an opportunity to not only meet domestic demands, but international demand. Livestock is a major export commodity while meat export is less prominent and there is surplus production of meat and opportunities to revitalize existing slaughterhouses<sup>3</sup> for export and value addition.

## 2.4 Characterization of the Public Sector

Livestock sector services and roles are divided among three different levels (federal, state, and local) within the public sector. The main role of the federal level, which includes the Ministry of Animal Resources, Fishery, and Pasture, is to set the national strategies, policies and sector development goals. Services and controls at this level include vaccine production, vaccination services, disease control, and national extension services. The budget is prepared by collecting the state budgets and adding the development budget. The second level is the state level, which includes the Ministry of Production and Economic Resources. In almost all states, the Animal Resources Directorate is part of the collection of Directorates (such as Agriculture, Mining, Investment) under the Ministry of Production and Economic Resources. The Directorate is responsible for all livestock matters at the state level and for coordinating closely with the federal level. The local level is generally headed by the Manager or Director of Livestock in the locality. They provide all direct livestock services including animal health, veterinary extension, and organizing/coordinating vaccination campaigns. The Livestock Directorate of the locality reports directly to the locality head and indirectly to the Director of Livestock at the state level. From the public sector interviews, we learned that this dual reporting structure can cause some tensions between the Ministry at the state level and the locality because the state-level Ministry does not have full authority over the managers in the locality.

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<sup>2</sup> In 2019, livestock prices were low in Blue Nile, Darfur, Sennar, and North Kordofan- these are the least developed states with high share of livestock population and limited processing capacities and located far from the port and main markets

<sup>3</sup> Only about 4 of the 11 slaughterhouses for export are estimated to be functioning

Locally, the tribal administration maintains a strong presence through a hierarchical tribal leadership network, which interacts with public administration systems, especially at the locality level. This tribal administration, often referred to in Sudan by its earlier official title, the Native Administration, has a range of responsibilities, including enforcing regulations governing access to water and pasture and supporting local government's taxation of herds.

#### 2.4.1 Public Sector Challenges

Through the desk research and triangulation with the stakeholder interviews, the team identified the following challenges in the public sector.

- **Strategy:** Lack of a clear development strategy for the livestock sector in Sudan. Although there have been discussions, a clear focus and strategy for the sector has not materialized. With that said, the transitional government did identify value addition as a priority including the shift from exporting live animals to processed meat.
- **Policies:** There is a lack of government policies regarding research and extension, input supply, processing, and export of processed meat. In addition, since the elimination of the Livestock and Meat Marketing Corporation, there has been a lack of overall policy and single governing body to promote the livestock trade, including export trade.
- **Personnel:** High turnover in leadership including ministers, undersecretaries, and directors at all levels of government has led to inconsistency in direction.
- **Coordination:** Poor coordination between the federal, state, local levels, and private sector.
- **Infrastructure:** Poor physical infrastructure in general including roads, railways, markets, water sources, animal routes not being clearly defined, slaughterhouses, especially in rural areas, and shortage of quarantine facilities and staff to manage the facilities, particularly in Kordofan, Darfur, Blue Nile, and Gadarif.
- **Service Delivery:** Poor and inconsistent service delivery due to budget and resource shortages. The resources have been even more constrained during the transitional government and the economic crisis. Conflict, poor infrastructure, and pastoral movements make it difficult to deliver veterinary services to large areas, especially in Kordofan, Darfur, and Blue Nile States.

## 2.5 Overview of the Conflict Situation at the Intersection of Farmers and Pastoralists

Conflicts between farmers and pastoralists are deep-rooted in Sudanese society and tribal systems and the nature of the conflict is very complex. The deeper, long-running conflicts as a result of tribal affiliation directly impact livelihoods at a local level but are not the root cause of local-level farmer-pastoralist conflicts. In reviewing the intersections between livestock sector expansion and potential areas of conflict for this study, the team focused on the impact on



livelihoods and how conflict has impacted the three targeted regions at the local level as opposed to taking on the wide-ranging conflicts that involve multiple actors and develop at different levels (local, subnational, national, transnational). This perspective allowed us to better understand and focus on the local-level conflicts for future programming.

There are two main types of conflict: 1) **intra-conflict** (farmer vs. farmer or pastoralist vs. pastoralist) or 2) **inter-conflict** (farmer vs. pastoralist). Pastoralist-farmer conflicts are usually disputes between individuals whose livelihoods are equally threatened.

In reviewing the research our team also noted that historically only two parties, the farmer and the pastoralist, have been considered. The solutions, settlements, and mediations have relied on this two-party classification, but landowners are often left out of the conversation and ignored when it comes to governance and participation in reconciliations, settlements, and proposed solutions between the conflicted parties. This is an important group that should be taken into consideration for programming decisions.

**Seasonality and Natural Resource Constraints.** As described above, pastoralist movements are seasonal in nature and periods of conflict coincide with these movements. Peak farmer-pastoralist conflicts typically occur during the harvest season and the peak for all violent events occur in the dry season, with a sharp increase right after the harvest. Both seem to be associated with the seasonal farming and herding cycles and corresponding demand for labor to water and graze livestock.

With increased commercialization, natural resources that farmers and pastoralists depend on become highly valuable, which increases competition and the risk of conflict. Conflict is also more common during years with drought in which harvests and pasture availability are reduced. During these times, farmers are more likely to reserve their crop residues (as opposed to letting livestock feed on it) for their own use, as fodder or to sell a portion for cash. In years with less rain, pastoralists may also return south earlier due to lack of water in the north, increasing the risk of crop damage and farmer-herder conflicts.

### **2.5.1 Greater Kordofan**

In West and North Korodan intra-conflict between farmers is most prevalent and exists over land use rights. This conflict is caused by agricultural border discrepancies that are not clearly demarcated and unregistered rain-fed land. Land erosion can remove landmarks used to delineate land borders. One type of intra-conflict in Kordofan between farmers and pastoralists is due to inadequate pasture land which can lead to infringement on farmers' land and sometimes crop damage by livestock and pastoralists. This is most prevalent when farmers plant crops later in the season and do not release their land in time for pastoralist use or when



pastoralists allow livestock onto the farms before farmers harvest their crops.<sup>4</sup> The opening of animal routes each year is one solution that has been used in the past to avoid disputes between farmers and pastoralists in the rainy season, when pastoralists start moving from south to north and back again through land used for agriculture. Other key causes of conflict and underlying issues in Kordofan include:

- Expansion of unregulated mechanized farming, which utilizes open rangelands and corridors traditionally used by seasonal pastoralists. These livestock corridors that pass through these intensively farmed zones have become increasingly narrow and sometimes are blocked completely by plowed or sown fields.
- Climate change leading to degradation of rangelands, and repeated droughts leading to desertification, which pushes pastoralists to find other fertile land for grazing.
- Dispute over resources (such as water, forage, and fertile land). Most water resources are not managed effectively or mapped.
- Lack of government involvement and poor policies, including unfair land tenure policies.
- Illiteracy and low levels of education among farmers and pastoralists and their families.

Some responses to this conflict include burning agricultural lands to create a buffer zone and keep pastoralists away, cattle theft, destruction of water sources, violence against pastoralists or farmers, or crop damage by livestock. As noted above, these are usually individual responses due to threats to one's livelihood and are not held collectively by farmers or pastoralists.

### **2.5.2 Darfur**

During the study period, a conflict broke out in the Jebel Moon area in West Darfur between armed Arab militias and the Misiriya Jabal tribe. There are reports that crops, harvested food stocks, cattle, and other livelihood assets were looted or burned which led to the displacement of thousands of people from more than 46 villages and several casualties. There is some indication that certain parties are working to remove the population from the area in order to control the highly demanded livestock (camels in particular) that is exported to Libya and North African countries.

Even though there are over 100 tribes in the targeted regions of Kordofan, Darfur, and Blue Nile, local-level disputes between farmers and livestock producers are rarely a result of inter-tribal conflict over land or wider civil and transnational conflicts, yet these disputes have a significant effect on farmer and pastoralist livelihoods. Inter-tribal conflict can lead to blocked livestock corridors, which prevents pastoralists from moving their herds along corridors and

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<sup>4</sup> The system that determines the time for animals to enter the fields after harvesting in rain-fed cultivation areas is called talaig. It is determined by the Peaceful Coexistence Committee at the state level, which includes the Native Administration from farmer and pastoralist groups, and other local authorities. The committee determines the time according to the season, and it is usually between December and February.

has significant impacts on their movement. For example, after a recent inter-tribal conflict in the eastern corridor in East Darfur was blocked and forced large numbers of herders to use the central and western corridors. Pastoralists in Darfur moved to other corridors to avoid the conflict, which reduced their mobility, added to the already long seasonal migration, and required careful negotiations with farmers along the routes. This also impacts livestock trade, Figure 5 shows the changes in routes to get from West Darfur to one of the main markets, Omdurman. Pre-conflict it took traders 45-60 days to get cattle to and from these locations, but during conflict it could take up to 4 months to take safer routes in South Darfur.

**Figure 5. Cattle traders’ routes before and during conflict**



Source: Feinstein International Center. “On the Hoof Livestock Trade in Darfur” (2013).

In addition, pasture is one natural resource in Darfur that is very important for pastoralists and farmers. However, the competition is over the land itself rather than the pasture. Pasture is widely available in Darfur, especially on land not suitable for crop cultivation. Due to the

increasing population and low crop production, farmers have expanded their land area used for agriculture in order to increase their crop production. Mechanized farming has rapidly increased in Darfur as it has been lucrative for farmers and a way to earn money quickly. The increased land area used for agriculture has led to a reduction in the pasture area and thus to conflicts between farmers and pastoralists over land use rights.

Some of the coping mechanisms Darfuri pastoralists have adopted include i) intensification/expansion, such as changing their herd composition from camels and cattle to sheep which have quicker economic returns; changing their migratory patterns; splitting their herds (although this requires additional labor); reducing watering frequency; and encouraging night-time grazing; ii) diversification, such as investing in rainfed farming so that a portion of the household settles to manage the farm, or trading activities including petty trade by women; and iii) migration, such as relocating communities farther south due to the conflict and rural-urban migration by young men to join the military. The outmigration of young men reduces household labor and further increases the work burden and time commitments of women in particular, especially in poorer households.

### **2.5.3 Blue Nile**

Relationships between farmers and pastoralists in the Blue Nile have improved as the government is actively working to create reconciliation in this area. Despite this progress, conflict still occurs between pastoralists and farmers and the primary causes are land rights over pastures and competition over water sources in the summer in particular. Despite the government's involvement, there has been no recourse or reparations for the aggrieved parties (i.e. payments for crop damage by livestock and pastoralists), which has some in the area still upset and skeptical of long-term reconciliation. Additional barriers include inadequate laws to preserve safe routes for livestock, lack of information about the paths that are open or marked by authorities, and an absence of barriers/fences or guards.

In comparison to the Korodofan and Darfur regions, there is much less literature and research on the local-level conflicts between pastoralists and farmers in Blue Nile.

## **3. Interview Insights**

This study includes four interviews, one with a cooperative and three with state level Directors of Animal Resources at the Ministry of Production and Economic Resources from West Darfur, South Darfur, and West Kordofan. From these interviews, our team identified the following insights:

- All of the targeted states have low capacity for delivering veterinary and livestock-related services and lack support (funding, resources for mobile clinics,

training, etc.) from the Federal Ministry. This situation worsened with the transitional government.

- The Directorates engage with the producer communities directly or through the locality heads and receive some support from NGOs and UN Agencies at the state and local levels.
- The Directorates and NGOs have very limited engagement with the private sector and no joint projects or initiatives.
- Due to the pastoralist movements, there is a seasonal pattern for service delivery (when the herds are gathered at common locations within the state). This allows for limited windows during which service delivery or access to services can be provided.
- The marketing of livestock follows similar seasonal trends with the peak supply to markets during the rainy season when the animals are closer to the market. Most sales occur in August.
- The poor livestock market infrastructure and lack of banks in the states does not provide an attractive environment for the private sector to establish a direct presence in the market. Hence, large and medium businesses utilize middlemen and agents to purchase products from small livestock producers and pastoralists.
- The Government is not addressing the root causes of conflict such as pastoralist pathways demarcation, land ownership, or conflict over natural resources. As a result, the continuous instability has made it difficult for the public sector to plan and deliver services to vast areas in the targeted regions.
- Conflict, poor roads, and seasonality of livestock movements make it risky and unattractive for large businesses to engage directly with pastoralists and livestock producers in these regions.
- Most businesses buy live animals (mostly sheep and cattle) and do not produce value-added products in the targeted areas, so there is a lack of processing facilities in these areas. The exception is cheese making in North Kordofan, but even those are quite small businesses with very basic facilities.
- Army-owned businesses like (Al-Itigahat Al-mutaadida Company) buy extensively from the main markets but mostly through agents.
- Most private actors in the livestock sector in the three targeted regions are in the informal sector (such as aggregators, traders, and agents). Most of them are not registered businesses and typically owned and operated by one person. This made it particularly difficult to identify small and medium businesses in the targeted areas remotely from Khartoum during the mapping process.
- There are a limited number of cooperatives that mostly focus on crop production rather than livestock.

- Livestock development projects have not traditionally engaged the private sector or international investors, except in North Kordofan through a project with the National Agricultural Development Company.
- There have been successful engagement models involving the government, donors, the community, and NGOs, yet project design does not generally include the private sector (i.e. IFAD Tick Borne Disease Control Project and IFAD Livestock Marketing and Resilience Project).

## 4. Trends & Partnership Opportunities for Further Exploration

The team has identified the following trends for further exploration through the desk research and limited interviews:

- Livestock producers are currently pastoral nomadic or semi nomadic communities, but over the past 10-20 years, some part of nomadic households are now settling and cultivating as well as herding. This could be due to the impact of the South Sudan secession, climate change, conflict, or access to services such as education, health, and clean water for their families. This has only increased competition between these pastoralist groups and farmers over land use.
- Traditionally, some pastoral communities commonly considered livestock (particularly cattle) mainly as social capital or a status symbol rather than economic capital, but this might be changing as the market demand and prices for livestock increases and seems to encourage communities to sell more.

It is crucial to engage the public sector when it comes to developing the livestock sector, however; in light of the current political situation in Sudan it might not be feasible. This should be taken into consideration when evaluating the below potential engagement opportunities in the targeted regions.

**4.1 Livestock Financial System Development:** Improved access to finance without extremely high repayment terms and conditions is a significant need for smallholder livestock producers to be able to improve their returns on livestock production. Finance is essential for trading and investing in quality inputs/feed and veterinary services for improved herd productivity or equipment for value-added products. There is a significant need to tailor financial solutions that can contribute to the development of the livestock sector in the targeted regions. USAID could partner with finance providers (traditional banks and microfinance institutions) in developing inclusive financial products for smallholder livestock producers. USAID could provide technical assistance in designing innovative financial products or risk

sharing arrangements for new pilot products. The financial products should meet specific conditions of producers such as seasonality, lack of traditional collateral and guarantees, and favorable repayment terms. USAID could also work with financial institutions to train producers and cooperatives in financial literacy and mobile payment arrangements to help them prepare to access finance, which also helps to de-risk lending to small producers and helps the financial institution expand their customer base.

**4.2 Access to Water:** Due to many reasons including climate change and drought, conflict and secession of South Sudan, the pastoral and semi pastoral communities struggle to consistently access water, particularly during the dry season. Borehole utilization is highly seasonal, with much greater use in the dry season, and subsequent problems of overcrowding and overgrazing in the vicinity of permanent water points. Particularly in Darfur, water resource planning prioritizes the more permanently settled (farming) areas, while ignoring the acute dry season needs of pastoralists. USAID could partner with service providers, such as well drilling providers and community leaders to improve water accessibility. Carefully planned deep water wells and water harvesting interventions can be key to starting livestock fattening activities, increasing the quality and sales price of the meat, and improving the incomes and livelihoods of the communities in the targeted regions. Programming and maintenance needs to follow the seasonality of farming/herding to be effective, and planning and coordination of service delivery must take account of the specific dry season demands, migration of pastoralist herds, and dual needs of watering livestock and access to adequate pasture. There is evidence of effective local-level resource management by tribal authorities. This positive experience should be built upon and shared with key local and national stakeholders. A detailed conflict analysis must be conducted before implementing this type of intervention to make sure it contributes to conflict prevention rather than exacerbating existing conflicts over resources.

**4.3 Livestock Cooperative Development:** As noted in the report, there are many agricultural cooperatives, but only a few livestock cooperatives in the targeted regions that are generally weak and provide limited inputs and services to producers. There is an opportunity to engage the targeted communities to help strengthen and develop producer-led livestock cooperatives. Large private sector livestock buyers are not interested in buying directly from individual producers due to the logistics and resources required to work with small, individual producers. Aggregating producers and their herds in cooperatives will make it more feasible for businesses to engage with them. Producer-owned cooperatives can be instrumental in improving livestock marketing and linking producers directly with larger businesses rather than utilizing middlemen. Creating direct linkages between buyers and producers could substantially increase the producers' net incomes by not having to sell to traders and brokers who profit off the sales. USAID could also leverage digital technologies and partnerships with the private sector to deliver advisory and extension services to cooperatives to strengthen activities across the value chain such as livestock fattening, feed production, cheese production, and

leather and hyde production as additional income generating opportunities for smallholder producers.

**4.4 Research and Academic Support:** USAID could also consider working with the private sector through academic and research institutions like veterinary schools, the Central Veterinary Research Center, or other development and conflict research centers. The support could take different forms such as supporting academic or research institutions who can train individuals to meet the needs of the private sector, including improved service provision and extension to smallholder livestock producers, and could focus on livestock marketing, feed improvement, aggregation, or value-addition. This support would help fill existing gaps in advisory and extension services lacking from public and private sector actors to improve livestock productivity. Private sector partners may provide input on the content of training. They may also provide opportunities for internships, apprenticeships, and employment. Support could also extend to co-invest in developing, upgrading or renovating existing research facilities in the region such as Gazala Gawazat Veterinary Research Center in East Darfur or the El Obeid Veterinary Research Center in North Kordofan.

**4.5 Livestock Market Development:** Partnerships with public and private sector actors or co-investment grants to improve livestock market facilities could help producers access key services for improved livestock production. This could be done with local markets closer to the production areas and the main markets such as El Obeid Market, Forbaranga Market or Omdurman Market. The support may include financing by both public and private sector actors to improve market infrastructure including fencing, quarantine facilities, veterinary service facilities, administration facilities, market and price information, mobile payment systems, and weighing facilities. The support can also include technical support and capacity building such as encouraging the shift to weight based systems (currently only used for export) for valuation of livestock.

## 5. Recommendations/Next Steps

**5.1 Feasibility of engaging in the sector and targeted regions:** Despite the current political situation in Sudan, the team still thinks it is possible, and in fact, important for BHA to still engage with the livestock sector and region for the following reasons:

- The livestock sector is of paramount importance to the livelihoods of the communities in the targeted regions and in most of Sudan. In addition, investments in the domestic meat supply chain has the potential to create jobs and business opportunities in the livestock inputs supply chain, feed production and distribution, veterinary services, slaughterhouses, and cold supply chain and enhance household protein intake and nutritional health.

- The livestock value chain in the targeted regions engage many non-state actors which gives BHA the opportunity to support various interventions without engaging directly with the Government.
- Despite the unrest and the political situation, and unlike other sectors such as manufacturing, there has not been a significant or long-term interruption in the domestic supply chain or export market. This could be an indicator of steady domestic and international demand, which can be capitalized on.

It is recommended to focus initial interventions and programming in more stable areas like North Kordofan or parts of West Kordofan before scaling activities or replicating activities in other areas.

**5.2 Key Value Chains:** While goat is important for household livelihoods in many communities in the targeted regions, the main focus of the private sector seems to be on cattle and sheep for national consumption, value addition, and for export. Increases in sheep herds suggests a clear economic strategy to diversify livelihoods and increase economic returns. Pastoralists also have an interest in expanding their herds to include sheep, although it is important to examine the implications of further investment in the sheep value chain on resource use (water, pasture, and fodder). There seems to be the greatest opportunities for expansion in the cattle and sheep sector. Intervention impacts such as improved veterinary services or improved livestock marketing may also have positive spillover effects on the goat value chain.

**5.3 Evaluate any potential displacement or migration implications.** During the intervention design phase, it is important to evaluate the intervention's impact on displacement patterns. Some concerns to consider include: i) Are you creating a scenario for large herds to travel to an area? ii) What are the implications for natural resources such as pasture, water, and agricultural lands? iii) Are you increasing the pasture available by expanding the grazing lands that are free from disease? It is also important to understand the intervention's impact on migration patterns. Similarly to displacement, migration carries burdens on natural resources, though it can also provide benefits of trade. Decisions about livestock vaccinations should also take into account possible migration patterns and conflict implications. For instance, when deciding where to migrate with their herds, pastoralists will include factors such as livestock health and access to vaccinations and treatments. As with direct food aid, livestock programming can prompt significant changes in migration patterns. These should be carefully observed and discussed.

**5.4 Evaluate any potential conflict or resourcing implications.** Support to pastoralism has the potential to reduce conflicts caused by livestock disease and competition over



resources. However, during the intervention design phase, it is important to evaluate the intervention's implications on power, conflict, and violence. Detailed, local contextual knowledge and [conflict sensitivity](#)<sup>5</sup> will help mitigate harm. In addition, greater recognition of the important role of the tribal administration in supporting pastoralist mobility is essential. Members of the tribal administration are involved in considering how the specific needs of conflict-affected pastoralist herds might be supported. The tribal administration negotiates with local tribal leaders to identify nearby resting areas and places where water and fodder supplies can be provided on an emergency basis.

**5.5 Improve linkages with large scale businesses:** There seems to be an appetite from large businesses in Khartoum (such as DAL, Haggar, SAY Groups) for engaging in the livestock sector specifically in Kordofan and Darfur. Creating or improving linkages directly between these companies and producer communities through a cooperative model could help de-risk their investment in expanding to new suppliers.

**5.6 Leverage the RISING II project experience for multi-stakeholder initiatives:** USAID could consider piloting a multi-stakeholder livestock development project using lessons learned, networks, and successes from the USAID/BHA funded Recovery in Sudan for Improved Nutrition and Growth II (RISING II) project. Engage actors (targeted community, private sector, NGOs, finance institutions, research and academic institutes) early in the planning process to ensure sustainable outcomes.

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## **Annex I: Sudan PSLA Contacts**

[Stakeholder Contact List & Value Chain Disaggregation](#)

## **Annex II: Interview Guide**

[Interview Guides for Private Sector, Farmers/Pastoralists, and Public Sector/Donors](#)