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Feed and Fodder:

Critical Input for Enhanced Livestock Productivity, Human Food and Nutrition Security, Livestock Sector Stability and Youth Employment



INDEPENDENT MEMORANDUM
Feed and Fodder: Critical Input for Enhanced Livestock Productivity, Human Food and Nutrition Security, Livestock Sector Stability and Youth Employment

For Attention of the following Technical Working Groups:
TWG 3: Ending Hunger in Africa - food security, Nutrition, Health and Food Safety/ Sanitary and Phyto-Sanitary (SPS)
TWG 7: Enhancing Resilience of Livelihoods and Agri-food Systems to shocks (Health, Economic, Climate)

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1. Introduction and Rationale: Livestock Feed and Fodder Security is Critical to Attainment of Human Food and Nutrition Security

The triple global crises of climate change, Covid-19 and the Russia-Ukraine conflict, has necessitated an urgent focus on Africa's enormous, unarticulated and under harnessed feed and fodder sub-sector. The size and import of this multi-billion-dollar sub-sector, which underpins sixty to seventy percent (60 - 70%) of the total cost of livestock production, is amplified over by the ramifications that its under development and under resourcing have on attainment of key development goals on the African continent.

Globally two thirds (2/3) of arable land is for raising livestock, and fifty-four percent (54.4%)[1] of coarse grains (such as maize, sorghum, barley, millet, oats and rye) is purposively produced for feeding animals. **This is the formula that has cushioned and safeguarded global food systems: feed and fodder security is critical to attainment of human food and nutrition security**. Africa boasts of a third[2] of global livestock resources, held by a third of its population who recognize the intrinsic values that livestock hold for food security, wealth and well-being. Africa's livestock sector has and continues to be predominated by producers that invest in livestock assets whose value they cannot unlock, due to the fragile feed and fodder systems they depend on, that keep their livestock perennially unproductive and highly vulnerable the recurrent climatic vagaries, among other factors.

Several losses and constraints in Africa's food systems can be attributed to the oftunstructured and fragile nature of Africa's feed and fodder sub-sector. The Comprehensive Africa Agriculture Development Program (CADDP) Malabo Declaration 4th Biennial Review Report (BRR) 2023 decries the fact that the perennial inability to address hunger and all forms of malnutrition has been the enduring trend since the first BRR, with little improvement. This elusive goal is in no small measure a reflection that nutrition dense livestock source foods have, due to an unstructured feed and fodder sector, remained at the level of luxury goods, unavailable to, and unaffordable by most of those who need them most. An International Dairy Federation (IDF)[3] Report showed that the average African households must pay more than ten percent of its daily income to afford dairy products.

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[1] *Share of cereals allocated to animal feed, 2021. Share of cereals allocated to animal feed, 2021 (ourworldindata.org)*
[2] *AU-IBAR. 2016. Livestock policy landscape in Africa: a Review. [Accessed 21 June 2024] doc_20160524_livestock_policy_lanscape_africa_en.pdf (au-ibar.org).*
[3] *International Dairy Federation. 2022. World Dairy Situation Report 2022*

24% of youth in Africa's agri-food systems are involved in the animal resources sector[4]. Since feeding constitutes sixty percent of the total cost of animal production, it can be assumed a large majority of youth are occupied in feeding animals. The vulnerabilities in this sub-sector are clearly reflected in endemic resource-based conflict, and in instability of youth livelihoods and employment manifested as exits, out-migration especially of male youth, vulnerability to recruitment by militia and resorting to environmentally unsustainable alternative livelihoods. Unprecedented flooding in Africa's rangelands can be traced back to the underdeveloped feed and fodder sub-sector. These are just a few among many other constraints.

A continental Feed and Fodder Survey conducted in 2023[5] found that nine out of the forty-two African Union Member States reported having recently conducted a feed inventory and generated a National Feed Balance and Feed Outlook, both fundamental tools for decision making in the feed and fodder sub-sector. This underscoredthat very limited data is available to inform decisions and investments needed to adequately feed Africa's huge livestock herd and to produce the highly nutrition dense livestock source foods. Africa is producing livestock and livestock source foods, without the commensurate investment in feeding resources.

These findings highlight that emergency alerts for feed related disasters are pegged on indicators largely external to the feed and fodder sub-sector, and being directed by outcome-based indicators in the livestock sector and climate disaster/humanitarian indicators. This emergency system provides very limited recourse to remedy feed and fodder challenges, given that attention has been on managing emergencies rather than addressing the root causes. Indeed, a number of African countries have disaster risk reduction authorities, but none of the forty-two that responded to the survey have a feed and fodder development authority.

This memorandum makes a compelling case for substantive recognition of the size and import of the Africa's feed and fodder sub-sector that generates critical resources for Africa's livestock sector which in turn produces essential nutrients for human food and nutrition security. The Feed and Fodder Sub-sector is a key driver of livestock sector productivity, production and resilience. It has a pivotal role in enhancing efficiency of livestock production, reducing cost of production of livestock source foods key to improvement of nutrition security, stimulating economic growth,

[4] *The 13th Malabo Montpellier Panel report – YOUTH AHEAD: Policy Innovations to Create Opportunities for Young People in Africa's Agrifood Systems. Youth Ahead: Policy Innovations to Create Opportunities for Young People in Africa's Agrifood Systems - Global Donor Platform for Rural Development*

[5] *Resilient African Feed and Fodder Systems Project. 2023. Continental Survey and Six Country Assessment of the Impact of the Triple Crises (Covid-19, Climate Change and Conflict between Russia and Ukraine) on African Feed and Fodder Systems. African Union – Inter-African Bureau for Animal Resources (AU-IBAR).*

creating increased and more meaningful and beneficial employment especially for women and youth, and enhancing agriculture sector stability and security. The feed and fodder sub-sector is an economic sector of strategic importance contributing significantly to the CAADP goals and the larger aspirations of Agenda 2063should be recognized and tracked in the Post Malabo Agenda.



2. Justification: Addressing Feed and Fodder Shortages - High-Level Strategic Priority for Africa's Livestock Sector

The significance and importance of feed and fodder in the livestock sector and the related perennial and repeated disasters that have been experienced across the continent, underscores the urgent need to address livestock feed and fodder shortages. The urgency for this strategic action is voiced in the overarching framework for the livestock sector, the Livestock Development Strategy for Africa (LiDeSA) that was developed expressly to set a transformative agenda to harness the underutilized livestock sector potential towards achievement of the Comprehensive Africa Agriculture Development Program (CAADP), a key component of the AU Agenda 2063. In this framework, the LiDeSA sets enhancement of availability and access to quality feed as a one of the livestock sector priorities. It explicitly outlines areas for urgent attention that are core to developing robust, productive and sustainable feed and fodder sectors: (i) Feed resource inventory and development/ revitalization of policies and systems for research and development of feeds; (ii) Promotion of incentives, partnerships and delivery models for enhance access to, multiplication and utilization of existing feed technologies; and (iii) creation of an enabling environment, and models and incentives for enhanced commercial feed production, processing, marketing and utilization. Addressing these areas is crucial for mitigating the vulnerability of Africa's feed and fodder systems and ensuring stable livestock production. This aligns with CAADP's objective of enhancing resilience and sustainability in agriculture, thereby securing food systems against shocks.

Subsequently, supports the overall development of Africa's agri-food systems, contributing to increased agricultural productivity, higher incomes for farmers, and broader economic growth. The establishment of structured feed and fodder markets can attract private sector investments, fostering innovation and growth within the agricultural sector and stimulating job creation, particularly for youth and women, by creating opportunities in feed production, processing, and marketing. Given these multifaceted benefits, prioritizing feed and fodder is a strategic imperative that can drive substantial progress towards the continent's development goals, contributing to inclusivity, robustness and resilience of Africa's agri-food systems.

3. The Cost of not Addressing the Constraints in the Feed and Fodder Sub-sector

It is evident that African markets, due to their deep-rooted policy asymmetry, have not recognized the urgent need for the development of an economic feed and fodder sector. As a result, they have failed to establish the necessary institutional framework, and allocate necessary public goods and services, and incentives to private sector and producers to grow the sector. **Africa's livestock industries have been and are being developed without commensurate development of the Africa's feed and fodder sub-sector**. The importance and the contribution of the feed and fodder sub-sector to achieving key CAADP objectives and Agenda2063 development goals is masked and subsumed.

What has been more visible and has received the most attention is the impact of feed and fodder shortages on livestock and in particular the massive livestock losses during drought, and of recent floods. Data indicates that climatic patterns have pointed to a more frequent and increasingly severe droughts, along with the recent emergence of unprecedented landscape level flooding. While humanitarian action is necessary for addressing emergencies, the disaster-oriented paradigm has predominated over development of feed and fodder sub-sectors.

The second peculiarity for the livestock sector is that when the rains finally break after a prolonged dry season or a drought, it brings relief from the immediate urgent and pressing issues. But this transient relief cannot compensate for the losses nor address the ever-increasing fragility, unproductivity, inefficiencies and vulnerability of livestock systems and ultimately, undergird the perennial inability to harness the potential of Africa's huge livestock resources to address critical development challenges.

The 2023 Survey found that, whilst the most visible loss was the mass deaths of livestock, the less visible losses occasioned by the perennial inefficiencies in the feed and fodder sector had a more significant negative and far-reaching impact on the Africa's. The losses include at input level: fragility of production; 40% wastage of existing resources; loss of youth occupation and employment due to periods of feed shortages. At the outcome level: massive loss of livestock; low productivity of indigenous livestock; reduced access to affordable nutritious high-density livestock sourced foods critical for food and nutrition security and change in herd species structure. Impact level losses include perennial inability to end hunger and other forms of malnutrition; reliance on cheaper imports of livestock source foods undermining growth of domestic livestock industries and exportation of youth jobs; Endemic resource-based conflict that keeps expanding and in some areas evolved into ethnic and or religious and militia conflicts; Erosion of water recharge systems triggered by poor management of rangelands; loss of livelihoods, erosion of governance and safety net structures; comprise of ecological and environmental health; and security and community stability, among others.

The highest negative costs were fragility and rapid decimation of animal resources-based businesses largely due to feed shortages or reliance on supply chains vulnerable to disruption due to movement restrictions, with a loss value of 120 USD Billion (26%); followed by Reliance on cheaper imports of livestock source foods and undermining growth of domestic livestock industries and jobs for the Youth with a loss of USD 110 Billion (24%). This reflects the significant impact on the investment sector and reliance on imports, with the confounding negative impact on youth employment.

The third and fourth most significant parameters on the list of losses/lost opportunities were the endemic resource-based conflict and the Unaffordable livestock sourced foods that are on the market as luxury goods rather than available and affordable sources of essential nutrients (foregone income from the population that requires but cannot afford the livestock source foods) with a cost of USD 100B (22%) and USD 79B (17%) respectively. These four areas collectively constitute 89% of the losses/ missed opportunities. Interestingly these are often not visible on the public agenda but are areas of felt need and with massive ramifications.

Type / Category of loss	Value in Billion USD	(%) of the total losses
Fragility and rapid decimation of down-stream animal resources-based businesses largely due to up-stream feed shortages or reliance on global supply chains vulnerable to disruption due to movement restrictions	120	26%
Reliance on cheaper imports of livestock source foods undermining growth of domestic livestock industries and exporting youth jobs	110	24%
Endemic resource-based conflict that keeps expanding and, in some areas, has evolved into ethnic and or religious and militia conflicts	100	22%
Unaffordable livestock sourced foods that are on the market as luxury goods rather than provision of essential nutrients (Foregone income from the population that cannot afford Livestock Source Foods)	79	17%

These guestimates underscore the fact that underarticulation and underinvestment in the feed and fodder sub-sector is generating huge distortions in other areas that depend on or are related to the outcomes of the critical feed and fodder sub-sector. **The most affected parameters are private sector investments; growth of domestic livestock industries that can generate meaningful employment for youth, perpetuation of resource-based conflict, and premium/unaffordable yet essential nutrient dense livestock sourced foods critical to changing the food and nutrient security of most Africa's: areas validated by stakeholders, the continental Survey and the six country Assessments**.

It is also highly insightful and notable that livestock losses due to drought and the cost of relief cover only 0.15% and 0.11% percent, respectively: highlighting that while relief is an important intervention in the face of feed and fodder shortage related emergencies, this approach is very limited in capacity to address the core issues. This underscores the fact that the largely climate disaster/drought-oriented paradigm, where solutions are asymmetrically based on a drought authorities/disaster reduction, drought (centric) early warning, goods and services, infrastructure and investment, may not be able to build the long-term stability and resilience of feed and fodder and the related livestock systems. More feed and fodder [economic] sub-sector centric structures are needed.

4. Key Policy Distortions and Drivers of Change

Despite the significant contribution and impact of feed and fodder systems on Africa's livestock sector and human food and nutrition security, the feed and fodder systems are not captured nor tracked under the Malabo Declaration. Key policy distortions and drivers of change reveal areas for improvement.

i. *Availability of Feed resources is linked to a climatic paradigm, dependent on rainfall* which means most livestock producers utilize what is available rather than against livestock maintenance and production requirements. This builds risk into the sector, making it highly vulnerable to climate and other shocks.

ii. *Demand for livestock source foods is measured based on purchasing power, which grossly underrates the overall actual demand*, as it leaves out a huge demographic of those who need the livestock source proteins to meet essential nutrition and growth milestones but cannot afford to produce or buy the livestock source foods. Livestock-sourced foods are luxury commodities rather than high-density sources of essential nutrients that should be offered as affordable dietary choices.

iii. *Unarticulated and unstructured policy, legislative, regulatory, institutional framework, with the sector subsumed under greater focus on livestock*. This has left the feed and fodder development unaddressed, yet the sustainability of the livestock sector is dependent on the robustness and stability of the feed and fodder sector.

iv. *There is limited data to understand feed and fodder resources due to a highly fragmented sector with no integrated data management systems*. This fragmentation hampers the generation of comprehensive data and critical analysis needed for informed decision-making to support policy, legislative, regulatory, institutional, and capacity reforms.

v. *Early warning mechanisms and emergency actions are triggered largely by outcome level indicators* including livestock body condition and loss of animals. These are results of diminishing feed resources with often situations were effective emergency actions are limited. The current approach largely focuses on climate disasters rather than addressing the fundamental feed and fodder shortages that lead to livestock sector crises. Approaches include emergency actions such as emergency offtake. Data/guesstimates shows that at its best this approach is very limited for addressing critical underlying causes and cannot have at scale impact, resulting in massive loss of livestock assets.

vi. *Financing and investments are heavily directed towards the midstream and downstream stages of livestock supply chains, while the upstream stage, including fodder production, is under-financed and underinvested.* The survival and sustainability of downstream enterprises depend heavily on the stability of upstream activities such as fodder production.

5. Future Outlook

The future outlook explores two scenarios: (i) Business-as-Usual and (ii) Focused action to develop an economic Feed and Fodder Sub-sector of strategic importance:

Business-as-Usual Scenario: If the current trends continue without significant interventions, the outlook for Africa's livestock sector and production of livestock sourced food in the face of increasing climate disasters and global stresses is challenging. Key anticipated outcomes include:	Focused Action to develop an economic Feed and Fodder Sub-sector of strategic importance: Articulation and strategic interventions can significantly improve the outlook for Africa's feed and fodder systems, with commensurate growth in Africa's livestock sector, and positive impact on addressing multiple development goals.
Increased Vulnerability and Eroded Resilience: Extreme events related to climatic change and vagaries like droughts, floods, and extreme temperatures are expected to increase. As demonstrated in the immediate past, the trend is of other global stresses further exacerbating and compounding the climatic stresses and, negatively impacting feed and fodder availability with a commensurate impact on productivity and production of livestock, making difficult for especially the poor to maintain livestock (Descheemaeker et al., 2018). The most visible vulnerability will be loss of livestock and body condition, but much bigger losses as expounded in Section 3 above will continue to occur, further destabilizing Africa's agricultural and food systems.	Enhanced Stability, Sustainability and Resilience of Feed and Fodder Systems and Livestock Systems: Structured feed and fodder systems with institutionalized feed and fodder authorities with comprehensive policy, legislative and regulatory frameworks will streamline the development and management of feed and fodder resources, and stabilize and enhance resilience capacities of Africa's livestock systems
Continued and Expanded Feed Related Emergencies and Crises: A disaster centric paradigm of preparation for climate disasters rather than investment in a robust feed and fodder sector, and early warning system will underpin the continued crises of feed related shortages and emergencies.	End of or Significant Reduction of Feed Related Emergencies: The contemporary ills of climate change and variability and other stressors will always challenge feed and fodder systems. However, a more feed and fodder centric Integrated Risk Management and Early Warning System with commensurate remedial actions will reduce and or end the cycles of crises that have characterized many of Africa's livestock systems.

Continued Inability to Significantly Address Food and Nutrition Insecurity: Africa's livestock sector is facing rising costs, due to rising feed and fodder costs. Poor quality and insufficient feed and fodder will directly affect livestock health and productivity, exacerbating the gaps in production of livestock sourced foods, which in turn will continue to impact negatively on food and nutrition security.	Capacity to Enhance Food and Nutrition Security through targeted Linkage Feed and Fodder Security: Integrated strategies align feed and fodder development with broader food and nutrition targets, enhancing livestock productivity and yields and pricing (more affordable) of nutrient-rich LSF, contributing to a cohesive approach to food and nutrition security (IGAD & FAO, 2023).
Inability to grow and harness the benefits of Africa's domestic and regional livestock systems: Africa has been developing its livestock sector in a feed and fodder policy and investment vacuum which has greatly hampered growth of Africa's livestock industries. Largely driven by increase in herd size rather than improved productivity. Continued net importation to meet growing demand.	More Cohesive and Better Harnessed Livestock Systems and Value Chains driving Domestic and Regional Growth and Trade: When well-structured and vibrant Feed and Fodder systems are the backbone of livestock systems, Africa has the latitude to grow its domestic and regional value chains and harness regional and continental trade opportunities
Continued Negative Social and Environmental Impacts: Loss of livelihoods, instability of youth employment and market instability may discourage youth from pursuing employment in the feed and fodder and livestock sectors. As observed many have exited and are vulnerable to taking up environmentally unsustainable occupations or joining militia. Continued and or expanded natural resource-based conflict and insecurity, which is endemic especially in pastoral areas. Continued destruction of biodiversity and water recharge systems exacerbating flooding.	Increased Investment: Partnerships between public and private sectors, and where appropriate multi-stakeholder partnerships, would bring remarkable improvements in producing quality and safe animal feeds, and opportunities for investment (IGAD & FAO, 2023). Encouraging public and private investments in the feed and fodder sector can drive innovation and efficiency. Incentives like concessional credit, tax breaks, and grants can stimulate investment. Programs targeting youth employment in the livestock sector, including education and training on sustainable farming practices, and access to capital, can create job opportunities and encourage youth participation.

6. Solutions Framework to Better Develop and Harness Africa's Feed and Fodder Sub-sector: Policy Recommendations

i. **Feed and Fodder Development Policy and Institutional Framework (Feed and Fodder Development Authority):** Position as an economic sector of strategic importance transitioning from one largely defined by a climate and disaster adoption and mitigation sector. A sector with a comprehensive and coherent policy framework, and fully resourced with a human resources, regulations, financial and insurance products, data and documentation, and able to support a progressive livestock sector.

ii. **Link the Feed and Fodder Sector to the Human Nutrition Needs and Livestock Sector Requirements:** Redefine the marketplace requirements for the Feed and Fodder Sub-sector by recalibrating the demand for LSF to capture both the purchasing power and the nutrition gap to accurately inform the magnitude of effort and investment needed at the production to match the (domestic) nutritional requirements. For more successful outcomes, Africa needs to redefine the marketplace requirements for the livestock sector to efficiently deliver increased and more affordable livestock source foods to meet both markets led demand, and the critical need to provide essential nutrients to the vulnerable. This is the key to successful and sustained development of feed and fodder.

iii. **A regular update of the feed inventory and national feed balance** as instruments to know, utilize and invest in the feed and fodder resource base: generate and update an evidence base for understanding the available resources, infrastructure, and logistics; and to provide metrics for efficiency and investment opportunities, enabling better decision-making and resource allocation.

iv. **A fit for purpose Feed and Fodder Early warning system with commensurate remedial action:** Institutionalization, regulation and utilization of a feed and fodder, and rangeland Early warning system, with indicators that can provide triggers for appropriate remedial actions where effective and at scale response and investment catalyzed. Regulation and by-laws will protect the huge livestock assets, livelihoods, employment and facilitate business continuity and growth.

v. **Business imperatives need a systematic rethink with increase in strategic public goods that catalyze business solutions to deliver the redefined marketplace requirements.** The goal of producing more affordable livestock source foods demands increased public goods, and increased private investment. These public goods and business solutions should be targeted to procure a different and more positive result including the growth of the feed and fodder and reduction of feed and fodder related emergencies; stabilization and growth the livestock sector, and affordability of livestock source foods. Public goods investments include reserves, infrastructure, incentives and de-risking. Business solutions include contracting, balancing upstream and downstream financing and Investments.



7. Proposed Targets and SMART Indictors

7.1 Proposed Targets

Priorities	Targets
i. Change the institutional framework (policy, regulatory framework and feed authority)	• Development and implementation of national policies and regulatory frameworks to develop economic feed and fodder sectors [in countries where livestock contribution to Agricultural GDP (AGDP) is at least xx%]. AU-IBAR preparing the Guidelines for development of an economic feed and fodder sector of strategic importance
ii. Know the feed and fodder resources for efficient utilization (Inventory and National Feed Balance)	• Member State conduct or update their Feed Inventories and National Feed Balance biennially and develop feed and fodder sector outlooks. AU-IBAR and ILRI partnering to adopt processes for undertaking inventories and preparing National Feed Balances and Outlooks
iii. Public goods investments in reserves, infrastructure and de-risking	• Minimum list of infrastructure needs for feed and fodder including reserves and a pathway for tracking progress.
iv. Private sector investments	• Development and adoption of a Public-private partnerships (PPPs) framework for feed and fodder adopted [in countries where livestock contribution to AGDP is at least xx%]. • A 30% increase in private sector investment in feed and fodder infrastructure and technologies [in countries where livestock contribution to AGDP is at least xx%].
v. Integrated Risk Management (RM) and Early warning systems (EWS)	• Development, adoption and implementation of Integrated Risk Management and Early Warning Systems [in countries where livestock contribution to AGDP is at least xx%]. AU-IBAR partnering with ILRI and other partners to define an IRM-EWS for the feed and fodder sector

7.2 SMART Indicators to Track Feed and Fodder

i. **Indicator 1 Increase in feed and fodder production:** Composite indicator with parameters from priorities 1 – 4 in 7.1 above.

ii. **Indicator 2 Decrease in feed and fodder-related losses and emergencies:** Composite indicator with parameters from priority 5 in 7.1 above.

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