Tanzania livestock master plan—key findings

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Introduction

In recent years, the government of Tanzania has prioritized the transformation of the agricultural sector. This approach—adopted in the 2007 Agricultural Sector Development Program (ASDP) and its successor, the 2016 ASDP II—has been designed to incorporate livestock plans to help meet the objectives set out in a number of existing strategies and policies in the country.

Despite accounting for 11% of the African cattle population, livestock-related activities contribute only 7.4% to Tanzania's GDP and growth at 2.6% is low. This growth largely reflects increases in livestock numbers, rather than productivity gains. Moreover, the absence of clear roadmaps to develop the livestock sector has persistently hindered successful implementation of these previous investment plans. Severely constrained by low livestock reproductive rates, high mortality and high disease prevalence, detailed interdisciplinary analysis has revealed the potential benefits of a comprehensive livestock master plan (LMP) in Tanzania.

The LMP sets out the investment interventions—better genetics, feed and health services, which, together with complementary policy support—could help meet the ASDP II targets by improving productivity and total production in the key livestock value chains for poultry, pork, red meat, milk, and dairy cows. If the proposed investments of USD 621 million—36% and 64% from the public and private sectors, respectively—were successfully implemented, they could generate approximately 1.8 million full-time jobs, 80% going to family members within traditional farms and another 20% to hired employees. Beyond the direct impact on the livelihoods of rural people, the anticipated transformation of the sector has the potential to lower foods prices to the benefit of urban consumers and generate foreign exchange earnings through increased exports. The success of the LMP is also critical to the achievement of food and nutrition security at household, sectorial and national levels.

Development of the LMP

Using the most recently available data, from 2013 to 2015, the Ministry of Agriculture, Livestock and Fisheries (MALF), supported technically by the International Livestock research Institute (ILRI) and financially by the Bill & Melinda Gates Foundation, employed the livestock sector investment and policy toolkit (LSIPT) to develop a national herd and economic sector model and a baseline assessment of the current state of agricultural development in Tanzania. This model was then used to assess the potential long-term, 15–20 years, impact of proposed combined technology and policy interventions, referred to as the livestock sector analysis (LSA). The LSA results then formed the basis for the development of a five-year investment plan or Tanzania livestock master plan for 2017–2022. The LMP is a series of five-year value chain development investment plans or 'roadmaps', to be used to implement the ASDP II for the livestock sector.

The LSA and LMP interventions, based on investment scenarios related to productivity enhancing technologies and improved policies developed by the MALF and ILRI,

were tested in accordance with national development objectives. The criteria used to assess the investment interventions were to:

- Reduce poverty
- Achieve food security
- Contribute to economic growth
- Contribute to exports
- Contribute to industrialization and employment generation.

Using measurable economic or environmental indicators for the above objectives, four key livestock value chains—live animals and red meat and milk (from indigenous cattle, sheep, and goats), dairying with crossbred cows, and chicken and pigs—were identified in the LSA as producing the greatest potential productivity increases contributing to the aforementioned national economic development objectives and the long-run development of the sector. The LMP comprises two sub-value chains for each value chain: smallholder family and commercial large-scale production systems. These sub-value chains are found in one or more of the three major production typology zones of Tanzania: central; coastal and lake; and highlands; as well as through the country in specialized systems. The rigorous ex-ante technical and financial analysis conducted of alternative intervention options (investment scenarios) carried out by MALF and ILRI is thus a guide to the choice and prioritization of public and private investments with the highest payoffs for livestock sector transformation, while meeting the above national development objectives.

Crossbred dairy cow development

As a result of the proposed interventions—including artificial insemination and synchronization to produce crossbred cows, combined with improved feed and health interventions, value addition and complementary policy changes—national dairy milk production would rise by an estimated 77% during the ASDP II period (2017–2022). This would lead to a surplus of 1,002 million litres over projected domestic consumption requirements. This production increase would make it possible to meet the milk production targets in the ASDP II phase, exceeding the growing domestic consumption of milk by 35%. This surplus of milk could then be substituted for imported milk products and used domestically for new or additional industrial uses (e.g. in the baking industry), or exported as milk powder or UHT milk to raise foreign exchange earnings. Due to increases in the number of crossbred dairy cows of 281% and milk production per cow by 42%, the contribution of the dairy sector to GDP is expected to rise by 75%.

Red meat development

The proposed combined interventions for red meat production on traditional family farms and commercial ranches, as well as feedlot development, would result in a 52% increase in total red meat production. Production would grow to 742,500 tonnes between 2017 and 2022. This would not, however, meet expected consumption growth of 71% by 2022 (to 867,300 tonnes), leaving a

17% deficit (125,000 tonnes) in the 2017–2022 red meat production and consumption balance. Given the rapidly growing population, and increasing incomes and demand for animal-source foods in Tanzania, such projected deficits would be expected to put upward pressure on red meat prices.

Due to extremely limited access to land for grazing and feed production and the obstacles to enhancing the genetic potential of all local ruminant breeds (cattle, sheep and goats) over the medium-term (15–20 years), it is unlikely the red meat production gap can be closed in the next five years. Since goat meat and mutton currently account for less than 20% of red meat production in Tanzania as compared to more than 80% for beef, even a substantive increase in the supply of red meat from small ruminants is unlikely to significantly help close the projected meat production/consumption gap.

Poultry development

Successful poultry interventions would allow the subsector to move to improved family poultry with semi-scavenging crossbreds or pure exotic breeds and for substantial increases in the scale and number of specialized layer and broiler operations. Such a transformation—depending on successful interventions in the areas of breed selection, health services (particularly in treating Newcastle disease), feed, extension, private investment and trade policies—would contribute considerably to: improving food and nutrition security and household incomes; increasing the share of the poultry sector to GDP by 182%, from USD 115 to 323 million; and to closing the production–consumption gap for meat.

Projected annual chicken meat and egg production in Tanzania would rise to 465,600 tonnes and 4.2 billion eggs respectively over the five-year period. This would bring the production-consumption deficit for chicken meat from 130,000 to a surplus of 258,000 tonnes by 2022. The combined interventions would result in increases of 666% and 40% respectively in chicken meat and egg production by 2022. Such accomplishments would enable Tanzania to meet the chicken meat and egg demand of its growing population, and produce a very significant surplus for domestic industrial use or export. With assistance of policies encouraging large investments in processing plants, the surplus eggs could be processed into egg powder and used domestically for new or additional industrial uses (e.g. in the baking industry), or be exported to generate foreign exchange earnings.

Pig development

The proposed combined interventions for improved family and expanded commercial large-scale pig production systems would result in a 69% increase in pig meat production within five years. Production would grow from 22,025 to 37,190 tonnes between 2017 and 2022. The development of a competitive and dynamic market-oriented farming, processing and marketing sector—operating in more sustainable and climate-smart ways, and supplying consumers with high-quality and safe pig meat/pork—would significantly contribute to increased

household income, food and nutrition security and poverty alleviation. This would increase the contribution of pork to GDP by 83%, from USD 19.6 to 36 million by 2022, bringing the current production-consumption deficit for pig meat from 8,000 tonnes to a 1,350 tonne surplus.

Improving pork meat requires a focus on controlling African swine fever, to increase pig productivity and pork production, and help close the projected all-meat consumption gap projected in 15 years. In the 'without additional investment' scenario, by year 2032, the pork meat deficit would rise to 16,000 tonnes, resulting in a total all-meat deficit of 2 million tonnes. However, industrializing pork production (in large commercial-scale operations) and processing for product transformation will lower domestic meat prices, while enabling an increase in exports and foreign exchange earnings.

Meat production-consumption balance

Perhaps most importantly, the growth of the poultry and pig subsectors would enable Tanzania to close the projected total national meat production-consumption gap. This would also make it possible to increase the share of white meat to total meat consumption from the current 9% to 41% by 2032, but only if chicken is substituted for red meat. Taking advantage of the benefits of this potential poultry revolution would thus require substantial investments in promotional activities to change tastes and preferences from beef and goat meat, as well as from local to exotic chicken meat and eggs. The substitution of the surplus chicken meat for domestic red meat consumption would also put downward pressure on domestic meat prices and enable an increase in the export of live animals and meat (of cattle, sheep, and goat), potentially raising foreign exchange earnings.

Priority investment and complementary policy interventions

The huge deficit in projected consumption (without investments) of red meat is being driven by high human population and income growth. Limited access to land for increasing improved feed production, including on grazing lands, and the low genetic potential of local breeds of cattle and small ruminants are the main constraints to increased red meat production.

That said, red meat from small ruminants only will be of little help in closing the meat gap due to their low numbers, limited feed resources and low genetic potential of indigenous breeds, nor will pork due to outbreaks of African swine fever and a lack of demand in the country.

Various combinations of the three standard types of livestock technology interventions—feeds, health and genetics—and an enabling policy environment are needed to generate higher animal productivity and household farm incomes, and to contribute to the achievement of national development objectives. The appropriate combinations, depending upon the biophysical, agro-ecological and market conditions facing livestock in the three production zones in Tanzania, include:

- prioritizing the provision of artificial insemination and synchronization, feed and health interventions, as well as measures addressing young and adult stock mortality, to help increase the milk surplus;

- targeting animal health interventions for young and adult stock mortality (vaccinations, parasite control) to ensure improved productivity, thereby increasing animal and product off take of meat and dairy;

- prioritizing beef production, particularly from on-farm fattening and commercial feedlots, as a way of reducing the red meat deficit;

- undertaking investments in promotional activities to change tastes and preferences from beef and goat meat to chicken and pork. The substitution away from domestic red meat consumption in favour of surplus chicken and pork meat would potentially help raise foreign exchange earnings;

- prioritizing investments in genetic improvement of chickens by focusing on crossbreds and exotic pure breeds for both family and commercial enterprises;

- prioritizing policies which could create a conducive environment for investment in commercial meat and milk production and processing; and

- promoting land allocation and ownership policies which facilitate the investments required to increase feed for egg, meat and milk production.

Background to the LMP

The Tanzania livestock master plan was developed by a joint team from the Tanzanian Ministry of Agriculture, Livestock and Fisheries (MALF) and the International Livestock Research Institute (ILRI). Its development was overseen by a high-level technical advisory committee (TAC) convened under the auspices of the MALF Livestock Permanent Secretary, Maria Mashingo, and chaired by Catherine Dangat, the director for Policy and Planning. The TAC comprised the directors of key MALF livestock-related departments and other government agencies, and representatives from the private sector, civil society organizations and development partner agencies.

Data collection and quantitative diagnostics were supported by the ongoing involvement of key national livestock experts and consultation with a wide range of key stakeholders. The quantitative sector analysis was undertaken using the Livestock Sector Investment and Policy Toolkit developed by the World Bank, the Agricultural Research Centre for International Development (CIRAD) and the Food and Agriculture Organization of the United Nations working under the auspices of the African Union Interafrican Bureau for Animal Resources.

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