Mini-feedlot in Beitbridge District, Zimbabwe agro-ecological region V (Photo: Sikhalazo DUBE /ILRI, 2018)

Objectives of the project

The general objective of the project is to *increase livestock productivity in Zimbabwe's agro-ecological regions IV and V.* The project specifically aims to promote increased adoption of climate relevant innovations in livestock-based production systems and improved surveillance and control of livestock diseases. The project activities will help tackle human nutrition challenges, increase market profitability, diversify investments of income from livestock and improve animal health.

Background

Livestock provides income and employment to farmers, agricultural service providers and others involved in the value chain. Zimbabwe's livestock production system is characterized by small-scale subsistence farming. Despite the importance of livestock to rural livelihoods, productivity remains low. This is linked to farmer behaviour, feed unavailability and cost, poor quality of animals, diseases and frequent droughts.

Climate relevant livestock production practices such as fodder management and conservation, water harvesting, and manure management have been identified as solutions to increasing productivity. However, the adoption rate is low due to lack of understanding of problems faced by farmers, inadequate services for farmers and poor enabling environment.

Animal health management, improved breeds and improved feed are key to enhance resilience. Tick-borne diseases are causing high cattle mortalities owing to lack of repairs to communally owned dip tanks and lack of regular supply of acaricide. Other vector diseases are affecting livestock. There is a lack of efficient control and monitoring of animal diseases. Moreover, there is lack of adequate veterinary service delivery (disease surveillance and vaccination coverage).

The LIPS-Zim project will conduct research on the technologies and models that can help to increase the adoption of business and climate smart feeding practices, adaptive breeds, animal management practices (stocking rates) that impact on livestock production while taking into account indigenous knowledge. It will combine this with research on the epidemiology of diseases and the most efficient ways of controlling them.

The theory of change to achieve the objectives

The project seeks to improve the quality and sustainability of animal sourced foods through climate smart livestock production systems anchored on diversification of incomes and optimized livestock utilization and through animal diseases control. Therefore, farmers will be able to improve farm productivity and send better quality and increased quantities to the market, thus able to negotiate better prices and increased household income. The diversified streams of incomes will lead to resilient communities who are both food

and nutrition sufficient. Engagements among different stakeholders will enable long-term, mutually beneficiary, relationships to be established.

It is anticipated that there will be knowledge and skills gained through capacity building of partners and beneficiary institutions, with evidence generated from the project actions. The outcomes of the project include increased adoption of climate relevant and cost effective production innovations (**Results 1.1**) through innovative animal production practices (**Results 1.2**) and improved marketing systems (Result 1.3). Increased income from crop and livestock will promote investment by farmers while better disease detection (**Result 2.1**), surveillance (**Result 2.2**) and control systems (**Result 2.3**) will minimise disease outbreaks and promote market throughput.

The theory of change is anchored around the following results which are all interconnected:

For **outcome 1**:

- ✓ Climate adapted and cost efficient production, marketing and investment practices and innovations for livestock production systems in Zimbabwe's agro-ecological Regions IV and V are selected on the basis of scientific evidence; for that purpose, the project will carry out situation analysis through surveys, group discussions (in-person and virtual) and review secondary data (Result 1.1).
- ✓ Animal husbandry and related practices, technologies and innovations are tested, evaluated, integrated and out-scaled in production systems in the agro-ecological regions IV and V; for that purpose, technologies will be tested and evaluated with selected farmers who will also act as learning points (Result 1.2).
- ✓ Further the project will foster income generation and diversification along the livestock value chain with a strong integration of livestock and crop systems; for that purpose inclusive market systems in NR IV and V will be developed and actors capacitated to out-scale the adoption of tested, evaluated and approved technologies and innovations (Result 1.3).

For **outcome 2**:

- ✓ Understanding that climate change has created environments for emergence and spread of animal diseases which has impacts of livestock productivity the project will conduct research on vector ecology and migratory pattern of humans which may lead to encroachment to vector habitats, and factors underlying the movement of these vectors into new areas ; at the same time knowledge of the linkage between climate change and vector/disease out-break distribution will be enhanced (Result 2.1).
- ✓ Understanding that disease animal disease control is premised on the country's capacity for diseases surveillance and detection the project will conduct a comprehensive evaluation of surveillance and control systems in the following areas; (i) governance, (ii) technical practices, (iii) communication, and (iv) sustainability; this for the purpose of revamping these systems (Results 2.2). It includes enhancing diagnostic capacity for centralised and decentralised early detection (including linkages with private stakeholders). Such activities will strengthen the capacities for surveillance and early detection of emerging and re-emerging diseases.
- ✓ LIPS-Zim will also implement a participatory epidemiology approach taking cognisant of the existing conventional control methods and the indigenous knowledge systems (Result 2.3). Such activities will strengthen the capacities for control of livestock diseases (vaccines, movement control, extension, treatment).

In order to scale the results and disseminate the knowledge the project will carry out several activities. Farmer field schools will be set-up where other farmers and stakeholders can see and learn of technologies. To scale the results of the project other activities will include exchange visits, learning tours, feedback meetings and conducting on-site training sessions. Relevant trainings will be conducted to both participants and non-participants depending on need and relevance. Project activities will be documented to produce communication products for instance videos, stories, newsletters, reports and publications.

The anticipated challenges include lack of participation by government institutions as a result of knowledge and capacity gaps, and lack of private sector participation due to current economic environment. This will be tackled by providing training to trainers, and to individuals as the need arises. The project may also be affected by COVID-19 restrictions and general impacts in Zimbabwe and globally. The project team will continue to monitor the situation and adapt accordingly.

Main activities

LIPZ-Zim will be implemented through PhD and MSc fellowships mainly to Zimbabwean nationals with strong support for staff in the agriculture research institutes and systems. A number of interns from the country's relevant programs are planned for in this work. Eighty universities and other research entities in the country will be participating in this work. Several situation analyses will be done to better understand farmers' behaviour and attitudes towards livestock production systems in Zimbabwe's agro-ecological Regions IV and V. These will anchor the work in all the other result areas.

- ✓ The main activities for **result 1.1** will include situation analyses, identification of relevant innovations, prioritization of the innovations, and establishment of a research monitoring and validation system.
- ✓ Activities for **result 1.2** include piloting, evaluating and packaging of innovations, assessing scaling readiness of innovations, integration of findings and packaging of innovations to be upscaled.
- ✓ For **result 1.3** the activities will include identification of existing and opportunities for facilitating the creation of small and medium enterprises (SMEs) along the livestock value chain, business training, identifying bottlenecks to technology adoption, assessment of market, supporting the revamping of markets, business coaching and mentoring, and monitor the adoption rates of innovations.
- ✓ Activities for **result 2**.1 include investigation of the distribution and prevalence of priority diseases (tsetse, ticks) and development of modelling of impact of climate change on vector and disease distribution (based on historical and current data). While for **result 2.2** the activities include describing, assessing and identifying gaps in the current animal and zoonotic disease surveillance and response system, and then develop and adopt appropriate tools (existing and innovative) and programs to enhance surveillance and rapid response.
- ✓ The activities for **result 2.3** are training for participatory surveillance and improve capacity for data analysis and management, and identify gaps for controlling and prioritize interventions; develop mechanisms for sustainable resource mobilisation to control of key diseases (including economic analysis); and Roll out an integrated tick- and tick-borne disease control (ITTDC) strategy in Region IV and V and develop cost efficient vector control and disease prevention systems (including traditional knowledge and innovation).

Figure 1 below is the graphic representation of the theory of change pathway

Organization

LIPS-Zim is a result of an application by International Livestock Research Institute (ILRI) with consortium partners CIMMYT, CIRAD and University of Zimbabwe Veterinary Faculty together with government's Department of Research and Specialist Service (DR&SS), Department of Veterinary Services (DVS). The consortium and partners have defined roles and responsibility to leverage on their strengths and collective action as follows: ILRI has overall lead of the project. Further ILRI has responsibility for climate adapted and cost efficient production, innovations for livestock production systems and inclusive market systems. Further ILRI supports capacitation to out-scale the adoption of tested, evaluated and approved technologies and innovations (**Result 1.1. & Result 1.3**), ICRISAT directly supports Specific Objective 1.

CIMMYT leads animal husbandry and related practices, technologies and innovations testing, evaluation, integration and out-scaling (Result 1.2). CIRAD and the University of Zimbabwe co- lead the enhancement of knowledge of the linkage between climate change and vector/disease out-break distribution, strengthening of capacity for surveillance and early detection of emerging and re-emerging diseases and strengthening of capacity for control of livestock diseases (Result 2.1, 2.2, & 2.3), with direct support from IRD.

As indicated earlier that the implementation of the project is supported by postgraduate fellowships especially MSc and PhD. There are 8 universities that are participating as 3rd party grantees across the result areas. University participation is decided at result area and activity level based on competency and geography. Other stakeholders will participate in the work packages based on their expertise. In addition to technical support DR&SS and DVS will play a supervisory and monitoring role.

The Project is guided by the Project Steering Committee (PSC) which might include stakeholder not directly implementing the project and be chaired by the Ministry of Lands, Agriculture, Water, Climate and Rural Settlements. The committee will meet at least twice a year with frequent meeting envisaged in the first year of the project. The consortium intends to strengthen the science through setting up of a scientific committee.

Implementing organization

International Livestock Research Institute (ILRI)

Partners of the project

Agricultural Research for Development (CIRAD), International Maize and Wheat Improvement Centre (CIMMYT), Faculty of Veterinary Sciences, University of Zimbabwe, Department of Research & Specialist Services (DR&SS) , Department of Veterinary Services (DVS), Research Institute Development (IRD) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) will be involved directly in the implementation of the project.

Other main stakeholders

Ministry of Lands, Agriculture and Rural Resettlement, National Research Institutions including universities.

Region

Zimbabwe (5 Provinces, 10 Districts) viz. Manicaland Province (one district), Mashonaland East Province (one district), Matabeleland North Province (tree districts), Matabeleland South Province (two districts), Masvingo Province (two districts) and Midlands Province (one district).

Funding and co-funding

EU	€ 5,000,000
Total budget	€ 5,000,000

Duration
Four (4) years; 1 January 2020 – 31 December 2023