SIRGE - Strengthen an Innovative System for the Reduction of Greenhouse Gas Emissions and Environmental Impacts of the Nascent Beef Industry in Uganda in Support of Rural Sustainable Transformation

Objectives of the project

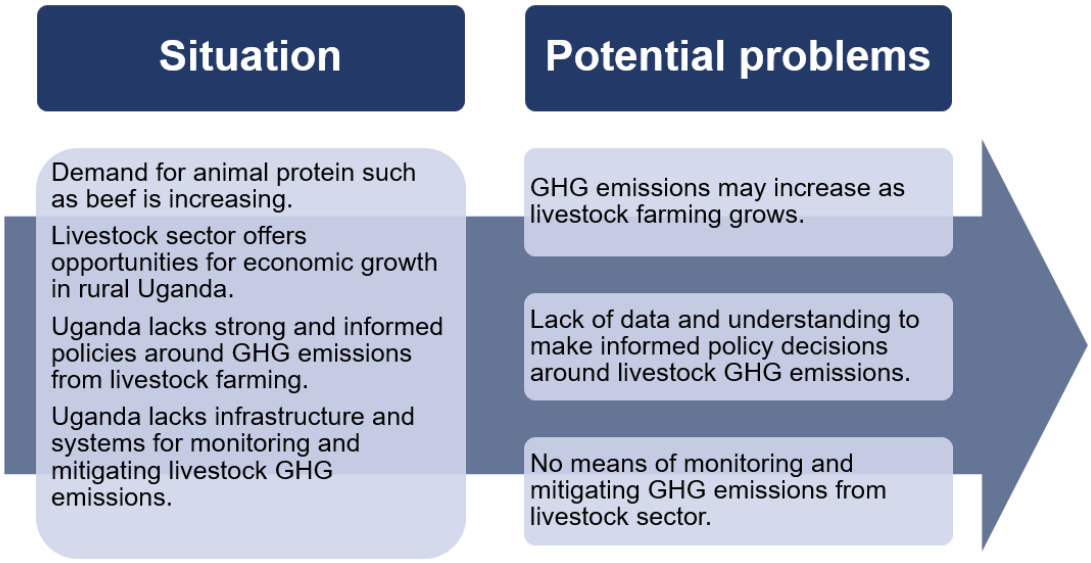
Contribute to the climate-relevant, productive, and sustainable transformation of agriculture and food systems in Uganda. Specifically, foster innovation and rural communities' and institutions' access to new technologies for reduction of GreenHouse Gas (GHG) emissions and environmental impacts of the nascent beef industry in Uganda.

Slaughterhouse, Mbarara district, Uganda, December 2021

Background

The international beef industry faces a challenge. How can it meet growing and changing consumer demands for animal proteins while minimizing negative environmental and social impacts?

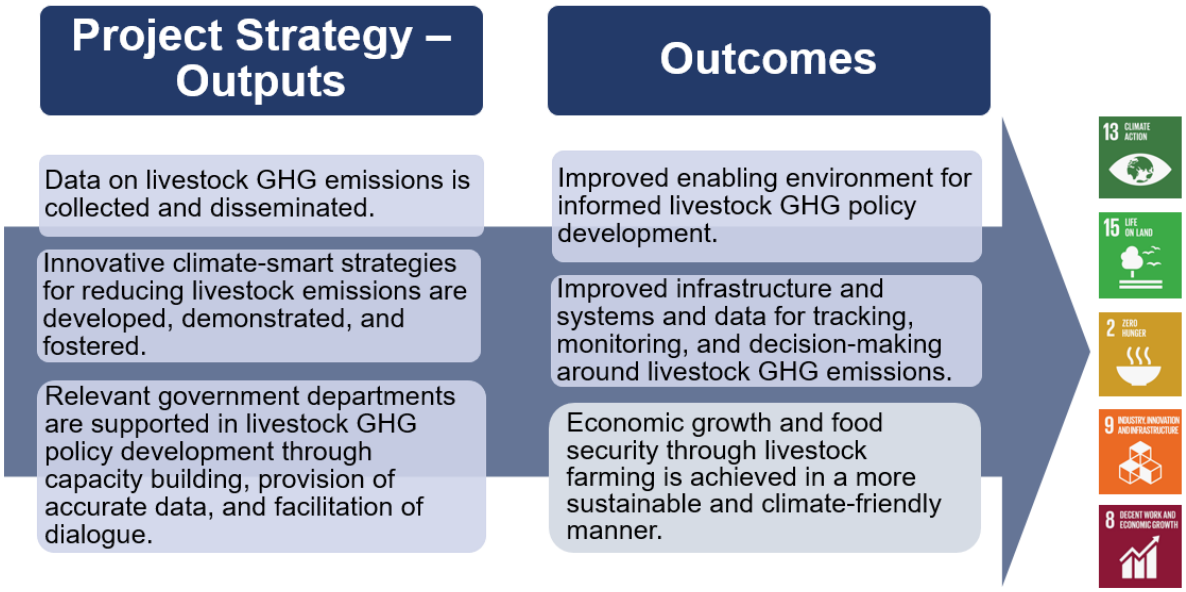
Increases in per capita meat consumption are predicted in the coming decades, led by a growing population, increased incomes, and changes in dietary preference. Demand for meat and dairy products is expected to grow more than 60% globally, and more than 70% in sub-Saharan Africa. In Uganda, where the beef industry is an important contributor to the national food system, it is crucial to identify economically and environmentally sustainable methods of production that can make a sustainable contribution to long-term food security. Therefore, the beef industry in Uganda was identified to represent a priority value chain that can contribute towards food security and enhance economic development and employment. However, livestock farming contributes both directly and indirectly to climate change through GHG emissions. The in-country infrastructure for monitoring and reducing GHG emissions is still in its formative stages.



Model of the Current Situation and Potential Ensuing Problems

Development of models for monitoring GHG emissions – in addition to developing environmentally sustainable measures for control – are essential for addressing climate change. Such measures will support identification of negative impacts of the growing beef industry in Uganda. The SIRGE project aims to complement and supplement existing interventions. It does so by collecting data and generating information that will in turn improve the accuracy of livestock emissions accounting, inform national climate change mitigation and adaptation policies, improve climate-smart interventions, promote environmental conservation actions, and support Uganda's national reporting processes to the United Nations Framework Convention on Climate Change (UNFCCC).

The theory of change to achieve the objectives



Project Strategy to Achieve Outcomes

The project brings about positive change in several ways and supports the achievement of rural economic growth and food security with minimal impacts on the environment. The project recognises the existing situation with livestock farming in Uganda and responds to potential problems that may result from the expansion of such farming. In particular, the project responds to the following problems: 1) the possible increase in livestock-related GHG emissions, 2) the present lack of data around livestock-related GHG emissions, and 3) the lack of strong government policy around livestock-related GHG emissions.

The project's theory of change holds that these problems are addressed through 1) collection, analysis, and dissemination of data relating to GHG emissions from beef farming in focal districts of Uganda (and development of systems and processes for continuation of such activities after the project completion in collaboration with farmers, local governments, and Uganda's Ministry of Water and Environment); 2) development and demonstration of innovative climate-smart strategies for reducing such emissions, including modelling best practices in collaboration with selected farmers at climate-smart farming sites (such practices may include altering cattle feed to minimise emissions and climate-smart methods of rangeland management to increase rangelands' carbon-sequestration potential); and 3) supporting

national agencies' (such as the Climate Change Department) for the development of fit-for-purpose policy and reporting frameworks (Nationally Determined Contributions, Biennial Update Report, National Communications) through capacity building, provision of accurate data, and facilitation of dialogue with relevant international and regional agencies.

Wherever possible, activities are participatory in nature and involve representatives of farmer groups as well as representatives from local government and Uganda's Climate Change Department within the Ministry of Water and Environment. The project logic further holds that these strategies and activities will improve the enabling environment for relevant policy development and foster the development of strong policy and that the strategies will also bring about more sustainable and climate-friendly long-term economic growth in rural Uganda.

The main risks for the SIRGE project are 1) Insufficient institutional coordination and capacity, as agriculture is one of the biggest sectors in Uganda and it faces challenges in terms of coordinating of activities across over 13 ministries and agencies; 2) Limited recognition of the need for climate action by stakeholders in the livestock beef industry; 3) Lack of political will to address the need for a holistic approach in addressing and/or guiding the agricultural modernization process.

Main activities

The main activities of the SIRGE are as follows:

✓ ***Data Collection***

1) Data collection and accurate measurement of GHG emissions from cattle under rangeland conditions using gender-disaggregated data; 2) Use of historic methane emissions calculations from satellite data to select sites for more accurate methane emission analysis using drones; 3) Repeated data collection visits to sites over the course of the initial data capture period and combine the data with cattle population statistics to improve the variable on methane for heat and seasonality.

✓ ***Data Analysis and Modelling***

1) Carrying out characterisation and inventorying of GHG emissions from livestock; 2) Analysing the role of grassland/rangeland management on carbon sequestration in pastures and animal feed producing areas; 3) Developing and disseminating a sustainable and accessible forecasting model for livestock GHG emissions.

✓ ***Supporting Mitigation and Climate-Smart Practices at the Farm Level***

1) Scaling-up and building on Market-Oriented and Environmentally Sustainable Beef meat Industry Project (MOBIP) interventions aimed at mitigating greenhouse gases through improved livestock breeding; 2) Modelling climate-smart practices and creating awareness on effective, innovative best practices for ruminant feeding methods and genetic improvement that reduce methane emissions in beef cattle; 3) Facilitating linkages with existing projects on the participation and representation of women and youth in climate-smart agricultural practices that lower GHG emissions.

✓ ***Facilitating Policy Development for Climate-Smart Farming***

1) Supporting the participation of government through the Ministry of Water and Environment (MWE), the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) and the district SIRGE focal persons

in regional and international dialogues on the implementation of livestock coordination frameworks and livestock Monitoring Reporting and Verification (MRV) systems development; 2) Building capacity and raising awareness on GHG livestock emissions among policymakers and key sector players.

Results achieved to date (March 2023)

- ✓ On October 20th 2022, a one-day symposium focusing on Climate Change, Livestock and Agriculture was hosted by ACTED, the implementing partner, and attended by 148 participants comprising donors, INGOs, government officials the private sector, academia and farmers, to promote dialogue and share feedback about the effectiveness of climate smart management practices within agriculture –particularly livestock – between civil society, government and the private sector.
- ✓ A comprehensive training manual on climate smart livestock practices was developed in November 2022. This manual is now used to train 1,200 beneficiaries (youth and women).
- ✓ SIRGE partners produced material on nutritional options for reducing methane emission from the beef industry in Uganda.
- ✓ From August to December 2022, ATTA (AgriTech Talk Africa, a consortium partner) conducted a cost-benefit analysis to assess the effectiveness of climate smart livestock strategies to better inform livestock farmers of climate adaptation and mitigation options.
- ✓ The project trained local artificial insemination technicians who will assist farmers to access the semen of identified low GHG emission intensity breeds at subsidized price.
- ✓ In December 2022, SIRGE partners conducted a onday learning visit to Orchid House farm where participants learned low GHG intensity feeding and management practices.
- ✓ Development of a database on livestock characteristics, as well as a methodology to estimate emissions from manure management.
- ✓ Training on GHG data collection for government agricultural officers.
- ✓ In January-February 2023, Punta360 (a service provider) developed a secure online platform for data sharing and map visualization on the SIRGE project that will enable users to make clear comparisons and understand the linkages between the vegetation and methane concentrations on the farms visited in the two districts of Mbarara and Nakasongola. Uploading and testing of the map interface online and launch of the dynamic online map are planned for the months of April and June 2023 respectively.

While the majority of outputs under the SIRGE project are centered on research, this provision of detailed knowledge has the potential to significantly aid Uganda in developing a greener and more sustainable beef industry at national level. This strategy/model could also be used as a pilot for neighbouring countries.

Tagging and recording of Ankole cattle at Mr. Rutahigwa Eric's farm in Mbarara to facilitate Livestock Identification and Tractability System (LITS), February 2023

Organization

The project comprises a number of inter-related components, as outlined above. Different partners and service providers within the consortium (ATTA, Environmental Surveys, Information, Planning and Policy Systems (ESIPPS), Global Agro-Pastoral Resilience Investment services (APRI), National Livestock Resources Research Institute (NaLIRRI), Punta360) are involved in different components of the project, although ACTED remains the lead agency in coordinating the project implementation, along with the consortium partner AgriTechTalk Africa (ATTA). The project is implemented in association with the Uganda's Climate Change Department (CCD), which falls under the umbrella of the Ministry of Water and Environment (MWE), and four service providers (ESIPPS, Punta360, NaLIRRI and APRI) have been engaged for providing services relating to specific components of the project. For example, thanks to their expertise in the area of remote sensing technologies, Punta360 is leading the satellite and drone data collection component of the project. The four service providers have been intensively consulted during the proposal formulation and contributed to the formulation and development of the project proposal document.

The project steering committee (PSC) is responsible for making, management decisions by consensus when guidance is required by the project manager(s), including recommendations to the implementing partner(s) and approval of project plans and revisions. PSC is the governing body of the project and provides strategic leadership and governance oversight.

The project technical unit (PTU): Technical, research, and scientific coordination is be ensured thanks to the establishment of a tailored project technical unit (PTU) jointly run by the consortium leader and the CCD under the MWE. Joint coordination by the consortium leader and the MWE/CCD is necessary and instrumental in project delivery. A technical and research link has been created and made operational with the NaLIRRI, with Makerere University (MUK) - Centre for Climate Change Research and Innovation, and with the Consultative Group on International Agricultural Research (CGIAR)/ Climate Change, Agriculture and Food Security (CCAFS).

Implementing Partner

Agency for Technical Cooperation and Development (ACTED, France)

Partners

- ✓ Co-applicant: AgriTechTalk Africa (ATTA)
- ✓ Associate: Climate Change Department, Ministry of Water and Environment (CCD-MWE)

Service Providers

- ✓ Environmental Surveys, Information, Planning and Policy Systems (ESIPPS)
- ✓ Punta360
- ✓ Global Agro-Pastoral Resilience Investment services (u) limited (APRI)
- ✓ National Livestock Resources Research Institute (NaLIRRI)

Other main stakeholders

Makerere University (MUK), Ministry of Agriculture, Animal Industries and Fisheries (MAAIF – CCTF), livestock/beef farmers, agro-pastoral communities, community-based associations/organisations including Uganda Meat Producers Cooperative Union (UMPCU), commercial farmers, community leaders, cattle corridor districts, youth and women.

Location
Uganda, Mbarara and Nakasongola Districts.

Funding and co-funding

EU	€ 2,000,000
Co-funding	€ 200,000
Total budget	€ 2,200,000

Duration:
Three years (1 January 2021 – 31 December 2023).

Updated on 24/04/2023