



## Decision Support Tool for Community-led Land Use Plans

*“Land use management and resource sharing is very vital in land-based economies. This becomes even more apparent where livestock are a major part of the crop-livestock mixed systems. We are very excited and optimistic to contribute to the land use planning process through a data-driven and evidence-based tool”.*

This project is an outcome of the Program for Enhancing the Health and Productivity of Livestock (PEHPL) that promote livestock research activities while keeping the North-South collaboration culture. The PEHPL team is highly acknowledged.

Livestock play a crucial role in poverty alleviation, particularly in 85% of the rural poor in sub-Saharan Africa who depend on animal products for survival. In this part of Africa, the majority of livestock are raised in traditional systems that rely on sharing of communal resource areas (e.g., pasture and water). The limited availability of livestock resources, particularly in extreme weather conditions, usually result in widespread movements. Occasionally, such movements involve grazing in crop lands, resulting in conflicts between farmers and herders. One way to address such conflict is to develop a community-led land use plan that allocates areas for livestock grazing and crop cultivation, which will also help in identifying communities that might require additional support infrastructure.

The project will use a combination of participatory methods and telemetry to develop high quality and accurate labelled datasets containing detailed information on communal resources and their use pattern. It will also establish livestock movement patterns and trans-frontier corridors in northern Tanzania. The labelled data sets will be compatible with machine learning applications that will allow the identification of similar landscape features in other regions of the country. These labeled datasets will then be used to develop a community-led land use plan in Tanzania to support the management of livestock resources and reduce conflicts with crop cultivation.

The project is sponsored by the Lacuna Fund (<https://lacunafund.org/awards/>), an initiative of the Meridian Institute that support private and public organisations to mobilise labelled datasets that solve prevailing problems in low and mid-income context globally.

It will be led by The Nelson-Mandela African Institution of Science and Technology, in collaboration with the University of Glasgow, University of Hohenheim, and NOTTECH Company Limited.

Dr. Ekwem and Dr. Mwanga will coordinate and oversee the project implementation, under the guidance of Prof. Mizeck Chagunda, Dr. Tiziana Lembo and Prof. Gabriel Shirima. Dr. Ekwem and Dr. Mwanga’s Ph.D studies were supported through the Programme for Enhancing the Health and Productivity of Livestock (PEHPL: <https://www.pehpl.com/>) that was funded by the Bill & Melinda Gates Foundation and led by the Nelson Mandela African Institution of Science and Technology (NM-AIST). The overall aim of the PEHPL programme was to improve livestock production and household economy of rural dwellers in Tanzania. Hence, this project is a natural continuation towards achieving that ultimate goal.



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Work as a data science researcher and partner with various organization to solve problems to the community.



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