



Mapping a Better Future

Spatial Analysis and Pro-Poor Livestock Strategies in Uganda



The Republic of Uganda

MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY
AND FISHERIES, UGANDA



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Foreword

Progress in the livestock sector can play a vital role in meeting Uganda's development goals. Because more than 70 percent of Ugandans own livestock, improvements in livestock productivity, health, and breeding can have a direct and positive effect on the household incomes and economic prospects of many of the nation's residents—particularly the rural poor. But such improvements cannot be taken for granted. They require a deft combination of well-targeted investments in livestock research, infrastructure, and services, facilitated by effective agriculture and poverty policies.

Mapping a Better Future: Spatial Analysis and Pro-Poor Livestock Strategies in Uganda offers a unique analytical basis with which to inform policy and target investments. The spatial approach used here, which meshes subnational poverty and livestock data, is particularly useful for integrating the many different kinds of information that must inform prudent investment decisions in the poverty and livestock sectors. The past decade has seen significant advances in the range and quality of both livestock- and poverty-related data available to decision-makers. What has been lacking is an analytically sound approach to integrate the two sets of data in a manner that yields new insights into the poverty-livestock relationship. This publication demonstrates how to bridge this divide.

This is a propitious time for this report to appear. Government agencies are now outlining their investment priorities for the agricultural sector in support of the National Development Plan covering 2010/11-2014/15. Increasing farmers' income is one of the Plan's key objectives for the agricultural sector. The livestock sector figures prominently in this effort, with plans to increase meat and dairy pro-

duction through targeted investments. But where should these investments be focused and what strategies should they employ? Detailed spatial analyses such as those that appear here can help reveal the answers.

We are confident that the approach proposed in this report will help Uganda to refine its investment priorities so that the livestock sector acts as a sustainable engine of pro-poor agricultural growth. We take note, as outlined in these pages, of the demonstrable benefits of incorporating poverty information in livestock-related interventions, and of using livestock sector information to improve poverty reduction efforts. Finally, we extend our sincere thanks to our international partners in this report, the Food and Agriculture Organization of the United Nations, the International Livestock Research Institute, and the World Resources Institute. Such collaborations bring us measurably closer to the goal of reconciling livestock development and poverty reduction in Uganda.



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Preface

Uganda's well-being is inextricably tied to livestock. Seven in ten households own cattle, sheep, goats, pigs or chickens, rendering livestock essential to the nation's diet, livelihoods, and culture. Recognizing this, the government has made greater meat and dairy production a central plank of its National Development Plan for the next five years.

Over the past decade, Uganda's livestock sector made impressive gains in size, herd quality, and productivity. But even greater gains are required to meet the nation's ambitious plans to attain food security, household income growth, and poverty reduction in line with the UN Millennium Development Goals through targeted agricultural development. *Mapping a Better Future: Spatial Analysis and Pro-Poor Livestock Strategies in Uganda* provides a powerful tool to help achieve these gains.

The report explores a topic of critical importance at the interface of environment and development. Its innovative spatial analysis provides valuable insights that will help decision-makers to better target efforts to increase livestock production while reducing poverty. The maps on the following pages overlay the distribution of poverty, livestock and dairy production, and the incidence of animal disease, illuminating in comprehensive detail how these factors interact. This vitally important information will help decision-makers to provide more effective livestock infrastructure and services as well as disease prevention initiatives to the poor.

These analyses are the product of an ambitious, productive, and longstanding collaboration. The high-quality datasets and maps used in this report were developed and prepared by the Ugandan government. The Uganda Bureau of Statistics—which is affiliated with the Ministry of Finance, Planning and Economic Development—produced the localized poverty maps. The Ministry of Agriculture, Animal Industry and Fisheries provided key insight and knowledge to interpret the maps and propose ways to act on these analyses. In addition, the Food and Agriculture Organization of the United Nations, the International Livestock Research Institute, and the World Resources Institute supplied technical support to derive new maps and analyses.

This report builds on pioneering poverty and ecosystem mapping work undertaken in Kenya, and complements similar map analyses on Ugandan wetlands and environmental health. We hope that the publication's maps, policy implications, and model of collaboration will inform national strategies and inspire poverty reduction planning in Uganda and beyond.

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Executive Summary

Livestock represents an essential part of Uganda's agriculture, culture, and economy. While the growth of Uganda's total agricultural output has declined, livestock trends are up considerably. The total number of cattle, sheep, and goats more than doubled between 2002 and 2008, and the number of pigs and chickens grew by 88 and 59 percent, respectively. Beef and milk production both increased by 8 percent in 2008 alone.

Livestock are particularly important to the subsistence agriculture on which seven out of ten Ugandans rely for their livelihood. While income from livestock provides only one of many sources of income for rural households, people typically rank livestock as their second or third most important means of livelihood. It is not surprising then that over 70 percent of all households in Uganda owned livestock in 2008. Indeed, smallholders and pastoralists dominate the livestock sector. Farming households with mixed crop and livestock production and pastoralists together own 90 percent of Uganda's cattle and almost all of the country's poultry, pigs, sheep, and goats.

Uganda's policymakers have acknowledged the importance of livestock to household incomes, the achievement of national food security and the Millennium Development Goals, as well as to employment creation and poverty reduction. Thus, as part of its National Development Plan covering 2010/11-2014/15, the government intends to boost meat and dairy production by increasing its investments in improved breeds, water infrastructure for livestock, and better management of rangeland and forage resources.

RATIONALE AND APPROACH

Ensuring that government investments in the livestock sector benefit smallholders and high-poverty locations will require more evidence-based local planning supported by data, maps, and analyses. *Mapping a Better Future: Spatial Analysis and Pro-Poor Livestock Strategies in Uganda* is intended to address this need. To do so, it compares the latest 2005 poverty maps with maps of livestock data from the 2002 population and housing census and the 2008 national livestock census. Using these data, it examines the spatial relationships between poverty, livestock production systems, the location of livestock services such as dairy cooling plants, and livestock disease hotspots.

By providing illustrative examples of maps that can be developed with these indicators and analyses of what they mean for policy, this report demonstrates how information on the location and severity of poverty can assist livestock sector decision-makers in setting priorities for interventions. Similarly, decision-makers concerned with poverty reduction will see how comparing levels of poverty in a given location with maps of livestock indicators can inform efforts to fight poverty.

This report is intended for a variety of audiences, including analysts and decision-makers in the livestock and dairy sectors, personnel involved in livestock research and advisory services, officials involved in national planning and budgeting, and civil society and nongovernmental organizations. It is motivated by the fact that, while there is a growing body of knowledge about Uganda's livestock sector, comparatively little is known about the interrelationship between livestock and poverty. Two factors have contributed to this knowledge gap: (1) Household surveys undertaken to date in Uganda have not managed to break down household income into its various components so that an explicit link can be made between welfare and the role of livestock at the household level; (2) Subnational poverty and livestock data for small administrative areas have only recently become available.

The spatial analysis approach taken in this report provides a way forward. It suggests that by integrating more detailed information on livestock distribution, animal husbandry and veterinary service provision, disease incidence, and poverty, planners can more effectively design and target livestock management interventions and policies so that the benefits reach a greater proportion of poor communities and the costs associated with land-use changes or new restrictions on livestock use do not disproportionately affect the poor.

REPORT OVERVIEW

The report comprises five sections:

Introduction: Gives an overview of the importance of livestock in Uganda's agricultural economy and in the household economy of the poor; provides the rationale and policy context for the report; and describes the methods and datasets involved.

KEY FINDINGS AND RECOMMENDATIONS

Findings

While the maps and analyses in this report are primarily designed to demonstrate the value to decision-makers of combining social and livestock-related information, they also support the following conclusions:

- *Maps showing milk surplus and deficit areas can highlight geographic differences in market opportunities for poor dairy farmers and help target knowledge dissemination, market infrastructure investments, and service delivery to dairy farmers.*
- *Maps showing animal (and human) disease risk by livestock production system can help target and prioritize areas for intervention. The impact of disease on livestock and their owners differs geographically because the role of livestock in peoples' livelihoods varies among production systems.*
- *Mapping poverty, livestock production systems, and distribution of disease vectors such as tsetse allows a better understanding of how the disease affects livestock owners in terms of livelihoods, welfare, and food security.*

Recommendations

Strengthening the supply of high-quality spatial data and analytical capacity will provide broad returns to future planning and prioritization of livestock sector and poverty reduction efforts. Priority actions to achieve this include:

- *Fill important livestock data gaps, regularly update data, and continue the supply of poverty data for small administrative areas.*
- *Strengthen data integration, mapping, and analysis through regular and focused training that promotes understanding of the whole livestock production system.*

Promoting the demand for such indicators and spatial analyses will require leadership from several government agencies, including the Ministry of Agriculture, Animal Industry and Fisheries, Ministry of Finance, Planning and Economic Development, Ministry of Local Government, and National Planning Authority. Actions in the following three areas carry the promise of linking the supply of new maps and analyses with specific decision-making opportunities:

- *Incorporate poverty information in livestock-related interventions and in regular performance reporting for the livestock sector.*
- *Incorporate livestock sector information into poverty reduction efforts.*
- *Incorporate poverty maps and maps of livestock production systems, disease risk, etc. into local decision-making.*

An Overview of Livestock and Poverty: Describes and depicts in maps Uganda's various livestock production systems, as well as the composition and distribution of the nation's livestock herd. Explores the connection between livestock and the livelihoods of the poor, and presents poverty maps for the country.

Dairy and Poverty: Considers the importance of dairy income to small-scale farmers. Maps areas of milk surplus and milk deficit (areas where production either exceeds or falls short of demand) and compares these to poverty maps and to areas where dairy development hubs are planned.

Livestock Diseases and Poverty: Examines the incidence of African animal trypanosomiasis (sleeping sickness) throughout Uganda and compares it to the distribution of livestock production systems, livestock densities, and poverty rates and densities. It considers the implications for investments in programs to control the tsetse fly (the insect vector of the disease in livestock and also in people).

Moving Forward: Conclusions and Recommendations: Summarizes observations from the map analyses presented in the report and makes recommendations on how to improve and expand upon these analyses and catalyze greater use of the resulting information in decision-making.

