

# Moving Forward:

## Conclusions and Recommendations

*Mapping a Better Future: Spatial Analysis and Pro-Poor Livestock Strategies in Uganda* illustrates how poverty maps can be combined with livestock-related maps to create new indicators and information that can guide future investments to reduce poverty and strengthen the livestock sector. The examples demonstrate how to classify and map livestock systems by type of livestock, market accessibility, livestock disease risk, and poverty profile, and how the analysis can in turn help to identify priority regions or communities for pro-poor livestock management interventions.

By integrating and conducting spatial analyses on livestock and poverty data, Ugandan analysts can strengthen livestock investments and poverty reduction efforts. Similarly, given that analysts already have the data available to conduct such work, Ugandan decision-makers can demand additional analytical returns for their data investments, such as agricultural census data collection or geographic referencing of livestock markets. The examples presented here demonstrate how examination of spatial relationships between poverty, livestock systems, location of livestock services such as dairy cooling plants, and livestock disease ‘hotspots’ can provide new information to help craft more effective—and more evidence-based—investments and poverty reduction efforts.

### CONCLUSIONS

The process of compiling the data, producing the maps, and analyzing the map overlays has shown that:

- Analysts working with the Uganda Bureau of Statistics, the Ministry of Agriculture, Animal Industry and Fisheries, and other collaborators can combine poverty maps with maps of livestock systems and distributions, milk surplus and deficit areas, and areas of high disease risk to highlight relationships that might not otherwise be obvious.
- From these map overlays, analysts can create new indicators and maps juxtaposing levels of poverty and the type and levels of livestock production.
- Analysts can use these indicators and maps to select geographic areas with specific poverty and livestock profiles for pro-poor targeting.
- Decision-makers can use these new indicators and maps to make more informed and transparent choices when prioritizing investments in the livestock sector and to communicate these priorities to the public.
- These new indicators and maps can help bring together and inform decision-makers from different sectors (e.g., livestock and human health) on complex problems such as diseases that affect both people and livestock (such as sleeping sickness).

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. This information can help policymakers, dairy researchers, and development agencies to better target knowledge dissemination, market infrastructure investments, and service delivery to dairy farmers.***

- ***Milk surplus areas*** – About 3.5 million poor people live in subcounties identified as producing more milk than their residents consume (based on maps in this report). Development strategies in these subcounties could aim to improve market infrastructure and reduce market transaction costs.
- ***Milk deficit areas*** – Approximately 0.8 million poor people live in areas where the demand for milk is greater than the supply (based on maps in this report). Interventions that target increasing production (e.g., capacity building efforts, improved service delivery) could be beneficial in these areas.

**Maps showing animal (and human) disease risk by livestock system at the subcounty level can help inform the choice of the most appropriate control approach.**

- The impact of disease on livestock, and more importantly on the keepers of those livestock, differs geographically because the role of livestock in peoples' livelihoods varies among production systems. Provision of animal health services varies across systems, thus the optimal choice of disease control approach will need to vary.
- The benefits of trypanosomiasis control are likely to be greatest in the mixed humid and sub-humid systems: these areas have the largest absolute numbers of cattle, the greatest numbers of poor people, and the greatest densities of poor people.

**Mapping poverty, livestock systems, and distribution of disease vectors such as tsetse fly can pinpoint poverty patterns within disease risk areas. This can help to increase understanding of how a disease affects the owners of livestock in terms of livelihoods, welfare, and food security.**

- Some 1.9 million poor live in humid and sub-humid mixed crop-livestock farming areas infested by tsetse fly, compared to around 0.4 million poor living in the other livestock systems. However, the percentage of poor is much higher in these other systems, such as pastoral systems.

## RECOMMENDATIONS

The primary objective of this publication is to demonstrate with examples how census and poverty maps can be combined with dairy market and livestock disease information to produce new indicators and maps. The publication also seeks to catalyze the production of new and improved analyses and greater use of the resulting information in decision-making. Central and local government agencies can increase the likelihood of more evidence-based decision-making by intervening on the supply side to make more and better information available, and on the demand side to increase the use of these maps and analyses in government planning.

Strengthening the supply of high-quality spatial data and analytical capacity will provide broad returns for 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 supplying poverty data for small administrative areas.**  
Future planning could be improved with more precise livestock data from the Ministry of Agriculture, Animal

Industry and Fisheries (such as the 2008 National Livestock Census) and other important livestock production indicators such as the location of livestock markets and service providers, especially if they are available for small administrative areas and are updated regularly. Regular updates of detailed poverty maps for small administrative areas is essential for tracking progress of poverty reduction efforts and to support pro-poor targeting of resources, both for central and local government institutions.

- **Strengthen data integration, mapping, and analysis.**  
Compared to the financial resources spent on data collection, fewer resources have been earmarked to analyze and communicate the data from the various sources explored in this publication. To create a fuller picture of the human-livestock relationship, it is important that different data relative to livestock, disease, and other socioeconomic data are made compatible and can be analyzed together. The in-house technical and analytical capacity within the Ministry of Agriculture, Animal Industry and Fisheries and other government institutions to extract, map, interpret, and communicate these data requires strengthening through regular and focused training. Such training needs to foster a more integrated approach that promotes understanding of the whole livestock production system and how the components of this system interact and relate to each other.

Promoting the demand for such indicators and spatial analyses will require leadership from several government agencies. 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.**
  - This publication provides examples of how poverty maps can enrich analyses for the livestock sector and lead to more precise geographic targeting. Follow-up analyses by the Animal Resources Directorate in the Ministry of Agriculture, Animal Industry and Fisheries can build on these examples and include other variables that are relevant to prioritizing livestock-related interventions (e.g., costs, efficiency, equity).
  - There is a wide range of institutions in the livestock sector (National Agricultural Research Organization, National Agricultural Advisory Services, Dairy Development Authority, and others) that can work more closely with the Uganda Bureau of Statistics and the Ministry of Finance, Planning and Economic Development to discuss the pros and cons of different livestock investment prioritization criteria for national and local planners and local community representatives.

- Future performance reporting for the livestock sector could include a poverty profile identifying the benefits that low-income families have received from livestock investments. For example, communities that report a growth in livestock assets and greater access to livestock-related services could break out how these benefits have been distributed by income level.
- **Incorporate livestock sector information into poverty reduction efforts.**
- Improved access to livestock, markets, and livestock services will affect well-being, livelihoods, and economic development. Therefore, strategic investments to improve livestock infrastructure and service delivery could provide broad benefits reaching far beyond the livestock sector. The Ministry of Finance, Planning and Economic Development could collaborate with the institutions in the livestock sector to identify communities that are near a critical threshold where additional investment could bring widespread benefits at the community level. Such a threshold could be defined by the community's current livestock assets and other community indicators reflecting well-being. Based on such an assessment, district and local communities could then work with the Central Government to lobby for changes in recurrent and development budgets (both from the Central Government and District Local Government). These new funds could be used to design geographically targeted campaigns to boost livestock service delivery and improve livestock production and marketing performance in priority communities.
- **Incorporate poverty maps and maps of livestock systems, disease risk, etc. into local decision-making.**
- The underlying data and maps discussed in this publication are in most cases detailed enough to be useful in local decision-making. However, many local decision-makers still have difficulty accessing these data, conducting such analyses, and applying the findings to planning efforts. Initially, the Ministry of Agriculture, Animal Industry and Fisheries and the GIS unit at the Uganda Bureau of Statistics could provide technical and analytical support to a few pilot districts to incorporate poverty information into the design of livestock interventions. Later, such support could be given to all districts through ongoing and planned local government capacity-building programs.



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F.L. and N.H.



#### MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES, UGANDA

Plot 14-18 Lugard Avenue

P.O. Box 102

Entebbe, Uganda

[www.agriculture.go.ug](http://www.agriculture.go.ug)

The Ministry of Agriculture, Animal Industry and Fisheries provides an enabling environment in which a profitable, competitive, dynamic and sustainable agricultural and agro-industrial sector can develop. It supports, promotes and guides the production of crops, livestock and fish, in order to ensure improved quality and increased quantity of agricultural produce and products for local consumption, food security and export.



#### UGANDA BUREAU OF STATISTICS

Plot 9 Colville Street

P.O. Box 7186

Kampala, Uganda

[www.ubos.org](http://www.ubos.org)

The Uganda Bureau of Statistics (UBOS), established in 1998 as a semi-autonomous governmental agency, is the central statistical office of Uganda. Its mission is to continuously build and develop a coherent, reliable, efficient, and demand-driven National Statistical System to support management and development initiatives.



#### FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Viale delle Terme di Caracalla

00153 Rome, Italy

[www.fao.org](http://www.fao.org)

The Food and Agriculture Organization of the United Nations (FAO) leads international efforts to defeat hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information. It helps developing countries and countries in transition modernize and improve agriculture, forestry and fisheries practices and ensure good nutrition for all.



#### INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

P.O. Box 30709

Nairobi 00100, Kenya

[www.ilri.org](http://www.ilri.org)

The International Livestock Research Institute (ILRI) works at the intersection of livestock and poverty, bringing high-quality science and capacity-building to bear on poverty reduction and sustainable development. ILRI's strategy is to place poverty at the centre of an output-oriented agenda focusing on three livestock mediated pathways out of poverty: (1) securing the assets of the poor; (2) improving the productivity of livestock systems; and (3) improving market opportunities.



WORLD  
RESOURCES  
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#### WORLD RESOURCES INSTITUTE

10 G Street NE, Suite 800

Washington DC 20002, USA

[www.wri.org](http://www.wri.org)

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Ministry of Agriculture, Animal Industry and Fisheries, Uganda  
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World Resources Institute

