Food and Agriculture Organization of the United Nations

AFRICA SUSTAINABLE LIVESTOCK 2050

Country Brief

UGANDA

The Republic of Uganda

USAID FROM THE AMERICAN PEOPLE

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ASL 2050

Growing economy, population and increasing urbanization

Uganda will face unprecedented pressures in the next 30 to 40 years. With an estimated growth of 3% per year, by 2050 the Uganda population will be over 100 million people, up from the nearly 40 million today. Urban population will pass from 16.1% in 2010 to over 30% in 2050. In addition, per capita income will grow around 4% per annum. These changes will result in predictable and unpredictable changes in all sectors of the society, further nurtured by the continuous invention and adoption of new technologies and practices.

Increasing demand for animal source food

The growing, increasingly affluent and urbanized population will consume more high-value food products, including livestock products. Meat and milk consumption will increase by over 180% and 550% between 2010 and 2050 – to 2.5 and 6.5 million tons respectively (Figure 1)– surpassing growth in human population. This will improve nutrition, without any envisaged negative impact on human health: current consumption of livestock products is low, averaging no more than 2.5 kilos per year per person for any type of meat, and 54 litres (Dairy Development Authority - DDA 2010) of milk. In response to the growing demand for animal source foods, commercial farms as well as livestock keeping households – of which over 80% keep less than 2 tropical livestock units on average - will invest in productivity enhancing technologies and sell surplus production to consumers. For many, livestock will be a major pathway out of poverty. Livestock production will boom and its 4.2% (UBOS 2015) contribution to the National GDP will grow and make the sector one of the largest contributors to the value of agricultural production in the coming decades.

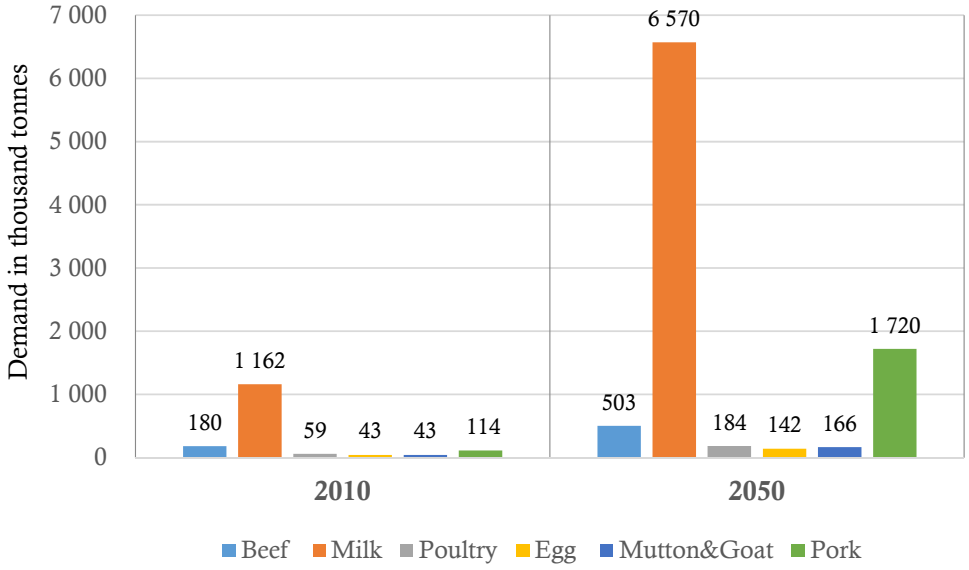


Figure 1. Demand and projected demand for beef, eggs, chicken and milk, 2010 to 2050.

The impact of rapidly changing livestock systems on public health and the environment

Part of the increased supply will be accounted for by an expanded livestock population: the standing stock, which currently amount to 79.7 million animals, with growth of 2.5% for cattle and poultry (UBOS 2015) is expected to grow tremendously. An expanded livestock population will exert major pressures on natural resources, resulting in new and novel interactions between domesticated animals, human beings and the environment, both at farm level and along the value chains, resulting in major public health and environmental threats. For example, in China, Severe Acute Respiratory Syndrome (SARS) originated in an area of high animal and human population density and caused 916 human deaths between 2002 and 2003 (WHO, 2003).

The anticipated dramatic changes in the livestock sector, therefore, will not only provide major development opportunities but also present serious threats for the country, particularly since currently the livestock sector already has some negative effects on society. For example:

- In Uganda around 80% of milk produced is marketed through informal channels as unpasteurized milk, with a high risk of brucellosis infection. Between 2010 and 2014, almost 165 000 animals were affected with brucellosis with an incidence in Kampala of 5.3 to 6.2 per 10 000 people (data from Mulago Referral Hospital reported by Kohei Makita *et al* 2010). In addition, the Ministry of Water and Environment (MoWE) are keen to control *E. coli* in water sources, some of which originate from livestock and cause diarrhea and other public health challenges. Much as the target of 100% (clean water accessed by entire population of an area) is almost achieved in water for large towns, rural water sources are still at 41% (MoWE 2016), and with the projected investments in livestock, the *E. coli* challenge is likely to increase.
- In the first months of 2017, 5 446 poultry died because of avian influenza (EMPRESi). Soon after the first outbreak in January, the governments of Kenya and Rwanda banned importation of poultry and poultry products from Uganda. To control the outbreak, one of the measures was permanent housing of poultry. As of today along the shores of Lake Victoria, free range poultry at each landing site are not less than 5 000 domestic birds which generate a minimum of 400 kg of droppings daily. There are no crop fields on which to apply this manure and with the encouragement to shift to intensive commercial production for increased production and control of avian influenza, poultry waste will accumulate and require systematic management. If this management is not provided, the closest disposal site for this waste is Lake Victoria with the risk of poisoning the lake's biodiversity and drinking water, as well as environmental degradation.
- Zero grazing, a management practice often adopted to increase productivity of dairy cows and satisfy the growing demand for milk, is currently associated with the depletion of a minimum of 40 kg per ha of major soil nutrients (as manure or fertilizer are not applied to the fields where fodder is chopped) (Mubiru *et al.*, 2011).

Articulating sustainable livestock sector development

In such as setting, where a rapid growth of the livestock sector could result in major negative consequences for public health and the environment, articulating long-term scenarios that identify sustainable livestock development trajectories is essential to design policies that are more resilient for the future. The Ugandan government has already designed and is implementing policies and strategies to improve the efficiency and inclusiveness of the livestock sector. These include the Animal Breeding Policy, National Animal Feeds Policy, Animal Diseases Act and Rangelands Management Policy among others. These all support the development of the Agricultural Sector Strategic Plan that, in turn, contributes to the National Development Plan and Comprehensive African Agriculture Development Programme (CAADP). These policies have different perspectives on the livestock sector and only some of them have a forward looking approach. Given the anticipated changes in livestock systems, different visions and time frames could make it difficult for Uganda to ensure smooth and sustainable livestock sector development in the coming decades.

- Africa Sustainable Livestock 2050 (ASL2050) aims to engage stakeholders to develop agreed scenarios of livestock in 2050, which will provide guidance to refine, if need be, the different policies currently affecting the livestock sector and make them consistent and coherent. Long-term scenarios will assist in prioritizing actions to effectively address emerging livestock-environment and livestock-public health challenges. In particular, ASL2050 will systematically describe priority livestock production systems, as of today, and their impact on society, including in particular on public health and the environment.

- Formulate alternative long-term livestock development scenarios and assess their likely impact on livelihoods, public health and the environment in 2050, with the objective to identify major challenges Uganda will have to address to ensure a sustainable trajectory for the sector.
- Identify actions to take now for promoting sustainable livestock in 2050, which will support and complement current livestock sector policy by injecting a forward-looking and long-term approach in the policy debate. This is essential for building policies that are resilient to a dynamic future, which is to a large extent unpredictable

Annex 1: Livestock Statistics for Uganda

Macroeconomic statistics and long-term projections

Population	Value	Year	2050 Projections
Total population	39 032 383	2015	101 872 981
Urban / rural	16.1 % / 83.9%	2015	32.1%/67.9%
Employment in agriculture	66.10 %	2016	
HDI[1]	0.493	2015	
Poverty rate	70.3%	2013	
GDP	**Value**	**Year**	**2050 Projections[2]**
Gdp (million)	USD 33 920	2015/6 (million)	USD 555 220
Gdp per capita	USD 943	2015/6	USD 5 954
% Agriculture	23.64%	2014 Av	
% Livestock	4.20%	2014 Av	
Net Trade (EX -IM) (2012)	**Value (EX - IM) (1000 USD)**	**Traded items**	**Value (EX - IM) (1000 USD)**
Agricultural products	432 530	Live animals	230
Livestock products	13 455	Feed	0.3

Current consumption of animal food and long term projections

Commodity Demand	Thousand tonnes			% Change			Annual growth rate		
	2010	2030	2050	2010-2030	2030-2050	2010-2050	2010-2030	2030-2050	2010-2050
Beef	180	332	503	84%	51%	179%	3.10%	2.09%	2.60%
Milk	1 162	2 919	6 570	151%	125%	465%	4.71%	4.14%	4.43%
Poultry	59	107	184	82%	72%	213%	3.03%	2.76%	2.89%
Egg	43	72	142	69%	96%	230%	2.65%	3.41%	3.03%
Mutton&Goat	43	88	166	107%	88%	290%	3.70%	3.22%	3.46%
Pork	114	474	1 720	315%	263%	1 405%	7.37%	6.66%	7.01%

Livestock population

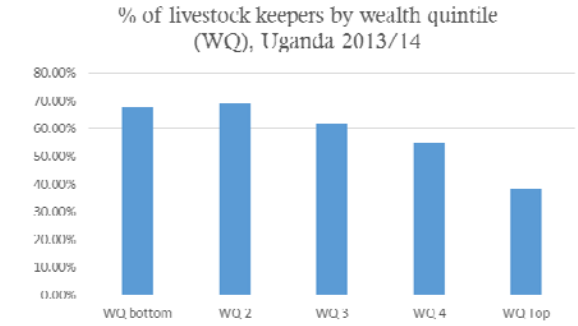
Number of animal heads by species			
Species	**Heads**	**Year**	**Source**
Asses	104 492	2006	Uganda Bureau of Statistics - Livestock 2006, Personal Communication
Camels	32 868	2008	Uganda Bureau of Statistics - The National Livestock Census 2008
Cattle	11 229 371	2008	Uganda Bureau of Statistics - The National Livestock Census 2008
Chickens	33 192 614	2008	Uganda Bureau of Statistics - The National Livestock Census 2008
Dairy	1 519 560	2008	Uganda Bureau of Statistics - The National Livestock Census 2008
Goats	10 435 223	2008	Uganda Bureau of Statistics - The National Livestock Census 2008
Horses	1 247	2009	World Animal Health Information Database (WAHID) - Animal Population
Pigs	2 059 709	2008	Uganda Bureau of Statistics - The National Livestock Census 2008
Sheep	3 474 322	2008	Uganda Bureau of Statistics - The National Livestock Census 2008

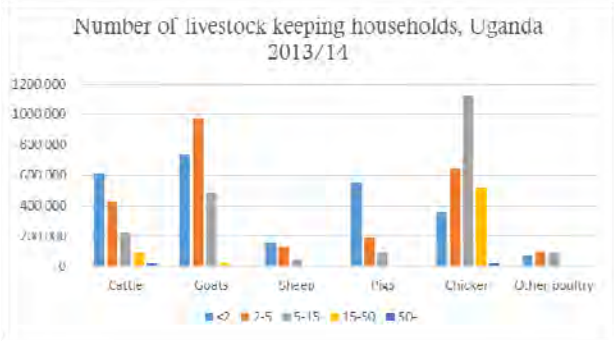
[1] HDI (Human development index) is a measure of economic performances and welfare, combining Life Expectancy Index, Education Index and Income Index (GNI at PPP), thus proving important information on country development.
[2] 2050 Projections are in PPP 2005 USD.

Households' ownership of livestock

Total number of households: 6.75 million	Number of HHs keeping animal	% of total number of households	% of livestock keeping households
Livestock keeping households	3 937 556	58%	
Cattle	1 361 788	20%	35%
Goats	2 217 173	33%	56%
Sheep	348 091	5%	9%
Pigs	841 310	12%	21%
Chicken	2 673 389	40%	68%
Other poultry	266 261	4%	7%

Herd/flock size	<2	2-5	5-15	15-50	50-	Total
Cattle	45%	31%	16%	6%	2%	100%
Goats	33%	44%	22%	1%	0%	100%
Sheep	44%	39%	14%	2%	1%	100%
Pigs	66%	23%	11%	1%	0%	100%
Chicken	13%	24%	42%	19%	1%	100%
Other poultry	27%	37%	32%	3%	0%	100%





Animal health and human health statistics

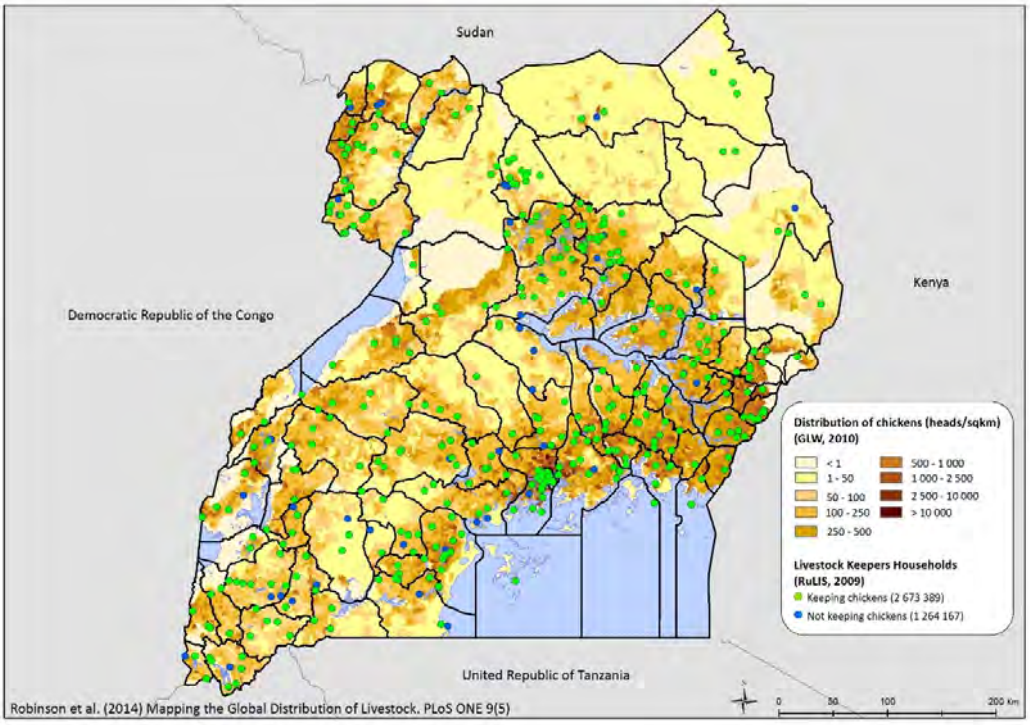
DALYs/100000 people (2012)	Total	%
All causes	*65 370*	*100.0%*
Nutr. deficiencies		
Protein-energy malnutrition	*1 549*	*2.4%*
Iron deficiency anemia	*1 095*	*1.7%*
Zoonoses		
GID (40% zoonotic)	*1 267*	*1.9%*
TB (2.8% zoonotic)	*29*	*0.0%*
Cysticercosis	*12*	*0.0%*
Rabies	*41*	*0.1%*

Number of outbreaks of zoonotic diseases 2010-2017

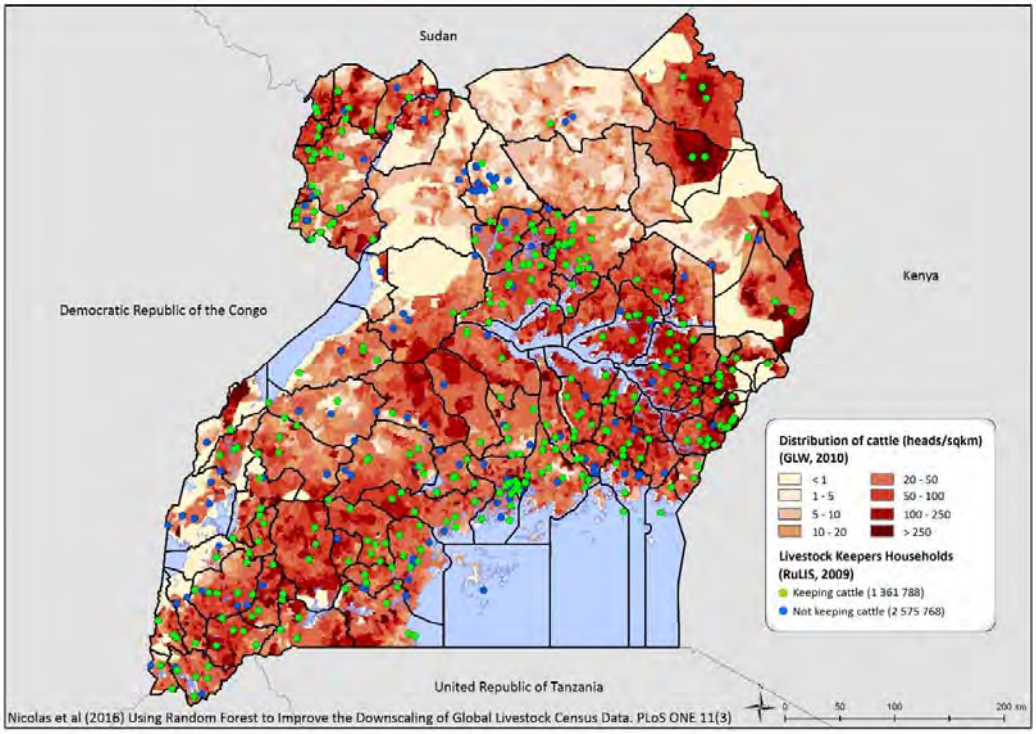
- **OIE**: in 2010, 144 **animal cases** of Anthrax have been reported, with 100% fatality rate.
- **Empres-i:** in 2016/17, HPAI and RVF severe outbreaks have been reported, with so-far unknown animal cases.

Livestock maps

Map I. Chicken total distribution and household keeping chicken (Source: RuLIS database)



Map II. Cattle distribution and household keeping cattle (Source: RuLIS database)



Data sources

- **Macroeconomic statistics projections**: National accounts, UN Population Fund, UNDP data, FAO-STAT and OECD. Conversions done using World Bank annual data on currency conversion factors. Trade elaboration on FAOSTAT.
  Projections by Acosta and Felis (2016) AGAL projections and FAOSTAT.
- **Household level statistics**: Data processed by the Rural Livelihoods Information System RuLIS (FAO) team using raw data of the Living Standard Measurement Surveys (World Bank, National Statistical Offices): publicly available at: http://microdata.worldbank.org/index.php/home
- **Livestock Statistics**: National accounts, Gridded Livestock of the World.
- **Animal and human health statistics**: Empres-i, OIE, WHO, AU-IBAR. DALYs statistics elaborated on Institute for Health Metrics and Evaluation (2015) and Müller *et al.* 2013
- **Maps**: Gridded Livestock of the World: FAO, Université Libre de Bruxelles and Environmental Research Group Oxford, International Livestock Research Institute: publicly available at http://www.fao.org/ag/againfo/resources/en/glw/home.html;
  Global Livestock Environmental Assessment Model: FAO: publicly available at http://www.fao.org/gleam/en/; FAO & New Zealand Agricultural Greenhouse Gas Research Cen-

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