



Food and Agriculture  
Organization of the  
United Nations

AFRICA  
SUSTAINABLE  
LIVESTOCK  
2050



*Country Brief*

**ETHIOPIA**



**USAID**  
FROM THE AMERICAN PEOPLE

Financial support provided by the United States  
Agency for International Development (USAID)

**ASL  
2050**

## Growing economy, population and urbanization

Ethiopia's population is anticipated to grow from about 99 million in 2015 to almost 190 million in 2050, with the share of urban population almost doubling to nearly 40% over the same period. GDP per capita is expected to grow from less than USD 700 in 2015 to over USD 5 500 in 2050 (Fig. 1).

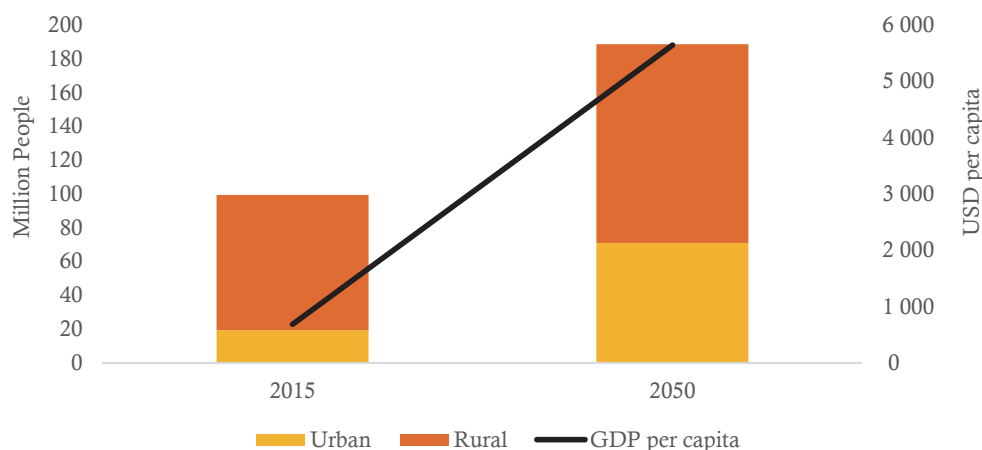


Figure 1. Population and income growth projections for Ethiopia.  
Source: National Accounts, UN Population Fund

## Changing incomes and dietary patterns

A larger, increasingly affluent and urbanized population will demand more and more high-quality foods, including meat, milk and other livestock products. Figure 2 shows the food baskets of the poorest 20% and the richest 20% of households in Ethiopia as of today: the latter consume much more animal source foods than the former, both in relative and absolute terms. As Ethiopia progresses, we can expect the preferences of the richest quintile to be adopted by the majority of the population. This will contribute to a massive growth in the demand for livestock products: indeed, available estimates suggest that consumption of milk, beef, chicken meat, and eggs will increase by 783%, 53%, 179% and 88%, respectively between 2010 and 2050.

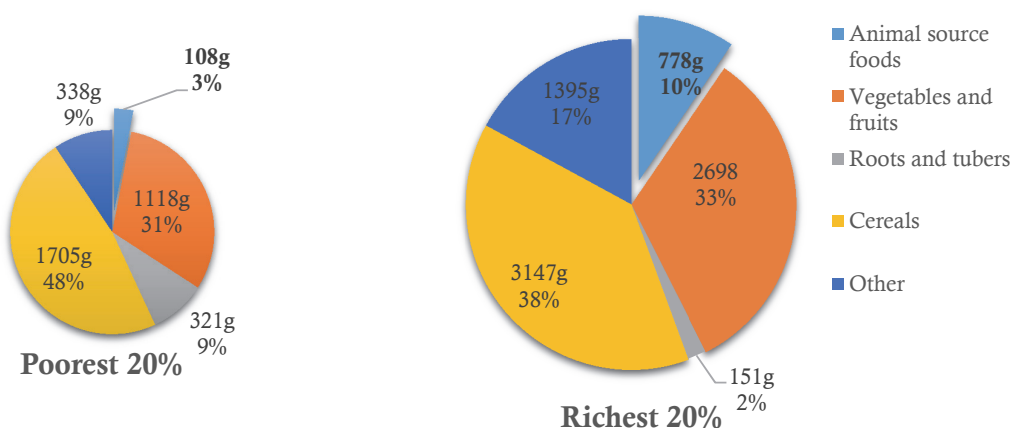


Figure 2. Average weekly per capita food consumption basket of poorest and richest 20%, in grams and percentages. Source: RuLIS

## Livestock and livelihoods

The growing demand for livestock products will provide incentives for livestock keeping households to expand their livestock assets, increase productivity through intensification, and use their animals as a vehicle out of poverty. Currently, there are about 14 million livestock keeping households in the country, of which 63% keep less than 3 tropical livestock units. Most of them are among the less-well-to-do: about 84% of rural and urban poor households<sup>1</sup> keep livestock in Ethiopia (Fig. 3).

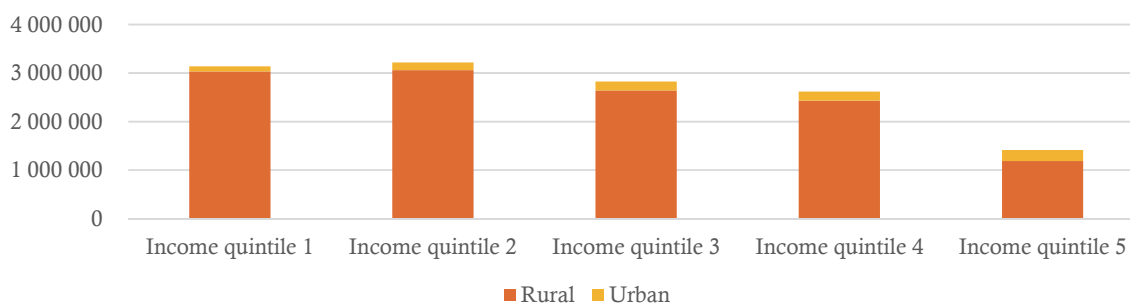


Figure 3 Number of livestock keepers by income quintiles in Ethiopia, 2015/16. Source: RuLIS<sup>2</sup>

Farmers' investments in increasing livestock production and productivity to satisfy the growing demand for livestock products will expand the contribution of livestock to the national economy. Currently, the livestock sector accounts for 45% of agricultural GDP, and this percentage is likely to increase in the coming decades, with the sector remaining a significant contributor to the value of agricultural production.

### Rapidly changing livestock systems: opportunities and challenges

Changing livestock systems will have far-reaching effects on society, beyond providing food and income to the population. Indeed, the livestock population, currently amounting to 56.3 million Tropical Livestock Units, will expand in response to increasing demand for livestock products, exerting major pressures on natural resources and resulting in novel interactions between animals (both wild and domesticated), human beings and the environment at farm level as well as along value chains.

Evidence points to major public health, livelihood and environmental threats associated with fast-changing livestock systems. For instance, the Asian livestock development trajectory in the late 20<sup>th</sup> and early 21<sup>st</sup> century resulted in biodiversity loss, surface water eutrophication, groundwater contamination, reduced soil fertility, emerging infectious diseases, antimicrobial resistance, rural impoverishment and rural to urban, as well as cross-country, migration.

Ethiopia should build on the lessons learned in Asia and take action now to avoid the negative effects a developing livestock sector can cause to society. Already today, livestock in Ethiopia use 687 billion litres of water annually (FAO AQUASTAT). Assuming a linear relationship between projected demand for animal source food and growth in livestock population, this would mean nearly 4 trillion litres of water usage by livestock systems in 2050, which will no longer be available for other purposes. The growing number of animals will also pose major challenges for waste management and further contribute to greenhouse gas (GHG) emissions. Estimates indicate that, as of today, the livestock sector generates 65 million tonnes CO<sub>2</sub> equivalent GHG, and is predicted to contribute 124 million tonnes in 2030 (Fig. 4).

<sup>1</sup> Households belonging to the bottom 2 income quintiles. Income quintiles divide the population in 5 equally sized groups (each group containing 20% of total households), based on their annual income per capita. The bottom quintile represents households with the lowest income per capita, while the top quintile the 20% with the highest income per capita.

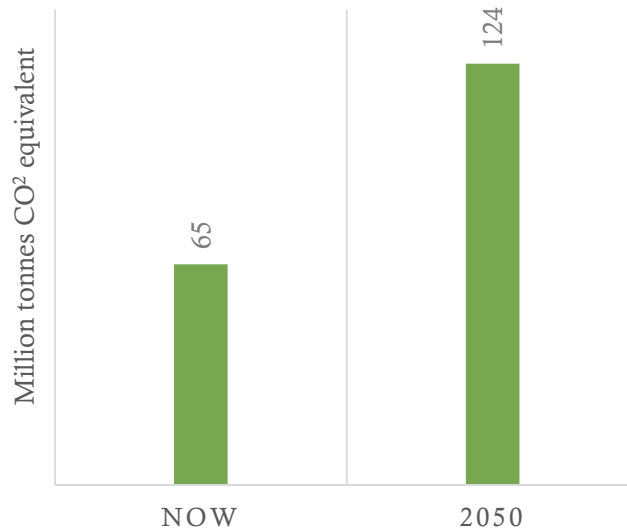


Figure 4. Livestock sector greenhouse gas emissions. Source: Ethiopia's Climate Resilient Green Economy Strategy

The higher density of livestock will also increase the risk of zoonotic disease spread, particularly in the dairy and poultry sectors. Currently, less than half (42.8%) of livestock keepers have at least one animal vaccinated (Fig. 5), leaving their herds/flocks vulnerable to disease outbreaks, and increasing the risk of zoonotic disease spread from their animals to humans.

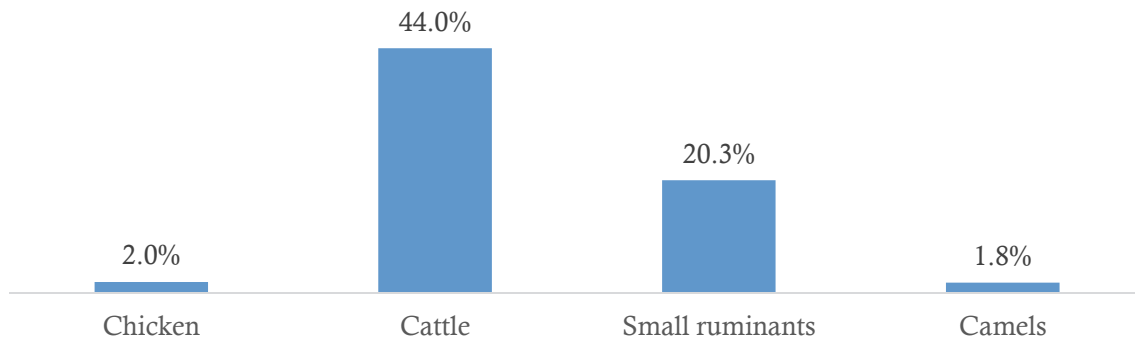


Figure 5. Livestock keepers with vaccinated animals. Source: RuLIS

The Ministry of Livestock and Fisheries (MoLF), the Ministry of Health (MoH) and the Ministry of Environment, Forest and Climate Change (MoEFCC) are taking major steps towards sustainable development of Ethiopian society. However, they look at the livestock sector from different perspectives and timeframes. For instance, MoLF is implementing the 2015-2020 Livestock Master Plan, which targets raising annual cow milk production to nearly 8 billion litres, red meat production to nearly 2 million tonnes, meat and egg production from chickens to 164,000 tonnes and 3.9 billion eggs. On the other hand, MoEFCC is implementing the Climate Resilient Green Economy (CRGE) strategy, which aims to reduce the number of cattle by at least 45 million heads by 2030. In such a setting, where a rapid growth of the livestock sector could result in major consequences for public health and the environment, and policy makers take different perspectives to address livestock sector issues, articulating long-term scenarios that identify sustainable livestock development trajectories is essential for the design of policies that are more resilient for the future.

**ASL2050: a forward looking initiative**

Africa Sustainable Livestock 2050 (ASL2050) engages stakeholders, including MoLF, MoH and MoEFCC, to develop scenarios of the livestock sector in 2050. These 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 thus 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 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 Ethiopia 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 Ethiopia

### Macroeconomic statistics and long-term projections

Population	Value	Year	2050 Projections
Total population	99 390 750	2015	188 455 132
Urban / rural	19.5% / 80.5%	2015	37.6% / 62.4%
Employment in agriculture	72.70 %	2016	
HDI <sup>3</sup>	0.448	2015	
Poverty rate	88.2%	2013	
GDP	Value	Year	2050 Projections <sup>4</sup>
GDP (million)	USD 67 971	2015	USD 895 670
GDP per capita	USD 684	2015	USD 5 639
% Agriculture	39.20%	2014(2013-2015)	
% Livestock	5.64%	2012(2011-2013)	
Net Trade (EX -IM) (2012)	Value (EX - IM) (USD 1,000)	Traded items	Value (EX - IM) (USD 1,000)
Agricultural products	934 849	Live animals	177 012
Livestock products	55 120	Feed	- 153

### 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	394	456	602	16%	32%	53%	0.74%	1.40%	1.07%
Milk	3 754	14 231	33 152	279%	133%	783%	6.89%	4.32%	5.60%
Poultry	55	96	152	75%	59%	179%	2.85%	2.35%	2.60%
Egg	39	54	73	39%	35%	88%	1.67%	1.50%	1.59%
Mutton & Goat	142	265	389	87%	47%	174%	3.18%	1.93%	2.56%
Pork	2	3	4	56%	27%	98%	2.24%	1.21%	1.73%

### Livestock population

Number of animal heads by species			
Species	Heads	Year	Source
Asses	7 428 037	2015	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2014/2015
Camels	2 162 387	2002	Central Statistical Agency, Ethiopia - Agricultural Census 2001-2002
Cattle	56 706 390	2015	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2014/2015
Chickens	56 866 719	2015	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2014/2015
Dairy	7 444 236	2010	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2009/2010
Ducks	n.a.	n.a.	n.a.
Goats	29 112 963	2015	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2014/15
Horses	2 033 115	2012	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2014/2015
Pigs	28 696	2002	Central Statistical Agency, Ethiopia - Agricultural Census 2001-2002
Sheep	29 332 382	2015	Central Statistical Agency, Ethiopia - Agricultural Sample Survey 2014/15

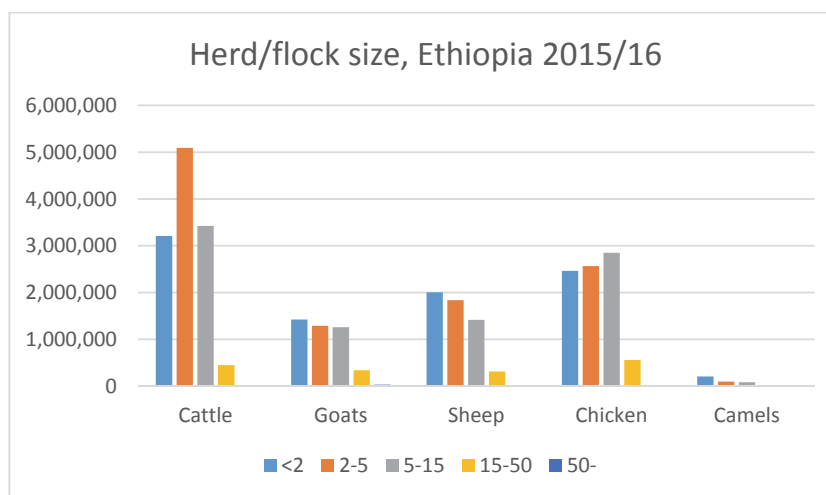
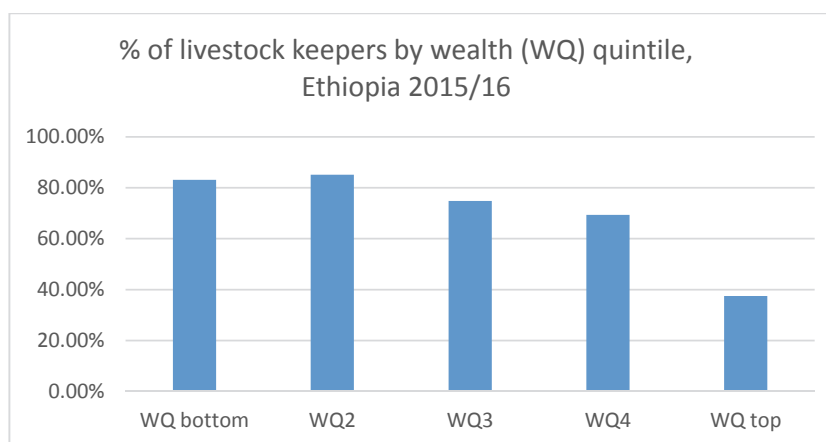
<sup>3</sup> HDI (Human development index) is a measure of economic performances and welfare, combining Life Expectancy Index, Education Index and Income Index (GNI at PPP), thus providing important information on country development.

<sup>4</sup> 2050 Projections are in PPP 2005 USD.

### Households' ownership of livestock

Total number of households: 20.01 million	Number of HHs keeping animal	% of total number of households	% of livestock keeping households
Livestock keeping households	14 085 895	70%	
<i>Cattle</i>	12 187 846	61%	87%
<i>Goats</i>	4 341 219	22%	31%
<i>Sheep</i>	5 572 568	28%	40%
<i>Chicken</i>	8 435 986	42%	60%
<i>Camels</i>	408 931	2%	3%

Herd/flock size	<2	2-5	5-15	15-50	50-	Total
Cattle	26%	42%	28%	4%	0%	100%
Goats	33%	30%	29%	8%	1%	100%
Sheep	36%	33%	25%	6%	0%	100%
Chicken	29%	30%	34%	7%	0%	100%
Camels	50%	23%	20%	6%	1%	100%



## Animal health and human health statistics

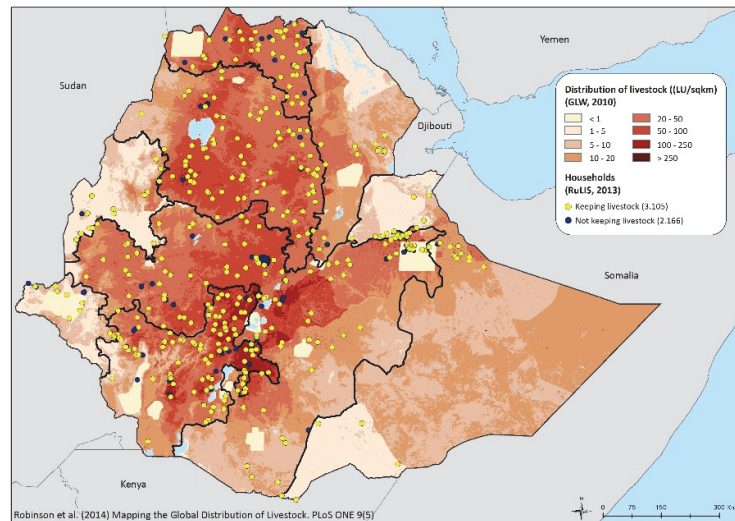
DALYs/100,000 people (2012)	Total	%
All causes	48 603	100.0%
<u>Nutr. deficiencies</u>		
Protein-energy malnutrition	1 033	2.1%
Iron deficiency anemia	1 463	3.0%
<u>Zoonoses</u>		
GID (40% zoonotic)	1 831	3.8%
TB (2.8% zoonotic)	20	0.0%
Cysticercosis	12	0.0%
Rabies	31	0.1%

### Number of outbreaks of zoonotic diseases 2015 - 2017

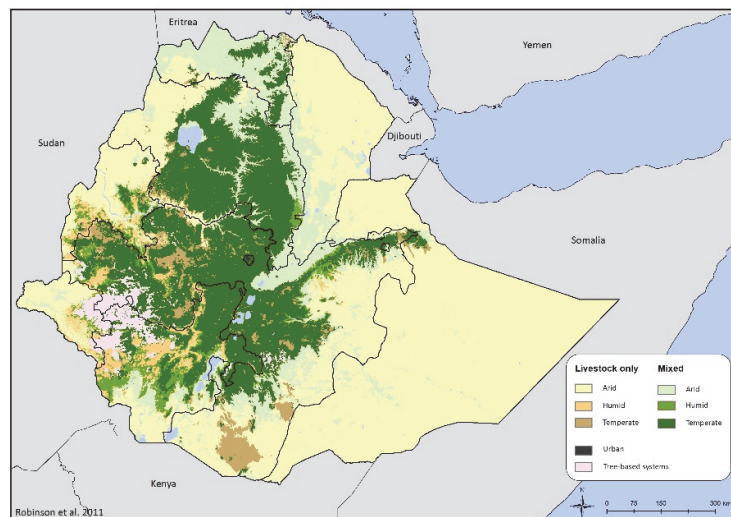
- **OIE:** from 2005 onwards, **human cases of Anthrax and Brucellosis** have been reported, with no casualties estimation.
- **AU-IBAR:** from 2010 to 2014, 3 107 animal outbreaks of anthrax have been reported, including 17 207 animal cases and 5 323 deaths.

## Livestock maps

Households keeping livestock (RuLIS) over distribution of livestock (GLW)



Livestock Production Systems (GLW)





#### **Data sources**

- **Macroeconomic statistics projections:** National accounts, UN Population Fund, UNDP data, FAOSTAT 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 Ethiopia Socioeconomic Survey 2015/16 (Central Statistical Agency): 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 Centre: publicly available at: <http://www.fao.org/in-action/enteric-methane/en/>

