

Global Burden of Animal Diseases (GBADs)

Ethiopia case study progress and outputs

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Content outline

1. Structure of GBADs Ethiopia case study
2. Case study analytical outputs
3. Tools to support decision making
4. Ongoing activities

1. GBADs Ethiopia case study

Implemented since January 2021

Ethiopia selected as one of the first GBADs case study

- Largest livestock population in Africa
- Livestock play prominent role in livelihood and economy
- Enabling political and institutional environment



1. Main activities

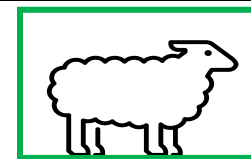
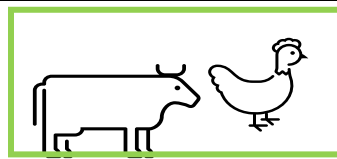
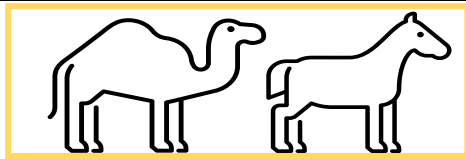
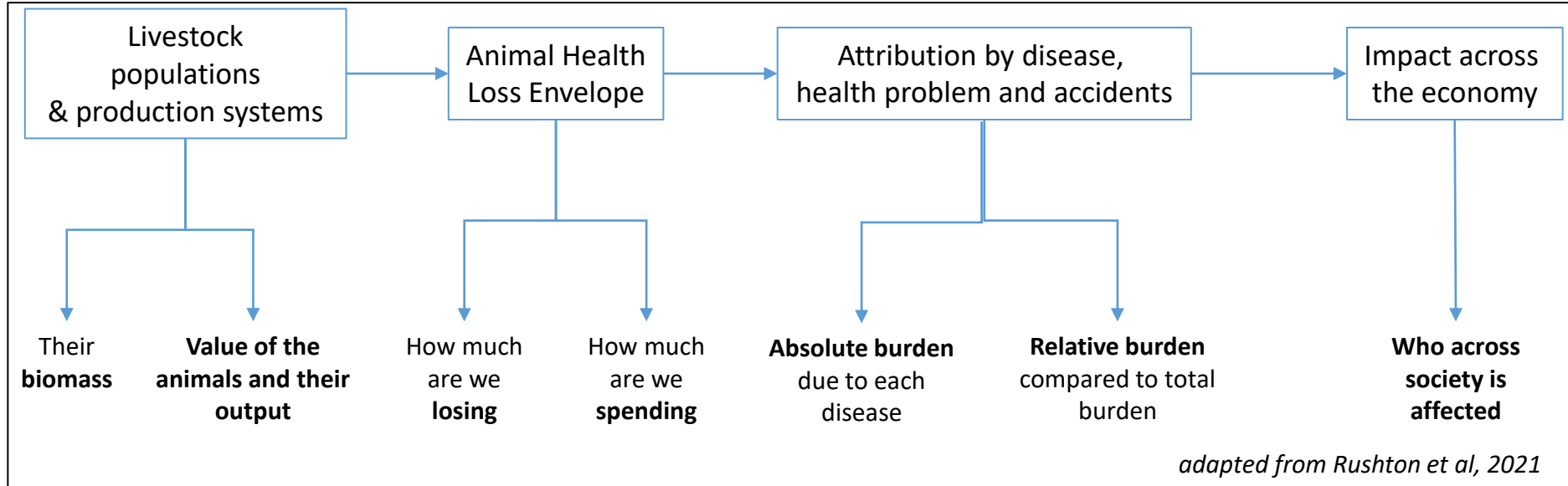
Disease burden/health loss and related **analyses** along GBADs analytical structure

- Population and production systems
- Biomass and economic value
- Animal health loss envelope /farm level disease burden
- Attribution of disease burden to causes
- Wider economic impact analysis, and
- Animal disease burden on human health

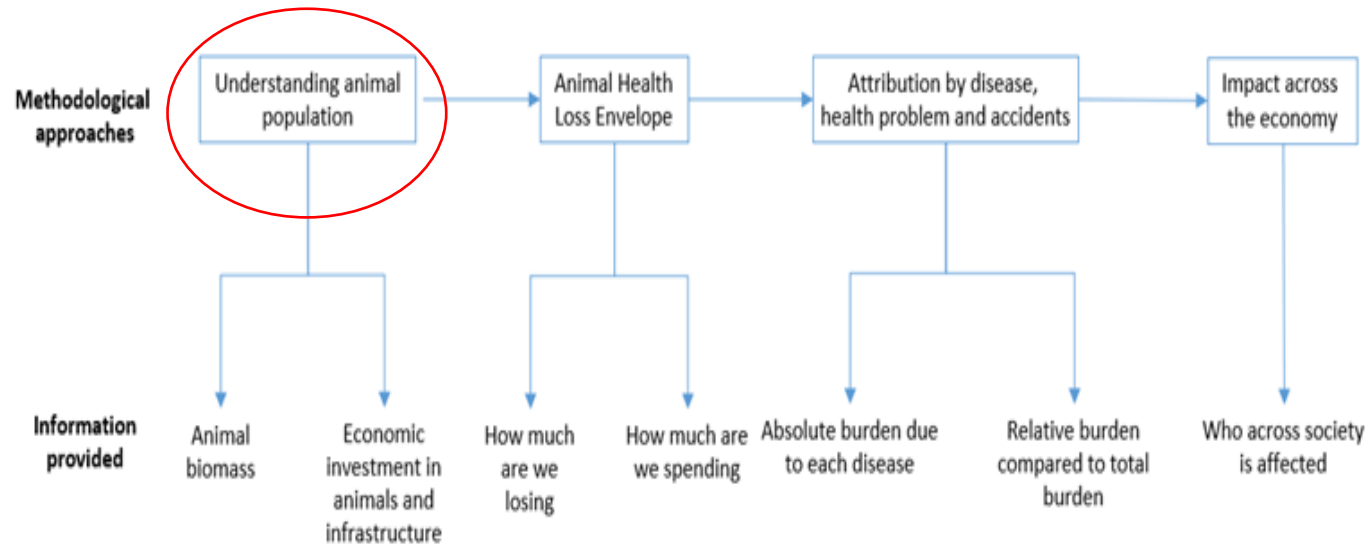
Capacity building

Stakeholder engagement

2. GBADs analytical structure

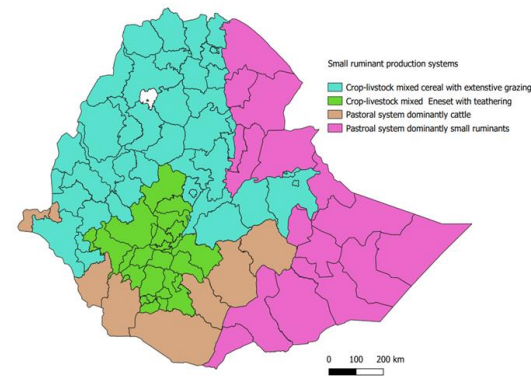
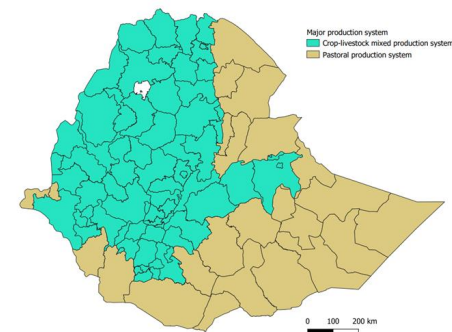


2i. Livestock population and production system (2021)



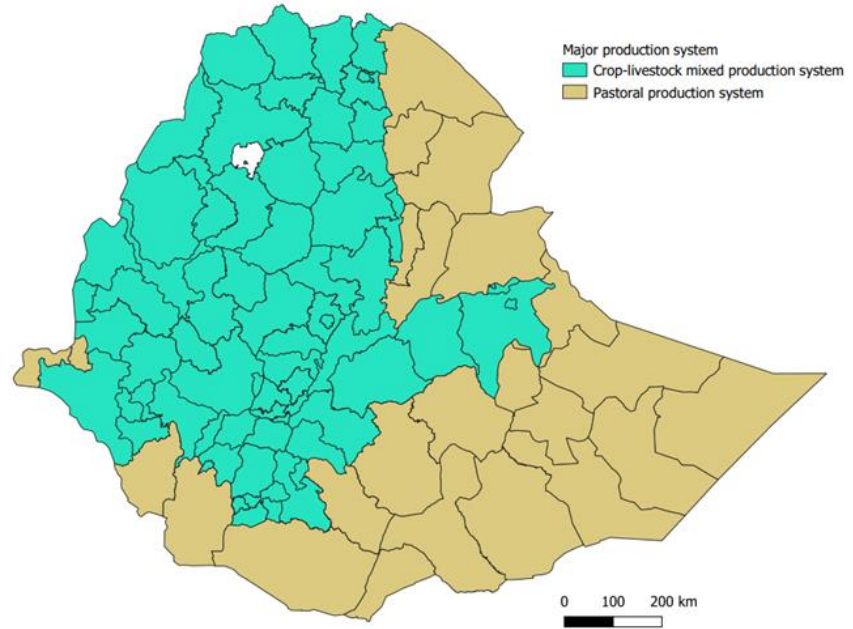
2i. Population – Small ruminants

Production systems	Population		
	Sheep (M head)	Goats (M head)	Total (M head)
CLM-cereal growing and grazing	17.8	18.0	35.8
CLM- <i>enset</i> growing and tethering	6.8	4.1	11.0
Pastoral- cattle dominant	2.7	5.0	7.8
Pastoral- small ruminant dominant	15.5	25.3	40.8
Total	42.9	52.5	95.4



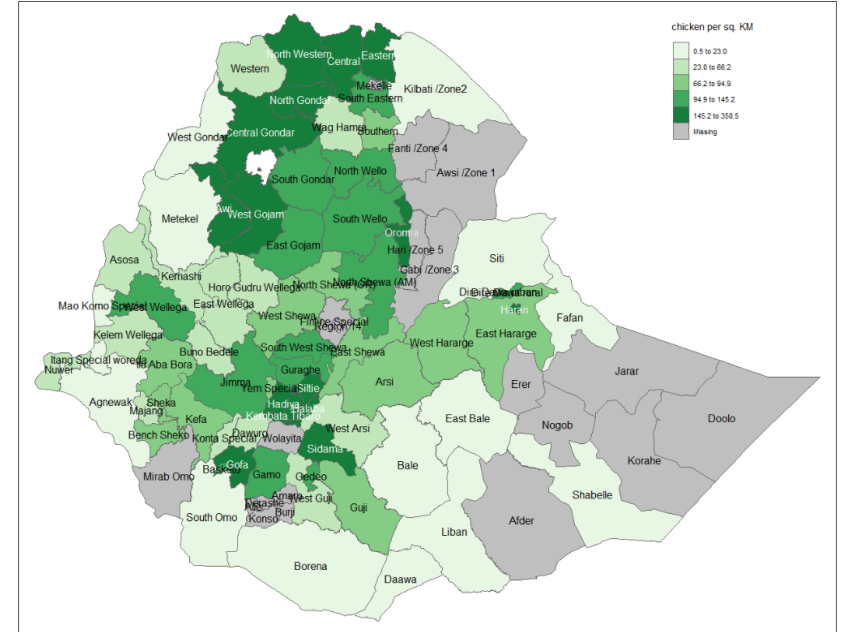
2i. Population – Cattle

Production systems	Population (Million)
Crop Livestock Mixed	55
Pastoral	13.4
Peri-urban Dairy	1.8
Total	70.2

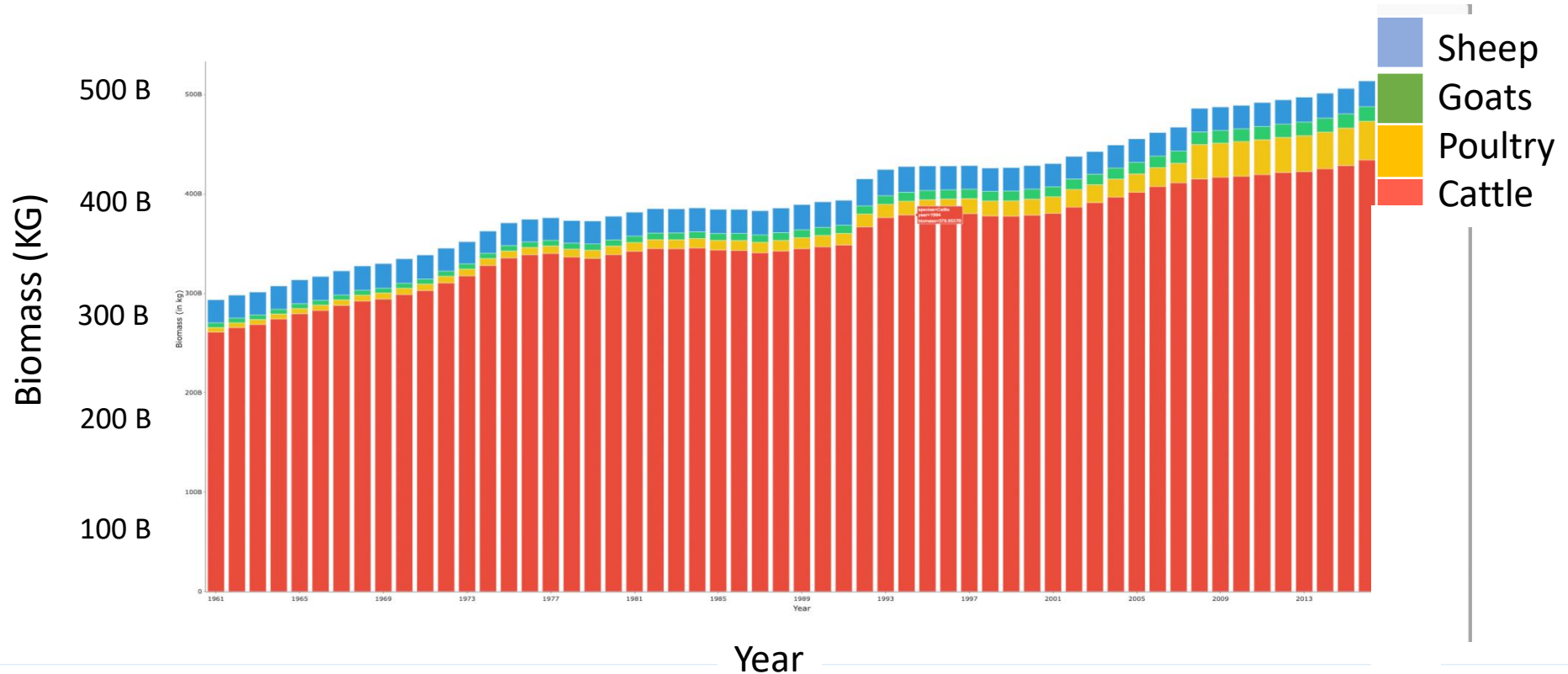


2i. Population – Chicken

Production systems	Population (Million)
Village - indigenous	39.5
Village - hybrid	11.1
Smallholder commercial	3.1
Total	53.7 million



2i. Biomass estimates – Cattle, chicken and Small ruminants)



2i. Publication



OPEN ACCESS

EDITED BY

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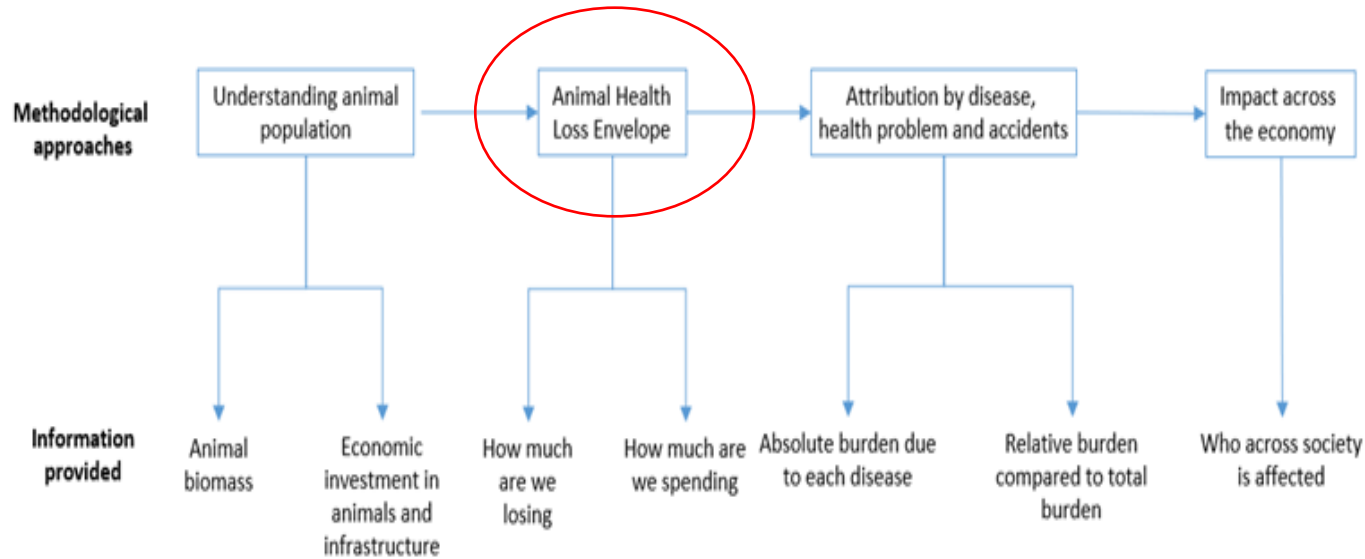
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Food and Agriculture Organization of
the United Nations, Ethiopia

Population, biomass, and economic value of small ruminants in Ethiopia

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Dianne Mayberry^{1,4}, Peggy Schrobback^{1,4}, Jonathan Rushton^{1,6}
and Theodore J. D. Knight-Jones^{1,2}

2ii. Animal health loss envelope (AHLE)



2ii. AHLE – farm level overall disease burden

Ideal Gross margin

-

Current Gross margin

Ideal parameters are derived from expert elicitation workshop using Cooke's method

Mortality = 0
Reproduction
Offtake
Growth rate
Yield

Feed
Labour (- % on health)
Healthcare = 0

Difference

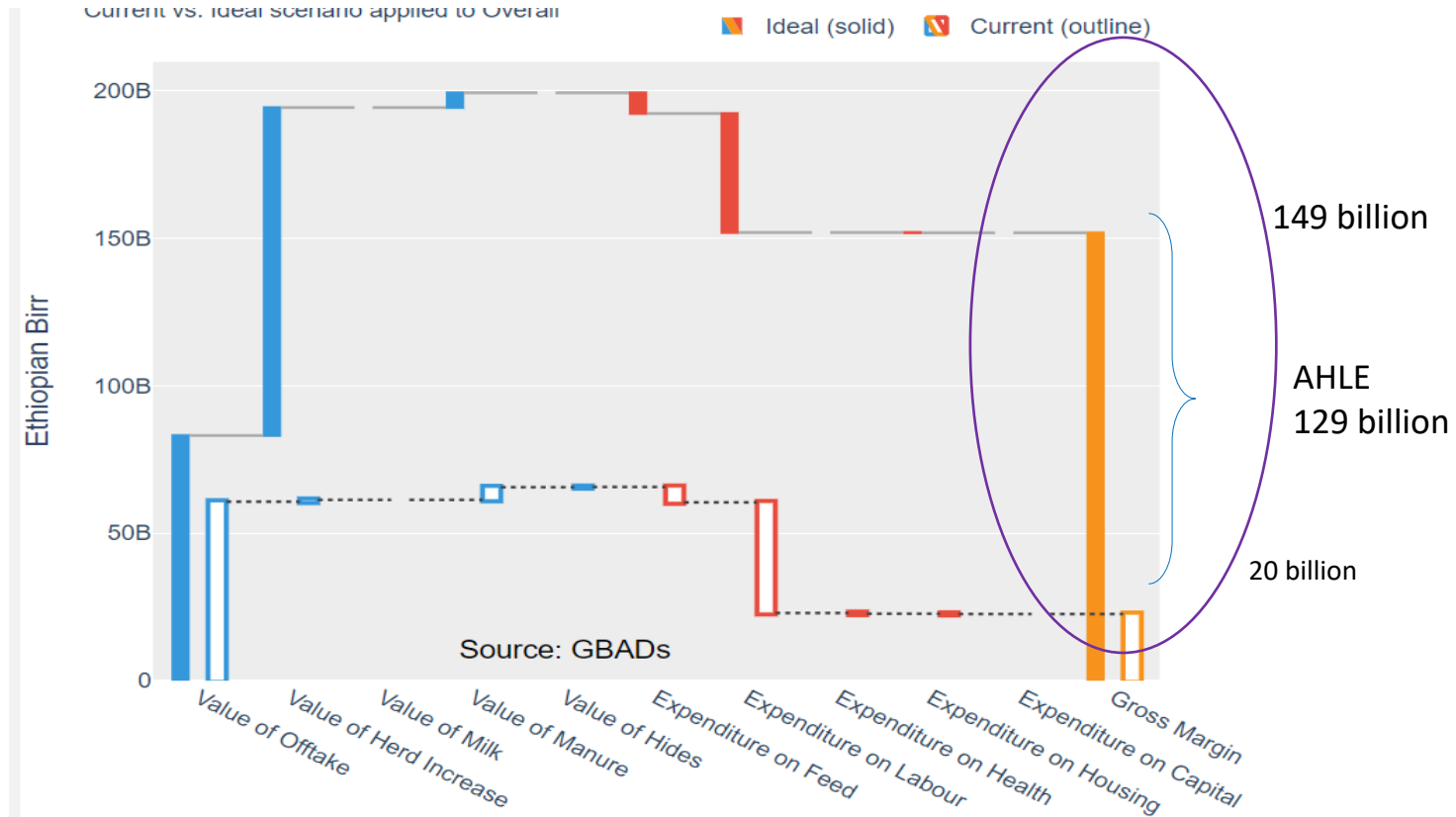
AHLE

Mortality
Reproduction
Offtake
Growth
Yield

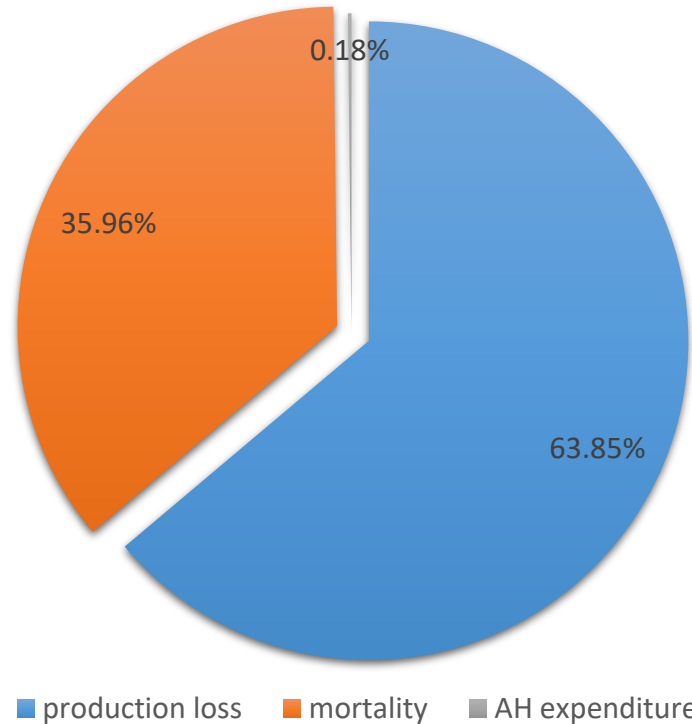
feed
Labour
Healthcare

Parameters from existing data from central statistical agency and meta-analysis of literature data

2ii. AHLE – small ruminants = 3.2 billion USD

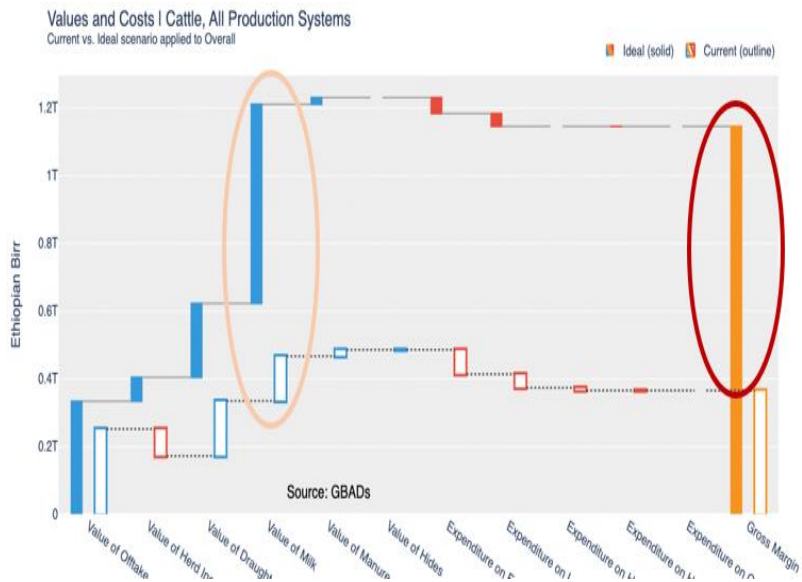


2ii. AHLE component losses for small ruminant



2ii. Preliminary AHLE – cattle and poultry

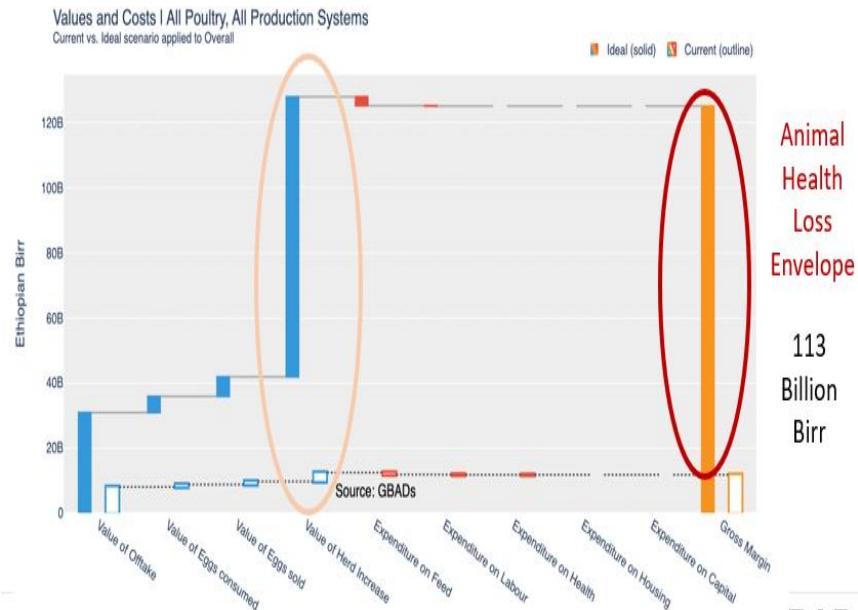
Cattle AHLE = 19.5 billion USD



Animal Health Loss Envelope

780 Billion Birr

Chicken AHLE = 2.8 billion USD



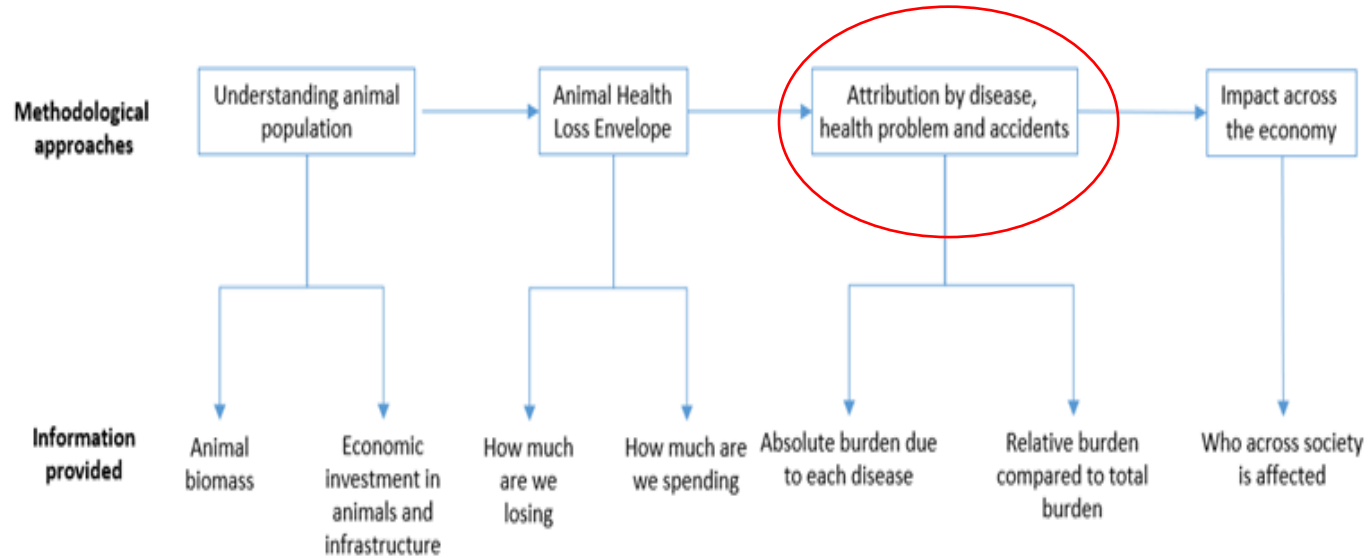
Animal Health Loss Envelope

113 Billion Birr

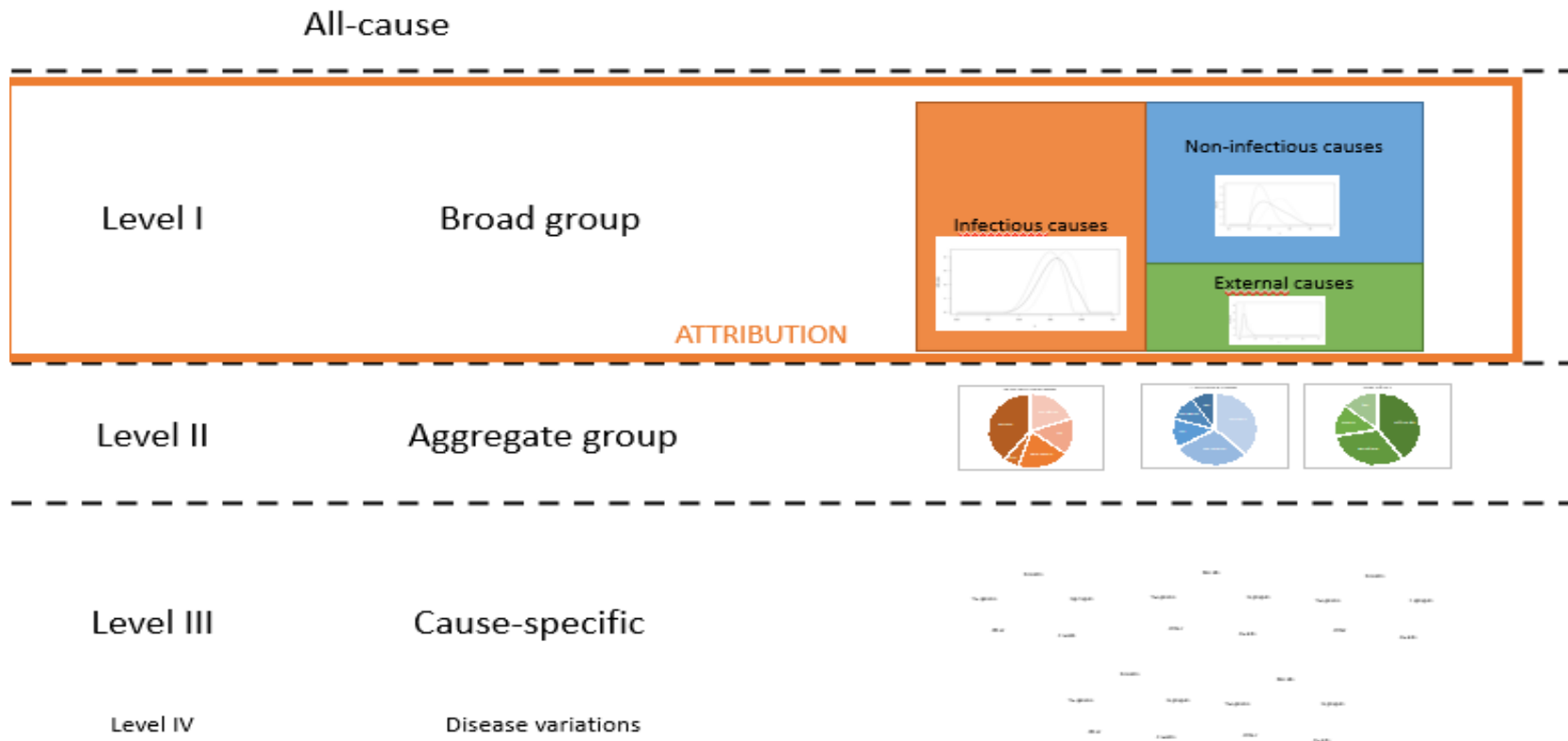
2ii. Inter-species comparison of AHLE

Species	Population (Million head)	Biomass (Million tropical livestock units)	Stock Value (Billion US\$)	Output Value (Billion US\$)	Animal Health Loss Burden (Billion US\$)	\$ Burden per biomass Unit
Cattle (pastoral and CLM)	70	57.6	31.20	10.8	19.5	340
Small ruminant	96	8.88	5.95	1.97	3.2	360
Poultry	57	0.324	-	-	2.8	864
Equids	13.3	7.3	1.34	1.42	-	
Camel	8.1	8.1	-	-	-	

2iii. Attribution

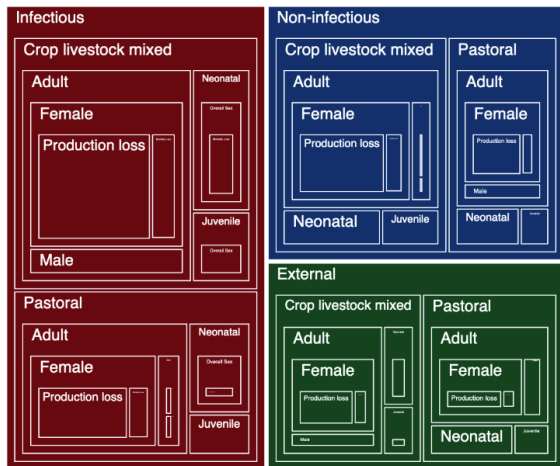


2iii. Attribution – disaggregating burden by causes

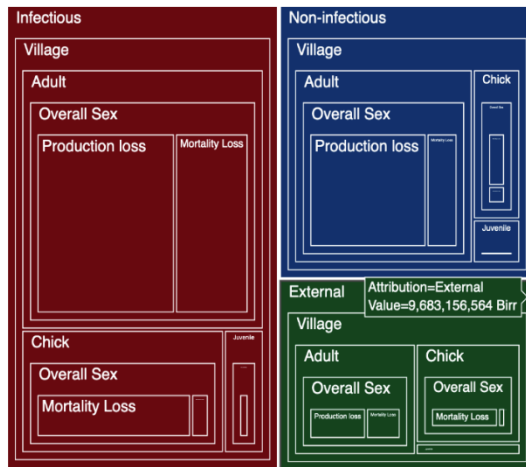


2iii. Attribution – Level 1 results

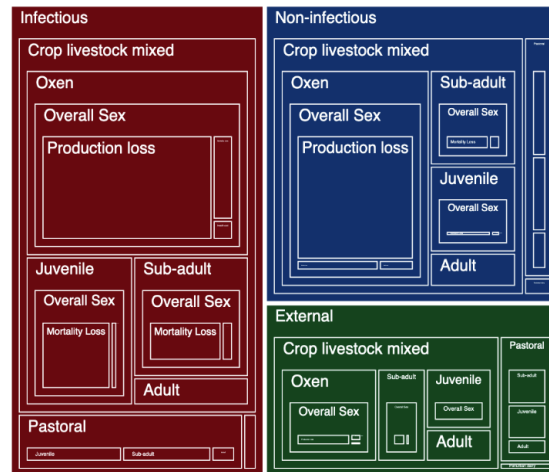
Small ruminants



Chicken



Cattle

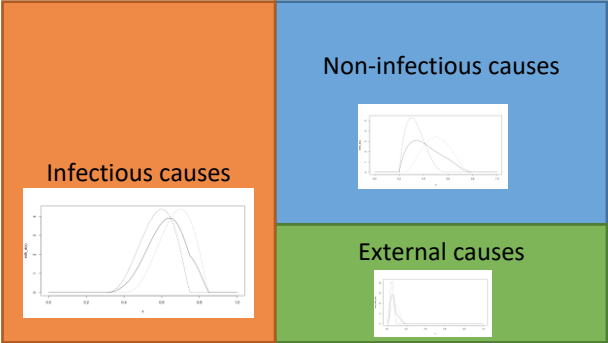


2iii. Attribution – Level III results

All-cause

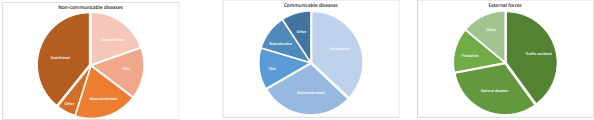
Level I

Broad group



Level II

Aggregate group



Level III

Cause-specific



Level IV

Disease variations

ATTRIBUTION

2iii. Attribution – Level III results

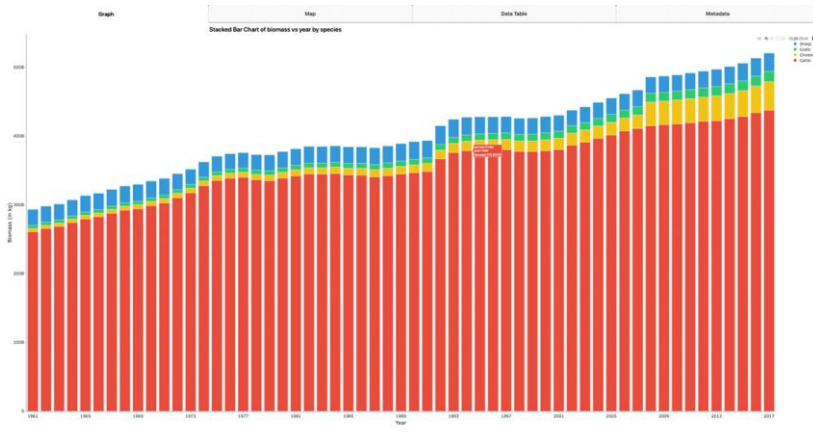
Ethiopian CLM system
Mortality due to PPR

Imputed from systematic
review

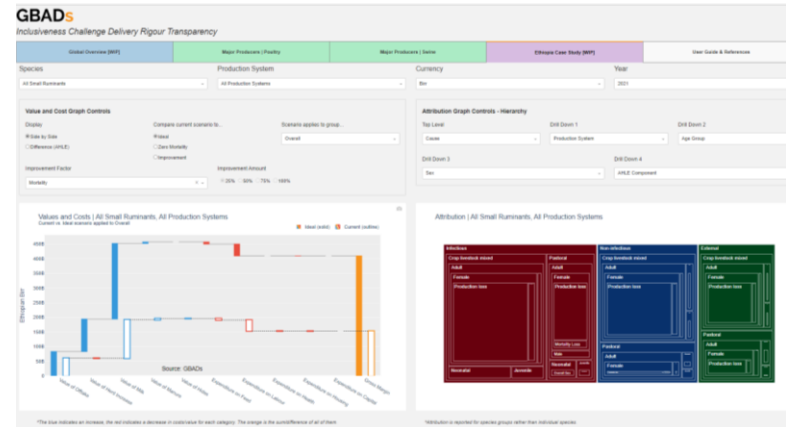


3. GBADs output – dashboards to support decision-making

Biomass an economic value
<http://gbadske.org/>



Animal health loss envelope and attribution
<https://gbads.firstanalytics.us>
Username: GBADs. Password: welcometogbads



Dashboards are in the prototyping phase and are not final

4. Ongoing activities

- The longitudinal time series analysis for national level
- Subnational AHLE analysis
- Disease specific attribution
 - Burden of PPR in small ruminants
 - Burden of FMD in cattle
- Human health burden of zoonotic disease
 - Burden of Brucellosis on public health
- Wider economic impact of small ruminant disease
- Incorporation of all these outputs in the GBADs knowledge engine