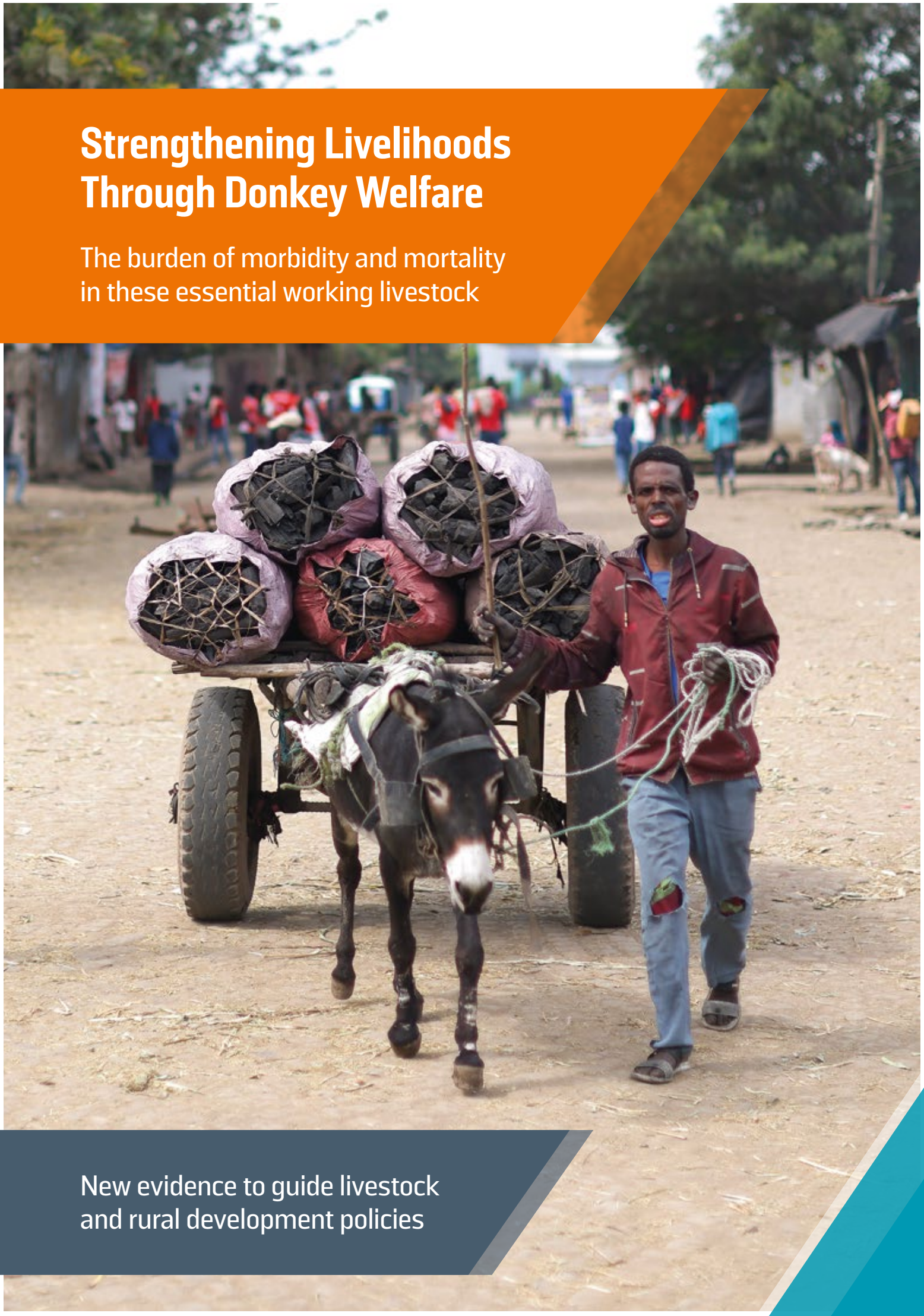
Strengthening Livelihoods Through Donkey Welfare

The burden of morbidity and mortality in these essential working livestock



New evidence to guide livestock and rural development policies

AUTHORS

Brooke: Action for Working Horses and Donkeys
International Livestock Research Institute
Global Burden of Animal Diseases

ACKNOWLEDGEMENTS

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ACTION FOR WORKING HORSES AND DONKEYS

GBADs
Animal health metrics for sustainable food systems

ILRI | CGIAR

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ABBREVIATIONS

AHLE	Animal Health Loss Envelope
AHP	Animal Health Practitioner
CAHW	Community Animal Health Worker
GBADs	Global Burden of Animal Diseases
GDP	Gross Domestic Product
ILRI	International Livestock Research Institute
NGO	Non-Government Organisation
USD	United States Dollars



Photo: © Chelsie Reed

Foreword

Ethiopia is home to more than 10 million donkeys. Across rural villages, peri-urban communities, and pastoral landscapes, donkeys carry water over long distances, transport firewood and farm produce and help families transport goods to and from markets. Donkeys also play a role in times of disaster, helping the response reach those in need in difficult conditions. Despite this, donkeys have remained largely invisible in policies, data systems, and investment decisions.

This report brings the invisible contribution of donkeys into clear focus through robust evidence about the scale and significance of these working animals as partners in resilience in Ethiopia. Strikingly, the report shows that donkeys support around 7.5 million households and generate an estimated $2.2 billion (USD) in economic value. Beyond these numbers, these gentle animals save time, ease physical burdens, and create opportunities for families, especially women and girls, to pursue education, livelihoods, and better futures.

Brooke Ethiopia sees this reality every day through its work with communities across the country. We meet women and girls whose daily journey for water has been reduced from hours to minutes thanks to a donkey. We see farmers able to bring their harvest to market on time. We work with many families whose livelihoods depend entirely on income generated by working donkeys in those commercial settings. It is because of these compelling realities that the UN has recognised donkeys, among other working animals, as vital assets in the face of climate disasters and as important contributors to agriculture.

Yet, this report also reminds us of a difficult truth. Preventable welfare challenges are undermining the potential of donkeys to transform lives. Injury, disease, and poor working conditions, among others, affect their welfare and productivity, shorten their lives, and ultimately impact the livelihoods of communities who depend on them. The report estimated that $646 million (USD) was lost each year due to donkeys' injury and disease. This is not just an economic figure, but represents increased vulnerability for households, especially women and children.

This is why Brooke's work in Ethiopia has always gone beyond animal welfare alone. Our approach is rooted in the understanding that the welfare of donkeys and thriving communities are inseparable. By improving access to veterinary services, promoting better husbandry and harnessing practices, strengthening local systems, and working hand-in-hand with government and partners, we aim to create lasting change that benefits both working donkeys and the communities who depend on these animals.

Importantly, this report provides not only evidence but also direction. It introduces new ways of understanding how donkeys are used across different production systems, offering practical insight into how policies and interventions can be better targeted. It makes a compelling case that investing in donkey welfare is necessary for animals' quality of life and to meet sustainable development goals, economic productivity, and social equity.

As you read this report, I encourage you to see beyond the statistics and consider the lives behind them. Picture the woman collecting water at dawn, the farmer transporting his harvest, the child walking to school instead of carrying heavy loads. In each of these moments, a donkey is working alongside people to support their daily lives. These animals are essential to community wellbeing, yet their own welfare is too often overlooked.

This report is a call to recognise donkeys as essential contributors to Ethiopia's development and to ensure they and their welfare needs are included in the policies, systems, and investments that shape the future. By doing so, we not only improve the lives of donkeys but also strengthen the resilience and prosperity of millions of people. Together, we can ensure that donkeys are no longer overlooked, but valued as the true drivers of sustainable development that they are.

Finally, on behalf of Brooke, I would like to take this opportunity to warmly acknowledge all who unreservedly invested their precious time, resources and professional expertise for the realisation of this important report.

Thank you,

Mr. Yohannes Kassim
Country Director, Brooke Ethiopia

Executive summary

Donkeys play a foundational but under-recognised role in Ethiopia's economy and household livelihoods. Despite supporting millions of people, their contributions remain largely invisible in national data, policy, legalisation, and investment decisions. This report shares headline findings from a PhD within the Global Burden of Animal Diseases (GBADs) programme. The research is the most comprehensive assessment to date of the socioeconomic value of Ethiopia's working donkeys. It applies GBADs' validated framework to quantify donkeys' socioeconomic value along with the burden of their mortality and morbidity. The results close a key data gap, showing donkeys substantially support communities and that their poor welfare undermines livelihoods and Ethiopia's economy. Donkeys are essential working livestock and their welfare matters. Stronger policy recognition and targeted investment are needed to reach and sustain their value.

RESEARCH FINDINGS

Donkeys support 7.5 million Ethiopian households by enabling access to water, fuel, markets, and crop production. They are integral to sustainable development and linked to several of the United Nations Sustainable Development Goals (SDG 1: No Poverty, SDG 2: Zero Hunger, SDG 5: Gender Equality and SDG 6: Clean Water and Sanitation). Across Ethiopia, donkeys' labour generates an estimated $2.2 billion* a year. At household level, donkeys generate a net return of $567 per year, equivalent to 21% of donkey-owning households' average income.

Most of the net return generated by donkeys are cost savings from their role in unpaid work around the homestead and in agriculture, amounting to $1.6 billion across Ethiopia. For example, donkeys' role in collecting water saves households $126 a year. Without donkeys, families must generate this as additional income to hire substitutes or endure substantial labour. The money saved can be used for essential needs; $126 can provide food for a family of five for 34 days, and the financial leeway is crucial for resilient livelihoods. Donkeys also help households save time, reducing water collection time from 2.5 hours to 30 minutes. Across all activities, donkeys help families reclaim 16.5 hours a week. The time saved generates opportunities for girls to attend school and for women to develop skills and earn their own income.

However, donkeys' ability to support families is directly influenced by their welfare status. Poor health and inappropriate management limit donkeys' working capacity, shortens their lifespan, and incurs treatment costs. This study estimates that mortality and morbidity of working donkeys result in an economic burden of $646 million across Ethiopia each year, reducing the potential income of each donkey-owning household by 20%. These losses disproportionately affect the poorest households and undermine broader development outcomes.

Eighty per cent of the economic burden is lost production value. Donkeys suffer prolonged and hazardous work environments, overloading, uncomfortable harnessing, and unsuitable husbandry. These lead to lesions, lameness, and malnutrition, reducing donkeys' working capacity and ability to cope. Annually, 26 eight-hour potential working days are lost per donkey due to morbidity. Many of these welfare challenges are largely preventable through improved husbandry and farriery, effective disease prevention, and access to quality animal health services. Despite this, expenditure on donkey health is extremely low. Only 1.3% of the economic burden is due to expenditure on treatment or preventative care, indicating underinvestment in this aspect of their welfare. Rectifying this is crucial. Donkey welfare is important in its own right. **Where donkeys are fit, comfortable, and able throughout their working lives, they are better equipped to support livelihood systems, sustainable development, and Ethiopia's economy**.

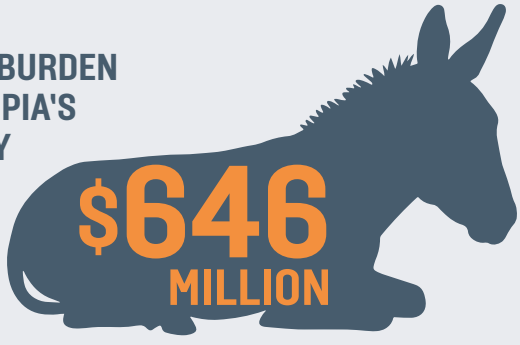
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ACROSS ETHIOPIA DONKEYS GENERATE

$2.2 BILLION

Annual net return from their traction and transport in 2022.

ANNUAL BURDEN ON ETHIOPIA'S ECONOMY

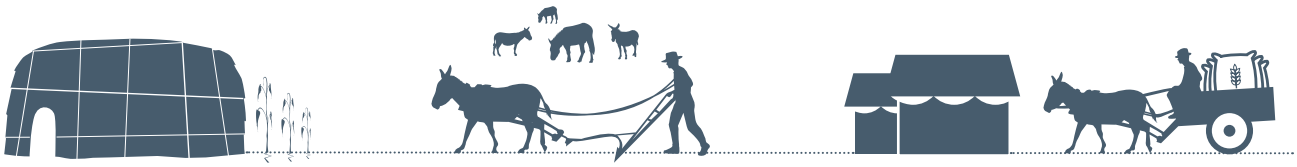


Across Ethiopia working donkey mortality and morbidity results in a loss of $646 million a year, 0.6% of GDP.

IMPLICATIONS FOR POLICY AND PRACTICE

The study developed a data-driven classification of donkey production systems in Ethiopia.

Three production systems were identified and defined:



1 / Domestic-pastoral

Supporting daily life at the edges of infrastructure.

2 / Domestic-agricultural

Engines of smallholder production.

3 / Commercial

Essential transport keeping people, goods and livelihoods moving.

This classification framework can be used alongside the following recommendations to deliver targeted, system-specific actions that meet the needs of individual groups and support the inclusion of working donkeys in national livestock strategies. Using this tailored, evidence-based approach will facilitate impact and better outcomes for animals and people.

RECOMMENDATIONS

Embed donkeys into national livestock and rural development policies

National government and policy-actors should formally recognise donkeys as a distinct livestock category in development plans, livestock strategies, and investment frameworks.

Strengthen animal health systems

The Action for Animal Health coalition provides evidence-based recommendations for strengthening animal health systems.

In Ethiopia, recommendations include:

- The national government should integrate donkeys into disease surveillance, vaccination, and parasite control programmes, and ensure animal health professionals are trained for early detection and response.
- Access to essential veterinary medicines and vaccines must be improved, particularly in rural areas, along with training in their appropriate use.
- Veterinary curricula should include donkey health to strengthen long-term capacity, and national government, regional bureaus, and Non-Government Organisations (NGOs) should help expand quality services in remote areas by training Community Animal Health Workers (CAHWs) and Veterinary Paraprofessionals in clinical skills, compassionate handling, donkey welfare, and preventative care.

Improve donkey husbandry and working conditions

The national government should ensure animal health and welfare extension programmes recognise and address the species-specific health, welfare and management needs of working donkeys. Regional livestock bureaus and NGOs can facilitate CAHWs to support communities in providing quality care and management for their working donkeys.

Target support for women and marginalised communities

National government, NGOs, CAHWs and extension services, and AHPs should prioritise marginalised groups, particularly women, in outreach, training and service delivery. Financial institutions and microcredit providers should support marginalised groups to access affordable credit so that donkey owners can diversify their livelihoods, enabling them to provide better care for their animals.

Align these actions with continental frameworks such as the Pan African Strategy for the Preservation of Donkey Species in Africa

Linking national efforts to continental strategies can strengthen protection of donkey populations and livelihoods.



Photo: © Girma Asteraye

Introduction

BACKGROUND

In human health, the Global Burden of Disease framework provides standardised, comparable metrics that measure the impact of ill health.[1] These metrics provide an overview of how health issues affect people, economies and the environment. They inform policy and investment, ensuring that resources go to the most pertinent issues. In contrast, there is no comparable standardised system for animal health and broader aspects of animal welfare; evidence is fragmented, and there is no clear overview or guidance on where to invest for the most positive outcomes for animals and society. The Global Burden of Animal Disease (GBADs) programme addresses this critical gap.

The GBADs framework includes a set of validated metrics with accompanying methods. Together, they provide a standardised way to compare the impact of animal mortality and morbidity within and across species, production systems and countries.[2] This provides the much-needed overview of how this aspect of animal welfare relates to society, human health and economics. Understanding this enables efficient resource allocation, helping to advance broader goals in livelihoods, food security, public health and environmental sustainability.

GBADs was first implemented in Ethiopia, where they estimated the economic value of small ruminants[3] and cattle,[4] advancing to estimate the farm level burden of animal disease.[5,6] The study at the centre of this report builds on this work by applying the GBADs framework to working livestock. In Ethiopia, donkeys underpin daily life; they transport water, firewood, and crops, and provide access to essential resources. Around 7.5 million households rely on their labour.[7] This includes both farming and non-farming households and amounts to 40 million people. Over the last two decades, the donkey population and the number of households owning donkeys have steadily increased. Between 2004 and 2020, the Ethiopian donkey population grew from just below 4 million to 10.7 million, and the proportion of households that own donkeys increased from 25% to 38%.[7] While this may partly reflect better reporting of donkey ownership, the numbers emphasise that donkeys are integral to households and communities.

Despite their numbers and role in daily life, there is a lack of robust data on how donkeys contribute to society. This leads to an underappreciation of their work in Gross Domestic Product (GDP) assessments. Consequently, they are invisible to the actors who can include them in livestock development programmes and policies. Underinvestment in their welfare means that communities are not supported and problems go unaddressed, impacting household livelihoods, food security, and economies.[8,9]


Photo: © Girma Asfaraye


Photo: © Abebe Alemu

OBJECTIVES AND SCOPE OF THE REPORT

This report shares the headline findings of a four-year PhD study within the GBADs programme. The study is the result of a collaboration between GBADs, the International Livestock Research Institute (ILRI) and Brooke. It defines the production systems that donkeys operate in within Ethiopia, provides a comprehensive assessment of the socioeconomic value of Ethiopia's working donkeys, and a robust estimate of the economic impact of their morbidity and mortality. By providing this, the study helps close a key data gap and provides a practical tool to enhance the visibility of working donkeys as essential livestock that need to be kept in good welfare.

This report intends to highlight the most pressing findings. To that end, it provides only top-line methodological details. Peer-reviewed publications provide full details of the methods, analyses, models and limitations. Citations are included throughout. Sections of the report that discuss results include a link to the relevant peer-reviewed publication.

THE STUDY AREA AND PARTICIPANTS

The study took place in 2022 in the Amhara, Oromia, and Somali regions of Ethiopia. Together, these regions cover two-thirds of the country and contain 80% of its working donkeys, encompassing all contexts in which donkeys work. They also reflect the production systems that donkeys are most often categorised into (e.g. mixed crop-livestock, pastoral[10]). The study focused on Basona Worena (Amhara), Shashemene (Oromia), and Harshin (Somali) districts. Basona Worena is a highland area. Smallholder farmers engage in both crop cultivation and livestock rearing. These two activities are central to household livelihoods and the local economy. Selling Arekei, firewood, pottery and charcoal often also subsidise income.[11] Shashemene, in the Rift Valley, contains highlands, midlands and lowlands. The temperate climate brings rain that supports crop and livestock farming.[12] In Harshin livelihoods depend on extensive traditional livestock production. Ninety per cent of the population lives in rural areas, with the majority of households practicing pastoralism, focusing on sheep and goat.[13]




Photo: © Girma Asteraye

Four hundred and thirty-five donkey-owning and non-donkey-owning households took part in a face-to-face survey, and 73 participated in gender segregated focus group discussions. In addition, the researchers conducted one-to-one interviews with 21 people, including farmers, female household heads, village leaders, veterinarians, animal health workers, development agents, and representatives from donkey cart associations. To complete the data, a structured workshop brought together 12 donkey experts from public veterinary services and Non-Government Organisations (NGOs).

DATA ANALYSIS

The data were analysed using validated GBADs methodologies that have undergone rigorous scientific and peer review. Working donkey production systems were defined using Multi-Factor Analysis and Hierarchical Cluster Analysis. Gross margin and enterprise budgeting were used to estimate the economic gains donkeys bring to households. Comparing alternatives to donkeys enabled an estimate of the value of donkeys' work around the homestead. A stochastic dynamic population model[14] aggregated the data to estimate the economic contribution of donkeys across Ethiopia.

The study also applied the Animal Health Loss Envelope (AHLE) to measure the economic burden of donkeys' mortality and morbidity. The AHLE measures the current burden of mortality and morbidity and compares it with an optimal scenario.[15] A full description of the GBADs' framework and methods is detailed in their Technical Guide.[16]

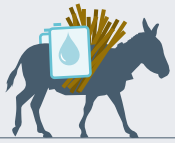


Photo: © Chelsie Reed

Donkeys as drivers of development: The social and economic value of services provided by donkeys

Typically, donkeys begin working at just under three years of age and serve a household for nine and a half years. During this time, they work an average of three hours and 15 minutes per day, routinely carrying 72 kilograms per trip by pack or 466 kilograms by cart. This level of output far exceeds what a household could achieve without animal power.

For millions of households, donkeys are enablers of productivity, access, and resilience, and they are interconnected with several of the United Nations Sustainable Development Goals: livelihoods and poverty reduction (SDG 1), food security (SDG 2), access to water (SDG 6) and women's empowerment (SDG 5).



63% **PRIMARILY UNPAID WORK AROUND THE HOMESTEAD**

Donkeys supporting water access, fuel collection, and farm operations.



31% **BOTH PAID & UNPAID WORK**

Donkeys serving both domestic and income generating roles.



6% **EXCLUSIVELY PAID WORK**

Donkeys exclusively working in commercial roles transporting goods for a fee.



Photo: © Girma Asteraye



Photo: © Girma Asteraye



Photo: © Girma Asteraye

THE ECONOMIC VALUE OF DONKEYS

Donkeys' labour translates into substantial economic gains. In 2022, the national net economic return from donkey use in Ethiopia was estimated at $2.2 billion. The bulk of this ($1.6 billion) comes from savings generated by donkeys' role around the home and in agriculture. Here, donkeys' roles reduce the cost of essential household tasks, and these savings can be used for essential needs such as food and education. Commercial use adds further economic weight. The total gross revenue from donkeys' commercial work is $167 million per year across Ethiopia. Manure production (over 4.1 billion kilograms each year) also contributes $29.9 million, supporting soil fertility and crop productivity. At the household level, a family's donkeys generate a net return of $567 per year, equivalent to 21% of average household income, made up of direct earnings and cost savings.

ACROSS ETHIOPIA DONKEYS GENERATE

$2.2 BILLION

Annual net return from their traction and transport in 2022.

A HOUSEHOLD'S DONKEYS GENERATES

$567 A YEAR

Through direct income and savings, equivalent to 21% of the average household income.

** All mentions of currency within this report are USD unless otherwise specified*

HOUSEHOLD TASKS: LESSENING THE WORKLOAD OF WOMEN AND GIRLS

Ninety per cent of households rely on donkeys to assist with household chores. These include collecting water and firewood, transporting feed for other livestock and trips to the market. Without donkeys, families would need to generate this as income to hire substitutes or complete the tasks without help, which would require substantial human labour. These household tasks do not involve monetary transactions, meaning the economic relief donkeys bring to families is often overlooked. Yet, the savings generated provide a financial leeway that is crucial for resilient livelihoods. For example, to collect water without their donkeys, families would need to find an additional $126 a year to hire alternative help. This money saved can provide food for a family of five for 34 days.[17]

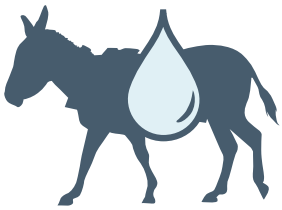
Donkeys also reduce the time spent on household activities. For example, a donkeys' assistance means water can be collected in 30 minutes, without donkeys this would take 2.5 hours. The time saved creates opportunities for other activities, mostly benefiting women and girls who are responsible for many household tasks – 61% of households reported that women and girls are responsible for collecting water. Their donkeys create the prospect of attending school, skill development, and women's own income-generating activities, promoting gender equality.

TIME NEEDED TO COLLECT WATER



The time saved mostly benefits women and girls by creating opportunities, for example, to attend school, develop skills and earn their own income.

HOW DONKEYS SUPPORT HOUSEHOLD ACTIVITIES THROUGH LABOUR, TIME AND COST SAVINGS*



FETCHING WATER

Households make this trip:

Daily – 79%
Once or twice a week – 21%

Average household savings:

$126 (per year)
1.9 hours (each time the activity is undertaken)



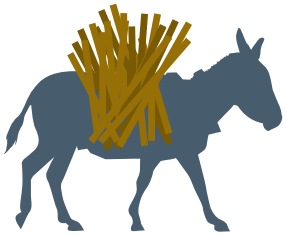
TAKING GOODS TO AND FROM MARKET

Households make this trip:

Once or twice a week – 52%
Once or twice a month – 43%
Less often – 5%

Average household savings:

$37 (per year)
1.7 hours (each time the activity is undertaken)



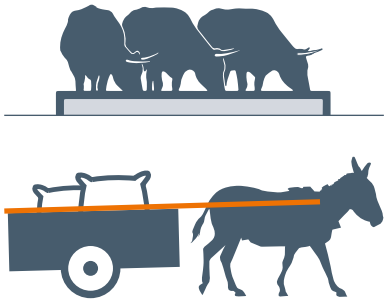
FETCHING FIREWOOD

Households make this trip:

Once or twice a week – 38%
Once or twice a month – 53%
Less often – 9%

Average household savings:

$27 (per year)
1.2 hours (each time the activity is undertaken)



TRANSPORTING ANIMAL FEED

Households make this trip:

Once or twice a week – 16%
Once or twice a month – 49%
Less often – 35%

Average household savings:

$42 (per year)
1.2 hours (each time the activity is undertaken)



TRANSPORTING BUILDING MATERIALS

During transhumance on average each household saves:

$18 (per year)

OVERALL, ACROSS ALL ACTIVITIES, DONKEYS HELP FAMILIES RECLAIM UP TO

16.5
HOURS A WEEK

AND SAVE UP TO

$246
A YEAR

* Frequency households carry out homestead activities that require donkeys' assistance. Based on household survey data from 244 randomly selected donkey owning households in Ethiopia in 2022. Monetary value of donkeys' role in unpaid homestead activities. Based on data from 173 people participating in twenty-three focus group discussions in Ethiopia in 2022 Value of donkeys' role in unpaid homestead activities in terms of time saved. Based on data from 173 people participating in twenty-three focus group discussions in Ethiopia in 2022.



Photo © Abebe Alemu

DONKEYS' ROLES IN AGRICULTURE SAVE HOUSEHOLDS

$195* A YEAR

The equivalent to 19% of their average annual crop sales

FARM PRODUCTIVITY AND FOOD SECURITY

Donkeys are used in almost every stage of farming. This labour efficiency directly translates into productivity and economic value. Donkey's assistance ensures seeds are planted, harvested and taken to market at the optimum times, minimising waste. Their role in agriculture saves households $195 per year, equivalent to 19% of their average annual crop sales. This makes agricultural production affordable and profitable for remote smallholder farmers who do not have other means of assistance.

EACH YEAR FARM WORK TAKES

128 DAYS WITHOUT A DONKEY

53 DAYS WITH A DONKEY

On average, households rely on donkeys for 53 days of farm work each year. Without donkeys the same work would take farmers 128 days, over twice the time.



COMPARABLE* CATTLE / DONKEY HOUSEHOLD SAVINGS PER YEAR[18]

The amount Ethiopian households save by using cattle for ploughing. This is comparable with savings generated by donkeys.

NATIONAL EXPENDITURE ON DONKEYS' HEALTH COMPARED TO CATTLE[4]

This lack of investment impacts the poorest families, 4% of which do not own cattle and use their donkeys to assist this task.

Seventy-one per cent of households pool labour and animal resources during critical agricultural periods. The study did not calculate the monetary benefits of local cooperative arrangements, **meaning the findings presented here may underestimate the full economic contribution of donkeys**. This social aspect of donkey ownership is often overlooked, and it demonstrates how they help communities share resources and support one another, further bolstering resilience.

Full details of the scientific process behind these findings are published here:

Asteraye, G.B., Jobling, R., Jemberu, W.T., Pinchbeck, G., Knight-Jones, T.J.D., Chaters, G.L., Rushton, J. Estimating the economic value of working donkeys in Ethiopia. *Preventive Veterinary Medicine*, 254:106926. https://doi.org/10.1016/j.prevetmed.2026.106926

ROLE OF DONKEYS IN CROP PRODUCTION AND THE NUMBER OF DAYS USED AT EACH STAGE ACROSS TWO CROPPING SEASONS*

TRANSPORTING FARM INPUTS
Transport fertiliser and seeds from the collection centre to the household and to the farmland

Days used: **0.5**



SOIL PREPARATION
Transport manure from the homestead to the farmland

Days used: **13.8**



SEEDING
Deliver seeds, fertiliser, farming tools, and food supplies for the draft cattle and farmer to the farm area

Days used: **2.3**



WEEDING
Carry water for the application of herbicides and transport hand removed weeds back home for use as animal feed

Days used: **1.5**



TRANSPORTING SHEAVES OF CROP
Transport sheaves of grains and cereals from the farmland to the threshing area near the household

Days used: **6.8**



THRESHING
Threshing to separate grain from the harvested crop stalks, by walking the donkey over the crop

Days used: **11.8**



TRANSPORTING HARVEST TO HOME
Transport produces from farm to household

Days used: **5.3**



TRANSPORTING STRAW TO HOME
Transport straw from farm to home

Days used: **6.3**



TRANSPORTING HARVEST AND STRAW TO THE MARKET
Carry harvested produce and straw from the household to the market to sell locally, or to a road-head for transfer onto the trucks

Days used: **4.8**



* Based on data from 62 people across eight focus group discussions from households that were part of the domestic-agricultural production system in Ethiopia in 2022.



Photo: © Bill Bradshaw

The cost of poor donkey welfare:

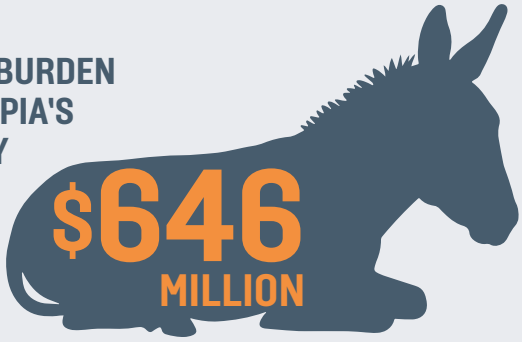
HOW PREVENTABLE MORTALITY AND MORBIDITY UNDERMINES HOUSEHOLD RESILIENCE AND ETHIOPIA'S RURAL ECONOMY

Donkeys enable access to services, generate income and help families save money and time. Yet, their disease and other causes of morbidity, such as injury, lameness and nutritional deficiencies, reduce their working capacity. Treatment costs and suboptimal husbandry practices reduce the net return and the amount of savings donkeys can generate.[19] Morbidity, together with mortality within donkeys' working lives, leads to economic losses at both the household and national levels.[20,21]

Eighteen per cent of these losses result from mortality during a donkey's working life; 80% of these are due to decreased productivity. Donkeys suffer prolonged and hazardous work environments, overloading, uncomfortable harnessing and unsuitable husbandry practices. These lead to lesions, traumatic injury, lameness and weight loss. From the animal's perspective, these conditions mean pain, impaired movement, weakness and a reduced ability to cope. In pastoral systems, these can be further exacerbated by feed shortages and drought, which intensify the deprivation experienced by the donkey. Together these impair donkeys' functional ability, market value and working lifespan.

Conversely, only 1.3% of the economic burden is expenditure on treatment and prevention of disease and other causes of morbidity. This suggests a low level of investment in this aspect of donkeys' welfare. Yet, evidence shows that the burden of animal disease reduces when you increase investment in health systems.[22,23] Many of the issues described, along with the associated animal suffering, are preventable through improved husbandry practices and the integration of working donkeys into existing disease prevention strategies. Combined with stronger preventive and curative veterinary services, alongside farriery, humane handling and harnessing support, there is potential to reduce donkeys' morbidity and its impact. Experts interviewed for this study estimated that each year, 26 eight-hour days are lost to donkeys' morbidity. Reducing this by 20% would reduce economic loss by 16% ($103 million), bolster the net return from donkeys, and strengthen livelihoods and Ethiopia's economy.

ANNUAL BURDEN ON ETHIOPIA'S ECONOMY



Across Ethiopia working donkey mortality and morbidity results in a loss of $646 million a year, 0.6% of GDP.

ANNUAL BURDEN ON HOUSEHOLDS

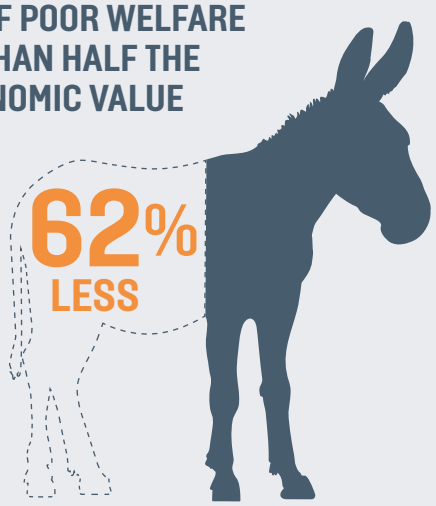
20%
LESS INCOME

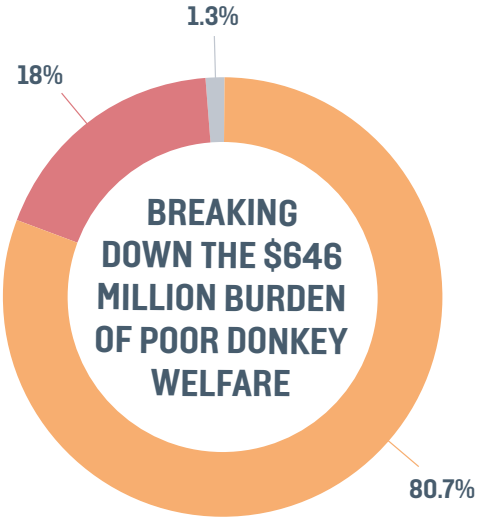


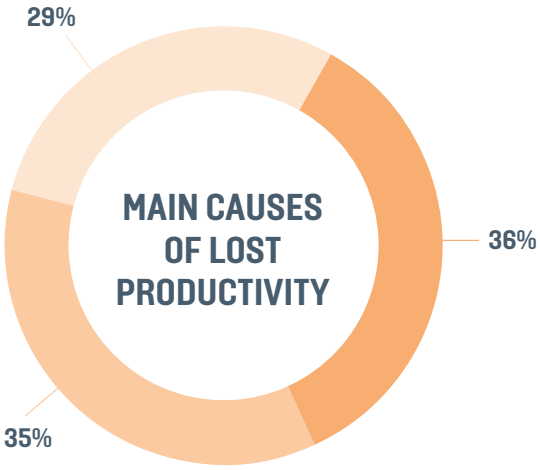
At household level, families lose $116 per year to donkeys' mortality and morbidity, 20% of the potential income and savings generated by their donkeys.

THE BURDEN OF POOR WELFARE COSTS MORE THAN HALF THE ANIMAL'S ECONOMIC VALUE

Losses equate to 62% of the market value of an adult donkey in 2022 ($108).







- Lost production value of donkeys
- Mortality of donkeys during working life
- Expenditure on donkeys' health

- **External factors** e.g wounds, lameness and nutritional deficiencies
- **Non-infectious disease** e.g. genetic, metabolic and physiological illnesses, such as colic, unitary infection and acidosis
- **Infectious disease** e.g. African Horse Sickness, anthrax and parasites

Investing in donkey welfare can strengthen household livelihoods and reduce economic losses across Ethiopia.

Full details of the scientific process behind these findings are published here:

Asteraye, G.B., Chaters, G.L., Jobling, R., Pinchbeck, G., Meyer, A., Larkins, A., Knight-Jones, T.J.D., Jemberu, W.T., Rushton, J. 2026. Economic assessment of burden of animal diseases in donkeys in Ethiopia. Preventative Veterinary Medicine, 257:107043. https://doi.org/10.1016/j.prevetmed.2026.107043



Photo: © Bill Bradshaw



Photo: © Bill Bradshaw







Understanding donkey systems is essential for effective policy and investment

Livestock are routinely categorised into broad production systems. For example, in Ethiopia, cattle are categorised into mixed crop-livestock farming, pastoral and dairy systems, defined by the type of produce, environmental conditions and farming practices. The purpose is to guide targeted resource allocation and inform effective policy. Until now, there has been no systematic and accurate classification system for donkeys, and instead, categories designed for other animals are often used. Also common is grouping donkeys by location (e.g., urban vs rural) or by whether they pull a cart or carry loads by pack. This often misrepresents their roles, including within broader livestock systems. As a result, there is no appropriate differentiation in implementing strategies and policies, and a one-size-fits-all approach hinders effective interventions, reducing the potential for positive change. An accurate classification system ensures tailored interventions that have a better chance of success.

This study developed an accurate, data-driven classification framework for Ethiopia's working donkeys.
It categorises donkeys into three production systems:

1 / Domestic-Pastoral

2 / Domestic-Agricultural

3 / Commercial

Each of the three production systems is distinct in the surrounding agroecology, in how households use donkeys, and in husbandry practices.

The classification system should be used to:

- **Inform targeted, system-specific interventions that meet the needs of individual groups (e.g. human or animal health interventions, infrastructure planning).**
- **Facilitate the inclusion of working donkeys in national livestock strategies.**
- **Inform evidence-based policy.**
- **Facilitate equality by supporting women and marginalised communities.**

The following pages provide a data-driven illustration of each production system, including the challenges faced by people and donkeys operating within them.

Full details of the scientific process behind these findings are published here:

Asteraye, G.B., Jobling, R., Jemberu, W.T., Pinchbeck, G., Knight-Jones, T.J.D., Critchlow, R., Rushton, J., Chaters, G.L. 2026. Classification of donkey systems in Ethiopia. *Preventive Veterinary Medicine*, 246:106719
https://doi.org/10.1016/j.prevetmed.2025.106719

Domestic – Pastoral

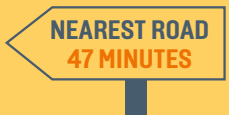
Supporting daily life at the edges of infrastructure



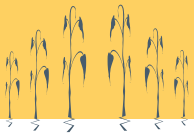
Photo: © Ghirma Asteraye

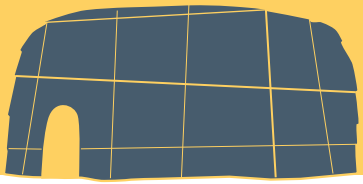
Domestic – Pastoral

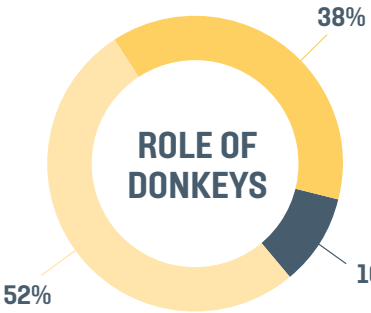
Supporting daily life at the edges of infrastructure











Primarily **unpaid** work around the homestead

Exclusively paid work transporting goods for a fee

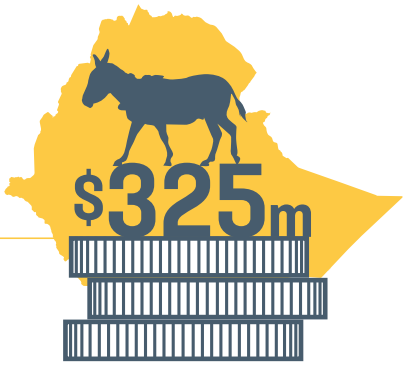
Both paid and unpaid work



DONKEYS GENERATE $512 ANNUAL NET RETURN PER HOUSEHOLD

21% of total household income, ($2460) most of which are savings generated by donkeys' assistance with unpaid work.

AMOUNT PASTORAL DONKEYS GENERATE IN NET ANNUAL RETURNS ACROSS ETHIOPIA



ANNUAL LOSSES FROM WORKING DONKEYS' MORTALITY AND MORBIDITY

$108 PER HOUSEHOLD*

*21% of donkey derived net return

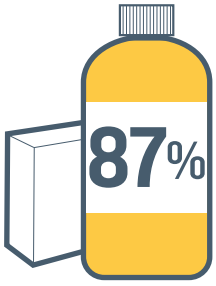
$47 PER DONKEY

$61m NATIONWIDE

VETERINARY SERVICES ARE SCARCE

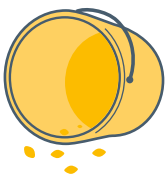
NEAREST CLINIC





HOUSEHOLDS SELF-TREAT THEIR DONKEYS

FEED SHORTAGES AND DROUGHT IMPACT DONKEY WELFARE







INTEGRATING DONKEYS INTO DROUGHT RESILIENCE IS ESSENTIAL



COMMUNITY ANIMAL HEALTH WORKERS ARE ESSENTIAL

To provide services in the remote areas, and there is a need to get Essential Veterinary Medicines to these areas.

Domestic – Agricultural

Engines of smallholder production

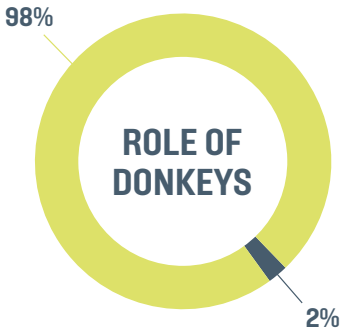


Photo © Girma Asteraye

Domestic – Agricultural

Engines of smallholder production



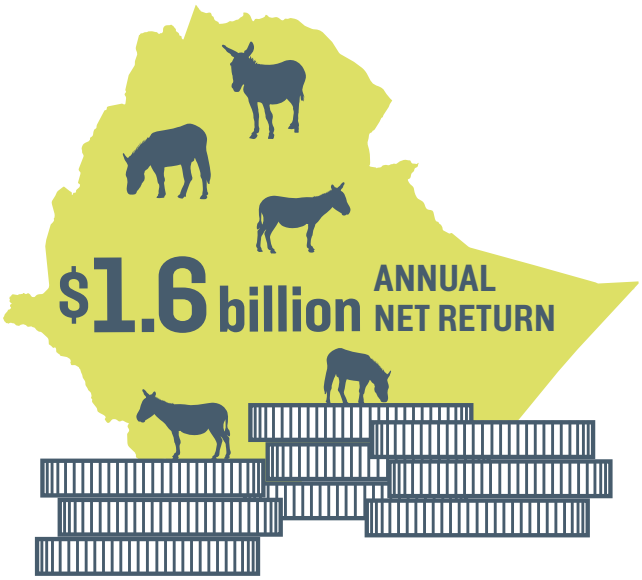




DONKEYS GENERATE $352

ANNUAL NET RETURN PER HOUSEHOLD

17% of total household income, most of which are savings generated by donkeys' assistance with unpaid work.



ANNUAL LOSSES FROM WORKING DONKEYS' MORTALITY AND MORBIDITY

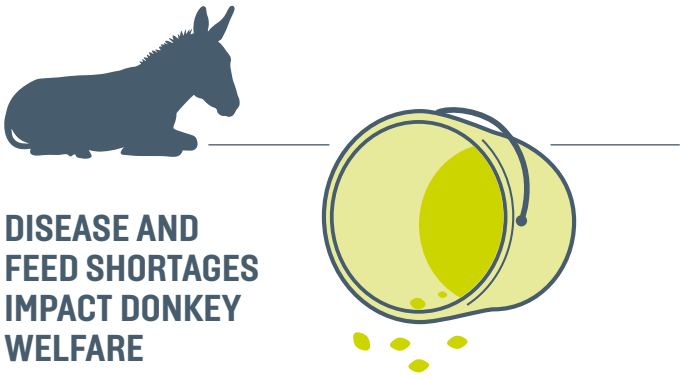
$106 PER HOUSEHOLD*

*30% of donkey derived net return

$58 PER DONKEY

$485m NATIONWIDE

Although this system holds the largest number of donkeys (78.5% of Ethiopia's donkey population) and generates a smaller net return per household, when aggregated across national herds, donkeys in the agricultural–domestic system generate the largest proportion of national net returns, $1.6 billion across Ethiopia.



DISEASE AND FEED SHORTAGES IMPACT DONKEY WELFARE

Extension services like Community Animal Health Workers are essential and they must focus on preventative care e.g. vaccination, hoof care and disease surveillance



Commercial

Essential transport keeping people, goods and livelihoods moving

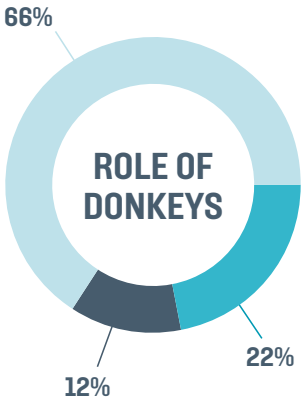


Photo © Chelsie Reed

Commercial

Essential transport keeping people, goods and livelihoods moving





Primarily **unpaid** work around the homestead

Exclusively paid work transporting goods for a fee

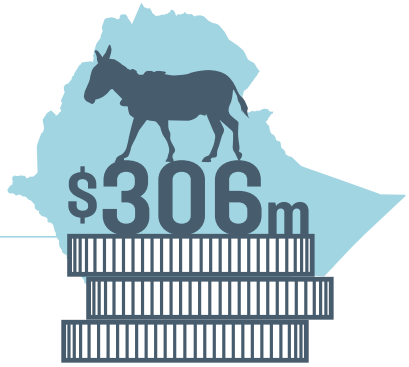
Both paid and unpaid work



DONKEYS GENERATE $837 ANNUAL NET RETURN PER HOUSEHOLD

28% of total household income. For the 6% of households that solely use donkeys for paid work, this is 85% of their income.

AMOUNT COMMERCIAL SYSTEM GENERATES IN NET ANNUAL RETURNS ACROSS ETHIOPIA



ANNUAL LOSSES FROM WORKING DONKEYS' MORTALITY AND MORBIDITY

$275 PER HOUSEHOLD*

*17% of donkey derived net return

$167 PER DONKEY

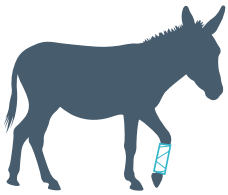
$100m NATIONWIDE

THE WORK IS DEMANDING

Donkeys are often overloaded, injuries are common and mortality rates are high.



Donkey owner primary concerns



LAMENESS

13% ECONOMIC LOSS

$8m TOTAL LOSS

Lameness alone accounted for 13% of economic burden and resulted in a total loss of $8 million per year across Ethiopia.



BYLAWS ARE NEEDED TO:

Promote safe working and humane handling practices

IMPROVE APPROPRIATE ACCESS TO:

OWNER TRAINING AND WELFARE FRIENDLY CARTS AND HARNESSES



DIET & WATER





Photo: © Bill Bradshaw



Final remarks

This study provides a robust assessment of the socioeconomic value of working donkeys. It is the first to place a monetary value on unpaid domestic work and provides the fullest picture to date. The results show that donkeys substantially support communities, generating $2.2 billion a year, and support sustainable development.

However, preventable mortality and morbidity during a donkeys' working life limit their ability to support communities. Across Ethiopia, donkey deaths and their disease, injury, lameness and other causes of morbidity such as nutritional deficiencies, are estimated to reduce potential returns from donkeys by $646 million each year. These losses undermine livelihoods and fall disproportionately on the poorest households, creating a clear economic case for greater investment in donkeys' welfare.

Realising and sustaining donkeys' value requires both greater recognition of donkeys as essential livestock and investment in the welfare conditions they need to remain fit, comfortable and able to cope well throughout their working lives. This demands stronger policy recognition and targeted investment.

Recommendations

1 / Embed donkeys into national livestock and rural development policies

National government and policy actors should formally recognise donkeys as a distinct livestock category in development plans, livestock strategies, and investment frameworks such as the National Development Plan. Convening technical working groups with research institutions and development partners will ensure that policies are evidence-based.

2 / Strengthen animal health systems

National government should ensure that donkeys are included in disease surveillance, vaccination, and parasite control programmes, with Animal Health Professionals (AHPs) trained to contribute effectively to surveillance and early response.

National government and the private sector should ensure that AHPs, particularly in rural areas, have access to essential veterinary medicines and vaccines and are trained in their appropriate use.

Donkeys' access to appropriate animal health services should be strengthened through veterinary training institutes by including donkeys in their curricula. The national government, regional livestock and health bureaus, and NGOs should work to expand quality animal health services, especially in remote locations, by ensuring that Community Animal Health Workers and Veterinary Paraprofessionals should be trained in clinical skills, species-specific donkey health and welfare needs, compassionate handling, and preventative care.

Stronger implementation of Ethiopia's Animal Health and Welfare Strategy by the national government and veterinary associations is needed to ensure donkeys are explicitly included and benefit.

The Action for Animal Health coalition provides evidence-based recommendations for strengthening animal health systems.[24]

3 / Improve donkey husbandry and working conditions

National government should integrate species-specific donkey health and welfare needs into animal health and welfare extension programmes. CAHWs and Veterinary Paraprofessionals should be supported by regional livestock bureaus and NGOs to help communities provide quality care and management for their working donkeys. Training can focus on harnessing, compassionate handling, wound management and preventative care.

4 / Target support for women and marginalised communities

National government, NGOs, CAHWs and extension services, and AHPs can ensure marginalised groups, particularly women, are prioritised in outreach, training and service delivery, and that services consider workloads and decision-making power. In addition, financial institutions and microcredit providers can support marginalised groups in accessing affordable credit, enabling donkey owners to diversify their livelihoods and provide better care for their animals.

5 / Apply the data-driven classification of working donkey production systems (Domestic-pastoral, Domestic-agricultural, Commercial)

National governments, statistics agencies, researchers and NGOs should apply the data-driven classification of donkey production systems to inform policy and programming. Differentiating between domestic-pastoral, domestic-agricultural, and commercial systems ensures that interventions, resource allocation, and service delivery are context-specific and achieve greater impact.

6 / Aling these actions with continental frameworks such as The Pan African Strategy for the Preservation of Donkey Species in Africa

When national government, regional and international organisations implement continental frameworks, they help protect donkey populations and, in turn, safeguard the livelihoods of the 40 million Ethiopians who depend on them.



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ACTION FOR WORKING HORSES AND DONKEYS

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Animal health metrics for sustainable food systems

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For more information on the research contact GBADs (gbads@ed.ac.uk) or Brooke (research@thebrooke.org). If you are interested in working with Brooke Ethiopia to help realise the recommendations, please contact info@thebrookeethiopia.org.