4 Case study: Ethiopia

Ethiopia has a high dependency on domestic animals and has much to gain from effective animal health services and the implementation of the One Health approach. It has the second largest population in Africa – an estimated 118 million people (2021). Despite rapid urbanisation, Ethiopia's economy remains largely dependent on agriculture, accounting for around 40 per cent of GDP, with livestock contributing up to 40 per cent to the agriculture sector. As large parts of the country are unsuitable for permanent agriculture, pastoralist communities move seasonally, at times crossing the border with Kenya and Somalia.

2nd

largest population in Africa at an estimated 118 million people

80%

of households have contact with domestic animals

+233%

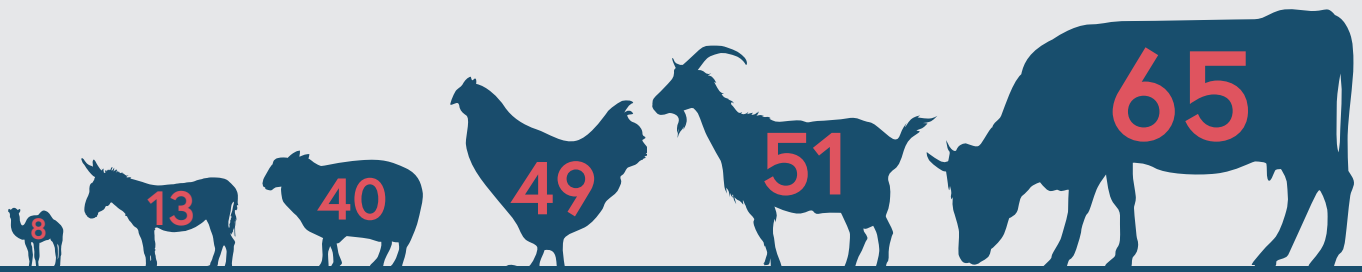
increase of working equids in Ethiopia, from 5.7 million in 2004, to 13.3 million in 2020

High

burden associated with zoonotic diseases

Livestock population of Ethiopia

(in millions)



Ethiopia's domestic animal population includes millions of cattle, goats, sheep, camels, chickens, and equids (see above). The majority of farmers own small numbers of livestock, and almost half of livestock-owning households depend on their working equids for transportation and to support farming practices. Free-roaming dogs are ubiquitous, and there is a high risk of rabies infection to both animals and humans.

As the human population continues to grow, livestock resources are under pressure to increase production, employment opportunities, and income. The livestock sector is constrained by animal diseases, shortages in feed, poor market infrastructure, and institutional factors, resulting in production-related losses of up to 50 per cent annually. Animal diseases including zoonoses are a huge financial burden. Across rural Ethiopia, particularly in pastoral areas, access to animal health services is limited, while primary health-care units are often poorly equipped, understaffed, lack transportation, and face shortages of essential medicines and other medical supplies.

Ethiopia is a federal state, with devolved powers and responsibilities to its regions and administrative councils. The country is divided into four administrative levels: regions, zones, woredas (districts), and kebele (wards). Livestock production-level disease prevention and control is the responsibility of regional authorities, while notifiable diseases are monitored at federal level. The country is experiencing increased inflation, and its state-controlled financial sector has limited foreign currency earnings capacity. As animal health supplies require input from abroad, funding towards the animal health sector has decreased in real terms (KII). The animal health system is almost entirely run and funded by the government so there are very few private animal health services; however, attempts are ongoing to improve public–private partnerships.

Community engagement

Around 14,000 CAHWs provide extension and other services to fill gaps in service delivery (KII). In principle, CAHWs are nominated, selected, and endorsed by community representatives and the kebele chairman. They receive training by regional livestock and health bureaus, and/or non-profit organisations. To improve and ensure sustainability, public–private partnerships are established through a fee-for-service model, linking CAHWs with pharmacists (KII). Following their graduation, the local leaders who nominated, selected, and endorsed the CAHW continue to monitor their activities, which is essential to identify gaps in knowledge and capacity, while ensuring sustainable high-quality services.

While animal keepers are familiar with a range of animal and zoonotic diseases, including rabies, tuberculosis, and brucellosis, many are unaware of basic preventive measures or lack sufficient incentives or resources to put these into practice. The CAHW training therefore includes 'community partnership skills', where students are taught to engage with the community to better understand local knowledge and traditions, raise awareness in the local language, and consolidate and support husbandry and animal health skills, including hygiene and simple treatments. It also includes human health activities, such as health insurance schemes for community members and supporting livestock keepers during emergencies (KII).

Photo: © VSF Suisse

Box 7.

The importance of basic animal health care

Many of Ethiopia's livestock die young from preventable issues. For example, of the 5 million cattle born into the pastoralist systems every year, up to 2 million will die before they are weaned from their mothers.

The Young Stock Mortality Reduction Consortium, set up as a pilot study by the Ethiopian government, comprises organisations including SEBI-Livestock (University of Edinburgh), the University of California, Davis (UCD), Addis Ababa University, and the Ministry of Agriculture. The initiative was established to support smallholders to improve the health of calves and overall herd production.

- Epidemiological data was collected on the major causes of young stock morbidity and mortality constraining livestock production.
- Intervention strategies were developed and implemented to control young stock morbidity and mortality.
- Training of farmers and evaluation of interventions were carried out.

Nine hundred households were recruited from six different regions and three major production systems: peri-urban, mixed crop livestock, and pastoral.

For each system, interventions were selected through consultation with stakeholders and experts, aiming for targeted improvement in animal husbandry, management, and health. An evaluation found that by improving basic livestock husbandry, feeding, housing, and neonatal care practices:

- Calf mortality risk reduced by 31.4–71.4 per cent compared to baseline (between 10.5 and 32.1 per cent);
- Risk of diarrhoea reduced by 52.6–75.3 per cent (baselines 11.4–30.4 per cent); and
- Risk of respiratory disease reduced by 23.6–80.8 per cent (baselines 3.3–16.3 per cent).

This significant reduction shows that simple changes to basic care can have compelling results.

It demonstrates that as well as consideration given to major transboundary animal diseases and zoonotic diseases, attention applied to the impact of hygiene and sanitation, neonatal management, poor nutrition, and availability of primary animal health services is of great importance to small-scale farmers and the welfare of their animals.

Photo: © ILRI

Animal health workforce

Ethiopia produces 450-550 veterinary graduates a year, almost half of these from Addis Ababa University, with numbers rapidly increasing. EVA's national mandate is to 'promote and strengthen the animal health profession, for an efficient, effective and competitive livestock industry', rather than an all-inclusive response to other domestic animal and wildlife health.

In relation to the total animal population, there are few veterinarians. Yet many graduates cannot find a job due to a lack of investment in animal health services. Of the veterinarians who are employed, most work in the public sector, followed by the private sector, NGOs, and UN agencies and organisations (KII). Barriers to employment include inadequate facilities, lack of emphasis on practical classes for applied skills development, and inadequate staff and faculty competencies. As a result of low quality of services, there is a gap between what animal health practitioners expect to be paid for their services and what smallholders are prepared to pay. Key informants add that there is reduced demand for animal health services by smallholders lacking both financial resources to pay for them and trust in animal health practitioners.

Key informants noted that while there currently may be enough animal health practitioners, insufficient high-quality animal health services are available. The lack of focus on applied skills development and practical experience during training results in some veterinarians 'hardly leaving their offices' (KII), and there is high staff turnover in the sector. A PVS evaluation and gap analysis were conducted in Ethiopia in 2011 and 2012, respectively, but the results were not made public. According to EVA assessments conducted in 2011 and 2018, there is a lack of qualified faculty, and no veterinary statutory body. Animal health educational establishments have inadequate access abattoir and transportation facilities and some lack adequate library, clinical, and livestock farm facilities too.

Ultimately there remains a workforce shortage at the community level, especially in the public sector, which is responsible not only for animal health but also extension activities and rangeland management.

Facilities are not equally distributed and are often in poor structural condition, not having enough resources in terms of diagnostic kits, surgical and medical equipment, and water and electricity supplies.

Service delivery, particularly in rural areas, is hampered by a lack of knowledge of procedures, policies, and legal framework; personal incentives for animal health staff; and fuel and transportation so that animal health practitioners are unable to visit animals. Practitioners are often based at static clinics that are difficult for people to access when they have large animals that are sick.

> **[There are few] professionals who can stay in harsh conditions, [they do] not receive enough pay and incentives.**
>
> *Research participant (KII)*

Few animal health practitioners have access to an office space, computers and other communication tools, and PPE. Sectoral cooperation between different public institutions and with private sector animal health service providers at lower levels is weak, with very limited communication between animal health officers and public health and environmental personnel.

Access to medicines and vaccines

Ethiopia faces shortages of quality and legitimate animal vaccines, medicines, and other medical supplies. As a result, where vaccinations are available, these are primarily administered as part of targeted disease control following an outbreak, or during seasons and/or locations where outbreaks are expected to occur. Without a strong surveillance system in place, this is not a comprehensive disease control strategy.

Private sector companies supplying medicines and vaccines are primarily located in larger cities, and a lack of transport means distribution is limited. Access to animal health medicines and vaccines is a challenge in remote, pastoral areas, where the low quantities distributed centrally run out or expire due to gaps in the cold chain, before reaching these locations (KII).

Rural drug store supply is often limited to anthelmintic treatments, which are bought and administered by animal owners without knowing specific doses and courses of treatment:

> **Many livestock owners treat animals themselves with anthelmintics and antibiotics for weight gain.**
>
> *Research participant (KII)*

If people cannot access trained animal health practitioners, who have access to the right medicines, they may turn to unregulated markets, which often have poor quality medicines without appropriate advice on administration and use.

A lack of vaccines and medicines, in combination with gaps in diagnostic capacity, means there is a high dependence on broad-spectrum antimicrobials and anthelmintics, and consequently high levels of antimicrobials are found in animals. As a result of increased AMR and shortages in medical resources and supply, a key informant noted that the country currently has no treatment available for mastitis, for instance (KII). There is also little access to pain relief, local anaesthetic and sedation, which has implications for animal welfare.

Where vaccines and medicines are produced locally, these still require external input of raw materials, which is hampered due to regulatory and monetary issues around imports. The gaps in availability of medicines and vaccines have led to the use of older-generation and unsuitable medicines, as well as the infiltration and proliferation of counterfeit low-quality medicines, affecting communities' trust in modern medicine.

Animal disease surveillance

There are significant gaps in animal disease surveillance in Ethiopia. While an electronic Animal Disease Notification System (ADNS) is in use in some areas, it is constrained by limited electricity supply, low internet connectivity, lack of necessary electronic equipment, and low technological capacity of the field staff. Disease surveillance remains mainly paper-based and passive.

With some exceptions – for instance, the rabies laboratory supported by the US CDC at the Ethiopian Public Health Institute – there is a general lack of diagnostic capacity for most animal and zoonotic diseases. Regional livestock and public health laboratories can currently only diagnose targeted diseases, while anthrax can only be diagnosed in one laboratory in Addis Ababa (KII), thus impeding control of notifiable diseases. Diagnostic laboratories provide free disease testing services, but there is little incentive for livestock keepers to report diseased animals as the provision of treatment is often minimal due to lack of resources.

A key informant said that during the ongoing drought, animals have become too weak for blood samples to be taken (KII). Meanwhile, the lack of hard currency means that there are import challenges with the laboratory supplies that need to be purchased outside the country. Although universities run their own laboratories, there is little collaboration with animal and human health authorities, except for Jigjiga University animal health laboratory, which was used for Covid-19 diagnosis during the pandemic (KII).

Considering these gaps, CAHWs and VPPs play an important role in animal disease surveillance. The number of mobile animal health teams conducting treatment/vaccination campaigns as well as disease surveillance activities is increasing, but their numbers remain low and they face shortages of vehicles and skilled workers to cover much ground.

Collaboration for One Health

Ethiopia has made important progress in implementing the One Health approach. The National One Health Steering Committee (NOHSC) was established in 2017, supported by Technical Working Groups (TWGs) for specific challenges such as rabies control. NOHSC objectives include integrated multisectoral surveillance systems, joint research projects, and enhancing multidisciplinary capacities for detecting and responding to disease. The NOHSC consists of four key ministries (Ministry of Health, Ministry of Agriculture, the Ethiopian Wildlife Conservation Authority (EWCA) under the Ministry of Culture and Tourism, and the Ministry of Environment, Forest and Climate Change) and relevant non-governmental stakeholders. This federal One Health structure is replicated at the region and zone levels. Bilateral and multilateral development partners, including FAO, WHO, USAID, universities, and NGOs, support activities under the five-year National One Health Strategic Plan (2018–2022).

According to key informants, these developments have increased interest and funding towards One Health programming in the country. However, there is a perception that the restructure of the Ministry of Livestock – previously independent and now under the Ministry of Agriculture, led by a State Minister Livestock Resources Development – negatively affects awareness of and funding towards animal health services.

The Ethiopian Public Health Institute at the Ministry of Health and the Ministry of Agriculture jointly lead the One Health programme, with the leadership (chair and secretary) rotating on a six-monthly basis, while the EWCA acts as co-chair. The Ethiopian Public Health Institute also led the US-funded Global Health Security Agenda (GHSA) zoonotic disease prioritisation workshops, involving stakeholders across sectors. Five zoonotic diseases were prioritised and control strategies for them were drafted.

However, the division of authority between federal and state level creates some confusion regarding roles and responsibilities, and unequal financial resource allocation.

The rabies prevention and elimination programme is jointly led by the Ministry of Agriculture and Ministry of Health at national level, in collaboration with regional states and city administrations; anthrax and brucellosis prevention and control are regional responsibilities; while the response to Rift Valley fever (RVF) is managed at federal level.

While priority disease outbreak investigation and response has improved, as well as communication among sectors, significant gaps in institutionalising and implementing the One Health agenda remain. These include a weak mechanism of information sharing between the animal health and human health sectors, lack in capacity and subject matter expertise at subnational level, and significant reliance on support/technical assistance from international organisations and external experts. While some veterinary health data is available, it often remains 'stuck' at the Ministry of Agriculture rather than being shared with other One Health partners, which hampers investigations (KII).

A lack of formal and specified budget for implementing One Health activities has led to gaps in formal joint preparedness and response mechanisms, accessible and quality disease surveillance data, and limited laboratory diagnostic capacity especially at regional level. A major gap is the lack of animal health services in remote, rural, and in particular, pastoral areas, resulting in irregular disease surveillance and reporting and hence an incomplete overview of disease prevalence and burden.

Pilot projects are being implemented to restructure the animal health services using public–private partnerships to increase outreach. Under the One Health for Humans, Environment, Animals and Livelihoods (HEAL) project, the establishment of One Health units provides interdisciplinary training to teams of CAHWs and community health workers, working closely with public and private service providers. This has improved response speed. There is a push to further integrate human and animal disease surveillance, and scale up activities to woreda level in collaboration with regional health bureaus.

Photo: © Bill Bradshaw / Brooke

Box 8.

The One Health for Humans, Environment, Animals and Livelihoods (HEAL) project

The collaborative multi-year HEAL project spans arid/semi-arid locations in Northern Kenya, Somalia, and East Ethiopia. It aims to improve the accessibility of health and animal health services; support livestock, people, and natural resources; and besides the development of mobile One Health units, includes environmental interventions to sustain the ecological processes of the rangeland ecosystem. The project is implemented by VSF Suisse, in partnership with the International Livestock Research Institute (ILRI), Comitato Collaborazione Medica (CCM), and Translate into Meaning (TRiM).

Aligned with the HEAL project, the Jigjiga University One Health Initiative is a research and development partnership between Jigjiga University and the Armauer Hansen Research Institute (AHRI) in Ethiopia and the Swiss Tropical and Public Health Institute (Swiss TPH). It supported the establishment of the Somali Regional One Health Taskforce under the NOHSC, improving coordination and collaboration between the Regional Health Bureau, the Regional Livestock and Pastoralist Development Bureau, and the Bureau of Agriculture and Natural Resources.

Following the establishment of a molecular diagnostic laboratory in January 2020 at Jigjiga University, it became the only Covid-19 diagnostic centre in Somali Region, Ethiopia.

Photo: © ILRI

Action for Animal Health

Full report at **actionforanimalhealth.org**
Contact us at **external.affairs@thebrooke.org**

With thanks to Praxis Labs.

Action for Animal Health calls for governments, donors, and implementing agencies to prioritise investment in animal health systems to operationalise One Health as a sustainable development strategy.