



ONE HEALTH CASES

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Community-Designed One Health Units as a Model for Integrated Service Delivery in Pastoralist Areas of Africa

This case describes the development and implementation of an integrated service delivery model in pastoralist areas of the Horn of Africa.

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Abstract

Pastoralists often live in remote and hard-to-reach areas that are poorly served by existing health services and surveillance systems. To address this challenge, the One Health for Humans, Environment, Animals and Livelihoods (HEAL) project has developed an integrated service delivery model called 'One Health Units' (OHUs), which promotes collaboration and cooperation between service providers working in the areas of human health, animal health, environmental health, and natural resources management. Working as a multi-sectoral team, OHU staff deliver a range of sector-specific preventive and curative services as well as cross-cutting targeting vulnerable pastoralists, their livestock, and the rangeland ecosystems they depend on. The design, planning, management, and monitoring of OHU activities are led by communities through 'Multistakeholder Innovation Platforms' (MSIPs) and by local government through 'One Health Taskforces (OHTFs)'. The HEAL consortium partners, including Vétérinaires Sans Frontières Suisse (VSF-Suisse, lead agency), Amref Health Africa (Amref), and the International Livestock Research Institute (ILRI) provide technical and logistical support to the OHUs, MSIPs and OHTFs. The project is co-funded for a period of 12 years by the Swiss Agency for Development and Cooperation and aims to generate strong evidence on OHUs as an effective and sustainable solution for service delivery in pastoralist areas.

What is the Incremental Value that Makes this a One Health Case?

The health and economic well-being of pastoralist communities is intricately linked to the health of livestock, as well as the sustainable use of rangeland ecosystems. This case illustrates the transdisciplinary process used by the HEAL project to develop an integrated service delivery model to expand access to quality human and veterinary health services and improve natural resources management in pastoralist areas of Ethiopia, Kenya, and Somalia. Communication, coordination, collaboration, and capacity building between sectors (4 C's) are central to the integrated model and are key to operationalizing One Health within the framework of HEAL's bottom-up approach. As part of the integrated model, frontline service providers

are directly responsible for the delivery of services according to their own disciplines and are required to collaborate and communicate with other disciplines to ensure coordinated delivery of these as well as cross-cutting services. They jointly plan activities and provide health education conveying messages on human, animal, rangeland, and environmental health. The integrated model is designed, managed, and supervised in collaboration with local communities and representatives of different sectors within the local government, adopting the transdisciplinarity principle of One Health, and promoting the integration of a broad array of perspectives in the co-creation of effective solutions to health in pastoralist settings.

Learning Outcomes

1. Develop an understanding of the process of integrating services to improve health service delivery and rangeland management in pastoralist areas.
2. Appreciate the importance of collaborating with communities when designing, implementing, and monitoring One Health initiatives.
3. Acquire insights into how the environmental domain can be incorporated into One Health initiatives to improve the health of rangeland ecosystems.
4. Recognize the benefits that come from partnerships between development agencies and research institutions when implementing One Health initiatives.

Background and Context

Achieving universal health coverage is a global aspiration and focus of SDG target 3.8. While progress towards this goal has been made in Africa in recent decades (WHO-AFRO, 2022), providing quality health services to hard-to-reach populations, such as nomadic pastoralists, remains challenging. There are an estimated 268 million pastoralists in Africa who inhabit around 40% of the continent's land mass (African Union, n.d.). Pastoralism is an adaptive livelihood strategy that is characterized by high reliance on livestock and migration of people and animals to access seasonally available grazing lands and water during times of scarcity. This approach enables pastoralists to make sustainable use of resources in arid environments that are otherwise unsuitable for sedentary agriculture (Catley *et al.*, 2012). However, this often means that pastoralists live in remote parts of Africa where there is low service provision and high vulnerability to disease (i.e., human, animal, and zoonotic diseases), climate-related disasters (e.g., drought, flooding), food insecurity, and conflict (e.g., over access to resources). As such, pastoralists have limited access to social services, including health (and veterinary) services, and are largely unaccounted for in disease surveillance systems, despite the high potential for animal-to-human spillover and spillback (Hassell *et al.*, 2020). Further, pastoralists are underrepresented in surveys which are important for health service planning (Wild *et al.*, 2019), with lack of interventional research and economic feasibility studies cited as major barriers to designing effective health services for such populations (Wild *et al.*, 2020).

Limited evidence from Chad (Bechir *et al.*, 2004; Schelling *et al.*, 2007), Nigeria (Bomoi *et al.*, 2016), and Somalia (Kamadjeu *et al.*, 2015) suggests that health interventions that factor in the mobile way of life and centrality of animals in the lives of pastoralists can enhance health service provision to these communities. Findings such as these have led to calls for greater integration of services across sectors in livestock-dependent communities (World Bank, 2012) but more evidence is needed to support the wide adoption of these 'One Health' approaches by the development and humanitarian sectors, as well as by national health systems. Moreover, with predicted climate change, pressure on natural resources and stress on livestock production systems will amplify, with likely increased spread of new diseases, pests, and invasive species (Rojas-Downing *et al.*, 2017).

One Health for Humans, Environment, Animals and Livelihoods (HEAL) is a 12-year development project co-funded by the Swiss Agency for Development and Cooperation (SDC) and other donors. HEAL aims to reshape health service delivery in pastoralist areas of Ethiopia, Kenya, and Somalia in the form of 'One Health Units' (OHUs) which facilitate integrated health service delivery through supporting capacity building and coordination, collaboration, and communication between service providers across different sectors.

This case study describes the process for developing the integrated service delivery model, and early impacts and outputs from the inception phase (March 2019–October 2020) and first 3 years of implementation (November 2020–October 2023).

Transdisciplinary Process

Consortium structure

HEAL is being implemented by a consortium of three organizations including Vétérinaires Sans Frontières Suisse (VSF-Suisse, lead agency), Amref Health Africa (Amref), and the International Livestock Research Institute (ILRI). The different consortium partners bring different technical and operational expertise to the project. VSF-Suisse is the animal health lead and operates three field offices, two in Ethiopia (Dawa zone of Somali Region and Borana Zone of Oromia Region) and one in Somalia (Gedo Region). Amref is the human health technical lead and operates three field offices, one in Ethiopia (Liben zone of Somali Region) and two in Kenya (Isiolo and Marsabit counties). These field offices support the implementation of the HEAL project (as well as other projects) in adjacent areas (Fig. 1). ILRI is a research centre of the Consultative Group for International Agricultural Research (CGIAR). It is the rangeland health, training, and research technical lead for HEAL and has campuses in Addis Ababa, Ethiopia, and Nairobi, Kenya. Given the unique security challenges in Somalia, VSF-Suisse collaborates with a local NGO (Community Empowerment and Development Action, CEDA) that leads the implementation of human health activities in the Gedo Region.

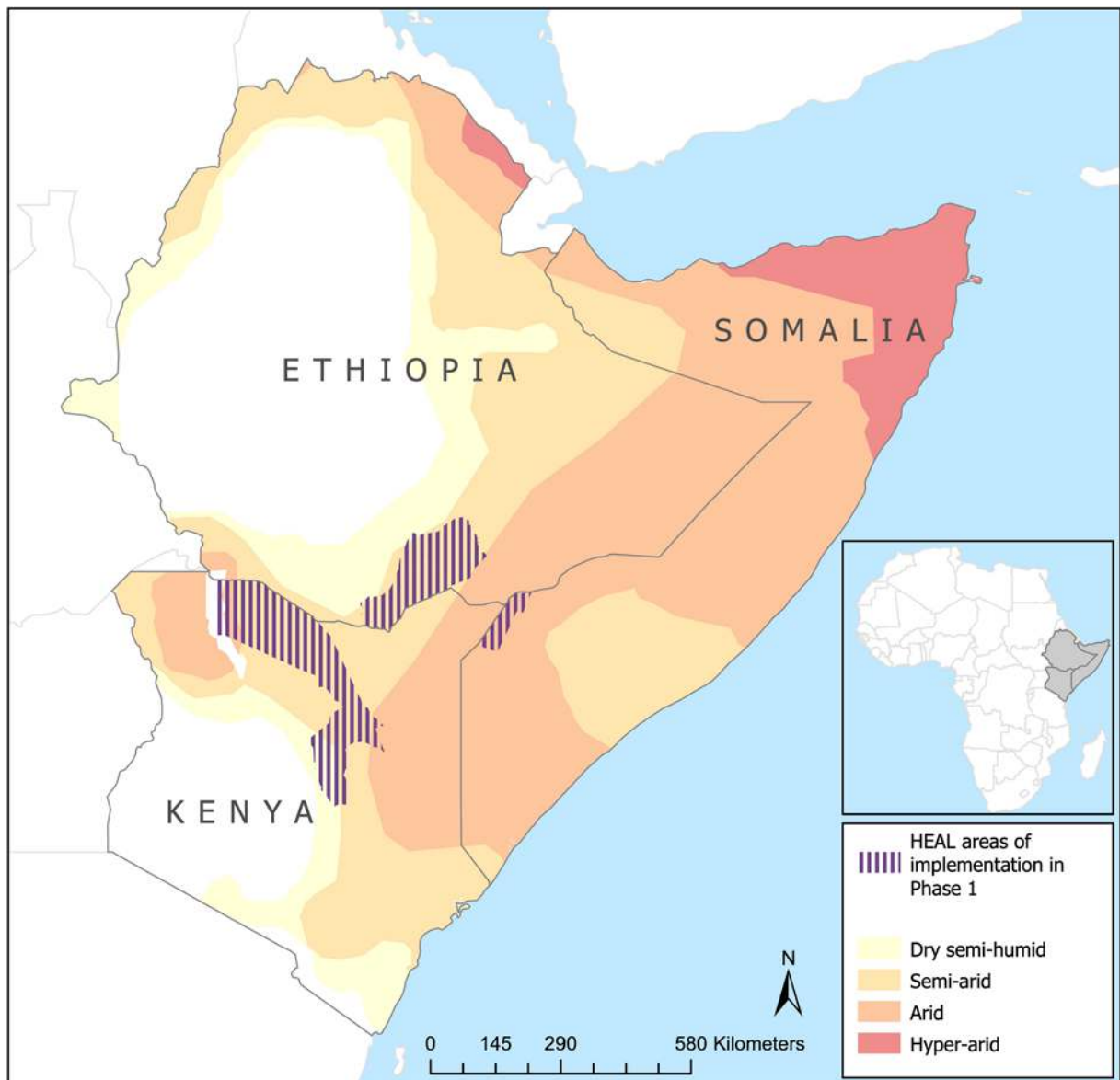


Fig. 1. Map of the Horn of Africa showing areas of HEAL implementation in Phase 1 (depicted with purple hatching). Pastoralists reside in semi-arid, arid, and hyper-arid areas of Ethiopia, Kenya, and Somalia (depicted as a gradient from orange to red). The boundaries used on this map are for visualization purposes only. They do not imply the expression of any opinion of the authors concerning the legal status of any country, or the delimitation of its boundaries. Geospatial data used to create this map were available at: <https://public.opendatasoft.com/> and <https://data.humdata.org> (administrative boundaries); <https://resources.unep-wcmc.org/products/789fcac8959943ab9ed7a225e5316f08> (drylands).

HEAL is governed by a Partnership Board which includes representation from all three partners. A regional project management team based at VSF-Suisse in Addis Ababa aids coordination across partners, field offices, and countries. Each field office is staffed with 'One Health experts' who are variably qualified in human, animal, or environmental health. The integration of rangeland health faced early challenges due to the lack of a dedicated staff presence in field offices. To overcome this, ILRI recruited local experts who were deployed to field offices in Ethiopia and Kenya under host agreements with VSF-Suisse and Amref.

In line with the bottom-up, context-specific, evidence-based, and transdisciplinary approach advocated by HEAL, the consortium collaborates with communities, local actors, and authorities, including both public and private service providers, to operationalize the integrated service delivery model. Formal feedback is provided by a Project Steering Committee that includes representation from local government, national One Health Platforms in each country, international organizations (e.g., World Health Organization [WHO], Intergovernmental Authority on Development [IGAD]), partners, and donors.

Key definitions

To work effectively as a multi-disciplinary, multi-organization, multi-country team, a shared understanding of key terms was considered essential. The HEAL Standard Operating Procedure (SOP) details key definitions used by the project (Table 1). Where possible, these were based on standard

Table 1. Key definitions used in the HEAL project.

Term	Definition
Frontline service provider	Qualified staff engaged in the delivery of health services to humans and animals and in the management of natural resources, e.g. <ul style="list-style-type: none"> Human domain: health officers and registered nurses Animal domain: animal health technicians Environment domain: natural resource management (NRM) officers and environmental health officers working under the Ministry of Health
Community-based actors	Members of the community who are usually selected by the local administration in collaboration with local communities to receive specific training and carry out certain tasks in their village, e.g. <ul style="list-style-type: none"> Human domain: health extension workers (HEWs) in Ethiopia; community health volunteers (CHVs) in Kenya; community health workers (CHWs) in Somalia Animal domain: community animal health workers (CAHWs) in Ethiopia and Somalia; community disease reporters (CDRs) in Kenya Environment domain: development agents (DAs; Ethiopia only)
Environmental health	'A branch of public health that is concerned with monitoring or mitigating those factors in the environment that affect human health and disease' (Oxford English Dictionary). Within the framework of HEAL, this definition is expanded to include the effects of the environment on animal health and disease. In pastoralist rangelands this includes (but is not limited to): <ul style="list-style-type: none"> infectious diseases affecting livestock, wildlife, and/or people which are sensitive to weather and climate patterns (e.g., malaria, Rift Valley fever, anthrax) or other environmental conditions (e.g., tick-borne diseases) infectious diseases and parasites that are spread through the environment (e.g., echinococcosis, hookworm) or through poor environmental hygiene and sanitation practices (e.g., improper carcass disposal) environmental hygiene (environmental health, water, and sanitation) including regulation, management, and development of rangelands/water points to avoid contamination/pollution management of waste, including sewage and manure, solid waste, and plastic
Rangeland health (ecosystem health in the context of rangeland ecosystems)	Rangeland health is 'the degree to which the integrity of the soil, vegetation, water and air as well as the ecological processes of the rangeland ecosystem are balanced and sustained', with 'integrity' defined as the 'maintenance of the functional attributes characteristic of a locale, including normal variability' (Pyke <i>et al.</i> , 2002). In pastoralist rangelands, rangeland health includes the ability of a rangeland to provide the feed base needed to sustain healthy and productive livestock, and to provide ecosystem services to greater society, on a long-term sustainable basis. Within the framework of HEAL, rangeland health is recognized to contribute to human and animal health through providing nutrition and livelihood support, which in turn builds resilience against disease and improves well-being and welfare.
Integrated health services	Integrated health services 'respond to the needs of individuals and populations and deliver comprehensive good-quality services throughout the life course through multidisciplinary teams who work together across settings and use evidence and feedback loops to continuously improve performance' (WHO, 2018). Within the framework of HEAL, multidisciplinary teams include service providers and community-based actors in human, animal, environmental, and rangeland health, working collectively to ensure that, in pastoralist systems, healthy people can derive their livelihoods from healthy livestock, in a sustainably managed environment.

definitions which were adapted to reflect One Health thinking. Chief of these was careful delineation between 'environmental health' and 'rangeland health' as distinct components of the 'environment domain' of HEAL. In addition, to aid communication, it was necessary to develop a matrix outlining the different names given to different frontline service providers and community-based actors in each of the countries of implementation based on similar qualifications and/or job descriptions.

Core elements of the HEAL integrated health service delivery model

HEAL's integrated health service delivery model involves establishing and/or supporting collaboration and coordination platforms at three different levels – for service providers, community members, and local government. These core elements are described below while their interrelationship is depicted in Fig. 2.

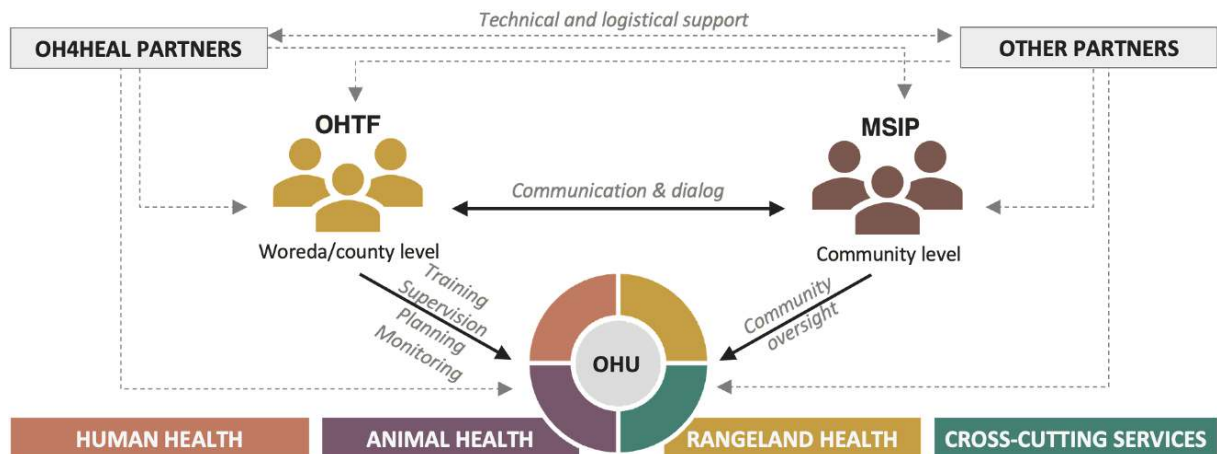


Fig. 2. Visual depiction of the three core elements of the HEAL integrated service delivery model. OHTF: One Health Task Force; MSIP: Multi-Stakeholder Innovation Platform; and OHU: One Health Unit.

One Health Unit

The One Health Unit (OHU) serves as a collaboration and coordination platform for frontline service providers and community-based actors and is the primary means by which services are planned and delivered. The OHU can be mobile, static, or a mix of both delivery modes. In mobile OHUs frontline service providers move along pastoralist/livestock routes, according to a monthly schedule, changing sites every day and responding to the needs of different herding communities. In static OHUs frontline service providers work side by side in a shared facility (e.g., human/animal health post, water point or other village gathering site). The OHU is generally staffed by government employees from different sectors (Table 2) who are supported to deliver integrated services through the OHU as part of their regular duties (Fig. 3; see also Implementation). Services are targeted towards pastoralist and agropastoralist communities, their livestock, and the rangelands that they access, with a particular focus on vulnerable and hard-to-reach communities (including women and children).

Multi-Stakeholder Innovation Platform

The Multi-Stakeholder Innovative Platform (MSIP) serves as a collaboration platform for community members. It is composed of about 15–20 people, selected by the community itself to ensure a good balance in gender, occupation, and qualification (Table 2). Where possible, the MSIP builds on local community-based infrastructures or groups already established and working at the village level on a voluntary basis. MSIP members are trained on the concept of One Health, leadership, and management when they assume the role. Additional training activities (e.g., financial saving and management, community awareness, disease surveillance) are organized by request/as opportunities arise to enhance the skills and competencies of the group members and promote their active engagement in community-based interventions. MSIPs meet monthly to discuss local problems and identify suitable solutions to, for example, disease outbreaks and other health threats, livestock densities and movements, pasture availability, and water access. Outcomes of the discussions are relayed to the OHU and One Health Task Force (OHTF, see below) by a chairperson who is appointed by the community. This information is used to shape services delivered by the OHU to specific locations. In this way, the MSIPs play a key role in designing, implementing, and monitoring sustainable, demand-driven, and need-based OHUs in their locations.

Table 2. Composition of the key elements of the HEAL integrated service delivery model.

Element	Composition
One Health Unit (OHU)	<ul style="list-style-type: none"> At least one health worker (clinical officer and/or nurse/midwife/nutritionist) from the local Health Office or referral Facility to provide health services to children and adults At least one animal health technician from the local Livestock Office or any public/private veterinary facility to provide preventive and curative services to animals and herds At least one NRM officer and/or environmental health officer from the local office At least one community expert or social mobilizer to maintain a close link with the MSIP and ensure a continuous provision of health education activities At least one but preferable more community-based actors (e.g., HEW, CAHW, and DA, where they exist), involved in mobilizing the community and guiding the discussion around health threats and events
Multi-Stakeholder Innovation Platform (MSIP) ¹	<ul style="list-style-type: none"> Leaders of pastoral civil society groups Religious leaders Service providers Traditional healers Teachers/educators Businessmen/women Representatives from the local rangeland institution² Local authorities (including, but not limited to: Health, Agriculture and Livestock, Environment, Education, Women, and Social Affairs) Project staff of NGOs and other development organizations
One Health Task Force (OHTF)	<ul style="list-style-type: none"> Minimum requirement: representatives from the core line ministries (Health, Agriculture and Livestock, Environment and Natural Resource) If deemed necessary by OHTF and/or MSIP: <ul style="list-style-type: none"> Representatives from other government departments (Education, Meteorology, Disaster Management, Water and Sanitation) Representatives of local and international NGOs and community-based organizations (CBOs) working in the area

¹HEAL advocates that at least 30% of members are women, but the percentage varies across locations.

²A local rangeland institution is a body of residents and users of the rangeland, that is responsible for overseeing and coordinating the planning and regulation of rangeland resources at the local level of a rangeland unit.



Fig. 3. Coordinated delivery of human health services (A) and animal health services (B) in Filtu, Somali region, Ethiopia.

One Health Task Force

The One Health Task Force (OHTF) is the collaboration platform for government departments at the local level and largely mirrors the structure of the One Health platform at the national level. The OHTF is usually composed of 5–7 people and includes representatives from the local government administration and technical departments, including from Women and Social Affairs (Table 2). The OHTF oversees the organization and delivery of services via the OHU and guarantees the monitoring of its performance in collaboration with the HEAL partners. OHTF members are trained on the concept of One Health, with selected OHTF members undergoing Training-of-Trainers to aid in cascading to other government staff. The OHTF communicates, coordinates, and collaborates with the MSIPs to ensure that services provided respond to the needs identified by the community. Through taking increasing ownership and responsibility, the OHTF ensures the sustainability of the OHU and its gradual incorporation into government services.

Implementation

Inception phase

During the inception phase (March 2019–October 2020), agreements were signed with regional/state governments in Ethiopia and Somalia (represented by bureaus of finance; health; livestock; agriculture; and NRM or equivalent in each country), and approval was granted by the relevant county governments in Kenya. Several launch workshops were conducted to clarify the project's scope, objectives, strategies, and anticipated outcomes. These workshops emphasized the importance of active community involvement as a vital ingredient for project success.

Extensive investigations were conducted in this phase to understand the local context. A desk review of the One Health policy context was undertaken in all three countries (Onyango *et al.*, 2019). Eight MSIPs were established; these were fully involved in subsequent One Health vulnerability, capacity, and needs assessments (VCA) undertaken at the field level (HEAL Consortium Partners, 2020). Additionally, a gender and One Health context analysis was undertaken using data generated through the VCA (Eba *et al.*, 2020). Mapping and/or validation of livestock migration routes, human and animal health services, and rangeland resources was initiated using Participatory Rangeland Management (PRM). Following similar research conducted earlier in Ethiopia (Villanucci, 2016) and Kenya (Salza, 2019), anthropological research was conducted in Somalia to investigate health perceptions across the three One Health domains (human, animal, environment) among various pastoralist groups, including internally displaced pastoralists (Ibrahim and Salza, 2019). Findings from this research was included in a One Health Compendium describing commonalities and differences in local communities across the three countries (Salza, 2020). Combined, these activities helped the consortium and stakeholders to define a common health strategy for pastoralist areas in the Horn of Africa, while also highlighting specific contextual nuances that needed to be considered in the design of OHUs in each site. These inputs guided the subsequent development of the HEAL SOP, training plan, and Theory of Change for Phase 1.

The inception phase also served as an opportunity to analyse and discuss the achievements and lessons learned from previous One Health projects carried out by Amref among pastoralist communities in Ethiopia and Kenya. With its long field experience in the delivery of integrated human and animal health services to nomadic pastoralists, Amref led the consortium discussion on the design of the OHU and the development of the initial SOP. Inputs and perspectives of service providers, users, and local authorities already involved in the OHU piloted by Amref in Filtu woreda (Ethiopia) and North Horr sub-county (Kenya), informed the design of the governance and management structure for the integrated service delivery model and the planning of its scaling across all HEAL locations.

The team faced several challenges during the inception phase reflective of the complex environment in which HEAL operates. At times, insecurity in project areas hindered staff movement on the ground, while internet disruptions made communication between partners and between regional and field offices difficult. The situation was further complicated by the COVID-19 pandemic, which led to restrictions on movement and gatherings. Consequently, adjustments were necessary to adapt the programme to the new situation and, at the same time, contribute to the COVID-19 response in each country. These included the supply and distribution of personal protective equipment (PPE), and the integration of community preparedness and awareness initiatives in project locations.

In general, government departments were receptive to the idea of collaboratively working across sectors, with local authorities in some areas viewing HEAL as an opportunity to support or establish decentralized

One Health platforms. The political environment was particularly conducive in Kenya, which was already in the process of establishing 'County One Health Units' modelled on the national Zoonotic Disease Unit. However, operationalizing this vision proved harder, hence HEAL's emphasis in Phase 1 on standardizing approaches with an SOP that details *how* the various entities work together.

Phase 1 (pilot phase)

Phase 1 commenced in November 2020 and, like the inception phase, started with the signing of agreements between partners and government line bureaus as well as a series of launch workshops with local authorities to build consensus on the proposed approaches. Villages to be targeted for the establishment of MSIPs were jointly selected with government officials, based on the VCA findings and considering population vulnerability, including to disease outbreaks, and availability and accessibility. Subsequently, the HEAL project was presented to the target local communities. Initial community meetings focused on the findings of the mapping initiated in the inception stage, the structure, and key elements of the OHU, the concept of MSIPs, and the role that they play in guiding the operationalization of One Health at community level. Communities were then tasked with identifying women and men who can represent and commit to leading their community towards a participatory approach to One Health. Where possible, MSIPs were developed from existing community groups in project areas.

Working closely with local authorities and MSIPs, HEAL partners supported the establishment of 16 OHUs (8 in Ethiopia [2 mobile, 6 mixed], 6 in Kenya [all mobile], and 2 in Somalia [all static]) during the first year of Phase 1. Operationalization of the OHUs followed the steps detailed in the SOP and commenced with the training of local authorities and service providers, including community-based actors. In subsequent years, this training has been standardized across sites through the development of several training modules (Lemma *et al.*, 2023; Mor *et al.*, 2023). The SOP has also undergone revision drawing on learning from all consortium partners in Phase 1 of implementation (HEAL Consortium Partners, 2023). MSIPs engage in the routine operationalization of the OHU activities, mainly taking the role of informing and mobilizing the communities of the arrangements, gathering information on the local needs, and liaising with the OHU teams for more effective planning. In some sites, WhatsApp groups have been created to facilitate prompt sharing of needs and reporting of emergencies. The MSIPs advise on the most suitable time that the OHU team should reach water points to maximize attendance and/or schedule OHU services to ensure a fair provision of services to all genders and ages cognizant of different household roles. Transport and allowances have been a challenge to the regular gathering and engagement of MSIPs in some sites. On these occasions, dialogue with MSIP members and non-monetary incentives such as providing refreshments have supported the groups to remain motivated and fully engaged in the project activities.

The service package provided by each OHU varies but, in general, includes both sector-specific and cross-cutting services (Fig. 4). To deliver these services, each OHU is equipped with a basic package of essential items including medications like painkillers and antipyretics, antibiotics, anthelmintic drugs, multivitamins, and equipment like syringes, gauzes, and gloves. In Kenya, these items are procured by or in collaboration with the local authority and distributed to the health facility/health post with OHU staff taking responsibility for maintaining stock records at the facility as well as onward movement (in the case of mobile OHUs). In Ethiopia and Somalia, where supply chain issues are more prominent, HEAL partners assist in maintaining uninterrupted operations during procurement challenges by providing training, mentorship, stock management support, and emergency supply procurement.

In HEAL, the rangeland component aims to build the capacities of communities to address the degradation of rangelands and restore their productivity. This, in turn, enhances livestock production and health, ultimately contributing to improved nutrition, health, and livelihoods of pastoralist communities. The integration of rangeland management planning concepts and rangeland restoration in One Health initiatives has been described in other reports (Sircely and Eba, 2021a, b). While significant progress has been made in HEAL, the incorporation of rangeland health into OHU operations presented early practical challenges. Key among these was the lack in most areas of community-based actors equivalent to CAHWs and CHWs who can deliver rangeland-related services. For this reason, HEAL is piloting a 'community rangeland worker' model in selected areas. Additionally, when designed, the rangelands management component did not focus on rangeland health service delivery but rather on building the capacity of local rangeland institutions to implement improved rangeland management practices (e.g., develop rangeland management plans, establish rules, and by-laws), according to the principles of PRM. This landscape-level intervention proved difficult to integrate into day-to-day OHU operations given the focus of the latter on service delivery

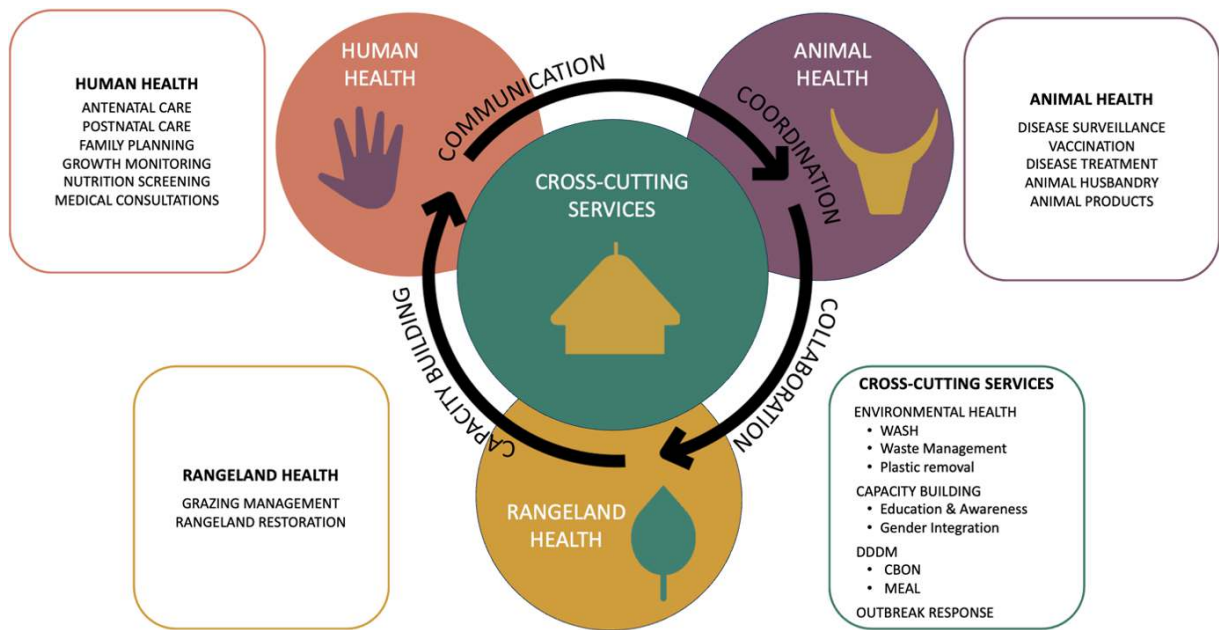


Fig. 4. Services provided by the One Health Unit (OHU). In addition to coordinating the delivery of human, animal, and rangeland health services (single sector), OHU staff collaborate to deliver several cross-cutting services. This includes supporting data-driven decision making (DDDM) through implementing the community-based observation network (CBON) in selected sites, as well as HEAL’s monitoring, evaluation, and learning (MEAL) framework.

in specific kebeles/wards/locations. To help bridge the gap the rangeland component is evolving to include a greater focus on service delivery, especially management of invasive species.

Data-driven decision making (DDDM) is a key component of HEAL implementation. Across all areas of operation, exit interviews on the quality of services provided through OHUs are conducted with randomly selected service recipients and focus on the type of service, how long it takes to receive the service, proximity of the services and level of satisfaction with the services. The data is analysed and used by OHU staff and OHTF/MSIP members as well as HEAL staff to identify corrective actions. In Phase 1, these DDDM efforts have been led by consortium partners; in subsequent phases, it is envisioned that OHU/OHTF/MSIP members themselves will continue to implement and learn from these activities. Joint monitoring visits are also undertaken by the donor, HEAL partners, OHTF members and line ministry representatives to identify issues and make refinements where needed. Further, in Amref-managed sites, a community-based observation network (CBON) has been established through collaboration with a small Italian private company, Translate into Meaning (TriM; Available at: <https://www.trimweb.it>, accessed 8 February 2024). The platform supports local-scale monitoring of weather data and related impacts (e.g., flood, drought) and other relevant information (e.g., outbreaks, environmental hazard), engaging actors at different levels and promoting the integration of science and traditional knowledge to support local decision making processes. In locations where the CBON is operational, community ownership of the system is evident. The CBON is expected to be scaled to all HEAL locations in Phase 2.

HEAL is committed to the intentional integration of gender mainstreaming, ensuring inclusivity in both service provision and decision making roles. Women constitute around 60% of the beneficiaries reached with One Health education and awareness creation. Women are usually tasked with the responsibility of collecting water and firewood in areas that can be very far from their home; the long-distance travelling can affect their participation in meetings and decisions making processes. The project team is working to ensure a proper female representation in the MSIP, to ensure that women take active part in the discussion of community problems and needs and have a voice in the identification of solutions. Currently, women constitute around 30% of MSIP members, although the proportion varies between sites (e.g., 39% in North Horr, Kenya; 14% in Miyu woreda, Ethiopia). Similarly, women constitute around 30% of OHU staff. The representation of women in OHTF is lower (around 20%), likely reflecting the demographic structure of the local governments in each country.

Sustainability is a key consideration in the HEAL project, with an emphasis on the three pillars of sustainability: social equity, environmental protection, and economic viability. Social equity is championed through the implementation of user-defined services, shaped by both the community (through MSIPs) and government (through OHTF). Concurrently, human capacity is strengthened using the SOP and providing

comprehensive training (including Training-of-Trainers) and on-the-job assistance. Environmental protection is integral, with services designed to improve the overall health of rangeland ecosystems in project areas. Economic viability is being pursued through a staged approach. In the pilot phase, the project provides financial inputs and assets for the coordination platforms. This includes supporting per diem for OHU staff, providing vehicles and fuel, as well as medications where these are not supplied by the health system. While local ownership is increasingly apparent – as evidenced by the local mobilization and utilization of the OHU and demand for scaling out – government contributions in this phase have mainly been limited to human resources provision (including providing OHU staff salary) and building infrastructure when necessary. In future phases – as the integrated service delivery model becomes institutionalized – OHU operational costs and supplies are expected to be progressively funded through budget allocation by the government as well as emerging insurance initiatives e.g., Community-Based Health Insurance (CBHI) in Ethiopia. The sustainability of the model also requires system-level strengthening, for example, to improve supply chains in pastoralist areas. In subsequent phases, there will need to be a heightened emphasis on working with government and private sector to strengthen capacity in key areas and to promote more sustainable financial arrangements.

Project Impact

During the initial 3 years of the implementation phase, 27 MSIPs and 16 OHUs were established. The impact of the project during this period is summarized in Table 3. Results from client satisfaction surveys (n=1364) reveal a high level of contentment, with 100% of service users expressing satisfaction and 97% noting OHUs are the nearest service provision site to their residence. Approximately 63% of respondents reported accessing OHU services two or more times, predominantly seeking human health services (86%), followed by animal health services (63%). Notably, in some areas, the MSIP was credited with boosting contributions to CBHI, while enhanced accessibility of the OHU correlated with improved health-seeking behaviours.

Table 3. Impact of HEAL’s integrated service delivery model in the 3 years of the project (Phase 1), November 2020–October 2023.

Indicator	Number
Human health services	
No. people reached with health education during OHU service delivery	60,568
No. women that received antenatal care	7,610
No. people that received vaccination service (PENTA3, TT2, COVID-19)	33,656
No. people that received curative services	84,819
No. people that received nutrition screening services	54,560
Animal health services	
No. animals that received vaccination service (no. households that benefitted)	1,107,544 (77,652)
No. animals that received curative services (no. households that benefitted)	405,577 (20,253)
Rangeland health services	
No. rangeland management plans developed with HEAL support ¹	7
No. rangeland units with digitized maps with HEAL support ¹	10
Ha. rangelands under new Rangeland Management Plan with HEAL support	1,588,523
Ha. rangeland under intensive restoration with HEAL support	48
No. rangeland management institutions trained	8
No. community members trained on rangeland management	481
Cross-cutting services	
No. community members reached with One Health awareness-raising	113,531
No. latrines constructed	775

No. = number; Sq. km. = squared kilometres; and Ha. = hectares.

¹Rangeland Management Plan and map already in place in Borena zone, Ethiopia (under Pastoralist Areas Resilience Improvement through Market Expansion, PRIME; now closed but still existing at rangeland unit level [Wayama]); and Chari Ward, Isiolo, Kenya (under Northern Rangelands Trust, NRT).

The early years of the implementation phase coincided with an unprecedented drought in the Horn of Africa, marked by the failure of five consecutive rainy seasons. This posed several challenges to HEAL, including the need for longer than planned delivery of free inputs/services. Nonetheless, it also provided an opportunity for the integrated service delivery model to adapt and support vulnerable communities

and households during the drought. The Crisis Modifier budget, made available through SDC, facilitated additional impacts, including unconditional cash transfers and animal feed support for the most vulnerable households. It also allowed HEAL to reach more vulnerable communities with the OHU, expanding its coverage to new areas. The coordination between human and animal health professionals proved particularly useful in this context, enabling targeted provision of animal feed to households deemed most vulnerable following nutrition screening.

Project Outlook/Conclusion

Looking ahead, the HEAL project is poised for continued growth and impact. Phase 2 (November 2024–October 2028) will focus on scaling the core elements (OHU, MSIP, OHTF) and expanding the service reach to additional communities. Strengthening the capacity of communities to sustainably manage their land will remain a priority while continuing to refine how this can best be integrated alongside human health and veterinary service delivery. Collaborative partnerships with local government and communities will be strengthened to ensure continued engagement and increased financial buy-in. Moreover, ongoing research will inform adaptive strategies, allowing the project to evolve in response to emerging challenges and opportunities. The overarching goal is to furnish policy makers and donors with compelling evidence on the OHU as an effective solution for service delivery in pastoralist areas. Ultimately, HEAL aspires to enhance health outcomes for both humans and animals, promote sustainable development, and cultivate community resilience amidst the unique challenges faced by pastoralist communities in the Horn of Africa.

Group Discussion Questions

1. What are the unique features of nomadic populations that need to be considered when designing suitable service delivery models?
2. What is meant by 'collaboration' and 'coordination'? Discuss the differences and provide examples.
3. Incorporating the environmental component is a persistent challenge in many One Health initiatives. What approaches is HEAL using to incorporate the environment domain? What challenges did the project face and what adjustments have been made to address them?
4. How might engagement strategies differ depending on whether you are working with government, service providers, or communities?

Conflict of interest

The authors have no conflicts of interest to declare.

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