



ONE HEALTH STRATEGY



OVERVIEW

One Health recognizes interconnectedness of human, animal and environmental health. The long-existing concept has started gaining momentum in response to significant global health challenges. One Health emphasizes a multidisciplinary, multisectoral approach when addressing these challenges.

Multiple sources have attributed different definitions to the One Health concept. For example, the United States Centers for Disease Control and Prevention (CDC) defines One Health as a collaborative, multisectoral and transdisciplinary approach — working at the local, regional, national and global levels — with the goal of achieving optimal health outcomes by recognizing the interconnection between people, animals, plants and their shared environment.

The Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (WOAH), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO) formed a new advisory panel called the One Health High-Level Expert Panel (OHHLEP) to help prevent, predict, detect and respond to global health threats.

The OHHLEP defines One Health in this way:

One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems.

It recognizes the health of humans, domestic and wild animals, plants and the wider environment (including ecosystems) are closely linked and interdependent.

The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air; safe and nutritious food; taking action on climate change; and contributing to sustainable development.

We define One Health as multidisciplinary, multisectoral collaboration to protect and foster the health and well-being of animals, humans and the environment, with the goal of ending hunger and poverty while caring for the Earth.

DEFINITIONS

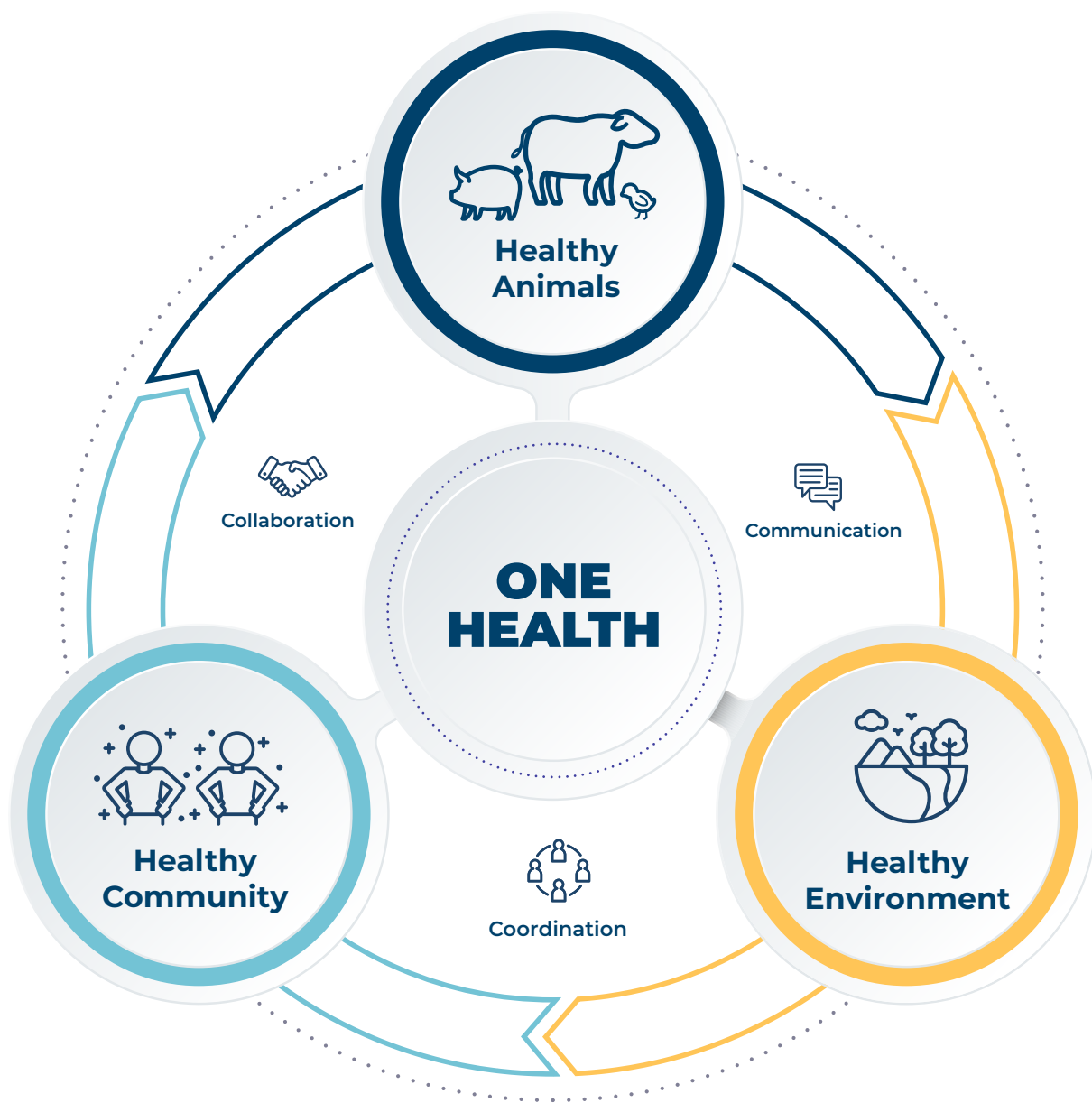
Emerging Infectious Diseases

New, reemerging or drug-resistant infections for which incidence in humans has increased within the past two decades, or for which incidence threatens to increase in the future.

Zoonotic Diseases

Any infectious disease that can be transmitted (sometimes by a vector) from other wild and domestic animals to humans, or from humans to animals.





Using the holistic One Health approach, we can better address many important issues, including:

- Agricultural production and land use
- Antimicrobial resistance mitigation
- Biodiversity
- Climate change and impacts of climate on the health of animals, ecosystems and humans
- Communications and outreach
- Disaster preparedness and response
- Disease surveillance, prevention and response, both infectious (zoonotic) and chronic diseases
- Environmental health
- Food safety and security
- Global trade, commerce, and security
- Human-animal bond
- Natural resources conservation
- Occupational health risks
- Plant and soil health
- Public policy and regulation
- Water safety and security
- Welfare and well-being of animals, humans, ecosystems and the planet

BENEFITS

The ongoing COVID-19 pandemic, paired with outbreaks of animal diseases such as highly pathogenic avian influenza and African swine fever, is a strong reminder that people, animals and the environment are inextricably linked. Many of the diseases causing death and suffering across the globe are diseases that can be transmitted from animals to humans. Often, the cause of new disease threats can be traced back to changes in the environment.

According to the United States Centers for Disease Control and Prevention, sixty percent of all human infectious diseases are zoonotic, originating in animals and 75% of all emerging human infectious diseases are zoonotic. Failing to address animal health will have significant implications for human health — zoonotic diseases result in 2.5 billion cases of human illness each year and more than 2.7 million deathsⁱ. A single zoonotic disease, such as rabies, causes approximately 60,000 deaths annually and an economic loss of USD \$8.6 billionⁱⁱ.

The effective treatment, control and eradication of these disease threats requires an understanding of the human-animal-environment interface. This approach is often called the One Health concept. Failing to incorporate this approach into our program activities contradicts many of our core values.



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ⁱ Gebreyes WA, Dupouy-Camet J, Newport MJ, Oliveira CJ, Schlesinger LS, Saif YM, et al. The global One Health paradigm: challenges and opportunities for tackling infectious diseases at the human, animal, and environment interface in low-resource settings. *PLoS Negl Trop Dis.* 2014;8:e3257. 10.1371/journal.pntd.0003257

ⁱⁱ Katie Hampson, Laurent Coudeville, Tiziana Lembo, Maganga Sambo, Alexia Kieffer, Michaël Attlan, Jacques Barrat, Jesse D. Blanton, Deborah J. Briggs, Sarah Cleaveland, Peter Costa, Conrad M. Freuling, Elly Hiby, Lea Knopf, Fernando Leanes, François-Xavier Meslin, Artem Metlin, Mary Elizabeth Miranda, Thomas Müller, Louis H. Nel, Sergio Recuenco, Charles E. Rupprecht, Carolin Schumacher, Louise Taylor, Marco Antonio Natal Vigilato, Jakob Zinsstag, Jonathan Dushoff. Estimating the Global Burden of Endemic Canine Rabies. *PLOS Neglected Tropical Diseases*, 2015; 9 (4): e0003709 DOI: 10.1371/journal.pntd.0003709

FACTORS LEADING TO THE INCREASE IN ZOOBOTIC DISEASES

Four factors leading to an increase in the prevalence of zoonotic disease in recent years include population growth, land-use changes, agricultural practices and international trade and commerce.



Population Growth

As the population increases, crowding can lead to disease mutation, recombination and reassortment, resulting in deadlier, more contagious strains.



Land Use

Because zoonotic diseases are the result of animal and human interaction, land use plays a significant role in the development of new zoonotic diseases (such as COVID-19) and the increasing prevalence of known diseases (such as avian influenza or foot-and-mouth disease). Contaminated water supplies, deforestation and general changes in land result in more frequent contact between domestic animals, wildlife, people and disease vectors.



Agricultural Practices

Disease emergence can be impacted by the use of antibiotics in food animals, intensive agriculture, deforestation and open agriculture where food animals come in close contact with wildlife.



International Trade, Travel and Commerce

In the 21st century, an individual infected with an emergent infectious disease (EID) can travel thousands of miles before realizing they carry a dangerous, contagious virus. International food trade and sales of exotic pets (both in legal and illegal markets) can also spread zoonotic diseases from one continent to another without proper documentation, testing or regulation. In addition to trade, tourism can spread diseases globally.



COMPETENCIES

We have modeled our understanding of One Health through the lens of the 14 competencies outlined in the One Health modules developed by the Southeast Asia One Health University Network (SEAOHUN)ⁱⁱⁱ with support from the United States Agency for International Development. These modules include seven technical modules and seven core competency modules.

One Health technical competencies: **One Health core competencies:**

- One Health Concepts and Knowledge
 - Fundamentals of Infectious Disease Management
 - Infectious Disease Management
 - Epidemiology and Risk Analysis
 - Fundamentals of Public Health
 - Ecosystem Health
 - Behavior Change
- Collaboration and Partnership
 - Communication and Informatics
 - Culture, Beliefs, Values and Ethics
 - Leadership
 - Management
 - Policy, Advocacy and Regulation
 - Systems Thinking



ⁱⁱⁱ The Southeast Asia One Health University Network: <https://www.seaohun.org/>

CURRENT PRACTICES

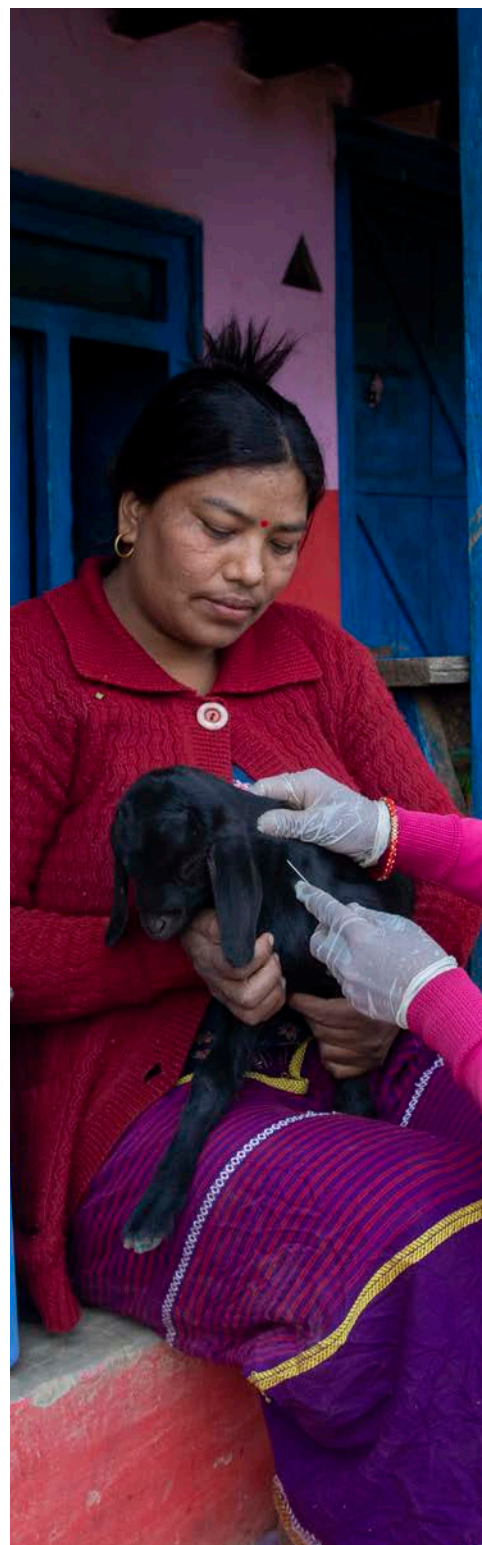
We are fully integrating One Health concepts and practices into our programs. However, the idea of taking a holistic approach to health has been an important component of our Signature Programs for many years. For example, the 12 Cornerstones for Just and Sustainable Development and the Values-Based Holistic Community Development model are already incorporating many One Health concepts.

Our current One Health practices can be classified into three categories: animal health, human health and environmental health.



Animal Health

- Improving animal management practices
- Encouraging practices to prevent antimicrobial resistance
- Producing forage and fodder to ensure animal nutrition
- Ensuring quality and balanced animal feeding
- Promoting zero-grazing and encouraging stall feeding
- Encouraging producers to follow an all-in and all-out system in brooding
- Ensuring 24/7 safe water supply
- Supporting responsible vaccination and deworming of animals
- Raising awareness about zoonotic diseases
- Conducting research in collaboration with various universities to identify and mitigate the risk of animal diseases
- Preventing and controlling common zoonotic diseases
- Developing Community Agro-Vet Entrepreneurs (CAVEs) to ensure animal health services
- Addressing biosecurity issues
- Properly disposing of dead animal carcasses
- Ensuring biosecurity measures are adequately adopted in the community
- Applying quarantine practices during disease outbreaks
- Establishing emergency animal health camps during disasters and disease outbreaks
- Adapting ethnoveterinary practices in animal disease management
- Teaching farmers to identify sick animals and motivating them to seek veterinary services
- Inspiring farmers to adopt animal welfare
- Creating awareness of emerging disease preventive measures





Community Health

- Spreading awareness about safe food production and consumption
- Maintaining the withdrawal period of antibiotics in meat, milk and eggs
- Supporting farmers in the production of hygienic milk
- Training on hygienic meat production and butchery practices
- Raising CAVEs' and farmers' awareness about antimicrobial resistance (AMR)
- Creating awareness about zoonotic diseases and safe handling of infected animals
- Ensuring a 21-day period between vaccination and selling/slaughtering animals
- Adapting ethnoveterinary practices in the community
- Using mass messaging alerts during a disease outbreak



Environmental Health

- Training farmers to plant fodder/forage for animal feed and sustainable land management
- Producing and promoting the use of organic fertilizer, e.g. compost
- Promoting stall feeding of animals
- Properly managing animal waste, including manure; using compost pits
- Educating farmers on the proper disposal of carcasses

According to the One Health model, the best practices within each of these sectors compound and complement each other. Animals fed, housed, vaccinated and slaughtered in a safe and environmentally friendly manner will protect human health while simultaneously benefiting smallholder farmers.



INTEGRATION INTO PROGRAMS

Fully integrating One Health practices into our programs requires intentional action on the part of leadership and program staff. A one-size-fits-all approach is not effective given our presence in several countries in the Africa, Americas and Asia regions with unique climates, cultures and access to resources. Actions that are tremendously effective in one country may not offer any benefits to another. Stakeholders change; agricultural practices vary. Because of this, we have chosen the strategy of developing country-specific One Health strategic plans.

These action plans include standard metrics, including the strategies, timeframe, responsible individual, accountable individual, who will be consulted and who will be informed. Additionally, the activities are grouped by the Southeast Asia One Health University Network 14 One Health competencies. The tables below highlight some strategies for integrating One Health into our program areas.



Strategies for Core Competency Areas

COMPETENCY	STRATEGIES
Collaboration & Partnership	Participate and contribute in meetings on One Health at various levels from central to community level
	Hold a quarterly meeting on One Health at the country program level
	Integrate One Health agenda in meetings with value chain actors
	Collaborate with relevant organizations to access information on notifiable and priority diseases in terms of zoonotic importance
	Identify key concepts and replicable models with knowledge institutions
	Seek key information from relevant departments on how Heifer can support their activities related to One Health/biosecurity/preservation of the environment, especially during disease outbreaks or natural disasters
	Share the basic concept of One Health with colleagues, staff and cooperative management
	Identify possible One Health stakeholders
Communication & Informatics	Develop, publish and distribute One Health related material
	Utilize already developed information, communication and education materials on One Health by government and related organizations
	Conduct workshops and trainings on One Health concept/strategy with project partners & co-op leaders
	Develop One Health data recording and management system at the field level
	Develop a comprehensive One Health manual for CAVEs or incorporate One Health into the existing manual
	Gather, simplify and share research with existing partners at the field level
	Conduct an awareness campaign at cooperative, subdistrict and district levels



COMPETENCY	STRATEGIES
Culture, Beliefs, Values and Ethics	<p>Promote understanding of food chains, impact of food chain alteration, implications of new species introduction, etc.</p> <p>Educate participants on One Health concepts during Heifer's 12 Cornerstones training and include One Health as an indicator of participatory self-review and planning (PSRP)</p> <p>Organize fodder tree/common forest tree planting drive</p>
Leadership	<p>Conduct Heifer in-house training at various levels</p> <p>Host refresher/core technical training on One Health for Heifer/partner staff</p> <p>Workshop outcome sharing; sensitization meeting with Heifer Country Program Team.</p> <p>Develop One Health strategy, guidelines and standards at all levels</p> <p>Seek support and collaboration from the government on the One Health strategy</p>
Management	<p>Develop blueprint/guidelines on engagement with governments. and key stakeholders with budgets</p> <p>Develop standard operating procedure for the One Health approach</p> <p>Customize management on biosecurity (carcass management, pesticide usage, etc.) while considering One Health</p> <p>Work with project participants on the development of an activity work plan</p> <p>Conduct regular follow-up/support/coaching with project participants</p>
Policy, Advocacy and Regulation	<p>Host sharing workshop with government and other stakeholders on Heifer's One Health strategy</p> <p>Review existing government legal framework on One Health</p> <p>Develop reporting system to appropriate authority</p> <p>Host biannual One Health forum at the national level</p>
Systems Thinking	<p>Gather disease surveillance reports and analyze for potential zoonosis</p> <p>Develop a template for record-keeping on the prevalence of diseases, disease characteristics and steps taken</p> <p>Solve and identify problems through the responsibility assignment chart (RACI) metric</p> <p>Implement systems thinking at the project level</p>



Strategies for Technical Competencies

SECTOR	STRATEGIES
General	Monitor and discuss One Health in regular household visits
	Provide orientation to the training institutes who provide CAVE training to Heifer participants.
	Host One Health related campaign (One Health Day, AMR Day, Rabies Day, Tuberculosis Day, Environment Day, Veterinary Day)
	Develop banners, posters, leaflets, video clips and other promotional campaign materials
Animal Health	Vaccinate against major zoonotic diseases (rabies, anthrax, etc.)
	Practice regular deworming
	Provide appropriate animal housing
	Isolate new and sick animals
	Separate animals by age group
	Use footbaths at the entrance of animal housing facilities
	Avoid returning unsold animals from the market to the farm
	Provide healthy and balanced animal feed
Develop a manual on the most common infectious and zoonotic diseases	
Community Health	Conduct community forums on safe medication (proper uses of antibiotics, minimum withdrawal period, etc.)
	Train project participants on common infectious and zoonotic diseases
	Minimize human-animal interactions
	Use appropriate personal protective equipment when dealing with sick animals
	Train on hygienic meat processing and packaging
Environmental Health	Develop a manual on climate-smart animal production practices
	Cultivation of fodder plants/trees
	Proper disposal of veterinary medical waste
	Conduct community forums on a healthy environment (farm waste management and carcass disposal)



STAKEHOLDER TRAINING

Because of One Health’s collaborative, multisectoral and multidisciplinary nature, our success in creating positive One Health outcomes will hinge on our ability to engage stakeholders with the One Health vision. Fortunately, training is foundational to our mission of ending hunger and poverty.

Just as the action plans must be tailored to the country they are implemented in, training plans should be tailored to meet the needs of our audience. For example, CAVEs will need to have different knowledge than project participants. The table below provides an example of relevant training topics for specific audiences.

CAVEs	Project Participants
<ul style="list-style-type: none">• Basic concept of One Health• Common zoonotic diseases, causes, transmission, CAVEs, own safety• Disease hotspots, niche area reservoirs, source points• Notifiable diseases in humans and animals, other specific disease interactions, public health and biohazards• AMR, transboundary animal diseases (TAD), emerging diseases• Disease reporting system• Protocol during animal disease outbreaks• Prevalence of disease outbreaks	<ul style="list-style-type: none">• One Health concept• Common zoonotic diseases• Ecosystem and environment protection• Man/animal conflict• Biosecurity, hygiene, waste management• Carcass disposal• Basics of disease transmission• Vaccination• Planting common trees/fodder• Management during drought or flood
Stakeholders	Co-ops, Collection Centers, Processing Units, Slaughterhouses
<ul style="list-style-type: none">• One Health concept• Notifiable diseases and protocols• Participation in key events• Support required from related stakeholders during outbreak• AMR and waste disposal• Human and animal disease• Trends and surveillance data exchange	<ul style="list-style-type: none">• One Health concept• Common zoonotic and notifiable diseases• Handling and transportation of animals• Disposal of carcasses at a collection center• Sanitation and biosecurity in abattoir• Disposal of biohazards in abattoir• Educational posters• Entry and exit protocol

SUPPORT

In addition to integrating One Health into our own programs, the training events listed above will enable our stakeholders to integrate One Health into their own activities. The tables below highlight possible strategies for specific stakeholder groups.

Household	
SECTOR	STRATEGIES
Animal Health	Implement biosecurity practices
	Ensure quality animal feed and clean water supply
	Prevent AMR with mindful use of antibiotics
	Deworm and vaccinate animals as appropriate
	Adopt quarantine practices for new animals
	Isolate and treat sick animals
	Identify and report sick animals
Community Health	Ensure a safe period between vaccination and marketing livestock
	Maintain a safe withdrawal period of antibiotics in meat, milk and eggs
	Implement safe hygiene and butchery practices
	Deworm and vaccinate in a timely fashion
	Raise awareness about zoonotic diseases in the community
Environmental Health	Properly dispose of animal carcasses
	Cultivate forage and fodder
	Properly manage animal waste through composting
	Promote stall feeding of animals
	Implement climate-smart agricultural practices
Self-Help Group	
SECTOR	STRATEGIES
Animal Health	Raise awareness about zoonotic diseases/transboundary animal diseases
	Share information on fodder production to ensure animal nutrition
	Share biosecurity practices
	Vaccinate against zoonotic diseases
	Share animal housing best practices
Community Health	Encourage practices to prevent antimicrobial resistance
	Spread awareness about safe food production and preparation
	Create awareness of zoonotic diseases
	Understand routes of disease transmission and preventive measures
	Implement the use of personal protective equipment
Environmental Health	Implement safe carcass disposal practices
	Educate on the safe management of animal manure
	Encourage animal housing instead of free-range where appropriate
	Encourage collective fodder cultivation
	Create awareness of the importance of the environment for human/animal health

Cooperatives

SECTOR	STRATEGIES
Animal Health	Raise awareness about zoonotic diseases/transboundary animal diseases
	Share information on fodder production to ensure animal nutrition
	Promote humane handling during animal collection and transportation
	Educate on biosecurity practices
Community Health	Encourage practices to prevent antimicrobial resistance
	Educate members on the signs of common zoonotic diseases
	Educate on safe food storage, production and preparation
	Encourage the use of personal protective equipment
Environmental Health	Provide educational materials on climate-smart agricultural practices
	Train farmers to plant trees for animal feed and shade
	Encourage the proper disposal of waste
	Create awareness of the importance of the environment for human/animal health

CAVEs

SECTOR	STRATEGIES
Animal Health	Raise awareness about zoonotic disease/transboundary animal diseases
	Educate on the importance of biosecurity
	Educate on disease transmission and prevention
	Collect data on prevalent animal diseases
	Conduct regular deworming and vaccinations
Community Health	Encourage practices to prevent antimicrobial resistance
	Educate farmers on zoonotic diseases
	Encourage the use of personal protective equipment
Environmental Health	Encourage proper manure and carcass management
	Educate on climate-smart agricultural practices
	Educate on the proper disposal of veterinary medical waste

Value Chain/Market Actors

SECTOR	STRATEGIES
Animal Health	Promote humane slaughter
	Reduce stress in animal handling during transportation
Community Health	Provide proper refrigeration at processing level (slaughterhouse, fresh house and dairy)
	Employ hygienic packaging, storage and transportation of food products
	Promote effective facility cleaning and disinfection
	Implement effective sanitation procedures
Environmental Health	Promote safe disposal of offal, manure and other waste products
	Clean with environmentally friendly products
	Properly collect and treat wastewater

CONCLUSIONS

The multidisciplinary, multisectoral One Health approach will ensure our efforts have the maximum positive impact on the communities we serve. We have already implemented many One Health practices and are actively fostering the implementation of One Health principles. Presently, we are encouraging practices to prevent antimicrobial resistance, stall feeding, an all-in and all-out system in brooding, proper vaccination and deworming and the development of Community Agro-Vet Entrepreneurs (CAVEs). We are also increasing awareness about safe food production, training farmers on hygiene, adapting ethnoveterinary practices in communities, training farmers to plant fodder for animal feed/ sustainable land management, promoting the use of organic fertilizer and educating farmers on proper methods of carcass disposal.

Moving forward, our One Health strategy will support the complete integration of these principles into our core programs, improving community, animal and environmental health in the communities we serve.

ONE HEALTH STRATEGY COMMUNITY. ANIMAL. ENVIRONMENTAL.



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