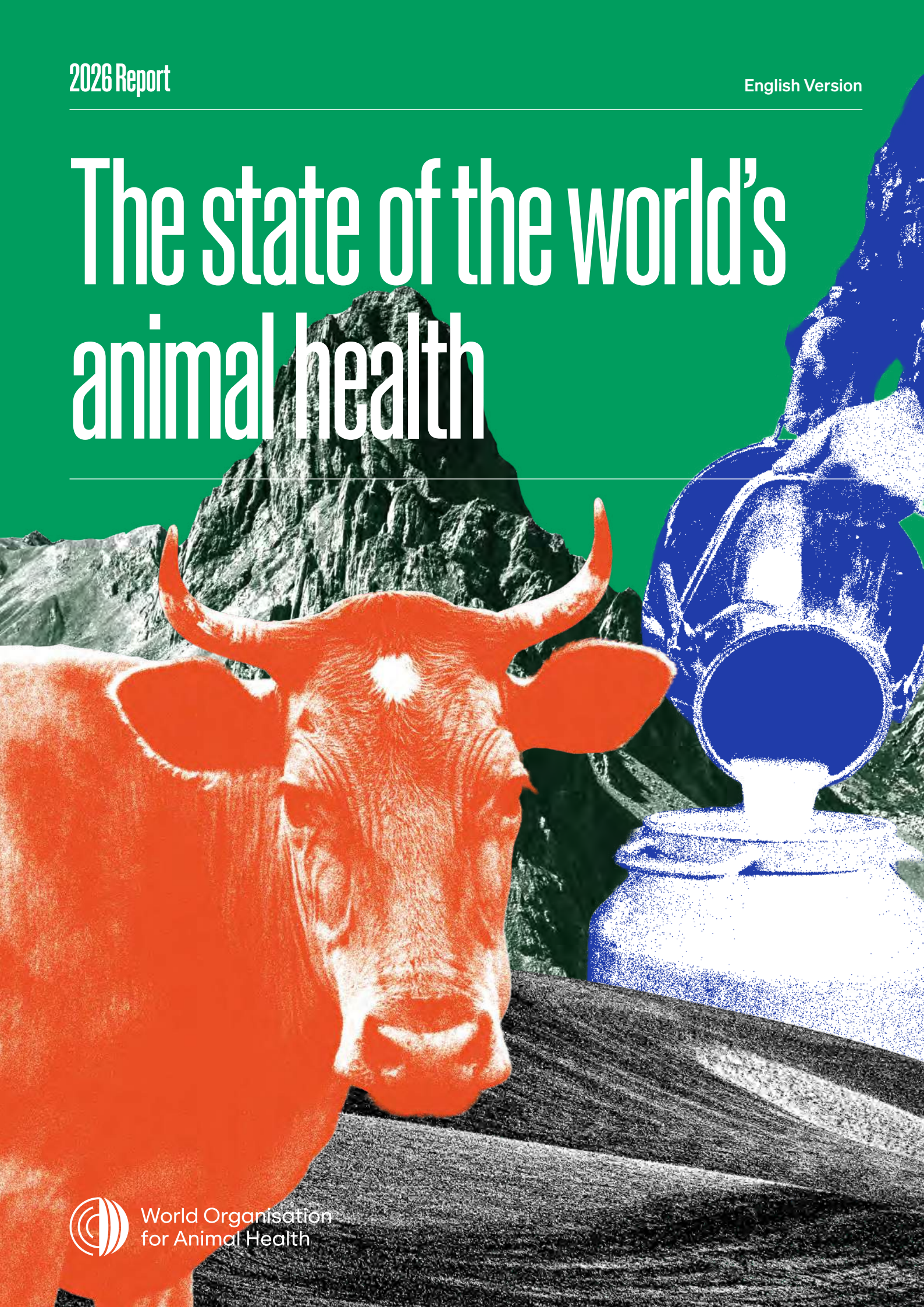
2026 Report

English Version

The state of the world's animal health



World Organisation for Animal Health

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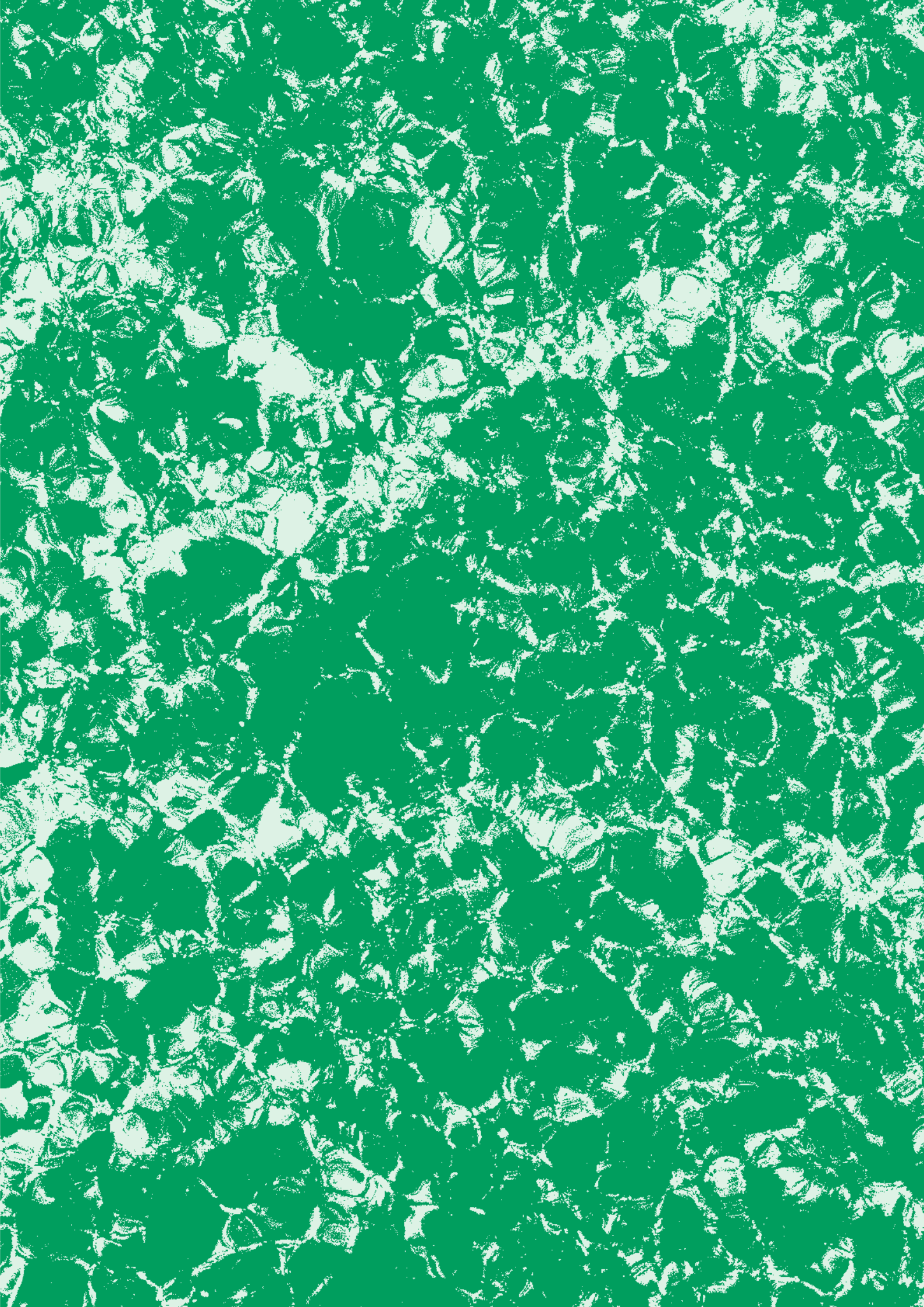
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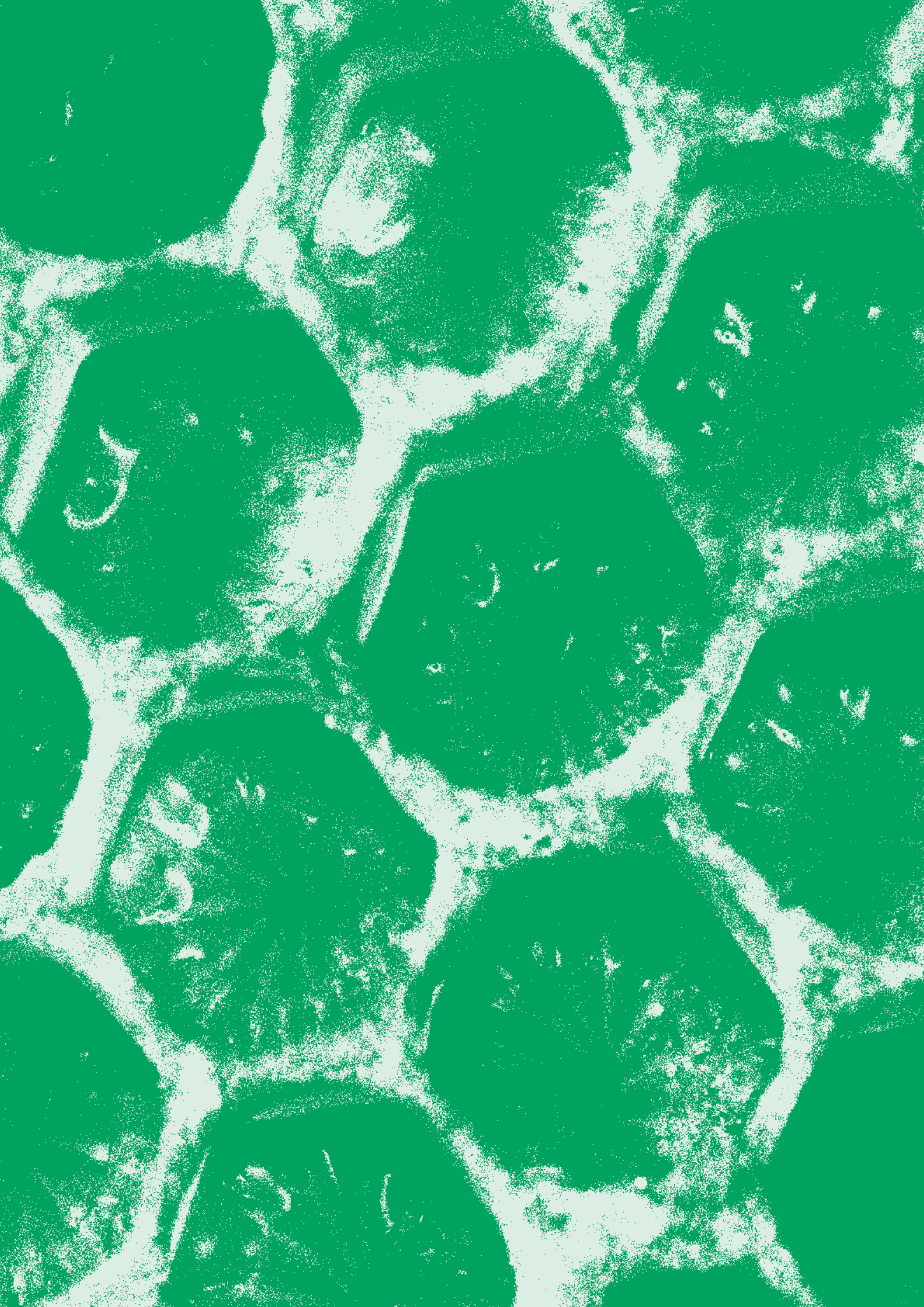
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2026 Report

English Version

The state of the world's animal health

A global overview of animal health in a changing world

World Organisation for Animal Health

Foreword

This is the second edition of the State of the World's Animal Health report, and the situation it describes is more urgent than the one we documented a year ago.

Foot and mouth disease has recently caused unprecedented outbreaks in Southern Africa. The spread of New World screwworm, a flesh-eating parasitic fly, is also raising concern, with tens of thousands of cases reported across Central America. Lumpy skin disease reached Western Europe for the first time. Worldwide, avian influenza recorded over 2,000 outbreaks in animals in the period covered by this report, spreading to new species and new areas, though with no confirmed sustained human-to-human transmission – yet. At the same time, the financing landscape on which prevention programmes depend is contracting significantly. Official development assistance fell to US$ 174.3 billion in 2025, a 23% decline on the previous year. This was the largest annual contraction on record and the second consecutive year of decline, effectively erasing a decade of growth since the start of the 2030 Agenda. Global health aid is declining. And in a constrained fiscal environment, the investments most likely to be deprioritised are precisely those that prevent crises before they occur.

The prevention of animal health crises is one of those investments. This report makes the case – with evidence, with data and with the concrete experience of countries that have 'gotten it right' – that this is a mistake we cannot afford.

The report is structured in two complementary parts. The first builds the investment case: why animal health is not a technical niche concern but a strategic priority at the intersection of food security, public health, trade, livelihoods, climate resilience, and, increasingly, national and global security. The second draws on core World Organisation for Animal Health (WOAH) data systems – World Animal Health Information System (WAHIS), Performance of Veterinary Services Information System (PVS IS), the global database on ANImal antiMicrobial USE (ANIMUSE) and the WOAH Observatory – to show, in evidence, where matters stand today: which diseases are spreading and where, how Veterinary Services are performing, where the workforce is under strain, and where the gaps between commitment and capacity remain greatest. Together, these two parts offer both the argument for investment and the map of where that investment is most needed.

What the evidence shows is not comfortable reading. More than 20% of global animal production is lost to preventable disease every year. Annually, less than US$ 1 billion in development aid reaches Veterinary Services and zoonotic disease prevention, thus less than 2.5% of a shrinking global health aid budget is currently directed at the frontline of pandemic prevention. Bringing Veterinary Services worldwide up to international standards would cost approximately US$ 2.3 billion per year, less than 0.05% of what coronavirus disease 2019 (COVID-19) cost in a single year. The gap between what is needed and what is invested is not a problem to be discussed in abstract by policy-makers, it is a political choice. And it is one that this report asks decision makers, funders, partners and citizens to re-examine.

But this report is not only about what is going wrong, it is equally about what is going right – showcasing concrete examples. A vet in Colombia travelling by boat into the Amazon for up to six hours to train community members to act as an early warning network. Norway eliminating 99% of antibiotic use in its salmon industry, following sustained investment in vaccination and disease prevention. The United Kingdom containing a foot and mouth disease outbreak in 58 days at a cost of £47 million compared to £8 billion in an earlier, underprepared response. These are not exceptional stories. They are examples of what sustained, well-designed investment in animal health systems delivers. They are scalable, and they are replicable.

The proposition that this report advances is simple but consequential: animal health is not an optional expenditure. It is a strategic investment in economic stability, in food security, in health resilience, in sustainable development, and in national and global security that depends on knowing what is circulating in animals before it reaches people. Protecting animal health means protecting livelihoods, securing food systems, safeguarding public health and sustaining economic stability. In a world of accelerating biological risk and tightening budgets, making that investment is not optional. It is the responsible choice.

No single actor can make it alone. Governments, development partners, financial institutions, the private sector and international organisations all have a role. Animal health must be financed as a global public good because the benefits it generates cross every border, and the risks of underinvestment are shared by all.

Maintaining animal health is often invisible when it works. This report aims, through evidence, to make it visible and to make the robust case for investing in animal health now.



Dr Emmanuelle Soubeyran
Director General
World Organisation for Animal Health

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Executive summary

Animal health is not a technical issue only relevant to animal health professionals. It is one of the most crucial yet underused areas of investment to maintain global stability available today.

1.3 billion people depend on farmed animals for food and income. Every year, disease destroys more than 20% of global animal production, losses that cascade into higher food prices, disrupted trade and weakened livelihoods. Moreover, 75% of emerging infectious diseases in humans originate in animals, meaning that what happens on a farm or in a forest does not stay there.

The world has seen what a lack of preparedness leads to. Coronavirus disease 2019 (COVID-19) alone caused US$ 13.8 trillion in economic damage. Yet the systems designed to prevent the next crisis – animal disease surveillance, veterinary workforces, vaccination programmes, laboratory capacity – receive less than 0.6% of global health spending. Less than US$ 1 billion a year in development aid reaches Veterinary Services and zoonotic disease prevention. That is less than 2.5% of an already shrinking global health aid budget, directed at the frontline of pandemic prevention.

The investment gap is evident, but it is also solvable. Bringing Veterinary Services worldwide up to international standards would cost approximately US$ 2.3 billion per year, less than 0.05% of what COVID-19 cost in a single year. The choice is not between spending and saving. It is between planned investment and unplanned loss.

The case for investment is clear. Investing in animal health is one of the most effective economic decisions countries can make. Studies show returns on investment of up to 86% per year, placing animal health among the most productive investments for society.

This report makes the case for investment across five interconnected areas:

Food and livelihoods. Healthy animals underpin food systems on which billions of people depend. Preventable diseases account for roughly 20% of terrestrial animal production losses each year. Closing that gap translates directly into higher farm incomes, more stable food prices and stronger rural economies.

Human health. Animal health is public health. Around 60% of known

human infectious diseases originate in animals. Rabies alone kills an estimated 59,000 people a year. Almost entirely preventably, since 99% of cases come from dog bites and a dog vaccine costs a few dollars, while human post-exposure treatment averages over USD 100 per person. Acting upstream in animals is consistently cheaper and more effective than treating people downstream.

Pandemic prevention. Avian influenza recorded over 2,000 outbreaks in animals in the period covered by this report and has spread to new species and geographies. No sustained human-to-human transmission has been confirmed but every week of underinvestment in surveillance and preparedness narrows the margin. Strong animal health systems are the earliest line of defence.

Economic resilience. A single foot and mouth disease outbreak is estimated to cost the UK economy approximately £14 billion today. The 2001 UK outbreak cost £8 billion and led to the culling of over 6 million animals. When the same country invested in preparedness, a 2007 outbreak was contained in 58 days at a cost of £47 million. Preparedness works — and its returns are measurable.

Antimicrobial resistance. Without action, AMR could cause over 39 million human deaths by 2050 and USD 953 billion in animal production losses. Yet animal vaccines receive just 7 cents of every USD 10 spent on AMR-related research. Healthier animals need fewer antibiotics. Investing in prevention is the most direct route to reducing resistance. The evidence across all five dimensions points to the same conclusion: the cost of inaction is already being paid. Disease losses, emergency response spending, trade disruptions, and zoonotic spillovers are the price of a system that reacts rather than prevents.

Closing this gap is a shared responsibility. No government can manage transboundary disease risk alone. No sector can absorb the costs in isolation. A more strategic, coordinated approach, combining domestic commitment, international support, private sector engagement, and genuine recognition of animal health as a global public good, is both necessary and, as this report demonstrates, achievable.

What is needed now is the commitment to act, before the next crisis makes the case for us.



Data at a glance

ANIMAL HEALTH: KEY FACTS AND FIGURES

1.3 bn

people depend on farmed animals for livelihoods and nutrition.

20% +

of global animal production lost to disease each year.

75%

of emerging human infectious diseases originate in animals.

$1.6tn

projected farm animals and meat market by 2034 (up from $500bn in annual trade today).

INVESTMENT AND FINANCING GAP

~0.6%

of global health spending goes to animal health.

<$1bn/yr

is provided each year in development aid for Veterinary Services.

$2.3bn/yr

is needed to bring global Veterinary Services to standard.

The full funding gap — $2.3bn/year — represents less than 0.05% of what COVID-19 cost the world in a single year.

DISEASE OF AVIAN INFLUENZA IN POULTRY (2025–EARLY 2026)

64

countries/territories reported outbreaks.

2,121

outbreaks recorded globally.

20mil

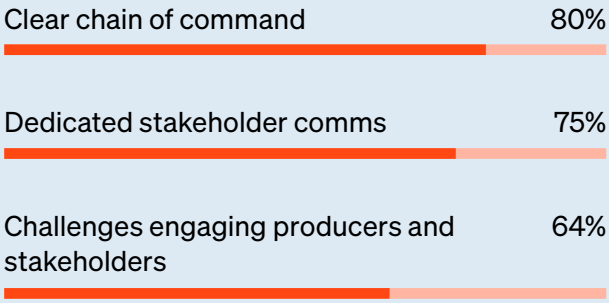
cases reported.

140mil

animals lost (dead or culled).

Overall, the data shows that disease risks are increasing and spreading faster, while animal health systems remain uneven and under strain. Prevention capacity exists, but it is not consistently funded, and significant gaps persist in workforce, legislation and coordination. The bottom line is clear: relatively modest, sustained investment in animal health systems can prevent large-scale economic losses, reduce pandemic risk, stabilise food systems and strengthen global resilience.

VETERINARY SERVICES PERFORMANCE



ANTIMICROBIAL USE (AMU)

148 Members

participated in global AMU data collection (2026), 132 (89%) providing quantitative data on AMU.

90.34 mg/kg

of antimicrobials used in animals globally (2024).

EMERGENCY PREPAREDNESS

93%

of Members assessed improved or maintained emergency funding capacity.

88%

improved or maintained preparedness and response capacity.

+4%

in antimicrobial use between 2022 and 2024.

19%

of Members still use antimicrobials for growth promotion.

ANIMAL WELFARE REGULATION GAP

Only 20%

of Members assessed by PVS in 2017-2023 had veterinary legislation explicitly addressing animal welfare.

80%

had limited or no alignment with international standards.

75

Members adopted relevant regulations (2005–2023), 70% of which were in Europe.

VETERINARY WORKFORCE CAPACITY

95%

of Members maintained or improved continuing education capacity.

However 18% show declining veterinarian capacity and 22% show declining paraprofessional capacity.

From evidence to action: scalable investment opportunities (case studies)

Strengthening animal health systems

BOLIVIA p.53 — A structured investment in Veterinary Services through the PVS Pathway enabled Bolivia to strengthen governance, coordination and technical capacity, demonstrating how system-wide reform can unlock sustained improvements in disease control, trade and livelihoods.



COLOMBIA p.58 — By training community animal health workers in the Amazon, Colombia created an early warning system reaching remote areas—showing how low-cost workforce investments can dramatically improve detection and prevention capacity.



Preparedness and emergency management

AUSTRALIA p.66 — Australia's nationally coordinated preparedness framework, AUSVETPLAN, aligns government and industry financing, ensuring rapid, effective outbreak response while protecting trade and economic stability.



Across regions, countries and territories are already investing in animal health systems in ways that deliver measurable results. These case studies, present throughout the report, showcase practical, scalable solutions, from strengthening Veterinary Services to deploying vaccines, digital tools and community-based surveillance.

They demonstrate that targeted investment and collaboration work. The opportunity now is to adapt and scale these models across contexts.

Surveillance and digital innovation

AFRICA–ZOOSURSY PROJECT p.120	Investments in wildlife surveillance improved early detection of zoonotic risks, reinforcing the importance of integrated One Health approaches to prevent spillover events.	
UNITED ARAB EMIRATES p.76	The UAE leveraged digital tools and community reporting to enhance disease detection and response speed—illustrating the value of data-driven surveillance systems in a connected world.	

Scaling up vaccination

GEORGIA p.109	Georgia's free nationwide rabies vaccination programme reduced cases by over 60% and achieved >90% immunity, demonstrating how sustained, data-driven campaigns deliver major public health gains while highlighting wildlife challenges.	
INDIA p.86	India expanded vaccine access through public–private collaboration, supporting innovation and large-scale deployment—demonstrating how partnership models can accelerate availability and affordability.	
TANZANIA p.132	A government-led vaccination programme, delivered through a structured public–private partnership, reached tens of millions of animals across the country. By institutionalising collaboration between Veterinary Services and private providers, Tanzania transformed fragmented delivery into a coordinated, scalable system.	

Livelihoods, trade and economic returns

JORDAN p.99	Strategic investments in animal health and trade systems strengthened market access and food security—highlighting how animal health drives economic growth and resilience.	



INVESTING IN ANIMAL HEALTH: A STRATEGIC PRIORITY IN A CHANGING WORLD

PART I.

THE INVESTMENT CASE FOR ANIMAL HEALTH

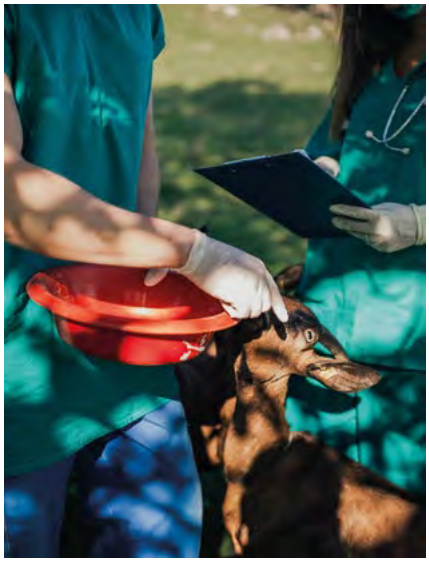
It matters more than ever

We are living in a fragile world – shaped by geopolitical tension, climate disruption, economic uncertainty, and growing pressure on food systems and public institutions. In this context, animal health can no longer be seen as an issue confined to a technical sphere. It has become a strategic issue at the intersection of food, trade, health and security.

The risks are rising fast. Animal disease outbreaks are becoming more frequent, more complex, and harder to contain. As an example, avian influenza continues to spread across species and geographies. There is still no evidence of sustained human-to-human transmission, but the warning is clear: prevention at source is more urgent than ever.

This is why animal health is no longer just a technical concern. It is a systemic risk issue. Weak animal health systems leave countries exposed not only to naturally emerging diseases, but also to accidental or deliberate biological events. The World Organisation for Animal Health (WOAH) is clear: animals can act as biosensors for accidental or deliberate releases, and the same surveillance systems used to detect routine outbreaks also help detect such threats.





Animal health is at the frontline of food, trade, health and security risks

Animal health matters now more than ever for the following reasons:

1. **Prevention has become more urgent.** In a world still shaped by the lessons of coronavirus disease 2019 (COVID-19), the cost of waiting until a threat spills over is immense. As outbreaks grow and viruses such as avian influenza continue to evolve, investment in surveillance, Veterinary Services, laboratories, vaccination, and biosecurity is no longer optional. It is frontline prevention. Approximately 60% of known infectious diseases in humans come from animals, and 75% of new human pathogens detected in recent decades originated in animals.
2. **Food systems are under greater strain.** Conflict, climate shocks, inflation and supply disruptions are already putting pressure on availability and affordability. When animal disease hits, it deepens that fragility, disrupting production, livelihoods, prices and access to food.
3. **Trade has become more vulnerable to disruption.** In an interconnected global economy, outbreaks do not remain local for long. They can shut markets, interrupt exports, weaken supply chains, and rapidly turn animal disease into a wider economic shock.
4. **Biological risk now has a pressing security dimension.** In a period of geopolitical volatility, countries can no longer view animal health only through a narrow lens. Weak systems create vulnerabilities, whether to naturally emerging disease, accidental events or deliberate biological threats.
5. **The world is becoming more exposed to cascading crises.** Climate pressure, ecosystem disruption, and faster movement of people, animals and goods are creating more opportunities for disease to emerge and spread. In that environment, underinvesting in animal health is not just a gap in capacity. It is a growing strategic risk.

The message is simple: animal health is no longer a secondary concern. It is a strategic global public good and a security imperative. It protects food systems, trade flows, public health and national resilience. And in a world of accelerating outbreaks and growing biological risk, the cost of underinvestment could be far greater than we are prepared for.

Because animal health is our health. It's everyone's health.



What this means for readers

- Animal health is not a distinct issue of interest to a small subset of people. It is a system-level issue affecting economies, food security, public health and resilience.
- The urgency is clear. Animal disease causes losses of more than 20% of global animal production each year, while around 75% of emerging human pathogens originate in animals.
- This makes prevention a smart investment. Strengthening surveillance, Veterinary Services, laboratories, vaccination and biosecurity is far more effective, and far less costly, than responding once a crisis hits.
- Stronger animal health systems do more than protect animals. They reduce global risk and help stop local outbreaks from becoming wider food, trade, health welfare or security crises.

Key takeaway: Few investments do more to prevent global crises than timely investment in animal health.



Why investing in animal health matters now

A disease outbreak rarely begins as a global crisis. It starts quietly, on a farm, in a market, at a border crossing. But in today's interconnected world, it does not stay contained for long. What begins as a local animal health issue can rapidly disrupt food systems, trade flows and livelihoods across entire regions.

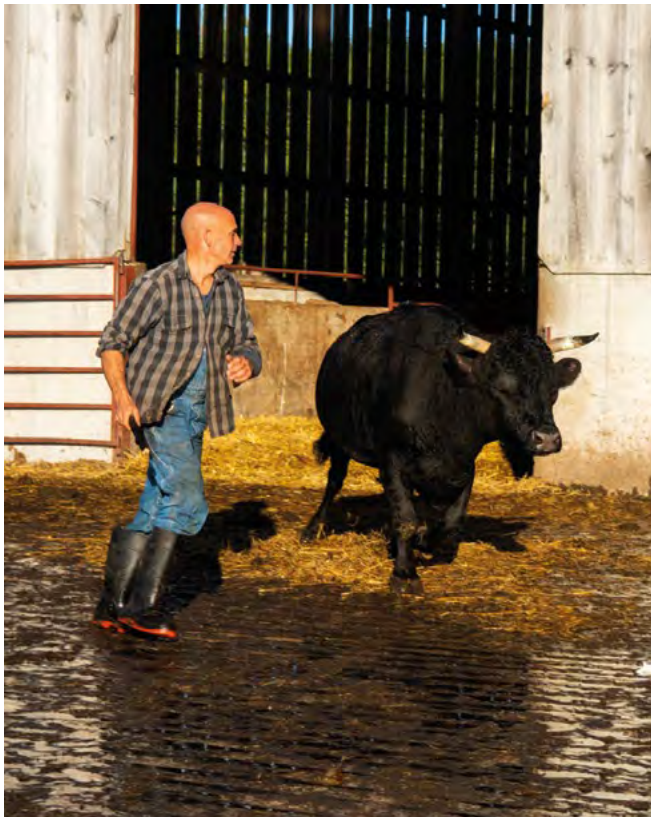
This is the reality shaping animal health and welfare today. Diseases are spreading into new areas, affecting new species, and increasingly crossing into human populations. Nearly half of reported animal diseases have zoonotic potential, meaning they can infect people, while outbreaks such as avian influenza continue to expand geographically and across species.

At the same time, the systems that depend on animal health are growing. Animal production is expanding to meet rising global demand for animal-source foods, driven by population growth, urbanisation and changing diets. According to the *OECD–FAO Agricultural Outlook 2025–2034*, published in July 2025, global per-capita consumption of meat, dairy and other animal products is projected to grow by around 6% by 2034, reinforcing the structural nature of this demand. To meet this demand, global production of meat, dairy and eggs is forecast to increase by roughly 17% by 2034, placing additional pressure on animal health systems to sustain productivity and prevent disease. Farmed animals already support the livelihoods and nutrition of 1.3 billion people, and global production is expected to increase significantly in the coming decade. Yet this expansion is happening in a context where disease risks are intensifying, not diminishing.

Animal health underpins some of the most essential systems in modern economies. The global farm animals and meat market is projected to approach US$ 1.6 trillion by 2034, reflecting its growing economic weight and strategic importance. It sustains food production, enables safe trade

and protects livelihoods. For many households, particularly in low-income countries (LICs) and middle-income countries (MICs), animals are more than a source of food; it is a financial asset, a safety net, and a pathway out of poverty. When animals are healthy, these systems function. When they are not, the consequences cascade quickly.

The scale of this dependency is often underestimated. Today, billions of people rely on farm animals for income and nutrition, while global trade in animals and animal products exceeds US$ 500 billion annually, continuing to grow in both volume and value. At the same time, more than 20% of global animal production is lost to diseases each year, representing a significant and largely avoidable drain on resources, productivity and economic stability.



These losses are not abstract. They translate into reduced income for farmers, higher prices for consumers and increased volatility for national economies. They also strain public finances, as governments are forced to respond to outbreaks with emergency measures that are often costly.

Foot and mouth disease alone is estimated to cause annual losses ranging from billions to tens of billions of dollars, depending on where outbreaks occur and how they are managed. African swine fever, avian influenza and rabies add to this burden, each with its own economic and social impacts. Taken together, these diseases represent a persistent and escalating cost – one that is largely borne by those least equipped to absorb it.

From reaction to prevention

What makes these losses particularly striking is that many of them are preventable. Investing in animal health is fundamentally about shifting from reaction to prevention. Yet for decades, the dominant model has been reactive. Resources are mobilised when outbreaks occur, often at great expense and under significant uncertainty. Animals are culled, trade is restricted, and emergency measures are deployed to contain the spread. While these responses are necessary, they are also disruptive, expensive and frequently too late to prevent widespread impact.

Preventive investment tells a different story. Strengthening Veterinary Services, improving surveillance systems, expanding biosecurity and vaccination programmes, and building laboratory capacity all contribute to earlier detection and more effective control of disease. These are not isolated interventions; they are components of a system that reduces risk across multiple diseases simultaneously.

The value of this approach lies in its cumulative effect. A well-functioning surveillance system does not only detect one disease, it detects many. A trained veterinary workforce does not respond to a single outbreak, it strengthens the overall capacity of a country to manage animal health risks. Investments in prevention therefore generate returns that extend far beyond their initial purpose, creating what can be described as a virtuous cycle of resilience.

The importance of this perspective is reinforced by broader global trends. Climate change, changes in land use, and the intensification of production systems are all altering how diseases emerge and spread. Increased trade and mobility mean that pathogens can travel further and faster than ever before. At the same time, the boundary between animal and human health is becoming more porous. Around 60% of known human infectious diseases originate in animals, and 75% of emerging diseases have an animal origin.

These figures highlight the critical point that investing in animal health is also an investment in human health.

The COVID-19 pandemic brought global attention to the cost of unpreparedness. While not all animal diseases will lead to human pandemics, many share similar pathways of emergence and transmission. Strengthening animal



Around 60% of known human infectious diseases originate in animals, and 75% of emerging diseases have an animal origin.

health systems therefore serves as an early line of defence, reducing the likelihood that local outbreaks escalate into global crises.

At the same time, preventive approaches such as vaccination offer additional benefits, including reducing the need for antimicrobial use. This is particularly important in the context of antimicrobial resistance, a growing global threat that is closely linked to the overuse of antibiotics in both human and animal health systems.

Despite this clear and compelling case, investment in animal health and welfare remains uneven and, in many contexts, insufficient.

In LICs and MICs, funding gaps limit the ability of Veterinary Services to operate effectively. Surveillance systems may be incomplete, laboratory capacity constrained and access to vaccines inconsistent. These gaps create vulnerabilities that allow diseases to spread more easily and persist longer, increasing both the frequency and severity of outbreaks.

The consequences extend beyond national borders. In an interconnected global system, weaknesses in one part of the network can have far-reaching effects. Trade disruptions, supply chain instability, and cross-border disease transmission are all influenced by the strength, or weakness, of animal health systems worldwide.

Addressing these challenges requires more than incremental change. It calls for a shift in how animal health and welfare is valued and financed.

As highlighted by global development institutions, including the World Bank, animal health and welfare should be understood not as a recurring expense, but as an investment with measurable economic and social returns. Investments in prevention reduce future costs, stabilise production systems, and support sustainable growth. They also contribute to broader development goals, including poverty reduction, food security and health resilience.

The critical timing of investment

The coming decade will see continued growth in demand for animal-source foods, alongside increasing pressure on natural resources and production systems. Without stronger animal health systems, this growth will be accompanied by greater risk, higher losses and increased volatility.

Conversely, investing now offers the opportunity to shape a different trajectory; one in which production is more resilient, trade more secure, and health risks are better managed.

The choice is not between investment and cost. It is between planned investment and unplanned loss. Animal health sits at the centre of this choice. It connects local realities with global outcomes, linking the health and welfare of animals to the stability of economies and the well-being of societies. Recognising and acting on this connection is no longer optional. It is essential.



What this means for readers

- Outbreaks now scale rapidly because food systems, trade and mobility are deeply interconnected.
- Animal health directly affects food security, livelihoods, public health and macroeconomic stability.
- Climate change, intensification and land-use change are increasing the risk of disease.
- Prevention delivers better outcomes at a far lower cost than emergency response.

Key takeaway: Animal health and welfare is now a strategic global risk issue, not a niche concern.



Investing in Animal Health: A Strategic Imperative for Our Shared Future

Perspectives from the World Bank

The world's animal health systems are in crisis, not from a single outbreak or emergency, but from decades of chronic underinvestment that has left veterinary services ill-equipped to meet the demands of the 21st century. In many countries, veterinary services lack trained staff, laboratory capacity, robust disease surveillance systems, quality veterinary medicinal products, and the ability to timely reach farmers. As a result, preventable diseases spread, pathogens cross borders, livestock productivity suffers, and livelihoods are lost.

Closing this gap is a prerequisite for global health security, poverty reduction, and sustainable development. The livestock sector, valued at US$1.37 trillion in 2024 and contributing to an estimated 40% of global agricultural GDP, supports the livelihoods, food, and nutrition of more than 1.3 billion people. Animal diseases reduce livestock productivity by approximately 20 percent annually, with costs falling disproportionately on smallholder farmers and women in low- and middle-income countries. Despite this, veterinary services receive on average 0.05 percent of national GDP.

Annually, US$2.3 billion is needed to bring global veterinary services up to international standards; with annual returns of up to 86 percent, this is one of the highest-return investments in development finance. Critically, it also creates jobs: building and sustaining functional veterinary services - from community animal health workers to meat inspectors - can generate skilled employment across the rural economy. In addition, an estimated US$5 billion per year is required to strengthen biosecurity at farm level and further prevent disease spread between animals and spillover both from wildlife and to humans.



Given that 60% of human infectious diseases are zoonotic and 75% of new ones originate in animals, this is simply smart economics in the form of preventive investments that can dramatically reduce catastrophic downstream costs. Antimicrobial resistance (AMR) adds further urgency. The excessive and inappropriate use of antibiotics in livestock, often a direct consequence of weak veterinary services, is a primary driver of AMR in livestock, from which it may spread to humans. World Bank studies warns that AMR could reduce GDP in low-income countries by more than 5 percent and push up to 28 million people into poverty by 2050. Strengthening veterinary services and promoting antibiotic stewardship in animal production are therefore integral to any serious AMR strategy.

Technology offers a powerful lever to strengthen animal health. Digital disease reporting platforms, AI-powered early-warning systems, drone surveillance, precision livestock farming, and farm-to-fork traceability solutions are already transforming animal health. Critically, AgTech can only deliver results where core veterinary functions and enabling environments are in place. Technology amplifies strong systems; it cannot substitute for them.

Despite the strength of these arguments, animal health financing remains fragmented, insufficient, and poorly structured. What is needed is a smarter approach that combines: (i) sustained public financing for pure public goods such as disease surveillance and pandemic preparedness; (ii) greater private investment where services yield direct benefits to producers; and (iii) blended finance, that use public funds to unlock private capital, paired with results-based mechanisms that tie disbursements to measurable results.

Animal health is also essential for livestock producers to meet market standards and is at the heart of AgriConnect, the World Bank Group's initiative to help 300 million farmers increase their income by 2030. AgriConnect links infrastructure, policy reforms, and private financing to catalyze inclusive rural and agribusiness transformation. It prioritizes AgTech innovations and financial ecosystems that increase access to veterinary services and equips pastoralists to reduce losses and increase their profits.

The World Bank Group stands committed to supporting countries in building a more rational, resilient, and adequately funded animal health architecture. Our investments span animal health systems and One Health platforms. Wherever on the Planet, when animal health systems function well, disease outbreaks are contained, productivity picks up, zoonotic spillover risks decline, and rural communities benefit.

The evidence is clear, the tools are available, and the cost of inaction is simply too high. Investing in animal health is investing in people — in the smallholder farmer facing the next livestock disease, in the child at risk of a zoonotic infection, in the patient for whom an antibiotic may one day no longer work. Securing everyone's future begins with securing the health of the animals on which so many of those futures depend.



Marianne Grosclaude
Acting Director, Farming and Agribusiness, World Bank





The investment gap

In many parts of the world, the weaknesses of animal health systems are not immediately visible. They do not always appear as clear failures or dramatic breakdowns. Instead, they take the form of delays, gaps and missed opportunities: a disease that is detected too late, a response that takes too long, a system that cannot fully absorb the shock of an outbreak.

These weaknesses often remain unnoticed until a crisis brings them into sharp focus. When outbreaks of diseases such as foot and mouth disease, African swine fever or avian influenza occur, they do more than disrupt production. They expose the underlying fragility of systems that were not sufficiently prepared. They reveal where investment has been lacking, where capacities have not been built, and where prevention could have reduced the scale of the impact.

What becomes clear in these moments is not only the cost of disease, but the cost of underinvestment. Despite this, animal health and welfare continues to receive a level of financing that falls short of its importance.

A global financing imbalance

The imbalance is clearly visible when compared to global health spending overall, which remains overwhelmingly on human healthcare. According to the World Health Organization (WHO) and Deloitte's latest sector outlooks, the global human health market is valued at approximately US$ 11 trillion. In contrast, the Animal Health Market Report 2026 estimates that the animal health market, covering both farm animals and companion animals, has grown to US$ 64.45 billion, yet this still represents only around 0.6% of total global health-related spending.

The disparity is even more pronounced in international aid. Data from the Institute for Health Metrics and Evaluation show that total development assistance for health declined to US$ 39.1 billion in 2025 following major budget reductions. Of this, less than US$ 1 billion is typically allocated to Veterinary Services and zoonotic disease prevention, according to analyses by HealthforAnimals and the World Bank. In effect, the frontline of pandemic prevention receives less than 2.5% of an already shrinking global health aid budget.



At the core of this initiative is a simple but powerful premise: investing upstream in animal, human and environmental health systems is significantly more cost-effective than responding to crises after they emerge.

This fact has been increasingly recognised at the global level. The Quadripartite – bringing together the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme, WHO and WOAH – has issued a joint call for targeted One Health investment, highlighting the need to move from reactive crisis response to integrated, preventive approaches. Through its Joint Offer, the Quadripartite supports countries in strengthening governance, surveillance and cross-sectoral coordination, while helping to mobilise sustainable financing for prevention.

At the core of this initiative is a simple but powerful premise: investing upstream in animal, human and environmental health systems is significantly more cost-effective than responding to crises after they emerge. Estimates suggest that preventive One Health investment represents only a fraction of the economic costs associated with global health emergencies, while it generates broad co-benefits for food security, climate resilience and economic stability.

A structural mismatch

At the heart of this gap lies a structural challenge: animal health and welfare generates benefits that are shared, but it is financed as if those benefits were isolated.

The value of animal health and welfare operates across multiple layers. At the most immediate level, it supports farmers and producers by protecting their animals, sustaining productivity and enabling access to markets. At the national level, it contributes to food security, economic stability, and the functioning of trade systems. At the global level, it reduces the risk of transboundary diseases and zoonotic spillovers, which can have consequences far beyond the country where they originate.

This combination of public benefits, private returns, and global protection makes animal health a unique type of investment. Yet financing systems rarely reflect this complexity.

In higher-income settings, a degree of balance has been established over time. Clinical and market-oriented Veterinary Services are often delivered through private markets, supported by demand from producers and industry. Public funding, in turn, is directed towards core public functions such as disease surveillance, regulatory oversight, and emergency response. While not without challenges, this division allows for a more stable allocation of resources.

In many LICs and MICs, however, this balance is far more difficult to achieve. Public resources are often constrained by competing priorities, and private veterinary markets may be limited in reach or capacity. In such contexts, cost-sharing arrangements are harder to implement, and essential public functions remain dependent on insufficient and sometimes unpredictable funding.

These functions are precisely those that underpin prevention. Surveillance systems, early warning mechanisms, laboratory networks, veterinary workforce development, and preparedness planning are all foundational to



effective disease control. When they are underfunded, the entire system becomes more reactive, less coordinated, and more vulnerable to shocks.

The consequences are cumulative. Outbreaks are detected later, responses are broader and more disruptive than they need to be, and economic losses increase. Trade restrictions may be imposed, sometimes affecting entire sectors. Recovery takes longer, and confidence can be difficult to rebuild.

Over time, these repeated disruptions create a pattern of avoidable loss. In LICs and MICs in particular, chronic funding gaps translate into billions of dollars in economic impact each year; losses that could, in many cases, have been mitigated through sustained investment in prevention.

A solvable gap

The scale of the resources required to address this gap is, in relative terms, modest. It is estimated that approximately US$ 2.3 billion per year would be sufficient to bring Veterinary Services globally in line with international standards for prevention.

When set against the broader economic landscape, this requirement is strikingly small. It amounts to less than 0.05% of the direct cost of the COVID-19 pandemic in 2020 alone. In other words, a fraction of what was spent responding to a single global crisis would be enough to significantly strengthen the systems designed to prevent and contain future ones.

This comparison underscores a persistent imbalance. While resources can be mobilised rapidly in response to emergencies, far less attention is given to the steady, sustained investment required to reduce the likelihood and impact of those emergencies in the first place.

A similar imbalance can be observed in the context of climate finance. Farm animal systems are responsible for



Effective animal health systems require more than technical capacity. They depend on governance, coordination, communication, and the ability to engage across sectors.

approximately 12% of global greenhouse gas emissions, yet they receive less than 0.1% of total climate finance. This disparity highlights a broader tendency to overlook the role of animal health in global policy and investment frameworks, despite their clear relevance to climate, food security and development outcomes.

Beyond financial constraints, the investment gap is also shaped by how animal health and welfare is understood and positioned within broader systems. In many cases, it is still viewed primarily as a technical domain, focused on the control of specific diseases or the delivery of Veterinary Services at the farm level. While these functions are essential, they do not fully capture the systemic role that animal health and welfare plays.

Effective animal health systems require more than technical capacity. They depend on governance, coordination, communication and the ability to engage across sectors. They must operate at the intersection of agriculture, public health, trade and environmental management. They must also be able to anticipate risks, not only respond to them.

Veterinary Services, in particular, are central to the functioning of animal health systems. Traditionally, their work has been defined by technical expertise: diagnosing diseases, implementing control measures and ensuring compliance with standards. Increasingly, however, their responsibilities extend beyond these functions.

Veterinary professionals are now expected to contribute to policy discussions, engage with stakeholders across sectors, and advocate for the importance of prevention and preparedness. They play a role in shaping how risks are understood, how resources are allocated, and how systems are designed.

This evolution requires a corresponding shift in skills and capacities. In addition to technical knowledge, there is a growing need for competencies in areas such as policy engagement, economic analysis, communication and advocacy. The ability to articulate the value of animal health, to demonstrate how investment translates into tangible outcomes, is becoming increasingly important.

Without this capacity, even well-functioning systems may struggle to secure the resources they need. The benefits of prevention, by their nature, are often less visible than the costs of crises. Making these benefits visible is therefore a critical part of closing the investment gap.

At its core, the persistence of underinvestment reflects a misalignment between who pays and who benefits. The costs of building and maintaining animal health systems are borne largely at the national level, while many of the benefits – particularly those related to global health security, trade and pandemic prevention – extend far beyond borders. This creates a structural challenge: countries with limited fiscal space may struggle to prioritise investments whose returns are partly global, even though weaknesses in one system can have consequences everywhere.

Addressing this imbalance requires a more coordinated approach to financing. Domestic investment remains essential, but it must be complemented by international support that recognises animal health as a global public good.

The implications are not theoretical – they are already visible. As demand for animal-source foods grows and production systems expand, the risks associated with disease emergence and spread are increasing. Without stronger animal health systems, outbreaks will become more frequent, more costly, and more disruptive.

Conversely, closing the investment gap allows for earlier detection, more targeted responses, and greater stability in production and trade. It reduces losses, strengthens resilience, and limits the cascading impacts of disease across economies and food systems.

The cost of closing the gap is known. The cost of leaving it unaddressed is already being paid.

What this means for readers

- The investment gap reflects both funding shortages and weak prioritisation.
- Animal health remains underrepresented in major financing and development frameworks.
- Preventive functions such as surveillance, preparedness and access to laboratories are chronically underfunded.
- Closing the gap requires domestic commitment backed by international support.

Key takeaway: The real gap is not only financial; it is how animal health is prioritised.

A shared responsibility

Alone, no country can protect itself fully from animal disease. Pathogens do not recognise borders, and neither do the systems they affect. Farm animals, food products, people and goods move across regions every day, connecting farms to markets and local economies to global trade. In this interconnected system, a weakness in one place can quickly become a risk elsewhere.

Shared benefits, shared responsibility

This reality shapes one of the most important questions in animal health: who should pay for its protection?

The answer is not simple. Animal health is not the responsibility of one actor, one sector or one country. It is a shared responsibility, requiring coordinated investment across multiple levels. Governments, industry, farmers, consumers, development partners and international institutions all have a role to play. The challenge lies not only in mobilising resources, but in aligning them.

The case for shared responsibility reflects the nature of the benefits animal health provides. Some of these benefits are immediate and local. Farmers depend on healthy animals for their livelihoods. Producers and companies rely on disease-free supply chains to access markets. Consumers benefit from stable food supplies and predictable prices.

Other benefits extend far beyond individual actors. Effective animal health systems support national economies, protect public health and contribute to global health security. When diseases are prevented or contained early, the benefits are felt not only where the investment was made, but across regions and, in some cases, worldwide.

This combination of private returns and public benefits makes financing inherently complex. If left entirely to individual actors, investment may fall short of what is needed, particularly for functions such as surveillance and preparedness that do not generate immediate financial returns. If borne solely by governments, funding may be constrained by competing priorities.

A more effective approach recognises that different actors contribute in different ways, and that the overall system is stronger when these contributions are coordinated.

From principle to practice: financing models

In many higher-income countries, this coordination has evolved over time into a mix of public and private financing.

Public funding remains foundational, particularly for core functions such as disease surveillance, regulatory oversight, emergency preparedness and response. These are areas where the benefits are broadly shared and where consistent, long-term investment is essential.

Alongside this, private actors, particularly within farm animal industries, contribute to financing through service fees, levies, and direct investment in biosecurity and animal health measures. This reflects the direct economic benefits they derive from healthy animals and stable markets.


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In countries such as Australia, Canada and Ireland, cost-sharing arrangements have formalised this relationship. Through tiered financing schemes, governments and industry jointly support Veterinary Services and disease control programmes. These models distribute costs according to the nature of the benefit, allowing public and private resources to be combined in a structured and predictable way.

Such arrangements do more than mobilise funding. They also create shared ownership. When industry contributes to financing, it has a stronger incentive to engage in prevention and compliance. When governments invest alongside industry, they reinforce the public good dimension of animal health and welfare. The result is a system that is both better resourced and more cohesive.

The role of industry extends beyond financing alone. In Argentina, the dairy company La Serenísima provides a clear example of this approach. Rather than treating farmers solely as suppliers, the company considers them long-term partners. It supports producers in improving productivity and animal health by facilitating access to better technologies and, in some cases, by directly financing upgrades at farm level. It also plays an advocacy role, working with public institutions and financial actors to help farmers secure loans and investment.

This model illustrates how private-sector engagement can go beyond individual business interests to strengthen the broader animal health ecosystem. By investing at the level of producers, companies not only secure their own supply chains, but also contribute to more resilient and sustainable production systems.

In some contexts, it has also been instrumental in advocating for strong national animal health systems. In New Zealand, for example, industry engagement has played a key role in supporting investment in Veterinary Services and biosecurity. This reflects a recognition that the long-term viability of the sector depends on the strength of the systems that underpin it.

Public–private partnerships represent another important dimension of shared responsibility. These partnerships bring together the resources and expertise of different actors to address specific challenges, such as the development and distribution of vaccines, the expansion of diagnostic capacity, or the implementation of surveillance systems.

By combining public oversight with private innovation and efficiency, such partnerships can accelerate progress and improve sustainability. They also allow risks to be shared, reducing the burden on any single actor.

Despite these examples, financing models are not uniform across countries.

In many low- and middle-income contexts, the conditions that enable cost-sharing are less developed. Private veterinary markets may be limited, and producers may have less

capacity to contribute financially. Public budgets, meanwhile, are often under pressure from multiple competing needs.

In these settings, the role of public investment becomes even more critical. National budgets remain the primary source of funding for essential functions, particularly those related to surveillance, preparedness and zoonotic disease prevention. Integrating animal health into broader strategies (e.g. health security, food systems, climate resilience) can help to strengthen this funding base and ensure greater continuity.

At the same time, there is a growing recognition of the need for more diverse financing mechanisms. Blended approaches, which combine public and private resources with support from development partners, are increasingly being explored. Risk-sharing mechanisms, including insurance schemes, can help to protect producers from losses while incentivising preventive practices. Results-based financing can link funding to outcomes, encouraging efficiency and accountability.

Cost-sharing can also be embedded along production and processing chains. Levies linked to certification, export requirements or market access can generate resources that are reinvested into animal health systems. In this way, those who benefit from participation in markets contribute to the systems that make that participation possible.

Financing animal health as a global public good

Beyond national systems, there is also a clear role for international and pooled financing. Animal health is, in many respects, a global public good. The prevention of transboundary diseases and zoonotic spillovers benefits all countries, regardless of where investments are made. This creates a strong rationale for collective action at regional and global levels.

Regional disease control funds provide an example of how resources can be pooled to address shared risks. By coordinating investment across countries, these mechanisms can improve efficiency, reduce duplication and strengthen collective preparedness. They also provide a platform for sharing knowledge, expertise and best practices.

Alignment with broader initiatives, such as pandemic preparedness frameworks, further reinforces this approach. Integrating animal health into these agendas helps to ensure that it is recognised as a critical component of global health security, and that it benefits from the associated funding and attention.

The European Union: a collective investment in animal health and welfare

The European Union offers one of the clearest examples of what collective investment in animal health and welfare can deliver. Across 27 Member States, the EU has built a common legal framework, shared emergency structure and a major research partnership that together represent an integrated approach — with lessons relevant far beyond Europe's borders.



Cost-sharing can also be embedded along production and processing chains. Levies linked to certification, export requirements or market access can generate resources that are reinvested into animal health systems.



At the centre of the European Union recent commitment is the European Partnership on Animal Health and Welfare. Launched in 2024 and described by the partnership as the most ambitious research and innovation initiative funded by the European Commission in this field, it expects to invest €360 million over seven years, co-funded by Horizon Europe and partner institutions. It brings together around 90 entities across 24 countries, including 56 research organisations, 30 funding bodies, as well as the European Food Safety Authority (EFSA) and the European Medicines Agency (EMA). By pooling national research efforts under a shared strategic agenda, it helps reduce duplication, build critical mass and ensure findings benefit participating countries more broadly. Its second external co-funded call, Shaping the Future of Animal Health and Welfare, opened in January 2026.

The value of this collective approach was also already tested in practice. In 2025, several major outbreaks, including foot and mouth disease in Hungary and Slovakia, proved value of Europe's animal health architecture. The EU's shared emergency frameworks, vaccine-bank architecture and real-time notification systems allow for a more efficient and coordinated response.

The EU model shows what becomes possible when animal health and welfare are treated as a shared strategic priority rather than only a national technical obligation. Legal harmonisation, transparency and compliance with WOAH standards make collective response possible. Shared infrastructure and resources multiply the value of national investment. Pooled research delivers what no single country could easily finance alone. And prevention and preparedness strengthen containment, reduce disruption and help maintain trade confidence.

A complementary example can be found in the Strategic Alliances for the Coordination of Research on the major Infectious Diseases of Animals and Zoonoses STAR-IDAZ International Research Consortium, which brings together public and private research funders to coordinate investment in animal health innovation. By aligning priorities across countries and organisations, the consortium helps avoid fragmentation, maximise the impact of investment, and accelerate the development of solutions for transboundary and zoonotic diseases. This type of coordinated approach reflects the reality that animal health challenges are shared, and that effective investment requires both collective financing and strategic alignment.

Investing in animal health is consistently more cost-effective than responding to crises. Preventive systems reduce the likelihood and scale of outbreaks, lower response costs, and minimise disruptions to production and trade. They also provide a degree of predictability, allowing both public and private actors to plan with greater confidence.

Yet the distribution of costs and benefits remains uneven. Low- and middle-income countries often bear a disproportionate share of the burden when outbreaks occur. Their systems may be more exposed to risk, and their capacity

What this means for readers

- Animal health generates local, national and global benefits, so financing must be shared.
- Public–private partnerships and blended models can align incentives and increase sustainability.
- Countries cannot manage transboundary disease risk in isolation.
- Animal health should be financed as a global public good.

Key takeaway: Animal health is not a matter of charity; it is a matter of mutual protection.



to respond may be more limited. At the same time, the benefits of controlling diseases–particularly those that affect trade or have zoonotic potential–extend well beyond their borders. This imbalance underscores the importance of collective investment.

Animal health is not a matter of charity. It is a matter of mutual protection. When one country invests in prevention, it contributes to the stability of the wider system. When multiple countries invest together, the benefits are multiplied.

The challenge, then, is not simply to increase funding, but to organise it more effectively. This involves clarifying roles and responsibilities, strengthening coordination mechanisms, and ensuring that resources are directed where they can have the greatest impact. It also requires building trust between actors, so that shared investments translate into shared outcomes.

Encouragingly, there are already examples of how this can be achieved. Cost-sharing models, public–private partnerships, and international financing mechanisms all demonstrate different ways of aligning incentives and resources. While these models may not be directly transferable across all contexts, they provide valuable insights into what is possible.

Ultimately, investing in animal health is a collective choice. Animal health cannot be secured by individual actors working in isolation. It depends on cooperation across sectors, across borders, and across levels of governance. By sharing responsibility, funding and expertise, the global community can strengthen the systems that protect both animal and human health.



The Role of Industry in Advocating for Investment in Veterinary Services

Perspectives from New Zealand

When animal disease risks emerge, they are felt first at borders and in markets. A single detection can disrupt trade routes, undermine customer confidence, and threaten livelihoods overnight. For exporting countries like New Zealand, this reality has shaped a clear industry view. Strong, trusted Public Veterinary Services are not just a regulatory necessity – they are an essential economic safeguard. Industry understands that veterinarians in the public service play a pivotal role in protecting animal health, maintaining market access, and underpinning national credibility on the global stage. Strong, well-resourced Public Veterinary Services are a foundational public good. They protect animal health and welfare and public health, enable safe trade, and support economic resilience. While governments hold the formal mandate for Veterinary Services, New Zealand's experience shows that industry plays a critical role in advocating for sustained investment by translating technical veterinary capacity into outcomes that matter to decision-makers –trade continuity, economic performance, and trust. In some areas, well-designed public–private partnerships can also strengthen delivery.

In New Zealand, Public Veterinary Services are delivered through the Ministry for Primary Industries (MPI). Industry advocacy for MPI's animal health capability has been most effective where it aligns closely with national economic and trade objectives. Export-oriented sectors such as meat, dairy, poultry genetics, and germplasm depend on access to international markets that is science-based, predictable, and trusted by trading partners. Industry recognises that this trust rests on the credibility of the national animal health system – and on the veterinarians who design, oversee and deliver its core functions. These include surveillance, diagnostics, outbreak preparedness and response, certification, and transparent reporting in line with WOAH standards.

Industry bodies consistently reinforce to government that MPI's veterinary capability is an essential enabler of trade, not merely a compliance function. Trading partners must recognise New Zealand's disease status and official assurances as credible and defensible under international rules. This recognition depends on sustained investment in veterinary expertise that meets WOAH standards for surveillance, reporting, zoning, compartmentalisation, and certification. Industry also recognises the vital role public service veterinarians play as part of trade negotiating teams. When industry can point to tangible outcomes – such as the maintenance or rapid resumption of market access following disease events – it strengthens the case for sustained public investment in Veterinary Services.

The value of veterinary capability is most visible during animal health crises. Disease events highlight the importance of rapid detection, transparent reporting, science-based risk assessment, and decisive regulatory action, alongside active industry involvement in response. Industry understands that these capabilities cannot be created during a crisis. They are the result of long-term, consistent investment in veterinary skills, systems, and relationships well before an outbreak occurs.

New Zealand industry also strongly supports international engagement and standards development as part of its advocacy for Public Veterinary Services. Industry recognises that WOAH standards provide the technical foundation for fair trade and global transparency. Active participation by government veterinarians internationally helps protect national interests by shaping standards that are scientifically robust and can be applied practically. New Zealand's reputation as a trusted exporter is reinforced through its consistent, science-based application of WOAH standards, and engagement in institutions such as the WTO SPS Committee, reducing the risk of unjustified trade barriers and disputes.



Crucially, industry advocacy in New Zealand has been most effective where it is collaborative rather than confrontational. Industry organisations and MPI officials engage regularly to align expectations, clarify roles, and co-design solutions. Industry contributes commercial insight and market intelligence, while MPI provides veterinary expertise, risk analysis, and regulatory assurance. This partnership ensures that animal health investment decisions are informed by both science and economic reality.

The New Zealand experience highlights a lesson of global relevance. Veterinary Services are strongest when governments and industry share a clear understanding of their value and a joint commitment to sustaining them. As disease risks grow and expectations of transparency increase, veterinarians in the public service will play an increasingly central role in supporting safe trade, protecting public health, and reinforcing confidence in animal health systems worldwide. Where industry acts as an informed and credible advocate for this role, societies are better equipped to meet future animal health challenges.

Mary Van Andel
WOAH Delegate for New Zealand

BUILDING RESILIENT ANIMAL HEALTH SYSTEMS THROUGH INVESTMENTS

The resilience of Veterinary Services

When an animal disease emerges, the strength of a country's response depends on systems that are often invisible in times of stability. Surveillance networks, laboratories, trained professionals and coordination mechanisms rarely draw attention when they function well. Yet in moments of crisis, their presence or absence becomes immediately clear.

At the centre of these systems are Veterinary Services. They are the first line of defence against animal disease, and often the last barrier preventing its wider consequences. Their role is both technical and systemic: they detect, respond, coordinate, certify and advise. They operate at the intersection of animal health, public health, environmental health, food systems and trade.

When Veterinary Services are strong, outbreaks can be contained early, impacts can be reduced and recovery can be accelerated. When they are weak, the same outbreaks can spread more widely, last longer, and cost significantly more. Resilience in animal health systems, therefore, begins with the resilience of Veterinary Services.

Diverse roles, closely connected

At the most immediate level, Veterinary Services enable prevention, early detection, and rapid response to disease. Through surveillance systems, they monitor animal health across territories, identifying unusual patterns that may signal the emergence of a threat. Through diagnostic laboratories, they confirm the presence of pathogens, providing the evidence needed to guide action. Through field networks, they implement control measures, from vaccination to movement restrictions, limiting the spread of disease.

These actions are time-sensitive. The difference between early detection and delayed response can determine whether an outbreak remains localised or becomes widespread. It can influence whether losses are contained or escalate, whether trade continues or is suspended. The impacts of outbreaks, when they are not effectively managed, extend far beyond animal health itself.

Production losses are often the most immediate consequence. Animals may die or be culled, reducing supply


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According to recent data, 93% of respondents indicated that PVS recommendations had a positive impact on their ability to take concrete actions to improve the performance of their Veterinary Services or Aquatic Animal Health Services.

and affecting productivity across entire value chains. For farmers, this can mean the loss of income, assets, and financial security. For countries, it can translate into reduced output and increased volatility.

Trade is frequently disrupted. Export markets may close, sometimes rapidly and for extended periods, affecting not only producers but also processors, transporters, and other actors along the value chain. Rebuilding market access can take time, even after an outbreak has been controlled.

Food security is also affected. Reduced availability of animal-source foods can lead to higher prices, limiting access for vulnerable populations. In contexts where farm animals play a central role in nutrition, these impacts can be particularly significant.

Livelihoods are closely tied to these dynamics. For many households, farm animals represents both a source of daily income and a form of savings. When disease strikes, it can erode both, pushing families into more precarious situations.

There are also broader risks. Some animal diseases have the potential to infect humans, creating public health concerns. Others affect wildlife, with implications for biodiversity and ecosystem stability. Veterinary Services, through their monitoring and response functions, contribute to managing these risks, often working in coordination with other sectors.

In this sense, their role extends beyond responding to individual outbreaks. They help to maintain the stability of systems that support economies, health, and the environment.

Supporting trade, livelihoods and economic growth

Beyond their role in prevention and control of diseases, Veterinary Services also contribute directly to economic development. By enabling certification and compliance with international standards, they support access to markets. Countries with strong Veterinary Services are better positioned to participate in international trade, attract investment, and develop their animal sectors. Conversely, weaknesses in these systems can limit opportunities, even in the absence of major outbreaks.

Sustained productivity is another outcome. Healthy animals produce more reliably, supporting both domestic supply and export potential. This stability benefits producers, consumers, and the broader economy.

At the same time, Veterinary Services contribute to food security and livelihoods. By protecting animals, they help to ensure a consistent supply of animal-source foods and maintain the assets on which many households depend.

Their role in monitoring wildlife health adds another dimension. By tracking diseases in wildlife populations, Veterinary Services contribute to the protection of biodiversity and the prevention of zoonotic spillover. This function is increasingly important in a context where interactions between humans, animals, and ecosystems are changing.

Measuring the performance of Veterinary Services

Strengthening Veterinary Services requires not only investment, but also structured approaches to assessing and improving performance.

One of the most widely used programmes in this regard is the Performance of Veterinary Services (PVS) Pathway. Through independent evaluations and supporting activities based on specific needs, the PVS approach provides WOAH Members with a detailed assessment of their Veterinary Services and Aquatic Animal Health Services, identifying strengths, weaknesses and recommendations for improvement. This helps to identify priorities for development and investment, and to provide support in some specific areas.

The impact of this approach is significant. The vast majority of Members that have engaged with the PVS Pathway report positive outcomes. According to recent data from a survey on Members assessed in the context of the PVS Pathway, 93% of respondents indicated that PVS recommendations had a positive impact on their ability to take concrete actions to improve the performance of their Veterinary Services or Aquatic Animal Health Services.

These actions vary depending on context, but often include strengthening legislation, improving coordination, enhancing training programmes, and investing in infrastructure. Importantly, the PVS Pathway also facilitates dialogue–both among Members and with external partners.

This dialogue is essential for building consensus around priorities and mobilising resources. It brings together different ministries, sectors, and stakeholders, creating a shared understanding of needs and opportunities, not to mention the shared decision-making process needed for implementation. It also provides a framework for engaging with development partners and aligning support with national strategies.

In some cases, this process has also contributed to increased investment. Following their most recent PVS activity, 52% of WOAH Members reported an increase in financial resources for their Veterinary Services. While this does not fully close funding gaps, it demonstrates the potential of external assessments to influence resource allocation.

What it takes to strengthen Veterinary Services

Strengthening Veterinary Services requires investment across several core functions, including workforce capacity, surveillance systems, laboratory infrastructure and emergency preparedness. These components form the backbone of effective prevention, early detection and response.

In 2022, the World Bank estimated that bringing public Veterinary Services up to international standards would require US$ 2.3 billion per year, emphasising the importance of investing in One Health to reduce the risk of future pandemics. WOAH's most recent data indicates that the actual financial needs may well surpass this figure.







According to the analyses carried out through the PVS Information System (PVS IS), the 91 Members having received a gap analysis since 2010 would need a total annual budget of US$ 4.9 billion per year to ensure improved performances of their Veterinary Services. However, the true global figure is likely higher, as the dataset is largely composed of LICs and MICs.

By comparing estimated needs with real budgets in a smaller subset of 54 Members, it was possible to calculate the financing gap. The results show that to meet the actual annual cost of effective Veterinary Services, WOAH Members would need, on average, a 52% budget increase.

Together, these investments would create the conditions for early detection, rapid response and sustained productivity. They would reduce the likelihood that outbreaks will emerge and escalate, and would limit the damage in the event of their occurance.

In a world where animal health and welfare challenges are becoming more complex, the role of Veterinary Services has never been more critical. They are not only responders to crises, they are enablers of stability, growth and protection. Investing in their resilience is therefore an investment in the resilience of the systems and societies they support.

What this means for readers

- Veterinary Services are the backbone of prevention, response, certification and trade confidence.
- Stronger Veterinary Services help contain outbreaks earlier and reduce economic disruption.
- Structured assessment tools can help countries and territories prioritise reforms and mobilise resources.
- Investment in Veterinary Services strengthens the whole animal health system.

Key takeaway: When Veterinary Services are strong, outbreaks are contained earlier, costs are lower and recovery is faster.

Case Study 1

Improving Veterinary Services in Bolivia through the PVS Pathway

Location
Bolivia



Bolivia's experience shows how structured investment in Veterinary Services can translate evidence into action. By using the PVS Pathway to guide reforms, the country demonstrates how targeted, system-level investment can strengthen governance, coordination and long-term resilience, a model that can be adapted and scaled across contexts.

In Bolivia, the process of strengthening Veterinary Services has been shaped by a sustained engagement with the PVS Pathway.

Like many countries, Bolivia has faced challenges in ensuring that its animal health system can respond effectively to emerging risks. Limitations in infrastructure, coordination, and resource allocation affected the overall performance of Veterinary Services, particularly in the context of increasing demands on the animal sector.

PVS Evaluation provided a structured starting point. Through a comprehensive assessment, it identified key areas for improvement, ranging from legislative frameworks to technical capacity and organisational coordination. These findings were not presented as abstract suggestions, but as practical guidance for action, tailored to the country's specific context.

What followed was a process of gradual but sustained change. Bolivia used the PVS recommendations to inform national planning and prioritisation. Efforts were made to strengthen institutional frameworks, clarify roles and responsibilities, and improve coordination between different levels of government. Investments were directed towards enhancing technical capacity, including training for veterinary personnel and improvements in infrastructure.

Equally important was the role of dialogue. The PVS Evaluation created opportunities for engagement between ministries, stakeholders and international partners. This helped to build a shared understanding of the importance of animal health and the need for sustained investment. It also facilitated the mobilisation of resources, both domestic and external.

Over time, these efforts contributed to measurable progress. Veterinary Services became more structured and better equipped to carry out their functions. Coordination improved, allowing for more coherent responses to animal health challenges. The system as a whole became more resilient, better able to detect and manage risks.

The impact extended beyond technical performance. By strengthening its Veterinary Services, Bolivia also enhanced its ability to support animal production, protect livelihoods and engage in trade. Confidence in the system increased, both among domestic stakeholders and international partners.

Bolivia's experience illustrates how structured approaches to system strengthening can translate into tangible results. It shows that resilience is not achieved through isolated interventions, but through coordinated efforts that address multiple components of the system.

It also highlights the importance of continuity. The PVS Pathway is not a one-time assessment, but an ongoing process. Its value lies in its ability to guide long-term monitoring and improvement, adapting to changing needs and priorities. In this sense, Bolivia's progress is not an endpoint, but part of a broader trajectory. It demonstrates how investment, guided by clear assessment and supported by collaboration, can strengthen Veterinary Services and, in doing so, reinforce the foundations of animal health systems.





Strengthening the Veterinary Workforce

Between May and November 2025, each month Mr Jairo Eusebio Cachique Hernandez travelled by boat from Leticia, the southernmost town in Colombia, to Puerto Esperanza, an Indigenous community along the Amazon River. Depending on the size of the boat, the journey could take between two and six hours.

Cachique Hernandez is a veterinarian specialised in sustainable animal nutrition, but the purpose of his frequent trips into the jungle was to meet and collaborate with local communities such as the one in Puerto Esperanza. Once welcomed by the curaca (the head of the community), he trained selected members of each village in basic animal husbandry practices and in recognising key symptoms of animal diseases.

Thanks to his missions in the jungle, six members of the community of Puerto Esperanza are now in regular contact with Cachique Hernandez and his colleagues. They are ready to call the veterinary team whenever they observe any suspicious signs in the animals farmed within their community.

This effort to establish an early warning system in the Department of Amazonas in Colombia is a striking example of how veterinarians and local communities can work together to protect animal health in remote areas, while also monitoring and controlling disease outbreaks. Ms Yenny Soledad Infante Rivera, who leads the project in the department, is well aware of its challenges:

> We have to identify and prioritize the communities we can support, but in our department all communities require substantial support from institutions. All face similar production challenges and need some level of improvement. For this reason, carrying out field visits and ensuring continuous follow-up is a significant challenge, yet it is essential to achieve meaningful and lasting change in our communities.

Investing in the veterinary workforce to protect One Health

Navigating budgetary constraints and seeking innovative solutions at the interface between government initiatives and local communities is a challenge shared by many Veterinary Services. The veterinary workforce forms the indispensable backbone of animal health systems and is a key strategic asset for the One Health approach. Investing in this human capital is therefore not merely a technical requirement; it is a fundamental safeguard for global health, international trade and economic stability. A shortage in



"Nowadays you can find people in the middle of the jungle who know what antimicrobial resistance is, or who are aware of rabies and salmonella. They are taught about all the diseases that can be present in their territory, affecting animal health."

Yenny Soledad Infante Rivera
Sectional Manager, Amazonas Sectional Office,
Instituto Colombiano Agropecuario

the veterinary workforce, whether in absolute numbers or in essential competencies, regulatory frameworks and professional independence, constitutes a significant global risk.

Since 2006, hundreds of independent experts have been sent by WOAH to 140 Members to assess the level of advancement of Veterinary Services worldwide. The data and information collected during these missions have been systematically compiled and analysed through WOAH's PVS IS. This 20-year body of evidence offers valuable insights into what is required to strengthen the global veterinary workforce. These findings are now being published for the first time online and in the pages of this report.

From this source, it is possible to discover that increasing the number of veterinarians and more broadly strengthening the staff numbers of Veterinary Services are not the only important actions recommended by PVS experts to Members undergoing evaluations. The analysis of recommendations from PVS IS show that strong Veterinary Services depend on solid veterinary education and training systems, continuous capacity development and a well-trained veterinary workforce. Training veterinary paraprofessionals is the top recommendation, followed by improving the infrastructure and resources of Veterinary Services and promoting veterinary training and education.

If training people and expanding the workforce is the priority, this inevitably comes with a cost.

As insights from the PVS IS indicate, this is not simply a matter of increasing budgets for salaries. Veterinary Services can achieve significant improvements in quality and efficiency by investing in evidence-based workforce planning, digital transformation, and high-quality training and educational infrastructure. Partnerships between the public and private sectors may also be explored. To ensure continuous professional development, strengthening workforce competencies should be prioritised, supported where necessary by regulatory and legal reforms that promote a sound working environment and strong quality assurance.

Effective animal health depends on a workforce that spans the entire professional spectrum: from veterinarians who provide high-level clinical expertise and regulatory oversight, to veterinary paraprofessionals who deliver essential technical services and the multiple professionals supporting laboratory effectiveness, epidemic intelligence and risk analysis. And in remote areas that none of these can easily reach, community animal health workers (CAHWs) can serve as the first line of defence .

When the answer comes from the community

Community animal health workers are not a new concept in the veterinary field. They have been deployed since the 1980s across many countries or territories, achieving notable successes and becoming integrated into animal health systems in diverse ways. With slight differences in naming, their role is formally recognised in national legislation in Afghanistan, Cambodia, Côte d'Ivoire, Ethiopia, Guinea, Laos, Mauritania, Myanmar, Nepal, Niger, the Philippines,



Somalia, Sudan, Tanzania, Togo, Vietnam and Yemen. In these countries, as in many others, CAHWs have played an essential role in mass farmed animals vaccination campaigns, the delivery of basic services to local communities, and disease monitoring and surveillance in remote areas.

Well-trained CAHWs can be valuable contributors to public health as protectors, promoters and communicators. They help raise community awareness of issues such as food safety, zoonotic diseases and antimicrobial resistance. Returning to the Colombia case study, as Infante Rivera explains:

> Nowadays you can find people in the middle of the jungle who know what antimicrobial resistance is, or who are aware of rabies and salmonella. They are taught about all the diseases that can be present in their territory, affecting animal health. For us at the Instituto Colombiano Agropecuario, it's a way to build an early warning system. For them, this knowledge reduces disease in animals, which means fewer animal deaths, economic losses, or risks to human health.

Sustained commitment to the workforce is the only way to protect productivity and reduce production losses. By viewing the workforce as a source of innovation and a driver of farmer awareness, countries can shift from reactive crisis management to a resilient and proactive animal health system.

What this means for readers

- The veterinary workforce is a strategic asset, not just an operational input.
- Paraprofessionals and community-based models can extend reach where formal services are thin.
- Workforce investment improves disease surveillance and prevention, and trust with communities.
- Long-term resilience depends on competencies, continuity and professional support.

Key takeaway: A stronger veterinary workforce means stronger prevention, surveillance and resilience.

Case Study 2

Preserving Colombia's chagras through community training

Location
Colombia



In Colombia's Amazon region, investment in local capacity has transformed surveillance on the ground. By training community members as part of an early warning system, this case illustrates how scalable, low-cost workforce models can extend the reach of animal health systems into the most remote areas.

Indigenous communities in Colombia in the Department of Amazonas have organised their production systems around the concept of the chagra for centuries. Technically, a chagra is a polyculture area in which basic foods, such as plantain, cassava, fruits, medicinal plants and aromatic herbs, are grown together in an integrated manner. The same space also supports animal production, including backyard poultry, small-scale pig farming and ponds for fish.

Beyond its productive role, the chagra holds significant cultural value, closely linked to the preservation of community heritage and traditional knowledge. While men typically engage in hunting and other external productive activities, women are generally responsible for labour in the chagra. They collect, cultivate, harvest and prepare food, thereby transmitting techniques, ecological knowledge and cultural practices across generations.

Surveilling the health status of animals and crops within the chagra is a priority for the Colombian Agricultural and Livestock Institute, the national authority responsible for plant and animal health in Colombia. Currently, two veterinarians are assigned to the animal and plant health extension programme in the Department of Amazonas, an area covering 110,000 km2 – roughly the size of Bulgaria or Guatemala.

To address the considerable logistical challenges posed by this vast and remote territory, veterinarians at the institute have trained 26 community members from different chagras of the department to recognise the clinical signs of the most common animal diseases. These trained community members, known as 'sensores' (sensors), perform tasks similar to those carried out by CAHWs in other parts of the world, particularly in relation to early warning and disease detection systems. Their role strengthens local surveillance capacity, enabling quicker reporting and response to potential health threats within Indigenous territories.

'We trained the sensores so they could identify signs of disease and notify us,' explains Infante Rivera, the Colombian Agricultural and Livestock Institute's departmental manager for Amazonas, then continues:

> Before our involvement, people were not accustomed to implementing preventive management practices for animals: there was no deworming, no housing and this resulted in high mortality rates. Through training on biosecurity, antimicrobial resistance and disease prevention, the community now recognises risks such as rabies and salmonellosis. As the Amazon River is affected by mercury contamination, several fish species are no longer safe for consumption. We therefore also supported the development of safer fish production

> systems, enabling communities to grow their own fish in ponds under improved sanitary conditions.

As the example of fish production illustrates, producing food in the Amazon rainforest is far from simple. Although many communities could benefit from introducing new techniques and improved poultry breeds into their chagras, doing so also brings significant challenges. Mr Cachique Hernández, one of the two Colombian Agricultural and Livestock Institute veterinarians who regularly visits Indigenous communities for training and surveillance, often refers to the case of laying hens. These birds are typically transported deep into the rainforest by boat, and once they arrive, they must rapidly adapt to completely unfamiliar environmental and sanitary conditions:

'We noticed that these specialized breeds were experiencing numerous respiratory problems,' explains Cachique Hernández, elaborating that:

> Although we routinely test for avian influenza and Newcastle disease in the chagras, we have never detected either of them. We therefore infer that these respiratory issues are linked to viruses carried by wild birds, combined with the effects of climate variability. Considering the hens were not sheltered at night, they were directly exposed to atmospheric changes. In the rainforest, in some seasons temperatures can drop abruptly from 40°C to 19°C within just a few hours, and such fluctuations place considerable stress on the animals; not to mention their exposure to wild birds and the array of viruses they naturally carry. Once we worked with the community to build simple shelters, the situation improved. Implementing basic biosecurity measures, such as routine cleaning and disinfection, also made a significant difference.

What Colombian Agricultural and Livestock Institute's veterinarians are doing in Amazonas goes beyond introducing new practices or raising awareness about animal health in the chagras. The 26 sensores trained in the department are part of a national network of more than 5,000 people across Colombia who strengthen the community-based early warning system. Their role is to notify the Colombian Agricultural and Livestock Institute of clinical signs compatible with diseases subject to official control or surveillance, thereby reinforcing surveillance capacity in remote areas of the country.

This collaboration – still in need of sustained investment and resources – has the potential to protect the health of animals on which Indigenous communities, and the entire Colombian farmed animal sector, depend. As Ms Infante Rivera notes:

> Working with Indigenous communities requires mutual respect and an exchange of knowledge. We bring information, but we also learn from them. It is not always easy, but they have survived for centuries in extremely complex environments. It is an exchange of knowledge, culture and techniques.



Investing in prevention and preparedness to reduce the cost of emergencies

The economic imperative for preparedness

Today's increasingly complex landscape and the interdependent nature of risk factors call for innovative ways to achieve effective emergency preparedness. Among other threats, climate change has made it urgent for global health systems to become better prepared for extreme events such as droughts and floods. Yet, like so many other crises, disease outbreaks, whether naturally occurring, accidentally triggered or deliberately caused, cannot be predicted with certainty. Preparing for them is therefore the least we can do, and in many ways the most responsible action we can take. In this context, Veterinary Services play an important role in ensuring that society as a whole is ready for any adverse event that affects, or involves, animals or animal pathogens.

By strengthening the ability of countries to prepare against animal health emergencies and disasters, we safeguard both animal and human health, maintain food security and protect livelihoods. Achieving this goal requires global commitment and local, targeted investment in emergency preparedness, from early warning systems and rapid response teams to veterinary infrastructure and contingency planning. Developing countries tend to be more exposed to risks from climate change and have a higher burden of infectious disease. These risks are compounded as the countries lack infrastructure, human and financial resources, and regulatory frameworks. Without sufficient investment, countries risk being ill-equipped to manage outbreaks and disasters, leading to greater economic and societal impacts.

But preparing for animal health emergencies is also far less costly than responding to widespread crises. Investing in preparedness is especially important when it comes to tackling transboundary animal diseases such as foot and mouth disease (FMD), which are exotic to many countries (diseases like FMD have been eliminated from many countries and regions to facilitate access to international markets). Because of their highly infectious nature, if outbreaks of diseases such as FMD are not contained rapidly they result in broad economic impacts on animal productivity and have implications on trade.

Once a disease such as FMD becomes endemic, it undermines animal production potential and access to international markets. Uncontained outbreaks in countries that had previously eliminated the disease, also undermine the investments that had been made to eliminate it in the first place. Interestingly, reports have ranked FMD within the top ten diseases constraining poverty alleviation in developing countries as noted in a study conducted by Perry and others (2002), highlighting a direct link between animal health and economic benefit for the society at large. In fact, preparedness against diseases such as FMD can be an important component of poverty reduction strategies for countries where livelihoods are heavily reliant on animals, or an insurance for countries which have invested in FMD elimination.





"The changes we have made since 2001 to improve biosecurity on UK farms have been wide-ranging, one of the most prominent being the ban of feeding farm animals with swill and subsequent awareness campaign."

Dr Christine Middlemiss
WOAH Council Member and Delegate for the United Kingdom, UK Chief Veterinary Officer

From reactive to proactive: lessons from 2001 foot and mouth disease outbreaks

Enabling preparedness is not about anticipating what may come next, it's about understanding what happened in the past and what that has to teach us.

The United Kingdom's experience with FMD in 2001 stands as an event that, although highly traumatic and devastatingly impactful for the country, has left a legacy behind which informed subsequent years of emergency preparedness strategies worldwide. The event also offers an illustrative example of the return on investment in preparedness and incident management. The major FMD epidemic faced by the UK in that year infected around 2,000 farms, leading to the culling of over 6 million farmed animals. The total economic cost was estimated at £8 billion, including direct losses and impacts on tourism and agriculture. The estimated £5 billion in costs to wider industry and society highlights the exceptionally vast damage disease outbreaks can cause, both directly and indirectly. The outbreak also had a lasting effect on individuals, including their mental health, as well as the broader agriculture sector and rural communities.

The threat of FMD represents a systemic risk to national and global food security. Upon the confirmation of an outbreak, the primary objective is to contain the disease; however, the secondary impact is an immediate and catastrophic disruption to the agricultural economy. When a nation halts exports to mitigate international risk, the financial ripple effect is near-instant. The disruption moves from processors and abattoirs down to the farm gate, where blocked supply chains create animal welfare crises and severe liquidity issues for producers.

The year 2001 taught the UK that, despite having plans, the country was not ready for an outbreak on such a scale. Following the 2001 crisis, the government strengthen both prevention and preparedness. The UK bolstered biosecurity and traceability frameworks, overhauled its contingency planning, strengthened its emergency management structures and introduced clearer command-and-control arrangements for animal health emergencies. When FMD remerged in 2007, these systems were activated rapidly, enabling a much faster and more coordinated response. Although different in nature, the 2007 FMD outbreak spread far less widely, and was contained in 58 days, compared with the nearly eight-month duration of the 2001 outbreak, with far fewer animals culled and far lower economic costs (£47 million).

The 2001 outbreak exposed significant vulnerabilities in the UK's response, particularly the lack of traceability for sheep and pigs, and the slow implementation of movement controls. According to Dr Christine Middlemiss, who has served as the UK's Chief Veterinary Officer for the past eight years, modern preparedness centres on three foundational improvements: systematic traceability, "battle rhythm" and strategic movement restrictions. Unlike in 2001, the UK now maintains comprehensive identification and tracking systems for all major farm animal classes, ensuring that



authorities know exactly where animals are located at the start of an incident. Also, to prevent the paralysis that often occurs during the initial hours of a crisis, the government has established a pre-defined "battle rhythm." This includes fixed governance structures, where specific meetings, roles and responsibilities are triggered immediately. The framework ensures that decision-makers are not spending precious time defining roles while the disease is spreading. Last but not least, the current policy dictates a "start big, go small" approach to movement bans. By implementing a national ban initially and scaling back only once the extent of the infection is confirmed via risk assessment, authorities can gain control over the epidemiological situation rather than trailing behind it.

'The changes we have made since 2001 to improve biosecurity on UK farms have been wide-ranging, one of the most prominent being the ban of feeding farm animals with swill and subsequent awareness campaign,' recalls Dr Middlemiss. 'We have also improved our farm animals traceability, and we are now acting to further enhance our capabilities in this area,' she continues. 'The UK is a global leader in animal science, but as the recent outbreak of avian influenza has shown, we can never be complacent and must continue to improve our disease contingency planning to protect animal health and further enhance our biosecurity.'

Human factors and the role of public discourse

Contemporary emergency management practices recognise that disease control is as much a social process as it is a biological one. Two key advancements highlight this momentous shift. The profound psychological impact of culling and losing farmed animals becomes fully recognised, with modern contingency plans incorporating support for the mental health and well-being of the farming community, a factor entirely absent back in 2001, for example.

Regardless of their nature, the animal health emergencies faced in the past have also highlighted the importance of communication as a strategic tool. Public discourse and overall communication is now being classified as a core disease control tool. In an era marked by the ubiquitous presence of social media, the speed of news flow can either bolster or undermine containment efforts. The recent FMD outbreaks in the EU have revived discussions about the dangers that misinformation can pose to society, shaping public perceptions and amplifying fears, while also intensifying economic losses by delaying the disease response or resulting in knee-jerk reactions such as trade bans. During the outbreaks in Germany, Hungary and Slovakia, misleading media reports and headlines significantly fueled public concern about human infection, despite the scientific consensus that FMD presents minimal risk to people. This also



"Understanding who is responsible for animal care, who seeks veterinary advice, and how information flows within communities helps ensure that preparedness measures and communication strategies reach the right people."

Dr. Ekta Patel
Scientist at the International Livestock Research Institute (ILRI)

happened in countries not directly affected by the disease where precautionary measures were taken. According to the UK Department for Environment, Food and Rural Affairs, some media inaccurately reported that it took six or seven days for controls on commercial imports to take effect and this allowed disease to enter the country.

In addition to this, speculation abounded around the origins of the outbreak. Despite a lack of evidence, an unverified claim was made to suggest a deliberate introduction of FMD. WOAH and other authorities communicated clearly that the source of disease introduction remained unknown given the available evidence. Authorities are increasingly aware of the importance of balancing the need for rapid public transparency with the scientific uncertainty inherent in the early days of an investigation, all while proactively managing the risk of mis- and disinformation.

Dr Ekta Patel, Scientist at the International Livestock Research Institute and point of contact for the WOAH One Health Collaboration Centre, who works on veterinary systems strengthening, biosecurity and zoonotic disease preparedness, is acutely aware of the hidden cost of mis- and disinformation during disease outbreaks. This phenomenon can lead to delayed reporting, reduced confidence in animal health systems, and suboptimal uptake of recommended control measures. 'When farmers and other stakeholders receive conflicting or inaccurate information, they may hesitate to report suspected cases, reject vaccination campaigns, or rely on informal advice rather than veterinary guidance,' she says. 'These delays can allow diseases such as FMD to spread further, increasing animal losses, trade disruptions and economic impacts on rural communities.'

This is why it is important to establish a strong culture of emergency preparedness that helps limit these risks. As we look for sustainable solutions, established surveillance systems, trusted veterinary networks and clear communication channels can ensure that accurate information reaches farmers quickly and consistently. 'Another aspect, including an integrated gender-responsive approach, is also important, as men and women often play different roles in farm animal management and decision-making,' she adds. Going on to note that:

> Understanding who is responsible for animal care, who seeks veterinary advice, and how information flows within communities helps ensure that preparedness measures and communication strategies reach the right people. When response systems account for these dynamics, they strengthen trust, reduce the spread of misinformation and support more effective disease control.

The value of an Incident Management System

The adoption of an incident management system provides a standardised framework for crisis response. First of all, this model allows authorities to maintain operational continuity: by separating technical, operational and communication streams, leadership can manage the crisis without becoming overwhelmed by the competing demands of the public, the media and political stakeholders. In a similar way, it ensures adaptability: while every country must tailor their approach to their own geographical and political requirements, an incident management system ensures that the foundational elements of command and control are present from the start.

On the UK's side, the transition toward a proactive, evidence-based and human-centric model of preparedness has transformed how the country manages high-consequence diseases. By institutionalising risk assessments – such as monthly expert reviews of environmental and logistical changes – and establishing rigid, pre-tested governance, the UK has shifted from a state of reactive crisis management to one of strategic resilience. Dr Middlemiss is adamant that the ultimate lesson in the fight against FMD is that time is our most precious resource: 'Every minute saved by prior preparation directly reduces the scale of a potentially staggering economic and social impact'.

What this means for readers

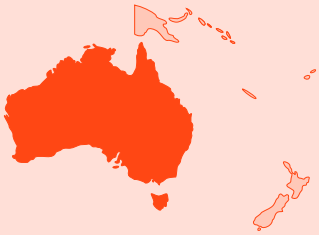
- Preparedness is far less costly than large-scale crisis response.
- Governance, traceability, contingency planning and communication all determine response effectiveness.
- Misinformation can amplify losses and delay reporting during outbreaks.
- Preparedness must be maintained as a living system, not a static plan.

Key takeaway: Preparedness is not an administrative cost; it is a hedge against major economic and social loss.

Case Study 3

Australia's AUSVETPLAN: co-de-signed preparedness for effective disease response

Location
Australia



Australia's AUSVETPLAN shows how coordinated investment between government and industry can turn preparedness into a shared, operational system. It demonstrates that co-designed, co-financed frameworks are critical to ensuring rapid, effective responses while minimising economic disruption.

An example of harmonised emergency management comes from Australia, a strong contributor to WOAH processes that protect animal health status and substantial trade in animals and animal products.

Published in 1991, AUSVETPLAN is a nationally agreed approach for responding to emergency animal disease incidents in Australia. It contains disease-specific strategies, operational manuals, enterprise manuals and management manuals for control centres and laboratory preparedness. The plan has been refined over time, relying on input and engagement from industry and government members, and other stakeholders looking for strategies that are fit-for-purpose and can be used by governments and industries alike during responses to emergency animal disease incidents.

AUSVETPLAN stands as a prime example of the fact that preparedness delivers the best returns when it is co-designed between governments and industry groups, nationally agreed, practically usable and embedded before an emergency occurs. The plan has provided Australia with a shared framework for responding to emergency animal diseases, linking policy, strategy, implementation, coordination, communication, governance, emergency-management planning and finances, so that the country is not forced to come up with approaches under pressure. 'Maintaining the Emergency Animal Disease Response Agreement and AUSVETPLAN are key functions of Animal Health Australia, a not-for-profit publicly listed company, which has the Australian Government, state and territory governments and peak industry groups as members,' says Dr Beth Cookson, WOAH Delegate for Australia.

Together, the Emergency Animal Disease Response Agreement and AUSVETPLAN provide funding clarity, reduce delays, improve coordination across government and industry, support consistent decision-making and help contain outbreaks more quickly at lower overall cost. 'The economic return is seen in avoided escalation, reduced disruption to production and trade, and faster recovery once the response is complete,' she adds. Going on to point out how AUSVETPLAN demonstrates that preparedness is not just about technical response tools, 'In fact, it is very much about equitable governance, coordination and responsibilities. Those elements determine whether technical capability can be translated into effective action during an emergency'.

Preparedness frameworks like AUSVETPLAN also support trade resilience. Their role in readiness, exercising and demonstrating credible response capability strengthens confidence well before an outbreak occurs, including in trade and market access contexts. Dr Cookson also believes that the experience with AUSVETPLAN shows

something more universal: that preparedness needs to be treated as a living system, continuously reviewed, updated and exercised, rather than a static set of plans that does not take into account specificities of each situation and account for evolving evidence and practice. Similarly, Dr Cookson notes that discipline is what turns preparedness investment into sustained economic investment and real animal health protection:

> It's also important to recognise that animal health emergencies do not occur in isolation, they have consequences that cut across borders, sectors and portfolios. That is why Australia embeds animal health emergency planning within broader national crisis management arrangements. AUSVETPLAN provides the Australian Government mechanism for coordinating responses to plant and animal biosecurity and agricultural incidents, and it derives its authority directly from the Australian Government Crisis Management Framework. This ensures animal health responses are integrated into an all-hazards, whole-of-government approach when national coordination is required.



Surveillance in a connected world

In February 2026 a dog tested positive for rabies in Germany. The German health authorities found that the dog had entered the European Union in November 2025, through Latvia. They used an immediate notification on the Rapid Alert System for Food and Feed which alerted the Division of Information Analysis and Emergency Response of the Food and Veterinary Service of Latvia.

Dr. Santa Ansonska is a senior expert in the Animal Infectious Diseases Surveillance Division of the Department of Veterinary Surveillance of Latvia. Right after being alerted of the case by her colleagues, she had to trace and verify the identification of each dog and cat in the shipment, using another digital platform called TRACES. This system supports the exchange of information on digital certifications required for the import and export of animals, animal products, and plants within, and in and out of the European Union. It took two days for Ansonska to collect all the information needed, then she used the data available to send an official notification to the European Commission, to share the information with other countries that may be interested in the case.

Moving animals from one country to another is a daily activity linked to trade. This concerns not only companion animals but also farm animals. With any movement of animals comes the risk of spreading diseases from one area to another. This is where surveillance, integrated data systems, and digital tools become essential. The challenge is not the presence of a disease in a country, but having access to the right information at the right moment to respond effectively. As Ansonska explains: 'We should all fear the unknown. But if data are available quickly, we can be more proactive and not just react to the situation'.

Cooperating for animal disease surveillance

In 2016, the World Bank launched a series of projects under the Regional Disease Surveillance Systems Enhancement initiative (REDISSE). Its main objective was to establish well-functioning and connected disease surveillance systems in West Africa. In the aftermath of the largest Ebola crisis in recent history, the World Bank worked on the assumption that preventing emergencies is far less costly than responding to them once they occur. Indeed, it had been calculated that the World Bank alone provided financial support for more than US$ 1.6 billion to help contain the outbreak and support the affected countries, while the entire REDISSE programme cost less than US$ 400 million across the 11 participating countries.

The One Health approach adopted by REDISSE aimed to strengthen cooperation among West African countries on disease surveillance, based on the understanding that no country can control the spread of a disease on its own. On the other hand, when several countries are free from a disease and work together to maintain that status, they can



collectively have a greater impact and contribute to health security at the global level.

Deadly zoonotic diseases that can spill over from animals to humans are not the only useful example for understanding the value of regional cooperation and global data sharing. Foot and mouth disease is a highly contagious viral disease of farm animals. It is not often fatal for the animals it affects, but it severely reduces their productivity and is regarded as a major threat by farmers and veterinarians around the world. After years of absence, the disease has reappeared in Europe and is also spreading into new areas of Africa.

FMD is the perfect example of how timely and transparent reporting allows countries to take decisions based on science and evidence. This is especially important when Veterinary Services operate with limited budgets and must reallocate resources quickly to prevent larger crises. As Ms Ansonska explains:

> As soon as we knew that FMD had reappeared in Europe, we had to take many actions to reallocate resources, reorganise our work, communicate the risk to the people concerned, and develop preventive measures before the disease could enter the country. Thanks to information systems such as ADIS [Animal Disease Information System] and WAHIS [World Animal Health Information System], we have both the evidence that the disease is present in an area and the data we need to explain to decision-makers why this is a threat for us.

Letting data speak

The EU's Animal Disease Information System (ADIS) and WOAH's World Animal Health Information System (WAHIS) are platforms which enable countries and territories to share data on animal diseases present in their territory. The two systems were interconnected between 2024 and 2025, with Latvia playing a key role as a pilot country at the start of the process. The purpose of this interconnection was to ease the workload of animal health officers across the European Union and to facilitate information exchange at the global level.

Data are even more useful when they can be connected to each other and accessed easily, allowing professionals, researchers and other users to reuse them. This is true of veterinary certificates, where the stakes of digitalisation are high. Today, many countries or territories still produce paper veterinary certificates for the export of animals and animal products. The production and physical exchange of these documents takes time, is more prone to mistakes or alterations, and requires duplicate efforts to input and extract information for importers and exporters.

Mr Simon Padilla is an economic affairs officer at the World Trade Organization. He has worked for many years on the multilateral exchange of electronic certificates, and like many people involved in data management, he notes that the main challenge is not creating the platform but producing information that can actually be used:



"As soon as we knew that FMD had reappeared in Europe, we had to take many actions to reallocate resources, reorganise our work, communicate the risk to the people concerned, and develop preventive measures before the disease could enter the country. Thanks to information systems such as ADIS [Animal Disease Information System] and WAHIS [World Animal Health Information System], we have both the evidence that the disease is present in an area and the data we need to explain to decision-makers why this is a threat for us."

Ms Santa Ansonska
Senior expert in the Animal Infectious Diseases Surveillance Division of the Department of Veterinary Surveillance

> The technology behind an international system to exchange certificates is actually simple. The difficult part is making sure that the data is correct and reliable. And that is something that involves the entire certification process. You need to work with the inspectors and with the different business operators to ensure that everything functions properly. It requires a great deal of coordination to make sure that your certification system works well and that everyone who contributes to it is doing their job correctly.

As of today, the Inter-American Institute for Cooperation on Agriculture is partnering with the United Nations International Computing Centre to develop a new system for the exchange of electronic veterinary certificates. Funded by the Standards and Trade Development Facility, the project entered the platform development phase in February 2026, and WOAH standards for electronic veterinary certification will serve as the reference to create a common foundation for participating countries.

In March 2026, a similar initiative of the International Plant Protection Convention Secretariat, that serves as a model for this work, reached an important milestone: 100 countries were exchanging phytosanitary certificates in real time through its ePhyto Hub (electronic phytosanitary certificate Hub). This achievement demonstrated the potential of electronic certification systems and confirmed their value for countries wishing to trade plants and plant products using secure digital certificates.

Enhancing animal health through trade

Harmonisation is a major challenge for any country that wants to exchange safe products. Hundreds of different veterinary certificates exist, depending on the exported commodity, the destination market and the specific requirements that apply. The new project led by the Inter-American Institute for Cooperation on Agriculture on exchanging electronic veterinary certificates aims to begin with a limited set of commodities traded within the Americas, in order to understand how countries can harmonise their certification needs and how this process could later be expanded to the global level. The ultimate purpose is to make people's work easier and to strengthen relationships built through trade. In this context, animal health plays a central role and can benefit greatly from these efforts, as Mr Padilla explains:

> If you want to digitise a veterinary certification system, you must revise the entire process. And when you do that, sometimes you identify bottlenecks or critical issues that must be addressed. So, by facilitating trade you are also strengthening your animal health control system. We want to reduce paperwork, time and costs for international trade, while minimising errors, disruptions and fraud. And when you reduce the possibility of errors or fraud, you build trust and you facilitate trade, but at the same time you strengthen health protection. Both concepts are connected: animal health and trade. The aim is to make the whole process more efficient and safer for everybody, including importers, exporters, business operators, regulators and consumers. But farmers and veterinarians on the ground will be the ultimate beneficiaries of this project.



What this means for readers

- Surveillance is the backbone of early detection in an interconnected world.
- Digital systems and timely reporting accelerate response across borders.
- Weak surveillance in one place can quickly become a risk elsewhere.
- Data-sharing is essential for prevention, trust and collective security.

Key takeaway: In a connected world, better surveillance protects both national systems and global stability.



Pathogens know no borders

Perspectives from Fondation Mérieux

It is a great honor to contribute to the State of the World's Animal Health report, which highlights the importance of a One Health approach to the surveillance, diagnosis, prevention, and treatment of infectious diseases. It is now well established that there are no geographical or species borders for pathogens or for antimicrobial resistance mechanisms between animal health, environmental factors, and human health. Since its inception, Institut Mérieux has embraced this vision, inherited from the work of Louis Pasteur. A vast majority of infectious diseases affecting humans are of zoonotic origin and investing upfront in animal vaccination is the most cost-effective solution, compared with the reactive treatment of patients once disease emerges. Furthermore, global trade, the geopolitical context and associated crises, and climate change are increasing the likelihood that pathogens, together with their reservoirs and vectors where applicable, will spread to new populations (as illustrated by West Nile virus, Dengue, and Zika, which are becoming endemic in new biotopes). Today, scientific and technological innovations make it possible, for example through artificial intelligence, to more rapidly integrate data from different surveillance systems across animal, human, and environmental health. This enables the real-time detection of new pathogens or the re-emergence of existing ones, allowing a shift from a reactive to a proactive approach and better anticipation of effective countermeasures. This is particularly important in preventing avian influenza and the risk of its transmission to humans. The same applies to diagnostic solutions used to identify sources of contamination in the agri-food chain or to monitor the evolution of antimicrobial resistance mechanisms across the environment, wildlife, livestock, companion animals, and humans. The emergence of new technologies such as sequencing, combined



with the analysis of large and complex datasets, as demonstrated during the COVID-19 pandemic, has enabled the rapid response that is essential today. These advances also support vaccine prevention through technologies such as mRNA platforms, which are well suited to short development, manufacturing, evaluation, and approval cycles, enabling large-scale deployment in pandemic situations. At the same time, access to laboratories facilities, and advanced technologies in some Low- and Medium-Income Countries are still limited and remain a priority, both for Animal and Human Health as well as for environmental sector. This One Health approach must be supported by public-private partnerships, once again without borders, in order to anticipate and accelerate the availability of effective countermeasures across animal, human, and environmental health through concrete and coordinated actions. It is within this context that a collective initiative, the Global One Health Diagnostics Access Compact (GO-Dx), has been launched, aiming to address gaps in this field, harmonize actions across sectors, and support countries in building more resilient, data-driven health systems. By bringing together public and private stakeholders in animal and human health, this pact represents a crucial pillar of the One Health approach. By aligning with national and international policy frameworks and advocating for strengthened public–private collaboration, the GO-Dx initiative seeks to improve infection prevention strategies, strengthen health systems, and address the growing threat of antimicrobial resistance and the risks posed by emerging pathogens.

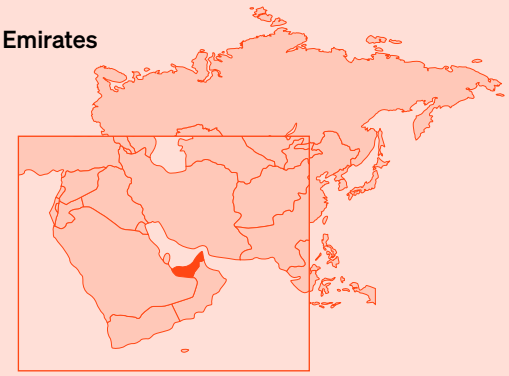
Alain Mérieux
President, Fondation Mérieux



Case Study 4

Digital surveillance and community reporting in the United Arab Emirates

Location
United Arab Emirates



The United Arab Emirates demonstrates how digital innovation can transform animal health systems. By integrating real-time data and reporting tools, this case shows how investment in digital surveillance enables faster detection, better coordination and more targeted responses at scale.

Camel races may be niche, but they are quite important in the United Arab Emirates (UAE). However, camels are not only used for competitions; their milk is also consumed or used to produce other animal products. Historically, sheep and goats were farmed in the UAE, which today is a major importer of animals and meat products. The country's ports and airports serve as global trade hubs, including for farm animals. In this context, ensuring animal health and welfare, as well as safe animal movement, is crucial to prevent the spread of diseases that could affect human health or food security. For these reasons, in 2019 the UAE launched the Bio-Security Early Notification System.

The Bio-Security Early Notification System is a national digital platform that allows animal and human health officials, as well as ordinary citizens, to report biological risks in real time. Developed by the UAE Ministry of Climate Change and Environment, the system incorporates for the first time a One Health perspective into disease-related data collection. Users can report events linked to agricultural pests and animal diseases, including those that can infect humans. They can also file complaints related to food safety, animal welfare, the possession of dangerous animals, or concerns about veterinary practices.

Using their national digital identity credentials, the same used to interact with public administration, any citizen can submit a notification about an animal, plant or human health concern through the Bio-Security Early Notification System. Each report is evaluated by a dedicated team at the UAE Ministry of Climate Change and Environment, and all relevant authorities are alerted and updated via the same digital platform.

The creation of this unified biosecurity system had long been a goal for the UAE. The aim was to improve the early detection of risks and the implementation of control measures for disease outbreaks. Some of the reference models considered by the country were the European Union's Rapid Alert System for Food and Feed and the World Organisation for Animal Health's WAHIS.

According to the UAE Ministry of Climate Change and Environment, brucellosis is one of the most frequently reported diseases through the system, together with paratuberculosis and blood parasites. Brucellosis affects many animal species, including camels, sheep and goats. In many of them, the disease reduces productivity and reproductive capacity, as it often causes abortions. It can also easily spill over to humans through the consumption of raw milk or contact with the blood of infected animals, and when it does, it can have serious public health consequences.

This example illustrates the value of the community-participation approach adopted by the ministry in developing the

platform. Because communities can be directly affected by many animal diseases, encouraging their involvement in reporting risks and concerning situations can help prevent major crises. Progress is being made: in 2025, the system recorded 360 reports of animal diseases, 30 of which were submitted by users outside government bodies. The ministry's goal is clear: to engage communities in monitoring and reporting in order to provide decision-makers with real-time data. In other words, to shift from emergency response to proactive prevention.

Thanks to this new data system, animal disease surveillance in the UAE has improved. It has helped build an epidemiological map of disease incidence in the country, established a unified national platform for reporting biological risks, and facilitated information flow and coordination among relevant authorities. Most importantly, by enabling rapid alerts and early interventions to limit disease spread, the system has helped protect animal, environmental and human health, while also reducing economic losses for farmers and costs for the government.

Of course, such an ambitious project comes with challenges. Having reliable data is essential for the project's success. Ensuring that user-submitted information is accurate requires ongoing verification efforts and the involvement of farmers is crucial to improving data quality. Managing large volumes of data and analysing them rapidly can also be difficult, as can guaranteeing cybersecurity protection.

The ministry, however, continues to work on new ideas for the system's evolution. Strengthening the use of artificial intelligence is a key priority, to help analyse large datasets and predict risks, supporting decision-makers through advanced analytics. In line with the objective of ensuring trustworthy, crowd-generated data, another important goal is to make the platform increasingly user-friendly and interactive, in order to increase engagement from local communities and the private sector.



Vaccines and access

A few years ago, disease outbreaks on tilapia farms could wipe out an entire pond of thousands of fish within days. Now, with the use of semi-automatic vaccination machines up to 8,500 fish can be protected each hour across farms, fields and fisheries around the world. This captures a larger truth: investing in vaccines changes lives. It transforms uncertainty into resilience, turning fragile livelihoods into stable sources of food, income and public health security.

Preventing the preventable

Every year, preventable diseases take a heavy toll on animals and the people who depend on them. For many smallholder farmers, a sudden outbreak can mean financial ruin, unpaid school fees or empty dinner plates. Vaccines, used alongside other measures, are one of the most powerful tools to stop these losses before they begin. They not only prevent animal suffering, but yield strong public returns: from healthier herds and safer food to reduced reliance on antibiotics and fewer zoonotic disease threats.

That is especially important in a world where disease pressures are changing, production systems are intensifying, and climate-related shifts are expanding the risks faced by animals and the people who care for them.

Prevention through vaccines, paired with other measures such as biosecurity and surveillance, is one of the most cost-effective strategies in animal health. By avoiding outbreaks, countries save far more than they spend. In Brazil's booming aquaculture industry, for example, the economic impact is striking: sales of tilapia vaccines rose from 2.2 million doses in 2015 to approximately 289 million in 2024, a staggering 13,000% increase. For every US$ 1.00 invested in vaccination (including vaccine, labour and equipment costs), producers gained a return of US$ 1.24. Beyond profits, vaccination freed producers from older, riskier practices. Early campaigns required manual anaesthesia and injection, a slow and stressful process for animals and workers alike. Today's semi-automatic vaccination machines have revolutionized the process, boosting efficiency, expanding coverage, and enabling large companies to maintain healthy and productive fish populations.

Public investment, global returns

Vaccination successes seldom happen without public investment. Governments play a vital role, not only by financing vaccine programmes but also by strengthening the Veterinary Services, cold-chain logistics, and regulatory systems that make them effective.

In May 2025, WOAH Members adopted *Resolution No. 29 – Veterinary Vaccines and Vaccination: From science to action – reflections for change*, committing to strengthen global collaboration, harmonise standards, and improve access to veterinary vaccines to enhance disease prevention and control. They also agreed to advance responsible vaccination strategies, reduce antimicrobial use, and reinforce monitoring, trade transparency, and international cooperation within a One Health framework.



India's National Animal Disease Control Programme exemplifies this. Supported by government funding, it aims for nationwide vaccination against foot and mouth disease and brucellosis, protecting over 500 million cattle and buffalo. In Benin, a state-backed vaccination drive against bluetongue and other endemic farm animal infections, co-financed with the West African Development Bank, has improved animal survival rates and sustained rural incomes. These initiatives show that even modest national investments can yield ripple effects across food security, trade and One Health resilience.

In resource-limited settings, mechanisms such as WOAH's Vaccine Banks provide backup support by pre-positioning high-quality vaccines.

In 2023, Canada invested in a dedicated foot and mouth disease vaccine bank to protect its animal farming industry from this highly contagious and economically damaging disease. The Canadian Food Inspection Agency, supported this project through a CAN$ 57.5 million budget commitment over five years.

Dr Gita Malik-Dahiya, National Manager of the Canadian Centre for Veterinary Biologics describes the situation as follows:

> It's part of the bigger preparation for emergency response to ensure the animal sector is protected. That kind of readiness matters because prevention is always less costly than crisis response, especially when disease threatens food supplies, rural incomes, and trade.

Vaccines: valuable tools to curb antimicrobial resistance

Perhaps the most urgent reason to boost investment in vaccines lies in the global struggle against AMR. Worldwide, roughly one in six bacterial infections tested in laboratories was already resistant to antibiotics in 2023. Without swift action, AMR could cause up to 39 million deaths by 2050 and trillions in economic losses.

Vaccination helps break this trajectory. By preventing disease before it requires treatment, vaccines drastically reduce the need for antibiotics and other antimicrobials.

Norway's salmon industry provides a compelling proof of concept. In the 1980s, it depended heavily on antibiotics to control fish diseases like cold-water vibriosis and furunculosis – up to 50 tonnes per year. At that time, public research partnerships, combined with government and producer investment, resulted in effective vaccines being developed. Owing to this by 2024, antimicrobial use in the sector had dropped by 99%.

This experience demonstrates what is possible when prevention is prioritised – and it is increasingly shaping global policy. In September 2024, United Nations Member States adopted a High-Level Political Declaration on AMR, which commits all countries to defining and implementing animal vaccination strategies by 2030. The goal aligns closely with WOAH's priority to reduce antimicrobial use through prevention.



"It's part of the bigger preparation for emergency response to ensure the animal sector is protected. That kind of readiness matters because prevention is always less costly than crisis response, especially when disease threatens food supplies, rural incomes, and trade."

Dr Gita Malik-Dahiya
National Manager of the Canadian Centre for Veterinary Biologics

Not all vaccines are created equal. Some, like the live vaccines used against contagious bovine pleuropneumonia (CBPP) in cattle, still face challenges with limited efficacy, short duration of protection and local side effects. These limitations can breed mistrust among farmers and drive continued antibiotic dependence.

Despite their importance, animal vaccine research and development (R&D) remains chronically underfunded – accounting for just 7% of global AMR-related research investments in 2024. For every US$ 10.00 spent on antimicrobial R&D, only US$ 0.07 goes to animal vaccines. Unlocking this imbalance will require new financial incentives and more targeted international collaboration.

Innovative partnerships are already showing the way. In Chile, the Yelcho Project unites salmon producers, government agencies (Agricultural and Livestock Service (SAG) and National Fisheries and Aquaculture Service (Sernapesca)), and pharmaceutical firms in a public–private R&D commitment. Producers pledge to buy new vaccines if companies can prove improved efficacy. The initiative not only stimulates innovation but sets a precedent for how shared risk and reward can accelerate vaccine availability and reduce antibiotic use.

When vaccines lift communities

Sometimes, the benefits of vaccination extend far beyond the farm gate. In Kenya, a vaccine against Theileria parva, the parasite causing East Coast fever (ECF), has changed the fortunes of countless pastoral families. Before its introduction, ECF could kill four in ten calves during their first year, and farmers spent scarce income on repeated antibiotic and acaricide treatments.

An economic analysis by Marsh et al. (2016) found that ECF vaccination dramatically reduced cattle mortality, increased milk yields and slashed antibiotic use. The resulting income gains allowed families to spend more on food, education and health, which directly supports five United Nations Sustainable Development Goals. Through the AMR Multi-Partner Trust Fund, the approach is now scaling across sub-Saharan Africa, linking livelihood resilience and AMR reduction in one strategy.

Similarly, modelling in Mongolia showed that mass vaccination against brucellosis not only improved animal health but reduced costly human infections that require long antibiotic treatments. When costs and benefits were shared across agriculture and health sectors, the intervention became cost-effective for both, evidence that co-financing across sectors can maximise returns.

Removing barriers to access

Despite these successes, vaccine adoption still lags in many LICs and MICs. The reasons range from cost and logistics to complex regulations and limited trust.

The 2025 Animal Health Forum of WOAH underscored this point, adopting 11 practical recommendations to overcome persistent obstacles, from developing target product profiles for priority diseases to updating vaccine safety standards, promoting safe trade of vaccinated animals, and improving vaccinovigilance. These measures aim to align the incentives of public and private partners, and pave the way for broader vaccine coverage by 2027.

The transition to widespread vaccination is, at its core, an investment in global equity. Healthier animals mean fewer diseases shared between species, safer food systems and stronger economies.

What this means for readers

- Vaccines only protect systems when they are available, affordable and trusted.
- Innovation matters, but access and delivery matter just as much.
- Quality assurance and stewardship are essential to sustain effectiveness.
- Gaps in access leave countries and producers more exposed to preventable losses.

Key takeaway: Prevention depends not only on innovation, but on equitable access to the tools that work.

From innovation to impact: making animal vaccines work

Perspectives from GALVmed

Animal vaccines are among the most powerful tools we have to improve livelihoods, strengthen food systems, and reduce global health risks. As the State of the World's Animal Health report makes clear, the case for investing in animal health has never been stronger. The science works. The returns are proven. Yet, for millions of farmers, particularly small holder farmers in sub–Saharan Africa, the benefits of these innovations remain out of reach.

At GALVmed, we have seen first-hand what scientific progress can deliver. Advances such as combination vaccines that reduce the cost and complexity of protecting animals against multiple diseases hold enormous promise in resource-constrained settings. Efforts to develop foot-and-mouth disease vaccines tailored to circulating strains in Eastern Africa are improving effectiveness where it matters most. And breakthroughs, including a novel trypanocide, will help tackle diseases that have constrained farm animals productivity for decades.

But our experience shows that innovation in product development alone is not enough.

The defining challenge today is not whether vaccines work, but whether they reach the people and animals who need them most. Too often, effective products fail to translate into real-world impact. Distribution systems are weak, supply chains fragmented, and access uneven. For many farmers, particularly in developing countries, vaccines remain unavailable, unaffordable, or simply unknown.





The conversation must therefore shift towards system delivery.

A vaccine creates impact not at the point of development or manufacture, but at the point of use. This requires functioning systems: enabling regulatory frameworks, reliable distribution networks, informed farmers, and delivery models that reflect local realities. Strong public veterinary systems remain the foundation of effective vaccination, providing the coordination, and oversight on which all other efforts depend. Without these elements, even the most advanced technologies will fall short.

Addressing these challenges requires a deliberate effort to shape markets, not just supply products. In many regions, animal health markets are constrained by low volumes, fragmented demand, and high perceived risk. These conditions limit private sector investment and slow the availability of critical products. Regulatory systems are a critical, often overlooked, part of the access equation. Fragmented or inconsistent regulatory frameworks can delay the introduction of new vaccines and increase costs for manufacturers, ultimately limiting availability. Our work in this space shows that supporting harmonisation across countries can accelerate access, reduce duplication, and make it more viable for companies to invest and serve smaller or more complex markets.

While government leadership remains essential, experience shows that sustainable scale is more likely when public systems are complemented by capable private sector delivery through mechanisms such as public-private partnerships (PPPs). These combine public sector oversight and public-good objectives with private sector efficiency, reach, and innovation to extend vaccine access far beyond what either sector can achieve alone.

Innovative financing models such as advance market commitments (AMCs), also have a role to play. AMCs address one of the fundamental barriers to investment: uncertainty. While AMCs have proven transformative in human health, their application in animal health remains limited. Instead, a range of AMC-type mechanisms, such as pay-for-results programmes, vaccine banks and public-private demand commitments are emerging to address market failures. Expanding these approaches can accelerate product development and access by creating more predictable demand and linking rewards to outcomes. GALVmed's experience with the AgResults initiative illustrates this potential. Through pay-for-results models, AgResults has incentivised private sector actors to invest in the development and supply of farm animal vaccines in underserved markets, with payments tied to achieved sales. These approaches help de-risk investment and encourage companies to enter markets that would otherwise be commercially unviable.

Yet even when products are available and markets begin to function, the last mile remains a persistent challenge. Reaching smallholder farmers and pastoralist communities requires trust, awareness, and sustained engagement to build confidence in vaccination. Investing in last-mile distribution, often through local public and private sector, is essential



to ensuring that vaccines translate into healthier animals and more resilient livelihoods.

The implications extend far beyond animal health. When vaccines reach farmers, they protect incomes, improve food security, and reduce reliance on antibiotics. They strengthen rural economies and help reduce the risk of zoonotic disease and antimicrobial resistance.

The investment case is clear. But impact will depend not only on how much we invest, but how we invest, and who we enable to deliver. Governments, development partners, and industry all have a role to play.

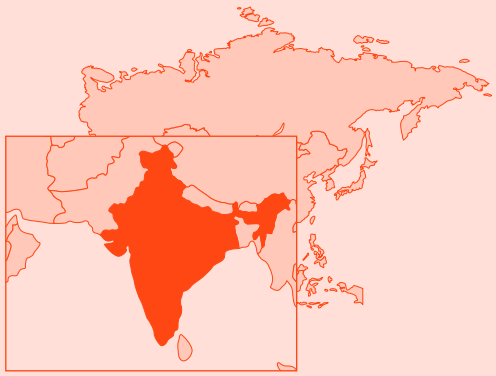
The science is ready. The question now is whether our systems, and our approaches to collaboration, are."

Dr. Lois Muraguri
GALVmed CEO

Case Study 5

Scaling vaccines through partnerships: India's approach to animal health innovation

Location
India



India's approach to vaccine development and deployment highlights the power of collaboration. By leveraging public–private partnerships, the country has expanded access and accelerated innovation – showing how investment ecosystems can scale solutions and improve availability across markets.

India is one of the world's largest producers of farm animals, with 536 million animals and over 70 million rural households depending on them for income and nutrition. Protecting these animals from disease is essential. Yet until the early 2010s, the translation of vaccine innovations, from research laboratories to field use, was often slow and fragmented, limiting the impact of scientific advances on disease prevention.

To address this gap, the Government of India established Agrinnovate India Limited (AgIn) in 2011 as a dedicated platform to strengthen collaboration between the Indian Council of Agricultural Research and private-sector partners. Agrinnovate acts as a professional interface for technology transfer and structured public–private partnerships, with a clear objective: accelerating the development and delivery of vaccines and other animal health innovations to the field.

At the core of this model is a complementary division of roles. The public sector invests in upstream research, laboratory infrastructure, and validation of priority vaccine candidates, including those for foot and mouth disease, African swine fever, avian influenza, and lumpy skin disease. The private sector contributes development capacity, large-scale manufacturing, regulatory expertise, and distribution networks, ensuring that vaccines can be produced efficiently and reach farmers at scale.

This coordinated approach has begun to deliver measurable results. Between 2024 and 2025, AgIn facilitated the commercialisation of 155 technologies across agriculture and animal health, including several field-ready vaccine solutions. At the same time, improvements in regulatory processes and technology transfer mechanisms have reduced delays, allowing innovations to move more quickly from laboratory validation to practical use.

The impact on vaccine availability has been significant. The time required to bring new vaccine technologies to market has decreased by approximately 40%, enabling faster responses to emerging disease threats. Importantly, the model has also expanded production of vaccines for low-profit but high-impact diseases such as bluetongue, anthrax, and enterotoxaemia, areas traditionally underserved due to limited commercial incentives. By sharing risks between public and private actors, these partnerships have made it viable to develop and distribute vaccines that are essential for prevention but not always commercially attractive.

This progress has been supported by a broader policy environment that prioritises investment in animal health. Increased public funding for animal health and Veterinary Services, combined with financial instruments such as

the Animal Husbandry Infrastructure Development Fund, has helped stimulate private-sector engagement while strengthening national capacity for disease prevention.

Beyond individual products, AgIn has contributed to building a more structured and reliable innovation ecosystem. Clear intellectual property frameworks, transparent licensing systems, and consistent collaboration mechanisms have strengthened trust between public institutions and private partners. This has allowed partnerships to evolve from one-off transactions into sustained, repeatable models for delivering animal health solutions.

India's experience highlights a critical lesson: vaccines do not reach farmers through science alone. They require systems that connect research, production, regulation and distribution. By investing in these systems, countries can ensure that innovation translates into real-world protection, reducing disease risks, improving productivity of farm animals and strengthening the livelihoods that depend on animal health.



THE RETURNS: PEOPLE, ECONOMIES AND THE PLANET


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(株)山口水産

Livelihoods, food security, and trade

For millions of households around the world, farm animals are more than a productive asset. It is a source of income, a store of wealth, a safety net in times of crisis and a pathway to better nutrition. The health and welfare of these animals determines not only how much they produce, but whether families can send children to school, access healthcare, or withstand economic shocks.

Animal health, in this context, is not a technical issue. It is a livelihood issue. When animals remain healthy, the benefits are immediate and tangible. Productivity increases, mortality decreases and market opportunities expand. For smallholders in particular, the difference can be significant. Healthy farm animals can translate into income gains, strengthening household resilience and improving living standards.

These gains extend beyond individual households. They support local economies, sustain supply chains and contribute to national food systems. In many regions, production of farm animals underpins entire rural economies, linking producers to traders, processors and markets.

Yet this system is highly sensitive to disruption. When disease strikes, its impact is rarely contained to the farm where it begins. Outbreaks can spread rapidly, particularly in systems where animals, products and people move frequently. Containing them requires swift and often difficult measures. Movement restrictions may be imposed to prevent further transmission. Infected and exposed animals may need to be culled. Markets may close, and trade may be suspended.

Trust, compensation and the human dimension of disease control

The above-mentioned measures are necessary to control disease, but they come at a cost. For farmers, the loss of animals can represent the loss of years of investment. For communities, reduced production can lead to higher food prices and decreased availability of animal-source foods. For countries, outbreaks can disrupt trade and affect economic stability. The effectiveness of these measures depends not only on their technical design, but on the willingness of stakeholders to comply. This is where trust becomes critical.

Compensation mechanisms are often used to support compliance with disease control strategies, particularly those involving culling. When designed effectively, they provide financial relief while encouraging early reporting and cooperation. When poorly designed or implemented, they can have the opposite effect, discouraging transparency and delaying response.

The experience of Nigeria during the 2006 outbreak of high pathogenicity avian influenza illustrates both the importance and the complexity of this approach. At the height of the crisis, compensation for affected poultry farmers became a central component of the response. Payments were carefully calibrated to strike a balance: high enough to encourage reporting and restocking, but not so high as to create perverse incentives. Transparency was emphasised, with public ceremonies and the publication of beneficiaries' names in national newspapers. This approach helped to build trust and support the implementation of a modified stamping-out strategy. Farmers were more willing to report outbreaks and comply with control measures, contributing to the containment of the disease.



At the same time, the process revealed dynamics that had previously gone largely unnoticed. As compensation payments were made, questions began to emerge about who was actually receiving them. Some farmers expressed concerns about the security risks associated with public disclosure. Others, particularly women, raised a different issue: whether the payments were reaching the individuals who owned and managed the animals. It became clear that many poultry farms were, in practice, owned or managed by women, even if this was not formally recognised. Due to legal and cultural constraints, many of these women did not have bank accounts in their own names. Compensation payments were therefore made to male relatives, who were assumed to be the primary beneficiaries.

In some cases, this meant that the actual farm animal owners received little or none of the compensation. This experience highlighted a deeper challenge. Even well-designed interventions can be undermined if they do not fully account for social and economic realities. It also underscored the importance of recognising the role of women in animal systems, and of ensuring that financial mechanisms are inclusive.

Beyond its immediate impact, the Nigerian experience offers a broader lesson: effective animal health interventions must be grounded not only in technical expertise, but also in an understanding of how systems function in practice.

The importance of disease control extends far beyond individual outbreaks. Globally, preventable animal diseases are estimated to account for around 20% of losses in terrestrial animal production. These losses represent not only reduced output, but also missed opportunities – for income generation, for trade and for improving food security. Reducing these losses through investment in animal health systems has clear economic and social benefits. It stabilises production, supports livelihoods and enhances the resilience of food systems.

Food security, in particular, is closely linked to animal health. Farm animals contribute essential nutrients, including protein and micronutrients, to diets around the world. When disease reduces production, availability declines and prices may rise, affecting access for vulnerable populations. Maintaining healthy animal populations is therefore critical not only for producers, but also for consumers. In many LICs and MICs, where farm animals play a central role in both income and nutrition, these effects are especially pronounced. Protecting animal health and welfare helps to ensure that food systems remain stable and accessible, even in the face of other pressures.



Food security, in particular, is closely linked to animal health. Farm animals contribute essential nutrients, including protein and micronutrients, to diets around the world.

Animal health is also a key enabler of trade. Access to international markets depends on confidence: confidence that products are safe, that risks are managed, and that systems meet agreed standards. Veterinary Services play a central role in providing this assurance, through certification, surveillance and compliance with international guidelines.

From disease control to market access: the value of official animal health status

A cornerstone of this system is the official recognition of animal health status by WOAH. This year marks 30 years since the establishment of this science-based framework, which allows countries to demonstrate freedom from major diseases through a rigorous, transparent and internationally recognised process. Since 1998, this framework has operated within the context of the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), which formally recognises WOAH as the international standard-setting body for animal health. As such, WTO Members are encouraged to base their sanitary measures on WOAH standards, making them a benchmark for safe international trade in animals and animal products.

Today, official recognition applies to several priority transboundary diseases, including FMD, classical swine fever, peste des petits ruminants (PPR), CBPP, African horse sickness, and bovine spongiform encephalopathy risk status. In addition, WOAH endorses official control programmes for diseases such as FMD, PPR, CBPP and dog-mediated rabies, supporting countries in progressing towards disease freedom.



In practical terms, achieving and maintaining official status can transform a country's economic prospects. It enables access to new markets, strengthens trust with trading partners, and reduces the likelihood of costly trade disruptions. At the same time, it creates a strong incentive for sustained investment in Veterinary Services, surveillance systems and vaccination programmes.

Thirty years on, this framework remains a powerful example of how investment in animal health translates into tangible economic opportunities, linking disease control on the ground to participation in global trade.

From disease control to market access: the value of official animal health status

At the production level, the returns on investment in animal health are equally clear. Healthy animals grow more efficiently, reproduce more reliably, and produce higher-quality outputs. Losses due to disease are reduced, and resources are used more effectively. These improvements translate into higher productivity and greater economic value.

For producers, this means more stable and predictable income. For supply chains, it means greater consistency and quality. For consumers, it can mean better access to affordable and nutritious food. These benefits are amplified when investments are coordinated.

When governments and the private sector work together to strengthen animal health systems, the results tend to be more sustainable. Public investment in core functions, such as surveillance and regulation, creates the foundation, while private investment in production and biosecurity builds on it. Together, they create a system that is both resilient and responsive.

The importance of these dynamics is likely to increase in the coming years. Demand for animal-source foods is expected to continue rising, placing additional pressure on production systems. At the same time, risks associated with disease emergence and spread are evolving, influenced by factors such as climate change, land-use change and increased mobility.

In this context, the link between animal health, livelihoods, food security and trade becomes even more critical. Investing in animal health is not only about preventing losses. It is about enabling systems to meet growing demand in a sustainable and resilient way. It is about ensuring that the benefits of growth are widely shared, and that vulnerabilities are reduced.

Investing in animal health, therefore, is not only a matter of protecting animals.

It is an investment in people: in their incomes, their food security, and their opportunities. It is an investment in systems that must remain stable even as they evolve. And it is an investment in a future where growth is not only possible, but resilient.



What this means for readers

- Animal health investment protects jobs, income, food supply and market stability.
- Healthy animals support productivity across value chains and reduce price volatility.
- Trade resilience depends on confidence in animal health systems.
- Returns are visible from households to national economies.

Key takeaway: Animal health is an investment in livelihoods, food security and economic resilience.



The burden of animal diseases

Perspectives from the Roslin Institute, University of Edinburgh

Calculating the return on investments in animal healthcare

Across the world there are US$ 1.5 trillion of livestock assets, which generate a gross annual output of meat, milk and eggs worth US$ 1.7 trillion. Present this to an investor and many would want to be involved in livestock production. Yet this industry is not reaching its full potential and is fraught with risks relating to the presence of animal diseases. In response there are veterinary and paraveterinary infrastructures ensuring that livestock continue to provide affordable, safe and accessible food and generate a reasonable rate of return for those involved in the livestock sector. From a commercial perspective, the major challenge is balancing investments in animal health against the risks of animal disease. Yet animal health also contributes to broader sustainable development goals, which requires holistic information to understand the value added to broader societal goals. Generation of systematic information on the burden of animal diseases allows the private sector and governments to confidently invest in animal health, improving livestock productivity and food accessibility and lowering environmental and public health impacts. Good animal health is a public good that positively impacts everyone across societies.

The Global Burden of Animal Diseases programme (GBADs) has developed an approach and is creating training programs to empower animal health stakeholders with the opportunity to easily calculate the monetary and non-monetary burdens of animal diseases.

As an illustration, GBADs has worked with WOAH, Brooke and the Ethiopian Government to estimate the burden of animal diseases in ruminants (sheep, goats, cattle) and working equids. Together loss of production and animal health expenditure in Ethiopia are valued at US$ 18 billion per year



for ruminants and US$ 646 million in working donkeys. The animal health expenditure across ruminants and working equids is minimal in relation to the losses in production at less than 2% of the total disease burden. There is an imbalance between expenditure and loss. The farm-level burdens create losses across society representing 3.5% of gross domestic product with a high burden of the loss being experienced by consumers and people working across the value chain.

GBADs has carried out further case studies across Africa, Asia and Europe. Expressing the burden of disease using biomass (combined liveweight of an animal population) or production volumes as a denominator reveals large differences between species and production systems. Looking in more detail at the impact of specific diseases, PPR in East Africa continues to cause major losses in production, yet with relatively minimal levels of animal health expenditure.

The burden of animal diseases in a country also affects the people in countries that trade with them. For example, Ethiopia's disease burden has a significant impact on meat accessibility and affordability for countries in the Middle East. In addition, presence and risk of disease restrict trade and cause significant disruptions in business viability and investments. Foot and mouth disease (FMD) is a significant issue for trading livestock and livestock products due to its contagious nature. It is estimated that an FMD outbreak in a disease-free country reduces meat exports by 19,000 to 48,000 metric tons/year, and export is not fully regained even after 5 years. The average total effect is estimated to be an export revenue loss of US$141 million.

These estimates cannot be calculated without regular data collection underpinned by data science. Investment in data infrastructure is akin to the investments in diagnostic laboratory capacity; the latter allows us to identify what disease we are dealing with, while the former gives us information on whether the disease is socially and economically important and if mitigation investments are worthwhile. GBADs generates systematic information on the value of livestock to societies, the losses incurred due to poor health in these animals and the current balance between these losses, the expenditure on animal health and impacts on trade.

Everyone gains from better animal health – good animal health is a societal asset. GBADs provides global leadership on how to create, use and interpret information about animal disease burdens, so that investments in animal health better align with sustainable development goal.

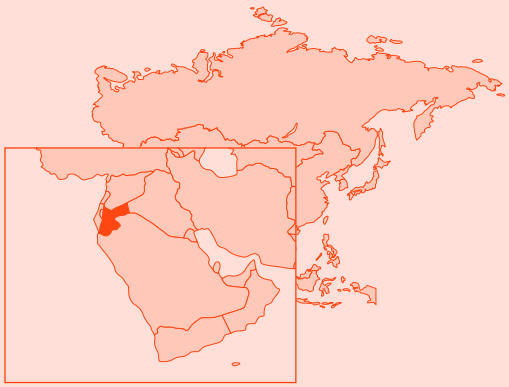
Jonathan Rushton
Professor of Economics of Animal Health at the Roslin Institute, University of Edinburgh

with Tom Marsh, Deborah Stacey, Mieghan Bruce, Dianne Mayberry, Theo Knight Jones, Guillaume Lhermie, Brecht Devleesschauwer, Hannah Davies, Ben Huntington and GBADs collaborators. GBADs – a multidisciplinary team working in a collaborative and transdisciplinary manner in order to provide information to improve investments and resource allocation in animal health.

Case Study 6

The high returns on trade and food security in Jordan

Location
Jordan



Jordan's experience shows how investing in animal health systems strengthens more than disease control. By improving animal production and trade, this case illustrates how animal health investment can drive food security, livelihoods and economic resilience.

In Jordan, farm animals play a vital role in rural livelihoods, particularly in arid and semi-arid regions where agricultural options are limited. Sheep and goat production, in particular, supports thousands of households, providing both income and a critical source of nutrition.

However, the sector faces significant challenges. Frequent droughts, limited natural resources and the risk of animal diseases place constant pressure on production systems. Diseases such as foot and mouth disease and PPR have the potential to disrupt both domestic supply and trade, affecting not only producers but also national food security.

Recognising these risks, Jordan has invested in strengthening its animal health system, with a particular focus on disease control and market access. These efforts have included the implementation of vaccination campaigns, improvements in surveillance and reporting systems, and the strengthening of Veterinary Services responsible for certification and compliance with international standards. Collaboration with international partners, including FAO and WOAH, has supported these initiatives.

One area of focus has been the control of transboundary diseases that affect small ruminants. By improving vaccination coverage and enhancing surveillance, Jordan has been able to reduce the incidence of certain diseases and strengthen confidence in its animal farming sector. This has had direct implications for trade, particularly in regional markets where health status is a key determinant of access.

At the same time, these investments have supported domestic resilience. Healthier animals have led to more stable production, helping to maintain the availability of meat and dairy products. For rural households, this stability translates into more predictable income and improved food security, even in the face of environmental and economic challenges.

The benefits have extended beyond the farm level. By strengthening its animal health system, Jordan has reinforced its ability to participate in regional trade networks. Certification processes have become more reliable, and compliance with international standards has improved, supporting market access and reducing the risk of trade disruptions.

Jordan's experience illustrates how investment in animal health can generate multiple, interconnected benefits. It shows how strengthening Veterinary Services and disease control systems can support livelihoods, enhance food security and enable trade, all within a context of limited natural resources and ongoing external pressures.

It also highlights the importance of sustained investment. Maintaining these gains requires continued attention to surveillance, vaccination and system capacity. As risks evolve, so too must the systems designed to manage them.



It's everyone's health: protecting people

A disease in animals does not always stay in animals.

In many cases, it crosses the boundary between species, moving from domesticated animals or wildlife into human populations. These diseases, known as zoonoses, are not rare exceptions. They are a defining feature of global health. The majority of emerging infectious diseases in humans originate in animals, often spreading silently before being detected.

This connection means that protecting animal health is not only about safeguarding farm animals or supporting agriculture. It is a direct investment in human health. When animal health systems are strong, they act as an early warning and a first line of defence. When they are weak, the risks increase, not only for animals, but for people, communities and health systems.

Animal health as the foundation of public health

The links between animal health and human health operate through multiple pathways. The most immediate is the prevention of zoonotic diseases. By controlling diseases at their source, in animals, Veterinary Services reduce the likelihood that these diseases will spill over into human populations. This upstream approach is often the most effective and least costly way of protecting public health.

Food safety is another critical dimension. Animal-source foods are a vital part of diets worldwide, providing essential nutrients. Ensuring that these products are safe requires effective animal health systems, including disease control, inspection and hygiene standards. When these systems function well, they protect consumers from foodborne illnesses and maintain confidence in food supply chains. Antimicrobial resistance adds a further layer of complexity.


create



The use of antimicrobials in animals, when not properly managed, can contribute to the development of resistant pathogens that affect both animals and humans. Responsible use, supported by strong veterinary oversight and preventive measures such as vaccination, reduces the need for treatment and helps to preserve the effectiveness of these critical medicines.

Together, these pathways illustrate a broader point: animal health is integral to public health.

Preventing at the animal source to save human lives

The importance of this connection becomes particularly clear when looking at specific diseases. Rabies is one of the most striking examples.

Each year, it causes an estimated 59,000 human deaths, the vast majority in low-income settings and disproportionately among children. These deaths are entirely preventable. Yet they continue to occur, often in communities with limited access to healthcare and limited capacity to manage the disease at its source.

What makes rabies unique is not only its severity, but its predictability. Around 99% of human cases originate in infected dogs. This means that the pathway of transmission is well understood, and that the point of intervention is clear. Preventing the disease in dogs effectively prevents it in people.

Despite this, responses have historically focused on treating human exposure rather than preventing animal infection. When a person is bitten by a potentially rabid dog, they require post-exposure prophylaxis, a series of vaccines that can prevent the disease if administered promptly. While effective, this treatment is costly and not always accessible, particularly in rural or underserved areas.

The economic implications are significant. The global burden of rabies is estimated at approximately US$ 8.6 billion annually, driven largely by the cost of human post-exposure prophylaxis and the loss of productivity associated with premature death. These costs are borne disproportionately by countries and communities with the least resources.

In contrast, preventing rabies at its source is relatively inexpensive. Vaccinating a dog typically costs only a few dollars. By comparison, a full course of post-exposure prophylaxis for a human patient averages more than US$ 100 per person, placing it out of reach for many families. This disparity highlights a fundamental inefficiency: resources are concentrated on downstream treatment rather than upstream prevention.

This is where the concept of One Health becomes particularly relevant. One Health recognises that human, animal and environmental health are interconnected, and that effective solutions require coordinated action across these domains. In the case of rabies, this means aligning veterinary and human health systems to prioritise prevention. Investing in mass dog vaccination programmes is a central component of this approach. By increasing vaccination

coverage in dog populations, the transmission cycle can be interrupted. Once coverage reaches a sufficient level, the incidence of rabies declines rapidly, eventually approaching elimination. This not only saves lives, but also reduces the need for costly human treatments.

Surveillance is another key element. Monitoring both animal and human cases allows for earlier detection and more targeted interventions. It also provides the data needed to guide policy and allocate resources effectively. Strengthening surveillance at the animal–human interface ensures that risks are identified before they escalate.

Coordination between sectors is essential to making this system work. Veterinary Services, public health authorities, and local communities must therefore collaborate, sharing information and aligning strategies. This coordination improves efficiency, reduces duplication, and ensures that interventions reach those who need them most.

Scaling the One Health approach

The benefits of this approach extend beyond rabies. The same principles apply to a wide range of zoonotic diseases. Investing in animal health systems (e.g. surveillance, vaccination, workforce capacity and laboratory infrastructure) creates a foundation for managing multiple risks simultaneously.

This has important implications for health systems. By preventing diseases before they reach human populations, animal health investments reduce the burden on healthcare services. Fewer cases mean fewer hospital visits, lower treatment costs and less strain on already stretched systems. This is particularly important in low-resource settings, where healthcare capacity may be limited.

The relationship between animal health and antimicrobial resistance further reinforces the need for preventive approaches.

In many cases, antimicrobials are used to treat diseases that could be prevented through better animal health management. Improving biosecurity, vaccination and overall herd health reduces the need for treatment, lowering the risk of resistance developing.

Veterinary oversight plays a critical role in this process. By ensuring that antimicrobials are used appropriately and only when necessary, Veterinary Services contribute to safeguarding their effectiveness. This is essential not only for animal health, but also for human medicine, where antimicrobial resistance is an increasing concern.

Despite the clear benefits, investment in animal health as a component of public health remains insufficient in many contexts. This reflects, in part, the way systems are structured. Human and animal health are often managed separately, with different institutions, budgets, and priorities. While this division can support specialisation, it can also create gaps, particularly at the points where these systems intersect.



Ultimately, investing in animal health is an investment in people. In a world where health challenges are increasingly interconnected, this perspective is essential.



Bridging these gaps requires a more integrated approach. This includes aligning policies, sharing data, and coordinating investments across sectors. It also involves recognising that spending on animal health can generate significant savings in human health systems; a perspective that is not always fully reflected in budgeting processes.

The case of rabies illustrates this clearly. Investing in dog vaccination programmes reduces the need for human post-exposure treatment, lowering overall costs while saving lives. When viewed in isolation, veterinary interventions may appear as an additional expense. When viewed within a One Health framework, they represent a cost-effective strategy for achieving broader health outcomes.

Ultimately, investing in animal health is an investment in people. In a world where health challenges are increasingly interconnected, this perspective is essential. Protecting people's health does not begin in hospitals. It begins upstream: in farms, in communities, and in the systems that monitor and manage animal health.

By investing in animal health, countries can reduce the likelihood of disease, improve the efficiency of health systems, and create conditions for healthier, more resilient societies.

What this means for readers

- Animal health and welfare is also an investment in protecting people.
- Stronger animal health systems reduce zoonotic risk and ease pressure on human health systems.
- Acting upstream in animals lowers downstream health and economic costs.
- Investing in animal health and welfare is an equity intervention: preventing disease at its source protects all humans, especially those with the least access to healthcare.
- One Health outcomes depend on sustained investment in animal health and welfare.

Key takeaway: Protecting people starts earlier than the clinic; it starts with stronger animal health systems.



No health system operates in isolation

Perspectives from the World Health Organization

I congratulate the World Organisation for Animal Health on the publication of the second edition of the State of the World's Animal Health report. Its message is highly relevant for all of us working to protect and promote health: the health of humans, animals and ecosystems is intrinsically linked. Zoonotic diseases, antimicrobial resistance, and growing pressures on food systems remind us that no health system operates in isolation. A weakness in one part of this interconnected system can create risks across others. Equally, strong animal health systems contribute directly to stronger human health systems by improving prevention, early detection, risk assessment and response.

This is why a One Health approach is essential. Human health must be protected not only through hospitals, clinics and public health agencies, but also through veterinary services, laboratories, farms, markets, environmental authorities and communities. Animal health systems are therefore part of the wider architecture that safeguards human well-being, health security and prosperity.

WOAH plays a critical role in this architecture. Through its international standards, technical guidance and support for veterinary services, WOAH provides an essential foundation for safer animal production, stronger surveillance, effective disease prevention and control, and safer trade. The long-standing collaboration between WHO and WOAH reflects this shared understanding.

Our organizations have worked together for many years on the prevention and control of zoonotic diseases, including through joint risk assessment, surveillance, preparedness and response. This collaboration helps countries better understand risks at the human-animal interface and take coordinated action before threats escalate.



Another important area of collaboration is the reduction of foodborne diseases through standards setting. Animal health measures, responsible production practices and effective veterinary oversight all contribute directly to reducing risks along the food chain and protecting consumers. In this regard, WOAH's standard-setting role and WHO's public health mandate are highly complementary, supporting countries to address food safety risks from farm to table.

A further priority is to support stronger alignment between global frameworks and country capacities. The International Health Regulations and WOAH's Performance of Veterinary Services Pathway are both essential instruments for strengthening preparedness and resilience. Bridging these frameworks can help countries identify shared gaps, align priorities and make better use of capacities relevant across sectors, including laboratories, surveillance systems, workforce development, risk communication and emergency preparedness.

This partnership is particularly important at a time when all sectors are operating under constrained resources, especially in the current geopolitical context. Differences in capacity and resources are real, both within and between countries and sectors. The essential task is therefore to make better use of existing expertise, institutions and investments through partnership. Animal health and human health authorities often face common challenges: limited workforce, fragmented data, competing priorities and increasing demands. Working together allows us to reduce duplication, connect capacities, share expertise and deliver more coherent support to countries.

The Quadripartite partnership among FAO, UNEP, WHO and WOAH has been central to accelerating this way of working. Through the One Health Joint Plan of Action, it provides a common framework for supporting countries in strengthening collaboration across sectors. Moreover, the inclusion of a dedicated One Health article in the WHO Pandemic Agreement is also a powerful recognition by Member States and the wider international community that pandemic prevention, preparedness and response depend on coordinated action across human, animal and environmental health. Throughout the negotiation process, WHO, together with FAO, UNEP and WOAH, provided technical support to Member States, helping translate this recognition into a concrete global commitment. The recent Memorandum of Understanding among the four organizations, extending our collaboration until 2030, is a strong signal of our collective commitment.

The task before us is to continue making our systems work better together. By strengthening the links between animal health and human health, aligning tools and standards, and supporting countries to apply a One Health approach, we can use limited expertise and resources where they have the greatest collective impact.

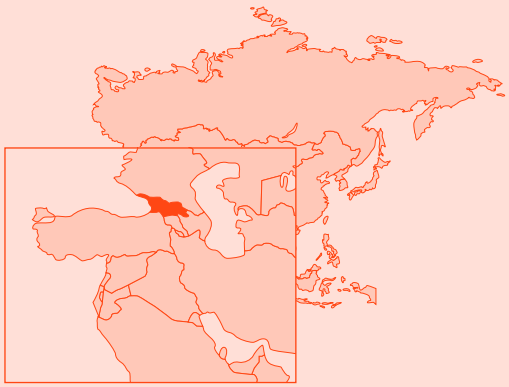
Dr Tedros Adhanom Ghebreyesus
Director General, World Health Organization



Case Study 7

From endemic disease to measurable progress: Georgia's rabies control programme

Location
Georgia



Georgia's experience demonstrates how long-term, government-led investment in mass vaccination, combined with surveillance and public awareness, can significantly reduce rabies transmission while highlighting the importance of addressing wildlife and free-roaming animal reservoirs to achieve elimination.

Rabies has been endemic in Georgia for decades. Between 2000 and 2014, at least 109 human rabies cases were recorded. In 2013, Georgia re-established free prophylactic vaccination in high-risk areas, and from 2014 the programme expanded nationwide, covering almost 3,000 villages across 12 regions. It is implemented free of charge through annual campaigns planned on the basis of animal population data and previous coverage reports, with vaccines procured through government tender and activities carried out door to door. Around 650 veterinarians and technicians are hired each year for veterinary activities, including rabies vaccination.

The programme combines mass vaccination with passive surveillance, post-vaccination serosurveys, awareness campaigns and quarantine measures. Since 2015, samples from an average of 300 vaccinated animals have been tested annually, with post-vaccinal immunity and antibody titres reported above 90%. Official WOAH regional reporting notes that Georgia vaccinates more than 260,000 pet animals each year.

The impact has been substantial. Over 2009–2018, overall rabies cases fell by 60.5% and cases in owned dogs by 66.2%. No human rabies cases were registered between 2015 and 2017. Three human deaths were reported in 2018–2019, including cases in Abkhazia and one linked to a free-roaming dog in Tbilisi, showing both the progress achieved and the persistence of harder-to-control transmission routes.

Georgia's remaining challenge is clear: while vaccination of owned animals has delivered measurable results, wild animals and unvaccinated free-roaming populations continue to sustain risk. WOAH's regional office has highlighted that wild, unvaccinated and unsheltered animals remain a principal challenge, and Georgia continues to engage with WOAH's regional cooperation mechanisms on rabies control. Genomic surveillance research based on samples from rabid dogs and jackals further underlines the importance of wildlife in the epidemiology of rabies in Georgia. This example of successful investment in a rabies control programme creates an excellent case for replication and scale in countries with similar conditions.



Investing in wildlife improves everyone's health

Closer natural habitats in a shrinking world

Forests were once seen as distant sanctuaries, worlds apart from the fast-paced rhythm of urban settings. But as globalisation expands and human populations surge, these natural refuges have grown smaller and more fragmented. In just over a decade, 800 million extra people have been born, and rising demands for commodities including food, fuel and fibre have transformed forest landscapes across the globe. This proximity has pushed wildlife into shrinking habitats, forcing species, animal, wild, environmental and human, into closer contact with one another. According to FAO's Global Forest Resources Assessment 2020, this trend is starkly reflected in the numbers: between 2010 and 2020, the world lost a net 4.7 million hectares of forest each year. As boundaries between humans and these habitats blur, the delicate balance that keeps pathogens in check begins to unravel and infectious diseases spur, revealing just how intimately the future of wildlife and people is now linked. The COVID-19 pandemic and Ebola are striking examples of outbreak events linked to shifting boundaries and intensifying human activity in today's fast-moving risk environments. They also demonstrate that timely, targeted investment in prevention, surveillance and resilient health systems is not an economic burden but rather a high-return strategy.

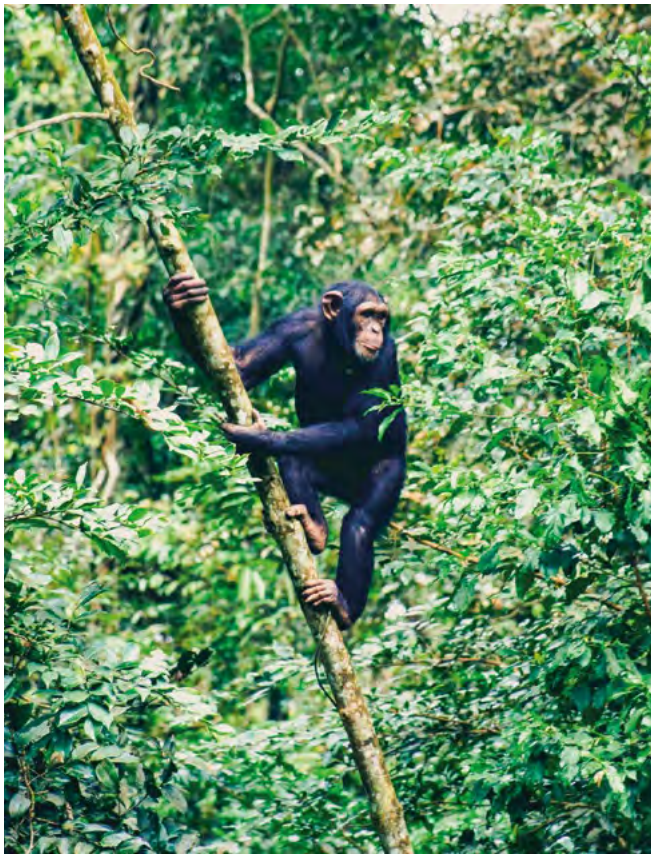
Investing in Wildlife Health for everyone's health

Many pandemics trace their roots to the ongoing ecological disruption, where species stressed by deforestation, habitat loss or human intrusion become sources of emerging diseases, pushing humans and wildlife – including mosquitoes, rodents and bats – into closer contact. This means pathogens that normally circulate in wild animals now have more chances to jump into nearby human populations.

In late 2025, cases and deaths in ten threatened wild species have been reported across the world. The spread and persistence of African swine fever and avian influenza in wildlife pose a significant threat to biodiversity but also endanger farm animal health, food security and human health at the global level. One finding is clearer than ever before: the increased risk of disease transmission between wildlife, human and domestic animals threatens everyone's health. This calls for urgent, cross-sectoral action as climate change and other forces continue to rewrite the map of infectious diseases.

The fact that the health of wildlife is inseparable from that of humans, domestic animals and the ecosystems we share is increasingly becoming acknowledged. This understanding forms the foundation of the One Health approach, the recognition that human, animal and environmental health cannot be treated in isolation but must be addressed as one interconnected system. Given the particularly diverse and complex stakeholder landscape in wildlife health





"Grounding health recommendations in real Sierra Leonean settings, clinics, villages, mosques, markets, radio stations, makes the advice feel less like abstract guidelines and more like part of daily life. It's about people, places and practices that Sierra Leoneans recognise and trust."

Mr. Momoh Massaquoi
Head of the Wildlife Unit at the Ministry of Environment of Sierra Leone
WOAH Wildlife Focal Point for Sierra Leone

and disease, one which encompasses, veterinarians and ecologists to public health professionals, governments, local communities, Indigenous peoples and even sectors like agriculture and tourism – action for better wildlife health sits at the intersection of ecology, policy, culture and livelihoods. Investments in wildlife conservation therefore call for an inclusive, trust-based approach that bridges various perspectives and ensures that every voice contributes to maintaining ecological balance and collective well-being. By contrast, failure to invest adequately in wildlife health poses significant risks for conservation, public health and overall economic stability.

Preparedness against outbreaks through surveillance

While inherently unpredictable due to factors involved in disease emergence, including human behaviour, diseases and pandemics can be prevented when we start seeing things as connected and understand the ties that bind us together. Investments enable prevention strategies targeting these interfaces, reducing bidirectional disease transmission. Without such knowledge, outbreaks may go undetected, potentially igniting wider epidemics that may carry substantial health and economic costs.

Surveillance, extended and reinforced from forests to farms and virology labs, is fundamental to risk mitigation and early intervention. Investments in this segment positively impact outbreak preparedness and response capacity, particularly for zoonotic diseases such as anthrax and Ebola. For instance, monitoring systems involving park rangers and biomonitoring teams that report wildlife mortality enable the early detection of outbreaks. This facilitates timely communication with public health authorities and local communities, reducing the risks associated with handling potentially infectious carcasses – a practice culturally common in some regions. Field diagnostics and community education campaigns, such as radio messaging, further enhance awareness and prompt response. Although monitoring coverage is often limited by vast and inaccessible areas, these systems improve public health readiness by providing advanced warning of emerging health threats.

The integration of wildlife surveillance with human health systems thus represents an essential preventative measure, although logistical challenges may be present. However, it is important to note that wildlife–human interactions vary significantly by region, affecting the feasibility and impact of health management efforts.

Investments in integrated strategies protecting wildlife health can yield measurable returns across conservation, public health and even local economies. A notable success story is the conservation of mountain gorillas, where ecotourism has created strong incentives for governments and communities to protect wildlife. 'Economic benefits flow to local stakeholders through employment and souvenir sales,' explains Fabian Leendertz, who is part of the ZOOSURSY Project consortium. Importantly, since research in 2008 identified human respiratory pathogens as a spillover risk to great apes, hygiene measures have been implemented within tourism and research contexts. 'These interventions



simultaneously reduce disease transmission to wildlife and improve community health, exemplifying the reciprocal benefits of wildlife health investments,' he adds.

Similar principles underpin the World Wildlife Fund-led project in the Dzanga Sangha protected area of the Central African Republic. Here, ecotourism, community engagement and targeted health measures, including pre-visit pathogen testing of gorilla groups, support both conservation and public health objectives. However, such intensive management encompasses only a fraction of local wildlife populations, illustrating the stark difference in intervention feasibility across landscapes.

Disease surveillance means strengthening systems to detect outbreaks early. Mr Momoh Massaquoi, WOAH's Wildlife Focal point for Sierra Leone explains the situation as follows:

> In Sierra Leone, this looks like a nurse in Kenema in the east noticing several patients with unexplained fevers. Rather than waiting weeks for lab confirmation, she immediately calls the district health office. Within hours, a team in Freetown, the capital, is alerted, and rapid response staff are dispatched, preventing another Ebola-like spread.

In wildlife-dense areas, engaging local communities is essential to promote safer practices, raise awareness and support lasting behavioural change. In Pujehun, a province in the south-east corner of Sierra Leone, imams and pastors remind congregations about hand washing and safe food practices during Friday prayers and Sunday services. In Kailahun, chiefs lead community meetings where families discuss how to handle burials safely – lessons learned painfully during the Ebola crisis. Promoting health literacy improves outcomes. Radio stations in Bo broadcast jingles about malaria prevention, reminding families to sleep under treated nets. These everyday conversations carry more weight than distant policy documents. People comply not because they are forced, but because the message comes from voices they know.

Similar principles apply elsewhere. In the United States of America, efforts to control West Nile virus rely on community awareness alongside scientific monitoring; sentinel testing of birds and mosquitoes, combined with local reporting and public messaging, helps trigger timely vector control measures such as spraying and reducing standing water, significantly lowering disease risk.

Studies confirm what communities already feel: involvement reduces resistance, eases privacy concerns and makes protective measures part of daily life. 'Grounding health recommendations in real Sierra Leonean settings, clinics, villages, mosques, markets, radio stations, makes the advice feel less like abstract guidelines and more like part of daily life. It's about people, places and practices that Sierra Leoneans recognise and trust,' Mr Massaquoi adds.

Advances in global human development

Investing in wildlife health surveillance also contributes to

broader medical and scientific knowledge by identifying novel pathogens and outlining cross-species transmission dynamics. For example, systematic analysis of deceased great apes in Côte d'Ivoire uncovered a novel Bacillus species causing anthrax-like disease, prompting development of new diagnostics now employed by regional partners.

Monitoring, sampling and studying wildlife pathogens contributes to the discovery of new viruses, improves diagnostic tools and strengthens preparedness for future pandemics. Monitoring wildlife as sentinel species also informs human health strategies. Detection of human respiratory viruses in great apes, for instance, has highlighted the necessity of improved hygiene and vaccination in adjacent human communities to prevent pathogen spillover. Such insights refine both wildlife conservation and public health initiatives, benefitting public health, veterinary medicine and environmental management alike.

Whether emerging or re-emerging, zoonotic diseases are more likely to appear in areas affected by higher human population density and great biodiversity. LICs and MICs also suffer vulnerability in health systems for the surveillance and detection of these disease threats, including inadequate human resources for disease detection and control. Improved infrastructure is therefore necessary for field surveillance and laboratory testing of emerging and zoonotic disease threats. Yet, wildlife health remains painfully underpowered in this aspect, especially if compared to domestic animal and public health surveillance systems.

Wildlife trade, both legal and illegal, adds another critical dimension to this challenge. Valued at an estimated hundreds of billions of dollars globally, it creates complex interfaces between humans, domestic animals and wildlife, increasing opportunities for pathogen transmission. Recent research highlights how trade networks can amplify the spread of zoonotic diseases across regions and continents. Addressing these risks requires coordinated action across sectors, including public health, Veterinary Services, conservation authorities, law enforcement and trade regulators. Strengthening surveillance along wildlife trade chains, improving biosecurity, and fostering collaboration between these actors are essential steps to reduce disease emergence while supporting safer and more sustainable practices.

The society-wide impacts of wildlife health investments

Overall, assessing the effectiveness of investments in wildlife health, particularly in preparedness and prevention, comes with its unique set of challenges. Prevention outcomes – avoided outbreaks – are indeed difficult if not impossible to quantify directly and with precision. Proxy indicators include the number of pathogens identified through surveillance, the establishment of diagnostic capacities and the extent of personnel training in carcass reporting and sample collection. Tracking the number of trained individuals and community engagement levels provides tangible metrics to inform governments and donors about progress and impact, complementing epidemiological surveillance data.

In fact, Mr Momoh Massaquoi, Head of the Wildlife Unit at the Ministry of Environment of Sierra Leone, asserts that:

Investing in integrated surveillance, cross-sector partnerships and community awareness isn't just about abstract systems, it's about real lives, livelihoods, and trust. These investments ripple across society in ways people can feel. Take integrated surveillance: imagine a district health officer who gets an early call about unusual fevers in a rural clinic. Because the system connects multiple data sources, she doesn't wait weeks for confirmation. Within hours, a rapid response team is on the road, stopping an outbreak before it spreads. That speed saves money, prevents hospital beds from overflowing and reassures families that their health system is watching out for them.

Cross-sector partnerships – those that foster collaborative efforts and knowledge sharing among institutions involved in wildlife health – are equally tangible. When health officials coordinate with border security, transport unions and schools, the benefits show everyday resilience. Trucks keep moving safely across borders, classrooms stay open during crises, and hospitals do not run short of supplies. Costs are shared, duplication is reduced and institutions grow stronger together.

The returns are clear. 'Economically, early detection saves millions by avoiding runaway outbreaks and lost productivity. Health outcomes improve as rapid containment reduces deaths and suffering. Social capital grows when people trust institutions enough to follow guidance during emergencies,' summarises Mr Massaquoi. Resilience is thus enhanced when sectors beyond health – transport, education, security – keep functioning even under pressure. As Massaquoi concludes 'When done right, these investments don't just protect against disease. They protect economies, strengthen societies and build the kind of trust that makes collective action possible in times of outbreak.'

What this means for readers

- Wildlife health is part of the wider investment case for animal health.
- Spillover prevention depends on better monitoring and response at the wildlife interface.
- Biodiversity and ecosystem stability are part of risk reduction.
- Wildlife should not be treated as a secondary issue in One Health investment.

Key takeaway: Investing in wildlife health helps reduce spillover risk while protecting ecosystems and public health.





From Scabies to Systems: How One Outbreak in Gorillas Shaped a One Health Movement

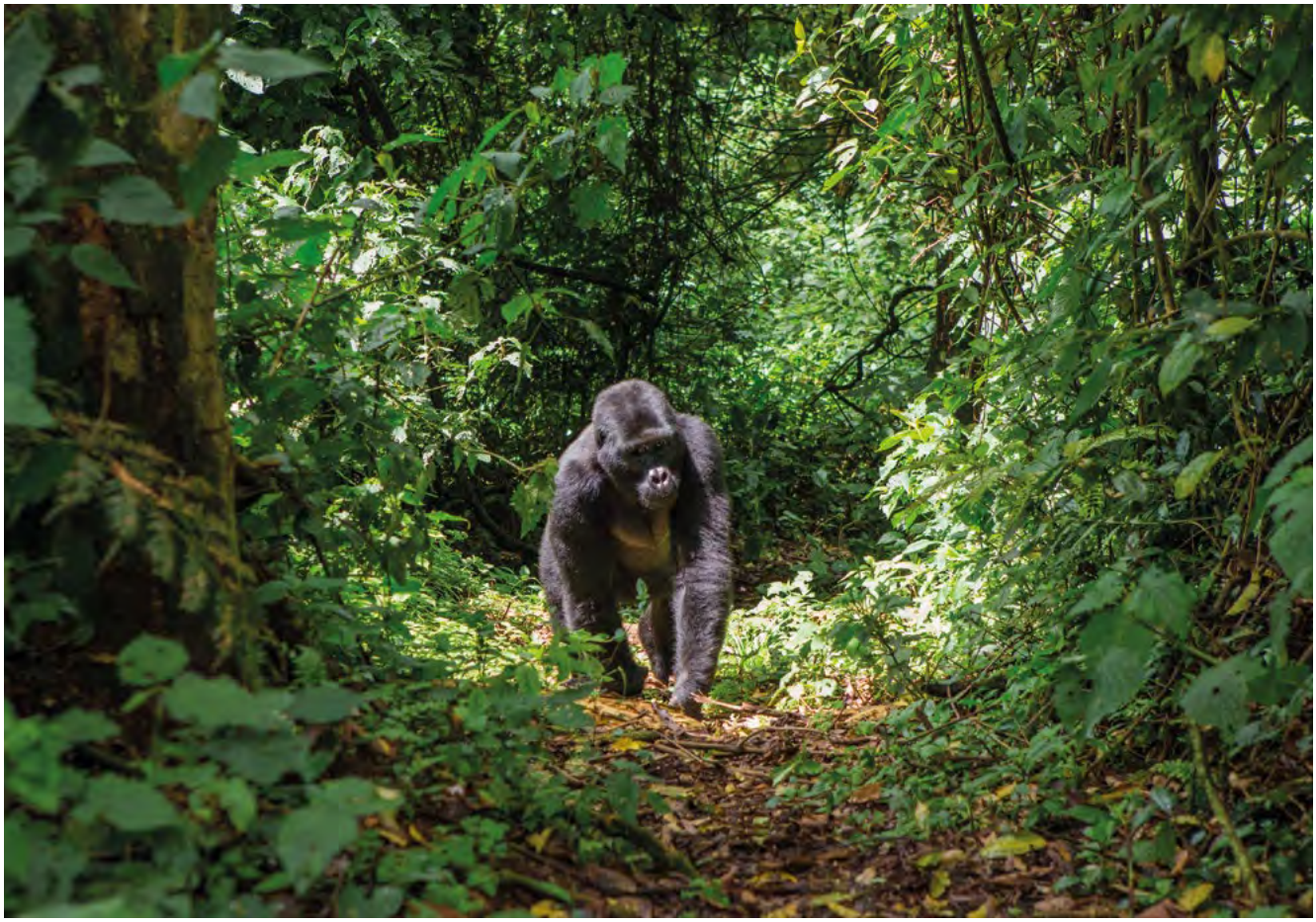
Perspectives from Dr Gladys Kalema-Zikusoka

The case for investing in wildlife health is not theoretical. It is grounded in real experiences from the field, where the health of people, animals, and the environment is deeply interconnected. Conservation Through Public Health (CTPH) was founded in 2003, following a fatal disease outbreak among critically endangered mountain gorillas in Bwindi Impenetrable National Park.

While working as the first veterinary officer for Uganda Wildlife Authority in 1996, the mountain gorillas started losing hair, developing white, scaly skin and scratching intensely. Realizing that we share 98.4% DNA with this great ape, I consulted a medical doctor and asked what is the most common skin disease in humans? The answer was scabies. Though we lost a baby gorilla, we were able to successful treat the rest of the family with Ivermectin.

Investigations revealed a critical insight. There existed a hard edge between the protected park and surrounding communities. While people were restricted from entering the park, gorillas could move beyond its borders, especially as they gradually lost their fear of humans. Historically, these were areas they once inhabited before deforestation reduced their habitat. Communities were placing dirty clothing on scarecrows to stop wildlife such as gorillas and baboons from raiding their crops. When gorillas came into contact with these contaminated clothes, they contracted scabies, which then spread within their groups. This made me realize that it was impossible to protect the gorillas without improving the health of their human neighbors.

CTPH promotes biodiversity conservation by improving the health and wellbeing of people and wildlife together, enabling coexistence through a One Health approach. We have three integrated programs (i) wildlife conservation focusing on gorilla health monitoring and wildlife disease surveillance as well as habitat protection (ii) community health using a One Health lens where a key innovation has been the establishment of Village Health and Conservation Teams (VHCTs), community health workers trained to integrate conservation



into their outreach. They lead behavioral change using locally relevant methods, including peer learning models that encourage households to adopt better hygiene, health seeking and conservation practices. Today, over 430 VHCTs reach more than 53,000 people in over 10,000 households across 59 villages with high conflict between people and gorillas. They also provide family planning services, further improving community wellbeing (iii) alternative livelihoods, because poverty is a major driver of both poor health and environmental degradation. By supporting initiatives such as coffee farming and ensuring farmers receive fair prices for good coffee, we reduce their reliance on the forest for food and fuel wood while improving household incomes and resilience.

Community engagement also plays a critical role in reducing human-wildlife conflict. Our Human and Gorilla Conflict Resolution Teams of Gorilla Guardians safely herd gorillas back into the park when they venture into community areas, while also supporting disease monitoring efforts. One Health came into maturity during the COVID-19 pandemic. Great apes are highly susceptible to human respiratory diseases. Research studies we conducted led to the strengthening of tourism guidelines, including mandatory mask-wearing and increasing viewing distance from 7 meters to 10 meters. The VHCTs and Gorilla Guardians played a critical role in preventing COVID among people and between people and gorillas. CTPH was honored to serve on Uganda's Ministry of Health's COVID-19 task force, highlighting the essential role of conservation organizations in public health emergencies.

During outbreaks such as Ebola, response efforts often focus heavily on human cases, while neglecting the animal sources of infection. By the time investigations begin into wildlife reservoirs, crucial evidence may already be lost. Yet, experiences show that great apes can also be affected by Ebola, and transmission can occur through human interaction with infected wildlife especially eating wild meat. This reinforces the need for balanced investment in both human and animal health systems.

Encouragingly, our One Health approach is delivering results, as community health is improving gorillas are falling sick less often from diseases in the local communities. Mountain gorilla populations have steadily increased, from 650 individuals in 1997 to 1,063 in 2018. This recovery is a testament to the power of combining wildlife health monitoring, community engagement, and sustainable development, which has contributed to this positive growth trend.

Investing in wildlife health is therefore not just about protecting endangered species, it is about building resilient human health systems, safeguarding livelihoods, and preventing future pandemics. The One Health approach offers a practical and proven pathway forward. The cost of inaction is far greater than the investment required, and protecting wildlife ultimately means protecting ourselves.

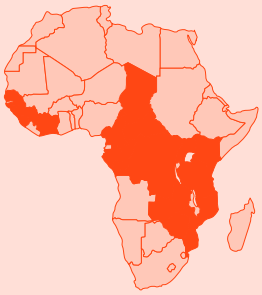
Dr Gladys Kalema-Zikusoka
Founder and CEO, Conservation Through Public Health (CTPH)



Case Study 8

Investing in early detection to strengthen wildlife surveillance

Location
ZOOSURSY project target countries in Africa



Efforts to strengthen wildlife surveillance across Africa highlight the importance of early detection at the human–animal–ecosystem interface. This case demonstrates how integrated One Health investment can reduce the risk of zoonotic spillover and protect global health.

Launched in 2017, the EBO-SURSY Project funded by the European Union has shown that relatively modest, well-targeted investments in wildlife health can generate substantial returns in terms of reduced epidemic risk, lower response costs and broader societal benefits. By helping countries design and operate solid, cross-sector surveillance systems, the project has turned funding into concrete assets: trained people, established protocols, functional laboratories and engaged communities that collectively lower the probability and impact of zoonotic spillover events such as Ebola.

In West and Central Africa, in particular, EBO-SURSY has channelled resources into critical 'leverage points' at the wildlife–human interface: field sampling, diagnostics, workforce development and community engagement. These investments have improved understanding of how high-risk pathogens circulate in wildlife, closed key knowledge gaps and strengthened early warning capacity. In economic terms, they act as upstream risk-reduction measures: by enabling earlier detection and more coordinated prevention, they help avoid the far higher direct and indirect costs of large-scale outbreaks, from emergency response spending to trade disruptions and long-term social impacts.

Guided by a One Health approach that views human, animal and environmental health as a single system, EBO-SURSY has also invested in people, from graduate students and veterinarians to local community actors and decision-makers, turning them into a skilled, networked prevention 'infrastructure'. Many of these actors previously lacked the tools, methods or resources to be fully effective, and operated in institutional silos. Through a broad portfolio of capacity-building activities, including training programmes and scholarships, the project has created lasting human and institutional capital, giving animal-health stakeholders along the entire chain, the means to build and maintain resilient surveillance systems with long-term positive returns.

The ZOOSURSY project, as EBO-SURSY's successor, is designed explicitly to scale and consolidate this investment logic. By extending the model to more regions and embedding it more deeply into national One Health systems, linking wildlife surveillance with public health and Veterinary Services, ZOOSURSY shows how sustained funding in wildlife health can continually pay off through improved preparedness, fewer and smaller outbreaks, and stronger scientific and institutional capacities. Its objective to reinforce early detection and surveillance in wildlife and domestic animals, and to bolster public services responsible for disease detection across 17 African countries, is ultimately an investment in avoiding future crisis costs and protecting economic and social stability.

In practical terms, disease surveillance is about ensuring that investments in training, communication channels and protocols translate into faster, more effective action. A nurse in Kenema, Sierra Leone, who recognises unusual fever cases and triggers an immediate district-level alert is the return on earlier investment in training, systems and coordination: within hours, a national rapid-response team is mobilised, and the likelihood of another Ebola-like epidemic – with its enormous human and financial toll – is drastically reduced. With this in mind, ZOOSURSY, funded by the Global Gateway and the EU continues to focus its efforts on making sure that each euro invested in surveillance can have the greatest preventive and economic impact across Africa.





Tackling the silent pandemic of antimicrobial resistance

Antimicrobial resistance (AMR) is not driven by a single event, but by thousands of daily decisions. On farms, antimicrobials are often used to treat infections, protect animal health and safeguard production. In many cases, they are essential. But when access to preventive tools, such as vaccination, biosecurity or veterinary guidance, is limited, reliance on these medicines can increase.

Over time, this repeated use allows resistant pathogens to emerge and spread, reducing the effectiveness of treatments for both animals and people. What begins as a practical solution at farm level can gradually evolve into a systemic risk.

The scale of that risk is now well established. By 2050, AMR could contribute to more than 39 million human deaths and lead to animal production losses equivalent to US$ 953 billion. Yet the same evidence shows that investing in prevention and better animal health systems can generate returns of up to 28 to 1, reducing the need for antimicrobials while protecting livelihoods and public health.

How a hidden crisis unfolds daily

In East Africa's pastures, farmers face relentless cycles of mastitis, tick-borne fevers and parasitic diseases. As treatments fail, they turn to unregulated antibiotics sold over the counter as 'boosters' or 'growth enhancers'. Doses are often too low, either through cost-saving efforts or misunderstandings. Sometimes, desperate families slaughter infected animals for meat, spreading diseases like anthrax within communities.



"Any measures that improve animal health will reduce antimicrobial use and improve productivity; whether that's better biosecurity, hygiene, vaccination, or feed."

Dr Laure Weber-Vintzel
Senior Livestock Specialist at the World Bank

Veterinarians are caught in the crossfire as they lack diagnostic tools and are placed under pressure to prescribe quick fixes. The result is a perfect storm: resistant bacteria circulate between animals, food and people, deepening the crisis each day.

Evidence from Burkina Faso underscores how widespread these practices are. A 2023 survey of 50 cattle farmers revealed that 96% used antibiotics, yet 76% had no formal training. Most of these farmers relied on non-veterinary personnel and had little awareness of antibiotic residues in manure. The study concluded that antibiotic misuse and weak biosecurity drive AMR risks, calling for urgent investment in farmer education, regulation, and One Health approaches linking animal, human and environmental health.

Across Asia, where over 90% of the world's aquaculture production occurs, similar pressures unfold. In shrimp and fish farms, antibiotics are widely used to prevent outbreaks of Vibrio infections. Overuse fuels resistant strains that threaten both aquatic ecosystems and human health through the food chain. Low oversight and fragmented monitoring make the problem hard to track, let alone control.

Building stronger foundations through prevention

The experience of Flanders, Belgium, shows that prevention pays off. In the early 2010s, most small pig farms scored poorly on biosecurity. Frequent disease outbreaks led to heavy antibiotic use. Through intensive coaching programmes, farmers were supported to upgrade hygiene practices, introducing all-in/all-out pig flow, dedicated pens, stronger disinfection routines and reduced animal density.

The result was dramatic: antibiotic use fell by 50% with no loss in productivity. Improved feed efficiency and animal health actually raised profits by €2–3 per pig. This demonstrated that preventive action is not just good for public health, but is also cost-effective. As Dr Laure Weber-Vintzel, Senior Livestock Specialist at the World Bank, notes:

> Any measures that improve animal health will reduce antimicrobial use and improve productivity; whether that's better biosecurity, hygiene, vaccination or feed. I often use the analogy of a water leak: you can repaint over the damaged wall, but the water will keep seeping in because its source has not been addressed. What we need is a shift from fixing problems to preventing them: redirecting money, energy and resources upstream.

A similar transformation unfolded in the United States of America, where swine producers faced outbreaks of porcine reproductive and respiratory syndrome virus. Farms clustered within 500 m of infected herds saw constant reinfection, while isolated farms largely escaped. By redesigning farm layouts, keeping herds at least 500 m apart, avoiding pig mixing, and investing in strong biosecurity, producers sharply reduced outbreak risks and antibiotic dependence.

These examples show what targeted investment achieves: healthier animals, lower costs and less antibiotic use. Prevention is profitability. Dr Weber-Vintzel continues:



> Communication and awareness-raising among farmers are essential. Disease prevention is far less costly than response, and this holds true for antimicrobial resistance too. Investing in something that may never materialize is a hard sell. But the evidence is there: farmers who invest in herd management, prevention and biosecurity, simply have healthier animals and need fewer antimicrobials.

Tracking antibiotic use and resistance is just as crucial as preventing disease. The Danish Integrated Antimicrobial Resistance Monitoring and Research Programme (DANMAP) is a world model for integrated AMR surveillance. It brings together data from hospitals, farms and the food industry to map how antibiotics are used, and how resistance evolves across species.

Before DANMAP, data were fragmented and inconsistent, offering little insight into how human and animal antibiotic use were connected. The programme changed that through systematic data collection across humans, farm animals, and food; unified methodologies for sampling and analysis; cross-sector integration, revealing how resistant bacteria move between sectors; and transparent, regular reporting, informing both policy-makers and the public.

Thanks to these efforts, Denmark has cut antimicrobial use dramatically, especially in farm animals, without harming food production. Resistance to key antibiotics like third-generation cephalosporins has dropped in poultry and human infections alike.

Challenges remain in other parts of the world

Unfortunately, few LICs and MICs can yet match this model, according to the analysis of C. Aenishaenslin and colleagues. In Sierra Leone, Sri Lanka and Nepal, researchers note that surveillance remains fragmented, often limited to short-term, donor-funded studies. Political instability, limited technical capacity and lack of sustained financing undermine long-term progress.

In addition, many governments publicly commit to AMR control at United Nations and regional meetings but fail to follow through with domestic budgets or costed action plans. Integrated surveillance systems face chronic funding instability. Programmes rely heavily on external donors; when budgets tighten or priorities shift, systems collapse. Many governments face tough resource trade-offs, between immediate healthcare needs and long-term monitoring. Building laboratories, training personnel and maintaining databases require large upfront investments that often outlast short-term funding cycles.

Dr. Weber-Vintzel stresses that:

> AMR is a systemic issue. Governments must take a holistic approach from investments in prevention to laboratory capacity building, access to quality medicines, veterinary oversight and intersectoral cooperation. Without that, we will keep repairing leak damages, instead of fixing the source.



AMR surveillance and response will only take root when national governments invest directly and explore innovative financing models, such as public–private partnerships [PPPs]. PPPs can mobilise private veterinary practitioners and laboratories to complement overstretched public systems, expanding coverage without raising costs for farmers, provided governments supply key inputs and oversight. This blended model ensures continuity beyond donor cycles and reconnects accountability to national leadership.

Public-private partnerships can help bridge these gaps by mobilising private vets and labs. Sustainable financing remains one of AMR's greatest challenges. Yet the pay-off is clear: early detection prevents costly outbreaks; coordinated data saves lives.

Collaboration makes it possible

In Senegal, collaboration between farmers, policy-makers, and researchers shows what is possible. Peri-urban poultry farms around Dakar, grappling with high disease rates and heavy antibiotic dependence, became the testing ground for a participatory, data-driven solution.

Through the Selecting Efficient Farm-level Antimicrobial Stewardship Interventions from a One Health perspective project (SEFASI project), farmers helped co-design a dynamic simulation model comparing preventive measures, like vaccination and biosecurity, with reactive antibiotic use. Workshops and online tools made results visible to participants, showing how preventive strategies could cut economic losses while reducing AMR.

This participatory approach did more than change farm practices; it informed Senegal's national action plan on AMR. By bridging scientific analysis with local realities, SEFASI strengthened One Health policymaking rooted in evidence – and community trust. The lesson was clear: sustainable change happens when those facing the problem also shape the solution.

Curbing antimicrobial resistance: Not just a scientific race but an economic and moral one

Bacteria evolve quickly, but so can our ability to outsmart them through prevention, knowledge and collaboration. Every dollar spent on awareness, surveillance or biosecurity multiplies in return: healthier animals, safer food chains, and communities less burdened by infection and economic loss.

True progress depends on governments investing in Veterinary Services, training and infrastructure, so that skilled professionals can reach farmers with timely advice and preventive care. Understaffed veterinary systems cannot deliver One Health solutions. Countries must demonstrate real political will by aligning national budgets with their global commitments and creating accountability frameworks that ensure action beyond donor projects.

Whether in Kenyan pastures, Danish laboratories or Senegalese farms, the equation holds true. When we invest in systems, tools and people to fight antimicrobial resistance, we invest in protecting animals, people, plants and the planet alike.

What this means for readers

- AMR is driven by everyday decisions across animal health systems.
- Prevention, stewardship and surveillance are more effective than responding after resistance spreads.
- Healthier animals reduce dependence on antimicrobials.
- Cross-sector coordination is essential for long-term progress.

Key takeaway: Tackling AMR requires investment in healthier animals, stronger systems and smarter use of medicines.



In tackling AMR, animal health must not be an afterthought

Perspectives from Dame Sally Davies

Investment in animal health matters. To tackle the global threat of AMR we also need to invest in animal health systems, more sustainable food systems, prevention, stewardship and cross-sector surveillance systems.

Antimicrobial resistance – AMR – is often described as a silent pandemic. But for many communities, farmers, and health systems around the world, its impact is acute and already very real. Resistance threatens our ability to treat infections, protect food systems, safeguard livelihoods, and respond to future health crises. If we are serious about tackling AMR, we must place far greater emphasis on prevention — and that means investing in animal health.

In tackling the threat of AMR, animal health must not be an afterthought. The use of antimicrobials in animals, the health of livestock and pets, and the resilience of animal health systems directly affect the emergence, spread, and management of resistance.

Prevention, including stewardship, vaccination, biosecurity, and surveillance in animals are among the most effective and cost-effective tools we have to reduce antimicrobial use and slow the development of resistance. Without sustained and joined-up investment in these interventions, we will not succeed in effectively addressing AMR overall.



Yet we are operating in a context of severe financial pressures. National budgets are under strain and stretched between competing global crises from conflict and climate change to economic instability. In such a global picture, it can be tempting to view investment in animal health and prevention as deferrable until the tides have calmed.

However, that would be both a mistake and lost opportunity. Investing in animal health is not only essential for pandemic prevention, food security, and the livelihood of farmers and communities worldwide – it is also the best choice economically. The evidence is building that prevention is far more cost-effective than crisis response. The costs of inaction on AMR – lost productivity, higher healthcare expenditure, disrupted trade, and fragile food systems – outweigh the investments required to strengthen prevention and surveillance today. The Centre for Global Development estimates that without effective action, AMR could cost the world economy $1.7tn annually by 2050. Funding effective AMR action – across One Health – is an investment, and the return for every dollar spent is compelling.

To unlock this investment, we must also become better at making the case as well as continue building the evidence base to inform action. That means clearly articulating how AMR intersects with the global agendas that decision-makers already prioritise and fund. AMR is deeply intertwined with climate change, with conflict and fragility, with pandemic prevention and preparedness. These challenges do not exist in isolation but interact and mutually reinforce each other, accelerating resistance, weakening the infrastructures and systems we rely on to mitigate AMR and other threats. We must therefore join up both the debates and communities working on climate resilience, food systems, or economic stability. AMR must be part of all these conversations. And when we talk about AMR, we must deliberately draw out these wider connections. Doing so strengthens the case for action, reveals shared solutions, and highlights the co-benefits of investment across sectors.

This also requires us to be more honest about our blind spots — not only in terms of policy silos, but also in terms of who is, and is not, at the table. One group that must be more actively engaged is the investor community. AMR represents a global, systemic, and longterm risk to economies and to investment portfolios. Yet too often it remains outside mainstream financial and economic decision making. Bringing investors, finance ministries, and economic institutions into the AMR conversation is essential if we are to mobilise the scale of resources required.

None of this can be achieved by one sector, country, or stakeholder acting alone. AMR is a One Health challenge. Effective prevention depends on strong coordination across human, animal, and environmental health, supported by robust data, shared surveillance, and aligned incentives. Partnerships — such as those being advanced by WOAH and across the agencies of the Quadripartite — are therefore fundamental to progress, particularly at a time when resources are constrained.

The global landscape is challenging, but it also presents an opportunity. By investing strategically in animal health, we can reduce antimicrobial resistance while simultaneously strengthening food security, supporting livelihoods, enhancing pandemic preparedness, and building more resilient and sustainable systems.

The message is clear: if we want to protect the effectiveness of antimicrobials for future generations, we must act now — and we must invest in animal health as a cornerstone of prevention.

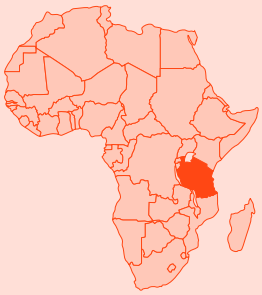
Dame Sally Davies
UK Special Envoy on Antimicrobial Resistance (AMR)



Case Study 9

Enhancing Veterinary Service delivery through public–private partnership in Tanzania

Location
Tanzania



Tanzania's experience shows how structured partnerships can transform fragmented systems into coordinated, high-impact delivery models. By institutionalising collaboration between public and private actors, this case demonstrates how co-investment frameworks can expand access, improve coverage and deliver large-scale results, particularly for prevention and vaccination programmes.

Tanzania's farm animal sector supports over 70% of rural livelihoods and contributes substantially to national food security. For many years, however, veterinary service delivery was fragmented, leaving smallholders and pastoralists without reliable access to vaccines, medicines, and diagnostics. Limited coordination between the public and private sectors constrained disease control efforts, especially for transboundary and zoonotic diseases with implications for both animal and human health. Recognising this gap, WOAH, through its PVS–PPP Targeted Support initiative, collaborated with the Government of Tanzania to design a structured partnership model for veterinary service delivery. The outcome was the establishment of the Tanzania Animal Health Organization (TAHO) in July 2024, a milestone in institutionalising private-sector engagement within the national animal health framework.

TAHO was founded as a national organisation uniting private veterinarians and animal health professionals under coordinated partnership with the Tanzanian Directorate of Veterinary Services. The initiative was supported by the Government of Tanzania and international partners, including FAO, the African Union–InterAfrican Bureau for Animal Resources, and GALVmed. This coalition enhanced TAHO's technical foundation and governance capacity, allowing it to operate as a credible intermediary linking public policy and private implementation.

A central focus of this collaboration has been the National Livestock Vaccination and Identification Programme, a five-year government initiative with an annual budget of approximately US$ 87 million. During the programme's first year, an estimated US$ 27.3 million was allocated to widespread disease prevention campaigns across the country. TAHO led awareness and mobilisation efforts alongside vaccination teams deploying millions of doses nationwide. As a result, 17 million small ruminants were vaccinated against PPR, 19 million cattle against CBPP, and 40 million indigenous chickens against Newcastle disease virus. Through close coordination with the Tanzanian Directorate of Veterinary Services, TAHO members leveraged 100,000 donated rabies vaccine doses to deliver free community vaccination and neutering campaigns in underserved urban and peri-urban areas.

Beyond field implementation, TAHO invests in the future veterinary workforce by partnering with academic institutions to provide internships, mentoring, and training opportunities that strengthen student competencies and professional ethics.

The establishment of TAHO has transformed Tanzania's animal health service landscape. It replaced fragmented, project-based arrangements with a sustainable public–private

coordination mechanism that facilitates communication, trust and accountability. Through this structure, vaccination coverage for priority diseases has reached record levels, significantly reducing farm animals morbidity and mortality. These improvements have driven measurable gains in productivity and income among smallholder farmers and pastoralists, while supporting national goals for food security and AMR reduction through decreased reliance on antibiotics.

Closer policy dialogue between public institutions and private service providers has improved regulatory efficiency, ensuring faster registration and access to veterinary inputs. Professional standards have been strengthened, as TAHO ensures that vaccination, disease surveillance, and veterinary outreach are delivered according to recognised quality and biosecurity protocols. The result is a more resilient and responsive animal health system that aligns with Tanzania's One Health vision and demonstrates how capacity sharing between sectors can multiply public benefits.

Today, Tanzania's PPP framework stands as a regional model for effective Veterinary Service integration. Institutionalising performance-based contracts, expanding access to finance for private providers, and ensuring sustained political and financial support will be key to consolidating this progress and scaling equitable, high-quality animal health services nationwide.



From investment to action

Animal health and welfare is of pivotal importance for people and the planet. The evidence presented throughout this report is clear: underinvestment in animal health systems carries systemic risks for economies, food systems and public health, while targeted investment delivers strong and measurable returns.

The priority now is implementation. Governments, development partners, financial institutions and the private sector must move from recognising the value of animal health to embedding it as a strategic investment priority.

This means scaling investment in prevention, strengthening Veterinary Services and workforce capacity, expanding surveillance systems and ensuring equitable access to vaccines and medicines. It also requires aligning financing models with the reality that animal health is a global public good.





From awareness to action: what different actors can do

Governments
Prioritise animal health within national budgets and policies. Invest in prevention, Veterinary Services, surveillance and workforce capacity, and integrate animal health into broader health, agriculture and economic strategies.

Development partners and international organisations
Scale financial and technical support for country-led animal health system strengthening. Align funding mechanisms with long-term prevention and resilience rather than short-term crisis response.

Financial institutions and investors
Recognise animal health as a high-impact investment area. Develop financing instruments that support system-wide improvements, including blended finance and risk-sharing mechanisms.

Private-sector actors
Invest in resilient value chains and responsible practices. Support innovation, access to vaccines and medicines, and partnerships that strengthen animal health systems across markets.

Animal health professionals
Strengthen advocacy and evidence-based engagement. Support implementation of standards, improve system performance and contribute to building trust with decision-makers and communities.

Media
Elevate animal health as a defining issue of economic stability and global resilience. Translate technical evidence into accessible narratives that inform public debate and decision-making.

Citizens, civil society and the broader public
Recognise the role of animal health in food systems, livelihoods, public health and environmental stability. Support policies and practices that strengthen prevention and responsible use of resources.

The cost of action is known. The cost of inaction is already being paid. The choice is immediate and consequential.

What this means for readers

- Animal health must be recognised as a strategic investment priority, not a technical afterthought.
- Prevention, surveillance and workforce capacity offer the highest-impact entry points.
- Coordinated action across governments, partners and the private sector is essential.
- Animal health must be financed and governed as a global public good.

Key takeaway: Moving from awareness to action is essential to reduce global risk, strengthen resilience and protect economies, people and the planet.

Why Investing in WOAH Matters Now

From investment to action

The case for animal health and welfare presented in this report rests on a simple but profound reality: no country can protect itself alone.

Pathogens do not recognise borders. A disease emerging on a farm in one continent can disrupt trade on another within days. A surveillance gap in one region becomes a vulnerability for all. The systems that detect, contain and prevent animal health crises only function effectively when they function together – and that requires not only national investment, but a global institution that Members trust, share and build together.

What this report makes clear is that animal health has moved well beyond the boundaries of any single budget line or policy domain. It is a development priority. It is a global health priority. It is a food security and trade priority. And it is, increasingly, a matter of national and international security. The financing, governance and advocacy systems that support it must reflect that full reality.

A foundation for development, health and resilience

For billions of people, healthy animals are not an abstract idea. Farm animals support the livelihoods and nutrition of 1.3 billion people. Global trade in animals and animal products exceeds US$ 500 billion annually. And more than 20% of animal production is lost to preventable disease every year.

This is fundamentally a development issue. Investing in animal health reduces poverty, stabilises rural incomes, strengthens food systems and enables the kind of sustained agricultural growth that development finance exists to support. The returns are measurable and well-documented: healthier animals can significantly improve smallholder incomes, reduce the burden of zoonotic disease, and support more stable and productive rural economies.

It is also a global health issue. Around 75% of emerging human infectious diseases originate in animals. Rabies alone kills an estimated 59,000 people a year – a toll that is almost entirely preventable. Antimicrobial resistance, driven in part by the overuse of antibiotics in animals, could cause over 39 million human deaths by 2050. Investing in animal health systems is investing in the earliest and most cost-effective line of defence for human health – upstream of hospitals, upstream of emergency response, upstream of crisis. And it is a pandemic preparedness issue the world cannot afford to ignore. COVID-19 demonstrated at devastating



cost what happens when zoonotic spillover is not caught early. While in the period covered by this report, avian influenza, with over 2,000 animal outbreaks has spread across species and geographies. It is a daily reminder that the line of defence between a contained animal health crisis and a global human emergency is maintained – day by day – by the surveillance systems, veterinary workforces and laboratory networks that remain chronically underfunded.

A matter of security too

Animal health is increasingly recognised as a matter of national and global security – one that demands attention and investment from a wider set of actors, as defence budgets soar to $2.9 trillion.

When disease destroys more than 20% of global animal production annually, and when a single outbreak can shut export markets overnight and cascade from farm to consumer in days, these are indicators of national vulnerability. Members that cannot protect their animal husbandry sectors cannot guarantee food stability – and food instability is a proven driver of social fragility, displacement and political risk.

Biological risk has a sharper security dimension than it did a decade ago. The same surveillance networks that detect routine disease outbreaks are the earliest warning systems for accidental or deliberate biological events. As geopolitical tensions complicate disease reporting, disrupt supply chains and heighten the risk of disease spread, the case for strong, globally connected animal health systems, as biosensors, as early warning infrastructure, as a foundation of national resilience, is increasingly recognised by foreign policy and national security establishments worldwide.

Criminal activities, including illegal movement of animals, trafficking and the circulation of substandard or falsified veterinary products, add further complexity to the threat landscape, undermining the systems that prevention depends on.

This security dimension does not displace the development, health and animal health arguments. It extends them into new policy spaces and new budget conversations, with finance and foreign ministries, national security councils and the growing community of actors thinking seriously about biosecurity and biological threat reduction. Animal health belongs in all these conversations, not only in agriculture and veterinary budgets.

Standards: the foundation of collective action

At the heart of WOAH's contribution to global animal health is its standard-setting function.

WOAH is the global authority for setting international standards, guidelines and recommendations for terrestrial and aquatic animal health and welfare and veterinary public health. These standards, referenced by the World Trade Organization in resolving international trade disputes, are what give disease control its international validity, safe trade its legal foundation, and national investment its global return. They are not technical documents produced in isolation, they are the product of rigorous scientific processes, shaped by Members through their direct engagement and adopted collectively by the WOAH World Assembly of Delegates.

When Brazil and Bolivia achieved official recognition as free from foot and mouth disease without vaccination in 2025, it was WOAH's standards and independent verification process that converted that effort into internationally trusted market access worth billions. When new vaccine standards for African swine fever were adopted in 2025, they gave Veterinary Services and manufacturers a common framework for safe and effective deployment at scale. When standards for electronic veterinary certification advance, they will reduce the cost and friction of international trade for farmers, exporters and regulators alike.

Standards also shape behaviour beyond trade. They define what effective Veterinary Services look like. They set the benchmarks against which national systems are assessed. They guide investment decisions by governments, development partners and the private sector. And they provide the shared language through which 183 Members – with vastly different resources, contexts and priorities – can work toward common goals.

Strengthening Members' ability to implement these standards, and ensuring the standard-setting process remains inclusive, scientifically rigorous and responsive to evolving needs, is therefore not a peripheral function. It is the foundation on which everything else in this report rests.



Supporting Members to build stronger systems

Standards only deliver results when systems exist to implement them. This is why WOAH's support to Members is as central to its mission as standard-setting itself.

Through the Performance of Veterinary Services Pathway, WOAH has conducted independent evaluations in 140 Members since 2006, providing assessments that no domestic institution can credibly conduct alone, and that give governments, development partners and investors a clear picture of where gaps exist and where resources will have the greatest impact. of the majority of Members evaluated (94%) attribute at least some of their performance improvements to PVS recommendations. More than half (52%) report increased financial resources for Veterinary Services following an evaluation. These are not meaningless figures – they are clear evidence that structured support translates into stronger systems.

That technical support extends across the full spectrum of what resilient animal health systems require: workforce development, laboratory capacity, governance, emergency preparedness, and access to vaccines and medicines.

Crucially, this support is delivered in partnership with Members, not imposed upon them, and driven by the demand of Members themselves. Regional Commissions and regional offices play a central role in translating global priorities into context-specific action. Mentorship, peer learning and Member-to-Member collaboration are part of the model. The goal is not dependency on external expertise, but the progressive strengthening of national sovereignty over animal health systems – and the collective resilience that comes from Members supporting one another.

Working with others – our continued mission

Animal health challenges of the scale described in this report cannot be addressed by any single organisation. WOAH has long worked alongside its partners to build the coordinated global response these challenges demand – and that collaboration continues to deepen.

Within the Quadripartite – alongside FAO, UNEP and WHO – WOAH ensures that animal health is embedded at the highest levels of global health, food and environmental governance. When pandemic preparedness frameworks are designed, animal health systems are part of the architecture. When AMR strategies are developed, the animal sector shapes them. When climate and biodiversity financing is mobilised, the case for animal husbandry system resilience and wildlife surveillance is made with the credibility and evidence to make it stick. The Quadripartite's Joint Offer gives concrete expression to this: a coordinated mechanism through which Members can access integrated support for governance, surveillance and cross-sectoral coordination under a single One Health framework – aligned, preventive and operationally ready.

Long-standing collaboration with FAO on the control of priority transboundary animal diseases reflects a shared



Animal health is increasingly recognised as a matter of national and global security – one that demands attention and investment from a wider set of actors, as defence budgets soar to $2.9 trillion.



Investing in WOAH is investing in the architecture that makes national investments work at scale – and that ensures the collective benefits of stronger animal health systems are shared across development, health, trade, security and climate agendas.

commitment to tackling the most consequential disease threats through coordinated global action.

Partnerships with the World Bank and regional development banks are deepening the integration of animal health into development finance. Engagement with climate institutions is growing, as the case becomes harder to ignore that husbandry systems – responsible for 12% of global greenhouse gas emissions but receiving less than 0.1% of climate finance – must be central to the climate resilience agenda. And engagement with the private sector – from vaccine manufacturers to food industry actors – continues to expand, recognising that sustainable animal health systems depend on aligning public oversight with private innovation and investment.

WOAH remains fully committed to strengthening these partnerships and building new ones wherever they serve Members' needs and advance the collective animal health agenda.

Advocacy and strategic communication as core functions

One of WOAH's most important roles – and one that is inseparable from everything else it does – is making animal health visible where decisions are made.

Animal health currently receives less than 0.6% of global health spending. It is underrepresented in climate finance frameworks, in national security strategies and in development investment decisions, despite its clear and documented relevance to all three. Changing this requires sustained, evidence-based advocacy and strategic communication – targeted at the right audiences, in the right forums, with narratives that connect animal health to the priorities that decision-makers already care about.

Globally, WOAH engages in high-level forums – including the Group of Seven (G7), Group of 20 (G20), the United Nations General Assembly and the Conference of the Parties to the United Nations Framework Convention on Climate Change – to inject animal health into global narratives and position it as central to tackling the defining challenges of our time. It engages with a widening range of stakeholders to broaden the community that understands and advocates for animal health investment.

Strategic communication translates this engagement into impact: converting complex scientific evidence and technical data into accessible, persuasive narratives for political audiences; building public understanding of why animal health matters; and equipping Members with the tools and messaging they need to make the investment case effectively in their own national contexts. WOAH works directly with Delegates to strengthen their ability to advocate with finance ministries, development partners and the full range of actors whose engagement is essential for building and sustaining resilient animal health systems.

This report is itself an expression of that function: evidence assembled, analysed and communicated with the explicit aim of reaching beyond the technical community to the decision-makers, funders, media and citizens who can act on it.

What investing in WOAH makes possible

Investing in WOAH is investing in the architecture that makes national investments work at scale – and that ensures the collective benefits of stronger animal health systems are shared across development, health, trade, security and climate agendas.

It funds the international standards that give animal health its global validity and safe trade its legal foundation. It sustains the data systems – WAHIS, PVS IS, ANIMUSE – that turn individual Member reports into collective global intelligence and early warning capacity. It supports the independent evaluations that help Members identify gaps, set priorities and mobilise resources. It enables the scientific processes that determine whether new vaccines, diagnostics and tools meet the thresholds needed for safe global deployment. It finances the partnerships that ensure animal health is embedded in every framework shaping global resilience. And it supports the governance reforms and institutional strengthening that will make WOAH more agile, more inclusive and more capable of delivering for Members over the long term.

Animal health is a development investment. It is a global health investment. It is a food security and trade investment. It is a pandemic preparedness investment. It is a climate investment. And it is, increasingly, a security investment. All of these arguments are simultaneously true – and all of them point to the same conclusion:

The cost of action is known. The cost of inaction is already being paid.

Stronger systems and stronger partnerships lead towards a stronger, more resilient world.

That is what WOAH exists to build – with its Members, for its Members, and for everyone whose health, security and prosperity are shaped by animal health and welfare.

Because Animal Health is Our Health. It's Everyone's Health.



DATA-DRIVEN INSIGHTS IN ANIMAL HEALTH

PART II.

Informing global animal health through data



In an increasingly interconnected world, animal health is a critical component of public health, food security and economic stability. The ability to track, analyse and act upon animal health trends is essential for mitigating disease outbreaks, ensuring sustainable animal production and maintaining biodiversity. At the World Organisation for Animal Health (WOAH), as the global authority on animal health, we continue to strengthen our data-driven approach to disease surveillance and risk assessment.

This section dedicated to prevalent animal health issues provides a comprehensive analysis of global animal health trends during 2025 and into early 2026, leveraging the World Animal Health Information System (WAHIS) to deliver a clearer picture of the challenges shaping the future of animal health.

The Performance of Veterinary Services Information System (PVS IS) underpins the analysis of progress in national Veterinary Services. Built on twenty years of evaluations and expert recommendations conducted worldwide, the PVS IS offers a unique perspective on long-term trends, priority needs and investment areas to strengthen animal health systems across diverse contexts. For the first time, we also provide here insights into WOAH Members self-assessments following PVS Evaluations.

Drawing on PVS IS findings, alongside additional WOAH internal and external data sources, the Observatory presents new analyses on the uptake of WOAH standards across key domains, including workforce development, emergency preparedness, and animal welfare. This publication also shares preliminary results from the latest round of data collection on antimicrobial use, completed by the ANIMUSE team in March 2026. While the full report will be released in November 2026, early findings indicate a 4% global increase in antimicrobial use between 2022 and 2024.

Prevalent animal health issues in 2025 and early 2026

Since January 2025, the re-emergence and unexpected appearance of diseases in many regions of the world have underscored the critical need for sustained investment in surveillance and preparedness. Early detection of outbreaks is essential for limiting their impact, as is maintaining trust and cooperation among countries and partners. Timely, reliable data play a central role in ensuring transparency and fostering effective international collaboration.



WOAH's disease-monitoring activities have generated vital insights into evolving epidemiological trends, shedding light on emerging hotspots and identifying areas where action and cooperation should be prioritised. Information gathered through WOAH's World Animal Health Information System (WAHIS) has also helped uncover new transmission pathways, improving understanding of how diseases spread across borders and between species. These findings are fundamental to the development of targeted vaccination strategies, enhanced biosecurity practices, and stronger regional coordination in response efforts.

Persistent regional disparities in animal health remain a major concern, as capacity limitations in Veterinary Services and disease surveillance systems leave certain regions more vulnerable. This analysis aims to present a balanced perspective, acknowledging both the commitment of WOAH Members to timely disease reporting and the significant challenges faced by countries or territories with limited resources and multiple, concurrent emergencies.

How we collected and presented the data in this report

This report uses data collected through WAHIS, where data on animal diseases are published after WOAH's validation to be accessed and reused by anyone who wishes to. WOAH Members are expected to report data on animal diseases through WAHIS in two ways: through the animal disease events module and the monitoring system.

Through the animal disease events module, when a previously absent or eradicated disease or strain occurs in animals, the country or territory should notify WOAH through an immediate notification. Users of WAHIS are notified of the publication of immediate notifications. After that, the notifying country or territory should provide weekly follow-up

reports until the event is resolved (which means that the disease is eradicated), or the situation becomes stable. A stable event indicates that the disease is not eradicated, but the country or territory will continue to report only through the monitoring system.

The monitoring system is designed to provide an update on the presence or absence of disease in countries and territories. WOAH Members are expected to submit an aquatic and terrestrial report every six months, providing epidemiological information on all WOAH-listed diseases for the previous semester.

The State of the World's Animal Health report combines data from both the animal disease events module and the monitoring system, aiming at showing which areas of the world were affected by a particular disease between 1 January 2025 and 31 March 2026.

Administrative divisions of countries and territories in this document are coloured green when diseases have been reported as absent, orange when diseases have been reported as present at least once in one administrative area during the period of this report; and yellow when diseases are reported as suspected. Countries and territories in white indicate that the country or territory has not submitted any animal disease report during the period of this analysis. Grey indicates that the report submitted by the country or territory does not provide information on the disease under examination.

Please note that absence of disease in the maps of this report does not constitute "official disease freedom" or "self-declared disease freedom", information on which can be found on the Official Disease Status and Self-declared Disease Status pages on the WOAH website.

African swine fever

African swine fever (ASF) is a highly contagious viral disease of domestic and wild pigs, whose mortality rate can reach 100%. The virus is highly resistant in the environment; it cannot affect humans, but they can contribute to its spread and suffer from indirect impact of the disease on their livelihoods. The ability of the ASF virus to survive for long periods in the environment increases the opportunities for the virus to spread over long distances, including through contaminated animal products or equipment.

ASF continued to expand into new areas in 2025, with several notable long-distance 'disease jumps', defined as the notification of a new outbreak located more than 10 km from any previously reported one, counting from 2022. Since January 2025, the most significant disease jumps were identified in Chinese Taipei, Spain, and Mongolia, where outbreaks occurred more than 628 km, 599 km, and 428 km, respectively, from the nearest reported ASF events recorded between 2022 and 2025.

ASF also affects wildlife, with wild boar being the most impacted species globally. In Malaysia, outbreaks were reported in Bornean bearded pigs, a vulnerable species currently at risk of extinction according to the International Union for Conservation of Nature (IUCN). Although controlling ASF is complex and requires coordinated multi-sectoral and multi-institutional efforts, it remains achievable.

In 2025, WOAH Members adopted new vaccine standards, aiming to help Veterinary Services and manufacturers to identify safe and effective vaccines.

64	countries or territories reported outbreaks of ASF
15,759	outbreaks reported
349,927	cases
584,310	losses (sum of dead and killed and disposed of animals)

Avian influenza in poultry

Avian influenza is a highly contagious viral disease affecting both domestic and wild birds, with occasional spillover to mammals. Following an unprecedented peak in reported outbreaks in the Northern Hemisphere in November 2025, the current seasonal wave, which began in October 2025, appears to be broadly consistent with trends observed in previous seasons. Between February and March 2026, several outbreaks were also reported in Southern America, a region that has historically been less affected by the disease.

When birds on a farm test positive for the virus, the most widely used containment measure is stamping out, which involves culling all birds present on the premises. This explains the significant gap between the number of detected cases and the often much larger scale of animal losses. It also highlights why avian influenza has a major impact on livelihoods and remains a critical concern for farmers and animal health authorities worldwide.

As shown on the map, avian influenza in poultry has been reported in many regions across the globe. The virus has also demonstrated the capacity to infect several mammalian species. Since 2025, avian influenza cases in bovines have been recognised by WOAH as an emerging disease. Members are required to report these occurrences officially and promptly through WAHIS. These bovine cases are not included in the map.

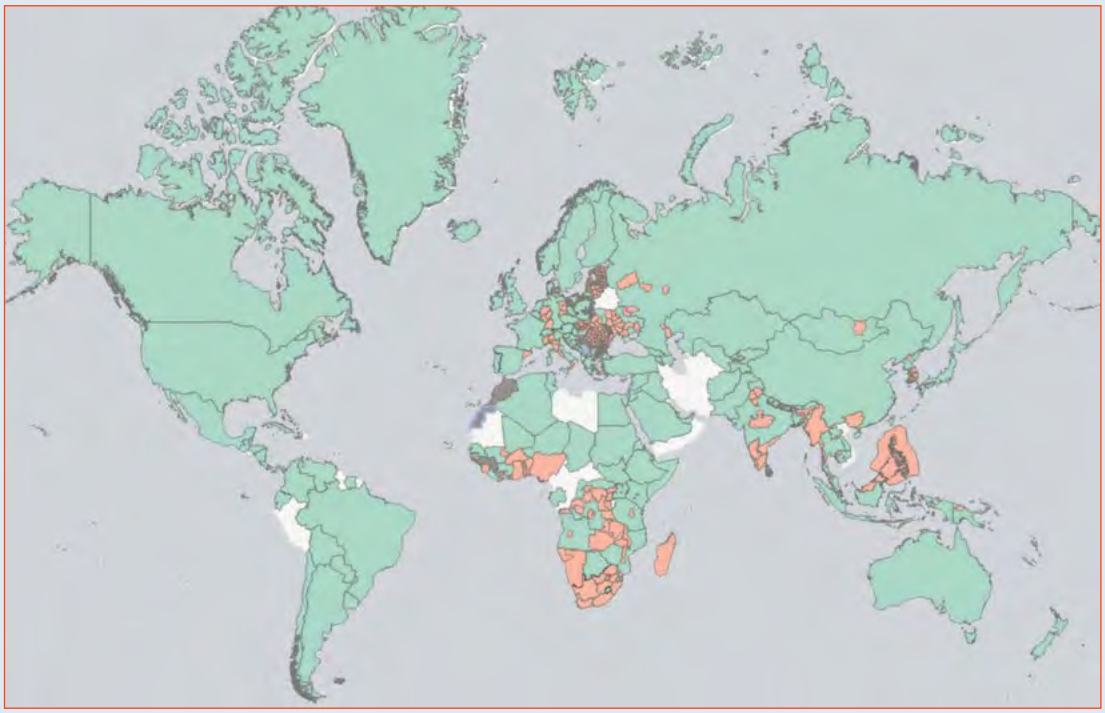
64	countries or territories reported outbreaks of avian influenza in poultry
2,121	outbreaks reported
20 mil	cases
140 mil	losses (sum of dead and killed and disposed of animals)

- Disease reported at least once in the administrative area during the period.
- Disease absent in the administrative area during the period.
- Disease suspected in the administrative area during the period.
- No information on the disease available in the reports submitted.
- No report submitted by the country or territory.
- Disputed areas.

Outbreak locations were provided by the relevant Veterinary Services and may not represent the exact location of an outbreak. WOAH assumes no liability for the data displayed.

African swine fever

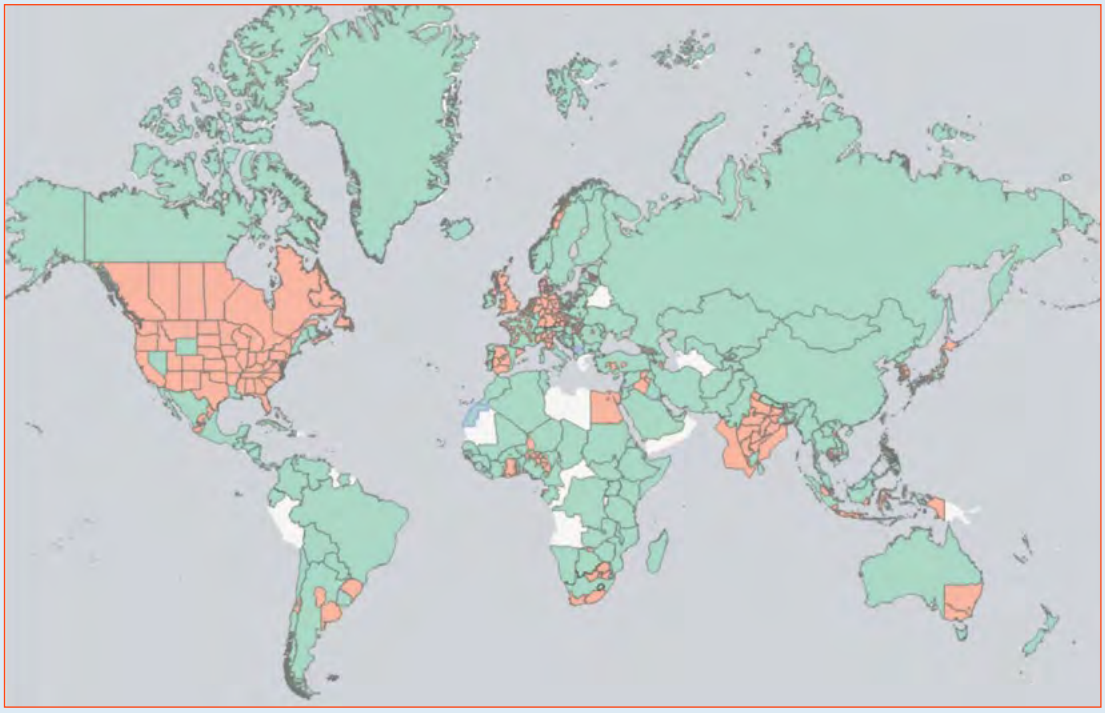
Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from ASF, please refer to the Self-declared Disease Status page on the WOAH website.

Avian influenza in poultry

Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from avian influenza, please refer to the Self-declared Disease Status page on the WOAH website.

Avian influenza in non-poultry, including wild birds

The map of avian influenza in non-poultry includes both domestic birds that are not farmed for human consumption and wild birds. The latter play a significant role in the global spread of avian influenza through their seasonal migration patterns, yet they are also highly vulnerable to the disease themselves. WOAH's analyses have consistently detected cases of avian influenza in several species with a vulnerable conservation status, underscoring the potentially severe impact of the disease on biodiversity conservation.

Avian influenza reached Antarctica in 2024 and has since caused high mortality in multiple bird and mammal species in the region. The spread of the virus to such remote and ecologically sensitive areas illustrates the far-reaching consequences of this disease.

67	countries or territories reported outbreaks of avian influenza in non-poultry
8,113	outbreaks reported
24,907	cases
31,610	deaths

- Disease reported at least once in the administrative area during the period.
- Disease absent in the administrative area during the period.
- Disease suspected in the administrative area during the period.
- No information on the disease available in the reports submitted.
- No report submitted by the country or territory.
- Disputed areas.

Outbreak locations were provided by the relevant Veterinary Services and may not represent the exact location of an outbreak. WOAH assumes no liability for the data displayed.

Foot and mouth disease

Foot and mouth disease (FMD) is a highly contagious viral disease with major economic consequences. It affects cattle, swine, sheep, goats, and other ruminants, severely impacting animal production and disrupting both regional and international trade in animals and animal products.

Since January 2025, FMD outbreaks have been reported across Africa, Asia, and Europe, predominantly affecting domestic animals. Serotype O remained the most widely distributed serotype, accounting for approximately 70% of reported outbreaks during this period.

Serotype SAT 1 was reported for the first time in Azerbaijan, Cyprus, Egypt, Greece, Iraq, Israel, Kuwait, Palestinian Autonomous Territories marking an unusual geographic occurrence outside its historically recognised range. At present, there is no clear evidence identifying the specific mechanisms behind the spread of SAT 1 in these regions. This highlights the need for strengthened epidemiological investigations, enhanced surveillance, and comprehensive molecular characterisation to clarify pathways of introduction and dissemination.

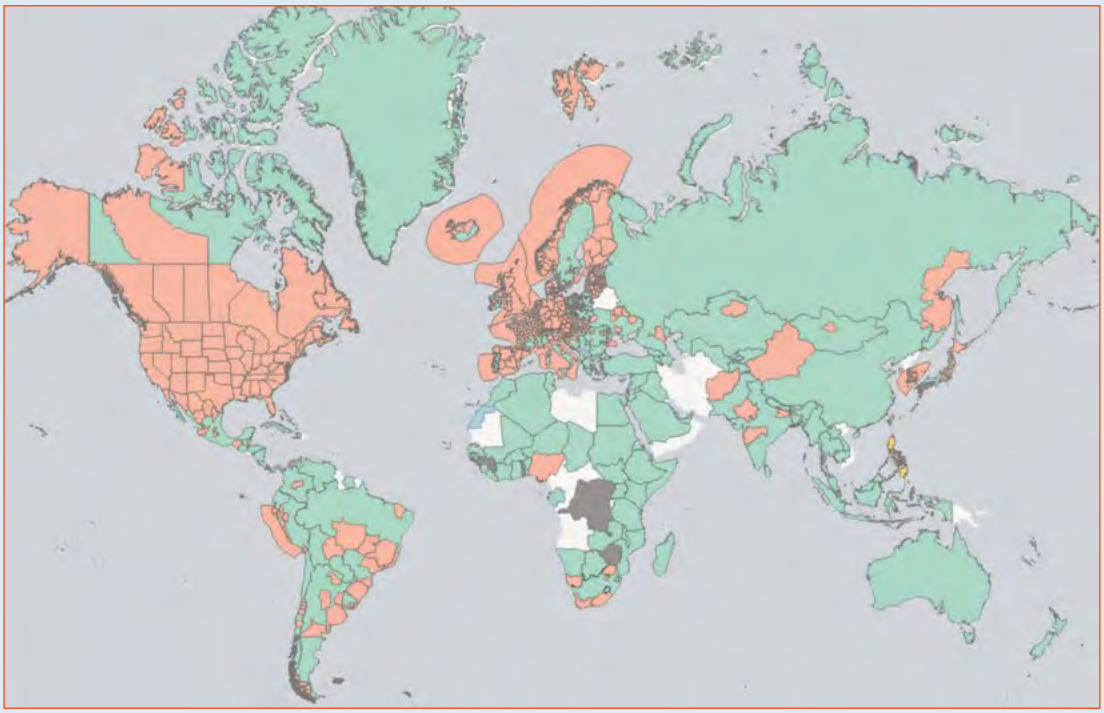
An unprecedented increase in the number of outbreaks of FMD in South Africa and neighbouring countries, including the first occurrence of the disease in Lesotho, received extensive coverage in local media, highlighting the significant impact of the disease on animal health and regional trade. Given the absence of cross protection between serotypes, and in some cases even between strains within the same serotype, accurate strain typing and timely reporting of outbreaks are essential for guiding vaccine selection and informing global strategies for managing circulating FMD virus strains.

FMD is also one of the six diseases for which WOAH grants an official disease-free status. In 2025, for the first time, Brazil and Bolivia achieved official recognition of their entire territories as free from FMD without vaccination, following decades of sustained control and eradication efforts. Conversely, several countries experienced suspensions of their disease-free status due to the reoccurrence of FMD: Germany, Hungary and Slovakia regained their status within two to eight months, implementing control strategies in accordance with the WOAH Terrestrial Animal Health Code.

64	countries or territories reported outbreaks of foot and mouth disease (FMD)
19,034	outbreaks reported
412,110	cases
109,740	losses (sum of dead and killed and disposed of animals)

Avian influenza in non-poultry, including wild birds

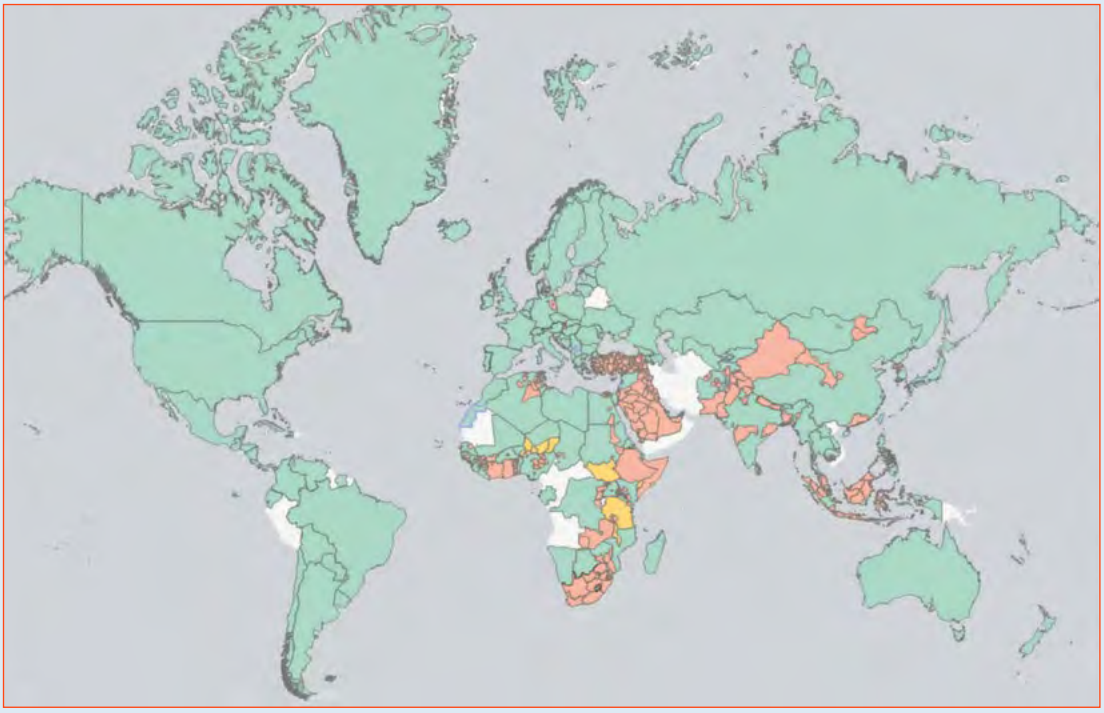
Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from avian influenza in non-poultry, please refer to the Self-declared Disease Status page on the WOAH website.

Foot and mouth disease

Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have been officially recognized free from FMD, please refer to the Official Disease Status page on the WOAH website.

Lumpy skin disease

Lumpy skin disease (LSD) is a viral disease that affects bovines and certain wild ruminants and is transmitted by blood feeding insects such as biting flies, mosquitoes, and ticks, which act as vectors for the virus. The disease causes nodules on the skin, mucous membranes, and internal organs; it reduces fertility and may sometimes result in the death of affected animals.

In 2025, the emergence of LSD for the first time in Western Europe—specifically in France, Italy, and Spain—marked a major epidemiological event for a disease traditionally associated with Africa and parts of Asia and Pacific, where LSD reappeared in Malaysia in 2025 and has since been reported as a stable, ongoing event in some areas.

The European outbreaks may have been linked to illegal or uncontrolled animal movements. Heatwaves and favourable wind patterns may also have created optimal conditions for the long-distance spread and proliferation of the insect vectors responsible for transmission. The introduction of highly virulent viral variants into naïve cattle populations could have contributed to the establishment of sustained transmission.

LSD can be effectively controlled through strong biosecurity measures, reinforced surveillance, movement restrictions, and mass vaccination using high-quality vaccines tailored to the specific virus variant causing each outbreak. This underscores the need for continued investment in the development of adapted diagnostic tests and vaccines, which remains a key element in controlling the disease.

45	countries or territories reported outbreaks of LSD
3,184	outbreaks reported
26,580	cases
7,522	losses (sum of dead and killed and disposed of animals)

New World screwworm

The New World screwworm is a parasitic fly whose larvae, once deposited in the wounds of animals or humans, feed on skin and underlying tissues. This causes a severe condition known as wound or traumatic myiasis, which can be fatal if untreated.

Since 2019, the disease has been reemerging in several areas of Central America where it had previously been eradicated. Its presence poses a serious threat not only to animal and human health but also to regional trade, as strict control of animal movement remains the most effective preventive measure currently available.

In 2025 and 2026, detection of the disease has steadily progressed northward, with many administrative areas now reporting its presence as 'stable'. This classification indicates that the disease is under a degree of control, though new outbreaks remain likely.

Controlling and ultimately eradicating the New World screwworm requires strong regional coordination and cooperation among countries and partners, as well as strengthened early detection and surveillance systems. One effective population control method involves releasing sterile insects to disrupt the flies' natural reproductive cycle. To expand regional capacity for this approach, new production facilities for sterile flies have been established in Mexico.

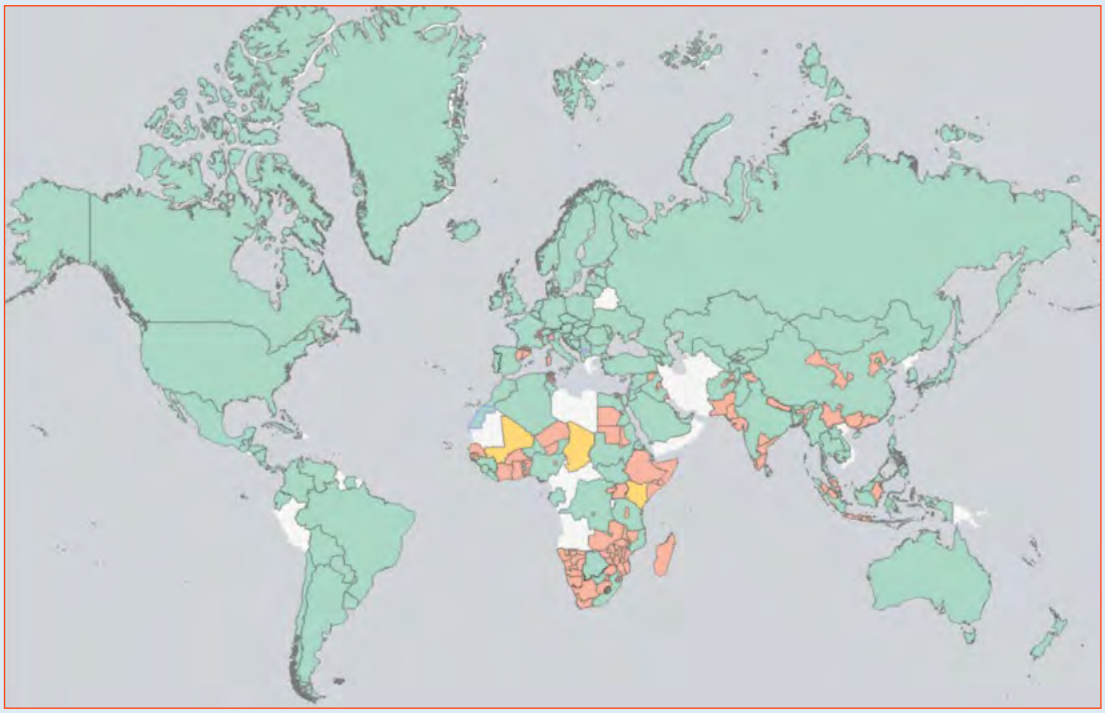
18	countries or territories reported outbreaks of New World screwworm
37,389	outbreaks reported
82,388	cases
166	losses (sum of dead and killed and disposed of animals)

Outbreak locations were provided by the relevant Veterinary Services and may not represent the exact location of an outbreak. WOAH assumes no liability for the data displayed.

- Disease reported at least once in the administrative area during the period.
- Disease absent in the administrative area during the period.
- Disease suspected in the administrative area during the period.
- No information on the disease available in the reports submitted.
- No report submitted by the country or territory.
- Disputed areas.

Lumpy skin disease

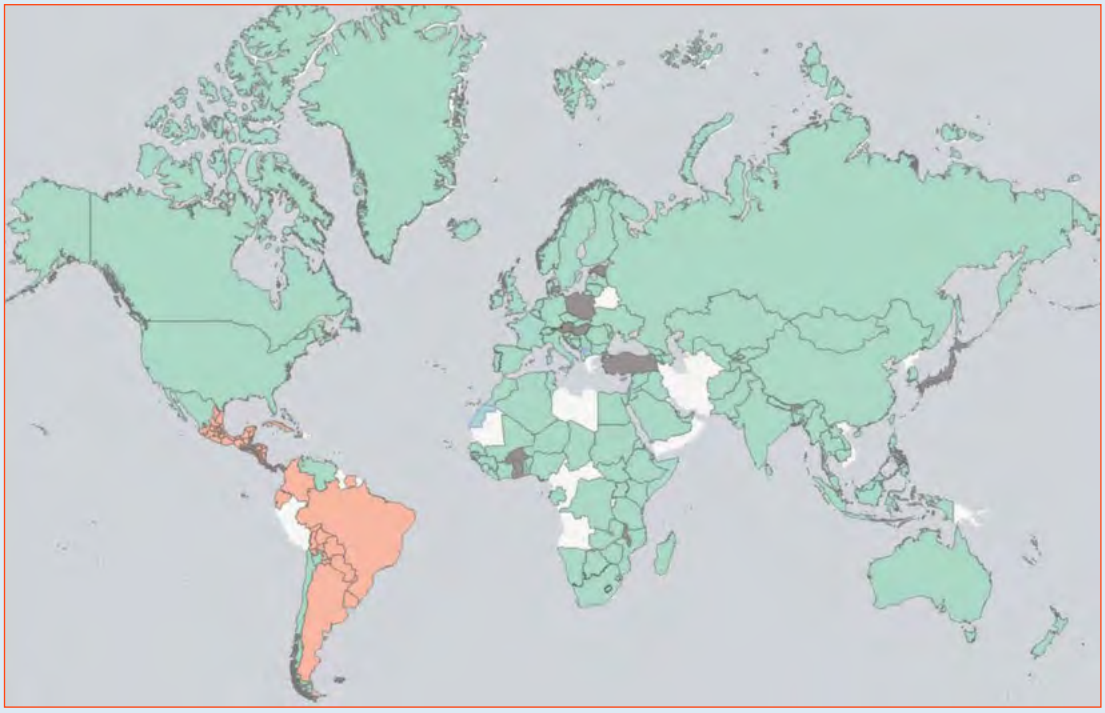
Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from LSD, please refer to the Self-declared Disease Status page on the WOAH website.

New World screwworm

Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from New World screwworm, please refer to the Self-declared Disease Status page on the WOAH website.

Peste des petits ruminants

Peste des petits ruminants (PPR) is a viral disease that affects cattle, buffaloes, goats, sheep, camels, and wild small ruminants. However, only infections in domestic sheep and goats are notifiable to WOAH. PPR is characterised by severe morbidity and mortality and has considerable economic impact across the traditionally affected regions of Africa, the Middle East, and Asia.

In recent years, the epidemiological profile of PPR has shifted significantly, with increasing detection in Europe since 2024. In 2025 alone, the disease was reported for the first time in Croatia, Albania, and Hungary. The first occurrence in the country was also reported in Vietnam, while the disease was reported in previously unaffected zones of the People's Republic of China, in addition to its reappearance in Israel.

These outbreaks may be linked to illegal or uncontrolled animal movements and trade, underscoring once again the need for sustained vigilance, strengthened biosecurity, rapid detection, and coordinated disease management to prevent further spread.

In Africa, 2025 marked the launch of a continent-wide Pan African Programme for the Eradication of PPR, led by the African Union with support from the Food and Agriculture Organization of the United Nations (FAO) and WOAH. The programme aims to harmonise national strategies, enhance the availability and quality of vaccines, and reinforce Veterinary Services across the continent, in line with the global eradication target of 2030.

43	countries or territories reported outbreaks of peste des petits ruminants
1,402	outbreaks reported
61,053	cases
24,622	losses (sum of dead and killed and disposed of animals)

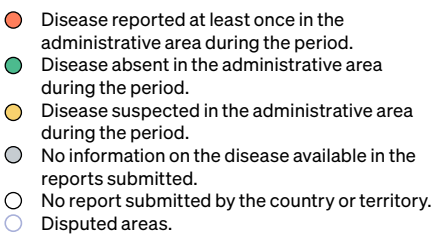
Rabies

Rabies is a viral disease that affects a wide range of mammalian species, including humans. Following infection, the incubation period can range from several weeks to several months; however, once clinical symptoms appear, rabies is invariably fatal in both animals and humans.

Although rabies is no longer endemic in Western Europe, North America and parts of South America and the Asia and Pacific regions, the virus remains endemic across large areas of the world. Nevertheless, as illustrated in the map, rabies continues to reoccur with sporadic cases in areas that have previously achieved disease-free status.

The majority of rabies-related deaths in both humans and animals are linked to insufficient access to public health services and preventive treatment and disproportionately affect low-income countries. Vaccination of dogs has proven to be the most effective strategy for interrupting transmission and preventing human cases, which are estimated to be associated with dog bites in approximately 99% of incidents.

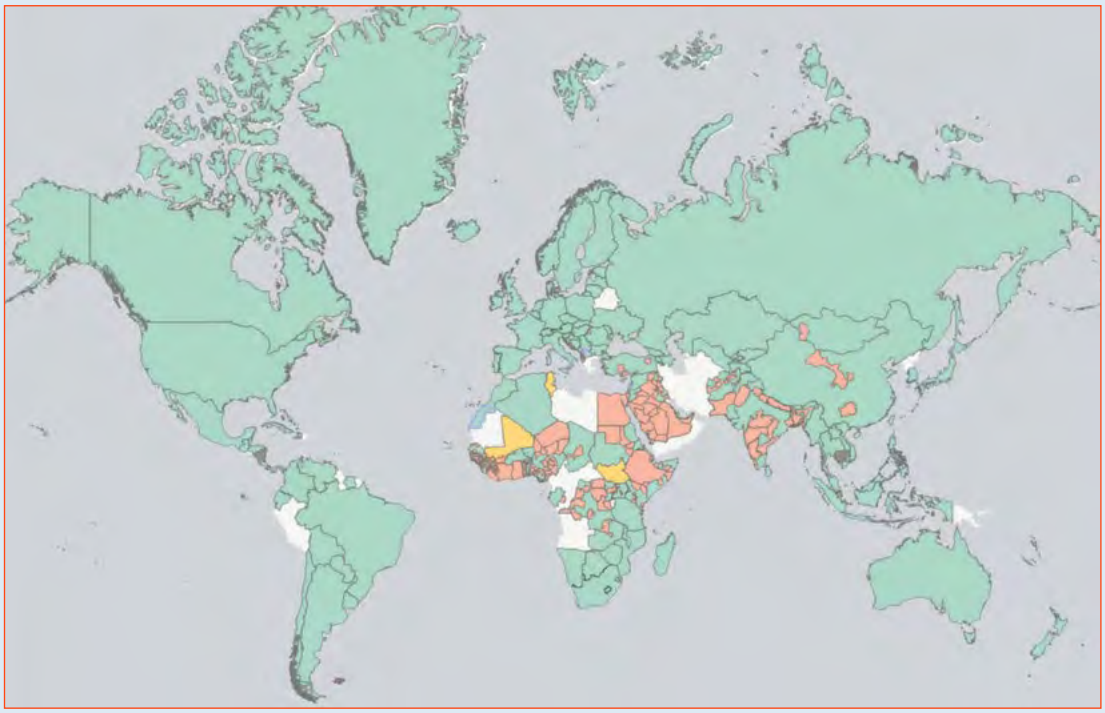
99	countries or territories reported outbreaks of rabies
6,567	outbreaks reported
11,205	cases
10,395	losses (sum of dead and killed and disposed of animals)



Outbreak locations were provided by the relevant Veterinary Services and may not represent the exact location of an outbreak. WOAH assumes no liability for the data displayed.

Peste des petits ruminants

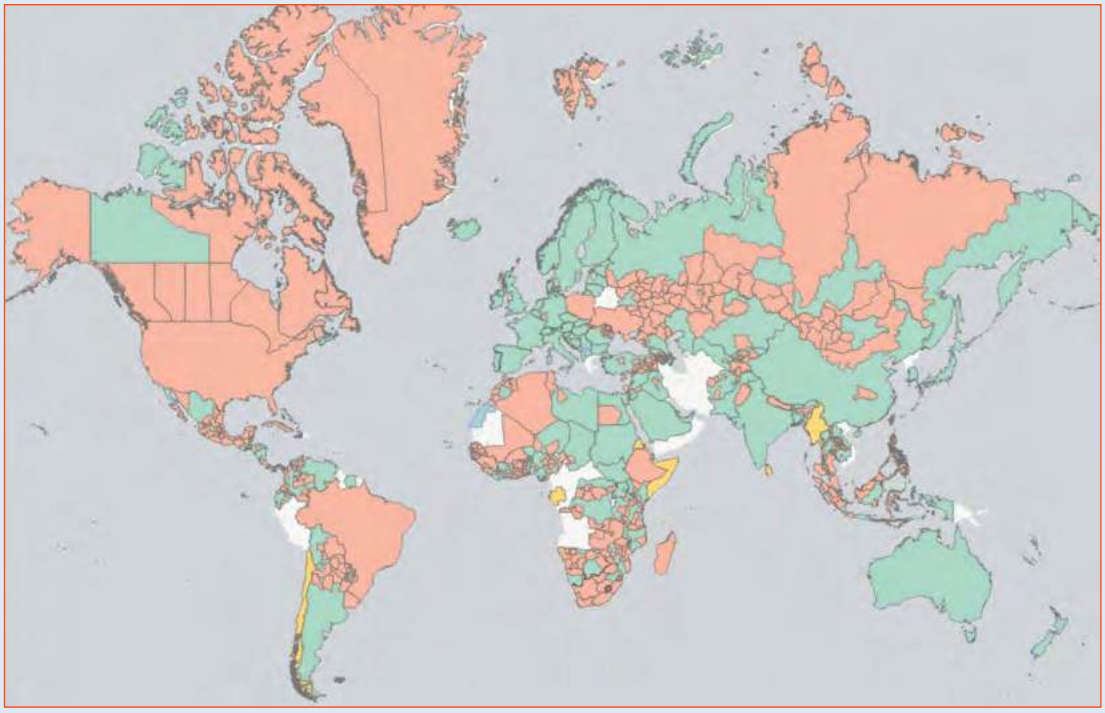
Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



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Rabies

Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from rabies, please refer to the Self-declared Disease Status page on the WOAH website.

Rift Valley fever

Rift Valley fever is a vector borne disease that causes severe illness in several species of domestic animals and can also infect humans. However, only infections in ruminants and dromedary camels are notifiable to WOAH. The virus is transmitted by mosquitoes and, in some cases, it can even survive for years in their eggs, including under dry conditions. When heavy rain causes the eggs to hatch, the virus can re-emerge and begin spreading again among animals.

Young lambs and goats are particularly vulnerable, with mortality rates ranging from 70% to 100%. In sheep and calves, mortality decreases to 20% to 70%, while rates vary significantly among other species. In pregnant sheep and cattle, infection almost invariably leads to abortion: a devastating outcome for farmers and a key indicator for epidemiologists monitoring the disease.

Following intense rainfall in September 2025, Senegal, Mauritania and The Gambia reported new outbreaks, some of which were associated with human infections and deaths. Although the number of animal cases aligned with previous outbreaks in the region, the pattern once again underscored the complex interplay between environment, animals and humans—highlighting the crucial role of a One Health approach in emergency response. Early and transparent reporting remains essential to contain the disease and to enable neighbouring countries to implement timely preventive measures.

11	countries or territories reported outbreaks of Rift Valley fever
319	outbreaks reported
1,869	cases
381	losses (sum of dead and killed and disposed of animals)

Sheep pox and goat pox

Sheep pox and goat pox are viral diseases transmitted primarily through aerosols and close contact between animals. They can lead to substantial economic losses due to reduced quality of animal products such as milk, wool and leather.

These diseases are considered endemic in parts of Africa, the Middle East, and Asia and the Pacific. Since 2023, they have been consistently reported in Europe, where outbreaks have resulted in significant economic impacts. Indeed, to contain the spread of the disease, 394,660 animals have been killed and disposed of during the reporting period.

Effective vaccines against sheep pox and goat pox are available and represent an important tool for disease control, particularly when combined with coordinated regional interventions and adherence to international standards that strengthen preparedness and mitigation strategies. Robust control also relies on awareness and early detection, timely reporting, enhanced surveillance, and the rapid implementation of movement restrictions, biosecurity measures, and vaccination campaigns when appropriate. For these reasons, transparent reporting and sustained capacity building are essential.

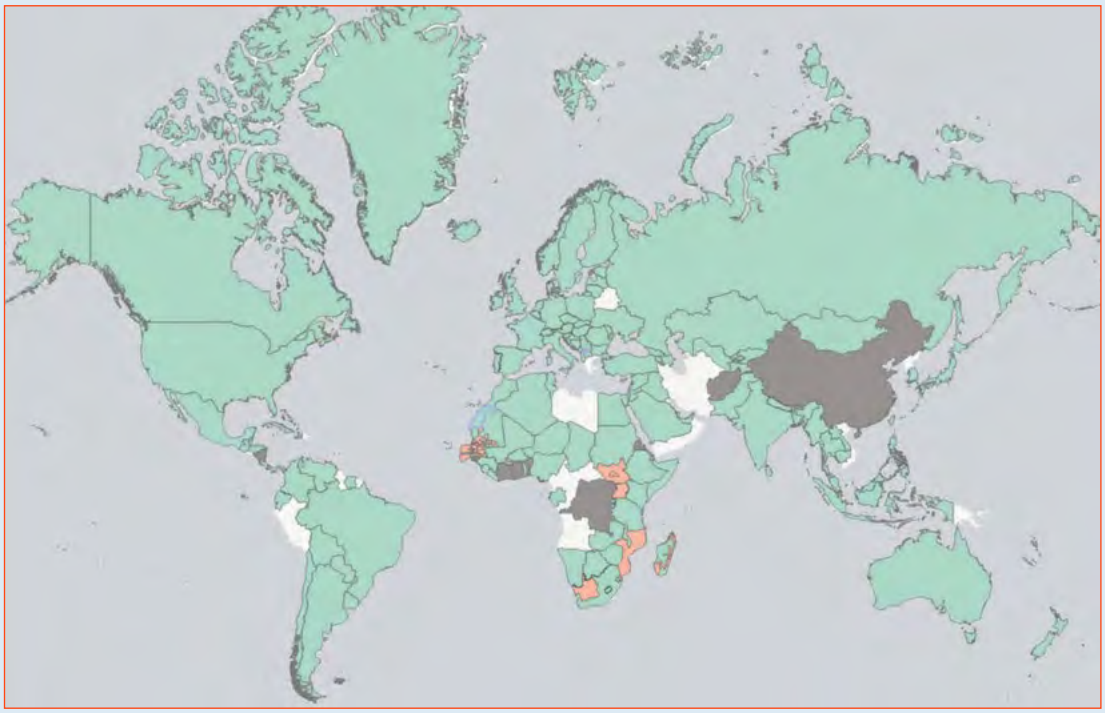
35	countries or territories reported outbreaks of sheep pox and goat
2,706	outbreaks reported
53,130	cases
406,561	losses (sum of dead and killed and disposed of animals)

Outbreak locations were provided by the relevant Veterinary Services and may not represent the exact location of an outbreak. WOAH assumes no liability for the data displayed.

- Disease reported at least once in the administrative area during the period.
- Disease absent in the administrative area during the period.
- Disease suspected in the administrative area during the period.
- No information on the disease available in the reports submitted.
- No report submitted by the country or territory.
- Disputed areas.

Rift Valley fever

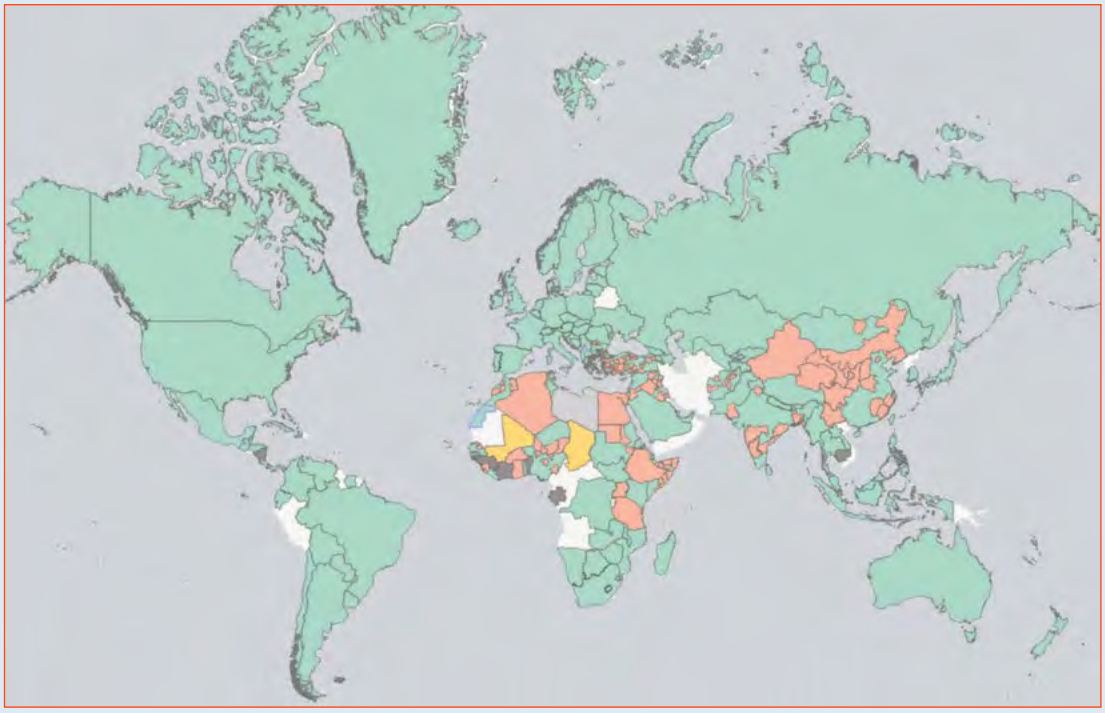
Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from sheep pox and goat pox, please refer to the Self-declared Disease Status page on the WOAH website.

Sheep pox and goat pox

Reported disease situation by administrative division, 1 January 2025 – 31 March 2026



This map displays the disease situation by administrative division as reported by countries or territories between 1 January 2025 and 31 March 2026. Some countries or territories highlighted on the map may no longer be affected by the disease at the time of publication. For a complete list of countries or territories that have self-declared freedom from sheep pox and goat pox, please refer to the Self-declared Disease Status page on the WOAH website.

Monitoring progress in Veterinary Services

Strong Veterinary Services are essential in safeguarding animal health and welfare, enabling safe animal movement and trade, strengthening food security, and supporting improved livelihoods worldwide.

To strengthen Veterinary Services, WOAH Members must first assess their priorities and accurately estimate associated needs and costs. This process requires the systematic collection of information and data, as well as continuous monitoring of improvements and outcomes. As the World Organisation for Animal Health (WOAH) we have been supporting our Members in this ambitious and continuously evolving effort through the Performance of Veterinary Services Information System (PVS IS).

PVS IS compiles data from Evaluation reports produced since 2006 by independent experts deployed by WOAH to assess the level of capacity and performance of Veterinary Services worldwide. We derived insights from this data to provide through this report a more comprehensive overview of the state of animal health in the world.



The positive impact of external evaluations on Veterinary Services

Following a Performance of Veterinary Services (PVS) Evaluation, each assessed Member receives a comprehensive report outlining specific recommendations to support improvements. In 2025, we launched a survey inviting Members to report on the extent to which they had implemented the recommendations provided in their most recent PVS Evaluation, the results of which are presented for the first time in this report.

In total, 49 Members (34% of Members evaluated since 2006) responded to the survey, enabling the identification of several overarching insights into the impact of Veterinary Services performance evaluations.

The vast majority of respondents (93%) reported that the PVS recommendations had a positive influence on their ability to take concrete actions to improve the performance of their Veterinary Services. In particular, the recommendations supported Members in implementing and complying with WOAH international standards.

Mobilisation of resources to improve Veterinary Services

The survey also collected information on resources mobilised following PVS Evaluations, highlighting the important role of domestic financing for WOAH Members engaged in the PVS Pathway.

Since their most recent PVS Evaluation, 52% of respondents reported an increase in available financial resources. While Members indicated that they were able to take action on 83% of the recommendations included in their latest PVS Evaluation, only 43% of those recommendations had dedicated budget allocations in place. For the remaining recommendations, additional funding needed to be identified.

What are the priorities for investment in Veterinary Services

We ask the independent experts we deploy to each country or territory to formulate recommendations that serve as a needs assessment, helping to identify priority areas for investment and improvement. These recommendations are subsequently used by national authorities to inform project design, investment planning, and broader strategic planning processes.

Since 2006, a total of 258 PVS Evaluations have been conducted for 144 Members.

From PVS IS we extracted and ranked the most frequently issued recommendations: these highlight the areas most commonly identified as requiring investment in order to support the implementation of WOAH international standards. They vary from the need to increase the veterinary workforce, mainly veterinarians and veterinary paraprofessionals, to strengthening of education and continuing education systems. Most frequent recommendations also focus on the need to develop legislation and regulatory systems, ensure their implementation and application and develop the associated controls. Making data available on animal health status, strengthening laboratory accreditation systems, integrating animal health and public health programmes and allocating resources for emergency management are also among the most frequent actions recommended by the experts.

Lack of human, financial and technical resources are the most common barriers to the implementation of these recommendations.

Impact of PVS recommendations

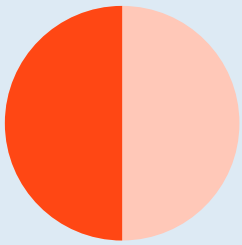
93%

93% of respondents said PVS recommendations had a **positive influence** on their Veterinary Services performance.



94%

94% attributed at least some improvements to their most recent **PVS recommendations.**



50%

50% said **all or most** improvements were taken thanks to PVS Evaluation recommendations.

All figures: survey respondents (n=49 Members, 34% of those evaluated since 2006).

Members acted on 83% of recommendations — but only 43% had dedicated funding

Recommendations acted on



Recommendations having already sufficient resources allocated to Animal Health Services

Recommendations needing additional funding



Where did financial resources come from?

National authorities

External authorities

Other resources



Critical competencies for Veterinary Services: where are we?

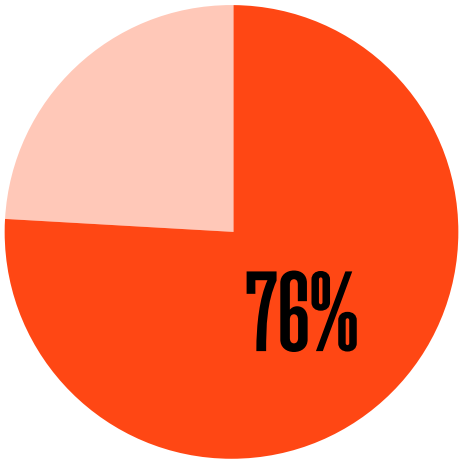
Based on its international standards, WOAH has identified a set of critical competencies for Members to prioritise in order to ensure the delivery of high-quality Veterinary Services. In principle, all Members should aim to achieve at least a minimum level of capacity across each of the 45 critical competencies defined under the PVS Tool.

An analysis of all countries and territories evaluated at least once since 2006, drawing data extracted from PVS IS, provides several key insights into global Veterinary Services capacities.

The WOAH PVS Evaluation provides valuable insights to Members, helping them identify key areas for improvement. Concurrently, the PVS Targeted Support program helps in these specific areas. The portfolio of Targeted Support is constantly evolving to address the needs of our Members and is currently working on Veterinary Legislation Support, Public-Private Partnerships, Workforce Development, Sustainable Laboratories, and National Bridging Workshops. As of the date of publication of this report, 99 Members have been successfully supported by the PVS Targeted Support program.

4

4 Members only have achieved **minimum capacity or better** across all critical competencies out of all countries and territories evaluated since 2006.



76% of the 54 countries or territories evaluated twice since 2006 have **increased or improved** their overall animal health services capacity since their first evaluation.

70%+

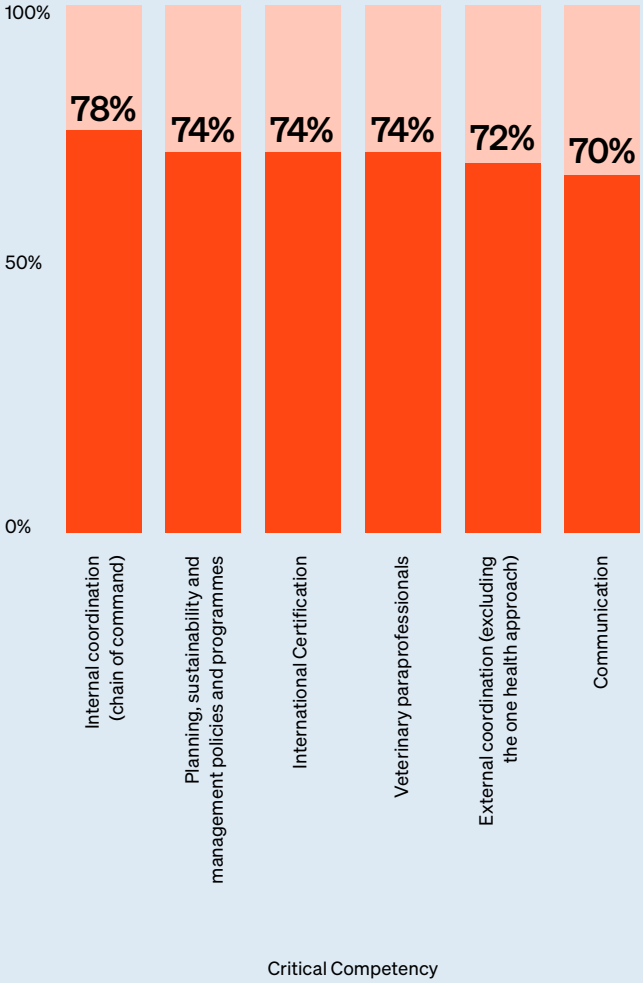
70% of Members achieved **minimum capacity or better** across the top-performing critical competencies in the past 20 years.

<33%

<33% of Members achieved **minimum capacity or better** in the lowest-performing critical competencies in the past 20 years.

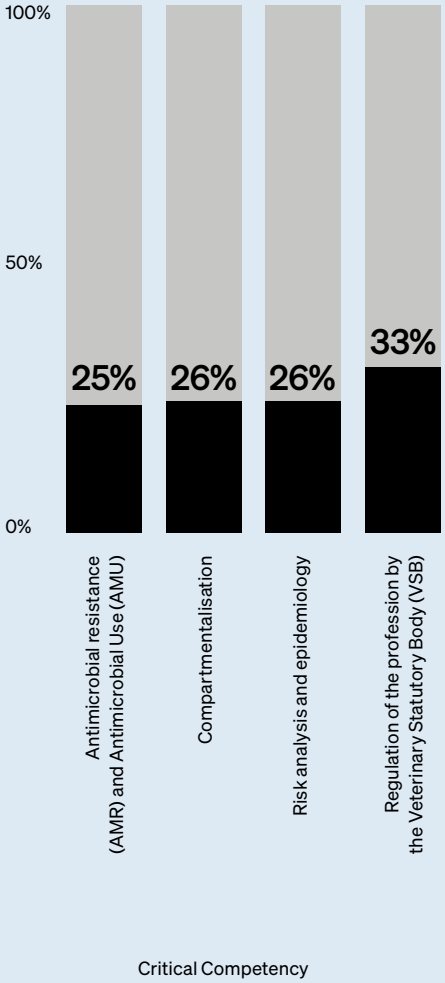
HIGHEST CAPACITY

Percentage of Countries/territories having achieved minimum capacity to implement relevant WOAH international standards



LOWEST CAPACITY

Percentage of Countries/territories having achieved minimum capacity to implement relevant WOAH international standards



Assessing the implementation of WOAH standards in the world

As the World Organisation for Animal Health (WOAH), our core mandate is to develop international standards that safeguard animal health and welfare, support the control and eradication of animal diseases, and enable the safe international trade of animals and animal products. These standards represent agreed-upon measures adopted by all Members and serve as a foundation for national policies, strategies, and regulatory frameworks related to animal health and welfare.

To ensure that its standards remain grounded in real-world conditions and responsive to the evolving needs of its Members, we established the WOAH's Observatory. The Observatory aims to assess the uptake and implementation of our international standards, while also identifying gaps, challenges, and opportunities to support their adoption or inform future updates. It is a continuous and systematic mechanism that analyses the implementation of standards using data regularly collected through WOAH activities, complemented by information from external sources.

In this section, we will present selected insights on the most recent outcomes of the WOAH's Observatory research: animal welfare, veterinary workforce, governance and performance of Veterinary Services and their emergency preparedness.



Low-and middle-income Members tend to engage with PVS Evaluations more often than high-income Members

As noted previously, data from the Performance of Veterinary Services Information System (PVS IS) are essential for understanding the global state of animal health. PVS IS enables WOAH Members to better assess their needs and prioritise actions to strengthen their Veterinary Services. However, analysis conducted through the WOAH Observatory highlights a notable trend: PVS Evaluations are predominantly requested by lower-income Members and middle-income Members. As a result, insights drawn from PVS IS may provide a less comprehensive picture of Veterinary Services performance in high-income Members.

We recommend that all Members conduct a PVS Evaluation every five years as a key tool for monitoring performance, establishing national priorities and targets, defining activities, and accurately costing planned interventions.

Strengths and challenges for the governance of Veterinary Services

Between 2017 and 2023, 36 WOAH Members underwent an evaluation using the Performance of Veterinary Services (PVS) Tool. Drawing data from these evaluations, the WOAH Observatory found that most of the assessed Members had established a clear chain of command for activities related to border control and emergency response.

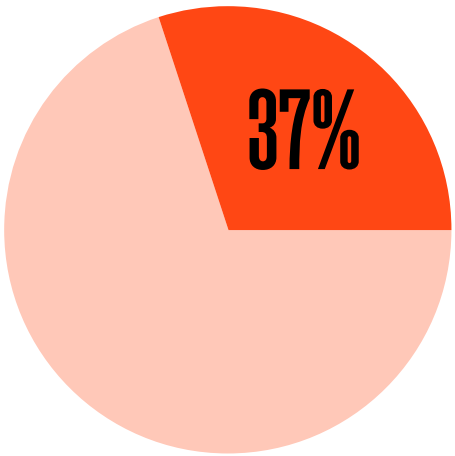
The Evaluations also showed that Veterinary Services had dedicated functions for communicating with stakeholders on an occasional basis. However, they continued to face challenges in regularly engaging producers and other key stakeholders in their activities.

Workforce: continuing education is on track, but staffing is at risk

The WOAH Observatory analysed PVS IS data related to the veterinary workforce and the actions taken by Members to strengthen it. The analysis focused on Members that underwent at least two PVS Evaluations between 2006 and 2023. Overall, most of these Members maintained or improved their capacity to deliver continuing education, aimed at maintaining, updating or enhancing the knowledge and skills of Veterinary Services personnel.

At the same time, a non-negligible proportion of Members experienced a decline in their capacity to maintain an adequate number of veterinarians and veterinary paraprofessionals.

How engaged are Members with the PVS Evaluation process?



Only 37% of PVS Evaluations have been conducted between 2017 and 2023.



502 PVS Pathway activities in total
Over 90% of PVS Evaluations were requested by Members in a low- to middle-income context.

Data source: PVS IS

How effective are Members in ensuring good governance of Veterinary Services? (2017–2023)[1]

Data source: PVS IS

POSITIVE OUTCOME

~80%

~80% of Members evaluated (n=36) were assessed as having a **clear and effective chain of command** for at least one Veterinary Services activity, such as border control or emergency response.

POSITIVE OUTCOME

75%

75% of Members evaluated (n=36) were maintaining a dedicated and **specialised function to communicate with stakeholders,** at least on an occasional basis.

CHALLENGE

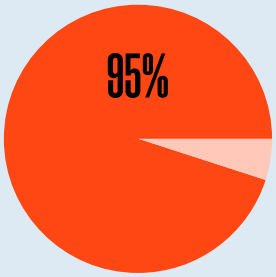
64%

64% of Members evaluated (n=36) were **facing challenges in systematically involving producers and other stakeholders** in the programmes and activities delivered by Veterinary Services.

To what extent did Members reinforce the capacity of their workforce[1] as assessed through Performance of Veterinary Services (PVS IS) Evaluations?

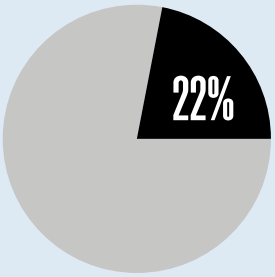
Data source: PVS IS

POSITIVE OUTCOME



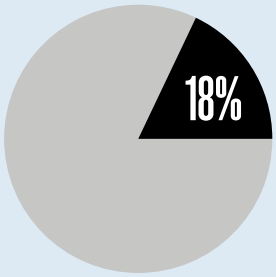
Continuing education
95% of Members assessed (n=59) twice or more between 2006 and 2023 maintained or improved their capacity in relation to continuing education – specifically to maintain, update and improve the knowledge and skills of their personnel.

CHALLENGE



Veterinary paraprofessionals
22% of Members assessed (n=54) twice or more between 2006 and 2023 showed a decline in their capacity to maintain an appropriate number of veterinary paraprofessionals.

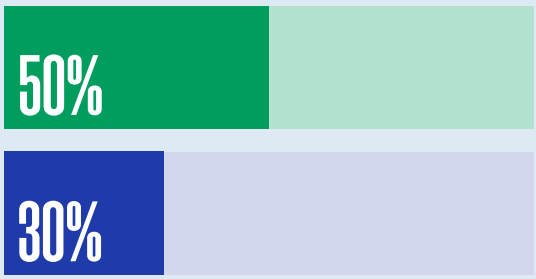
CHALLENGE



Veterinarians
18% of Members assessed (n=55) twice or more between 2006 and 2023 showed a decline in their capacity to maintain an appropriate number of veterinarians.

What progress has been made to strengthen Animal Health Services to curb AMR?[2]

Data source: TrACSS



50% of Members (Terrestrial Animal Health Services; n = 168)

30% of Members (Aquatic Animal Health Services; n = 168)

According to the 2023 TrACSS self-assessment survey, 50% of Members reported implementing plans to address capacity gaps in Terrestrial Animal Health Services, while 30% reported doing so for Aquatic Animal Health Services.

[1] As established in the PVS Tool 2019
[2] The questions were asked to animal health, human health and environmental health authorities working on antimicrobial resistance

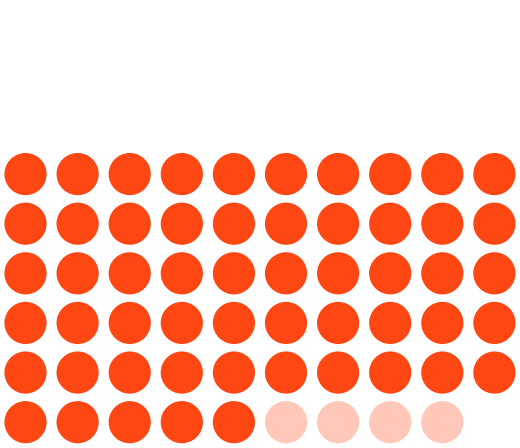
Emergency preparedness

One of the most effective ways to evaluate Members' emergency preparedness is to assess if they have contingency plans against any animal disease while this disease is absent. According to the most recent data available on this topic reported to WOAH in 2019, avian influenza, foot and mouth disease and African swine fever are the diseases for which most Members are prepared.

Another key indicator of emergency preparedness is the conduct of simulation exercises, which help countries and territories prepare for the potential occurrence of animal health emergencies. Data reported to WOAH show that Members in the Americas and Europe are the most likely to have conducted simulation exercises in recent years. It is important to note, however, that there could be many more simulation exercises conducted by Members, because reporting such exercises to WOAH is only voluntary.

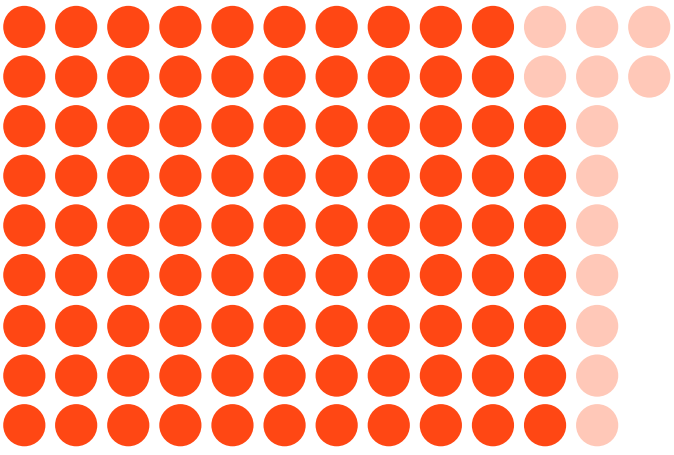
According to the data extracted from PVS IS, WOAH Members have improved their capacity in emergency funding and emergency preparedness and response over the years.

To what extent did Members' critical competencies[1] in emergency preparedness increase as a result of the Performance of Veterinary Services pathway?



93%

93% of the 59 Members assessed twice or more between 2006 and 2023 for critical competencies related to **emergency funding** maintained or improved their capacity.



88%

88% of the 110 Members assessed twice or more between 2006 and 2023 maintained or improved their capacity related to **emergency preparedness and response.**

Data source: PVS IS

[1] As established in the PVS Tool 2019

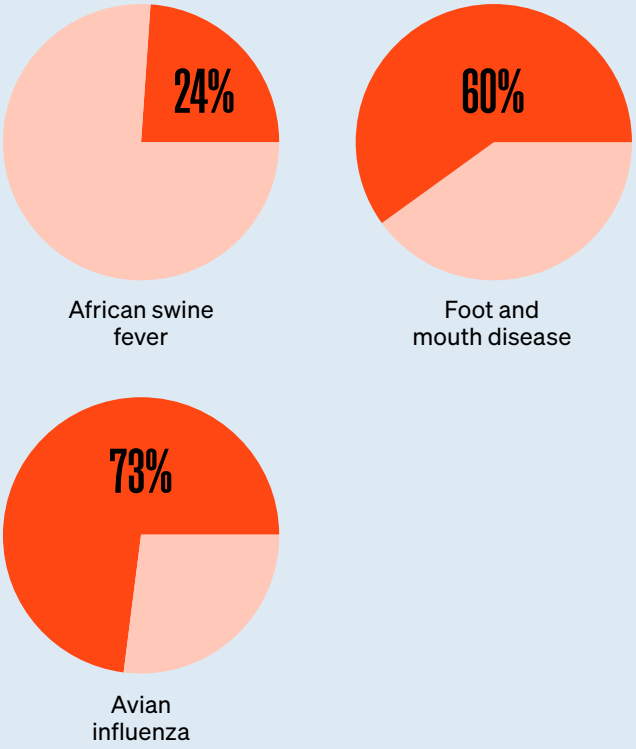
When reporting a disease as absent, how many Members had accompanying contingency plans?

73%

73% of Members (115 out of 158) had a contingency plan for avian influenza while reporting the disease as absent or limited through the World Animal Health Information System (WAHIS) in 2019.

Data sources: Contingency Plans and WAHIS as of 2019

Percentage of Members with Contingency Plan for the disease that was reported absent



How many Members reported conducting simulation exercises?

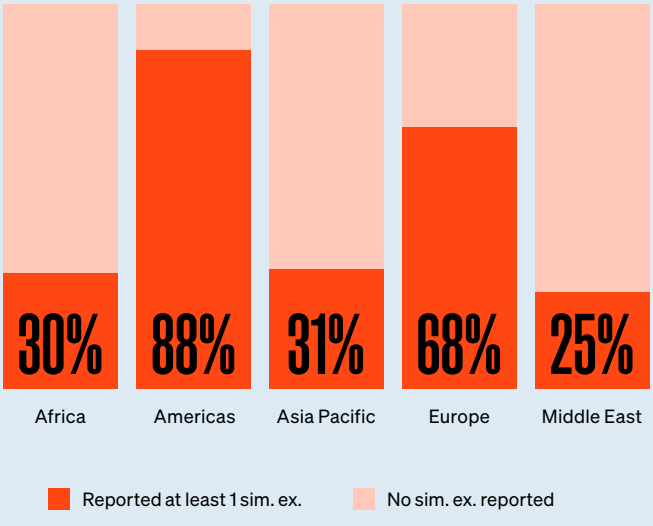
93

93 Members reported having carried out a simulation exercise between 2002 and 2023.

466

466 simulation exercises were reported to WOAH.

Percentage of Members that have reported at least one simulation exercise, by WOAH region



Data source: Simulation Exercises

Animal welfare is still absent in many national regulations

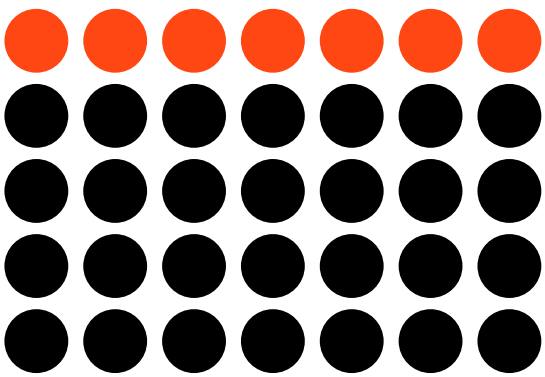
Good welfare means more than the animals being free from disease; they also need to be comfortable, well-nourished, safe, and not suffering from unpleasant states such as pain, fear and distress. This requires frameworks that ensure such conditions from a broad and holistic perspective. For this reason, we, together with our Members, develop international standards that address both animal health and animal welfare.

Using data from the PVS IS, the Observatory found that only 20% of Members evaluated through the PVS Tool between 2017 and 2023 had national veterinary legislation explicitly addressing animal welfare.

By comparing PVS IS data with information from the FAOLEX legislative database, we can see that between 2005 and 2023, 75 WOAH Members adopted regulations aligned with WOAH animal welfare standards, with approximately 70% of these regulations originating in Europe.

We recommend that our Members address key animal welfare areas such as slaughter, transport, research, and free-roaming dog population management through national legislation or regulations, in line with our international standards.

What Level of Advancement have Members reached in critical competencies relevant to animal welfare,[1] according to Performance of Veterinary Service evaluation (2017–2023)?



20% 20% of Members evaluated (n = 35) had **national veterinary legislation on animal welfare** covering most of Section 7 of WOAH standards, although they did not necessarily conform to these.

80% 80% were assessed as having no or limited national legislation relevant to WOAH's standards on animal welfare.

Data source: PVS IS

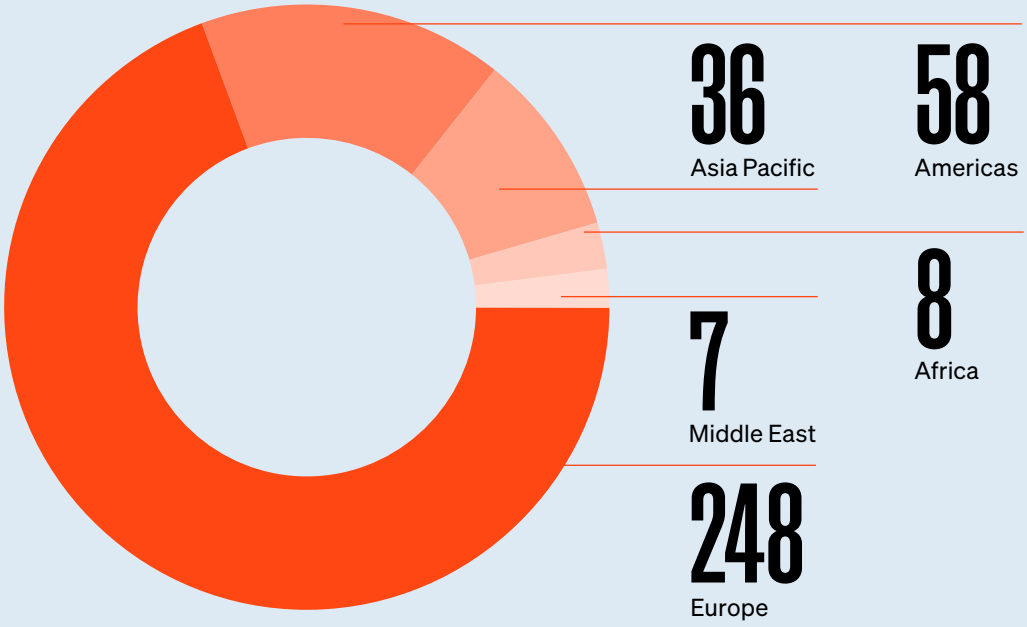
[1] As established in the PVS Tool 2019

How many Members have national regulations related to animal welfare (2005–2023)?

75 Members 353 Regulations 70% in Europe

75 members registered a total of 353 regulations that are related to WOAH standards in FAOLEX between 2005 and 2023. 70% originated from Members in Europe.

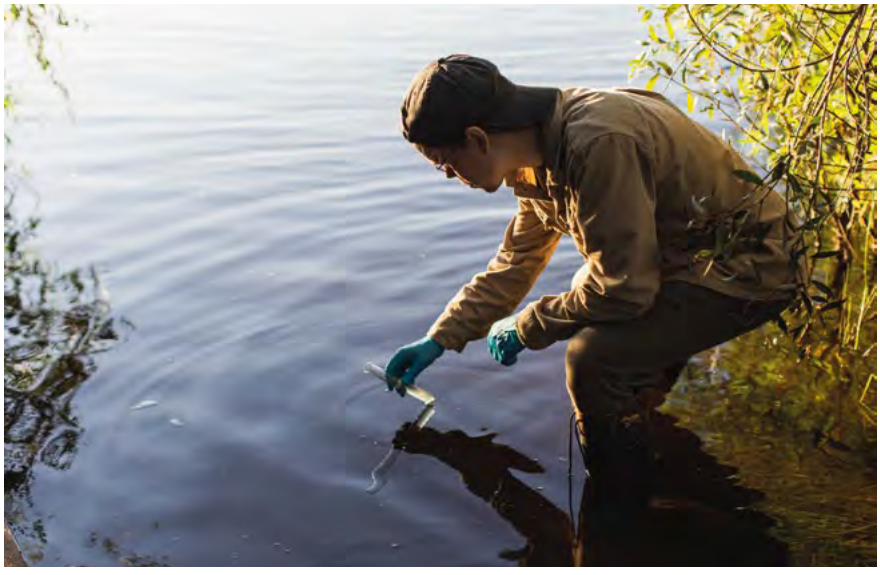
Breakdown by WOAH Regions of number of animal welfare regulations



Data source: FAOLEX

Tracking and managing antimicrobial use through ANIMUSE

Antimicrobial resistance is a silent global pandemic that is already responsible for millions of human deaths each year. The animal health sector has a critical role to play in curbing antimicrobial resistance by improving the rules, practices, and stewardship governing antimicrobial use in animals. Effective action must be grounded in solid evidence. To support this, we established the global database on ANImal antiMicrobial USE (ANIMUSE), which, with the forthcoming Annual Report on Antimicrobial Agents Intended for Use in Animals, marks a decade of sustained commitment to informing the global status of antimicrobial use (AMU) in the animal health sector.



Since 2015, we have been collecting data on the quantities of antimicrobials used in animals worldwide. In this latest edition of the State of the World's Animal Health report, a preview of key insights is presented from the eleventh round of data collection, which concluded at the end of March 2026. A total of 148 Members participated in this round. Of these, 132 (89%) specifically reported quantitative data on AMU for 2024, and 119 were included in the global analysis, representing 74% of the global animal biomass, enhancing the depth of the analysis. This represents the highest number of Members ever reporting antimicrobial quantities, even though the overall number of Members participating has slightly decreased over the years.

The forthcoming Annual Report on Antimicrobial Agents Intended for Use in Animals, to be published with deeper analyses in November 2026, highlights a 4% increase in antimicrobial use between 2022 and 2024, from 91 to 95 milligrams of antimicrobial quantities adjusted by animal biomass (mg/kg). This trend, based on 97 Members that consistently provided data on antimicrobial use in animals across the three-year span, is representative of antimicrobial use in 64% of global animal biomass.

A separate analysis, focusing solely on 2024, analyses the AMU quantities validated by WOAH from 119 Members, highlighting that 90.34 milligrams of antimicrobials were used per kilogram of animal biomass globally in 2024, representing 74% of the global animal biomass.

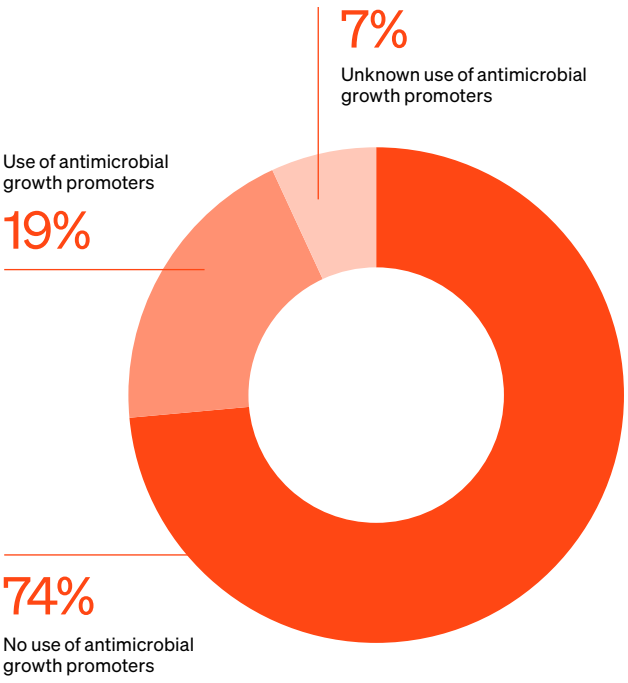
Challenges on AMU remain, particularly in monitoring use in aquaculture and assessing regional disparities – not to mention the continued use of antimicrobials for growth promotion, especially for the regions of the Americas and Asia and the Pacific.

While WOAH has collected data on antimicrobial use in animals since 2015, a decline in the overall number of Members reporting has been observed since 2019 (5th round). In contrast, reporting of detailed quantitative data increased steadily, reaching its highest level in 2025 (11th round).

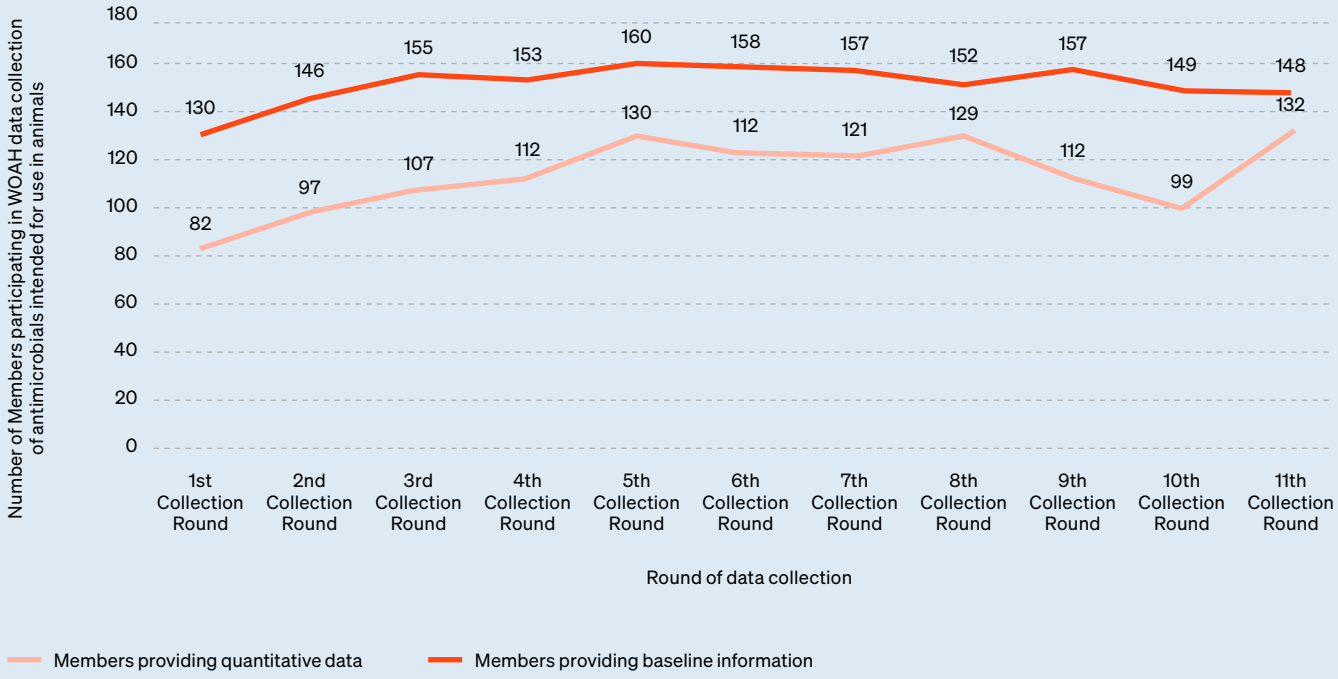
Comparable antimicrobial use data from 97 Members over the period 2022–2024 show a 4% increase globally. Regionally, antimicrobial use increased in Asia and the Pacific, Europe, and the Middle East, whereas Africa and the Americas experienced a consistent decline.

While WOAH has called on its Members to restrict the use of antimicrobials solely to veterinary medical use to eventually achieve a total ban on the use of antimicrobials as growth promoters, 19% of Members still report their use, and 4% of the 148 Members reporting data keep using for such purpose at least one of the highest priority critically important antimicrobials for humans. In contrast, 74% of Members have aligned with WOAH recommendations and are implementing measures to discontinue this practice.

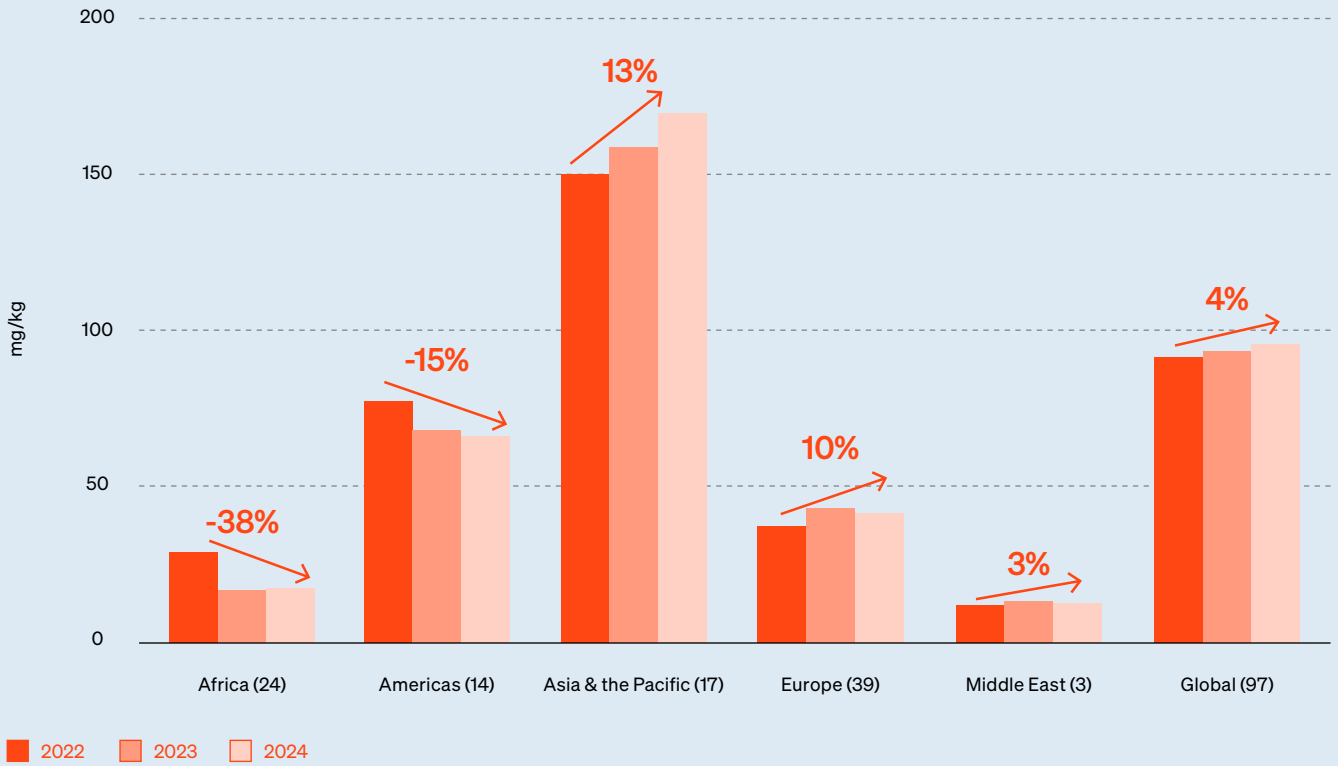
Reported use of antimicrobials as growth promoters, in 2025



Number of Members that have participated in WOAH data collection on antimicrobial use in animals over 11 collection rounds, 2015–2026



Antimicrobial use trends, 2022–2024



Data as a strategic investment in animal health

Data is not a technical by-product of animal health action; it is one of its essential foundations. Across this report, WOAH's core data systems show their value not only in documenting where diseases are present, absent or emerging, but in helping to understand what those patterns mean and what must happen next. Through WAHIS, PVS IS, the WOAH Observatory and ANIMUSE, WOAH transforms reporting into actionable intelligence: enabling earlier detection, stronger preparedness, better-targeted prevention and control measures, and more informed investment.

These systems allow us to see the animal health landscape more clearly, compare risks across regions and over time, identify gaps in Veterinary Services capacity, and support countries and territories in making evidence-based decisions. They also help maintain a transparent global public good: trusted, validated information that can be used by Members, partners, researchers and decision-makers alike. In the context of growing epidemiological challenges, climate pressures, trade interdependence and growing needs in capacity, that transparency is not optional. It is essential.

Investing in animal health therefore means investing in the systems that make animal health visible, measurable and actionable. It means investing in surveillance, in laboratory and reporting capacity, in the skilled workforce needed to generate and interpret data, and in the digital infrastructure that connects national efforts to a global picture. It means investing in Veterinary Services and it means investing in WOAH: in its mandate, its standards, and its ability to steward the trusted international systems that support cooperation, transparency and collective action.

What this report demonstrates is clear: better data leads to better decisions, and better decisions protect animals, people, economies and ecosystems. Sustained investment in WOAH and its data systems is an investment in stronger prevention, faster response, improved transparency and a more resilient animal health sector worldwide.

Because animal health is our health. It's everyone's health.

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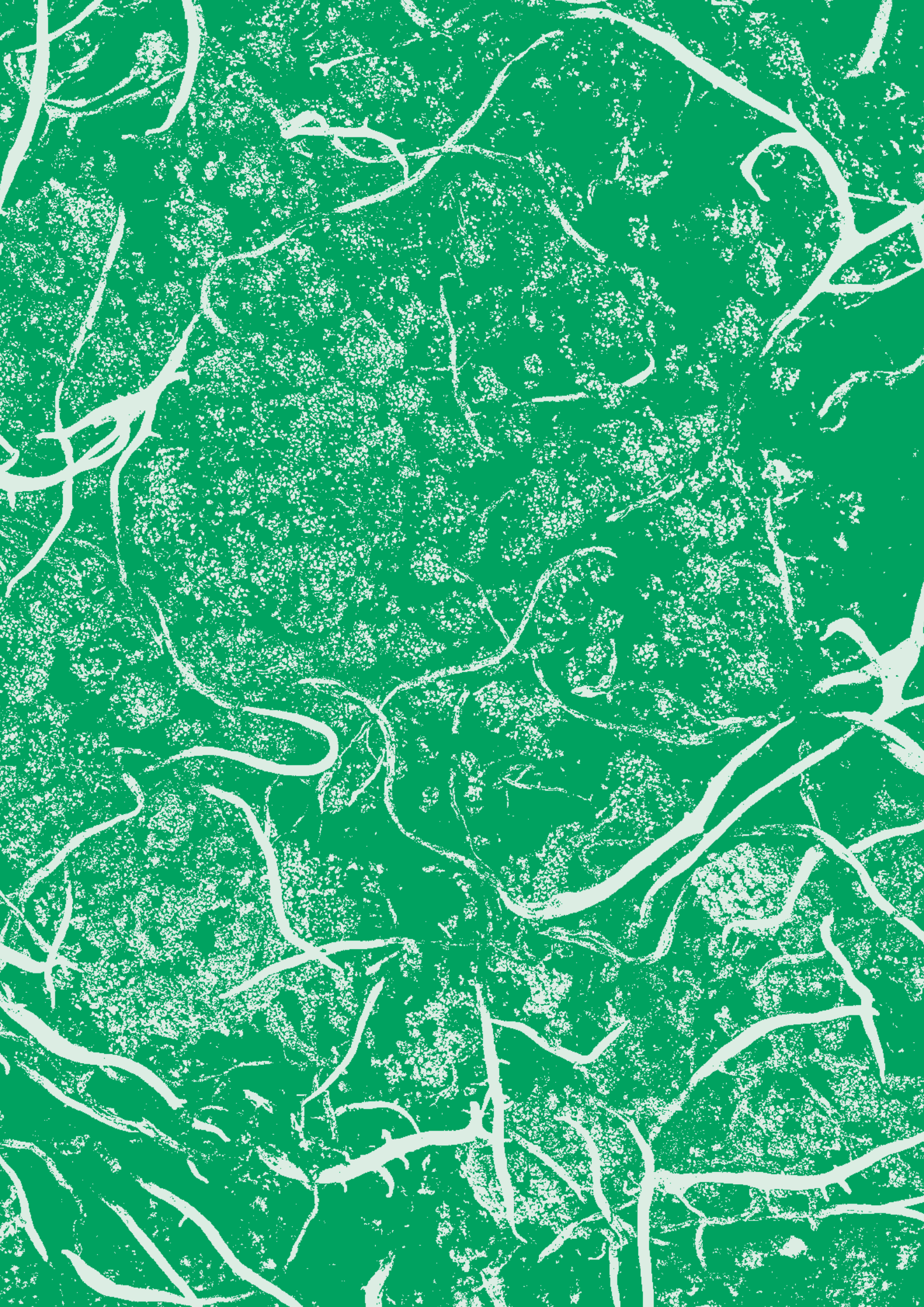
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The State of the World's Animal Health: 2026

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In a world of increasing biological risk and economic uncertainty, animal health is no longer a secondary concern. It is a strategic priority for global stability.

The second edition of the State of the World's Animal Health report shows that diseases are spreading further and faster, while systems remain under strain and underfunded. Yet the evidence is clear: investing in animal health is one of the most effective ways to protect food systems, economies and public health.

This report makes the case for action and provides the data to guide it — highlighting rising risks, persistent gaps, and practical solutions already delivering results around the world.

The World Organisation for Animal Health is the global authority on animal health. Since 1924, it has worked to improve animal health and welfare worldwide, recognising that animal health is fundamentally connected to human health and the health of the planet.

Through science-based standards, global data systems and continuous monitoring of animal diseases across livestock, wildlife and aquatic animals, WOAH helps its 183 Members to detect, prevent and respond to threats before they escalate. They rely on these standards to ensure safe trade, protect public health and support economic growth.

Working in close partnership with organisations such as FAO, UNEP and WHO, and supported by a global network of experts and laboratories, WOAH fosters collaboration, knowledge-sharing and coordinated action. By providing data, tools and expertise, it empowers countries and territories to address their specific challenges and strengthen their animal health systems. Because in an interconnected world, protecting animal health means protecting our shared future.

Because animal health is our health. It's everyone's health.

World Organisation for Animal Health

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