

One Health in Action: Bhutan's One Health Journey Addressing Zoonoses and Other Threats Through Integrated Action

Issue Overview and One Health Context

Bhutan, a South Asian country and recognised hotspot for emerging and re-emerging zoonoses, adopted the One Health approach in 2013 and formalised it through the Bhutan One Health Strategic Plan (2016). The plan strengthens governance, surveillance, outbreak response, capacity building and collaboration across human, animal and environmental sectors.

Bhutan faces ongoing threats from zoonotic and transboundary diseases such as rabies, anthrax, avian influenza, brucellosis, leptospirosis, scrub typhus, tuberculosis and echinococcosis. In recent years, the country has also experienced incursions of exotic animal diseases including African swine fever (ASF) and lumpy skin disease (LSD), as well as sporadic food-borne illnesses and wildlife diseases such as peste des petits ruminants (PPR) and foot-and-mouth disease (FMD). Bhutan also faces a growing

threat from antimicrobial resistance (AMR) in both humans and animals, driven by increasing antibiotic use and weak stewardship programmes.

Factors increasing its vulnerability include porous borders, cross-border animal movement, close human-animal interactions, livestock intensification and limited animal health infrastructure.

Bhutan's integrated governance and strong disease reporting to WHO and WOA position it as a regional sentinel for zoonoses. However, wildlife disease surveillance and inter-laboratory coordination need further strengthening. This case study illustrates how Bhutan has institutionalised One Health governance, expanded joint surveillance and workforce training and enhanced laboratory capacity through initiatives such as the Pandemic Fund One Health Project.



Figure 1. Group photo from the workshop on Zoonotic Diseases Prioritisation (OHZDP) and Joint Risk Assessment (JRA), 2024, Paro, Bhutan

Solution and Mitigation Strategies

With the endorsement of the Bhutan One Health Strategic Plan (BOHSP) in 2016, governance mechanism was instituted through the establishment of the Inter-Ministerial Committee for One Health (IMCOH). IMCOH serves as the highest policy and decision-making body for multi-sectoral coordination. It is co-chaired on a rotational basis by the Secretaries of Ministry of Health (MOH) and Ministry of Agriculture and Livestock (MoAL) ensuring balanced leadership across the sectors. IMCOH is supported by two technical bodies, the National OH Technical Committee (NOHTC) and National AMR Technical Committee (NATC), which provide strategic and technical guidance and include members from government agencies, NGOs, academia and research institutions to ensure an inclusive and collaborative approach. The Bhutan OH Secretariat, established in November 2020, comprises officials deputed from the human, animal and environment sectors; it acts as a coordinating body for IMCOH, facilitating cross-sectoral planning, implementation and monitoring of OH activities. It coordinates biennial national One Health conference. It also organises joint technical workshops, trainings, simulation exercises and coordinates surveillance, disease outbreak responses and collaborative research activities.

The BOHSP outlines seven strategies focused on governance, surveillance, outbreak response, capacity building, research, communication and engagement with the environment and wildlife sectors.

Bhutan has been active in successfully applying the One Health approach across various domains. The country has organised several international, regional, and national events related to One Health. Several H5N1 avian influenza outbreaks were rapidly detected and contained with minimal spread and no human cases have occurred in Bhutan. Similarly, no human rabies cases were reported since 2016, except for one case in 2023, along with a decreasing trend of rabies outbreaks in animals. Bhutan is on the verge of declaring the elimination of dog-mediated human rabies, even before the global goal of zero deaths from dog-mediated rabies by 2030.

The One Health approach also contributed significantly to Bhutan’s effective management of the Covid-19 pandemic, where technical expertise from animal health and food safety sectors was mobilised to support public health response efforts during community outbreaks. The country also demonstrates good One Health collaboration in addressing AMR.

National control plans for priority zoonotic diseases such as highly pathogenic avian influenza (HPAI), rabies, anthrax and brucellosis have been jointly developed by key sectors. Joint simulation exercises for zoonotic diseases are conducted regularly. The Joint Risk Assessment (JRA) training-of-trainers workshop was organised in 2023, and the country plans to conduct JRA exercises regularly. Bhutan also identified zoonotic diseases of greatest national importance through the [One Health Zoonotic Disease Prioritisation Workshop](#) held in 2024.

Stakeholders Involved

Ministry of Health	• Department of Public Health • Royal Centre for Disease Control • Bhutan Food and Drug Authority
Ministry of Agriculture and Livestock	• Department of Livestock
Ministry of Energy and Natural Resources	• Department of Environment and Climate Change • Department of Forests and Park Services
Ministry of Home Affairs	• Department of Disaster Management
Academia	• Faculty of Nursing and Public Health, Khesar Gyalpo University of Medical Sciences • College of Natural Resources, Royal University of Bhutan
International agencies and partners	• World Health Organization (WHO) • Food and Agricultural Organization of United Nations (FAO) • World Organisation for Animal Health (WOAH) • Bhutan OH Secretariat coordinates stakeholders while IMCOH provides high-level oversight

Role of sectors:

Bhutan's One Health implementation is a collaborative effort among key government and academic institutions. The Department of Public Health leads strategies related to human health, including clinical services, training and research. The Department of Livestock oversees animal health programmes and their implementation, while the Bhutan Food and Drug Authority (BFDA) focuses on food safety, foodborne disease control and joint animal health initiatives with the livestock sector. The Department of Forests and Park Services manages

wildlife health and related One Health strategies and the Department of Environment and Climate Change ensures integration of environmental policies into One Health actions. The Department of Disaster Management supports emergency preparedness and response efforts, while academic partners such as the Faculty of Nursing and Public Health and the College of Natural Resources contribute through training, research and curriculum development to strengthen human and animal health capacities under the One Health framework.

Impact and Outcomes

In the first 18 months of the Pandemic Fund project implementation, Bhutan achieved measurable gains:

- 55 professionals trained in J-FETP (Joint field epidemiology training programme) and a ToT (training of trainers) cohort was established for intermediate FETP, complimented by refresher courses for 181 veterinary paraprofessionals.
- Key developments included drafting critical laboratory curricula, forming a national diagnostics committee and updating disease outbreak manuals.
- Targeted responses were strengthened through enhanced simulations and joint risk assessment; early detection of disease incursion was improved by enhancing scanning at the Paro Point of Entry (POE).
- The identification and mapping of 10 priority zoonoses (including rabies/leptospirosis risk maps).

These advances have successfully improved early detection, built surge capacity, standardised laboratory quality assurance steps and institutionalised multi-sector coordination, positioning Bhutan to detect and contain zoonotic threats earlier and more efficiently, while serving as a regional sentinel.

“Through joint trainings, simulations and a fully operational One Health Secretariat, Bhutan has transformed cooperation into action, enabling us to detect and respond faster to zoonotic threats while building local laboratory and field epidemiology skills.”

Dr N. Dahal, Animal Health Specialist, Project Leader/One Health Coordinator; Department of Livestock, Ministry of Agriculture and Livestock of Bhutan

Implementation Challenges

Key challenges remain, notably funding constraints, limited budget for HR training, persistent data-sharing gaps affecting disease reporting issues and high staff turnover affecting knowledge retention. Further hurdles include limited wildlife surveillance capacity and weaknesses in sub-national logistics and diagnostics capacity. Bhutan has mitigated some of these issues

with targeted onsite trainings at hospitals, by developing Standard Operating Procedures (SOP) for HR mobilisation, and intensifying coordination through the IMCOH structure. However, sustained donor engagement will be essential to maintain and further build upon the gains achieved.

Lessons Learnt

Bhutan has successfully applied the One Health approach to address health threats emerging at the human-animal-environment interface for many years. Even before global and regional One Health initiatives gained momentum, Bhutanese government agencies were already collaborating across sectors to prevent, prepare for and respond to health threats. A notable example is the HPAI outbreaks in Asia during the early 2000s where Bhutan was the

last country in the region to be affected, thanks to proactive preparedness and coordinated response efforts involving key stakeholders.

Given its small size and efficient bureaucracy, Bhutan is able to rapidly mobilise One Health stakeholders to address emerging health threats, guided by the Bhutan One Health Strategic Plan and other national policies. Key lessons and priorities from Bhutan's experience include:



Figure 2. Key lessons and priorities from Bhutan's experience

Relevance to the One Health Joint Plan of Action (OH JPA)

This case study provides a concrete example of how the One Health Joint Plan of Action (OH JPA) can be effectively operationalised at the national level. Bhutan's successful journey in addressing complex health threats, including zoonoses, AMR and environmental hazards, illustrates how policy, legislation, advocacy and financing (Pathway 1), organisational development and sectoral integration (Pathway 2) and the strategic use of data, evidence and knowledge (Pathway 3) all contribute to the

practical implementation of the national One Health approach. The initiative systematically advances all six Action Tracks of the OH JPA, specifically by enhancing capacities (Track 1), reducing risks from emerging diseases (Track 2), controlling endemic zoonoses like rabies (Track 3), strengthening food safety and public health response (Track 4), curbing the silent pandemic of AMR (Track 5) and integrating the environment and wildlife sectors into the governance structure (Track 6).

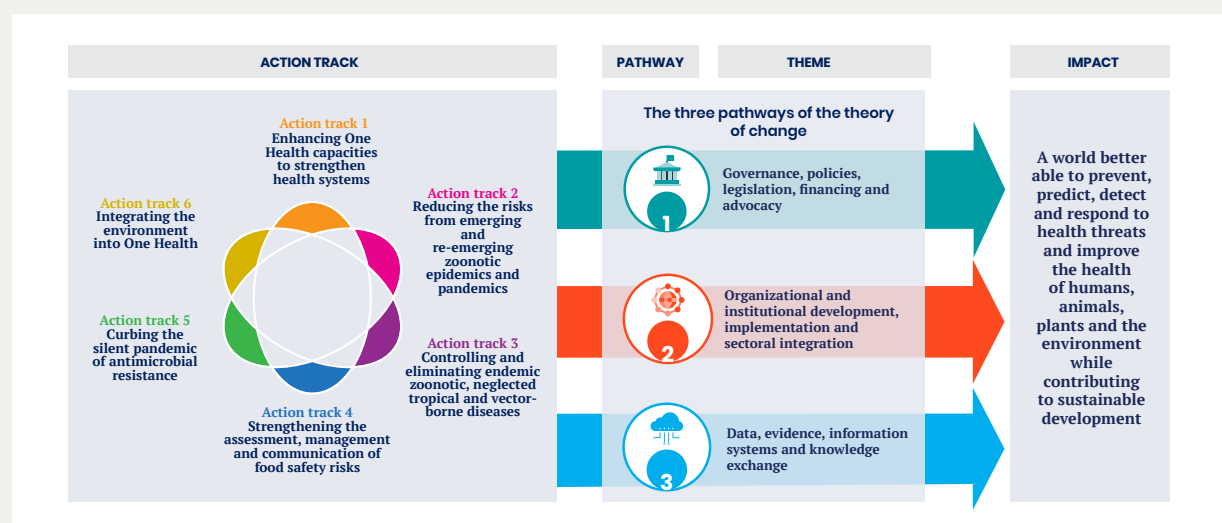


Figure 3. Pathways of Change and Action Tracks of the One Health Joint Plan of Action (OH JPA)

Conclusion

By institutionalising high-level governance, expanding joint surveillance and training, and enhancing laboratory capacity across human, animal and environmental sectors, this case study underscores the transformative value of One Health national

preparedness, promoting biodiversity conservation and enhancing health security in a complex South Asian ecosystem.

Resources

1. Bhutan One Health Pandemic Fund. Annual Project Report, July 2025. Thimphu: Bhutan One Health Secretariat; 2025.
2. Bhutan One Health Secretariat. Bhutan One Health Strategic Action Plan 2025-2030. Thimphu: Royal Government of Bhutan; 2025.
3. National One Health Symposium. Proceedings of the 5th National One Health Symposium; 2025 May 14-16; Thimphu, Bhutan. Thimphu: Ministry of Health; 2025.
4. Nature4Health. Proposal on One Health partnerships. Nature4Health; 2025.



Review of joint curriculum for diploma training on laboratory technology using one health approach, June 2025, Paro, Bhutan

Implementing One Health: Country experiences and lessons learnt is a series of case studies showcasing practical examples of how the One Health approach is applied at national and local levels. The series highlights multisectoral collaboration across human, animal, and environmental health sectors, demonstrating how countries operationalize the One Health Joint Plan of Action (OH JPA) to address complex health challenges. Each case study provides insights into the strategies, interventions, and tools used to strengthen surveillance, improve risk management, and support evidence-based decision-making. By capturing successes, challenges, and lessons learned, this collection serves as a resource for policymakers, practitioners, and partners to inform the adaptation and scaling up of One Health initiatives globally, reinforcing the value of integrated approaches for health security and sustainable development.

Implementing One Health Case Studies is an initiative of the One Health team at the World Organisation for Animal Health (WOAH) Headquarters, under the leadership of **Dr. Chadia Wannous**, WOAH OH Global Coordinator, and support of **Kurmanzhan Dastanbek**, WOAH OH Project Manager.

This case study was developed by **Dr. N Dahal**, One Health Focal, Animal Health, Department of Livestock, with support from **Kinzang Dukpa**, WOAH Regional OH Coordinator in Asia & the Pacific.