

## VIEW POINT

# One Health Approach in Nepal

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## ABSTRACT

One health is a collaborative, trans-sectional and multidisciplinary approach that interlinks holistic efforts to reduce health threats at the human-animal-ecosystem interface. It also emphasizes the importance of community engagement, education, and capacity building to promote sustainable health practices and reduce health disparities. Human medicine and veterinary medicine have been studied together with eco-health as a collective one health concept. Emerging, re-emerging, and endemic zoonosis, neglected tropical diseases, vector-borne diseases, antimicrobial resistance, food safety and security, environmental contamination and climate change are the issues that can be addressed with One Health. One Health also has great economic utilities. Concept of One Health is still in its infancy in Nepal but is growing gradually. One health (OH) approach has become limited to few funded projects only. Poor organizational structure to support One Health, absence of adequate legal framework to implement One Health, inadequate co-ordination among different governmental agencies, insufficient technical expertise, substandard data sharing mechanism across sectors, limited budget allocation and poor understanding at political level are the major challenges in effective execution of one health approach in Nepal. It is the need of time that all concerned stakeholders and sectors in Nepal show strong commitment to execute this holistic approach. It can lay a foundation to meet targets of sustainable development goals too.

**Keywords:** One Health, antimicrobial resistance, vector-borne diseases, emerging diseases, sustainable development goals

## INTRODUCTION

One health is a collaborative, multi-sectional and transdisciplinary approach that interlinks holistic efforts to reduce health threats at the human-animal-ecosystem interface.<sup>1</sup> The essence of one health approach is the recognition that the health of humans, animals, and the environment are interconnected and interdependent. It is an integrated and multidisciplinary approach that aims to address complex health challenges by considering the health of all species and ecosystems.<sup>2</sup> The one health approach involves partnerships between healthcare professionals, veterinarians, environmental scientists, and other stakeholders to promote preventive

measures, early detection, and effective management of diseases and health risks that affect multiple species and ecosystems.<sup>3,4</sup> It also emphasizes the importance of community engagement, education, and capacity building to promote sustainable health practices and reduce health disparities.<sup>1</sup> Ultimately, the one health approach aims to improve overall health and wellbeing for all species and ecosystems.

One health issues include emerging, re-emerging, and endemic zoonotic diseases, neglected tropical diseases, vector-borne diseases, antimicrobial resistance, food safety and security, environmental contamination, climate change and other health threats shared by people, animals and the environment.<sup>2-6</sup>

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With the rise in population across the globe, interacting pattern between human, animals and their environment has changed. Close contact with animals and their environment increases chance for diseases to transmit between humans and animals. Animals are not merely the source of food; they have become closer as means of recreation too. The human encroachment to wildlife habitat has also made them closer. Similarly, the global territory has constricted with increasing travel and trade. The infection has thus widespread from a small community to pandemic level.<sup>6</sup>

Scientists have been discussing on similarity pattern as well as association among animals and humans since 1800s, but until the 20<sup>th</sup> century, animal and human medicine was applied discretely.<sup>1,4</sup> However, since early 21<sup>st</sup> century, human medicine and veterinary medicine have been studied together with eco-health as a collective one health concept.<sup>1,2</sup> It is continuously advocated by the World Organization for Animal Health (WOAH), World Health Organization (WHO) and Food and Agriculture Organization (FAO) since early 2000.

One Health also has great economic utilities. The World Bank estimates that One Health will have expected benefit of at least US \$ 37 billion annually to the world community. Only less than 10% of these gains are enough as investment on prevention.<sup>7</sup>

### Essence of One Health in Nepal

Like other low middle income nations, Nepal also lacks stringent health policies and efficient health systems. 28.6% population is multidimensionally poor in Nepal with malnutrition being a significant concern.<sup>9</sup> Lack of safe water and sanitation has been creating public health issues such as diarrheal outbreaks in Jajarkot and Rukum (2009), Rautahat (2014), Kapilvastu (2021) and cholera outbreak in Kathmandu valley (2022) as few representative cases. Many vector borne diseases like dengue, malaria are endemic to Nepal along with emerging cases of scrub typhus. Recent dengue outbreak of 2019, 2022 and 2023 showed that infection is scaling up from lowlands to highlands affecting almost all districts of Nepal<sup>10</sup>. Recent pandemic of COVID-19 from 2020 onwards has also shown how quaky can the health system become during emergencies and period of rapid response.

AMR (Antimicrobial Resistance) surveillance has started in Nepal since 1999 but still there is no nation-wide data coverage. The AMR data analysis from 26 sentinel sites depicts a devastating scenario with average percentage of multidrug resistant isolates to be 39.43% among WHO AMR priority pathogens<sup>8</sup>. Moreover, interdepartmental data reporting and sharing mechanism is very poor. Annual budget allocation in health sector is also low; only 4.8% in 2023/24. All these issues on public health and health systems should be addressed in an integrated way by understanding the co-benefits, risks, trade-offs and opportunities. Root causes and links between risks and impacts need to be identified. The silent pandemic of AMR can only be curbed by preventing development of environmental resistomes and zoonotic transfer. One health is the foundation to all.

### One Health Status in Nepal

Concept of One Health is still in its infancy in Nepal but is increasingly growing since avian influenza outbreak in 2009. In the past, government of Nepal has followed One Health approach to some extent in the control of Rabies and Japanese Encephalitis. But the co-ordination mechanism was not efficient as expected. This approach was emphasized recently during World Bank funded Avian Influenza Control Project (AICP 2007-11) and Zoonotic Disease Control Project (ZCP 2012-14).<sup>3</sup> Currently, the Fleming Fund Country Grant together with the WHO is working on Antimicrobial Resistance Surveillance in Nepal under one health approach.<sup>8</sup> Government of Nepal has also formulated one health strategy in 2019 and action plans of ministry of health also emphasize one health initiatives to address the full spectrum of disease control and strengthening health system. One health (OH) approach has become limited to few funded projects only. It is the need of time that all concerned stakeholders including academia and sectors in Nepal show strong commitment to execute this holistic approach.

### CHALLENGES AND FUTURE PROSPECTS

Strategic framework and policy formulation are strong in paper, but precise implementation is lacking. Poor organizational structure to support One Health, absence of adequate legal framework

to implement One Health, inadequate co-ordination among different governmental agencies, insufficient technical expertise, substandard data sharing mechanism across sectors, limited budget allocation and poor understanding at political level are the major challenges in effective execution of one health approach in low middle income countries like Nepal.<sup>3,5,6</sup> Despite all these, proper co-ordination among three tiers of government and its sectoral stakeholders can rejuvenate most of the absurd processes within and pave the way to glorified implementation. However, social aspect of One Health should never be neglected. Strengthening societies, community mobilization and mass awareness are pillars to succeed. Female community health workers, female volunteers, mother groups, tole reform committees, local government, core leadership groups of community, various social organization etc. present all over nation could be the added advantages to Nepal, if independent but chained working mechanism can be established.

## CONCLUSION AND RECOMMENDATIONS

One Health is practiced in very sub-optimal way in Nepal. Nepal has witnessed fragility in its ragged health systems time and again when struck with pandemics like COVID 19, zoonosis like Avian flu, other Influenza, vector borne diseases like malaria, dengue and scrub typhus, WASH related infections such as cholera or diarrhea outbreak during disaster or monsoon, and many more. More than half period for attaining sustainable development goals have already passed. Health is the reflective indicator of successful sustainable development. Health targets as subset of goal 3 can only be achieved by linking it with other contributors such as poverty reduction (goal 1), nutrition (goal 2), provision of quality education (goal 3), violence against women (goal 5), water and sanitation (goal 6). Thus, rational and prompt application of one health approach can lay a way forward to co-beneficial advancement on gaining equitable and holistic solutions.

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