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# Ground zero for pandemic prevention: reinforcing environmental sector integration

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## TOWARDS A WHOLE-OF-SOCIETY APPROACH TO HEALTH

In principle, global leaders, national and regional governments, multilateral organisations and civil society widely recognise that an intact and functioning environment is critical for public health. International treaties and regulations enshrine health as a fundamental human right, global good and social asset. Yet in practice, greater environmental and public health sector cooperation and action are urgently required to fully realise a wholeof-society approach to health, to address the threat of future pandemics and to protect the environment for the benefit of all individuals.

We must initiate and implement a framework that comprehensively integrates the environment with health, a framework that currently exists predominantly only on paper. The historic 1986 Ottawa Charter for Health Promotion identified sustainability and a resilient ecosystem as crucial conditions and resources for promoting good health.<sup>1</sup> More recently, the myriad of COVID-19 pandemic statements at global, regional and national levels and across sectors underscored the intrinsic and inseparable relationships between the health of animals, people and their shared environment and advocated for a One Health approach. Significantly, in March 2022, the incorporation of the UN Environment Programme into the existing Tripartite partnership for One Health of the Food and Agriculture Organisation of the United Nations, the World Organisation for Animal Health (WOAH) and the WHO amplified integration of the environment into the One Health approach.<sup>2</sup>

Clearly, in a world of polycrisis—climate change, biodiversity loss, emerging infectious diseases and global inequities—addressing root-cause drivers such as tropical and subtropical deforestation, improving health

#### SUMMARY BOX

- ⇒ The global public health sector acknowledges an intact functioning environment as foundational to human health in principle but not in practice.
- ⇒ To effectively prevent pandemics and achieve the United Nations Sustainable Development Goals, it is essential to fully and equitably integrate the environmental sector into global public health and embrace prevention at the source.
- ⇒ The implementation of the WildHealthNet approach in countries such as Cambodia, Viet Nam and the Lao People's Democratic Republic (Lao PDR) has led to the early detection of threats to human and livestock health, manifesting the importance of such wildlife health surveillance systems.
- ⇒ True environmental integration necessitates the creation of innovative institutional partnerships, cross-sectoral policy structures, sustainable funding models and an inclusive conversation involving local communities, Indigenous Leaders, and Traditional Knowledge.

and economic security of communities living in emerging infectious disease hotspots, enhancing biosecurity in animal husbandry, shutting down or strictly regulating wildlife markets and trade and expanding pathogen surveillance in wildlife are not just conservation concerns but fundamental actions for human health. The Lancet editorial board recently highlighted that the One Health approach inherently necessitates the reduction of human impact on the environment, which is a significant medical intervention in its own right.<sup>3</sup>

However, the persistence of traditional administrative silos and budgetary barriers hobbles efforts to tackle pressing upstream environmental drivers of health. High-level statements outlining the triad of pandemic prevention-preparedness-response were not acted on, and today, the public health sector still narrowly focuses on preparedness and response.<sup>4</sup> This focus neglects primary prevention that addresses pathogen spillovers at the outset while discounting massive economic benefits of such preventive measures.

## REINFORCING ONE HEALTH WITH NETWORKS OF ENVIRONMENTAL ACTORS

The public health sector needs to expand beyond the existing social-ecological model and equip itself to address and integrate the upstream environmental determinants of health. Despite heightened awareness of persistent zoonotic-origin pandemic threats and explicit directives from international policies, comprehensive monitoring of wildlife and the environment as an integral component of global health security is lacking. The environmental sector is often forgotten or relegated to the sidelines in both national and global strategies for pandemic preparedness and mitigation.<sup>5</sup> A recent evaluation concluded that current health security priorities and planning overlook the critical role of wildlife and environmental factors in preventing pandemics.<sup>6</sup> This finding suggests that there has been little progress since a 2012 World Bank assessment emphasised the need for a significant increase in resources and intersectoral collaboration towards One Health approaches to effectively contribute to the early detection and control of zoonotic diseases.<sup>7</sup> The gaps in systematic risk-based wildlife and environmental monitoring create significant blind spots in our capacity to detect the emergence of new pathogens, evaluate the links to environmental changes, and understand their spread and transmission patterns.

Insufficient functional inclusion of the environmental sector in pandemic preparedness results from a lack of investment and institutional coordination, not from a lack of solutions (figure 1). WildHealthNet, developed by



Figure 1 Institutional coordination and collaboration with the environmental sector to enhance public health is essential not just for averting pandemics but also for mitigating adverse health consequences arising from climate change and the decline of biodiversity.

the Wildlife Conservation Society, is one such solution to enhancing public health and One Health. It constitutes a roadmap to support countries in developing their own locally relevant and locally led wildlife health surveillance systems that further the global objectives of pandemic prevention at source.

WildHealthNet builds on strong partnerships with local governments and leverages existing resources (human and infrastructure) from multiple sectors to rapidly operationalise wildlife health surveillance. Through four core components, WildHealthNet uses iterative field implementation and policy development (WildHealth-Build), capacity bridging (WildHealthSkills), improved data collection and management systems (WildHealth-Tech) and implementation of context-specific responses to wildlife health intelligence (WildHealthResponse) to develop wildlife surveillance networks. Adapting the already widely used Spatial Monitoring And Reporting Tools (SMART) for Health data collection as part of WildHealthTech is a compelling illustration of how Wild-HealthNet leverages the existing footprint and expertise of the environmental sector in generating health intelligence. Initially developed for protected area law enforcement and monitoring, SMART is a suite of opensource, freely available tools to collect, store, communicate and evaluate data across conservation areas. SMART is deployed in over 1000 sites across 6 continents, at the front lines of wildlife extraction, land-use change and other anthropogenic encroachment where contacts between wildlife, humans and domestic animals are expanding and increasing. Implementing the Wild-HealthNet approach in Cambodia, Viet Nam and Lao PDR led to the early detection of threats to livestock and human health (including a significant transnational outbreak of Highly Pathogenic Avian Influenza) and resulted in the expansion of functional wildlife surveillance systems across the two countries.<sup>8</sup> In 2022, the Lao PDR government formally recognised its wildlife surveillance network by adopting a Standard Operating Procedure, and now WildHealthNet is being implemented by partners in countries in Latin America and Africa.

#### **CONCLUSION: FROM SILOS TO SYSTEMS**

While progress has been made by organisations like WOAH towards global standardisation and reporting of wildlife diseases, it is initiatives like WildHealthNet that create the networks of eyes in the field and boots on the ground to generate the standardised surveillance data so critical to global pandemic prevention and preparedness. However, expanding the impact of this initiative will require innovative institutional partnerships, supported by cross-sectoral policy structures and sustainable and inclusive funding models.<sup>9</sup>

Fully and equitably integrating the environmental sector is necessary to put the ambitious high-level declarations on One Health and pandemic prevention into practice. It is revealing that the recent One Health High-Level Expert Panel Joint Plan of Action felt it needed to dedicate a specific action track to 'Integrate the Environment into One Health<sup>10</sup> A One Health whole-of-government and society approach must create structures and budgetary policies to integrate and collaborate with the environmental sectors while welcoming Indigenous Leaders and Traditional Knowledge to participate in an inclusive, safe and equitable conversation where all voices are heard. Institutions will need to revisit and expand their existing missions or terms of reference to better enable cross-sectoral collaboration and One Health implementation. The health sector must embrace environmental integration and prevention at source and advocate for One Health actions in International Health Regulations-Joint External Evaluations, the Global Health Security Agenda and related national action planning for health security.<sup>11</sup> As we move forward, it is crucial that we fully consider intact and functioning environments in an expanded social-ecological model of health. Doing so will be key to preventing not only pandemics but also other deleterious health impacts stemming from climate change and biodiversity loss, and progressing more holistically towards Sustainable Development Goals.

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