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To handle zoonoses better, Indigenous people must be included in policy making

Integrating traditional knowledge with science will make the One Health strategy more effective

By [Abhishek Padhi](#) & [Ashwini Agarwal](#)





For a better One Health strategy, India needs to integrate indigenous knowledge with the scientific framework that guide national health policies. Credit: Subhra Priyadarshini

In densely populated countries like India, where shifts in climate directly impact disease dynamics, public health emergencies are increasingly being linked to climate change. The influence of El Niño patterns on weather conditions affecting the spread of infectious diseases underlines this¹.

Health officials in India have been consulting some Indigenous communities in formulating and executing zoonotic disease policies. These sporadic efforts leverage the traditional ecological knowledge of these communities while ensuring that health policies are culturally resonant and practical for diverse ecological zones. However, several gaps remain in fully and formally recognizing and integrating this knowledge into the scientific framework that guide national health policies.

Several examples of traditional health practices and zoonotic disease management have been documented among India's Indigenous tribes. The Siddis of Karnataka, known for their genetic diversity, and knowledge of traditional herbs, use local flora for treating a variety of ailments². In Assam, the Bodo tribe uses 37 species of [medicinal plants](#) to treat malaria. In central India, [Gond communities](#), supplement primary healthcare needs with their knowledge of medicinal plants. As pastoralists, the [Rabaris](#) of the Kachchh region extensively use ethnoveterinary medicines, using their knowledge of local plant properties to treat both livestock and human diseases.

Similarly, in [Maharashtra](#), the Warli tribe's use of medicinal plants to treat vector-borne diseases like malaria, has led to their inclusion in the state's health department-led initiative to integrate traditional herbal medicines into mainstream malaria prevention programmes. The Bhils have been engaged in the Rajasthan government's

initiatives to monitor and control the spread of scrub typhus, a disease endemic to their region. The Bhils contribute to community-led surveillance of local vector populations. In India's [north-east](#), the Khasi and Jaintia tribes work with Meghalaya state programmes using ecological knowledge of edible and medicinal plants to prevent and treat conditions like Japanese encephalitis.

The government organizes consultative workshops in tribal areas to gather input on public health policies. For example, in 2019, the Ministry of Health conducted workshops in Jharkhand and Chhattisgarh, where local tribal health practitioners were invited to discuss their traditional health practices and insights into local disease patterns. These workshops helped inform the National Guidelines for Zoonotic Disease Management, ensuring the guidelines were adapted to local contexts. States with significant tribal populations, such as Odisha and Madhya Pradesh, have established tribal advisory committees to ensure that the state's health strategies are aligned with the needs and preferences of Indigenous communities, particularly in zoonotic disease prevention and control.

However, systematic studies to validate and integrate traditional practices into mainstream health advisories are lacking. There is also a scarcity of longitudinal studies examining the long-term effects of using Indigenous knowledge in public health strategies, particularly in the context of zoonotic diseases.

Some examples of such effective integration could easily be replicated. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 empowers tribal communities to use and manage forest resources sustainably. Its health implications are significant, as it allows tribes to maintain ecological balances critical in managing zoonotic reservoirs and vectors. For instance, the act has enabled tribes in the Western Ghats to protect their traditional herbal remedies that are vital in treating locally prevalent zoonotic diseases.

Likewise, in Tamil Nadu's Nilgiri Biosphere Reserve, tribal communities have been instrumental in a community-led surveillance programme to keep in check Kyasanur Forest Disease, a tick-borne viral disease. This initiative has led to timely updates to health officials about potential outbreaks and has helped in tailoring health messages and interventions that are culturally appropriate for the local communities.

The One Health approach, integrating human, animal, and environmental health, offers a robust framework to tackle the myriad challenges posed by climate change. By considering the health of ecosystems and wildlife alongside human health, this approach supports comprehensive disease surveillance and control strategies that pre-emptively address the roots of infectious outbreaks. India's National Action Plan on Climate Change and Health includes strategies to enhance veterinary health infrastructure for monitoring and controlling zoonotic diseases more effectively. The National One Health Platform and Coordinating Zoonoses (NOHP-PCZ), brings together veterinarians, medical practitioners, wildlife experts, and environmental scientists to facilitate a coordinated response to zoonotic diseases.

A recent study examined how India's diverse ecological zones influence the prevalence of diseases such as kala-azar in the Gangetic plains and malaria in the northeastern jungles³. It highlighted the critical role of local ecological and climatic conditions in disease transmission, suggesting targeted interventions for effective disease management. Another study projected a significant expansion of vector-borne diseases into previously non-endemic areas of northern India, driven by increased temperatures and altered precipitation patterns⁴. This expansion necessitates a re-evaluation of current health strategies to accommodate these new risks.

The challenges posed by climate change demand a unified response that bridges the gap between environmental changes and public health strategies.

The active participation of Indigenous tribes in policy-making will not only enhance the cultural appropriateness of health interventions but also utilize their extensive knowledge of local biodiversity, crucial for managing zoonotic diseases effectively. Addressing research gaps will further empower these communities and enhance the overall effectiveness of India's public health strategies.

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[The authors are at the Department of Microbiology, All India Institute of Medical Sciences (AIIMS), Rajkot, Gujarat, India.]

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