# Community-based surveillance and community engagement for One Health disease prevention

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**Summary**
Recent health crises have highlighted the fragility of health and governance systems in contexts exposed to strong environmental, climatic, and socio-economic pressures. Emerging diseases and pandemics have caused major human, economic, and environmental losses, reinforcing the consensus that prevention is more effective and less costly than crisis response. The One Health approach, as defined by the Quadripartite (WHO, WOAH, FAO, UNEP), provides an integrated framework linking human, animal, and ecosystem health and emphasises prevention through strengthened territorial resilience and cross-sector collaboration.

This presentation draws on evidence generated through Cirad and PREZODE initiative associated operational projects implemented in Africa and Southeast Asia, including AfriCam, BCOMING, EBOSURSY, Santé et Territoires, and ASEACA. Across multiple study sites in Guinea, Madagascar, Gabon, Vietnam, and other countries, researchers, public authorities, veterinary and health services, environmental actors, and community organisations have tested operational approaches for community-based surveillance and prevention.

Results demonstrate that communities are often the first to observe early warning signals such as unusual animal mortality, environmental degradation, or symptoms in humans. Community-based surveillance systems improve the speed, sensitivity, and quality of health alert management while strengthening trust between populations and institutions. Community agents act as critical intermediaries between local actors and technical services, facilitating information sharing, awareness-raising, mediation, and rapid response. Systems co-designed with communities and territorial stakeholders show stronger ownership, greater sustainability, and improved effectiveness in risk reduction.

Several operational lessons emerged consistently across countries. First, prevention is most effective when human, animal, and environmental sectors collaborate around shared local challenges. Second, governance mechanisms that clearly define roles and responsibilities across territorial and institutional levels improve coordination and responsiveness. Third, long-term investment in training, recognition, and support for community agents is essential for sustainability.

The presentation will discuss how these findings contribute to operationalising One Health prevention strategies and strengthening the science–policy–society interface. It will also highlight the relatively low cost of implementing community-based prevention systems compared with the economic burden of health crises. Finally, recommendations will be proposed for scaling up territorially anchored prevention systems through dedicated funding, continuous multidisciplinary training, participatory governance, and stronger integration between local and national levels.

**Introduction**
Recent epidemics have demonstrated the limitations of reactive health systems and the need to strengthen prevention capacities. While prevention is widely recognised as more cost-effective than crisis management, investments continue to focus primarily on emergency response. At the same time, the One Health framework has gained prominence as an integrated approach linking human, animal, and environmental health.

Communities living at the interface between people, animals, and ecosystems are often the first to detect signals associated with emerging health threats. However, despite their frontline role, local actors remain insufficiently integrated into formal prevention and surveillance systems. This presentation explores how community engagement can strengthen One Health prevention and surveillance strategies.

**Methods**
This presentation synthesises operational and research experiences conducted in partnerships in Africa and Southeast Asia. Case studies from Guinea, Madagascar, Gabon, Vietnam, Senegal, Cambodia, and other countries were reviewed to identify key factors associated with effective community-based prevention and surveillance.

The analysis focused on:
- community-based surveillance mechanisms;
- interactions between communities and institutional actors;
- governance and coordination processes;
- training and support systems for community agents;
- integration of human, animal, and environmental health dimensions;
- operational sustainability and scalability.

Lessons learned were analysed qualitatively to identify recurrent operational determinants of successful prevention systems.

**Results**
*Community agents as key actors in prevention*
In several countries, community agents contribute to surveillance, awareness-raising, mediation, and alert systems. Their proximity to local populations enables rapid detection of unusual events and strengthens the connection between communities, researchers, and technical services. However, lack of formal recognition and limited financial support threaten the sustainability of these systems.

*Territorial anchoring strengthens sustainability*
Experiences in Madagascar demonstrated that prevention systems are more sustainable when integrated into territorial governance mechanisms and linked with local authorities and national One Health platforms. Co-design with local stakeholders improves ownership and continuity of actions.

*Linking environmental management and health prevention*
In Gabon, community organisations involved in forest resource management also contributed to zoonotic risk prevention and environmental surveillance. Integrating health prevention into natural resource management strengthened local engagement and facilitated early warning mechanisms.

*Building science–policy–society dialogue*
The Vietnamese One Health Partnership illustrates the importance of structured coordination between ministries, researchers, and technical actors. However, stronger integration of communities and territorial dialogue spaces remains necessary to ensure effective local implementation.

*Cross-cutting operational lessons*
Across all contexts, successful systems relied on:
- collaboration between human, animal, and environmental health sectors;
- clear governance and information-sharing mechanisms;
- recognition and support of community agents;
- participatory design approaches;
- long-term investment in training and local capacities.

These systems were shown to improve early detection, responsiveness, trust, and local ownership while remaining relatively low-cost compared with the consequences of health crises.

**Discussion**
The findings demonstrate that operationalising One Health prevention requires moving beyond top-down surveillance models toward territorially anchored and participatory systems. Prevention effectiveness depends not only on technical tools but also on governance, trust, community engagement, and sustainable financing.

The experiences presented show that community-based approaches can strengthen resilience, facilitate rapid detection of emerging risks, and support integration across sectors. They also highlight the importance of

bridging local knowledge with institutional decision-making processes.

A major challenge remains the sustainability and scaling-up of these systems. Community agents frequently operate without formal status or stable resources, and prevention initiatives often depend on short-term projects. Embedding prevention within national One Health strategies therefore requires dedicated long-term funding, institutional recognition, and multidisciplinary training systems.

**Conclusion**

Preventing epidemics requires operationalising the One Health approach through stronger engagement of local communities. Experiences generated through PREZODE and associated projects demonstrate that community-based prevention systems are feasible, effective, and affordable.

The key challenge is no longer primarily technical but political and strategic: ensuring that prevention becomes a sustained public investment rather than a temporary response to crises. Strengthening dialogue between science, policy, and society, while supporting territorially anchored surveillance systems, will be essential to improving preparedness and resilience against future health threats.

**Keywords:** One Health, community surveillance, prevention, zoonotic diseases, PREZODE.

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