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Engaging communities to put disease prevention and the One Health approach into practice

Recent health crises have highlighted the fragility of health and governance systems, particularly in contexts marked by high environmental, climatic, and socio-economic pressures. At the international level, these crises weaken the stability of States, exacerbate inequalities, and generate considerable costs of various kinds (human health and well-being, economic production, biodiversity). In the face of this acceleration, a consensus is emerging: prevention is better than response. In this context, the One Health approach, in its internationally [adopted definition by the Quadripartite \(WHO, WOAHA, FAO and UNEP\)](#), proposes an integrated framework based on the interdependence of animal, human and ecosystem health. It aims to act upstream of crises, by addressing the systemic determinants of health risks and by strengthening the resilience of territories. This approach explicitly recognises the role of local stakeholders and communities in prevention efforts. Beyond acute crises, strengthening community-based surveillance and prevention systems facilitates the raising of alerts to health services, the continuity of awareness-raising activities, and local ownership of health measures.

CONTEXT

The consequences of inaction are considerable. Since 2001, emerging diseases and pandemics have caused more than 15 million deaths and generated approximately 4 trillion dollars in economic losses worldwide (World Bank, 2022). To these figures must be added the health impacts of these crises on food systems and water quality. Investing in prevention is structurally less costly than managing these consequences (IPBES, 2019). The World Bank estimates that investing in prevention would represent less than 1% of the cost of managing and addressing the impact of recurring health crises. Yet prevention remains overlooked in public policy. The paradox is clear: everyone agrees on its importance, but funding continues to favour crisis management rather than upstream action.

Prevention requires action at the first link in the risk chain. This first link is local. Rural communities exposed to risks — livestock keepers, farmers, territorial stakeholders — are the first to observe early warning signs (unusual animal deaths, environmental degradation, symptoms in humans, etc.) and to be able to act on risky practices (consumption/trade of bushmeat, intensive farming, deforestation, etc.). This consideration of health risks is not limited to zoonotic diseases: these same communities are also affected by malaria, tuberculosis, cholera, etc. Effective prevention therefore necessarily operates through a One Health approach, involving coordination between sectors and levels of governance, as well as implementation at territorial level.

Although they often already play an informal role in the identification and management of health risks at local level, communities remain insufficiently recognised and integrated as stakeholders in public action for detection, alert, reduction, and management of risks. While the principle of community participation is longstanding (United Nations, Rio Declaration, 1992), its operationalisation remains incomplete: local contributions are insufficiently visible in public policies, and mechanisms for coordination, financing, and strengthening local capacities remain fragmented. Health policies are largely top-down and reactive, focused on crisis response rather than on prevention.

Recent research shows that the absence of structured, intersectoral community mechanisms results in delayed detection, an erosion of trust between populations and institutions, and increased costs associated with emergency responses. Conversely, investment in local capacities, the formalisation of dialogue mechanisms, and effective articulation between community and institutional levels constitute major determinants of preventive effectiveness. Operational knowledge and practical mechanisms enabling community participation to become a lever for prevention are now available thanks to these recent research developments. The objection that community-based prevention is neither effective nor, even less, efficient can now be addressed.

KEY MESSAGES

- ▶ Health, environmental and food crises reveal a structural deficit in prevention, compounded by a persistent gap between One Health commitments and their implementation. Yet, at the global level, investing in the prevention of health crises would represent **less than 1% of their economic cost** (impacts and management).
- ▶ **Preventive solutions based on a One Health approach at community level do exist**, are proven, and can be rapidly deployed at scale, provided there is clear commitment from decision-makers and donors.
- ▶ **Local communities are on the front line of emerging and re-emerging health risks**, being both more exposed to these risks and more likely to observe their early warning signs, yet they remain insufficiently recognised by health systems as actors in prevention. Engaging these communities requires taking into account their constraints and needs around shared challenges — an approach which forms the foundation of One Health approaches.

WHAT'S NEW

In recent years, several research studies have tested and operationalised risk prevention through community engagement across a significant number of contexts in Africa, Southeast Asia, and the Caribbean. These activities have been conducted within the framework of the PREZODE initiative, through major projects such as AfriCam, BCOMING, EBOSURSY, SWM, Santé et Territoires, as well as regional surveillance and prevention partnerships led by Cirad.

Across dozens of study sites, involving researchers, veterinary, public health and environmental services, community organisations, and local authorities, these projects have generated data and feedback on the **conditions for the effectiveness** and impact of community-based prevention.

COMMUNITY AGENTS, THE CORNERSTONES OF PREVENTION

In Guinea, prevention systems rely on the engagement of community agents involved in zoonotic risk surveillance, public awareness, rapid response actions, and the reporting of information from the field. Their proximity to communities allows for the early detection of signals indicative of disease presence, particularly in rural interface areas where humans, animals, and the environment interact.

These agents thus constitute **an essential intermediary level** between communities and technical services, as well as a key link with researchers. However, the lack of official status and institutional recognition limits the sustainability and scalability of these systems. In some areas, community agents are unable to maintain a sustainable economic activity due to limited willingness to pay for animal health services, and eventually move to urban centres.

SUSTAINING PREVENTION ACTIONS THROUGH ANCHORING IN TERRITORIAL DYNAMICS

In Madagascar, prevention activities rely on strong territorialisation for the management of actions, in connection with local authorities and decentralised services, combined with engagement with national authorities (ministries, One Health platform). Surveillance and prevention systems are **co-designed with local and national actors**, which promotes their ownership and ensures operational continuity over time.

Local administrative representatives therefore participate actively in these processes; however, their capacity to influence national decisions remains limited. The systems function particularly well when they are integrated into existing frameworks, supported by national authorities, and address concrete shared challenges (human, animal, and environmental health, and livelihoods).

COMMUNITY ENGAGEMENT FOR THE SUSTAINABLE MANAGEMENT OF ENVIRONMENTAL RESOURCES

In Gabon, community associations responsible for the sustainable collective management of forest ecosystems act as a lever for prevention, supporting both health and forest conservation. In a context of heavy reliance on forest resources (hunting, exploitation, domestic use), local communities are on the front line to observe environmental changes, animal mortalities, and to limit risky practices.

The systems developed have strengthened local capacities for community surveillance, linked to the engagement of stakeholders in the sustainable management of forest resources, while improving the flow of information to technical and institutional actors. **Integrating health prevention into natural resource management dynamics** thus enables the establishment of early warning systems, enhances awareness of zoonotic risks, and embeds the One Health approach within tangible local priorities.

By “community” we mean a group of actors (residents, livestock keepers, farmers, local authorities, community organisations, etc.) sharing a territory, practices, resources, and interactions with their environment (MacQueen et al., 2001). A “community agent” is a person from, or recognised by, the community, who acts as an interface between it and institutional systems (human, animal, and environmental health). “Community surveillance” is a monitoring and information-gathering system based on the active engagement of communities in the early identification of unusual events (diseases, animal deaths, environmental changes, etc.).

STRUCTURING STATE–SCIENCE–SOCIETY DIALOGUE TO STRENGTHEN PREVENTION

In Vietnam, the **interministerial One Health Partnership (OHP)** has established a structured dialogue between public authorities and the scientific community, facilitating the gradual integration of research findings into national policies for zoonotic risk prevention. The OHP now serves as a key coordination platform to align health, environmental, and agricultural priorities.

However, direct participation of communities and civil society remains limited, reducing the territorial anchoring of One Health strategies. The Vietnamese experience also highlights the importance of complementing national frameworks with territorially based dialogue spaces.

BEYOND STRATEGIC FRAMEWORKS: LOW-COST OPERATIONAL SOLUTIONS

The tested operational solutions include participatory surveillance tools usable by community agents, prevention or rapid-response measures co-constructed with livestock keepers, farmers, and territorial authorities, as well as information-sharing mechanisms connecting community, regional, and national levels.

Lessons converge around three inseparable levers. **First, a collaborative approach integrating communities** and human, animal, and environmental health professionals allows for the identification of shared concrete challenges, common risk determinants, and early warning signs, while avoiding fragmented or delayed sectoral responses. **Second, shared governance**, formalising the roles and responsibilities of different types and levels of actors, improves engagement and accountability, information flow, and responsiveness at both local and institutional levels. **Third, structured community involvement, through trained actors recognised by the community** and connected to technical services, is a key determinant of sustainability and effectiveness.

These solutions are low-cost: between \$3 and \$10 million per country to develop, with approximately 30% of that cost per year to maintain.

All these results demonstrate that:

► **Community-based surveillance allows local needs and constraints to be taken into account**, improves the speed, sensitivity, and quality of health alert handling, increases the likelihood of event detection, and reduces the delay between local observation, alerting, and the implementation of preventive measures;

► **Community agents play a crucial interface role between communities, technical services, and national authorities**, helping to strengthen trust, clarify roles and responsibilities, and thereby promote adherence to surveillance and risk prevention measures validated by the communities;

► **Systems co-designed with communities achieve better local ownership**, greater continuity over time, and increased effectiveness in risk reduction. People mobilise spontaneously to protect themselves and their communities.

RECOMMENDATIONS

Research confirms that prevention cannot simply be decreed: it must be organised from the territories, by and for the actors of those territories, taking into account their practices, socio-economic constraints, and the institutional dynamics specific to each context. Work by our teams and partners shows that community-based prevention is effective when it is structured, recognised, and supported by a robust long-term economic model.

PROVIDING PROFESSIONAL STATUS AND RESOURCES TO COMMUNITY AGENTS

These actors play a key local role but often remain, depending on the country and sector, without formal status, institutional recognition, a clear mandate, or adequate resources; the economic model supporting their activities remains fragile and uneven. This structural weakness limits the sustainability and scalability of the systems.

It is therefore essential to identify, train, and officially recognise One Health community agents, endowed with an explicit mandate for surveillance, awareness-raising, mediation, and alerting. Their legitimacy must be guaranteed both within communities and with technical services across the three sectors, with sufficient resources to fulfil their role. Without this structuring of the intermediary level between local actors and health systems, prevention remains dependent on ad hoc projects and cannot be sustainably integrated into national systems.

INVESTING IN TRAINING AND LONG-TERM SUPPORT

The quality and sustainability of prevention depend directly on local capacities. Training community agents or technical service staff cannot be a standalone action. It requires the development of continuous, multidisciplinary, territorially anchored training systems that integrate human, animal, and environmental health.

The aim is to invest in training trainers, thereby embedding skills within national and regional institutions and reducing dependence on external expertise. Existing universities, research centres, and training institutes should be mobilised as key partners. Involving civil society organisations and NGOs in training, deployment, and support for implementation (supervision, coordination, etc.) enhances relevance and local ownership. Experience shows that when capacities are strengthened over time, prevention becomes more responsive, credible, and effective.

ENGAGING COMMUNITIES IN THE CO-DESIGN OF THEIR SURVEILLANCE SYSTEM

Top-down systems struggle to achieve long-term sustainability. In contrast, when communities, local actors, and national authorities all participate in the design of risk surveillance and management systems, ownership is stronger and actions are more durable.

Integrating local knowledge from the design phase allows for a more precise identification of risky practices, socio-economic constraints, and acceptable intervention levers. Participatory approaches strengthen trust between local actors, researchers, and public authorities. They also enable the alignment of health prevention with concrete challenges, such as sustainable natural resource management or the safeguarding of livelihoods.

BUILDING BRIDGES BETWEEN LOCAL AND NATIONAL LEVELS, RESEARCH AND DECISION-MAKING

It is necessary to develop or strengthen continuous dialogue spaces between local communities, decision-makers, and scientists at different territorial scales. The example of Vietnam's interministerial One Health platform demonstrates the value of a national coordination framework; field experiences indicate that it must be complemented by territorially based spaces fully integrating

communities. Prevention thus becomes a shared process rather than a top-down directive. These dialogue mechanisms also play a key role in highlighting research findings, co-designing public policies, and aligning scientific priorities with the needs of decision-makers.

FUNDING PREVENTION

It is essential to allocate dedicated funding for community-based prevention within One Health strategies, including through domestic resources. This funding should be multi-year, coordinated across sectors, and integrated into public policies to avoid the pattern of isolated pilot projects. Impact evaluation should not be limited to health indicators but must also consider economic, social, and environmental benefits.

Investing in prevention is not a luxury; it is a strategic choice. Evidence gathered through PREZODE shows that it is possible, at low cost, to establish effective systems that are territorially anchored and capable of improving early detection, intersectoral coordination, and community engagement.

RECOMMENDATIONS IN BRIEF

- ▶ **Identify, recognise, and train community agents** capable of linking local knowledge with national systems. Assign them clear responsibilities: surveillance, awareness-raising, reporting, and mediation. Provide them with a mandate, legitimacy, and sufficient resources to work rapidly and cross-sectorally in the field alongside agents from all three sectors.
- ▶ **Develop appropriate, continuous, multidisciplinary training** (human, animal, and environmental health), including training-of-trainers programmes to ensure the sustainability and relevance of skills. Leverage existing research and training institutions. Involve civil society organisations and NGOs in training, deployment, and support for implementation.
- ▶ **Integrate local knowledge** from the design phase of surveillance systems. Promote participatory approaches to value local knowledge, strengthen ownership and trust, and facilitate the spontaneous mobilisation (empowerment) of communities and local actors in building prevention systems (surveillance and health risk management).
- ▶ **Develop or strengthen continuous State–Science–Society dialogue spaces** to better identify needs, risks, and management solutions. Ensure the scaling-up of effective pilot interventions developed through research.
- ▶ **Allocate dedicated funding for community-based prevention** within One Health policies, including domestic resources. Evaluate impacts not only in terms of health, but also economic and social benefits.

CONCLUSION

Preventing epidemics requires operationalising the One Health approach and recognising the central role of local communities. Research conducted in Africa and Asia shows that this is possible, feasible, low-cost, and effective. The real challenge is no longer primarily technical, but political and strategic.

The question now is: are we ready to fund prevention sustainably, or will we continue to pay the price when crises occur?

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Projects & partnerships

The **international PREZODE initiative** aims to prevent the risks of zoonotic emergence and pandemics. This community now brings together over 280 members and more than thirty signatory countries. PREZODE was founded by three French research institutes: CIRAD, INRAE, and IRD.

The **AfriCam project** aims to help reduce the risk of zoonotic pathogen emergence in five countries: Cambodia, Cameroon, Guinea, Madagascar, and Senegal. It represents one of the first operational components of PREZODE.

The **BCOMING project** seeks to foster innovations to reduce the risk of infectious disease emergence in critical biodiversity areas. Activities are carried out in Cambodia, Côte d'Ivoire, Guadeloupe, and Guinea.

Implemented in ten countries in West and Central Africa, the **EBOSURSY project** contributes to strengthening national and regional capacities for early detection of Ebola virus disease and other emerging diseases linked to wildlife.

The **Santés et Territoires project** aims to improve the quality of life and well-being of local populations through an integrated territorial health approach, by establishing sustainable agroecosystems. It is located in Senegal.

The **ASEACA project** supports and strengthens the implementation of sustainable solutions to prevent the emergence and circulation of zoonoses in three regions: Southeast Asia (Vietnam and the Philippines), Southern and Eastern Africa (Mozambique, Zimbabwe, and Tanzania), and the Caribbean. ASEACA is the 3rd PREZODE operational project.

The **GREASE partnership platform** brings together partners in Southeast Asia working towards better management of health risks, based on One Health approaches.



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