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**Emile Faya Bongono, Castro Gbêmêmali, Aminata Mbaye, Gnouma Laurent Koniono, Sidikiba Sidibé, Tiguidanké Camara, Maladho Diaby, Salifou Talassone Bangoura, Stéphanie Maltais, Simon Ruegg, Alpha Kabinet Keita, Abdoulaye Touré, Alioune Camara**

**Corresponding author:** Emile Faya Bongono, Center for Research and Training in Infectious Diseases of Guinea, Hadja Mafory Campus, Gamal Abdel Nasser University of Conakry, Conakry, Guinea. bongonoemile85@gmail.com

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**Challenges and perspectives of the One Health platforms in the Republic of Guinea, eight years after their creation**

Emile Faya Bongono[1,2,&], Castro Gbêmêmali Hounmenou[1,3], Aminata Mbaye[1], Gnouma Laurent Koniono[1], Sidikiba Sidibé[4], Tiguidanké Camara[1], Maladho Diaby[1,5], Salifou Talassone Bangoura[1,5], Stéphanie Maltais[6], Simon Ruegg[7], Alpha Kabinet Keita[1], Abdoulaye Touré[1,5], Alioune Camara[4]

[1]Center for Research and Training in Infectious Diseases of Guinea, Hadja Mafory Campus, Gamal Abdel Nasser University of Conakry, Conakry, Guinea, [2]Department of Veterinary Medicine, Chair of Infectious and Parasitic Diseases, Higher Institute of Science and Veterinary Medicine of

Dalaba, Dalaba, Guinea, [3]Department of Computer Science, University of Labé, Labé, Guinea, [4]Department of Medical Sciences, Faculty of Health Sciences and Techniques, Gamal Abdel Nasser University of Conakry, Conakry, Guinea, [5]Department of Pharmaceutical and Biological Sciences, Faculty of Health Sciences and Technology, Gamal Abdel Nasser University of Conakry, Conakry, Guinea, [6]Department of Health Management, Evaluation and Policy, School of Public Health, University of Montreal, Montreal, Canada, [7]Section of Epidemiology, Vetsuisse Faculty, University of Zurich, Zurich, Switzerland

**[&]Corresponding author**

Emile Faya Bongono, Center for Research and Training in Infectious Diseases of Guinea, Hadja Mafory Campus, Gamal Abdel Nasser University of Conakry, Conakry, Guinea

## Abstract

***Introduction:*** *the One Health (OH) concept is a collaborative approach that promotes the intersection of human, animal, and environmental Health. The objectives were to analyze the functioning of the One Health platforms in Guinea, identify challenges, and propose strategies.* ***Methods:*** *this qualitative study used a participatory approach implemented during workshops organized at the decentralized and central levels. These workshops were held between May and July 2023 and from 04 to March 5, 2024. We carried out nine workshops, two in Conakry and seven in the regional capitals (N'zérékoré, Kankan, Faranah, Labé, Mamou, Kindia, Boké, and Conakry). The focal points of the regional platforms identified participants.* ***Results:*** *the alluvial diagram highlights the distribution of prioritized challenges identified by the regional One Health platforms in Guinea. It illustrates the connections between regions and grouped challenge categories, with strong emphasis on advocacy, capacity building, logistics (cold chain, transportation, office kits), and governance. For example, Kindia and Labé prioritized the creation of a digital data-sharing platform between health sectors. Faranah and Kankan emphasized strengthening staff capacity to better fight zoonoses. In N´zérékoré, key priorities were related to logistics, especially the lack of iceboxes and transportation means. Boké focused particularly on advocacy for staff recruitment within OH platforms.* ***Conclusion:*** *the workshops helped identify both persistent challenges and actionable opportunities affecting the functionality of One Health platforms in Guinea. Notably, the need to organize regular meetings (CH02) and to create/manage a digital platform for intersectoral data sharing (CH05) emerged as recurring challenges across multiple regions. These shared issues call for coordinated interregional interventions. Conversely, the presence of technical and financial partners, along with the involvement of local authorities, offers concrete opportunities to improve the performance, sustainability, and coordination of regional platforms within a multisectoral health framework.*

## Introduction

One Health is a collaborative approach that promotes the intersection of human, animal, and environmental Health. Workshops were held to identify the challenges and opportunities of the One Health platforms in Guinea. However, opportunities such as the existence of technical and financial partners and the involvement of local authorities offer avenues for improving the functioning of platforms. Veterinary and environmental health to prevent and manage health threats [1,2]. This implies that actors in these areas have an important role in the "One Health" approach at all levels, local, national, and international [3,4].

Zoonoses such as rabies are responsible for approximately 59,000 deaths per year worldwide [5]. Nipah virus in Malaysia, West Nile fever in the United States of America (USA), Severe Acute Respiratory Syndrome (SARS) in Asia

and Canada, Highly Pathogenic Avian Influenza (HPAI) in Asia and Europe, Bovine Spongiform Encephalopathy (BSE) in the USA and the United Kingdom (UK), and Rift Valley Fever (RVF) in East Africa have collectively resulted in losses exceeding 80 billion USD [6]. By March 2023, COVID-19 had killed more than 6.8 million people worldwide and infected over 761 million people globally [7]. The Ebola Virus Disease (EVD) outbreak in West Africa between 2013 and 2016 was of unprecedented magnitude, with more than 28,652 people infected and 11,325 people killed [8].

In the context of outbreaks, studies have shown that a variety of individual behaviors can prevent the emergence of animal diseases. These behaviors include vaccination, good hygiene practices, and research into the treatment of zoonotic diseases [9]. Further research has shown that the One Health platforms are effective in several countries, contributing to improved disease prevention [10,11]. However, despite efforts to ensure the smooth functioning of One Health platforms in several countries in Asia and West Africa, it faces many challenges that understanding is essential for developing effective policies and strategies [9-17]. These problems include a lack of communication and coordination between the different sectors [9,18,19]. Poor regions face many challenges, such as a lack of health infrastructure, inadequate access to care, communication problems, and lack of resources, underlining a preventive approach [20]. However, many sub-Saharan African countries face practical difficulties in implementing it, especially regarding communication between the actors on the ground (livestock breeders, farmers, doctors, and epidemiologists). This communication trap is very common among farmers and ranchers who are not involved in this collaborative approach of One Health and do not benefit from any interest [21]. Dependency on external funding, the need for policy and legal instruments, endemic poverty, and other emerging issues are the main determinants of OH vulnerability in Africa [22]. This creates an environment in which coordination, collection, and use of data become difficult, as do the coordination of monitoring systems and effective use of data [23]. To prevent future pandemics, the One Health approach would be a contribution primarily from human, animal, and environmental health surveillance systems that will make a difference [24].

Nevertheless, there are opportunities to strengthen these platforms. Tripartite collaboration, including the World Health Organization (WHO), the World Organization for Animal Health (WOAH), and the Food and Agriculture Organization of the United Nations (FAO) [25,26]. In November 2020, the United Nations Environment Program (UNEP) joined this tripartite collaboration [27-29]. In Guinea, the outbreaks of ebola, rabies, lassa fever, and COVID-19 have highlighted the importance of an integrated approach to managing zoonoses with potential epidemics [30]. This national platform has been decentralized to the community level and includes various actors, such as the government, non-governmental organization (NGO), and local communities [31,32]. These platforms use surveillance primarily for outbreak response. Despite these achievements, the national OH platform of Guinea is facing several challenges, including a lack of communication and coordination between different sectors, financial and technical resources, and the centralization of initiatives. This study, therefore, aims to analyze One Health platforms to identify the main challenges and propose effective strategies in Guinea.

## Methods

**Study type and period:** this was a qualitative study based on a participatory approach, conducted through workshops organized at both decentralized and central levels. Participants included focal points from the eight regional One Health platforms, professionals, and technical and financial partners involved in One Health-related

activities. These workshops were conducted between May and July 2023 and from March 4 to 5, 2024.

**Workshop organization:** a total of nine workshops were held: two in Conakry and seven in the regional capitals (N'zérékoré, Kankan, Faranah, Labé, Mamou, Kindia, Boké, and Conakry).

**Participant identification:** the president of the national One Health platform invited focal points to identify participants through formal letters. For each regional platform, 20 participants were invited to attend the workshops. These two-day seminars aimed to introduce the systemic approach in the context of zoonotic epidemics. At the end of the sessions, participants were asked to complete reporting sheets outlining the challenges and opportunities faced by their respective platforms. Participants were primarily drawn from the three key sectors (human health, animal health, and environment), along with representatives from the media, civil society organizations, and technical and financial partners based in Guinea. In the human health sector, we identified district health officers, biologists, and community health workers. In the animal health sector, participants included veterinarians in charge of animal health, prefectural directors of livestock, veterinary laboratory biologists, community animal health workers, and mobile veterinary health teams. The environmental sector was represented by nature conservation officers, hunters, and community informants.

Among the technical and financial partners, we identified representatives from the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and the World Organization for Animal Health (WOAH). We also invited representatives of One Health pilot projects in Guinea, as well as local government officials (mayors and neighborhood chiefs). During the workshops, participants were divided into four groups of five, with three facilitators leading the group discussions. After 15 minutes of deliberation, each participant was asked to present the challenges and opportunities identified for their platform. This process continued until all participants had shared their views.

To identify priority challenges, each participant, under facilitator guidance, was invited to select, from a predefined list, the challenges they considered most critical. This process was repeated across all groups. A final tally was conducted to determine the four priority challenges for each platform. This method was applied uniformly across the eight administrative regions of Guinea. The second phase consisted of a national feedback workshop, bringing together all One Health focal points in Guinea. Technical and financial partners were also invited to participate. During this workshop, participants were divided into four groups of five and worked collectively on the overall challenges facing the platforms nationwide. Group discussions and presentations were followed by the development of recommendations. Priority challenges were identified, and strategies were proposed for improving the implementation of the One Health platforms in Guinea.

**Data analysis:** we conducted a qualitative analysis of the textual data collected during the workshops, focusing on the challenges identified by participants across the eight regional One Health platforms. The original dataset was structured as a cross-tabulation, with challenges in rows and health regions in columns. Each cell indicated how frequently a particular challenge was reported in a given region. To enhance readability and reduce visual congestion, we grouped thematically similar or overly long challenge descriptions under simplified and representative labels (e.g., advocacy, capacity building, awareness, transport). A coding table was developed to match original long-form descriptions with these short thematic categories (Table 1). The data analysis and diagram generation were conducted using R software (version 4.5.1; R), particularly with the *ggalluvial* package.

**Ethics and confidentiality:** the study received approval from the National Health Research Ethics Committee (NHREC) of Guinea, under reference number 025/NHREC/23.

## Results

### Organization and functioning of the One Health platform in Guinea

The National One Health Platform in Guinea is built on a multisectoral structure comprising a steering committee, a multisectoral technical coordination committee, a permanent secretariat, technical working groups (TWGs), and Emergency Operations Centers (EOCs). The technical committee ensures technical coordination and action plan development, while the permanent secretariat centralizes TWG reports and provides operational support. The TWGs, divided by thematic areas (e.g., vaccination, surveillance, laboratory), are responsible for implementing specific programs. The steering committee, composed of representatives from ministries and technical and financial partners, meets twice a year to provide strategic guidance. The technical committee, consisting of 18 members, meets monthly to plan activities, analyze information, and prepare for steering committee meetings. The permanent secretariat, made up of 8 members, is responsible for coordination, communication, and activity follow-up. Permanent TWGs, such as the "vaccination, protection, surveillance, and laboratory task force," implement technical interventions. They meet regularly to assess progress, produce reports, and make recommendations. Figure 1 illustrates the functional links between the various coordination and collaboration structures within the One Health system. Blue arrows represent the upward flow of information from the community to national levels, while red arrows indicate feedback and decision-making processes. The green arrow highlights the connections between levels, structures, and their composition. This bidirectional communication mechanism strengthens multisectoral coordination and enables a timely response.

At the national level, the main institutions involved include the Ministry of Health and Public Hygiene (MHPH), the Ministry of Agriculture and Livestock (MAL), and the Ministry of Environment and Sustainable Development (MESA). At the regional level, coordination was ensured by the Regional Health Inspectorate (RHI), the Public Health Emergency Operations Center (PHEOC), the Regional Epidemic Alert and Response Team (REART), the Regional Inspectorate of Agriculture and Livestock (RIAL), and the Regional Inspectorate of Environment and Sustainable Development (RIESD). At the prefectural level, key actors included the Prefectural Health Directorate (PHD), the Prefectural Directorate of Agriculture and Livestock (PDAL), the Prefectural Directorate of Environment and Sustainable Development (PDESD), the Public Health Emergency Operations Center (PHEOC), and the Prefectural Epidemic Alert and Response Team (PEART). At the sub-prefectoral or community level, coordination involved Community Agents (CA) and Community Relays (CR).

### History of zoonotic diseases with epidemic potential in Guinea

Between 2014 and 2024, Guinea experienced several zoonotic disease outbreaks. The ebola outbreak (2014-2016) marked a major shift in the perception of health risks and led to the official establishment of the One Health platform in 2017. On that occasion, nine (9) priority zoonoses were identified for integrated surveillance: rabies, anthrax, ebola, dengue, brucellosis, avian influenza, yellow fever, lassa fever, and rift valley fever. Eight of these nine zoonoses have been subject to prevention and response interventions over the past decade. Anthrax outbreaks were reported between 2018 and 2019, while rabies, yellow fever, and ebola were recorded in 2021. Additionally, Guinea reported its first case of marburg virus disease in 2021, in parallel with the global COVID-19 pandemic.

In 2023, a persistent outbreak of diphtheria and pertussis emerged despite the availability of effective vaccines (Figure 2). The establishment of systems such as the national health security agency and the animal disease surveillance network in Guinea has strengthened national detection capacities. Through these mechanisms, H5N1 avian influenza (2022), chikungunya (2023), and dengue (2024) were detected. In response to the recurrence of viral hemorrhagic fevers, a joint workshop was organized in Conakry in July 2024 by the World Health Organization (WHO) and the West African Health Organization (WAHO), aiming to strengthen preparedness and response plans in West Africa, ten years after the ebola epidemic.

**Identification of challenges for OH regional platforms**

The alluvial diagram highlights the distribution of prioritized challenges identified by the regional One Health platforms in Guinea. It illustrates the connections between regions and grouped challenge categories, with strong emphasis on advocacy, capacity building, logistics (cold chain, transportation, office kits), and governance. For example, Kindia and Labé prioritized the creation of a digital data-sharing platform between health sectors. Faranah and Kankan emphasized strengthening staff capacity to better fight zoonoses. In Nzérékoré, key priorities were related to logistics, especially the lack of iceboxes and transportation means. Boké focused particularly on advocacy for staff recruitment within OH platforms (Figure 3).

**Opportunities**

Platforms have the means of communication and technical and material resources (cold chain, fleets, boxes, megaphones, and rolling supports). Sharing of mobile resources between sectors in the event of an outbreak; availability of personnel, particularly in the health field; equipped regional veterinary diagnostic laboratories; technical and financial support from the technical and financial partners and non-governmental organisations; involvement of local authorities.

## Discussion

Our study described the chronology of outbreaks in Guinea between 2014 and 2024 and the impact of the national platform One Health on zoonotic disease surveillance. Ebola, rage, and yellow fever showed the need for an effective multisectoral coordination structure for monitoring epidemics. The national platform One Health helped prioritize and monitor nine zoonotic diseases. However, challenges related to the lack of coordination persist despite implementing these surveillance systems, such as the national health security agency and the animal disease surveillance network in Guinea could improve the monitoring and management of these outbreaks. Similar studies have been conducted in Zambia, such as the Rudasingwa study in 2022 [33], which showed that universal health coverage policies could improve access to care for vulnerable populations. in contrast, our study found that Guinea has established surveillance systems but needs to strengthen ground coordination. Thus, with Zambia having achieved encouraging results through health financing policies, Guinea has to overcome coordination challenges despite the efforts made in epidemiological monitoring.

We also identified that funding disruption due to economic constraints and/or changing political systems would be one of the barriers to effectively operationalizing platforms at all levels. In addition, the lack of coordination between the health, livestock, environment, and agriculture sectors would limit the effectiveness of interventions. Our results are consistent with those of *Vétérinaire Sans Frontières International 2020 and the Agence Française de Dévelopement 2021*, both of which highlighted the importance of funding and coordination for the success of One Health platforms [34,35].

As part of this study, workshops on the set of eight installed platforms in Guinea revealed major challenges in implementing activities. These challenges are mainly related to a lack of sectoral coordination, limited financial resources, and insufficient technical capacity. These challenges are similar to those identified in other research on the African continent, including studies by Travis *et al.* Munyua *et al.* and Bongutu *et al.* [24-24,36,37], who highlighted the fragmentation of governance and the limited intersectoral coordination in the One Health platforms in Tanzania and Kenya. Another challenge we identified was the lack of knowledge and training skills regarding the One Health approach of some actors involved in One Health activities. These gaps could contribute to effectively implementing the platforms' activities in Guinea. These gaps have also been identified in most regions of Africa, such as Uganda, where Ssekamatte demonstrated in their 2019 study that it is necessary to strengthen continuing education skills on the One Health approach for health professionals, especially those of the environment [38,39].

In our study, we identified a lack of awareness among rural communities about the benefits and issues of the One Health approach. However, community engagement is a crucial aspect of the sustainability of One Health initiatives. This lack of awareness in rural communities would limit the adoption of disease prevention and control measures that Guinea is facing. This aligns with the work of Munyua *et al.* and Akondeng *et al.* [40,41], which showed that raising awareness among local communities would facilitate their participation in the decision-making process and improve their understanding of public health issues and confidence in epidemic prevention and response interventions. This study made it possible to understand that platforms at the decentralized level do not often benefit from financing from technical and financial partners. This remains a central issue that would be one of the causes of health actors' demotivation, especially those in the livestock and environmental sectors. As mentioned by Ifeagwu *et al.* in 2021 [42,43] in their systematic review study on health coverage, the dependence on external funding makes it difficult to continue projects. Our results suggest the need to mobilize national resources to support the One Health national platform to ensure its sustainability of activities instead of forever reaching out. This aspect was also highlighted by Bergman in 2021 in a study carried out in Zambia, which indicated that despite Zambia being reclassified as a lower-middle-income country in 2011, foreign aid continues to represent a significant share of the financing of the Zambian health sector, as it has done for several decades [44,45].

Opportunities identified were mainly the existence of technical and financial partners and the availability of communication means and material resources at the health sector level, such as cold chains, fleets (small telephones), image boxes, megaphones, and rolling stock. In addition, sharing rolling vehicles between health personnel with livestock and environmental personnel for investigations is a major asset. Four regional veterinary diagnostic laboratories have been equipped since 2022, which is an important element for the success of the One Health platforms in Guinea. Similar studies in other countries have identified similar opportunities for One Health platforms. In particular, the WHO 2024 study showed that support from technical and financial partners is essential for the effective implementation of One Health initiatives. Then, CDC 2022 highlighted the importance of communication and technical resources to strengthen the capacity of One Health platforms [46-49].

In terms of perspectives and to take advantage of these challenges, we recommend setting up a dedicated cell for the One Health platform, which is responsible for coordinating the efforts of all stakeholders involved and other stakeholders in its management. Adopt a participatory approach, fostering meetings and interaction between

members of the One Health platforms and other stakeholders. Develop and disseminate a procedure manual for the One Health platforms at national and decentralized levels to facilitate their effective implementation in the field. Invite relevant departments to work with other stakeholders, such as the Ministry of Land Administration and Decentralization (DTAC), to guide new members of the platforms. Organize information, awareness, and orientation sessions for new members at each stage of human resource renewal. Set up a sustainable funding system for the smooth functioning of the platforms, including creating a budget line at the national development budget level, local mobilization of funds, and support from technical and financial partners. Organize regular platform coordination bodies at all levels, with appropriate frequency (weekly, monthly, quarterly, annual) to ensure effective coordination of activities.

## Conclusion

The organization and functioning of the One Health platforms in Guinea are based on a well-defined structure, including bodies such as the steering committee, the technical committee for multisectoral coordination, the permanent secretariat, technical work groups, and emergency operations centers. Despite their creation and responsibilities, these bodies have difficulty working and ensuring good coordination to make strategic decisions, develop action plans, and implement programs in a multisectoral and integrated approach. Workshops were held to identify the challenges and opportunities of the One Health platforms in Guinea. Opportunities such as the existence of technical and financial partners and the involvement of local authorities offer avenues for improving the functioning of platforms. The main strategies identified were developing and disseminating a procedural manual, information, and guidance sessions, and establishing a sustainable funding system. Finally, a call to action is launched to establish a cell dedicated to the One Health platform. These strategies will make the One Health platforms operational in Guinea, thus strengthening the capacity of the national platform to better understand, prevent, and respond effectively to multiple epidemics.

***What is known about this topic***

- *The national platforms for One Health focuses on: enhancing multi-sectoral coordination;*
- *Addressing prevention, detection, and response to public health events;*
- *Integrating efforts across human, animal, and environmental health sectors.*

***What this study adds***

- *Provides an in-depth understanding of the challenges and opportunities for One Health platforms in Guinea;*
- *Proposes operational strategies to improve their effectiveness during field interventions;*
- *Aims to provide actionable insights to improve the performance of One Health initiatives in Guinean context.*

## Competing interests

The author declares no competing interests.

## Authors' contributions

Emile Faya Bongono, Castro Gbêmêmali Hounmenou, and Aminata Mbaye designed the study and collected and analyzed the data. Emile Faya Bongono wrote the first version of the manuscript. Tiguidanké Camara and Gnouma Maladho Diaby, and Salifou Talassone Bangoura participated in revising the first draft. Sidikiba Sidibé, Simon Ruegg, Abdoulaye Touré, Stéphanie Maltais, and Alpha Kabinet Keita contributed to project management, provided critical comments and revisions, and approved the final version of the manuscript, and Alioune Camara supervised

the data collection and revised and coordinated the final preparation of the manuscript. All the authors have read and approved the final version of this manuscript.

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## Table and figures

**Table 1**: original and shortened challenge descriptions

**Figure 1**: functional links between coordination and collaboration structures: blue indicates upward information flow, red indicates feedback, and green shows the links between levels, structures, and their composition

**Figure 2**: timeline of zoonoses with epidemic potential and creation of the platform in Guinea

**Figure 3**: alluvial diagram showing the distribution of priority challenges across the eight health regions

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| **Table 1:** original and shortened challenge descriptions | |
|---|---|
| **Original Challenge Description** | **Shortened Challenge** |
| Advocacy to OH management committees for staff recruitment | Advocacy |
| Organize regular meetings | Meetings |
| Develop bankable projects | Projects |
| Staff retention | Retention |
| Ensure the enforcement of regulations | Regulation |
| Create and manage a data-sharing platform between health sectors | Digital platform |
| Retention in position | Retention |
| Conduct advocacy with technical and financial partners (TFPs) | Advocacy |
| Strengthen staff capacity to effectively fight zoonoses | Capacity building |
| Strengthen awareness | Awareness |
| Provision of transport means | Transport |
| Organize regular intersectoral meetings | Meetings |
| Provision of office kits | Office kits |
| Professional awareness | Professionalism |
| Provision of cold chain equipment | Cold chain |
| Identify and/or recruit and strengthen the skills of multisectoral OH community relays | Recruitment |
| Human resources - reorganization of existing staff and redeployment within or across sectors to improve efficiency and coordination | Human resources |
| Organize regular monitoring of local platforms to ensure their dynamism | Platform monitoring |
| Insufficient staffing | Staffing |
| Lack of transportation means | Transport |
| Insufficient iceboxes | Cold chain |
| Insufficient fleet in services | Fleet |

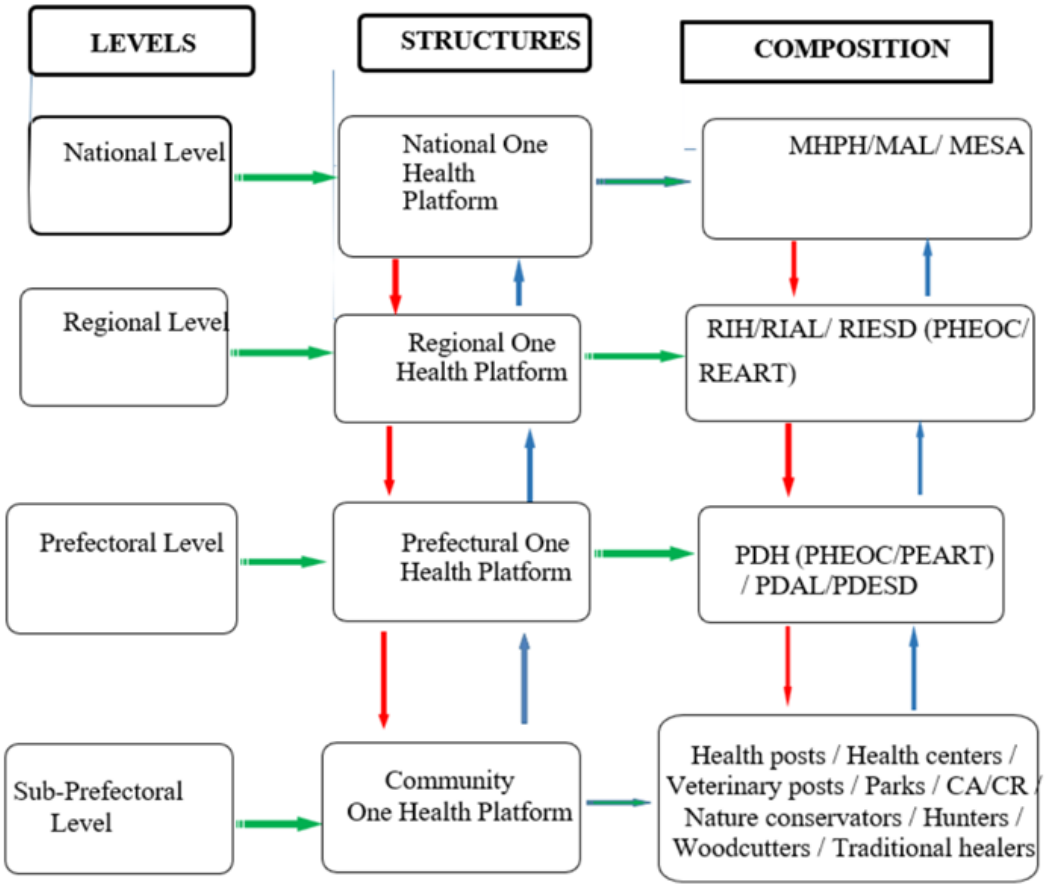


**Figure 1**: functional links between coordination and collaboration structures: blue indicates upward information flow, red indicates feedback, and green shows the links between levels, structures, and their composition

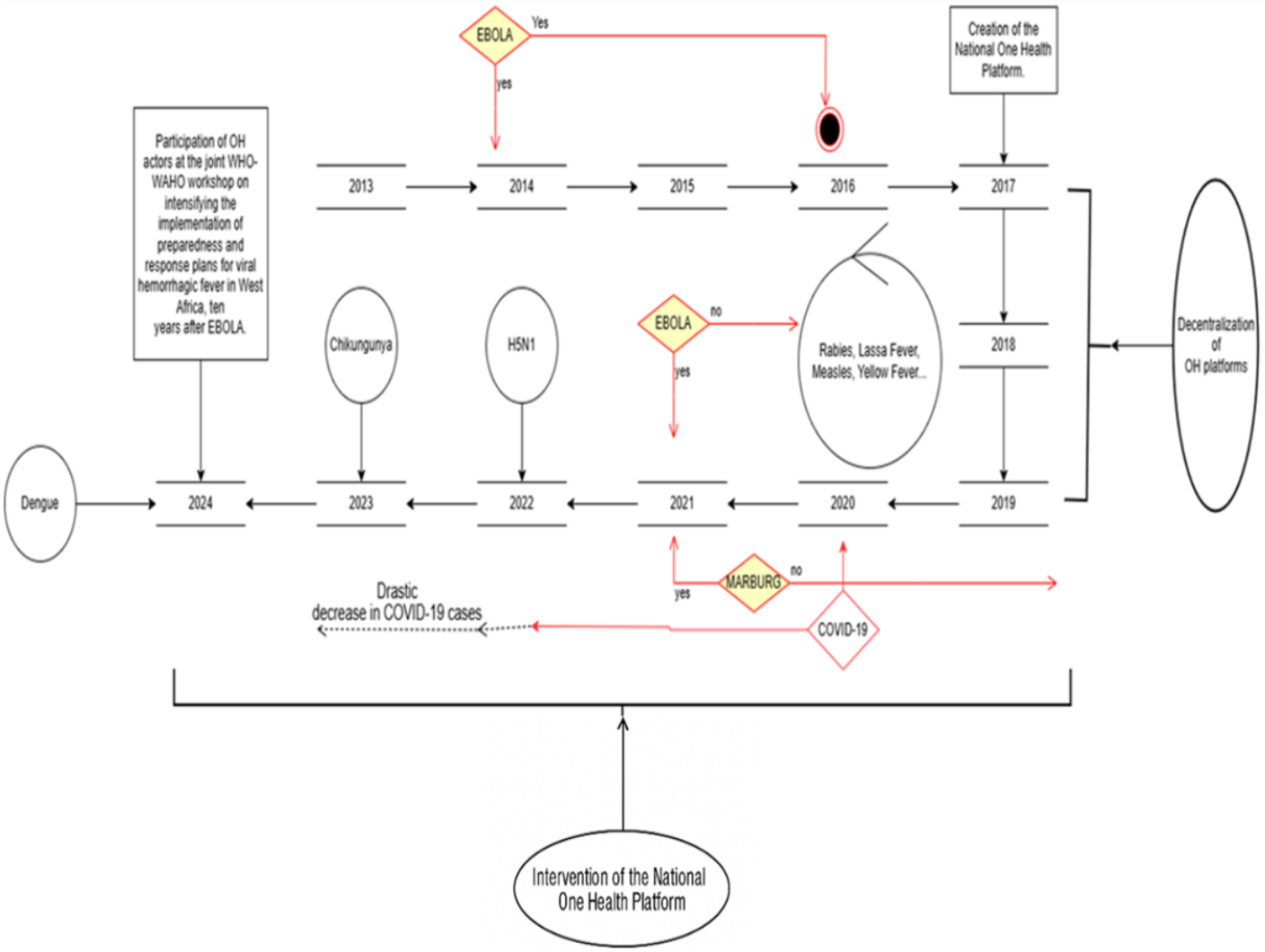


**Figure 2**: timeline of zoonoses with epidemic potential and creation of the platform in Guinea

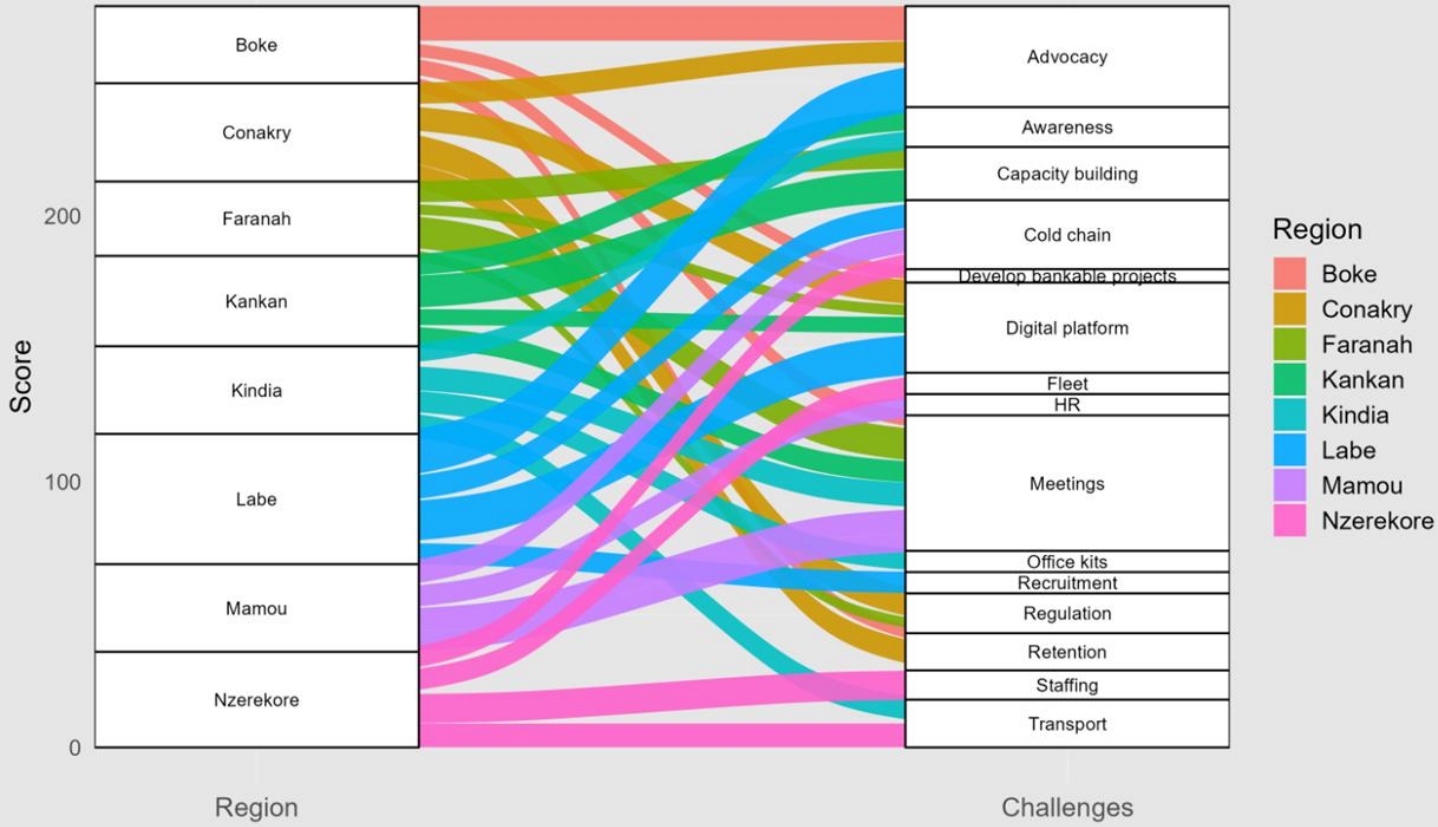


**Figure 3**: alluvial diagram showing the distribution of priority challenges across the eight health regions