



BCOMING



D7.1 STAKEHOLDER CASE

STUDY SITE DESCRIPTION

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Project title: Biodiversity Conservation to Mitigate the risks of emerging infectious diseases

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Executive Summary

Report structure

The Biodiversity COnservation to Mitigate the risks of emergING infectious diseases (BCOMING) project is an EU funded participatory based research program being conducted in the Kingdom of Cambodia, Guinea and Guadeloupe. The main objective of the BCOMING project is to reduce the risk of infectious disease emergence in biodiversity hotspots by developing a standardized data collection and analysis framework. Integrating ecology, virology, social sciences and participatory processes, the project supports the co-construction with all stakeholders of innovative biodiversity conservation strategies and zoonotic disease surveillance systems (Binot et al., 2015; Duboz et al., 2018; De Garine-Wichatitsky et al., 2020).

The primary objective of Work Package 7 (WP7) of the BCOMING program is to co-design and convene the effective participation of indigenous and local communities in pandemic prevention strategies, risk management and opportunities for biodiversity recovery. The main objective is supported through extensive collaboration with BCOMING work packages WP3, WP5 and WP6 and the integration of their multi-disciplinary outputs into the Challenge and Reconstruct Learning (ChaRL) participatory process. Ultimately the co-design process is intended to facilitate transformative change to simultaneously sustain biodiversity and promote human, animal and ecosystem health.

WP7 Objectives

1. In collaboration with WP5 and WP6 the first step was to select and confirm the case study sites in Cambodia, Guinea and Guadeloupe. Site criteria selection focused on zoonotic prevalence and reported or potential community exposure; biodiversity-livelihood interactions, historical research activities and existing data sets.
2. WP6 (CIRAD and IPC in Cambodia) and WP5 (FFI in Guinea) and CIRAD in Guadeloupe co-designed the processes, metrics and the criteria to recruit representatives of communities participating in the ChaRL participatory workshops.
3. Convene the inception ChaRL workshops with the selected communities in Cambodia, Guinea and Guadeloupe and complete the participatory workshop analysis of key causal relationships concerned with the impacts of zoonotic prevalence and exposure and life-guiding values.

The D7.1 report is focussed on points 1. and 2. The collaborative processes and design principles to select the specific case study region in Cambodia, Guinea and Guadeloupe are described in the first section of the report. The selection criteria to recruit stakeholders in the ChaRL participatory workshops are detailed in the second section of the D7.1 report.

Report D7.1 is one of five complementary reports for WP7. The results of the ChaRL participatory systems mapping exercise (point 3.) revealing participant perceptions of the impacts and causal relationships of zoonotic virus exposure are detailed in report D7.2. The a priori testing of zoonotic surveillance for each case study site are described in D7.3; insights into One Health Systems learning are described in D7.4; and the final report of the ChaRL participatory workshop series to facilitate co-design of community zoonotic surveillance strategies are detailed in D7.5.

Collaboration with CIRAD, Ide and FFI on the network and architecture of surveillance institutions operating in the case study areas has been central to the co-design process. Details for each of the case study regions are reported in BCOMING D6.1 (Assessment and Evaluation of Existing





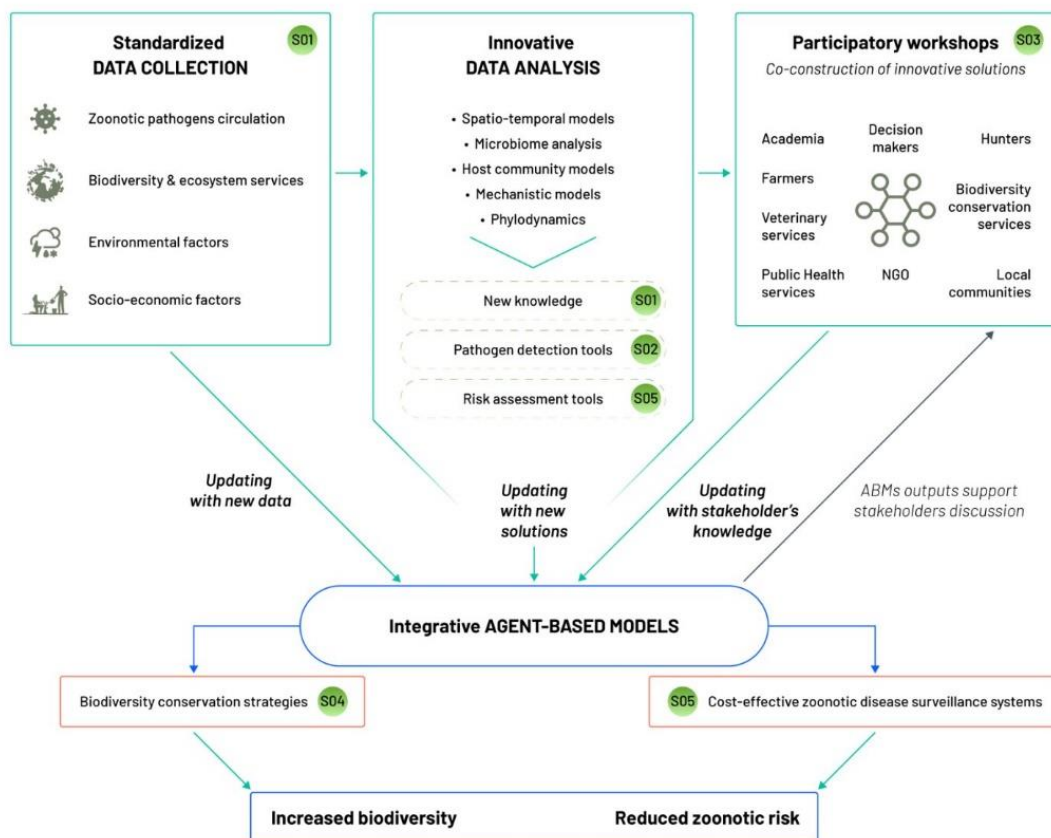
Surveillance Systems), D3.1 (Data Assessment Report) and the Oasis Evaluation of the West Nile Monitoring System in Guadeloupe (CIRAD 2023).

In drafting D6.1, CIRAD et al. deployed the OASIS evaluation tool to assess existing surveillance systems and institutions, framed by One Health principles, and represents the primary data source for D7.1.

Empirical data from randomized household livelihood and adaptive strategies (D5.3 and D5.4) support the co-design process of the community surveillance strategies. D5.3 and D5.4 detail the sampling rationale, household attributes, livelihood descriptive statistics and adaptive responses to proposed surveillance strategies of the three BCOMING case study countries: Guinea (Gueckedou, Seredou and Guecke), Cambodia (Stung Treng and Battambang provinces) and Guadeloupe (Petit Bourg). The survey is anticipated to be administered in Cambodia and Guadeloupe in the third quarter of 2024.

WP7 contributes to and supports the data and analytical requirements of the remaining BCOMING Work Packages (Figure 1) and will inform future participatory workshops convened with case study communities and decision makers.

Figure 1: The role and integration of the BCOMING Work packages





BCOMING Case Study Site Selection and participant recruitment: Summary

Collaborations with WP5 and WP6 commenced in September 2022 and have continued throughout 2023 and 2024 to select the case study sites in Guinea, Cambodia and Guadeloupe.

Cambodia:

1. A series of person to person and virtual meetings with the Institut du Pasteur Cambodge (IPC) (Stung Treng) and CIRAD (Living Lab project, Romsay Sok commune, (Battambang) and ZooCov, (Stung Treng) and Fauna and Flora International (FFI) were convened to select the Cambodian case study sites. Two case study villages were selected in Sam'ang commune (Stung Treng to correspond with the ZooCov project) and Chheu Teal commune (Banan district Battambang) to align with the Living Lab project.
2. Two cave sites with bat populations subject to guano collection by local communities were selected in Stung Treng Province, Sam Ang district and Battambang province, Banan District. System boundaries were determined as a 40 km radius from the cave sites, to reflect both community guano collection and bat foraging behavior, confirmed in consultation with project bat ecologists and the CIRAD-IPC staff stationed in Cambodia (Furey et al., 2016; Cappelle et al., 2021). Surrounding villages within the site boundary and cave sites have been spatially referenced and entered as a GIS format.
3. Collaboration over several meetings throughout 2023 with IPC and CIRAD and Wildlife Conservation Society (WCS) confirmed the participant selection process. Community members, village heads, representatives of the provincial animal and public health authorities and local police were invited as ChaRL workshop participants.
4. The ChaRL participatory workshops with local study site communities were convened in Stung Treng and Battambang in March and April of 2023.

Guinea:

1. Site village selection discussions commenced in November 2022 and continued throughout 2023. Virtual meetings with Fauna and Flora International (FFI), CIRAD, MERFI and BCOMING leadership were convened on the 13/4/2023 and 18/4/2023 to discuss and confirm the case study sites for Ziama, Gueckedou and Guecke.
2. Land use, levels of forest canopy cover and fragmentation and village locations across a 40km system boundary have been compiled for the three Guinea case study sites.
3. Collaboration over several meetings throughout 2023 with FFI and CIRAD confirmed the participant selection process. Community members, village heads, representatives of the provincial animal and public health authorities and representatives of the Prefecture government were invited as ChaRL workshop participants.
4. ChaRL workshops to develop participatory system maps for Sereidou, Gueckedou and Guecke and survey enumerator training were convened in July 2023.

Guadeloupe:

1. Virtual meetings with CIRAD (S. Lecollinet, J. Cozier) commenced in 2023 to select case study sites in Guadeloupe.





2. Over the 32 cities of Guadeloupe, the city of Petit-Bourg was chosen for being highly vulnerable to the emergence of two vector-borne diseases, Dengue and West Nile fever over the last two decades.





Cambodia

One Health Surveillance architecture

Key Stakeholders

The General Directorate of Animal Health and Production (GDAHP) is a combined administrative, technical and research institution, funded under Ministry of Agriculture, Forestry and Fisheries (MAFF), governing domestic animal health, welfare, sanitation and production. GDAHP is responsible for capacity building in sanitary inspection, disease prevention and livestock veterinary services. In collaboration with provincial authorities, GDAHP is responsible for the regulatory enforcement of Cambodian imports, exports and transit of live animals, meat and animal products; and the management of field veterinary services, animal disease control, zoonosis, sanitary inspections and enforcement of livestock laws and regulations.

Forestry Administration (FA) is under MAFF, acting in enforcing the wildlife and forestry policy for protected forests. FA mandates include management of the wildlife zoological park, wildlife and forestry research and community forestry development.

Provincial Department of Agriculture, Forestry and Fisheries (PDoAFF), hosts the animal health and production office (AHPO) and the forestry administration cantonment (FAC). The AHPO is responsible for implementing veterinary policy and providing technical support on animal health and livestock production and veterinary service. Like GDAHP, AHPO role and responsibility at the provincial level. The FAC is responsible for monitoring and implementing wildlife and forestry policy, research and support community forestry within their jurisdiction.

Protected Areas (PAs) are one of many other components with the Ministry of Environment (MoE). PAs are responsible for managing, conserving and protecting wildlife and wild habitat at the protected areas were marked under the MoE management sites.

Provincial Department of Environment (PDoE) is responsible for managing and implementing the environmental policy at sub-national level such as enforcing the environmental law on forest and wildlife crime at the protected areas, support community protected area to manage and protect natural resources, monitor and assess on environmental impact that may course by industrial investment.

The Agriculture, Natural Resources, and Environment Office (ANREO) under the management of district administration is responsible for providing technical support to improve agricultural products, livestock veterinary service and environmental monitoring.

Community Forestry (CF) and Community Protected Area (CPA) are formed by the cluster of villages/commune located within and near natural habitat. Stakeholders including local authorities establish the community administration to manage and protect wildlife and natural resources within their marked areas.

Department of Communicable Disease Control (CDC) under the Technical Director General for Health, is responsible for health monitoring, response, control and prevention. Moreover, the CDC is also in charge of health policies and guidelines implementation, monitor, evaluate the activities and research of communicable disease, and develop national plan for control and prevention of all communication diseases.

Provincial Department of Health (PDoH) is responsible for coordination and implementation of health policies and guidelines under the ministry's activities.





Health Center (HC) is acting like hospital with minimum facility that can provide health care and health monitoring at district or a cluster of communes' level. Like HC, the **Health Post (HP)** is providing health care and monitoring at the commune and village level.

Local authority refers to village and commune chief responsible on running all the general administration works at village level including social security, health care, education, and commune development program.

Village Animal Health Workers (VAHW) are equivalent to community animal health workers, play a crucial role in supporting family farmers, improving livestock health and productivity for small-scale farmers, thus contributing to household income and food security. VAHW provide essential animal health services as independent workers and also collaborate with district veterinarians on a voluntary basis for data collection, vaccination campaigns, and disease control activities.

Village Health Support Group (VHSG) responsible for providing a wide range of services and resources and serve as the link between the public health system, especially health center and the community. Furthermore, VHSG are the frontline health workers who are playing a very important roles to improve the health status of community through providing life-saving information to community.

Village Malaria Worker (VMW) are health workers who provide malaria testing and treatment services in the community and receive performance-based incentives to carry out their work. VMWs are trained in malaria diagnosis using rapid diagnostic tests, case management, and referrals. They ensure high coverage of malaria testing for anyone with a fever and early initiation of effective malaria treatment for confirmed cases.

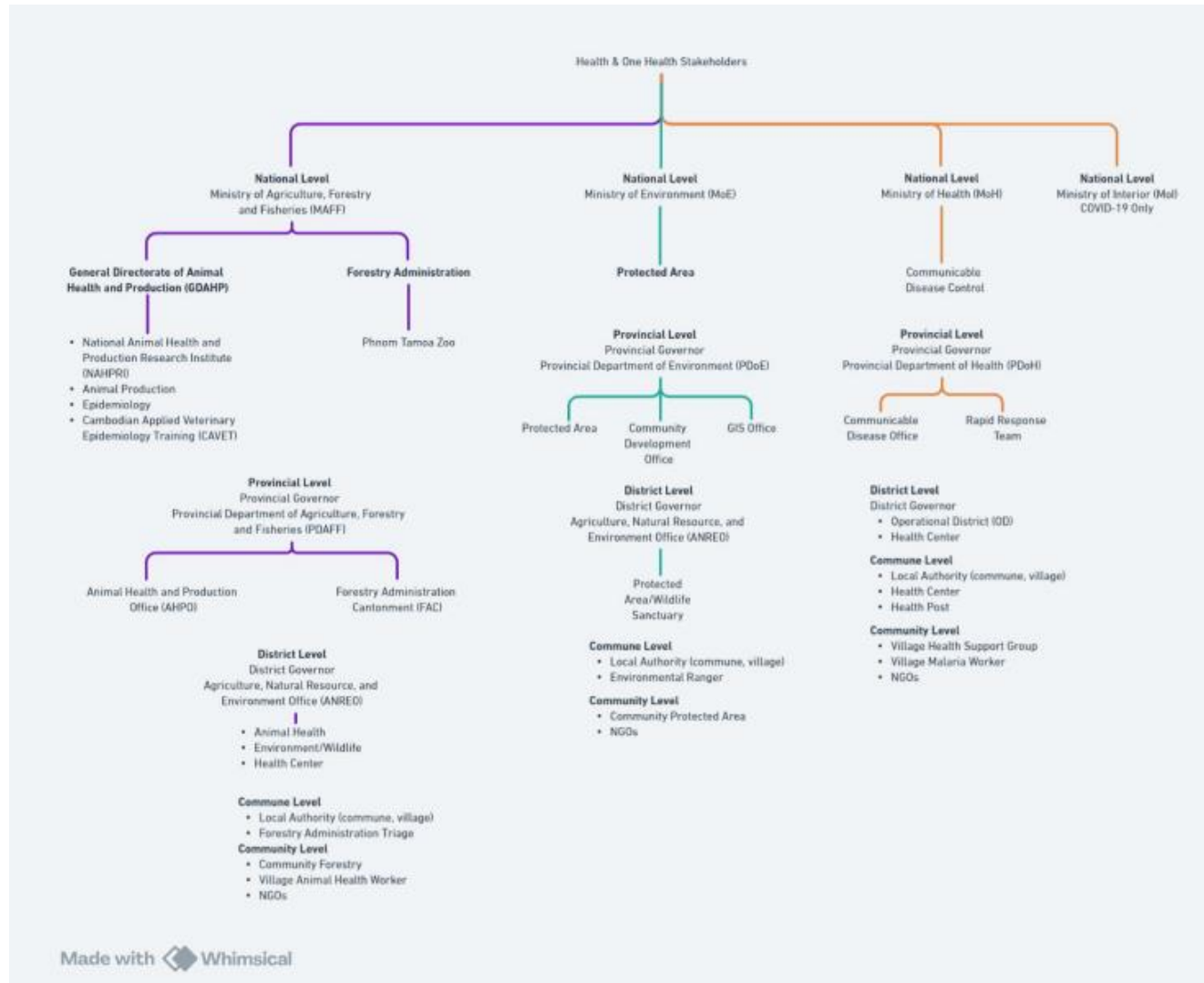
The animal, human and wildlife stakeholder networks in D6.1 were first described through focus group discussions and then aggregated to depict a One Health surveillance architecture (Figure 2).

The One Health surveillance stakeholders were identified in different levels within the government administration structures, community and non-government organization. This hierarchical architecture provides a structured view of possible OH issues and communication between stakeholders. The participants for the ChaRL inception workshops in Cambodia were drawn from the District, Commune and Community levels in the Figure 3.





Figure 2: Institutional architecture of One health sectors, Stung Treng province, Cambodia



Source (BCOMING report D6.1, p12)



Funded by the European Union.



Case study site selection

A central pillar of the BCOMING project is the active engagement with communities that live in close proximity to areas where zoonotic risks are high and there is extensive human-wildlife interactions. The co-construction of surveillance strategies between research, government decision-making and rural communities is critical for developing effective surveillance solutions that minimize zoonotic risks, as past experiences indicate that centralized, externally imposed solutions that fail to incorporate local community experience and knowledge are rarely effective.

Site selection for the ChaRL participatory process in the three case study countries prioritized alignment with existing projects to ensure data availability and process consistency. BCOMING project report D3.1 identified 26 available data sets for Stung Treng, Kandal, Kampot, Battambang, Monduliri and Phnom Penh provinces. Post 2020 data are available for bats, rodents and human-wildlife interactions in Stung Treng and post 2015 for Battambang province. The collaborative ZooCov project assessed wild meat hunting and trade in Stung Treng, and the presence of viral antibodies in both human and animal populations.

Zoonotic risk in Cambodia is linked to cave dwelling bat populations located in close proximity to villages. Cohorts of these bat colonies have been identified as hosts of the SARS-COV 2 virus¹ (Lim et al., 2018; Cappelle et al., 2021). BCOMING D6.1 details evaluations of prevailing surveillance systems in Stung Treng (Thala Borivat district, Sam'ang communities), Guinea (Gueckedou Prefecture) and Guadeloupe using the OASIS evaluation approach and scenario tree modelling.

Stung Treng and Battambang provinces have extensive forest coverage that is subject to increasing levels of logging, fishing, wildlife hunting and trade and intensification of agriculture. Several karstic caves have been registered in both provinces and host bat colonies of various species hosting SARS-CoV-2-related viruses (Lim et al., 2018). The WP7 research team consulted with team members from CIRAD conducting the closely aligned Santes Territoires Living Lab project with farming communities in Banan District.

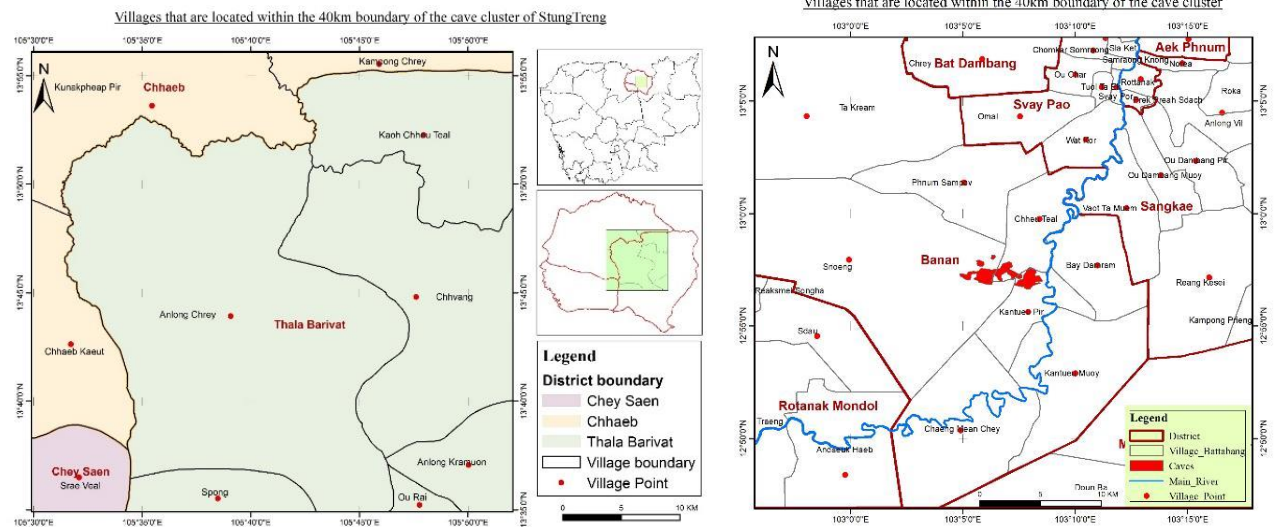
In consultation with the research community of WP6, Sam'ang commune, Stung Treng province and Chhue Teal commune, Battambang province were selected as the priority case study sites as community members are engaged in guano collection at the bat cave sites and rely of wildlife meat consumption in their dietary intake.

¹ ZooCov <https://www.cirad.fr/en/worldwide/cirad-worldwide/projects/zoocov-project> accessed march 2023





Figure 3: 40 km boundary of the Sam'ang, Stung Treng (left) and Chhue Teal, Battambang (right) sites



Source: MERFI (2023)

ChaRL participant selection

Collaboration over several meetings throughout 2023 with IPC, CIRAD and WCS confirmed the participant selection process. Consistent with previous survey approaches and community engagement (e.g. ZooCov and the Living Lab project), Sam'ang and Chheu Teal community members, village heads, representatives of the provincial animal and public health authorities and local police were confirmed as workshop participants. Gender balance and livelihood diversity were additional selection criteria.

Provincial authorities and village heads were consulted to i) explain the project, ii) answer their questions, iii) seek their support and endorsement and iv) to assist in participant invitations and selection. Translated concept notes and invitations were forwarded to Stung Treng and Battambang village heads and local authorities to confirm workshop dates, venue and the participants for the 1st ChaRL workshops (March 2023 for Stung Treng and April 2023 for Battambang). Village heads were responsible for the final selection of workshop participants.

To align with BCOMING ethics protocols, community participation in the workshops was voluntary, subject to being informed of the project objectives and process by way of a signed consent form and were paid for their time based on the official Cambodian DSA rates.





Guinea

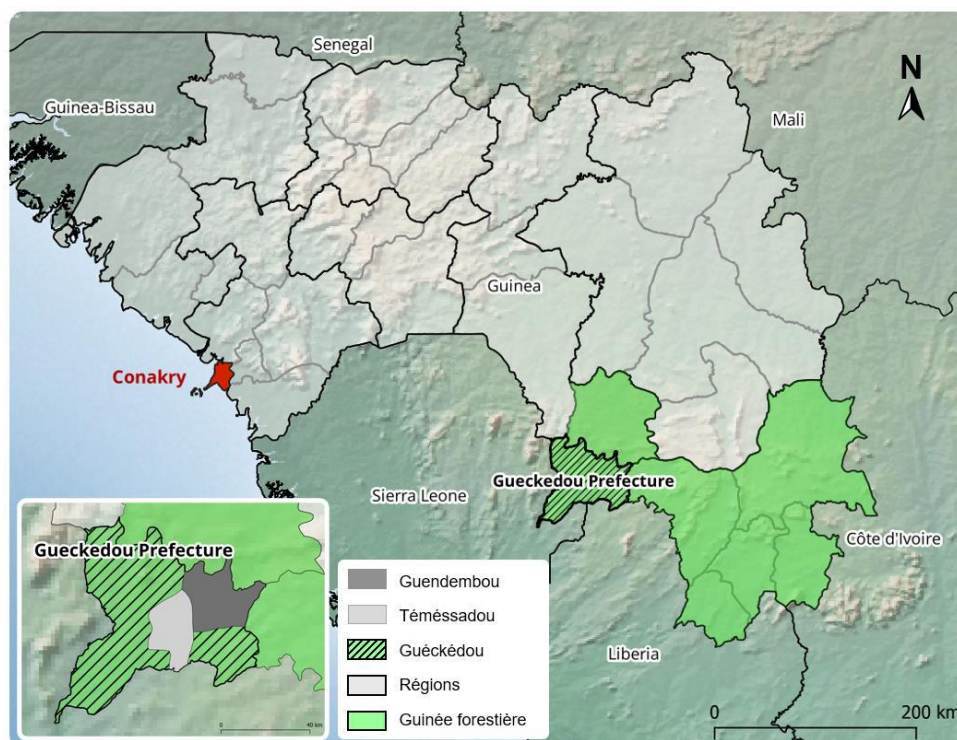
One Health Surveillance architecture

Key Stakeholders

CIRAD report face to face interviews with key respondents and focus group discussions conducted in Guinea from March through April 2023 (BCOMING D6.1, 2024).

Participatory information-gathering workshops were held in two localities in the Guinée Forestière region, with a focus on Guéckédou Préfecture (Figure 4), the epicentre for the 2014 Ebola epidemic. More than 100 surveillance public health, animal health and environmental health central and community stakeholders were interviewed by the evaluation team.

Figure 4: Map of the Republic of Guinea and locations of study areas



Source (BCOMING report D6.1 (p18))

Preliminary analyses of the interviews highlighted:

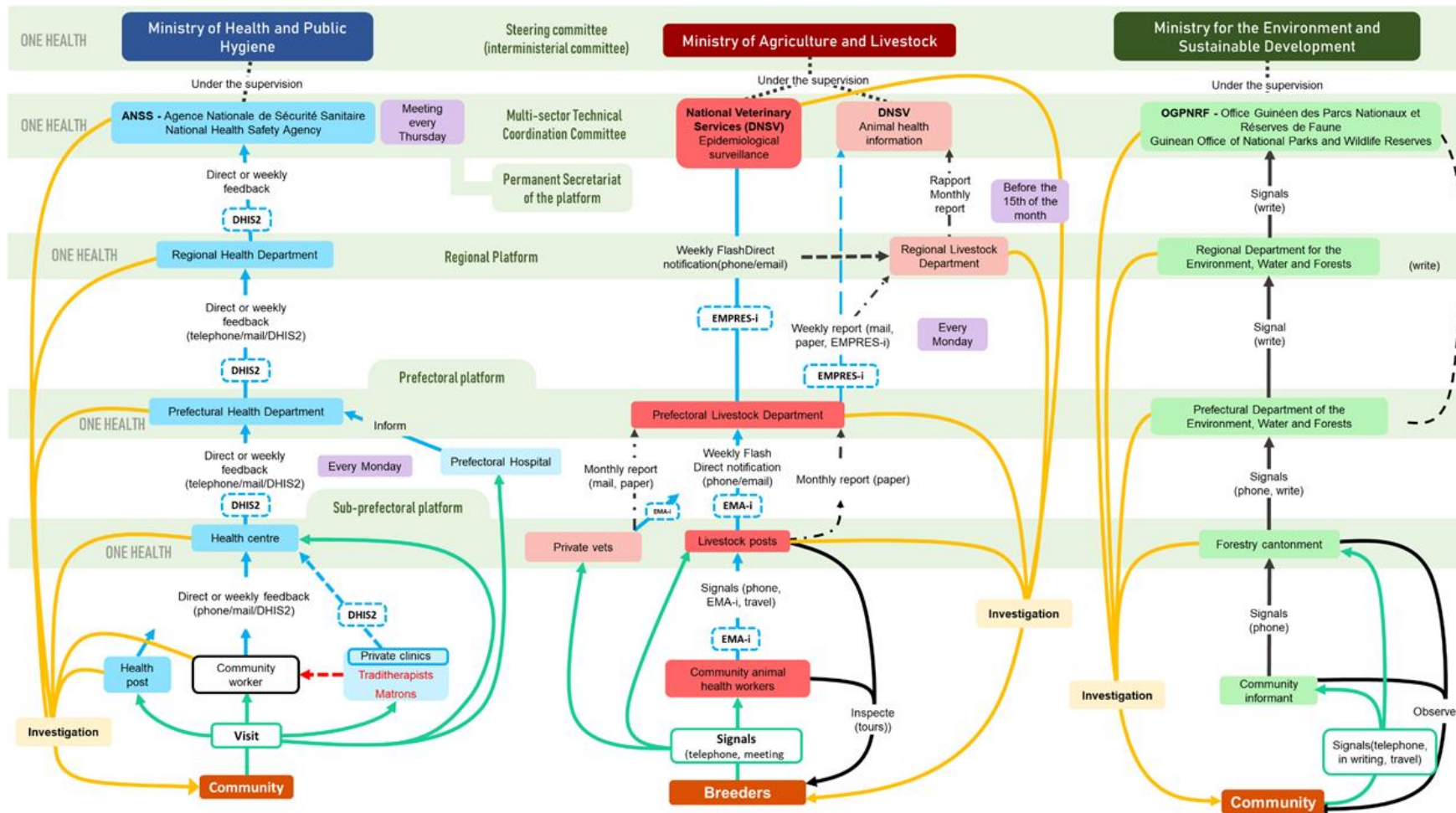
- (i) material and logistical difficulties in rapid communication and reporting due to poor road conditions, mobile network, and telephone costs;
- (ii) previously ignored key informants, such as the public crier, village elders and schoolteachers that could play an important role within the surveillance system at the community level;
- (iii) the importance of seasonality for all categories of actors, modifying communication each year.

The architecture of the Guinea One Health surveillance system developed by CIRAD is depicted in Figure 5.





Figure 5: One Health surveillance system architecture in Guinea



Source (BCOMING D6.1, p.21)



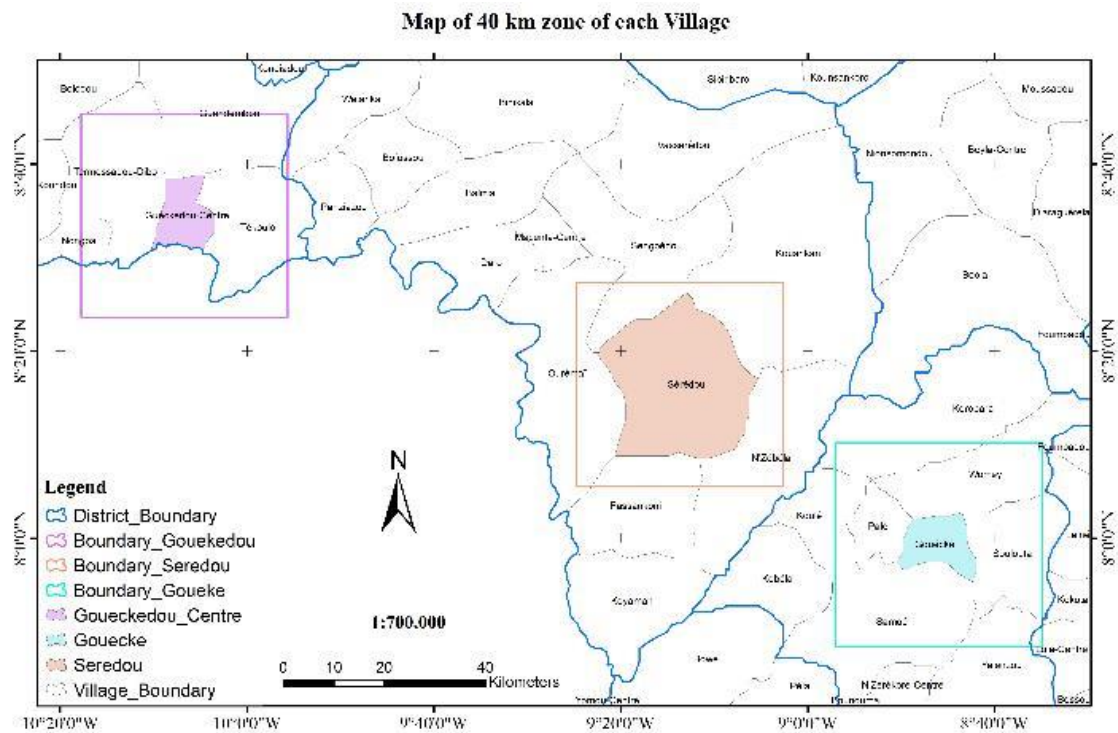
Funded by the European Union.



Case study site selection

In collaboration with WP5 (FFI and CIRAD) and WP6 (CIRAD), the selected WP7 case study sites were located in Seredou (Macenta Prefecture), Gueckedou (Gueckedou Prefecture) and Guecke (Nzérékoré Prefecture) (Figure 6).

Figure 6: 40 Km boundaries of Seredou, Gueckedou and Guecke, Guinea



Source: MERFI (2024)





Guadeloupe

One Health surveillance architecture

Central Government

Key stakeholders:

- **Ministry of Solidarity and Health (Ministère des Solidarités et de la Santé – DGS, Direction Générale de la Santé on Figure 7)**
The French Ministry of Health is responsible for public health policies and strategies across France, including its overseas territories like Guadeloupe. They oversee national health policies, funding, and coordination with regional health agencies to manage and prevent outbreaks of diseases such as West Nile Virus and Dengue.
- **Santé publique France**
This national public health agency plays a key role in monitoring and controlling infectious diseases. They provide guidance, support, and resources to regional health agencies and local authorities in Guadeloupe for managing and preventing vector-borne diseases.
- **ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail)**
The French Agency for Food, Environmental and Occupational Health & Safety conducts risk assessments and provides scientific advice on health threats, including vector-borne diseases. Their expertise supports policy-making and the development of public health strategies. Anses hosts National Reference Laboratories (NRL), ensuring the confirmation of health threats in animals, and in particular the NRL for West Nile virus.
- **Ministry of Agriculture and Food Sovereignty (Ministère de l'Agriculture et de la Souveraineté Alimentaire – DGAI, Direction Générale de l'Alimentation on Figure 7)**
The French Ministry of Agriculture is responsible for veterinary public health policies and strategies across France, including its overseas territories like Guadeloupe. They operate the surveillance of zoonotic pathogens in a coordinated way with the Ministry of Solidarity and Health and with the Ministry of Environment (Ministry of Ecological Transition and Territorial Cohesion)
- **Ministry for Overseas Territories (Ministère des Outre-mer)**
This ministry is responsible for the administration and development of France's overseas regions. They coordinate with other governmental bodies to ensure that the unique needs of territories like Guadeloupe are addressed, including public health challenges related to diseases like West Nile Virus and Dengue.

Local Government and Public Health Authorities

Key stakeholders:

- **Agence Régionale de Santé (ARS) de Guadeloupe:** This regional health agency is responsible for coordinating public health responses and implementing mosquito control programs in Guadeloupe.
- **Préfecture de Guadeloupe:** The prefecture oversees local governance and public health measures, working closely with ARS.
- **DAAF, Direction de l'Alimentation, de l'Agriculture et de la Forêt :** This regional animal health agency is responsible for coordinating animal health responses and surveillance.





The local government, specifically the regional health agency (Agence Régionale de Santé de Guadeloupe), coordinates public health responses, implementing mosquito control programs, and ensuring the dissemination of accurate information to the public. They are responsible for monitoring disease outbreaks, providing healthcare resources, and executing emergency response plans.

These authorities have the primary responsibility for public health surveillance and intervention. They work closely with healthcare providers to identify and report cases, and they implement vector control measures such as fumigation and public awareness campaigns to reduce mosquito breeding sites. Additionally, they coordinate with national health agencies to align local efforts with broader public health strategies.

Healthcare Providers

Key stakeholders:

- **Centre Hospitalier Universitaire de Pointe-à-Pitre/Abymes (CHU):** This major hospital in Guadeloupe is at the forefront of diagnosing and treating mosquito-borne diseases. It works closely with the other public hospital in Guadeloupe, Centre Hospitalier de la Basse-Terre (CHBT).
- **Private clinics and healthcare professionals:** Numerous private healthcare providers throughout Guadeloupe contribute to the overall public health effort, incl Clinique de Choisy, Clinique Les Eaux Claires, and the Clinique Centre Médico-Chirurgical (CMC) de Guadeloupe.

Doctors, nurses, veterinarians and other healthcare professionals are on the front lines of diagnosing and treating West Nile Virus and Dengue Virus infections. They also play a key role in educating patients about prevention and managing symptoms.

Healthcare providers, including hospitals, clinics, and private practitioners, are essential for early detection and management of these diseases. They contribute to the public health surveillance system by reporting cases and trends, providing critical data that inform public health decisions. They also engage in patient education, advising on preventive measures such as using insect repellent, wearing protective clothing, and eliminating standing water where mosquitoes breed.

Research Institutions and Universities

Key stakeholders:

- **CIRAD:** This French agricultural research centre works with developing countries on agricultural and development issues. In Guadeloupe, CIRAD focuses on the study and control of tropical diseases, including those transmitted by mosquitoes, contributing valuable research and expertise to the management of public health risks such as West Nile Virus and Dengue Virus.
- **Institut Pasteur de la Guadeloupe:** This research institute conducts critical research on the epidemiology and control of mosquito-borne diseases.
- **Université des Antilles:** The university collaborates on public health research and provides valuable data and insights into disease management.

These institutions conduct essential research on the epidemiology, transmission, and control of mosquito-borne diseases. They can provide insights into the effectiveness of various control measures and contribute to the development of vaccines and treatments.

Research institutions like the Institut Pasteur in Guadeloupe and local universities play a pivotal role in understanding the dynamics of West Nile Virus and Dengue Virus on the island. They carry out field studies, laboratory research, and epidemiological modelling to inform public health strategies.





Their work is critical for developing evidence-based interventions and for assessing the impact of existing programs.

Non-Governmental Organizations (NGOs)

Key stakeholders:

- **Croix-Rouge Française (French Red Cross):** The French Red Cross is active in Guadeloupe, providing public health education and emergency response services.
- **Médecins Sans Frontières (Doctors Without Borders):** This organization can offer logistical support and healthcare services during outbreaks.

NGOs can assist in public education campaigns, community engagement, and supporting healthcare infrastructure. They often work on the ground to raise awareness and implement local-level interventions.

NGOs such as the Red Cross and Médecins Sans Frontières (Doctors Without Borders) are active in public health education, community outreach, and providing logistical support for health interventions. They often bridge the gap between the public health authorities and the community, ensuring that messages about prevention and treatment reach all segments of the population. Their grassroots efforts are vital in mobilizing community action and sustaining long-term engagement in disease prevention.

Community Organizations and Leaders

Key stakeholders:

- **Local neighbourhood associations:** These groups work at the grassroots level to spread awareness and mobilize community action against mosquito-borne diseases.
- **Religious leaders and organizations:** Churches and other religious groups play a role in community outreach and education.

Local community groups and leaders are critical for promoting public health initiatives at the grassroots level. They help to foster community involvement and ensure that public health messages are culturally appropriate and widely accepted.

Community organizations, including neighbourhood associations, religious groups, and local leaders, play a crucial role in disseminating information and encouraging community participation in public health measures. Their local knowledge and influence can help to address cultural barriers to prevention and treatment, ensuring that interventions are tailored to the specific needs and practices of the community.

Schools and Educational Institutions

Key stakeholders:

- **Local primary and secondary schools:** Schools across Guadeloupe integrate health education into their curricula to raise awareness about mosquito-borne diseases.
- **Université des Antilles:** In addition to research, the university engages students in public health initiatives and community outreach.

Schools can serve as platforms for health education, reaching children and their families with important messages about preventing mosquito-borne diseases.

Educational institutions are essential for spreading awareness about mosquito-borne diseases among young people and their families. School programs can include lessons on how to prevent mosquito bites, the importance of removing standing water, and recognizing symptoms of diseases like West





Nile Virus and Dengue. By educating children, schools help to instil long-term preventive behaviours in the community.

Media Outlets

Key stakeholders:

- **France-Antilles Guadeloupe:** This newspaper provides coverage of public health issues and disseminates information about disease prevention.
- **Guadeloupe La 1ère:** This television and radio broadcaster informs the public about health risks and preventive measures.

Media outlets, including newspapers, radio, television, and online platforms, are vital for public communication. They help to inform and educate the public about ongoing risks and preventive measures. The media plays a significant role in shaping public perception and awareness about health risks. They are responsible for timely and accurate reporting on disease outbreaks, public health advisories, and preventive strategies. Effective collaboration with media outlets ensures that information about mosquito control, symptoms of infection, and available healthcare resources reaches a broad audience quickly.

Tourism and Hospitality Industry

Key stakeholders:

- **Guadeloupe Islands Tourism Board:** This organization helps educate tourists about mosquito-borne disease risks and promotes preventive measures within the tourism industry.
- **Local hotels and resorts:** Hospitality businesses implement mosquito control measures and provide information to guests.

This sector is important for educating tourists about mosquito-borne disease risks and preventive measures. Hotels, tour operators, and related businesses can implement measures to protect their clients and reduce mosquito populations in tourist areas.

The tourism industry is a key stakeholder due to its potential impact on public health and the economy. By promoting awareness among visitors and implementing mosquito control measures within tourist accommodations and attractions, the industry can help to mitigate the spread of diseases. Providing information on prevention and ensuring that tourists take necessary precautions helps protect both visitors and residents.

Environmental Agencies

Key stakeholders:

- **Office Français de la Biodiversité (OFB), Parc National de Guadeloupe (PNG) and natural reserves:** These agencies manage natural resources and habitats, contributing to environmental surveillance (and in particular the SAGIR network coordinated by OFB and FNC, Hunting National Federation) and mosquito control efforts.
- **Direction de l'Environnement, de l'Aménagement et du Logement (DEAL) de Guadeloupe:** DEAL oversees environmental policies and habitat management to reduce mosquito breeding sites.

Agencies responsible for environmental management can address mosquito breeding sites through habitat modification and control measures. They work to maintain ecological balance while reducing disease vectors.

Environmental agencies play a crucial role in controlling mosquito populations through environmental management and vector control programs. They focus on identifying and eliminating breeding sites,



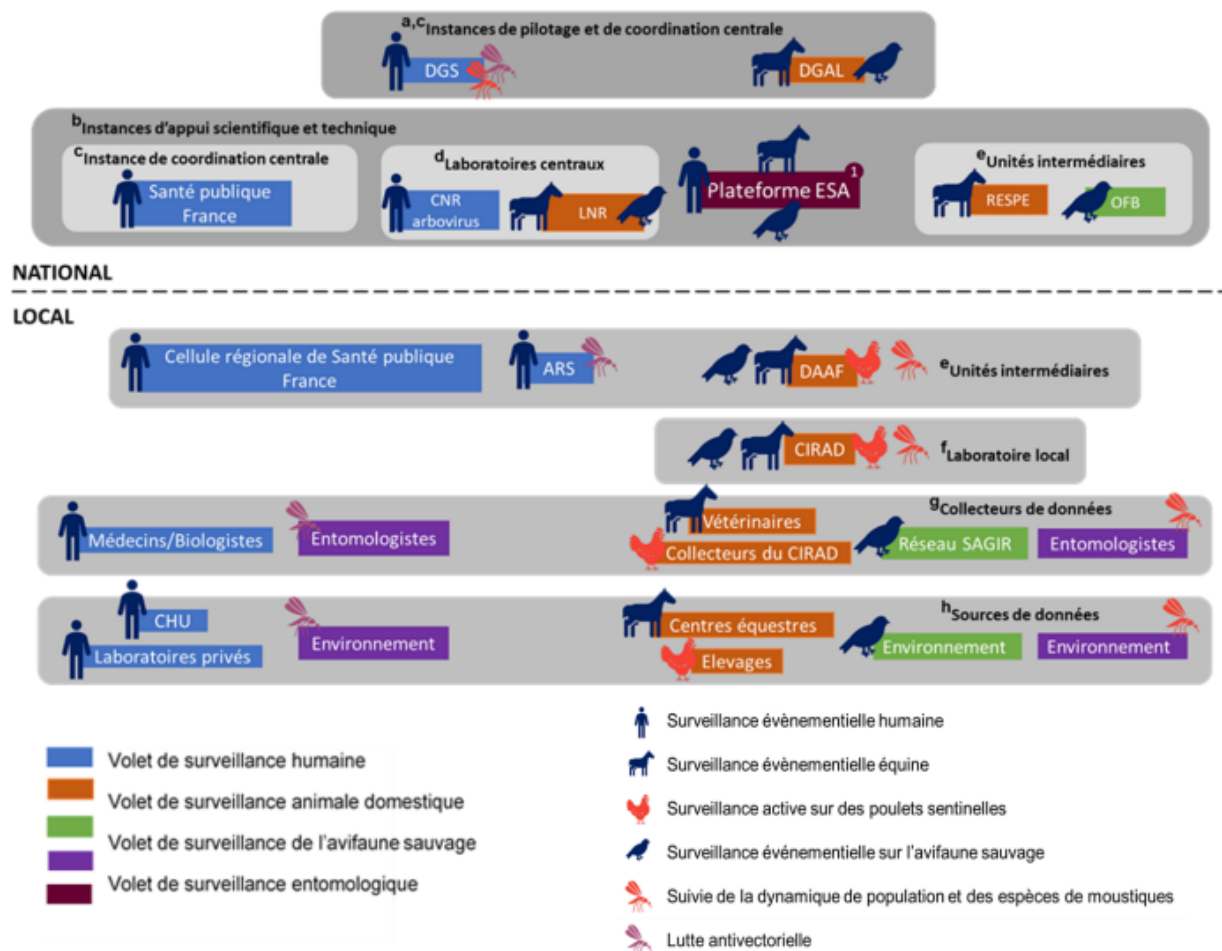


such as standing water, and implementing sustainable practices to manage mosquito habitats. Their efforts are integral to reducing the risk of mosquito-borne diseases without causing undue harm to the environment.

OASIS Assessment (2023)

CIRAD researchers conducted an evaluation of the West Nile Virus (WNV) and Dengue surveillance system using the OASIS method² (BCMING D6.1). Semi-structured interviews with 20 respondents were conducted from 7 March to 13 April 2023. Participants were selected across a number of surveillance roles and the schematic of the emergent surveillance network illustrated in Figure 7.

Figure 7: WNV stakeholder network map



Source: BCOMING D6.1 and CIRAD (2023)

² CIRAD (2023) EVALUATION OASIS DU SYSTEME DE SURVEILLANCE WEST NILE EN GUADELOUPE : Rapport Synthétique (Delacourt, R and Lecollinet, S).

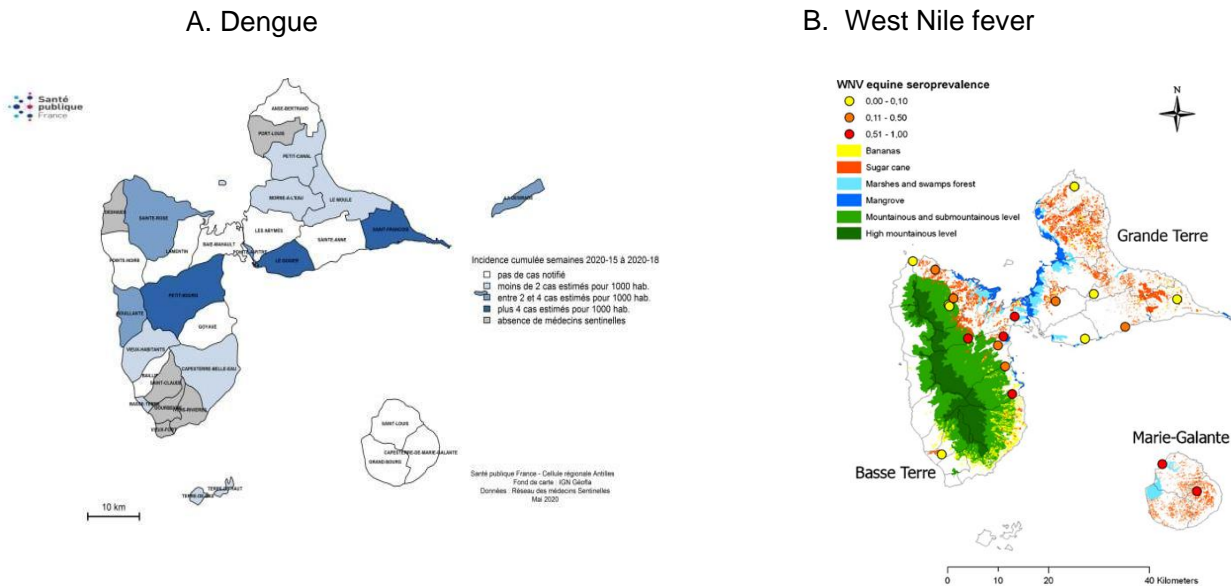




Case study site selection

Over the 32 cities of Guadeloupe, the city of Petit-Bourg was chosen by CIRAD for being highly vulnerable to the emergence of two vector-borne diseases, Dengue and West Nile fever over the last two decades (Figure 8).

Figure 8: Mapping of dengue and West Nile fever outbreaks



- Incidence of dengue cases in human patients during the 2019-2021 epidemics (source : SPF). The city of Petit-Bourg experienced elevated incidence of Dengue virus cases.
- WNV infection in horses evaluated through a serosurvey in the equine population (2002-2003). Red dots correspond to horse structures with high seroprevalence rates ($\geq 0,51$). The cities of Petit-Bourg, Baie-Mahault, Goyave and Marie-Galante appeared to be at higher risk of WNV outbreaks.



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