

AMERICAS REGION



HEALTH AND WELLBEING

CONCEPT NOTE – 2021

Project Title:	Strengthening community capacities for vector control and community surveillance through technology.		
Programmatic Area:	Health and Wellbeing		
Region and Countries:	AMERICAS		
Timeframe:	3 years		
Direct beneficiaries:	TO BE DEFINED	Indirect beneficiaries	TO BE DEFINED
Budget:	6,645,658 Swiss francs		
Fund executor:	INTERNATIONAL FEDERATION OF THE RED CROSS – REGIONAL OFFICE OF THE AMERICAS		
Executive summary:	<p>Vector-borne diseases (VBDs) are a severe public health problem in the Americas, representing a serious threat to people, their families, and their communities, especially for populations in vulnerable conditions (those with limited access to safe water and sanitation) and with social and economic risk factors. They also contribute to increasing poverty and overloading health systems.</p> <p>VBDs are responsible for increasingly serious outbreaks and epidemics. In addition, they are appearing in places where they had not previously occurred. For example, Yellow Fever cases are being reported in urban areas for the first time in more than 50 years</p> <p>Since the beginning of 2020, common VBDs in the Americas (Chikungunya, Zika, Yellow Fever, Dengue, among others) are coexisting with the COVID-19 pandemic, greatly impacting communities and national health systems.</p> <p>The IFRC, in collaboration with National Societies and their volunteers, plays a very important role in initiatives aimed at vector control in the Americas and has developed important projects and participated in operations related to VBD outbreaks.</p> <p>IFRC is committed to the creation of a Regional Vector Control Program in the Americas, sustained by the National Societies, to save lives and minimize the risks of VBD using</p>		

technology to strengthen community capacities in controlling vectors and community surveillance.

PROJECT JUSTIFICATION

Vector-Borne Diseases (VBDs) have a significant impact on public health in the Americas region and represent a serious threat to society and the economy of their countries¹. VBDs are infectious diseases spread by transmission agents called vectors, mainly insects, such as mosquitoes, fleas and triatomines, and mites such as ticks and some types of mollusks. Vectors transmit viruses, parasites and bacteria to humans.

More than 80% of the world's population lives in areas at risk for at least one of the major VBDs, and more than 50% are at risk for two or more. The risk of infection from certain viral pathogens is particularly high in cities and towns where *Aedes* and *Culex* mosquitoes proliferate due to favorable habitats and close contact with humans. People who survive these diseases can suffer permanent sequelae, compounding their disadvantage².

Some communities, such as those with limited access to safe water and sanitation, are especially vulnerable to VBDs.

Some key data regarding VBDs³:

- VBDs, such as dengue, yellow fever, and other mosquito-borne viruses, such as malaria and leishmaniasis, as well as other vector-borne diseases, such as schistosomiasis, Chagas disease, and plague, account for over 17% of infectious diseases worldwide, and cause more than 700,000 deaths each year.
- Between 2010 and 2018, 13.19 million cases of dengue were registered in the Americas region, which represents a 99% increase over the previous decade (2000-2009).
- During the 2015-2018 period, 819,492 accumulated cases of Zika virus (both suspected and confirmed) were reported in the Americas region.
- In recent years, the Caribbean region has experienced an unprecedented crisis of co-occurring epidemics of febrile illness due to dengue, chikungunya, and Zika viruses. Between 2013 and 2019, 186,050 cases of dengue, 911,842 cases of chikungunya, and 143,127 cases of Zika were reported in the Caribbean.⁴

¹ According to the World Health Organization (WHO), "These diseases [...] disproportionately affect the poorest populations. They prevent economic development by assuming direct medical expenses and indirect expenses such as the decrease in productivity and tourism". Respuesta mundial para el control de vectores, 2017-2030. WHO, 2017:

https://www.who.int/malaria/areas/vector_control/Draft-WHO-GVCR-2017-2030-esp.pdf?ua=1

² Respuesta mundial para el control de vectores, 2017-2030. WHO, 2017:

https://www.who.int/malaria/areas/vector_control/Draft-WHO-GVCR-2017-2030-esp.pdf?ua=1

³ Infografía - Abordaje de los determinantes ambientales de la salud en las estrategias de vigilancia y control de vectores. OPS, 2019: <https://www.paho.org/es/node/64253>

⁴ Lowe R, Ryan SJ, Mahon R, Van Meerbeeck CJ, Trotman AR, Boodram L-LG, et al. (2020) Building resilience to mosquito-borne diseases in the Caribbean. PLoS Biol 18(11): e3000791.

<https://doi.org/10.1371/journal.pbio.3000791>

- Other vector-borne diseases, such as Chagas disease (transmitted by triatomines), leishmaniasis (caused by sand flies) and schistosomiasis and liver fluke (in which certain types of mollusks participate), affect hundreds of millions of people around the world.

VBDs, a major public health problem in the Americas and a brake on development

VBDs are, among preventable illness, one of the principal causes of disability, and mortality in the Americas, and are imposing several interrelated social and economic costs. The lost productivity and costs of these illnesses are absorbing great share of government financial resources from other important health and development objectives. VBDs are placing an enormous load on health systems, and affected households are confronting important social and economic costs. VBDs are exacerbated by poverty and can exacerbate poverty and insecurity, with the burden of care often falling on women and girls.

In addition, in the Americas there are more than 200 million people who receive intermittent water service (i.e. service that is not available 24 hours a day, 7 days a week) and there are 34 million people who still lack access to an improved source of water for human consumption and 106 million people still do not have a sanitation system. Lack of reliable piped water supply and inadequate solid waste or excreta management can render large populations in towns and cities at risk of viral diseases spread by mosquitoes.⁵

VBDs such as dengue continue to be a major public health problem in the Americas region, with increasingly serious epidemics and the appearance of arboviruses in places where they had not previously occurred. This is the case of yellow fever, of which cases have been reported in urban settings for the first time in more than 50 years. One of the VBDs with the greatest presence in the region is the chikungunya virus, which arrived at the end of 2013 and has since spread to all countries.

In May of 2015, the Brazilian public authorities confirmed transmission of the Zika virus in the northeast of the country. That same year, its association with Guillain-Barré Syndrome (GBS) and with neurological malformations, including microcephaly, in newborns of women infected during pregnancy, was confirmed.

Also in Brazil, there was a considerable increase in the number of confirmed yellow fever cases in 2018, particularly in the states of Sao Paulo and Rio de Janeiro, even though it had historically been a rural or jungle disease. The Brazilian authorities confirmed a total of 723 cases and 237 deaths between July 2017 and the end of February 2018⁶. Although most cases occurred in Brazil, other countries in the region such as Colombia, Bolivia, Ecuador, French Guyana, Peru, and Suriname also confirmed cases in what is considered the largest transmission of yellow fever in the Americas in many decades.⁷

Additionally, Latin America and the Caribbean have also suffered its biggest ever dengue epidemic since 2019. According to the Pan American Health Organization (PAHO), more than three million cases were reported that year, an increase of over 25% since 2015, the previous highest year.

⁵ Global vector control response 2017-2030. World Health Organization, 2017: [Global vector control response 2017–2030 - PAHO/WHO | Pan American Health Organization](#)

⁶ Brote de fiebre amarilla en una comunidad urbano-rural de Espírito Santo Brasil: aspectos epidemiológicos. OPS, 2019: <https://www.paho.org/journal/es/articulos/brote-fiebre-amarilla-comunidad-urbano-rural-espirito-santo-brasil-aspectos>

⁷ Fiebre amarilla – Brasil. OMS, 2019: <https://www.who.int/csr/don/11-february-2019-yellow-fever-brazil/es/>

There were more than 1,500 dengue-related deaths in 2019. During 2020, some Caribbean countries have experienced dengue outbreaks.

Since the beginning of 2020, all these vector-borne diseases coexist with the COVID-19 pandemic and its consequent impact on the countries' health systems. This is the case of Brazil and Honduras, as well as several Caribbean countries, where dengue and COVID-19 outbreaks have taken place simultaneously and where health facilities have been overwhelmed⁸. A persistent risk in the region is that, already limited resources, will be devoted exclusively to the fight of COVID-19, at the expense of vector control policies and activities.

The response to epidemics caused by vector-borne diseases demands an investment of irreplaceable public funds in the Americas and is a reminder of the vulnerability of their emerging economies. Furthermore, its implications may push affected families over the poverty line.

There are many reasons for the appearance or reappearance of VBDs:

- The withdrawal of more effective but environmentally damaging insecticides (such as DDT), in combination with the development of insecticide resistance, has resulted in an increase in the number of vectors.
- Unprecedented growth in world population and uncontrolled expansion of urban areas in combination with deforestation.
- Governments have reduced resources for surveillance, prevention, and control of VBDs, as well as the public health infrastructure needed to treat these diseases.
- The funds needed for this type of public health initiative are typically reallocated to respond to new and increasingly frequent health emergencies, leaving this important issue underfunded.
- Lack of coordination within and between sectors, weakness or non-existence of evaluation and monitoring systems, and limited interventions that are sustainable and proven for certain vectors and situations.
- Climate change also has an impact on the incidence of VBDs. The increase in temperature and variation in rainfall affect floods and droughts, which, added to inadequate water supply in many areas in the Americas, promotes the storage of water in homes, which in turn increases the proliferation of vectors.

The answer: a regional vector control program implemented by the Americas' National Societies

It is essential to reposition vector control as a key approach to preventing and eliminating VBDs. Integrated vector management is instrumental to optimize and improve the effectiveness of surveillance and control actions, and to achieve the sustainability of integrated strategies. The World Health Organization (WHO) notes that action is needed in four key pillars to achieve effective, sustainable and locally adapted vector control:

Pillar 1: Strengthening intersectoral and intrasectoral actions and collaboration;

Pillar 2: Achieving community participation and mobilization;

Pillar 3: Improving vector surveillance and the monitoring and evaluation of interventions; and

Pillar 4: Expanding and integrating tools and approaches.

⁸ Dengue avanza en América Latina en plena pandemia de COVID-19. SciDevNet, 2020: <https://www.scidev.net/americas-latina/news/dengue-avanza-en-america-latina-en-plena-pandemia-de-covid-19/>

The region's National Red Cross Societies and their thousands of volunteers can make definitive contributions in each of these key areas while ensuring a response that goes beyond the emergency phase and invests in long-term, integrated programming:

Regarding intersectoral and intrasectoral collaboration (Pillar 1), the National Societies, supported by IFRC, work intensively and in a coordinated manner in the different countries of the Americas region, both with health institutions and with water and sanitation management bodies, as part of their auxiliary role to public authorities in these areas. Thus, the National Societies are key actors in strengthening inter- and intrasectoral collaboration.

Community participation and mobilization (Pillar 2), is at the core of the IFRC and National Societies' work. The IFRC, together with its 192 member National Societies worldwide, is the world's largest humanitarian volunteer network. National Societies have a permanent presence in their countries' communities and their volunteers belong to the communities in which they operate. Both IFRC and the National Societies are key actors in encouraging community participation and mobilization towards the establishment of comprehensive vector control programs, including effective citizen participation in the elimination of breeding sites and environmental protection.

As regards to the improvement of vector surveillance and the monitoring and evaluation of interventions (Pillar 3), IFRC has established Community Based Surveillance (CBS) programs that can be very useful for community participation in vector control processes.

As for the expansion and integration of tools and approaches (Pillar 4), IFRC is committed to the integration of multiple comprehensive and multisectoral approaches in vector control and surveillance strategies, including:

- Strategies that promote healthy environments, for example, by improving solid waste management and safe water and sanitation management.
- Strategies that ensure the proper management of chemical residues used in vector control.
- Reinforcement of planning and development of urban areas to minimize human contact with vectors.

In addition, IFRC, in collaboration with the region's National Societies and their volunteers, has accumulated significant experience in community-based vector control initiatives. Most notably, the Community Action Against Zika (CAZ) program, was implemented in collaboration with Save the Children between 2016 and 2019 in Colombia, the Dominican Republic, El Salvador, Honduras and Nicaragua. Additionally, IFRC has implemented 16 emergency response operations between 2015 and 2021 related to VBD outbreaks in the Americas, with a total of 1,875,058 affected people, 1,613,324 beneficiaries and a total budget of CHF 13,292,923⁹.

The creation of a Regional Vector Control Program is strategic to the advancement and fulfilment of international commitments, including the Sustainable Development Goals (SDGs), the Global Water and Sanitation Initiative (GWSI), and the One WASH Initiative. It is also aligned with IFRC's Strategy 2030¹⁰, which considers the expansion of community-based WASH programs as a priority

⁹ Data compiled from IFRC's DREF Operation Final Reports (Paraguay Dengue, Dominican Republic Dengue Outbreak, Colombia Dengue Outbreak, Dominican Republic Cholera Outbreak, Bolivia Influenza Outbreak, Brazil Yellow Fever, Dominican Republic Zika Virus Outbreak, Honduras Zika Virus Outbreak, Haiti Chikungunya Outbreak, El Salvador Chikungunya Outbreak, Colombia Dengue), DREF Operation Updates (Saint Lucia, Saint Vincent), Emergency Appeal Operations Updates (Central America Dengue Outbreak) and Emergency Appeal Final Reports (Panama Zika Virus Disease Global Response; Cuba, Haiti and Dominican Republic country cluster).

¹⁰ Strategy 2030. Platform for change: global reach, local action. IFRC, 2020: <https://www.ifrc.org/Global/Publications/general/S2030-EN.pdf>

for the current decade, [IFRC Health and Care Framework 2030](#), and IFRC's Americas WASH Strategic Direction 2021-2023.

This project proposal is aligned with the [2021 Operational Plan of the Americas Regional Office](#), specifically with the strategic priority "Growing gaps in health and wellbeing" and with the following outcome and outputs:

Outcome 3.2: The health and wellbeing of communities are protected and improved through access to sustainable, affordable, appropriate, and quality health services across the life course.

Output 3.2.9: National Societies are supported in their efforts to contribute to efforts to achieve and sustain national targets for vector-borne disease interventions, including coverage with insecticide-treated nets for effective malaria prevention.

PROJECT DESCRIPTION

This Regional Vector Control Program integrates the pillars identified by WHO to achieve an effective fight against vectors that is locally adapted and sustainable. In addition, it will also cover the following aspects:

- **Training and education.** Component aimed at communities, school children and young people, national and local authorities and volunteers from National Societies.
- **Innovative technologies for vector control, community surveillance, and community empowerment and participation.** One of the fundamental emphasis of the program is technological innovation at the service of communities.
- **Training and education tools, resources, and materials.** The program will develop a toolbox, in the style of the one developed for the above-mentioned CAZ program, that will include resources and materials available for different actors, as well as an online training module for self-paced learning.

The topics that the toolbox will address are:

1. Community entomological surveillance actions (for example, where possible, implementing the search and identification of mosquito breeding sites for their control and/or elimination; installation and monitoring of ovitraps, etc.).
2. Protocols for the definition of suspected cases.
3. Definition of the monitoring of water and sanitation conditions at the communities.
4. A community-based surveillance and monitoring protocol with the first guidelines to be considered for the implementation of epidemiological surveillance actions for arbovirus infections, aimed at community volunteers.

Research and innovation. Strategic alliances with universities and research institutions are needed to better understand the interactions between pathogens, vectors, and human and non-human hosts in relation to changes in the physical and social environment. Applied research makes it possible to evaluate the effectiveness of interventions and optimize the programmatic execution of vector control in an environmentally safe and sustainable way. Innovation is essential to promote the development and evidence base of new vector control and surveillance tools, technologies and approaches.

The initiative will integrate different cross-cutting themes such as **Protection, Gender and Inclusion (PGI)** and **Community Engagement and Accountability (CEA)**.

A **gender comprehensive approach** is central to the proposal of prevention and control strategies that are adapted to specific social and cultural contexts, as well as to better understand the factors for increased vulnerabilities, including risk of exposure, and acceptance and participation in prevention and control programs. Moreover, women are the major providers of care in the families, a very important condition considering the VBDs.

The **Community Engagement and Accountability (CEA)** approach is integrated throughout the project cycle. It seeks to place communities at the center of humanitarian action, establishing ways of working that better respond to the needs of the communities through adequate communication, provision of opportunities for participation, listening and accountability to the beneficiary population.

The VBD project will work in close cooperation with different initiatives and experts related to climate change to collaborate in actions related to the mitigation of the climate change impact on health.

The program will prioritize work with countries that have endemic vectors; in which outbreaks have occurred recently (in the last five years); countries with National Societies that have WASH capacities and countries with capable public systems. Additionally, permanent monitoring of the situation in the Americas will be maintained in case other countries could later join the initiative.

KEY OBJECTIVE AND OUTCOMES

The objective of this program is to reduce the mortality and morbidity of VBDs and minimize its risks using technology to strengthen the communities' capacities in vector control and community surveillance, as well as through social and behavioral change components to empower and strengthen communities.

The project will have an important focus on women. An analysis of the roles and responsibilities they play in the communities (as households, caregivers, leaders and volunteers) will be carried out, and it will be analyzed the access and control they have over the resources. The project will generate entry points to encourage their social participation and social leadership. Moreover, men and boys will also be targeted as a necessary part to generate changes in cultural norms and in society.

In addition, the project will work with other groups in vulnerable conditions such as the elderly population, persons with disabilities and migrants.

Outcome No. 1: Communities, local authorities and volunteers strengthen their capacity to prevent VBDs through the empowerment and mobilization of the community for vector control and the implementation of community surveillance measures with a special focus on women.

National Societies and their volunteers will support communities and schools in vector control and the implementation of community-based surveillance protocols (development of community risk maps and mosquito breeding sites; community action plans against the vector; community cleaning campaigns; waste collection and management; identification and physical elimination of breeding sites; increased knowledge about the vector; capacity building and active participation of communities in community surveillance and vector control).

Outcome No. 2: Communities and volunteers -with a special focus on women- implement strategies to improve access to safe water and hygiene and sanitation practices to contribute to vector control.

National Societies will support communities and schools in the identification and implementation of activities for vector control in the areas of water, hygiene and sanitation. They will develop the following strategies: development and rehabilitation of aqueducts and water treatment and storage systems; activities to improve community practices in hygiene and sanitation through the Participatory Hygiene and Sanitation Transformation (PHAST) methodology and implementation of hygiene standards for vector control in schools.

Outcome No. 3: Communities are empowered to be active agents in the implementation of actions aimed at vector control as a result of behavioral change strategies related to personal and community protection.

Knowledge, Attitudes and Practices (KAP) surveys as well as Focus Group Discussions (FGDs) will be carried out to assess communities' knowledge, attitudes and behaviors related to VBDs and to identify barriers to prevention and control, with a special focus on women. These methodologies will also serve to refine key messages and communication materials, as well as to design new ones for social and behavioral change, ensuring community participation design and piloting.

Outcome No. 4: Communities, local authorities and volunteers adopt innovative solutions such as virtual reality and augmented reality technologies for disease prevention and community mobilization.

Virtual reality technologies and an app will be used so that children and youth can learn interactively about the location of breeding sites in the community, how to prevent vector breeding, and how to protect themselves and identify VBD symptoms.

The app is intended to be a user-friendly and low-cost tool for community members and volunteers -with a special focus on women- to use, compiling information on cases and on vector proliferation areas.

The app will be developed in three stages. First, it will provide information and tools for the professionals and volunteers working with the communities as facilitators. In a second phase, the content targeted at communities will be developed. Through the APP, the communities will know the vectors, their effects and strategies for their control. At a final stage, once communities have been trained, they will be able to be part of the change and to contribute to the generation of information through an epidemiological monitoring mechanism at the community level.

Outcome No. 5: The National Red Cross Societies and their volunteers strengthen their capacities to lead vector control initiatives, effectively supporting communities and establishing inter-institutional alliances.

National Societies need to have public health and WASH trained staff and volunteers. They also need to be represented and integrated in their countries' coordination structures together with the relevant local and national actors (including Ministries of Health, water supply and waste management institutions). Finally, they will work on developing alliances with universities and research institutions to promote sharing innovation and vector control findings.

KEY ACTIVITIES

All the activities in the project will integrate the gender perspective, will ensure that women are visibly engaged as agents of change at all levels, will build women's capacities and provide them with the tools to be heard and to lead and to ensure their full and meaningful participation.

- Design of community and school plans for VBD control and prevention: training activities in schools and colleges, training of volunteers, teachers and students, community mapping of high-risk places, cleaning campaigns for the elimination of breeding sites and coordination with different community platforms.
- Assessment in each of the communities of the necessary infrastructure work in aqueducts and water supply, treatment and storage systems, both in homes and in public infrastructures.
- Training workshops in waste and excreta management and menstrual hygiene.
- Promotion of alliances for public investment with contributions from the private sector to eliminate vector breeding sites and improve water and sanitation systems.
- Implementation of KAP surveys and FGDs to identify barriers to prevention and control of VBDs.
- Workshops with a dynamic and participatory approach (radio programs produced by the community, community theater, community cinema...)
- Development of culturally relevant communication materials with a gender focus.
- Development of virtual reality and augmented reality technologies, including an app to educate communities about VBDs, share health promotion messages, community-based surveillance, as well as identification of early signs and symptoms.
- Regional training workshops on comprehensive vector control management for National Societies' Health and WASH focal points and volunteers.
- Online training course.
- Compilation of all available tools and resources and socialization among National Societies and volunteers.
- Advocacy for National Societies' participation in their countries' national and local public health and water and sanitation coordination bodies.
- Participation in vector control international forums and events.
- Establishment of alliances with private sector.
- Development of alliances with universities and research institutions to share information on innovative solutions and findings on vector control.
- Story gathering, and media coverage and research.
- Digital content production and dissemination.
- Training on data visualization and data-based storytelling for National Societies.
- Media and social media campaign and public comms products on the app.

PROJECT TIMEFRAME

3 YEARS

BUDGET

6,645,658 Swiss francs