Strengthening North-South research cooperation in social sciences for protecting vulnerable populations from *Aedes*-borne diseases

Context

Dengue is the most prevalent *Aedes*-borne arbovirus in the world. In 2024, more than 13 million cases were registered and over 8000 dengue-related deaths, particularly in the Americas. In 2024, there were 6,644,336 suspected cases in Brazil, leading to 6041 deaths across the country. In Africa, even if the disease is less prevalent, Burkina Faso for example, experienced its most important outbreak in 2023, with more than 150,000 cases and around 1000 deaths. In Europe, dengue becomes an emerging disease with numerous cases essentially related to travels, with also an increasing number of autochthonous cases (82 cases in France in 2024).

The disease mainly affects urban settings because of the ecology of the vectors, *Aedes aegypti* and *Ae. albopictus* that can be found simultaneously in some countries. These mosquito species spread mainly in areas with high population density and insufficient health infrastructure such as unstructured districts. These neighbourhoods often face challenges such as lack of infrastructure for water and waste management that favour the spread of the vector.

In the absence of treatment and because of limited access to dengue vaccine worldwide, the main tools for controlling dengue are those that target the vector. But, faced with obstacles linked to insecticides, mainly mosquito resistance and environmental impacts, there is an urgent need to find innovative means of control.

The fight against dengue and other arboviral diseases will not succeed without the active involvement of affected communities, whether in urban, rural, or forested areas. Within a One Health approach, strategies grounded in social sciences have proven effective but need to be expanded and adapted to different socioeconomic contexts.

INOVEC HORIZON-EUROPE (https://inovecproject.com/) provides an ideal framework for setting up an international network of researchers involved in social science approaches to tackling *Aedes*-transmitted diseases.

In 2025, our objective is to organize a workshop at Fundação Oswaldo Cruz (Fiocruz), Brazil to foster research collaborations and knowledge exchange among scientists from America, Europe, and Africa. This event will focus on sharing experiences in community engagement for vector surveillance and control and identifying gaps in current knowledge. By exploring the diversity of existing practices, participants aim to enhance the sustainability of citizen science programs, better understand the motivations and roles of citizens within these initiatives, and address specific challenges faced in vulnerable areas.

Objectives

This workshop aims to foster collaboration between researchers, practitioners, and policymakers from the Global North and South to address the growing threat of *Aedes*-borne diseases through innovative social science approaches.

Specific objectives:

- Share insights into projects conducted in various contexts of vulnerability to *Aedes*-borne diseases, highlighting both advances and challenges.
- Strengthen international partnerships to promote interdisciplinary and complementary actions, enabling testing in diverse settings.
- Develop the framework for the creation of an International Social Science Network on Arboviruses to enhance efforts against *Aedes*-transmitted diseases.
- Develop an action plan that integrates community-based surveillance with interdisciplinary mosquito control techniques, focusing on feasible and sustainable solutions.

Provisional programme

Day 1

08.30-09.00 - Welcome

09.00-09.30 - Opening ceremony

- **Fabiane da Costa Gaspar da Silva**, Representative of the Presidency and the Vice-Presidency for Global Health at the Oswaldo Cruz Foundation (**FIOCRUZ**) in Brazil
- **Ilka Vilardo**, Representative of the Center for International Relations at the Oswaldo Cruz Foundation (**FIOCRUZ**) in Brazil
- **Elaine Dias**, Representative of the Coordination of Health Surveillance and Reference Laboratories at the Oswaldo Cruz Foundation (**FIOCRUZ**) in Brazil
- **Vincent Brignol**, representative of **French Embassy** in Brazil
- **Abdelfettah Sifeddine**, representative of **IRD** in Brazil
- **Erica Telford**, representative of **ANRS MIE** in Brazil

09.30-10.15 - Introduction conferences *(15min/person)*

- Impact of arboviral diseases on communities in South America – **Wildo Navegantes, Organização Pan-Americana da Saúde, Brasil**
- Community mobilization approaches for the evaluation of *Aedes* control in Brazil - **Antonio Lima, University of Fortaleza, Fortaleza, Brazil**
- Brazil-Africa cooperation in health: perspectives from Fiocruz – **Erica Kastrup, Cooperação Sul-Sul, Centro de Relações Internacionais em Saúde, Centro Colaborador PAHO/WHO para Saúde Global, Brazil**

10.15-10.50 Coffee break

10.50-12.30 - Session 1. Global changes and impact on communities: how social sciences can contribute to better health and wellbeing? *(20min/person)*

- Nature-based solutions in Sao Paulo (Biota program) - **Jean-Paul Metzger, University of São Paulo, Brazil**

- Green cities and vector-borne diseases: emerging concerns and opportunities - **Florence Fournet, IRD, France**
- Can community engagement address vector-borne diseases and climate risks simultaneously? - **Javier Lezaun, University of Oxford, UK**
- Impact of climate change on global health - **Helen Gurgel, University of Brasilia, Brazil**
- Risk factors for dengue reproduction in a favela – far beyond still water and sanitation - **Marcia de Freitas Lenzi, Fiocruz, Brazil**

12.30-13.30 Lunch break

13.30-15.50 - Session 2. Chemicals, SIT, Wolbachia and genetically modified mosquitoes: what are the communities' perceptions, and how can social sciences contribute to their appropriation and implementation?

- Larval Source Management: Navigating the Science-Policy Divide – **Irene Moshi, IHI, Tanzania**
- Community perception/engagement related to aerial spraying in the contiguous U.S. - **Casey Crockett, CDC National Center for Emerging Zoonotic Infectious Diseases, Division of Vector-Borne Diseases, ADBranch, USA**
- Community engagement in relation to the use of Sterile Insect Technique: Experiences from Cuba – **Misladys Rodriguez Ortega, Pedro Kourí Institute of Tropical Medicine, Cuba**
- Community engagement in relation to the deployment of Wolbachia infected mosquitoes, Brazil **- Guilherme Borges da Costa, ESPM-SP, Brazil**

15.50-16.10 - Coffee break

16.10-17.30 - Participative workshops

Participatory workshops (Stop *Aedes*, other serious games at Fiocruz and Mosquito Alert)

Day 2

9.00-10.50 - Session 3. Citizen-based science tools and technologies: how can these new approaches be used in the fight against vector-borne diseases?

- GARO MOUSTIK: Lessons learned from La Réunion on a tool for dialogue between stakeholders and for strengthening collective action against *Aedes* – **Charlotte Maquet, Cirad, France**
- Mosquito Alert: Citizen science platform to investigate and control disease-carrying mosquitoes – **Mar Jambou, CSIC, Spain**
- Stakeholder mapping to support pilot trials of digital tools for citizen engagement in mosquito surveillance – **Anne Poinsignon, IRD, France**
- Mosquito Alert: Experience of citizen science application in Uruguay – **Andres Cabrera, Ministry of Health, Uruguay**

10.50-11.10 - Coffee break

11.10-12.30 – Round Table: Challenges and Opportunities in Community Engagement for Vector-Borne Disease Control (*moderators: Javier Lezaun and Marcia de Freitas Lenzi*).

12.30-13.30 – Lunch Break

13.30-14.50 - Session 4. Feedback from field experiences: how can social mobilization enhance surveillance and control of vector-borne disease control? (Part 1)

- How to improve mosquito surveillance by engaging municipalities and communities - The Ovitrapas network - **José Bento Lima, Fiocruz, Brazil**
- Community Participation and Communication to Engage the Population in entomological and environmental surveillance to help map *Aedes aegypti* in Maré, Rio de Janeiro, Brazil - **Gabriela Azevedo de Aguiar, Fiocruz, Brazil**
- Co-development of community-based surveillance and control of VBD in transborder areas in Brazil – **Anapaula Martins Mendes, UFSC/Fiocruz, IOC, EU-MOSAIC project, Brazil**
- Birth of the dengue epidemic: analyzing the social fabric of the disease to support the implementation of citizen science - **Jean Birba, IRSS, Burkina Faso**

14.50- 15.10 - Coffee break

15.10-16.10 - Session 4. Feedback from field experiences: how can social mobilization enhance surveillance and control of vector-borne disease control? (Part 2)

- Overview of Arboviruses in the Western Amazon: Scientific Expeditions and Epidemiological Surveillance – **Jackson Alves da Silva Queiroz, FIOCRUZ Rondônia, Brazil**
- Community-based intervention against dengue in Medellin, Colombia **– Maria Patricia Arbelaez, University of Antioquia, Colombia**
- The importance of favelas participation in control programs: experiences developed in Maré - **Luna Arouca – Redes da Maré, coordenadora do Eixo Saúde, Brazil**

16.10-17.30 - Reviewing feedback from the audience and writing the ToR of the future International Research Network on social sciences for protecting vulnerable populations from mosquito borne diseases

17.30-18.00 – Conclusion and closure of the meeting