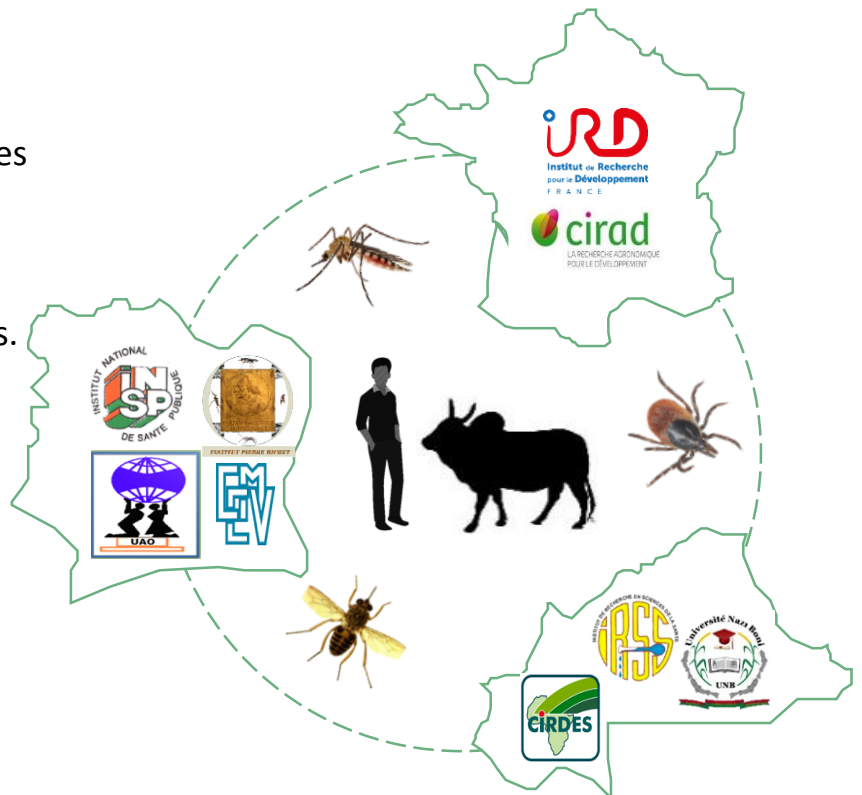


Research and training for vector-borne disease control

*Malaria, African human and animal trypanosomiasis,
tick-borne diseases, leishmaniasis, onchocerciasis, dengue, filariasis.*

The Joint International Laboratory for Vector Diseases (LAMIVECT) is a multidisciplinary center of excellence in research and training. It focuses on vector-borne diseases affecting humans and animals in Burkina Faso and Côte d'Ivoire.

LAMIVECT teams conduct field and laboratory activities on these diseases, which mainly affect the most vulnerable rural and urban populations. The Joint International Laboratory for Vector-borne Diseases involves institutions from France (IRD, CIRAD), Burkina Faso (IRSS, CIRDES, UNB) and Côte d'Ivoire (IPR-INSP, CEMV-UAO).



PUBLIC HEALTH ISSUES



Vector borne diseases are one of the main causes of morbidity and mortality in Sub-Saharan Africa. Research improved the knowledge of these diseases, allowing to propose strategies and tools of control in the aim to reach control and then elimination. The training ensures the transfer of knowledge to future generations, essential for the sustainability of research and control actions.

ACTIVITIES

The Joint International Laboratory for Vector-borne Diseases (LAMIVECT) has been committed for 10 years to improving knowledge on vector-borne diseases (pathogen, vector, host, and environment), their dissemination and their operationalization in the field by mobilizing expertise and technological tools.

Scientific production in excellence partnership: 33 coordinated projects, more than 200 international scientific productions*.

Creation, improvement, evaluation of control tools and strategies: more than 300,000 people and 5,000 beneficiary animals*.

Strengthening the capacities of the Ministries of Higher Education and Research, Health and Animal Resources (supervision, training and short courses): 20 PhD and 51 MD supported, 2,000 hours of training, 345 hours of short courses, 450 students supervised*.

*Since 2017

TEAMS AND TECHNICAL RESOURCES

60 researchers
48 labtechs
44 students
4 insectaries
17 technical platforms
1 liquid nitrogen generator
1 irradiator

The Joint International Laboratory for Vector-borne Diseases (LAMIVECT) involves institutions from France (IRD, CIRAD), Burkina Faso (IRSS, CIRDES, UNB) and Côte d'Ivoire (IPR-INSP, CEMV-UAO). The research is carried out in close collaboration and consultation with the national control programs for the various diseases under study. The LAMIVECT model advocates interdisciplinarity and the One Health approach to provide solutions to the health problems linked to vectors and the pathogens they transmit.

EXPERTISE TO SUPPORT VECTOR-BORNE DISEASES CONTROL

Characterization of pathogens, vectors, hosts and environment

- Identification of pathogen species (trypanosomes, plasmodium, etc.).
- Characterization of vector species (mosquitoes, tsetse flies, etc.).
- Description of human and animal hosts (densities, mobilities, etc.).
- Definition of the environment (land use, communication network, hydrographic network, etc.).

Development and evaluation of control tools (medical, vectorial, spatial) aiming to control and eliminate vector-borne diseases

- Development and/or evaluation of vector control tools (tiny targets, impregnated mosquito nets, insecticide paint, ivermectin).
- Bioassay to characterize vector resistance to insecticides (mosquitoes, ticks).
- Development of diagnostic tools (trypanolysis, salivary biomarkers).
- Elaboration of new frameworks to guide control (Identification of Villages at Risk and spatialized monitoring of Human African Trypanosomiasis cases).
- Development of vaccines (malaria, tick-borne disease).

Support to national and international organizations

- Availability of tools developed by countries for control and elimination.
- Improvement of control strategies at the international level (WHO, FAO, IAEA).
- Dissemination of progress on control strategies to decision-makers.
- Raising public awareness of diseases and their vectors.

SUCCESS STORY

Tsetse flies control has often been neglected because of the cost of large blue and black insecticide-impregnated screens and the complexity of transporting them to control sites.

In order to partly remedy this problem, entomological and economic research identifies small screens, produced at lower cost and easy to transport, which remain effective against tsetse flies. These screens are now widely used to control tsetse flies that are vectors of human and animal trypanosomiasis.

TINY TARGETS



WHY SUPPORT US

1. Improvement of knowledge on pathologies, vectors, hosts and their environment (scientific production: 114 publications and 101 communications since 2017).
2. Creation and evaluation of control tools (medical, vectorial, spatial) to contribute to the control and elimination of vector-borne diseases.
3. Strengthening of the capacities of the Ministries of Higher Education and Research, Health and Animal Resources (recruitment of students trained by LAMIVECT, career advancement), alignment of actions with national research and training strategies, and decision making.
4. Leverage effect for funding: €4M raised to carry out projects obtained from several donors such as BMGF, Initiative 5%, EDCTP, C2D, ANR France etc., thanks to inter-institutional collaboration, pooling, sharing and complementarity of human resources and equipment.
5. Societal impact of applied research activities (raising public awareness, treatment of pathologies and protection against vector bites: more than 300,000 people and 5,000 domestic animals have benefited since 2017).

THE LAMIVECT CONTRIBUTES TO SDGs ACHIEVEMENT



**WE NEED YOU TO ENSURE THE
SUSTAINABILITY OF THE
LAMIVECT MODEL AND ITS
ACTIONS.**

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