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Start Programme

Call for applications
« Master's grants – International Network » 2027

Internship offers – Cambodia Partner Site

Two internship offers are published by the **Cambodia Partner Site**.

Internship offer KH_01

Internship title: AI-assisted spatiotemporal modelling of dengue risk in Phnom Penh, Cambodia

Internship host institution: Institut Pasteur du Cambodge (IPC)

Country: Cambodia

Scientific supervisors (tutors): Dr Sébastien BOYER (Medical and Veterinary Entomology Unit, IPC), Dr Sahina SIDNIK (IPC) and Dr Claire TEILLET (Institut de recherche pour le Développement (IRD)

Internship site: IPC, Medical and Veterinary Entomology Unit, Phnom Penh, Cambodia

Disciplines / Areas of training: Medical Entomology, Spatial Epidemiology, Medical Geography, GIS and Remote Sensing, Epidemiological Statistics, Artificial Intelligence and Machine Learning for Public Health.

Main internship objectives:

1. Characterise the spatial and temporal distribution of *Aedes aegypti* and *Ae. albopictus* across the four urban classes defined by the SEA-ROADS project in Phnom Penh, Cambodia, using entomological data already collected.
2. Investigate the relationships between larval abundance and urban environmental characteristics.
3. Assess temporal lags between entomological observations and reported dengue cases.
4. Develop and evaluate spatial and spatiotemporal predictive models using statistical and artificial intelligence approaches to identify areas with elevated dengue risk.

Project associated with the internship: ANRS0637 SEA-ROADS: One Health Regional Approach for Integrated and Interconnected Urban Dengue Surveillance in Southeast Asia (funded by ANRS MIE). The investigating coordinators are Sébastien BOYER (IPC, Phnom Penh Cambodia) and Paul RICHARD (Ecology and Emergence of Arthropod-borne Pathogens, Institut Pasteur, Paris, France). During the internship, the intern will have access to a finalised database and will contribute to the analysis and valorisation of data collected over two years of fieldwork.

Description of the internship: This internship aims to develop an AI-assisted spatiotemporal modelling framework to identify areas and urban classes at elevated risk of dengue in Phnom Penh, Cambodia. Dengue remains a major public health challenge in Cambodia, where rapid urbanisation, uneven population distribution and environmental heterogeneity may influence mosquito ecology and disease transmission. Using SEA-ROADS surveillance data, the study will characterise the spatial and temporal distribution of *Ae. aegypti* and *Ae. albopictus* across four urban classes and investigate their relationships with vegetation cover, built-up density, urban centrality, and human population distribution. Temporal lags between entomological observations and reported dengue cases will be assessed to explore whether mosquito surveillance indicators can help anticipate changes in dengue incidence. Statistical and artificial intelligence approaches will then be developed and evaluated to identify areas with elevated dengue risk and determine the relative contribution of entomological, environmental, and demographic factors. The findings will support a better understanding of urban dengue dynamics in Cambodia and inform targeted vector surveillance, risk-based interventions, and evidence-based public health decision-making.

Potential outcomes following the internship: Dengue risk maps, a reproducible analytical workflow, a final internship report, and/or a scientific manuscript for submission to a peer-reviewed journal.

Potential paths for the intern upon completion of the internship: Upon completion of the internship, the intern may: (i) pursue a PhD in spatial epidemiology, medical entomology or data science applied to vector-borne diseases, building on the SEA-ROADS consortium network (Institut Pasteur, Institut Pasteur du Cambodge, IRD); (ii) join ongoing dengue and arbovirus research projects in Cambodia or Southeast Asia as a research assistant or data analyst; (iii) take up a data analysis or GIS position within national surveillance and vector control programmes or international public health organisations.

Expected candidate profile:

- **Education and prerequisites to be completed before the start of the 2027-2028 academic year (i.e., the master's programme year):** Bachelor's degree (or equivalent) in medical entomology, geography, environmental science, public health, epidemiology, statistics, computer science, data science, ecology, or a related discipline. Basic knowledge of statistics and quantitative data analysis is desirable.

- **Type of master's degree to be pursued for the 2027-2028 academic year, during which the internship will take place:** Master's degree in data science, epidemiology, public health, biostatistics, geomatics or medical entomology, with a strong quantitative component. A master's 2 (M2) student is preferred, although applications from qualified and highly motivated master's 1 (M1) students will also be considered.

- **Languages spoken:** Working proficiency in English, particularly for scientific reading, report writing, and communication.

- **Technical skills/tools and level of proficiency:** Basic to intermediate proficiency in R or Python for data processing, exploratory data analysis, statistical modelling, and visualisation. Understanding of descriptive statistics, regression analysis, and model evaluation. Prior knowledge of machine learning or spatiotemporal modelling is an advantage.

- **Interpersonal skills:** Willingness to learn new methods; ability to work independently and collaboratively within a multidisciplinary, international research team; and good written and verbal communication skills.

- **Other expected criteria:** Strong motivation to apply geospatial and data-driven approaches to infectious disease surveillance and public health. Interest in vector-borne diseases, urban ecology, environmental epidemiology, or One Health is desirable. The candidate should demonstrate scientific

integrity, a willingness to work with multidisciplinary datasets, and an interest in translating analytical results into practical recommendations for targeted dengue surveillance.

- **Availability (internship period):** 6 months, between February and August 2028.

Internship offer KH_02

Internship title: Mixed-methods research on viral hepatitis C, sexually transmitted infections (STI) and HIV prevention in Cambodia: acceptability, access and implementation.

Internship host institution: University of Health Sciences (UHS).

Country: Cambodia.

Scientific supervisors (tutors): Dr Kennarey SEANG (Research Fellow at the Global Health Research Center of the University of Health Sciences, Cambodia); Dr Luis SAGAON TEYSSIER (Research Director at Institut de Recherche pour le Développement (IRD) and UHS); Dr Victor GELLIE (International Technical Expert, UHS).

Internship site: Global Health Research Center (GHRC), UHS, Phnom Penh, Cambodia.

Disciplines / Areas of training: Public Health; Epidemiology; Health Economics; Social Sciences; Quantitative and Qualitative Research Methods.

Main internship objectives: To contribute to the development of research questions and analysis plans; conduct quantitative and qualitative analyses of access to prevention and care; integrate findings to understand how socioeconomic circumstances, individual experiences and service organisation influence outcomes; and contribute to scientific reports and recommendations for local partners.

Projects associated with the internship: The internship will contribute to research on access to prevention and care in Cambodia, combining quantitative and qualitative approaches to understand service use, intervention acceptability and barriers.
Activities will draw on three complementary projects:

- **ANRS12384 Cam-C:** Assessment of community-based versus facility-based hepatitis C screening, including the acceptability of service delivery strategies and their implementation and economic implications; funded by the ANRS MIE and coordinated by Pr Jean-Charles DUCLOS-VALLEE (Service de Centre Hépato-Biliaire Henri Bismuth. Hôpital Paul-Brousse) and Pr Vonthanak SAPHONN (UHS). Progress: scientific valorisation is ongoing. The quantitative analyses have been completed and published while the qualitative data have been collected and preliminary analyses conducted in Khmer language.
- **ANRS0417 PreSTI-Cam:** Research on sexually transmitted infection prevention among PrEP users and people living with HIV, informing the development

of locally adapted biomedical prevention strategies; funded by the ANRS MIE and coordinated by Dr Luis SAGAON TEYSSIER (IRD and UHS) and Dr Phearavin PHENG (UHS). Progress: quantitative analyses of the national data on HIV PrEP users are ongoing; qualitative data will be collected in November 2026 with transcription and preliminary analyses planned in December 2026.

- **UNAIDS Lenacapavir acceptability:** Qualitative assessment of perceptions, expectations and potential barriers and facilitators to the use of lenacapavir for HIV prevention. Coordinated by Dr. Kennarey SEANG (UHS). Progress: qualitative data will be collected in December 2026-January 2027, with transcription and preliminary analyses planned in January-February 2027.

The specific contribution to each project will be agreed with the supervisors and the coordinating investigators according to the candidate's training, and project timelines. A focused research question will form the basis of the master's dissertation.

Description of the internship: This internship offers practical experience in mixed-methods public health research on viral hepatitis C, HIV and STI in Cambodia, within a multidisciplinary Cambodian and international team. Depending on project needs, the intern will contribute to literature reviews, elaboration of analysis plans, data collection alongside local researchers, and/or the preparation and analysis of quantitative datasets and qualitative interview material.

Quantitative activities may include descriptive and multivariable analyses of service use, socioeconomic inequalities and patient expenditures. Qualitative activities may include developing coding frameworks and conducting thematic analysis of experiences, acceptability and barriers to prevention and care. Where both types of data address a shared research question, the intern will contribute to integrating the findings to identify converging or complementary explanations and translate these into practical recommendations.

Work will be conducted in collaboration with Cambodian researchers and students, encouraging mutual learning and skills exchange.
The intern will contribute to knowledge transfer to a local Cambodian student through practical sessions and joint work on project data. Depending on the intern's expertise and the student's learning needs, activities may cover data preparation, statistical analysis, qualitative coding and interpretation of findings, supported by simple learning materials and documented examples.

Potential outcomes following the internship: The intern will participate in scientific meetings, present findings and contribute to a dissertation, research report and, where feasible, a scientific manuscript.

Potential paths for the intern upon completion of the internship: The internship will prepare the intern for doctoral studies or research and programme evaluation roles in public health, global health and infectious disease prevention. Depending on the intern's interests, performance and available funding, opportunities may be explored to pursue a PhD or further research collaboration with UHS, IRD and partners of the ANRS MIE Cambodia Partner Site, building on the research questions and findings developed during the internship.

Expected candidate profile:

- **Education and prerequisites to be completed before the start of the 2027-2028 academic year (i.e., the master's programme year):** Academic or practical training in public health, epidemiology, health economics, social sciences or program evaluation (first-year master's level). A strong interest in combining quantitative and qualitative approaches is required; candidates may have greater experience in one approach and be willing to develop skills in the other.

- **Type of master's degree to be pursued for the 2027-2028 academic year, during which the internship will take place:** Master 2 (final year) in Public Health/Global Health, Epidemiology, Health Economics, Sociology of Health, Anthropology of Health, Development Studies or a related discipline.

- **Languages spoken:** English required; French and/or Khmer would be assets. Qualitative work involving Khmer-speaking participants will be undertaken with the local team and appropriate language support.

- **Technical skills/tools and level of proficiency:** Familiarity with descriptive and multivariable statistics and/or qualitative interviewing and thematic analysis; interest in mixed-methods integration; understanding of research ethics, confidentiality and culturally sensitive research.

- **Computer software skills:** Working knowledge of R or Stata for quantitative analysis; familiarity with qualitative analysis software such as NVivo, MAXQDA or ATLAS.ti would be an asset.

  Interpersonal skills: Ability to synthesise complex information clearly; interest in equitable access to health services; cultural sensitivity; organisational skills; ability to work collaboratively in a multidisciplinary team and in tandem with a Cambodian student.

- **Availability (internship period):** From February to August 2028.