

Afrique One-REACH Call for Fellowships 2023



Outline

PART I: General information on the fellowships

PART II: Fellowships of Afrique One-REACH

- TTP: Emerging and endemic zoonotic diseases of priority to Africa (End zoonoses, EEZs)
- TTP: Controlling endemic neglected tropical diseases with integrated risk management (Cut NTDs)
- TTP: Mitigating NCDs (including mental health) through integrated management with One Health in Africa (Stop NCDs)
- TP: Transversal Programme in Collective Action for Health and Behavioural Change (CABEC)
- TP: Transversal Programme in Data Science, Statistics and Modelling (DSSM)

NB. Candidates are advised to read the following papers:

<https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1010537>

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(22\)01595-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01595-1/fulltext)

and follow the Massive Open Online Course on One Health:

<https://www.futurelearn.com/courses/one-health>

Funded by:



PART I: General information on the fellowships

Context: Afrique One-REACH (Research Excellence for African Challenges in Health) is part of the funding initiative Developing Excellence in Leadership Training and Science in Africa (DELTA Africa II). DELTA Africa is a long-term programme of the SFA Foundation supported with funding from Wellcome, and the Foreign Commonwealth and Development Office (FCDO) in the UK. Its vision is to support the African-led development of world-class research and research leaders in Africa, who will play a major part in shaping and driving a locally relevant health and social sciences research agenda for Africa, contributing to improved health and well-being and the sustainable socio-economic development of the continent.

Fellowships: Afrique One-REACH aims to fill up to 50 fellowship positions 5 Postdocs (24 months), 24 PhDs (36-48 months), 12 MSc (12-24 months), 9 trainees (MD, DVM, IING, BSc, 12 months) with a gender ratio 1:1 (50% female and 50% male fellows).

Topic and research sites: The research topics cover three main disease complexes in Thematic Training Programmes (TTPs): (i) Endemic and Emerging Zoonoses (EEZs); (ii) Neglected Tropical Diseases (NTDs), (iii) Non-Communicable Diseases (NCDs) with two transversal programmes (i) Collective action and behaviour change (CABEC) and (ii) Data science, statistics and modelling (DSSM). The research will be conducted in Afrique One-REACH partner countries or any other African country with a strong link to the Afrique One-REACH network. The research topics are generated from the experience and learning of our programme in Africa (2009-2022) and may be indicative. However, candidates may propose strong research questions and topics aligned with Afrique One-REACH objectives and emerging health challenges in Africa. The theme should fit to one of the TTPs or TPs.

Supervision and mentorship: The candidates will primarily be supervised by their academic supervisors (following academic rules) and an appointed Afrique One-REACH co-supervisor (based on a MoU with the university). A committee will be formed around the candidates' fellowship. The candidate (MSc, PhD, Postdoc...) may select from the list the names of co-supervisors or mentors in relation to their topic and career pathways or propose an expert to be approved by the consortium.

Eligible academic institutions: The research will be conducted primarily within the listed institutions and countries, but the call is also open to other institutions in African countries following the main objectives of Afrique One-REACH. All fellows should be registered at a recognized public university in Africa engaged in One Health research and transdisciplinarity. Furthermore, the institution has to adhere to equitable research partnerships. The degree-awarding institution has to allow committees around the fellowship (with co-supervision from Afrique One-REACH) and be open for Postdoctoral programmes.

Qualification: The candidate must be a citizen of an African country who holds an MPhil/MSc degree or has submitted his/her thesis in his/her field in areas contributing to One Health. The strongest applicants will have some experience and expertise in One Health on top of his/her discipline or sector. All disciplines (including Art, Archaeology...) with a potential of bringing added value in health are welcome. In terms of methodology, biology methods, social science methods, mathematics underlying simple epidemiological models, structural equation models, a basic grasp of computer programming

and experience in qualitative and quantitative data analysis are welcome. Candidate should have at least one (for MSc, PhD) or two (for Postdoc) co-authored publications in a peer reviewed journal. A letter of support of the academic supervisor for the planned project is needed.

Training: Each fellow is required to complete the One Health MOOC in the first year. Training programmes will be offered to fellows individually or in groups on specific modules based on regular needs assessments. Joint training will be provided primarily in Ghana, Côte d'Ivoire, Tanzania, DRC, Senegal with opportunities for further training within the Afrique One-REACH consortium and with partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Notice: Each candidate should comply with the call and clearly provide the topic reference of the choice. Incomplete or non-conform applications will not be reviewed. Only selected candidates will be invited for interview.

I. Number of fellowships

Afrique One-REACH is seeking to recruit **5 Postdoc Research Fellows, 24 PhD Fellows, 12 Master Fellows** to cover 3 Thematic Training Programmes and 2 Transversal Programmes within the consortium. Furthermore, 9 trainee fellowships (DVM, MD, Ing., BSc) are available to support the PhD and postdoc fellows retained.

| Thematic Training Programme (TTP) & Transversal Programme (TP) | Number of open fellowships | | | |
|---|----------------------------|-----------|-----------|------------------------------|
| | Postdoc | PhD | Master | Trainees (MD, DVM, ING, BSc) |
| TTP-End EEZs: Emerging and Endemic Zoonoses (EEZs) | 1 | 7 | 4 | 3 |
| TTP-Cut NTDs: Neglected Tropical Diseases (NTDs) | 1 | 7 | 4 | 3 |
| TTP-Stop NCDs: Non-communicable Diseases (NCDs) | 1 | 7 | 4 | 3 |
| TP-CABEC: Collective action and behavioural change (CABEC) | 1 | 3 | 0 | 0 |
| TP-DSSM: Data science, statistics and modelling (DSSM) | 1 | 0 | 0 | 0 |
| Total Afrique One-REACH fellowships | 5 | 24 | 12 | 9 |

II. Budget allocation for fellowships (budget is indicative)

The budget will comprise (i) stipend, (ii) course registration fees, (iii) research permits, ethical clearance and field costs, (iv) travel-flight-visa-insurance and interactions with supervisors, (v) basic equipment and material, (vi) miscellaneous.

| | |
|-----------------------------------|--|
| Postdoctoral Research Fellowships | 50'000-53'400 Euros for 24 months |
| PhD programme | 45'000-51'000 Euros for 48 months |
| MSc programme | 15'000-23'100 Euros for 24 months |
| Trainees (MD/DVM...) | 10'000-15'900 Euros for 6-12 months |

Partly funded fellowships or field work costs for projects related to any of the three TTPs and two TPs are possible in exceptional cases. Applicants will have to provide evidence of co-funding.

III. Application documents

1. Fill in online CV-form <https://bit.ly/3KDoH1x> including a list of publications and active conference participations (i.e. poster and oral presentation)
2. Application letter describing your interest in the programme Afrique One-REACH and One Health, any prior experience relevant to the proposed topic and your longer-term ambitions and goals (max. 500 words)
3. MSc: Summary of your last qualification work (max. 500 words); PhD: one sample publication or summary of your last qualification work (max. 500 words); Postdoc: one sample publication.
4. Short project proposal (strictly keep to instructions under point IV. below)
5. Letter of support for the project from the academic supervisor or head of the academic institutions where the training will take place.

IV. Short project proposal (to be uploaded as file in online CV form)

Note: To win this fellowship, you will have to show how you will employ the One Health approach together with your discipline to perform the research on diseases or health threats relevant to your country or Africa.

- 1) Project title (25 words max.)
- 2) Institution of academic registration and research field site/country (100 words max.)
- 3) Abstract (250 words max.)
- 4) Introduction / Context (500 words max.)
- 5) Research Questions and Objectives (250 words max.)
- 6) Methodology (1000 words max.)
- 7) Expected Results (250 words max.)
- 8) Partners and Networks (250 words max.)
- 9) Timeline (table)
- 10) Budget

- 11) Annex: Letter of Support (signed by a supervisor) to be uploaded separately in online CV form)

Submit the application online: <https://bit.ly/3KDoH1x> by **May 21st, 2023 5 pm GMT**. Candidates that are selected for the next stage will be invited for an interview at Afrique One-REACH institutions in their respective countries or where most convenient or online.

V. Timeline

| Activities | Date |
|--|--|
| Advert | Week of 17 th April 2023 |
| Webinar on application procedures, Q&A Registration link: https://bit.ly/3Ur8np0 | 24 th April, 11am GMT/ 2pm EAT |
| Submission deadline | 21 st May 2023, 5pm GMT / 8pm EAT |
| Notification to selected candidates and webinar to prepare for the interview | Week of 10 th July 2023 |
| Interviews | 19-28 July 2023 |
| Final notification | 31 July 2023 |
| Fellowship activation and contract | From August 2023 onward |
| Kick-off meeting and training | Last quarter of 2023 |

VI. More information

E-Mail: afriqueone.fellowship2023@csrs.ci

Phone: +225 07 89 40 31 52

Website: www.afriqueoneaspire.net / www.csrs.ch

VII. Selection procedure

a) Administrative eligibility check

- Completed online CV form incl. compulsory application documents (Valid ID, sample of written work, short proposal)
- Candidates must be citizens of an African country
- Relevant certification of Bachelor, Master or PhD degree from a recognized university respectively for Master, PhD and Postdoc applications (or Evidence of university enrolment in MSc, PhD programs) as specified in each call (original documents may be requested and if necessary contact with the institution will be done)
- Specific requirements put into the topic description (such as years' experience, other qualifications, etc.)

b) Selection by the TTP/TP Panel and Supervisors

Qualifications and Motivation:

- Experience and ability
- Relevance of experience to the topic
- Demonstrated interest in One Health and its principles
- Written work

- English being the scientific language, proficiency in English is required but French skills are an advantage. French native speakers are eligible will be trained and called for using English in all Afrique One-REACH activities.

c) Interview (TTP/TP panel only)

- Candidate's knowledge of the subject incl. One Health
- Motivation to carry out the work
- Demonstrated ability to work in a team.
- Availability to start the project at the provided starting date or at a reasonable time

Applications will be scored on each sub-criteria on a short scale (1–5, or Poor, Satisfactory, Good, Very Good, Excellent) and final ranking generated to identify the highest scoring candidates. Women are particularly encouraged to apply. We seek a 1:1 ratio of men and women.

VIII. FAQ

1. Is it possible to submit more than one application (to different TTPs/TPs or topics)?

No, a candidate can only submit one application to one of the TTP/TPs and choose one topic = one reference number to be indicated in the online form.

Please, note: 1 candidate = 1 application to 1 project topic in 1 TTP/TP = 1 ref. number

2. What is meant by reference number?

The code at the beginning of each topic in blue, e.g. Ref: End-EEZs-PhD-WP-1.3 ; Ref: TTP-Cut NTDs Postdoc 1. Choose one from the drop-down list in the online CV form.

3. Is it possible to apply in French?

We accept applications in French for MSc level with an English abstract. However, application documents in English are an advantage, as some members of the review panel do not read French. At this stage, the language will not be a major concern.

4. Are letters of recommendation required?

No, they are optional, but all candidates must indicate contact details of two referees. A letter of support from your supervisor for your short project proposal is a strong advantage.

5. Do candidates have to be enrolled in one of the Afrique One-REACH institutions?

For the fellowship, they must be enrolled in one of the countries' universities that are part of Afrique One-REACH (Chad, Côte d'Ivoire, DRC, Kenya, Morocco, Ghana, Senegal, Tanzania, Uganda) or CSRS and Afrique One-REACH partners (Benin, Burkina Faso, Guinea, Mali, Sierra Leone, Togo, Nigeria, The Gambia, Mauretania, ...). However, exceptions are made for fellows from other African countries provided that the process of Memorandum of Understanding with the candidate's institution will not take time.

6. Is the attendance of the webinars offered compulsory?

No, it isn't. The webinars will provide information on the recruitment process, and you can ask questions.

PART II: Fellowships of Afrique One-REACH

TTP-EEZs: Emerging and endemic zoonotic diseases of priority to Africa (End zoonoses)

Fellowships

- **1 Postdoc (2-3 years)**
- **7 PhD position (3-4 years)**
- **4 Master position (1-2 years)**
- **3 Trainees (1 year)**

For more information concerning this TTP, contact the Lead & Co-leads:

| | |
|---------------------------------|--|
| TTP-End EEZs lead | SUA – TBC (acting Prof Bassirou Bonfoh) |
| TTP-End EEZs /TP co-lead | <p>IRED - Tchad Dr. Richard Ngandolo Institut Pasteur Morocco - TBC</p> <p>Prof. Bonfoh Bassirou : Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, bassirou.bonfoh@csrs.ci</p> |
| Collaborating institutions | <p>Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Prof Bassirou Bonfoh</p> <p>Noguchi Memorial Institute of Medical Research- University of Ghana (NMIMR-UG) Ghana, Prof. Addo, Kwasi</p> <p>Social Science Research Center (CERDAS), Université de Kinshasa, DRC, Prof Bruno Lapika</p> <p>Institut National de Recherche Biomedical Kinshasa/DR Congo (INRB), DR Congo, Prof. Pati Pyana (Parasitology)</p> <p>National Institute of Medical Research, (NIMR), Tanzania, Prof. Sayoki Mfinanga</p> <p>Nelson Mandela African Institute of Science and Technology, (NM-AIST), Tanzania, Prof. Joram Buza</p> <p>Kilimanjaro Christian Medical Research Institute (KCRI), Tanzania, Prof. Blandina Mmbaga,</p> <p>University of Glasgow (UoG), United Kingdom, Prof. Sarah Cleaveland</p> <p>School of Public Health, Université de Kinshasa, DRC, Prof. Diáfuka Sails-Ngita</p> |
| Partner Networks | PREDICT, HALI PROJECT, AFROHUN |
| In-kind contribution | <p>Lab facilities SUA/IPM/EISMV/CSRS</p> <p>Molecular biology laboratory facilities and equipment</p> <p>Access to P2 and P3 Containment facilities</p> <p>Access to Review bodies</p> <p>Support from National Disease Control Programmes</p> <p>Access to Institutional document repositories</p> <p>Use of skilled Laboratory staff</p> |

| | |
|--|--|
| | <p>Linkage to international and well experienced collaborators</p> <p>Field attachment to postgraduate students</p> <p>Support to study designs</p> |
| <p>Afrique One-REACH proposed programme co-supervisors to selected by candidates</p> | <p>SUA – Dr Coletha Mathew Prof. Christopher Kassanga</p> <p>NMIMR – Dr. Gloria Mensah</p> <p>CSRS – Prof Bassirou Bonfoh (Epidemiology)</p> <p>NIMR Tanzania Prof Sayoki Mfinanga Dr Bernard Ngowi</p> <p>INRB – Pr. Ahuka Mundeke Steve (Virology) Pr. Masumu Mulumbu Justin (Epidemiology & Molecular Biology) Pr. Lunguya Metila Octavie (Bacteriology) Pr. Dieudonné Mumba Ngoyi (Parasitology)</p> <p>NM-AIST – Dr. Gabriel Shirima</p> <p>KCRI – Dr. Ireen Kihwelu</p> <p>University of Nairobi – Prof. Salome Bukachi</p> <p>University of Glasgow – Prof. Dan Haydon/ Dr Jo Halliday/Dr. Katie Hampson</p> <p>EISMV – Dr Rianatou Bada Alambedji</p> <p>MUHAS/NIMR – Dr Esther Ngadaya/Dr. Mangi Ezekiel</p> <p>IPM Morocco – NN</p> <p>IREN – NN</p> <p>Makerere – Prof Dennis Byarugaba</p> |
| <p>Proposed mentors</p> | <p>Glasgow – Prof. Dan Haydon</p> <p>STPH – Prof. Jakob Zinsstag</p> <p>EISMV – Prof. Akakpo Ayi Justin</p> <p>Maseno University – Prof. Collins Ouma</p> <p>University of Nairobi – Prof. George Gitau</p> <p>NIMR – Prof. Sayoki G. Mfinanga</p> |

Description of TTP End EEZs (zoonoses)

Zoonoses present a major public health threat and are estimated to account for a substantial part of the infectious disease burden in low-income countries. In Africa, the issue remains unsolved due to lack of national and regional policy addressing excellence in terms of sustainability within this field; however zoonotic diseases are one of the main causes of poverty in African rural areas which are contributing to a non-negligible part of the continental gross domestic product (GDP). As the three first goals of SDGs are respectively “**No Poverty**”, “**Zero Hunger**”, and “**Good Health and Well-being**”, the main challenge in African context to reach these objectives is just to promote “**Quality Education**” through Excellence in research and training as a pathway that will guide to sustainability.

A meta-analysis of a sample of seven countries which conducted zoonotic disease prioritization exercise in Sub Saharan Africa (Uganda, Tanzania, Mozambique, Ethiopia, Côte d’Ivoire, Cameroon,

Burkina Faso) has shown that zoonotic diseases that were commonly prioritized included; Rabies (6), Brucellosis (6), Anthrax (5), zoonotic influenza viruses (5), viral haemorrhagic fevers such as Ebola virus and Rift Valley fever (4), Human Trypanosomiasis (3), Zoonotic TB (3).

The recent emergence and spread of zoonotic viruses, including Ebola virus and severe acute respiratory syndrome coronavirus 2 (COVID-19), demonstrate that animal-sourced viruses are a very real threat to global public health. We now live in an era in which threats posed by viral pandemics are a daily reality. A single lethal virus can emerge suddenly and spread rapidly to every household and every community without regard to national borders or to social and economic standing.

The main problem addressed in the frame of this proposal, is how to expand the developed health research excellence specifically to Emerging and Endemic zoonoses through studies which will be targeting disease threats upstream (prevention at source via early detection and effective response) in domestic animal and wildlife populations to reduce the frequency and impact in humans. We will also address the aspects of human behaviour risks analysis, economic analysis so as to develop frameworks for translating research into policy development. This would involve disciplines such as sociology, ecology, epidemiology, molecular biology, economics and bioinformatics that are scientific fields common to human and veterinary medicine. Our approach is to work in close collaboration with regional economic organizations, African Union (Africa CDC, AU-IBAR) or scientific networks addressing issues related to Emerging and Endemic zoonoses.

Main objective

To conduct One Health research aiming at developing surveillance, prevention strategies and early response to threats posed by emerging and endemic zoonotic diseases to human and animal populations in Africa.

Specific objective 1 (End EEZs-WP 1)

To identify the **mechanisms of spill overs** of the emerging pandemic threats from animal (wildlife) to human populations in Africa.

Despite the relative increased investment in pandemic prevention and knowledge gained from previous Emerging Infectious Diseases outbreaks, such as severe acute respiratory syndrome coronavirus (SARS-CoV), Ebola virus (Zaire ebolavirus), and Zika virus, the world was unprepared for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that emerged and rapidly spread around the world in 2019 to 2020 with a devastating death toll and a tremendous global economic loss.

There are just over 250 known zoonotic viruses—viruses that have previously spilled over from animals to humans and caused disease in people. While these viruses are of ongoing concern to human health, as repeated Ebola epidemics demonstrate, the yet to be identified viruses pose an equal if not more serious threat to humanity.

This WP will specifically address the aspects of spillover of viral zoonotic diseases of priority in East and West Africa.

Specific objective 2 (End EEZs-WP 2)

To develop **mitigation measures** for the control and elimination of endemic zoonoses in Africa.

Endemic zoonoses are found throughout the developing world, wherever people live near their animals, affecting not only the health of poor people but often also their livelihoods through the health of their livestock. Unlike newly emerging zoonoses that attract the attention of the developed world, these endemic zoonoses are by comparison neglected.

Sustainable control of zoonoses is reliant on surveillance, but, as with other public-sector animal health services, this is rarely implemented in the developing world, not least because of the lack of sufficiently cheap diagnostics test, vaccines or drugs. Public-private partnerships have already provided advocacy for human disease control and could be equally effective in addressing endemic zoonoses. In this work package we will focus in studies on efficient intervention protocols on detection and elimination of various endemic zoonoses such as Rabies, Brucella, Human African Trypanosomiasis as well as other Neglected Tropical Diseases (focusing on parasitic diseases: tungiasis, leptospirosis, echinococcosis, cysticercosis, toxoplasmosis etc...)

Specific objective 3 (End EEZs-WP 3)

Develop mechanisms of understanding gene transfer among human, animal and environment for drug/vaccines discovery, diagnostic tool development and as a precursor for antimicrobial resistance. The socio-ecological mechanism of AMR is also addressed in this WP3.

In addressing this, most of African Governments have adopted the Agenda of the Sixty-eighth World Health Assembly of May 2015, which adopted the global action plan on antimicrobial resistance and urged Member States to develop National Action Plans for AMR using a “One Health Approach”. It is from this note, this work package is designed to address the aspects of transfer of genes related to antimicrobial resistance between food borne pathogens (Salmonella, Campylobacter, E. coli, etc) and human/animal gut microbiomes.

Specific objective 4 (End EEZs-WP 4)

To evaluate the cost-effectiveness of One Health approaches and **modelling** the prevention and control of endemic zoonoses (viral, bacterial, parasitic)

The One Health approach, which aims to drive improvements in human, animal and environmental health through a holistic integration, has been gaining increasing support and attention in recent years.

Over the past three decades, a series of zoonotic disease outbreaks has threatened global human, animal and environmental health and ecosystems resilience to overcome those challenges. Global epidemics of such nature includes Nipah to SARS to avian and swine flu, from Ebola to Zika and MERS, and now COVID-19 -diseases of predominantly animal species have crossed the species barrier causing morbidity and mortality to human populations across the globe.

Challenges calling for integrated approaches to health, such as the One Health (OH) approach, typically arise from the intricate spheres of humans, animals, and ecosystems constituting their environment. Initiatives addressing such complex problems commonly consist of complex structures and dynamics.

By the nature of OH initiatives, a transdisciplinary approach is of paramount importance. The OH approach requires more than one discipline to work together (human, animal and environmental) to

address a common complex problem and hence there has been a need to create OH networks with global, continental, regional or national mandates. This work package will indulge in assessing and modelling the cost-effectiveness of One Health approaches in combating zoonotic diseases such as Rabies, Rift Valley fever, Bovine tuberculosis, Ebola, etc.

Specific objective 5 (End EEZs-WP 5)

To use the socio-anthropological tools such as behavioural science and economics to improve risk management and effective mitigation of epidemics in humans and animals.

There is a general paucity of studies in the area on the awareness, attitudes and practices of local communities related to zoonotic diseases; yet a holistic understanding is important because disease control strategies need to have the support of local communities to be successful. There is therefore a need to explore the disparities between risk perception and practices performed risking transmission of the disease in the rural populations across African settings. If observational studies are conducted into areas of human behaviour; risk assessment; and prevailing health systems; the findings will contribute insights into awareness and perception of zoonotic diseases in Africa. These insights are essential as incentives for the development of suitable control and sensitization strategies for mitigation of zoonoses across Africa.

TTP End EEZs Fellowship Topics and Research Questions (indicative and could be adapted to the research context)

TTP End EEZ Postdoc programme

Ref: End-EEZs-postdoc-WP1.1

Sero-prevalence of (SARS-CoV-2) pre and post covid19 outbreak in Africa (Research question: *Why the impact (mortality, and duration) of covid19 was minimal in some African countries as compared to Europe and America; was there covid19 pre-exposure in Africa? What are the main resilience patterns?*)

TTP End EEZ PhD fellowships

Ref: End-EEZs-WP-PhD-1.1

Animal and environment Reservoirs of emerging viral zoonosis and their possible roles in transmission to humans

(Research Question: *Do transmission of viral disease in human populations dependent on animal and environmental factors?*)

Ref: End-EEZs-PhD-WP-1.2

Parasitic comorbidity and Inhibitor role of ivermectin and nutrition against SARS-Cov-2 in CoVid-19 patients: Case of endemic areas

(Research Question: *Is there a positive correlation between increased incidence of COVID 19 in populations where there is a high burden of parasitism and what is the role played by ivermectin in averting mortalities due to SARS-Cov-2?*)

Ref: End-EEZs-PhD-WP-1.3

Phylogeny and Virulence of Coronaviruses versus the nutritional and underlying NCDs status of moderate and severe CoVid-19 patients

(Research question: *We have observed many waves of COVID-19, do we see any differential distribution of the genotypes of the virus based on underlying nutritional and NCDs status?*)

Ref: End-EEZs-PhD-WP-2.1

Molecular epidemiology of zoonotic TB in Africa (Research question: *What is the genetic relationship between M. bovis isolated from animals and from humans in Eastern and Western Africa?*)

Ref: End-EEZs-PhD-WP-3.1

Gene transfer among human, animal and environment: probable source of antimicrobial resistance

(Research question; *What are drivers of increased AMR in the African context; is gene transfer a key factor?*)

Ref: End-EEZs-PhD-WP-4.1

Design and evaluation of livestock vaccination strategies for prevention of zoonotic diseases (including field trials, modelling, economic evaluation)

(Research question: *How can we develop appropriate vaccination strategies for prevention of prioritized zoonotic diseases in Africa?*)

Ref: End-EEZs-PhD-WP-4.2

New technologies and ethics in improving Rabies elimination and surveillance in Africa (ex. rabies, ...)

(Research question: *What are the main social and political adaptations and ethics of using new technologies in Rabies elimination in Africa in Africa?*)

Ref: End-EEZs-PhD-WP-4.3

Socio-ecological conditions of emerging and re-emerging zoonotic diseases in Africa.

(Research question: *How do infectious diseases emerge or re-emerge? What impacts can lifestyle or policy changes have on ecology? Why do health systems have limitations in containing these diseases in the long term? What adaptations are needed in action research?*)

Ref: End-EEZs-PhD-WP-5.1

How to use the socio-anthropological approach to improve risk management and effective mitigation of epidemics in humans and animals. How to analyse the current health system and determine its impact on humans, animals and the environment as well as the interactions between the three components on the appearance and spread of diseases.

Ref: End-EEZs-PhD-WP-5.2

Factors associated with the differential rate of spread of the CoVid-19 pandemic: possibility of requalifying prevention strategies and health systems delivery services in Africa

TTP End EEZ MSc fellowships

Ref: End-EEZs-MSc-WP-1.2

Prevalence of viral antibodies and antigens in bats/reservoirs at pre- and post-outbreaks

Ref: End-EEZs-MSc-WP-2.1

One Health approaches in elimination and eradication campaigns of endemic disease (ex. rabies, Guinea worm, schistosomiasis, toxoplasmosis...)

Ref: End-EEZs-MSc-WP-2.2

Assessing emerging Comorbidities/Multi-morbidities in the socio-ecological transition

Ref: End-EEZs-MSc-WP-3.1

Emergence of AMR and gene transfer among human, animal and environment: probable source of antimicrobial resistance

Ref: End-EEZs-MSc-WP-3.2

A multiplex approach in molecular detection of AMR genes among foodborne pathogens (Salmonella, Campylobacter, E. coli, Anthrax)

Linkage with other TTPs and TPs

In the consortium structure, the TTP End EEZs is principally linked with the TTP Cut NTDs, TTP Stop NCDs, TP Collective action for health and behavioural change and TP Data Science, Statistics and Modelling respectively in investigating ecology and epidemiology of EEZs and identifying main risk factors related to these diseases. Thus modelling, socio-economic, ethical aspects could also drive the research questions. The main expected output is the development of models to minimize pandemic dynamic of neglected and emerging zoonoses in the future. The outcome is to generate a critical mass of young researchers focusing their career on the field of science of early detection and eliminating sciences on endemic and emerging zoonoses.

TTP: Controlling endemic neglected tropical diseases with integrated risk management (Cut NTDs)

Fellowships

- **1 Postdoc (2-3 years)**
- **7 PhD position (3-4 years)**
- **4 Master position (1-2 years)**
- **3 Trainees (1 year)**

For more information concerning this TTP, contact the Lead & Co-leads:

| | |
|------------------------------|---|
| TTP-Cut NTDs lead | Prof. Kennedy Kwasi Addo , Noguchi Memorial Institute for Medical Research (NMIMR), University of Ghana, Accra: kaddo@noguchi.ug.edu.gh |
| TTP-Cut NTDs co-leads | Prof. Diafuka Saila-Ngita , Faculty of Veterinary Medicine, University of Kinshasa, DRC: Dr. Gloria Ivy Mensah , Noguchi Memorial Institute for Medical Research (NMIMR), University of Ghana, Accra: gmensah@noguchi.ug.edu.gh Prof. Bonfoh Bassirou : Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, bassirou.bonfoh@csrs.ci |
| Collaborating institutions | Université de Kinshasa, DRC Université de Liège, Belgium Centre Suisse de Recherches Scientifiques, Côte d'Ivoire University of Glasgow (UoG), United Kingdom Swiss Tropical and Public Health Institute (TPH), University of Basel, Switzerland Sokoine University of Agriculture, Morogoro, Tanzania |
| Partner Networks | London School of Hygiene & Tropical Medicine World Health Organization CDC, Atlanta, Georgia, USA Anesvad Foundation, Spain |
| In-kind contribution | Availability of Laboratory facilities Molecular biology laboratory facilities and equipment Availability of P2 and P3 Containment Laboratories Access to Ethical Review Boards Support from National Disease Control Programmes Access to Institutional document repositories Use of skilled Laboratory staff Linkage to international and well experienced collaborators Field internship for students |

Afrique One-REACH
proposed programme
co-supervisors to
selected by candidates

Prof. Michael Marks PhD MRCP DTM&H

Associate Professor & NIHR Clinical Lecturer, Department of Clinical Research

London School of Hygiene & Tropical Medicine

Keppel Street, London WC1E 7HT

Email: michael.marks@lshtm.ac.uk, Tel: +44 (0)7984 643424

Prof. Solange Kakou Ngazoa, PhD

Head of the Research Unit

Environmental Microbiology, Phagetech, Tropical diseases

Pasteur Institute Abidjan, Platform of Genomic and Molecular Biology

Email: ngazoa_solange@yahoo.fr, Tel: +225 08240453

Prof. Oriol Mitjà

Associate Professor at Germans Trias Research Institute in Barcelona

Head, STI Unit of the Germans Trias i Pujol Hospital

Barcelona, Spain, Email: oriolmitja@hotmail.com

Dr. Lydia Mosi, PhD

Senior Lecturer (Microbiology and Molecular Biology)

Department of Biochemistry, Cell and Molecular Biology

West African Centre for Cell Biology of Infectious Pathogens, University of Ghana

Email: imosi@ug.edu.gh, Tel: +233-540-890352

Prof. Richard Odame Phillips

Scientific Director

Kumasi Center for Collaborative Research into Tropical Medicine

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana,

Email: phillips@kccr.de, Tel: +233 209140451

Prof. Kennedy Kwasi Addo

Head, Bacteriology Department

Noguchi Memorial Institute for Medical Research

University of Ghana, P. o. Box LG 581, Legon-Accra, Ghana

Email: kaddo@noguchi.ug.edu.gh, Tel: +233-243334869

Prof Eric Sampane-Donkor

Department of Medical Microbiology

University of Ghana Medical School

Email: esampane-donkor@chs.ug.edu.gh,

Tel: +233-553527140

Dr. Gloria Ivy Mensah, PhD

Senior Research Fellow, Department of Bacteriology

Noguchi Memorial Institute for Medical Research

P. O. Box LG 581, Legon-Accra, Ghana

Email: gmensah@noguchi.ug.edu.gh, Tel: +233-244-858779

Prof. Irene Ayi

Associate Professor and Head of Department

Department of Parasitology

Noguchi Memorial Institute for Medical Research

University of Ghana

P. O. Box LG 581, Legon-Accra, Ghana

Email: IAyi@noguchi.ug.edu.gh; Tel: +233 24 3670493

Prof Bassirou Bonfoh

Veterinary Epidemiology and Public health

Centre Suisse de Recherches Scientifique en Côte d'Ivoire

Dr Didier Koffi, MD, National Skin diseases programme Côte d'Ivoire

Dr Kathrin Heitz-Tokpa, Social anthropologist, Centre Suisse de Recherches Scientifique en Côte d'Ivoire, kathrin.heitz-tokpa@csrs.ci ;

Tel : +225 07 48 1008 54

Prof Francis Akindes, Social anthropologist, University Alassane Ouattara, Bouaké

Prof. Diafuka Saila-Ngita

Faculty of Veterinary Medicine, Université de Kinshasa, DRC

Email: Diafuka.Saila_Ngita@tufts.edu, Tel.: +243-81-514-0099

Prof. Georges Mvumbi,

Faculty of Medicine, Université de Kinshasa, DRC

Email: georges.mvumbi@unikin.ac.cd, Tel.: +243-815-081-450

Prof. Hypolithe Situakibanza

Faculty of Medicin, Université de Kinshasa, DRC

Email: hsitua@gmail.com, Tel. : +243-998-175-838

Prof. Gaston Tona,

Faculty of Pharmacy, Université de Kinshasa, DRC

Email: tonalutete@gmail.com, Tel. : +243-998-110-172

Prof. Nadege Kabamba,

Faculty of Pharmacy, Université de Kinshasa, DRC

Email: nadegengk@gmail.com, Tel. : +243-810-617-681

Prof. Antoinette Tshetu,

School of Public Health. Université de Kinshasa, DRC

Email: antotshe@yahoo.com, Tel. : +243-810-156-910

Prof. Guillaume Kiyombo,

School of Public Health, Université de Kinshasa, DRC

Email: kiyombombela@gmail.com, Tel. : +243-815-186-872

Prof. Dosithé Ngo-Bebe

School of Public Health, Université de Kinshasa, DRC

Email: ngobebed@gmail.com, Tel. : +243- 818-844-408

Prof. Eric Mafuta

School of Public Health, Université de Kinshasa – DRC

Email.: ericmafuta2@gmail.com, Tel.: +243- 810-318-918

Prof. Patient Mpiana,

Institut National de Recherche Biomédicales,

Kinshasa – DRC, Email : ppyana@yahoo.fr

Tel. : +243-815-106-213

| | |
|------------------|--|
| | <p>Prof. Dieudonné Mumba, Institut National de Recherche Biomédicales, Kinshasa – DRC, Email : mumbadieudonne@yahoo.fr Tel. : +243-818-118-511</p> <p>Prof. Octavie Lunguya, INRB, Institut National de Recherche Biomédicales, Kinshasa – DRC Email : octmetila@yahoo.fr Tel. : +243-815-181-121</p> <p>Prof Floribert Ntungilu Faculty of Economics and Management Université de Kinshasa Email: floribert.ntungila@gmail.com, Tel.: +243-817-357-263</p> <p>Prof Lapika DiMonfo Faculty of Social Sciences, Université de Kinshasa, DRC Email: lapikadi@yahoo.fr, Tel.: + 243-999-908-093</p> <p>Prof Anaclet Ilaka Faculty of Veterinary Medicine, Université de Kinshasa. DRC Email: ilakaanicet@gmail.com, Tel.: +243-814-055-469</p> <p>Prof Jean Pierre Mate Ecole Régionale d'Aménagement Intégré des Forêts Tropicaux/ERAIFT, Université de Kinshasa, DRC Tel. : +243-998-506-701</p> <p>Jean Malekani Faculty of Sciences, Université de Kinshasa, DRC, Email : jean.malekani@unikin.ac.cd, Tel. : +243- 844-449-003</p> <p>Prof. Jean Pierre Bosonga Bofeki Faculty of Economics and Management Université de Kinshasa, DRC, Email: bosonga51@gmail.com</p> <p>Prof. Remy Bolito Losembe Faculty of Economics and Management Université de Kinshasa, DRC, Email: remy.bolito2@gmail.com</p> <p>Prof. Youyou Baende Bofota Faculty of Economics and Management Université de Kinshasa, DRC, Email: youyou_baende@yahoo.com</p> |
| AO-REACH Mentors | <p>Prof Bassirou Bonfoh, PhD Veterinary Epidemiology and Public health) Centre Suisse de Recherches Scientifique en Cote d'Ivoire 01 BP 1303 Abidjan 01,</p> <p>Prof Jakob Zinsstag, PhD Epidemiology and Public health Swiss Tropical and Public Health Institute, University of Basel, Switzerland</p> <p>Dr. Beverly Egyir, PhD Research Fellow, Bacteriology Department</p> |

Noguchi Memorial Institute for Medical Research, University of Ghana

Prof. Abraham Kwabena Anang

Director and Parasitologist

Noguchi Memorial Institute for Medical Research

University of Ghana, Legon-Accra Ghana

Email: aanang@noguchi.ug.edu.gh

Tel: +233 244835872

Dr. Sherry Johnson

Senior Lecturer, School of Veterinary Medicine

University of Ghana, Legon-Accra, Ghana

Email: sajohnson@ug.edu.gh

Tel: +233-246612145

Dr. Kingsley Bampoe Asiedu

Head, Department of Control of Neglected Tropical Diseases (NTD)

World Health Organization

20, avenue Appia, 1211 Geneva 27

Email: asieduk@who.int

Tel: +41 22 791 2498; +41 795006535

Prof. Pyana Pati P.

Department of Parasitology

Reference National Laboratory for Human

African Trypanosomiasis (LNRTHA, INRB)

Rabies Laboratory

National Institute of Biomedical Research (INRB)

Avenue de la Démocratie

P O. Box 1197, Kinshasa/Gombe

D.R. Congo

Email: ppyana@yahoo.fr

Tel.: +243(0)815106213

Dr. Fayiz Abakar Alhilou,

IREC, Chad (Epidemiology)

Dr. Nicodem Govella,

IHI, Tanzania (Medical entomology)

Dr. Katharina Kreppel,

NM-AIST, Tanzania (Epidemiology)

Dr. Richard N. Bongo,

IREC, Chad (Epidemiology)

Dr. Stella Mpagama,

KIDH-KCRI, Tanzania (Infectious diseases)

Dr. Francesco Baldina,

UK (Entomology/Ecology)

Dr. Jean Coulibaly

CSRS, Cote D'Ivoire (Epidemiology)

Prof Jurg Utzinger,

| | |
|--|---|
| | <p>Swiss TPH, Switzerland (Epidemiology)</p> <p>Dr Katarina Oravcova, UoG, UK (Bacteriology/Genomics)</p> <p>Prof Poppy Lamberton, UoG, UK (Epidemiology)</p> <p>Dr Tanya Forde, UoG, UK (Epidemiology/Genomics)</p> |
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Description of TTP Cut NTDs

Background:

Neglected tropical diseases (NTDs) contribute significantly to morbidity and mortality in many sub-Saharan African countries and disproportionately affects the poor living in rural, hard to reach communities with severe consequences for maternal and child health. Currently 20 NTDs have been prioritized by WHO, 8 of which have been earmarked for elimination or eradication.

Problem:

Many NTDs are zoonotic and caused by water/vector borne, abortive and wound causing agents. Considering the human, animal, and environmental context within which many these agents thrive and cause disease, interventions that use a one health approach in an integrated manner would be a more suitable and cost-effective strategy for control. However, many NTDs are being controlled under the framework of individual disease control programs without recourse to the multifactorial and interconnected sociocultural and ecological drivers of the disease burden.

Main Objective/Research question:

To understand the epidemiology and infection pathways (geographic, environmental, sociocultural) that may predispose individuals to NTDs to develop cost effective control strategies that can be readily implemented at community and country levels with community, countries buy-in and ownership.

TTP Cut NTDs Postdoc programme

Ref: TTP-Cut NTDs Postdoc 1

Project topic: Identification of the infection pathways of water and vector borne diseases at community level

Project description: Due to lack of and reasonable access to portable water, many communities are constantly exposed to water borne diseases caused by microorganisms that may be resistant to antimicrobials. Additionally, vector borne diseases such as Rift valley fever, leishmaniasis are endemic in many communities. The project will establish an effective surveillance system that integrates testing for agents of water borne diseases (including resistance to antimicrobials) in humans, animals and the environment and known and novel vector populations for signs of infection that can protect susceptible populations from NTDs.

The objectives will be designed as 4 work packages to be conducted by 4 MSc Fellows. The packages would include (1) surveillance of antibiotic resistant bacteria in communal water sources, domestic and wildlife animals, and local populace. (2) identification of elimination pathways for environmental

and animal reservoirs of Leishmania (3) Localized intervention strategy to prevent human infection with Rift Valley Fever (4) barriers to community acceptance of an integrated surveillance system. This approach will give the postdoc direct oversight of study objective 1 and ensure optimum supervision to achieve the desired results while at the same time building the supervision and leadership skills of the postdoc. The postdoc research approach will ensure that all TTP-Cut NTDs research are linked.

Ref: TTP-Cut-NTDs Postdoc 2

Project topic: Community behaviour and enablers of NTDs endemicity

Project description: Human behaviour in relation to the environment, domestic animals and wildlife determines the risk of contracting a disease. This is the case with NTDs. Open defecation (OD) -fecal peril-, for example, is a major public health problem. It is a practice that has a devastating effect on health, living and working conditions, nutrition, education and economic productivity around the world. Anthropologically, the cohabitation between humans and animals is very complex. Animals interact with humans in their agro-pastoral and domestic activities. In many communities, humans share living quarters with animals. There is therefore an urgent need to know the uses of and interactions with certain animals (domestic and wildlife) by humans to better adjust / adapt the message for the prevention of zoonotic NTDs. At the community level, studies have shown that health seeking behaviour depends on socioeconomic variables such as prices, income, health beliefs and others. Health policies and practices not based on evidence have failed to improve access to care. Further, patients are confronted with several care alternatives (e.g. traditional herbal healers, spiritual and confessional healers and modern medicine...).

The objectives will be designed as 3 work packages to be conducted by 3 MSc Fellows. The packages would include (1) Sociocultural determinants of fecal peril and their impact on NTDs. (2) Characterization of sociocultural determinants, human interactions with domestic animals and wildlife, community knowledge of NTDs transmission mechanisms and risk factors as related to domestic animals and wildlife to inform health policies, communication and practices. (3) Impact of economic variables on health seeking behaviour and the community willingness to pay for health services related to specific NTDs.

TTP-Cut NTDS Postdoc qualification: The candidate must be a citizen of an African country who holds a PhD or has submitted his PhD thesis in a relevant field. However, candidates should have an MSc/MPhil background in areas contributing to One Health (e.g., biomedical sciences, public health, veterinary and animal sciences, social sciences, modelling and epidemiology). The strongest applicants should be someone with strong experience in social science and economics, knowledge of the mathematics underlying simple epidemiological models, a basic grasp of computer programming and experience in statistical data analysis. Candidate should have at least two first author publication in a peer reviewed journal.

TTP-Cut NTDS Postdoc enrolment: The postdoctoral fellow may negotiate to be enrolled/based at one of the following organizations: NMIMR (Ghana), SUA (Tanzania) or CSRS (Côte d'Ivoire).

TTP-Cut NTDS Postdoc training: Research will be conducted primarily in Ghana, DRC, Tanzania and Côte d'Ivoire with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the UK and Switzerland.

TTP-Cut NTDS Postdoc mentorship/Supervision: The fellow will be co-supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

TTP-Cut NTDS Postdoc fellowship duration: The fellow will be engaged for **24-36 months**

TTP Cut NTDS PhD fellowships

Ref: TTP-Cut-NTDs PhD 1

Project topic: Development of early warning systems and point of care tests for early detection of abortive pathogens in risk groups (pregnant women and children), animals and the environment.

Project description: In sub-Saharan countries, about one-third of pregnant women are estimated to be infected with an NTD agent. Diseases such as Brucellosis, Toxoplasmosis, Q fever, Rift Valley fever, leptospirosis, listeriosis, Chlamydiosis, campylobacteriosis, caused by abortive pathogens bring untold hardships to many families and affect the wellbeing of women and their families. The project will develop mechanisms including use of mobile phone apps for early detection of such agents in a specific population and point of care tests that can be used in remote areas with no access to established laboratory systems. The Fellow will work with two or more DVM/BSc students who will assist with data collection and use part of the study for the dissertation with the understanding that all the data belongs to the PhD fellow who will be lead author in publications emanating from the study.

Qualification: The candidate must be a citizen of an African country who holds an MPhil/MSc degree or has submitted his/her thesis in field. in areas contributing to One Health (e.g., biomedical sciences, public health, veterinary and animal sciences, modelling and epidemiology). The strongest applicants will have some experience of microbiology and molecular biology methods, Immunology, knowledge of the mathematics underlying simple epidemiological models, a basic grasp of computer programming and experience in statistical data analysis. Candidate should have at least one co-authored publication in a peer reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TTP-Cut-NTDs PhD 2

Project topic: Develop early warning systems and point of care tests for early detection of viral and parasitic (Toxoplasmosis and leptospirosis) zoonotic pathogens in the local at-risk population, animals and in the environment. The Fellow will work with one DVM/BSc Fellow

Project description: The project will develop mechanisms (including use of mobile phone apps) for early detection of such agents in a specific population and point of care tests that can be used in remote areas with no access to established laboratory systems. The Fellow will work with two or more DVM/BSc students who will assist with data collection and use part of the study for the dissertation with the understanding that all the data belongs to the PhD fellow who will be lead author in publications emanating from the study.

Qualification: The candidate must be a citizen of an African country who holds an MPhil/MSc degree or has submitted his/her thesis in field. in areas contributing to One Health (e.g. biomedical sciences, public health, veterinary and animal sciences, modelling and epidemiology). The strongest applicants will have some experience of microbiology and molecular biology methods, Immunology, knowledge of the mathematics underlying simple epidemiological models, a basic grasp of computer programming and experience in statistical data analysis. Candidate should have at least one co-authored publication in a peer reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TTP-Cut-NTDs PhD 3

Project topic: Epidemiology, differential diagnosis, and treatment of Skin diseases (all wounds including snake bites count)

Project description: Understanding the epidemiology of neglected skin diseases resulting from infection with *Hemophilus ducreyi*, Yaws (in humans and non-human primates), Buruli ulcer, leprosy, leishmaniasis, wounds not linked to infections (snakebite envenoming), obstetrical wounds is key to identifying infection pathways and appropriate intervention strategies for prevention and control. The project will build on years of research on skin NTDs at the Noguchi Memorial Institute for Medical Research in collaboration with LSTMH, CSRS, University of Heidelberg, WHO, CDC and the Ghana and Côte d'Ivoire Health Services (National programmes). The project will expand the scope of knowledge on the etiological agents of skin NTDs by looking at the epidemiology in non-human primates. It also seeks to provide immunological or molecular tools for differential diagnosis of skin NTDs, facilities and treatment of wounds including snake bites in communities with poor access to health care.

Qualification: The candidate must be a citizen of an African country who holds an MPhil/MSc degree or has submitted his/her thesis in field. in areas contributing to One Health (e.g. biomedical sciences, public health, veterinary and animal sciences, modelling and epidemiology). The strongest applicants will have some experience of microbiology and molecular biology methods, Immunology, knowledge of the mathematics underlying simple epidemiological models, a basic grasp of computer programming

and experience in statistical data analysis. Candidate should have at least one co-authored publication in a peer reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Ghana

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TTP-Cut-NTDs PhD 4

Project topic: Interventions for early care seeking behaviour in response to wounds (including snake bites)

Project description: Wound care is often compromised by when there is delay in seeking care at health facilities. This is because of the commonly held believe that wounds are not serious illnesses and thus can be treated at home with local remedies which do not take into consideration the etiology of the wound as wounds are considered homogenous. Even in areas where diseases such as BU, leishmania, Yaws, snake bites are endemic, community members often give the same treatment to the ensuing wounds. This project seeks to understand the social cultural drivers of the wound seeking behaviour of endemic communities and provide an intervention for early care seeking behaviour in response to wounds.

Qualification: The candidate must be a citizen of an African country who holds an MPhil/MA/MSc/MPH degree or has submitted his/her thesis **in Social Sciences**. The strongest applicants will be social scientists with good knowledge of social science research tools and should have an underlying simple epidemiological model, a basic grasp of computer programming and experience in statistical data analysis. Candidate should have at least one co-authored publication in a peer reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TTP-Cut-NTDs PhD 5

Project topic: Enabling and hindering factors of NTDs elimination and potential of new therapeutics of NTDs including vector borne-diseases (ex. sustainability of Mass Drug Administration)

Project Description: The first drugs developed for the treatment of NTDs turned out to be very toxic and patients were exposed to serious adverse drug reactions affecting quality of life and endangering their prognosis. New molecules are proposed for the treatment of NTDs. History confirms that bioactive natural products have played a key role in drug discovery and they remain a prolific source of new flagship compounds for the development of new therapies for disease control, including infectious diseases. The tropical forest is full of a considerable biodiversity of plants with interesting compounds with considerable pharmacological properties, notably antimicrobial, antiparasitic, hemolytic, antioxidant. Some plants have been studied and have shown great potential. We seek proposals that cover one or more of the following areas: 1) evaluation of the efficacy, cost-effectiveness of existing drugs and therapy approaches; 2) assessment of local plants antimicrobial, antiviral, anti-protozoal, anti-larval effects in humans and animals; 3) assessment of safety of new drugs when used in real life condition. The topic could expand to the sustainability of the current Mass Drug Administration in NTDs control and elimination with a focus on social, ecological and institutional hindering factors.

Enrollment: The candidate should be enrolled in a University in DRC/Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TTP-Cut-NTDs PhD 6

Project topic: Association between *Onchocerca volvulus*, *Cysticercosis* and epilepsy

Project Description: Onchocerciasis is a parasitic disease caused by a nematode, *Onchocerca volvulus* in humans. It is best known for its eye damage causing blindness. Currently, several authors are increasingly reporting relatively high cases of epilepsy in areas of onchocerciasis to the point of making an association between these two pathologies. On the one hand, we know that epilepsy is a disease of the central nervous system and on the other hand, *Onchocerca volvulus* does not cross the blood-brain barrier. About 218 million people currently live-in areas where onchocerciasis is known to be endemic. It is the leading cause of blindness in developing countries. Taking into account the zoonotic aspect of onchocerciasis which is caused by several *Onchocerca* species, originating in animals in particular cattle and canines, we seek proposals that could elucidate the mechanism by which *Onchocerca volvulus* can cause epilepsy; the zoonotic nature of this pathology and potential association with other pathogens and pathologies. The Onchocercosis model could be expanded to the Cysticercosis role in epilepsy especially in certain environmental risk contexts.

Enrollment: The candidate should be enrolled in a University in DRC/Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TTP-Cut-NTDs PhD 7

Project topic: Exploring the human and animal host interaction with T.b. gambiense for RDT development

Project Description: The WHO plans to eliminate sleeping sickness by the year 2030. Two drugs of relatively easy use because they are administered orally have been tested and their effectiveness confirmed. There are plans to administer them on a large scale. To do this, we need both sensitive and specific tests that are easy to perform in remote areas lacking sophisticated infrastructure. The existing serological tests are not very specific. Further, the WHO goal of sustained global elimination is challenged by uncertainty about the role of putative T.b. gambiense reservoirs. A better understanding of the contribution of human and animal reservoirs on transmission is required. We seek proposals that address the following aspects of trypanosomiasis: 1) latent infections of T.b. gambiense in humans and in animals, 2) Studies that could elucidate the potential interaction between human and domestic animal T.b. gambiense transmission cycles; 3) Studies that could lead to the development of reliable and easy to use diagnostic tests. The topic could be expanded to other Point of care diagnostics such as Buruli ulcer.

Enrollment: The candidate should be enrolled in a University in DRC, CSRS, University of Ghana/Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

TTP Cut NTDs MSc fellowships

Ref: TTP-Cut-NTDs MSc 1

Project topic 1: Antibiotic resistant bacteria in communal water sources, domestic and wildlife animals, and local populace.

Ref: TTP-Cut-NTDs MSc 2

Project topic 2: Identification of elimination pathways for envir. and animal reservoirs of Leishmania

Ref: TTP-Cut-NTDs MSc 3

Project topic 3: Localized intervention strategy to prevent human infection with Rift Valley and priority viral zoonotic diseases

Ref: TTP-Cut-NTDs MSc 4

Project topic 4: Barriers to community acceptance of an integrated surveillance system.

Ref: TTP-Cut-NTDs MSc 2A

Project topic 2A: Sociocultural determinants of fecal peril and their impact on NTDs.

Ref: TTP-Cut-NTDs MSc 2B

Project topic 2B: Characterization of sociocultural determinants, human interactions with domestic animals and wildlife, community knowledge of NTDs transmission mechanisms and risk factors as related to domestic animals and wildlife to inform health policies, communication and practices.

Ref: TTP-Cut-NTDs MSc 2C

Project topic 2C: Impact of economic variables on health seeking behaviour and the community willingness to pay for health services related to specific NTDs.

Project description: See **Ref: TTP-Cut NTDs-Postdoc fellowships**

Qualification: The candidate must be a citizen of an African country who holds an BSc/BA/DVM/MBChB degree in **Biomedical Sciences, Environmental Sciences, Public Health or Social Sciences**. The strongest applicants will have some research experience in the field or laboratory and should have an underlying simple epidemiological model, a basic grasp of computer programming and experience in statistical data analysis. Candidate should have graduated with at least a second-class upper division degree or equivalent.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: A thematic training program will be conducted on NTDs within the Afrique One-REACH consortium in population and ecosystems health. Training will be provided primarily in Ghana or Côte d'Ivoire or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **24 months**

TTP: Mitigating NCDs (including mental health) through integrated management with One Health in Africa (Stop NCDs)

Fellowships

- 1 Postdoc (2-3 years)
- 7 PhD position (3-4 years)
- 4 Master position (1-2 years)
- 3 Trainees (1 year)

For more information concerning this TTP, contact the Lead & Co-leads:

| | |
|------------------------------|--|
| TTP Stop NCDs lead | Prof. Clémence Essé-Diby: Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, clemence.esse@csrs.ci |
| TTP Stop NCDs co-lead | <p>Prof. Blandina T. Mmbaga: Kilimanjaro Christian Research Institute, Tanzania, blaymt@gmail.com</p> <p>Prof. Sayoki G. Mfinanga: National Institute Medical Research, Tanzania, gsmfinanga@yahoo.com</p> <p>Prof. Bonfoh Bassirou: Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, bassirou.bonfoh@csrs.ci</p> |
| Collaborating institutions | Centre Suisse de Recherches Scientifiques en Côte d'Ivoire National Institute for Medical Research, Muhimbili Centre, Tanzania Kilimanjaro Clinical Research Institute, Tanzanie Ecole Inter Etats des Sciences et Médecine Vétérinaires de Dakar, Sénégal Ifakara Health Institute, Tanzania |
| Partner Networks | Swiss Tropical and Public Health Institute University of Glasgow, UK |
| REACH fellows | Postdoc 1; PhD 7; MSc 4; BSc/MD/DVM 2 |
| In-kind contribution | <p>Availability of Laboratory facilities</p> <p>Molecular biology laboratory facilities and equipment</p> <p>Availability of P2 and P3 Containment Laboratories</p> <p>Access to Ethical Review Boards</p> <p>Support from National Disease Control Programmes</p> <p>Access to Institutional document repositories</p> <p>Use of skilled Laboratory staff</p> <p>Linkage to international and well experienced collaborators</p> <p>Field internship for students</p> |

| | |
|---|---|
| Nb. Expected assoc. fellows | PhD 2; MSc 3; BSc/MD/DVM 5 |
| Nb. Expected assoc. fellows | PhD 2; MSc 3; BSc/MD/DVM 5 |
| Afrique One-REACH proposed programme co-supervisors to selected by candidates | <p>Prof. Clémence Essé- Diby : Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, clemence.esse@csrs.ci</p> <p>Prof. Bonfoh Bassirou : Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, bassirou.bonfoh@csrs.ci</p> <p>Prof. Blandina T. Mmbaga: Kilimanjaro Chrstrian Research Institute, Tanzania, blaymt@gmail.com</p> <p>Prof. Sayoki G. Mfinanga: National Institute Medical Research, Tanzania, gsmfinanga@yahoo.com</p> <p>Prof Dixon Chibanda, University of Hararé, Zimbabwe</p> <p>Prof Nicolas Antoine-Moussiaux – Uliège, Belgium</p> <p>Prof Francis Akindès, University of Bouaké, Côte d'Ivoire</p> <p>Prof Jakob Zinsstag, Swiss TPH, Switzerland</p> <p>Prof Chouaibou Farougou, UAC, Benin</p> <p>Dr Gilbert Fokou, CSRS, Côte d'Ivoire</p> <p>Dr Didier Koffi, CSRS, Côte d'Ivoire</p> <p>Dr Mahamat Bechir, IRED/ MSP, Chad</p> <p>Dr Orou Seko Malick, EISMV, Dakar</p> <p>Prof Georgette Konan, CSRS, Côte d'Ivoire</p> <p>Dr Ezekiel Mangi, MUHAS, Tanzania</p> <p>Dr Kathrin Heitz-Tokpa, CSRS, Côte d'Ivoire</p> <p>Dr Walter Ossebi, EISMV, Senegal</p> |
| Proposed mentors | <p>Glasgow - Prof. Dan Haydon</p> <p>CSRS – Prof Bassirou Bonfoh</p> <p>Swiss TPH – Prof Jakob Zinsstag</p> <p>EISMV – Prof. Akakpo Ayi Justin</p> <p>Maseno University – Prof. Collins Ouma</p> <p>University of Nairobi – Prof George Gitau</p> <p>NIMR – Prof. Sayoki G. Mfinanga</p> <p>Uni Hararé, prof Dixon Chibanda</p> |

Description of TTP Stop NCDs

Background:

Risk factors associated with emerging NCDs are strongly linked to infections, environmental factors (pollution, malnutrition), human behaviour, and lifestyle, calling for a OH approach to address these emerging challenges. Although health systems in Africa have largely focused on infectious diseases, NCDs representing 60% of the global burden of disease (WHO, 2011) place Africa in the zone of still lacks systematic evidence on the NCDs burden, cost-effective magnitude, surveillance, and monitoring, costing or efficacy and effectiveness of NCDs interventions.

Problem:

NCDs are strongly linked with climate change, food security, human behaviour, and lifestyle. In this epidemiological transition, there is limited systematic evidence on (i) the determinant link between food, infections, and behaviour in NCDs, (ii) the combined surveillance-response system, and (iii) integrated cost-effective interventions. In such setting, livestock and animal source foods have a controversial position, first being part of livelihoods, contribution to income and nutrition but second, responsible for zoonoses, food borne diseases, and NCDs in some specific environmental conditions.

Main Objective/ Research question:

The main objective of the TTP Stop NCDs is to mitigate the NCDs using the One Health approach that analyse the risk factors (epidemiological, sociocultural, environmental, etc.) and the innovative intervention tools and methods. The development of NCDs have been recognised as a long-term problem influencing public health (such as COVID-19) at a growing scale in emerging economies in African countries, and the strategies to control them are limited or biomedically oriented.

We seek Masters, PhDs, and Postdoc candidates to conduct, use the above research question to design studies that answer the complex problems linked to NCDs. Thus, candidates should develop a two pages concept note focusing on but not limited to, the following questions at different scales: patient, family, community, National and global levels:

- What are the main risk factors, including knowledge and care-seeking behaviours, associated with non-communicable diseases for adolescents and adults?
- What are the socio-economic burden dynamics of NCDs (ex. including diabetes and hypertension, among people living with HIV/AIDS and among the general populations)?
- How can we promote health and wellbeing by reducing the socio-ecological risk factors of NCDs and designing best practices toward behaviour changes (including lifestyle behaviours) among adolescents, women and adults?
- What are the existing interventions or mechanisms for managing NCDs patient stigma/exclusion at the patient, community, and national levels (linking to the mental health of patient)?
- How can we scale up best practices and interventions to manage patients' mental health outcomes?
- What kind of NCDs management support exist for the population at risk (ex. Livestock dependent population)?
- How to scale up best practices and intervention to support the management of NCDs?
- What public educational approaches need to be developed to influence behavioural change in populations to manage and prevent NCDs in adolescents and adults?
- What is the added value of interventions using a One Health approach in preventing and controlling NCDs in Sub-Saharan Africa?
- What policy mechanisms are best suited to promote good practices and mitigate non-communicable diseases?
- What are the trade-offs of animal sources food consumption as far as sustainable health, wellbeing and environment factors are concerned?

TTP Stop NCDs Postdoc programme

Ref: TTP-Stop-NCDs-Postdoc

Project topic: NCDs drivers, risk factors, and outcomes of combined socio-ecological integrated intervention model.

Project Description : Estimated prevalence of diabetes and hypertension from the STEPS survey in Tanzania has been reported to be 5-10% and 26%, respectively [WHO STEPS chronic disease risk factor surveillance 6-3C-1 www.who.int/chp/steps] and [Manne-Goehler J, Atun R, Stokes A, et al. Diabetes diagnosis and care in sub-Saharan Africa: pooled analysis of individual data from 12 countries. *Lancet Diabetes Endocrinol* 2016; 4 (11): 903-12]. The International Diabetes Federation of Côte d'Ivoire projects that the number of adults (20-79 years) living with diabetes could reach about one million people by 2030, with a prevalence of around 6%. Alongside this growing population of diabetic adults, the number of children and adolescents with diabetes is also increasing, with more than 244 cases in 2016 (Sanogo et al., 2016). However, little is known about the drivers for individuals developing comorbidities and multi-morbidities in Africa in urban and rural settings. Conducting more research can contribute to understanding the burden and drivers of comorbidities and multi-morbidities of the targeted chronic conditions in vulnerable groups.

Qualification: The candidate must be a citizen of an African country who holds a Ph.D. or has submitted his Ph.D. thesis in this field. However, candidates should have some experience in the mathematics underlying simple epidemiological models, a basic grasp of computer programming, and experience in statistical data analysis and biology. Candidate should have at least two first-author publications in a peer-reviewed journal with basic in social science methods such as transdisciplinary methods.

Enrolment: The postdoctoral fellow may negotiate to be enrolled/based at one of the following organizations: CSRS (Côte d'Ivoire), NIMR (Tanzania), NMIMR (Ghana) or IHI Tanzania or in an institution in partnership with the listed institutions.

Training: Research will primarily cover Côte d'Ivoire, Ghana, Benin, Togo, Senegal, Kenya and Tanzania in a comparative way, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in Switzerland.

Mentorship/ Supervision: The fellow will be co-supervised by TTP co-leads and the Director of Afrique One-REACH and will be given the opportunity to select mentors from the list of Afrique One-REACH mentors. He/She will be part of PhD/ Master thesis committees.

Fellowship duration: The fellow will be engaged for **24-36 months after which he/she will get independence with grant leveraged.**

TTP Stop NCDs PhD fellowships

Ref: TTP-Stop-NCDs-PhD-1

(NB. 2 PhD position offered depending on the choice of NCD in different contexts)

Project title: Diet transition in youth in a context of climate, urban and behaviour changes

Project description: Research in Tanzania showed that nearly 13% of 1492 girls aged 15 – 19 years were either overweight or obese. In 2017, a survey in the Lake Zone of the country showed that in 24

schools, out of 699 adolescents aged 8 – 19 years, 3.4% were diabetic and 3.3% hypertensive. [Tanzania National nutrition survey in 2018, Tanzania NCD Program evaluation Report 2017]. The older age, higher BMI, low physical activity, and consumption of fatty foods increase the risk of hyperglycemia, hyperlipidemia, and hypertension among these vulnerable groups. Red meat consumption was positively associated with a high prevalence of hyperlipidemia. Thus, there is a need to strengthen the existing education, food programs to improve dietary diversity in the population. TTP Stop NCDs is packaging various interventions using multiple components involving multi-disciplinary approaches will be necessary.

Qualification: The candidate must be a citizen of an African country who holds a PhD. or has submitted his PhD. or has submitted his PhD. thesis in this field. However, candidates should have some experience in nutrition and socio-anthropology, economics research topics. Candidate should have at least two first-author publications in a peer-reviewed journal with basic in social science (such as transdisciplinary methods), economic, modelling methods.

Enrolment: The postdoctoral fellow may negotiate to be enrolled/based at one of the following organizations: CSRS (Côte d'Ivoire), NIMR (Tanzania), NMIMR (Ghana) or IHI Tanzania or in an institution in partnership with the listed institutions.

Training: Research to be conducted primarily cover Côte d'Ivoire, Ghana, Senegal, Togo, Benin, Kenya and Tanzania in a comparative way, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be co-supervised by TTP co-leads and the Director of Afrique One-REACH and will be given the opportunity to select mentors from the list of AO-REACH mentors. He/She will be part of PhD/Master thesis committees.

Fellowship duration: The fellow will be engaged for **36-48 months after which He/She will get independence with grant leveraged.**

Ref: TTP-Stop-NCDs-PhD-2

(NB. 2 PhD position offered depending on the choice of NCD in different contexts)

Project title: Risk factors, socio-economic burden of NCDs to the households/communities/Country (case in Côte d'Ivoire, Senegal or Tanzania)

Project Description: Studies (Haffman et al., 2011) showed that the individual and household economic impact of NCDs in selected middle-income countries, including Tanzania, was very high. The study showed that the affected people and their families had decreased productive working time and increased costs due to the extra effort required to care for the affected ones. It is important to continue establishing various socio-economic impacts of NCDs, focusing on diabetes, hypertension, and HIV-affected individuals in communities and households, and health system levels among people of the targeted groups in this NCDs Training Thematic Program. Local and International socio-networks or initiatives aiming at relieving the economic impact caused by these chronic conditions must be learned.

Qualification: The candidate must be a citizen of an African country who holds an MSc degree or has submitted his MSc in this field. Thus, candidates should have some skills in transdisciplinary research and experience in statistical data analysis. Candidates should have some experience with economic research topics. Candidate should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa with a.

Training: Research will be conducted at recognized public universities in member countries of Afrique One REACH with opportunities for further training within the Afrique One-REACH consortium and the northern partners in Switzerland.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months with possible 6 months extension upon evaluation.**

Ref: TTP-Stop-NCDs-PhD-3

Project title: Integrated surveillance, management system and services of NCDs (Modelling Strengthening health system/ modelling for health decision-making)

Project description: In both countries, Tanzania and Côte d'Ivoire, the ministries of health have put up policies and guidelines for the control and management of NCDs. As a result, multiple stakeholders have various strategies operating in health systems and decentralized communities to fight NCDs targeting various vulnerable groups. However, the range of these initiatives is not well defined, and their impact is not well established. It is important to study and establish good lessons learned from the health systems and decentralized community initiatives by various stakeholders.

Qualification: The candidate must be a citizen of an African country who holds an MSc degree or has submitted his MSc in this field. Candidates should have some experience in stakeholders' analysis. Candidates should have some experience of health sociology research topics. Candidate should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire, Benin, Togo, Ghana, Senegal, Chad and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months.**

Ref: TTP-Stop-NCDs-PhD-4

Project title: Mental, environmental and social ties as NCDs consequences of animal source consumption in Africa

Project description: The consequences of chronic diseases are also linked to intangible costs (pain, anxiety, discomfort, a general reduction in quality of life, etc.), which are the most difficult to quantify and have a profound impact on the lives of patients and their families. Indeed, some chronic diseases disqualify people, and they are stigmatized. Some consequences are immediately visible or known (amputation, hemiplegia, hemiparesis, etc.). The sick people may choose to manage their problems individually or may be obliged to do so. However, in most cases, patients rely on the social networks around them if they can. The stigma bearer, therefore, develops strategies to manage this reality. Social support enables them to better manage their disease. Thus, families have a central role in health

care. However, this position is most often unrecognized and remains largely invisible. Patients' associations as a place of support for certain pathologies have existed for many decades and can constitute places of support. It is, therefore, necessary to study their characteristics and the type of support offered.

Qualification: The candidate must be a citizen of an African country who holds an MSc degree or has submitted his MSc in health socio-anthropology. Candidates should have some experience of social science research topics. Candidate should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire, Benin, Togo, Ghana, Senegal, Chad, Kenya and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration:

The fellow will be engaged for **36-48 months**.

Ref: TTP-Stop-NCDs-PhD-5

Project title: Emerging threats on human security and climate: livestock system as domestic insurance scheme (risk management including health) in sub-Saharan Africa

Project description: Livestock is traditionally a prominent feature of the economies of many tropical African countries in terms of income, employment, food security, and resource utilisation and mainly the overlooked insurance. However, little progress has been made towards either using these resources more efficiently or improving the productivity. The productivity of livestock in tropical Africa in terms of milk and meat is the lowest in any region of the world. Major constraints to the development of the livestock sector in tropical Africa are sustained growth in both human and livestock population, desertification resulting from overgrazing, competition for land between agriculture and livestock, conflict as well as climatic economic and political factors.

The knowledge about the role of livestock in the risk management by rural households is fragmentary and not well understood. This is especially the case in a context of climate change, insecurity, growing demand for livestock products in the fast-growing cities of Africa and the debate on the contribution of livestock in green gas emissions. We propose to use a group model building approach to valorise this knowledge and to get a better understanding of the role of livestock production in the risk management (insurance) of poor households in Africa.

Qualification: The candidate must be a citizen of an African country who holds an MSc degree or has submitted his MSc in health socio-anthropology, veterinary science, economics, risk management. Candidates should have some experience of social science, veterinary, public health, environment research topics. Candidate should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire, Benin, Togo, Ghana, Senegal, Chad, Kenya and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration:

The fellow will be engaged for **36-48 months**.

TTP Stop NCDs MSc fellowships

Ref: TTP-Stop-NCDs-MSc-1

Project title: Community responses to NCDs (KAP and health-seeking behaviour, community practice for NCDs prevention...).

Project Description: Each society at each period has a representation of disease, of normal and pathological, that is constantly changing over time, with the dominant knowledge, beliefs, and values. The biomedical cause of disease, in general, remains identical and universal, unlike the representations and experiences based on population culture. Thus, there is a plurality of etiological systems in different societies, and these also concern non-communicable diseases. The etiological pluralism of the disease also leads patients to seek several treatments. Thus, the health-seeking behaviour of people suffering from serious illnesses, including chronic diseases, is not simple and linear. It is, therefore, necessary to follow these care-seeking behaviour of chronic diseases to improve their management in the African context.

Qualification: The candidate must be a citizen of an African country who has experience in health socio-anthropology. Candidates should have some experience with social science research topics.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire, Togo, Ghana, Benin, Senegal, Chad, Kenya and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in Switzerland.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **24 months**.

Ref: TTP-Stop-NCDs-MSc-2

Project Title: NCDs dynamics, perception and management between the household and the health system

Project description:

Chronic diseases are managed at the health centres and mostly at the household level for a long time. Thus, families have a central role in health care. This position is most often unrecognized and remains largely invisible. Patients' associations that also provide support for certain pathologies have

existed for many decades and can also constitute places of support. Therefore, it is necessary to study their characteristics and the type of support offered.

Qualification: The candidate must be a citizen of an African country who has experience in health socio-anthropology. Candidates should have some experience of social science research topics.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **24 months**.

Ref: TTP-Stop-NCDs-MSc 3

Project Title: Dynamics of food business and the fabric of consumers (healthy and unhealthy)

Project description:

Most non-communicable diseases such as Hypertension, Diabetes, are managed at home or at the health centres. This management is based primarily on the lifestyle, the choice of food. But in the health system, there is a growing tendency of high drug consumption to mitigate the NCDs. The contrast between nutrition and pharmaceutical drug is made of the fabric or the conversion of the consumers are based on the food system, education, urbanisation, short food value chain, "supermarketisation", social media etc... The symbolic engineering deployed by public relations, fiscal policies, the market, advertising, social networks leads to the conversion of the population to consumption with risks of non-communicable diseases, and the meteoric rise in power of the food market and pharmaceutical companies.

Qualification: The candidate must be a citizen of an African country who has experience in health socio-anthropology, economics. Candidates should have some experience of social science, nutrition and health research topics.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **24 months**.

Ref: TTP-Stop-NCDs-MSc-4

Project Title: Healthy ageing in rural Africa: analysis of local perception, education, diet with agricultural insurance scheme.

Project description:

Good health and longevity depend on dynamic interactions between biological, social, psychological, and environmental factors. Aging is globally a big challenge, particularly with the demographic transition, including population growth, and an emerging burden to society. Knowledge, behaviour, diet, and consumption of animal source food were related to aging and emerged as the key factors modulating healthy aging. This project is designed to understand the main healthy aging factors, such as knowledge, social network, and diet of elders, and to derive mutual learning from it for healthy aging with a focus on Non-Communicable diseases and animal source diets.

Qualification: The candidate must be a citizen of an African country who has experience in health socio-anthropology, economics. Candidates should have some experience of social science, biology, medical nutrition and health research topics.

Enrolment: The candidate should enrol in a recognized public university in Africa.

Training: Research will be conducted primarily in Côte d'Ivoire and Tanzania, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the Switzerland, Belgium.

Mentorship/ Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **24 months**.

TP: Transversal Programme in Collective Action for Health and Behavioural Change (CABEC)

Fellowships

- 1 Postdoc (2-3 years)
- 3 PhD position (3-4 years)

For more information concerning this TTP, contact the Lead & Co-leads:

| | |
|--|--|
| TTP CABEC lead | CSRS – Dr Gilbert Fokou (gilbert.fokou@csrs.ci) |
| TTP CABEC co-lead | ULiège – Prof Nicolas Antoine-Moussiaux CSRS – Prof Bassirou Bonfoh |
| Collaborating institutions | Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS), Côte d'Ivoire, Dr Gilbert Fokou, Prof Bassirou Bonfoh, Dr Bognan Valentin) Université de Liège, (ULiège), Belgium, Prof Nicolas Antoine-Moussiaux Ecole Inter-États des Sciences et de Médecine Vétérinaires, (EISMV), Senegal, Dr Walter Ossebi Swiss Tropical and Public Health Institute, Swiss TPH, Switzerland, Prof Jakob Zinsstag Institut National de Santé Publique (INSP, Côte d'Ivoire), Dr Adou Djané Dit Fatogma Social Science Research Center (CERDAS), Université de Kinshasa, DRC, Prof Bruno Lapika Muhimbili University of Health and Allied Sciences (MUHAS), Tanzania, Dr. Mangi Ezekiel |
| REACH fellows | Postdoc: 1 PhD: 3 |
| In-kind contribution | Students from the Master on Integrated management of health risks in the Global South (ULiège) will be assigned subjects in support of the TP's works. Conducted in pairs combining a medical doctor and a veterinarian having received a particular training on interdisciplinarity, these master works are perfectly suited to the proposed approaches. |
| Nb. Expected assoc. fellows | To be identified |
| Afrique One-REACH proposed programme co- | Prof Nicolas Antoine-Moussiaux – Uliège, Belgium Prof Francis Akindès, University of Bouaké, Côte d'Ivoire |

| | |
|---------------------------------------|--|
| supervisors to selected by candidates | <p>Prof Jakob Zinsstag, Swiss TPH, Switzerland</p> <p>Prof Bassirou Bonfoh, CSRS, Côte d'Ivoire</p> <p>Prof Amadou Ndiaye, UAM, Diamnadio - Senegal</p> <p>Prof Bruno Lapika, UNIKIN, DRC</p> <p>Prof Paschal Kum Awah, Uni Yaounde 1 – Cameroon</p> <p>Prof. Salome Bukachi, University of Nairobi, Kenya</p> <p>Dr Gilbert Fokou, CSRS, Côte d'Ivoire</p> <p>Dr Ezekiel Mangi, MUHAS, Tanzania</p> <p>Dr Kathrin Heitz-Tokpa, CSRS, Côte d'Ivoire</p> <p>Dr Malick Orou Seko, EISMV, Senegal</p> <p>Dr Walter Ossebi, EISMV, Senegal</p> |
| Proposed mentors | <p>STPH – Prof Jakob Zinsstag</p> <p>CSRS – Prof Bassirou Bonfoh</p> <p>UoG - Prof Sarah Cleaveland</p> |

Description of TP CABEC

Background:

The 2030 Agenda for SDGs has set the objective of contributing to establish good health and well-being (SDG 3) and improve standard of living for people, and quality of life. The contribution of science to these goals entails the collaboration of multiple disciplines, among which social sciences hold a crucial role, since human behaviour and governance of systems are key levers for managing health risks. Disease control and health promotion require a deep understanding of why and how communities are vulnerable to health risks and how the needed behavioural change might be triggered and sustained by the existing health system.

Problem:

Since the Alma Ata declaration in 1978, that strongly reaffirmed that health comprises a state of complete physical, mental, and social well-being, there have been a pronounced interest for socioeconomic, sociocultural, and socioecological dimensions of health. Since then, social sciences and economics have been continuously focusing on health issues, talking most of the times topic related to knowledge, attitudes, and practices of peoples regarding diseases; aetiologies and sociocultural causes of diseases; cost of healthcare, etc. The part of social sciences considered in health management has often been restricted to social perceptions and accountancy of impacts and benefits. Hence, a rich part of social sciences is still to incorporate in different aspects of health management and promotion. In this TTP, we propose to focus on a part of this vast realm that we consider as directly operational in informing collective action and accompanying behavioural change: deciphering the importance of social interactions, economic organization, health system governance, or people's behaviour in fostering or hindering health risks. The fundamental assumption is that disease control and health promotion require a deep understanding of why and how societies or their citizens are vulnerable to health risks and how the needed collective action or behavioural change might be triggered and sustained in an equitable partnership.

Building on a One Health approach and based on case studies on endemic zoonotic diseases, non-communicable diseases and neglected tropical diseases, this Transversal Package (TP) questions structural and interactional determinants of health actions and focusses on the way collective actions contribute to shape behaviours of peoples to inform health policies. Emerging diseases, NTDs and environment-driven health risks represent a diverse set of interactions between health and socio-economic contexts.

Main Objective/ Research question:

The main objective is to assess the way, structural and interactional determinants of health shape collective action for health and behavioural change to inform health policies.

In collaboration with TTPs EEZs, NTDS, NCDs, this transversal package is looking for PhDs, and Postdoc candidates **specialised in social sciences and economics** to conduct research to achieve the above goal. Studies conducted within the framework of this transversal package, while including modelling, will be structured around the following guiding questions:

- What are the structural and interactional determinants of health interventions?
- How does collective action contribute to shaping behaviours, and vice versa?
- How to integrate social and economic knowledge into models to plan cost-effective interventions at the interface of human, animal and environmental health?
- What are the cost-effectiveness and co-benefits of an institutional coordination of collaboration in One Health at local, regional and global levels?

TP CABEC Postdoc programme

Ref: TP-CABEC-Postdoc

Project topic: Modelling collective action for health and behavioural change.

Project description: Interventions promoting collective action have been used for health promotion in a range of settings, but their mechanisms of operation remain unclear. Thus, modelling structural and interactional determinants of health and the way they shape collective action for health and behavioural change, becomes critically important. The research activities of the Postdoc will center around a conceptual framework bridging questions related to: institutional analysis to assess sectoral collaboration in One Health partnering against EEZs, NTDs, NCDs; social ecological analysis of individual, relationship, community, and societal factors contributing to behavioural change in fighting the selected complexity of diseases; analysis of multifaceted vulnerability and resilience of populations against neglected tropical diseases. The Postdoc will be instrumental in showing how collective action contributes to shape behaviours of peoples to inform health policies. The aim is to contribute to modelling collective action for health and behavioural change. It will consist of working in close collaboration with the 3 TTPs through PhDs studies, but also with the TP-modelling. The whole work should contribute to linking cost-utility analysis of collaborations in One Health to epidemiological modelling; using multi-agent models and to assess choices of individuals for behavioural change in the context of diseases; analysing systems and network to build resilience against diseases.

Qualification: The candidate must be a citizen of an African country who holds a PhD or has submitted his/her PhD thesis in a relevant field. However, candidates should have an MSc/MPhil background in areas related to (economic) modelling. The applicants should have a strong experience in economics and social science methods, knowledge of mathematical modelling, computer programming and experience in statistical data analysis. Knowledge in One Health Approach and areas contributing to One Health is required (MOOC course). Candidates should have at least two first author publication in a peer reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: Research will be conducted primarily in Senegal, Côte d'Ivoire, Ghana, DRC, and Tanzania with opportunities for further training within the Afrique One-REACH consortium and the northern partners in the UK, Belgium, and Switzerland.

Mentorship/Supervision: The fellow will be supervised by TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **24-36 months**.

TP CABEC PhD fellowships

Ref: TP-CABEC-PhD-1

Project topic: Economic evaluation of sectoral collaboration in One Health partnering against EEZs

Project description: The One Health concept stands as an open call for intersectoral collaboration. Engagement and dialogue between actors are key for health actions and have been praised for their cost-effectiveness. However, the reality shows that those collaborations are under-developed or simply not working. This study will question the factors explaining intersectoral collaborations among One Health actors in their efforts to control zoonotic diseases. This will consist of an institutional analysis of interactions between sectors coupled with economic evaluation of this process, to assess if the interaction is worth being consolidated and what is the added value. Through an institutional analysis, the study will aim to assess costs incurred in building and consolidating partnerships and collaborations between actors and sectors of One Health. This will: (i) map stakeholders involved in One Health partnering to address EEZs diseases; (ii) describe the process of this collaboration; (iii) assess the costs of the collaboration and partnering.

Qualification: The candidate must be a citizen of an African country who holds a MSc degree or has submitted his/her MSc in this field. The applicants should have a strong experience in health economics and social science methods. They should have some skills in transdisciplinary research and experience in statistical data analysis. Knowledge of One Health Approach and areas contributing to One Health is required. Applicants should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: Training will be provided primarily in Senegal, Côte d'Ivoire, Tanzania or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by Afrique One-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**

Ref: TP-CABEC-PhD-2

Project topic: Social ecological context and behavioural change for the control of non-communicable diseases

Project description: Strategies for health promotion are often criticized for focusing on lifestyle change while ignoring contextual forces that influence health. As recognized by social ecological models, individuals are embedded within larger social systems and their health outcomes are determined by their interactions with environments around them. Studying non-communicable diseases (NCDs) entails considering a mix of individual, political, community, cultural elements that determine health risks and benefits. Different factors and determinants exist at all levels of health, making prevention, control, and intervention most effective when the model is addressed from all levels. Focussing on NCDs, this study will use the social ecological model to assess the role of social networks, institutions, communities, and policies in behavioural change and determining health outcomes. The study relies on the assumption that lifestyle and behaviours of individuals are subject to a complex interplay between individual, relationship, community, and societal factors.

Qualification: The candidate must be a citizen of an African country who holds a MPhil/MSc degree or has submitted his/her thesis in this field. The applicants should have a strong experience in health social science (anthropology, sociology, geography, development studies) and related disciplines. They should have some skills in transdisciplinary research and experience in statistical data analysis. Knowledge of One Health Approach and areas contributing to One Health is required. Applicants should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: Training will be provided primarily in Senegal, Côte d'Ivoire, Ghana, Tanzania or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **48 months**.

Ref: TP-CABEC-PhD-3

Project topic: Vulnerabilities and resilience of populations against neglected tropical diseases.

Project description: Epidemics have revealed that even strong health systems can become overwhelmed during public health crises, further exacerbating the human, economic, and political vulnerability. This situation stresses the need to jointly strengthen health care systems and lower the pressure on them, by addressing health in all dimensions of a population's life. In many rural areas,

populations are vulnerable due to poor livelihood assets, strong infectious pressure, and difficult access to health care facilities as to other services (water, energy, education). This pathological complex corresponds to a systemic analysis of NTD: poverty-linked diseases undermine efforts for development, thus acting as a poverty trap. This systemic analysis will address this multifaceted vulnerability with its vicious feedback loops, and jointly assess the resilience of communities and of health systems serving them. It will identify networks of actors and resources, and levers to better articulate the correspondence between people vulnerability and their access to health services. Enabling and hindering factors should be also analysed against the sustainability of the promoted Mass Drug Administration.

Qualification: The candidate must be a citizen of an African country who holds a MPhil/MSc degree or has submitted his/her thesis in this field. The applicants should have a strong experience in health social science (anthropology, sociology, geography, development studies) and related disciplines. They should have some skills in transdisciplinary research and experience in statistical data analysis. Knowledge of One Health Approach and areas contributing to One Health is required. Applicants should have at least one first-author publication in a peer-reviewed journal.

Enrolment: The candidate should enrol in a recognized public university in Africa

Training: Training will be provided primarily in Senegal, Côte d'Ivoire, Tanzania or DRC with opportunities for further training within the Afrique One-REACH consortium and with supervisory partners in the UK, Switzerland and Belgium depending on needs and internal budget considerations.

Mentorship/Supervision: In addition to university appointed academic supervisors, the fellow will be supervised internally by AO-REACH supervisors and TTP co-leads and will be given the opportunity to select mentors from the list of AO-REACH mentors.

Fellowship duration: The fellow will be engaged for **36-48 months**.

TP: Transversal Programme in Data Science, Statistics and Modelling (DSSM)

Fellowships

- 1 Postdoc (2-3 years)

For more information concerning this TTP, contact the Lead & Co-leads:

| | |
|----------------------------|--|
| TP DSSM lead | CSRS – Prof Bassirou Bonfoh (a.i.) Dr Aurélie Cailleau: Centre Suisse de Recherche Scientifique, a.cailleau@csrs.ci (Assistant) |
| TP DSSM co-lead | Dr Samson Kiware: Ifakara Health Institute, skware@ihi.or.tz Prof Nicodem Govella: Ifakara Health Institute, govella@ihi.or.tz Dr Yapi Richard: Centre Suisse de Recherche Scientifique, richard.yapi@csrs.ci Prof Dan Haydon: University of Glasgow, daniel.haydon@glasgow.ac.uk Prof Sarah Cleaveland: University of Glasgow, sarah.cleaveland@glasgow.ac.uk Prof Jakob Zinsstag, Swiss TPH : jakob.zinsstag@swisstph.ch Dr Malick Orou Seko, EISMV, Dakar: orousekom@gmail.com |
| Collaborating institutions | Ifakara Health Institute (IHI, Tanzania) University of Glasgow (UG, UK) Centre Suisse de Recherches Scientifiques (CSRS) Swiss Tropical and Public Health Institute (STPHI) |
| Nb. REACH fellows | 1 postdoc |
| Proposed supervisors | Dr Simon Babayan (UG), Dr Aurelie Cailleau (CSRC), Dr Samson Kiware (IHI), Prof Dan Haydon (UG), Dr Paul Johnson (UG), Dr Mafalda Viana (UG), Dr Richard Yapi (CSRS), Prof Jakob Zinsstag (Swiss TPHI), Prof Bassirou Bonfoh (CSRS) |
| Proposed mentors | Dr Simon Babayan (UG), Dr Aurelie Cailleau (CSRC), Dr Samson Kiware (IHI), Prof Dan Haydon (UG), Dr Paul Johnson (UG), Dr Mafalda Viana (UG), Dr Richard Yapi (CSRS), Prof Jakob Zinsstag (Swiss TPH), Prof Bassirou Bonfoh (CSRS). |

Description of TP DSSM

The goal of the Transversal Program in Data Science, Statistics and Modelling (DSSM) is to provide leadership and support for data management and analysis activities across the consortium. A fundamental premise of this TP is that modelling activities must be embedded within the individual research narratives and context of the three TTPs, and not as research activities within this TP. Therefore, there are no PhD or MSc fellows in this TP, although it is expected the TP will work closely mentoring and supervising those fellows undertaking quantitative research in all our TTPs. We will support TTPs to identify the key tractable quantitative questions underpinning each of their research programs, and in formulating the research planning and design of the quantitative fellows' research activities. We recognize the challenges of large-scale data collection, data sharing and ethics in One Health contexts, and therefore the premium placed on efficient and powerful data analyses, together

with the importance of data integration protocols that enable different types of data to be combined to estimate parameters and assess research hypotheses. We anticipate that our 'One Health big data' is more likely to be acquired through the use of spatial sensors (e.g. remote sensing), demographic censuses (national census data and health and demographic surveillance system), and genomic data (e.g. whole genome sequencing and phylodynamic analysis). We will provide core support for data management and robust reproducible analysis pipelines, introductions to data visualization and programming. Combining our expertise across the consortium will be able to offer expert support for a wide range of analytical approaches that will depend on the needs of fellows but could include standard frequentist and Bayesian statistical modelling, latent variable modelling, agent-based models, machine learning and artificial intelligence methodologies, strategic and more tactical mathematical modelling, phylodynamic models, and spatial analysis. We will for the most part deliver this support in the R environment, through accessible entry level courses suitable for all fellows, and much more specialist bespoke one-on-one training for our fellows with more quantitative experience. We recognize the value of 'beacon-modelling activities' where advanced data analysis and modelling manifestly adds value to projects (for example in our consortium in the design of rabies control programs and the dynamics of vector-borne diseases) and will showcase research that can inspire fellows to plan more quantitative research.

Our previous experience has revealed to us how challenging the delivery of effective training in this area is. While entry-level training can be provided at a larger scale through workshops at our training centres and through 'micro-MOOCs' that can deliver refresher short courses in fundamental concepts in mathematics and statistics, for more advanced work there is really no substitute for one-on-one or small group supervision and frictionless communication between this TP and the TTPs is essential. We also recognize the value of high mobility – spending time in our Institutions rich in analytical capacity, and for the TP staff and fellows to integrate with our TTPs.

Background:

NCDs, NTDs, and EEZs more generally call for integrated One Health approaches, and integrated approaches call for modeling to design, explore, and evaluate intervention scenarios and estimate their effectiveness.

Challenge:

A lot of data has and will be generated within our consortium across the African continent and we run the risk these are under used because of a lack of modelling and analytical capacity. Our challenge is to analyze these data in a way that delivers maximum value, insight, and staff trained sustainably in data science methodology.

Main Objective/ Research question:

The main objective is the application of quantitative methods embedded in One Health frameworks to the management of diseases. The nature of our consortium requires working in a wide variety of different contexts, however diverse and integrated approaches will always be key to the optimal solutions.

We seek a postdoctoral candidate who is willing to work with our consortium members and our three Thematic Training Programs (in EEZs, NTDs, and NCDs) to help build capacity in data science, statistics and modelling, through organizing training sessions, and undertaking collaborative research with those who would benefit from it. However, there will also be good opportunities for the successful candidate to pursue their own research interests, ideally in some area related to One Health. The career development of the Postdoc will be advanced through their involvement with a diverse range of projects, and access to data sets, where they will have the opportunity to apply their existing skills in the development of outputs in collaboration with TTP fellows, expand on their skillsets through interactions with experienced quantitative PIs across the consortium, and through their own projects on which they will lead. TTP leads will ensure the workload is arranged to achieve an appropriate balance of the provision of training, their own skill acquisition, research support and leadership.

The candidate should develop a two pages concept note outlining how they think they can contribute to our consortium activities with their research and collaborating with other projects in the consortium.

TP DSSM Postdoc programme

Ref: TP-DSSM-Postdoc-1

Project topic: Supporting, developing and expanding research applications using data science, statistics and modelling across the Afrique One-REACH consortium.

Project Description: The main objective of the position is the application of quantitative methods embedded in One Health frameworks to the management of diseases.

Qualification: The candidate must be a citizen of an African country who holds a Ph.D. or has submitted his or her Ph.D. thesis in quantitative science that is or can be applicable in One Health contexts. The ideal candidate should have some experience in epidemiological models, some experience of computer programming, and statistical data analysis. Candidates should have at least two first-author publications in peer-reviewed journals. A basic knowledge in social science methodology and/or transdisciplinary methods would be a plus.

Enrolment: The postdoctoral fellow may negotiate to be enrolled/based at one of the following organizations: CSRS (Côte d'Ivoire), NIMR (Tanzania), or IHI (Tanzania) or in an institution in partnership with the listed institutions.

Training: Research will primarily cover Côte d'Ivoire and Tanzania in a comparative way, with opportunities for further training within the Afrique One-REACH consortium and the northern partners in UK.

Mentorship/ Supervision: The fellow will be co-supervised by TP co-leads and the Director of Afrique One-REACH and will be given the opportunity to select mentors from the list of Afrique One-REACH mentors. He/she will be part of PhD/ Master thesis committees.

Fellowship duration: The fellow will be engaged for **36-48 months** after which he/she will get independence with grant he/she should leverage.