



African Research Consortium for Ecosystem and Population Health: "Expanding Frontiers in Health"

"Afrique One" Postdoc Fellowships in Ecosystem and Population Health

The African Research Consortium for Ecosystem and Population Health is seeking to appoint eleven post-doctoral research scientists to its prestigious 4-year fellowship program.

The Consortium comprises eleven African Universities and Research Institutes in Chad, Cote d'Ivoire, Ghana, Senegal, Tanzania, and Uganda, and is funded through the Wellcome Trust's African Institutes Initiative. The fellowship program seeks to support the next generation of African science leaders in the field of ecosystem and population health. We are looking for the very best post-doctoral scientists to develop independent sustainable science programs in each of the consortium's core institutions. Fellowships come with competitive salaries and substantial research support budgets that include graduate studentships, technician salaries, travel funds, and consumables. All areas of science that fall within an Ecosystem and Population Health remit may be supported but successful applicants must be able to demonstrate a long-term commitment to leading and developing science programs relevant to their countries research needs, and that enhance existing research activities in their chosen institutions.

Applications should be made to individual participating institutions, and should comprise: a full CV, 3 letters of reference; and a 4000 word outline of their research plan. The deadline for applications is February 1st 2010. Late submission will be considered in the event that positions are not filled. Applicants must be able to take up the position by September 1st 2010. Full details of the application procedure are available at www.afriqueone.net or by contacting any member of the consortium (listed below).

In the event of any additional queries contact Professor Bassirou Bonfoh, CSRS 01 BP 1303 Abidjan 01 Km 17, Adiopodoumé, Côte d'Ivoire (Bassirou.bonfoh@csrs.ci)

1. Application details

Applications from African Scientists should be made to individual participating institutions that are listed below. Applications can be submitted in English or French and should comprise: a full CV, 3 letters of reference; a summary of their research career to date (400 words), a description of the research question, its importance and relevance to the goals of the consortium (400 words), the approach and methodology through which the question will be addressed (2000 words), its importance to national research priorities (400 words), a summary of how their

proposed research complements the existing research agenda of their chosen institution (400 words), and a description of how the proposed research will integrate across institutions within the consortium (400 words); cited scientific references; and a maximum 2-page budget outline and justification.

2. Submission deadlines

The deadline for submission of applications is 5 pm GMT February 1st 2010. Applicants must be able to take up the position by September 1st 2010. Submissions received after the deadline will be considered should positions remain unfilled.

3. Submission procedure

Contact details are listed in the table in this document. Applications should be submitted **in triplicate** to: The consortium representative at the chosen University or Research Institute; the Director of the consortium (Prof. Bassirou Bonfoh); and the Institutes administrative office (indicated in the last column of the table at the end of this document). Electronic applications are encouraged where possible. Where multiple e-mail addresses for a representative are supplied we advise that applications are sent to e-mail addresses listed.

4. Assessment criteria

Applications will be judged and scored on 8 criteria:

- 1) Applicants past research achievements;
- 2) Scientific originality and excellence of the proposed research in Ecosystem and Population Health;
- 3) Potential impact of the proposed research;
- 4) Long-term vision and prospects for establishment of an independent research program including sustainability of the research beyond the term of the fellowship;
- 5) Relevance to the research agenda of the host institution (described below);
- 6) Relevance to national research and development requirements;
- 7) Development of partnerships with other institutes in the consortium;
- 8) Contribution to meeting the goals of the Wellcome Trust initiative in terms of developing long-term research capacity in Africa (<http://www.wellcome.ac.uk/Funding/Biomedical-science/International-funding/Global-health-research/WTX055734.htm>)

Applicants are **strongly encouraged** to contact consortium representatives (see below), in the institutions to which they are applying or the northern partners while formulating their proposals. They should where possible describe preliminary data and previous relevant

research outputs; briefly describe any associated graduate student projects; describe explicit plans for how their research might be supported in the host institute subsequent to the end of the fellowship; and articulate a clear vision of the future impact of their research activities. The demonstration of language skills in French and English while not essential is a particular advantage.

5. Available budget

The fellowship includes an annual budget to cover research expenses (that may include equipment, consumables, local and/or international travel, and support for technicians and graduate students). Applicants are encouraged to include *at least* one graduate student (masters or PhD) in their research plans. Graduate students may be co-registered at other institutions within the consortium, including northern partners.

6. Other activities supporting research within the consortium

The consortium has been specifically devised to help support research and develop research capacity in its host institutions. Research fellows and associated graduate students may participate in a well-funded training program supporting a diverse range of subjects relevant to ecosystem health, available through the consortium over the 4 years of the fellowship tenure. In addition, fellows may apply to a small equipment/infra-structure fund that will be held annually. Fellows will benefit from a specifically designed mentorship process supported by core members of the consortium and the associated northern partners.

7. Details of the consortium

The consortium includes a core structure of 7 Universities and 4 Institutes from 6 countries in sub-Saharan Africa, comprising a balance of African institutes with both medical and veterinary expertise and representation from both Francophone and Anglophone countries, in partnership with northern organizations in the UK (University of Glasgow), Switzerland (Swiss Tropical Institute) and Norway (University of Bergen). The consortium is an African initiative driven by African leadership with a clear vision of strategic needs for developing coordinated and integrated health research at the human-animal interface. The consortium is interested in supporting research for a wide range of pathogens, studying them from a range of different perspectives including but not limited to biomathematics, epidemiology, ecology, tropical and veterinary medicine, molecular biology, parasitology, and health economics.

The discipline of ecosystem and population health addresses the relationship between the health of ecosystems and their constituent human and animal populations. The discipline expands the traditional definitions of health, recognising the critical links between human activity, ecological change and health and incorporates important social and economic perspectives.

A critical issue for effective research in ecosystem health is the need for close cooperation between professions. This is often difficult due to institutional and disciplinary separation, with differences in technical language and scientific approaches further hampering effective integration. This initiative aims to cement inter-sectoral collaboration among African institutions

by involving scientists from different disciplines in training and research programmes using the extensive experience within the consortium acquired from previous interdisciplinary collaborations.

Our consortium has been assembled to enhance research capacity and build formal operational links and affiliations among African regional institutions specifically in the area of human and animal diseases, which have been identified as a national priority in each of the consortium countries. This will be achieved by establishing a comprehensive multilateral training and career development initiative that will enable promising early-career African scientists working in the fields of human and animal infectious disease control to establish enduring internationally competitive research groups within African Universities and partner Research Institutes.

Sustainability does not arise simply as a result of investment in capacity. In modern research environments (whether in developing or industrialised countries), sustainability can only be ensured if scientists are capable of generating grant-funding to support research activities. Therefore, to truly succeed our research groups must be able to develop their research portfolios through grants from international science funding programs and our program of actions has been designed for specifically this purpose.

8. Participating institutions and their research profiles

8.1 Centre Suisse de Recherche Scientifique, (CSRS - Côte d'Ivoire). The CSRS is a regional and international vocational research centre with a mission to encourage and sustain research through north-south and south-south partnerships throughout West Africa. The CSRS has excellent training and workshop facilities for building the capacity of researchers in their respective Universities. Fundamental and applied research themes take into consideration national and regional priorities that address the need for sustainable development. The areas covered include natural environment and biodiversity, food security and nutrition, human and animal health (HIV/AIDS, malaria, TB, helminths, tick-bone diseases, brucellosis, Q-fever), and urban environment problems (water and sanitation). The CSRS has strong links with three universities in Côte d'Ivoire (Abobo-Adjamé, Cocody, Bouaké) and many other research institutions in West Africa including the LRZV in N'Djamena, Chad and LCV in Mali through an agreement with the STI. CSRS is centrally involved with the One Health initiative "Ecohealth" (Ecosystem and health approaches, promoting transdisciplinary, participation and gender sensitivity in research), and wishes to enhance capacity in molecular biology, quantitative epidemiology and biostatistics.

KEY RESEARCHERS: Prof. Bassirou Bonfoh, Dr Koudou Benjamin, Dr Louise Achi

KEY ASSETS: Transdisciplinary research (One health and Ecohealth), Livestock production systems,

EXAMPLES OF DESIRED CAPACITY: Zoonoses risk analysis, molecular biology and biostatistics,

8.2 Noguchi Memorial Institute for Medical Research (NMIMR - Ghana) conducts public health research, provides training opportunities for undergraduate and postgraduate students and high-end laboratory diagnostic services in support of public health programmes. The Institute

comprises nine research departments: Animal Experimentation, Bacteriology, Clinical Pathology, Electron Microscopy & Histopathology, Epidemiology, Immunology, Nutrition, Parasitology and Virology. The Institute has a Biosafety Level 3 (P3) Laboratory used for research and in support of national disease preparedness and control initiatives including MDR-TB, Buruli Ulcer, Anthrax, HIV/AIDS, Viral Haemorrhagic Fever and Avian Influenza.

KEY RESEARCHERS: Dr Addo Kwasi Kennedy

KEY ASSET: Diagnostic services.

EXAMPLES OF DESIRED CAPACITY: Bacterial zoonotic diseases such as TB, Brucellosis, Anthrax

8.3 Laboratoire de Recherches Vétérinaires et Zootechniques de Farcha (LRZV/F - Tchad) The assigned mission is to improve animal health and livestock production through animal vaccine production, diagnostics in the veterinary and public health domain, and training. Research covers animal production (agro-pastoralism, socio-economic, zoo-genetic and zoo-technical/nutrition), vaccine development (bacterial and viral vaccines), and health (epidemiology of bacterial, viral and parasitic diseases). It has a long history in Pan African vaccine production (e.g. Rinderpest, CBPP and telluric diseases) and is now one of the leading west and central African reference laboratories in the area of zoonotic diseases (Tuberculosis, anthrax, rabies and Grippe aviaire).

KEY RESEARCHERS: Dr Colette Diguimbaye-Djaibé, Dr Assandi Oussiguere, Ngandolo Naré Bongo (doctorant)

KEY ASSETS: tuberculosis (isolation, identification, and antibiotic resistance, anthrax (isolation, production of vaccine)

EXAMPLES OF DESIRED CAPACITY: epidemiology of zoonotic diseases

8.4 Ecole Inter-Etats des Sciences et Médecine Vétérinaires (EISMV - Senegal) has research strengths in the epidemiology of zoonotic diseases, evaluation of diagnostic tests, and biodiversity conservation and management. A particular strength is that, as an international institution linked with 13 other west African institutions, EISMV is capable of initiating and developing research programs in different countries simultaneously, and enhancing opportunities for exchange of information and expertise and coordination of training (particularly in biostatistics, modelling, molecular biology and GIS). EISMV has identified specific research opportunities it wishes to develop in zoonotic disease (brucellosis, rabies, tuberculosis, toxoplasmosis), and the epidemiology of important protozoan parasites infecting multiple species (e.g. *Neospora caninum*, *Sarcocystis* spp).

KEY RESEARCHERS: Prof. Serge Bakou, Dr Philippe Koné, Dr Gbati Oubri Bassa, Dr Kamga

KEY ASSETS: Multi-state outreach

EXAMPLES OF DESIRED CAPACITY: Field epidemiology of brucellosis, rabies, toxoplasmosis

8.5 The University of Abobo-Adjame (UAA – Cote d'Ivoire). Research priorities are focused on improvements in animal production and animal health, including alternative non-conventional wild animal husbandry (“mini livestock”). The University is also involved in game animal rearing, integrated management of the environment, biotechnology and food safety. Research priorities focus on disease risks and impacts at the interface between wildlife, domestic animal and human populations, where very little is known about zoonoses in non-conventional husbandry systems. UAA is a reference institution for risk assessment in the food chain. The involvement of UAA provides a unique opportunity for developing capacity for research in small game-animal diseases and production.

KEY RESEARCHERS: Prof. Fantodji Agathe Togbé, Dr Yapi-Gnaoré Chia Valentine, Prof Marina Koussémon

KEY ASSETS: Mini-livestock systems

EXAMPLES OF DESIRED CAPACITY: Small game-animal diseases

8.6 Muhimbili University of Health and Allied Sciences (MUHAS - Tanzania) is a public owned, fully fledged University with a mission of providing training, and conducting research so as to improve health. MUHAS has trained, experienced and well qualified staff in various fields of specialty that are able to mentor candidates in various training levels. MUHAS has links with different institutions both within and outside the country. Activities include collaborative research, consultancy, student and staff exchange. There is availability of research and clinical laboratories at MUHAS, as well as at the Muhimbili National Hospital (MNH), which is an affiliated institution.

KEY RESEARCHERS: Prof. Siriel Masawe, Dr Candida Moshiro, Dr Said About

KEY ASSETS: teaching, health research

EXAMPLES OF DESIRED CAPACITY: Molecular epidemiology and modelling

8.7 The Sokoine University of Agriculture (SUA - Tanzania) has been at the forefront of ecosystem health research in Africa and the establishment of strong veterinary-medical links within the region. Major strengths of the Department of Veterinary Medicine and Public Health (VMPH) relate particularly to bovine tuberculosis, brucellosis, cysticercosis, rabies, and campylobacter. SUA brings to the consortium laboratory facilities and technical expertise, including facilities for culture and molecular biology, as well as excellent connectivity within the region (e.g. NUFU collaborative research in environmental toxicology and zoonotic diseases at the human-animal interface). Areas of particular interest are: (a) the epidemiology of zoonotic mammalian Mycobacterial infections in humans and animals, (b) development, evaluation and deployment of new methods for detection of infectious diseases and (c) investigation of the role of host genetics in the epidemiology of zoonotic diseases.

KEY RESEARCHERS: Prof. Rudovic Kazwala, Dr. Robinson Mdegela & Dr. Claud Luziga

KEY ASSETS: Field epidemiology of zoonotic pathogens

EXAMPLES OF DESIRED CAPACITY: Capacity in molecular epidemiological techniques and bioinformatics

8.8 Tanzanian Wildlife Research Institute (TAWIRI - Tanzania) has bring specific expertise, experience and a well-established infrastructure for wildlife research. In addition to operational strengths in wildlife monitoring and wildlife capture, TAWIRI also provides access to a field veterinary laboratory, a GIS centre with comprehensive spatial data from Tanzania, a well-equipped molecular biology laboratory, and a light aircraft. The research opportunities (which have also been identified as priorities in the Tanzania Wildlife Agenda, 2000) focus on human-wildlife interactions and wildlife diseases, including themes in zoonotic and emerging diseases at the human-wildlife interface (building on current interests in avian influenza, bovine tuberculosis, anthrax, rift valley fever and rabies), ecosystem services, community livelihoods and landscape ecology of infectious disease (e.g. FMD, climate/fire interactions in vector-borne diseases). The consortium provides TAWIRI with an important opportunity to develop further expertise in quantitative approaches, mathematical modelling, and to initiate south-south exchange of wildlife expertise.

KEY RESEARCHERS: Dr Julius Keyyu, Dr Robert Fyumagwa

KEY ASSET: Wildlife ecology

EXAMPLES OF DESIRED CAPACITY: Quantitative analysis, mathematical modelling

8.9 Makerere University (MAKUN - Uganda). Uganda is an epicenter of emerging and re-emerging zoonoses including Marbug, Ebola, Plague, West Nile virus, Monkey pox, tuberculosis, brucellosis, sleeping sickness, River blindness, Leishmaniasis, cysticercosis, and drug resistant *E. coli*. MAKUN is repositioning itself as a strategic regional hub to address these health challenges. Consequently, the Veterinary Faculty (FVM) has developed links with Uganda Wildlife Authority and evolved programs in molecular biology and biotechnology, wildlife-, tourism- and ecosystem-health, and diagnostics, together with modest laboratories, and animal containment facilities. FVM has the potential to evolve into a regional center of excellence in integrated animal-human-ecosystem health innovations, research & development. Their initial focus will be trypanosomiasis, especially how wildlife impacts on emergence of epidemic outbreaks, as well as cysticercosis in pigs and epilepsy and risk factors in villages where neurocysticercosis is suspected.

KEY RESEARCHERS: Dr. Enock Matovu, Dr. Savino Biryomumaisho, Dr Charles Waiswa

KEY ASSETS: Molecular Parasitology, disease surveillance in conservation areas

EXAMPELS OF DESIRED CAPACITY: Molecular epidemiology, population genetics, and modelling for trypanosomiasis and cysticercosis

8.10 The College of Natural and applied Sciences (CoNAS) at the University of Dar es Salaam (UDSM), Tanzania carries out research on a diversity of vector-borne diseases e.g. malaria, trypanosomiasis, schistosomiasis, and cysticercosis, focusing on biology and ecology of parasites and vectors with a view to developing control strategies. Other areas pursued are molecular

epidemiology and human-wildlife disease cross-transmission. The role of land use patterns, socio-cultural, and environmental changes due to human activities e.g. deforestation and environmental contamination, in the emergence of diseases is another new focus. Research in this area is undertaken by the departments of Zoology and Wildlife Zoology and Molecular Biology and Biotechnology. The department of mathematics specializes on disease modeling. CoNAS has collaborative research with other research institutions in Tanzania, including Tanzania Wildlife Research Institute (TAWIRI) and The National Institute for Medical Research (NIMR). The strength is especially in vector and parasite biology and ecology, biomathematics, medical anthropology, molecular biology, and medical microbiology. The UDSM has a modern IT department, which is one of the best in Tanzania, together with an experienced finance and administrative system.

KEY RESEARCHERS: Dr. Gamba Nkwengulila (PI); Dr. Jasper N. Ijumba, Dr. Ken M. Hosea, Dr. Lucy Namkinga, Prof. J. M. Tchuenche, Dr. Mwinyimvua Shaban

KEY ASSETS: Vector / parasite biology, Biomathematics, Microbiology, Molecular biology, Wildlife-human interaction, Natural Products Chemistry

EXAMPLES OF DESIRED CAPACITY: - Molecular biology, population genetics, Immunology, bioinformatics, quantitative analysis of epidemiological and ecological data.

8.11 National Institute of Medical Research (NIMR – Tanzania) is made up of five research centres, three research stations and two field stations situated at sites across Tanzania, facilitating field research in a wide range of ecological settings. NIMR brings important connectivity with other networks, acting as secretariat for 9 regional health programs. Relevant research expertise includes Epidemiology and Community Medicine, Zoonoses, Parasitology, Medical Statistics, Entomology and Vector Ecology, Environmental Health, Geomatics, Information Technology, Sociology, Health Economics, Molecular Biology, and Health Ethics. Resources comprise three specialized laboratories for HIV, TB and malaria, including the Central TB Reference Laboratory, which includes facilities for culture, anti-microbial resistance and strain-typing of human and zoonotic tuberculosis. NIMR was the founding member for the Young African Scientist Network (YASNET).

KEY RESEARCHERS: Dr. Sayoki G Mfinanga, Dr. Amosi Kahwa, Dr. E. Ngadaya

KEY ASSETS: Epidemiology and microbiology of tuberculosis, HIV and Malaria

DESIRED CAPACITY: Capacity in molecular epidemiological techniques and bioinformatics

9. Northern Partners

The consortium is supported by three northern partners. Applications may not be made directly to northern partners, but they may play a role in supporting proposed research, and are available to help develop applications for these fellowship.

9.1 University of Glasgow, Centre for International Development (UoG – UK)

Expertise and facilities: The Faculties of Biomedical and Life Sciences (FBLS), and Veterinary Medicine (FVM) are internationally renowned for excellence in human and veterinary diseases of prime importance to Africa. Strengths include quantitative biology, epidemiology, genetics, immunology, drug development and resistance, trypanosomiasis, malaria, schistosomiasis and rabies, vaccine and drug targets in leishmania, pathophysiology of helminth infections in ruminants, and the immunology, ecology and control of insect vectors. Research facilities for the study of tropical diseases are amongst the best in Europe. FVM hosts an INSERM Research Unit specializing in molecular parasitology and the Wellcome Trust Centre for Molecular Parasitology. The recently formed Boyd Orr Centre for Population and Ecosystem Health brings together a large, active inter-faculty research group which specializes in the mathematical modeling of disease transmission and control, with considerable experience in quantitative population level epidemiology, much of it acquired in Africa.

Training opportunities and experience in capacity building in Africa: UoG is well placed to provide training support to African researchers through short-term exchange visits, master programmes, and doctoral-level training. UoG can offer training in generic skills including personal career development, research management, laboratory management, grant writing, financial, human resource management, IT provision, sustainable environmental development, and management of research contracts. Success in capacity building is not measured solely by numbers of attendees on courses or degree programmes, but by the career development and success that Glasgow-trained scientists have had in establishing their careers on return to their home countries, and contributions they have made to improving public and veterinary health. Scientists from the UoG have contributed to the training and career development of several established and promising early-career scientists from Africa. Examples include Master's students who have gone on to successfully compete for Ph.D. positions and scholarships at Universities in the UK and Europe. Previous doctoral students have gone on to take up further international post-doctoral positions, and lectureships and senior research positions at institutions in their own countries (Ghana, Nigeria, Kenya, South Africa, Tanzania, Zimbabwe), and international consultancies.

KEY RESEARCHERS: Dr's Roman Biek, Mike Barrett, Lisa Ranford Cartright, Sarah Cleaveland, Heather Ferguson, Rowland Kao, Annette MacLeod, Louise Matthews, and Profs Dave Barry, Dan Haydon, Peter Holmes, Andy Tait, Mike Turner, Andy Waters

KEY ASSETS: Molecular parasitology, epidemiology, quantitative analysis and mathematical modelling, population ecology, wildlife and zoonotic diseases.

DESIRED CAPACITY: More research partnerships with institutes studying zoonotic disease in field systems.

9.2 Swiss Tropical Institute, Basel, (STI – Switzerland)

Expertise and facilities: STI's mission is to contribute to the health of human populations world-wide. Its main expertise is in the realm of tropical diseases like malaria, schistosomiasis, trypanosomiasis but increasingly also in neglected diseases like food-borne parasites and Buruli ulcer. The institutional structure allows direct interaction between research, development and consulting, in connection with extensive international public health teaching and courses and a polyclinic for travellers with a reference laboratory for parasitic diseases. STI's human and

animal health group contributed to validate the “one health” concept, particularly in Africa, and further pursues strong integrative human and animal health efforts.

Experience in capacity building and training opportunities: STI pursues research partnerships with African, Asian and Latin American countries and contributed to training current leaders in science and policy, mostly in Africa. Long-term north-south partnerships with sandwich training actively prevents “brain drain” by avoiding social and institutional disruption of young scientists, while allowing them to acquire cutting edge technical skills and develop career opportunities in a competitive international surrounding. STI is the Swiss key partner to the CSRS in Côte d’Ivoire.

KEY RESEARCHERS: Prof. Jakob Zinsstag, Dr Esther Schelling, Dr. Jan Hattendorf

KEY ASSETS: Research partnerships between human and livestock health professionals

DESIRED CAPACITY: Cost-effective control of zoonoses in African and Central Asian countries making best use of existing infrastructure and human resources.

9.3 University of Bergen, Centre for International Health, (CIH - Norway)

Expertise and facilities: The Centre for International Health is an interfaculty centre with specialist capacity building skills in the field of health. Their strategy is: (a) to develop strong research groups within specific health research areas in fields of global importance and (b) to contribute to improvement of health policy (care and disease prevention/health promotion). This is achieved through an interdisciplinary research environment and training programs run in close collaboration with researchers and policymakers in counterpart countries. Our main research groups are global health (ethics, economics and culture), HIV/AIDS, child health and nutrition, and health policy and health systems research.

Consortium representative to which applications should be submitted	Consortium representative	Consortium representative e-mail address	Consortium representative tel no.	Institute website	Address of Institute administrative office to which applications must be submitted
CSRS 01 BP 1303 Abidjan 01 Km 17, Adiopodoumé, Côte d'Ivoire	Bonfoh Bassirou	Bassirou.bonfoh@csrs.ci	+225 23 47 27 90	www.csrs.ch	Submission to Institute not required.
NIMR, Muhimbili Centre P. O. Box 3436, Dar es Salaam	Sayoki Godfrey Mfinanga	gsmfinanga@nimr.or.tz gsmfinanga@yahoo.com	+255 222 15 22 32	www.nimr.or.tz	Dr Mwele Malecela, Acting Director General, National Institute for Medical Research, 2448 Luthuli/Ocean Road PO Box 9655, Dar es Salaam,
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Applicants may contact northern partners for further advice or information.

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