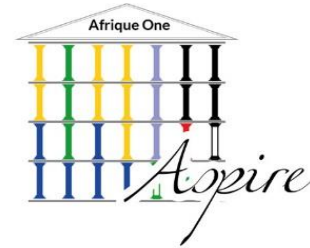


**CSRS**  
Centre Suisse de Recherches  
Scientifiques en Côte d'Ivoire



## **Call for Fellowships Afrique One-ASPIRE**

### **TTP2: Thematic Training Program on Brucellosis Control and Prevention**

**For more information concerning TTP2, contact the co-leads:**

Rudovick Kazwala, SUA, Tanzania, [kazwala@gmail.com](mailto:kazwala@gmail.com)

Gilbert Fokou, CSRS, Côte d'Ivoire, [gilbert.fokou@csrs.ci](mailto:gilbert.fokou@csrs.ci)

[Ref: TTP2-Brucellosis-PDF1](#)

**Project Title:** Quantitative analysis and modelling of the epidemiology and control of endemic brucellosis in Sub-Saharan Africa

**Enrolment:** The postdoctoral fellow may negotiate to be enrolled/based at one of the following organizations: SUA, NM-AIST, MUHAS, or TAWIRI, Tanzania or CSRS, Côte d'Ivoire.

**Project Description:** Species-specific livestock vaccines have been used effectively as part of brucellosis disease-control programs in different parts of the world. However, in Sub-Saharan Africa it is challenging to design control programs owing to the complex multi-species structure of the host community, two possible species of *Brucella* with unknown host affiliations/preferences, unknown transmission routes and species-specific vaccines of ambiguous effectiveness. There is considerable flexibility in the methodological details of this research program; however, the primary goal will be to develop modelling frameworks that help inform the design and assessment of *Brucella* control options. An important preparatory step will be the synthesis of available information from the primary literature and from on-going *Brucella* research projects in order to estimate key parameters relating to brucellosis epidemiology, host demography and the control process. Research will be conducted in Tanzania and Côte d'Ivoire.

This project will build on and strengthen collaborative links between on-going projects within Tanzania but also between the different countries involved in the Afrique One-ASPIRE consortium. Within Tanzania, SUA, NMAIST and KCRI/KCMC are all partners in the ongoing BBSRC-DfID funded Zoonoses in Emerging Livestock Systems (ZELS) *Brucella* project and are all involved in Afrique One-ASPIRE going forward. Through partnerships the ZELS consortium and Afrique One-ASPIRE also offer opportunities to coordinate research activities and share techniques, data and approaches between East and West African countries.

**Mentorship Team:** Rudowick Kazwala (SUA); Joram Buza and Lughano Kusiluka (NMAIST); Mangi Ezekiel (MUHAS); Gilbert Fokou and Bassirou Bonfoh (CSRS); Jakob Zinsstag (Swiss TPH); Jo Halliday, Mafalda Viana and Dan Haydon (UoG); Wellington Ekaya (BecA-ILRI Hub)

**Potential Project Partners (outside the existing consortium members):** John McGiven, Adrian Whatmore and colleagues at Animal and Plant Health Agency (APHA), UK and Simon Babayan at University of Glasgow

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any MSc background contributing to One Health (e.g. public health, veterinary and animal sciences, modelling and epidemiology) will be considered. A PhD in a relevant field is preferred. The strongest applicants will have some experience of

epidemiological modelling, knowledge of the mathematics underlying simple epidemiological models, a basic grasp of computer programming and experience in statistical data analysis.

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

Ref: TTP2-Brucellosis-PhD1

**Project Title:** Development and field-testing of novel brucellosis diagnostic tests for human populations and livestock

**Enrolment:** The PhD fellow will be enrolled at SUA, Tanzania or EISMV, Senegal.

**Project Description:** Current diagnostics for brucellosis (for both humans and animals) have several constraints which impact on planning and delivery of control programmes for brucellosis. A focus of this project will be to develop and field trial a range of novel diagnostic tools for human and/or animal populations.

This PhD project will build on and strengthen collaborative links between on-going projects within different countries involved in Afrique One-ASPIRE. In Tanzania SUA, NMAIST and KCRI/KCMC are all partners in the ongoing BBSRC-DfID funded Zoonoses in Emerging Livestock Systems (ZELS) *Brucella* project and are all involved in Afrique One-ASPIRE going forward. EISMV is also part of a ZELS brucellosis program. Through partnerships with Animal and Plant Health Agency (APHA) in the UK, the ZELS consortium and Afrique One-ASPIRE there are also opportunities to coordinate research activities and share techniques and approaches between East and West African countries. Possible lines of investigation for this studentship include:

- 1) APHA are currently developing and validating several novel carbohydrate- based serodiagnostic antigens for brucellosis. These include a range of antigens that are designed to differentiate i) sera that are positive in conventional serodiagnostic tests into those that are true positives and those that are false, and ii) between the antibody response induced by field infections and by vaccination with *B. abortus* S19 or *B. melitensis* 16M.
- 2) With a focus on human diagnostics the project could also explore application of proteomics or metabolomics approaches to identify biomarkers of brucellosis that work in real patients, building on existing sample sets and samples collected through ongoing research studies.
- 3) Colleagues at Glasgow and APHA are currently developing and validating novel paper based DNA detection assays for *Brucella* and a range of other pathogens, which could be developed to provide field level data on infecting *Brucella* species.
- 4) The ZELS West Africa project has developed a training and proficiency testing programme for brucellosis and delivered this in several countries in West Africa. Extension of this programme to include Tanzania and other East African countries is something that could be included in this project plan.
- 5) Longer term options for this project include field evaluation of novel vaccine tools

(e.g. as developed by APHA) that are promising options for a DIVA vaccine for *Brucella*.

**Mentorship Team:** Rudovick Kazwala (SUA); Joram Buza (NM-AIST); Bassirou Bonfoh (CSRS); Jakob Zinsstag (Swiss TPH); Jo Halliday, Simon Babayan, and Dan Haydon (UoG)

**Potential Project Partners (outside the existing consortium members):** John McGiven, Adrian Whatmore and colleagues at Animal and Plant Health Agency (APHA), UK and Simon Babayan (UoG)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, epidemiology, molecular biology or immunology) will be considered. Candidates with an MSc degree in a different relevant field are preferred.

**Training:** Training will be provided within the Afrique One-ASPIRE consortium and with supervisory partners in the UK and Switzerland depending on needs and internal budget considerations.

Ref: TTP2-Brucellosis-PhD2

**Project Title:** Host-pathogen associations in Sub-Saharan Africa

**Enrolment:** The PhD fellow will be enrolled at SUA, Tanzania or EISMV, Senegal.

**Project Description:** Human brucellosis is caused by several different pathogen species, each of which has a complex multi-host epidemiology. Data from Europe, North America and the Middle East indicate that *Brucella abortus* is commonly maintained in cattle and *B. melitensis* in sheep and goats. However, in Sub-Saharan Africa *B. abortus*, *B. melitensis* (and *B. suis*) have been reported in cattle and all of these pathogens (as well as *B. ovis*) have also been observed in sheep and goats. Brucellosis is known to be present in all of the five main livestock production systems in Sub-Saharan Africa. Animal disease prevalence/incidence is variable across livestock systems but typically greater in larger and mixed species herds. Data from Sub-Saharan Africa are mostly serological and interpretation is hamstrung by the inability to differentiate between *Brucella* species and the capacity for transmission of several *Brucella* species between different animal host species. Consequently, in this region, we don't know whether cattle, and/or sheep and goats, are infected with *B. melitensis*, with *B. abortus* or with both, or which *Brucella* species are responsible for most human illness. Conclusively, current attempts to control brucellosis are hampered by the absence of information on two fundamental aspects of the epidemiology of brucellosis in Sub-Saharan African. First, which pathogen species is/are the most important cause of human illness; second, which animal species constitute the reservoir and/or source for human infections? To address these questions, the detection, isolation and typing of *Brucella* spp. in different species is essential.

This PhD project will build on and strengthen collaborative links between on-going projects within Tanzania but also between the different countries involved in Afrique One-ASPIRE. In Tanzania SUA, NM-AIST and KCRI/KCMC are all partners in the ongoing BBSRC-DfID funded Zoonoses in Emerging Livestock Systems (ZELS) *Brucella* project and are all involved in Afrique One-ASPIRE going forward. Through partnerships with the Animal and Plant Health Agency (APHA) in the UK, the ZELS consortium and Afrique One-ASPIRE there are also opportunities to coordinate research activities and share techniques and approaches between East and West African countries.

**Mentorship Team:** Rudowick Kazwala (SUA); Joram Buza (NM-AIST); Bassirou Bonfoh (CSRS); Jakob Zinsstag (Swiss TPH); Jo Halliday, and Dan Haydon (UoG)

**Potential Project Partners (outside the existing consortium members):** John McGiven, Adrian Whatmore and colleagues at Animal and Plant Health Agency (APHA), UK and Simon Babayan (UoG)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, epidemiology, molecular biology or immunology) will be considered. Candidates with an MSc degree in a relevant field are preferred.

**Training:** A thematic training program will be conducted on brucellosis within the Afrique One-ASPIRE consortium in population and ecosystems health. Training will be provided primarily in Tanzania or Senegal, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in the UK and Switzerland depending on needs and internal budget considerations.

[Ref: TTP2-Brucellosis-PhD3](#)

**Project Title:** Assessing people's knowledge and perceptions on causality, syndromes, transmission and treatment pathways of brucellosis

**Enrolment:** The PhD fellow will be enrolled at EISMV, Senegal, or an Ivorian University in association with CSRS, Côte d'Ivoire.

**Project Description:** Brucellosis is one of the most common zoonotic infections globally. It is generally transmitted from livestock to humans through consumption of unpasteurized dairy products or through direct contact with infected animals, placentas or aborted fetuses. In Sub-Saharan Africa, efforts have been made for the diagnosis and control of the disease through serological and epidemiological studies combined with governmental policies. However, the various strategies applied have not yet contributed to reduce the prevalence of this disease in animals and humans. This failure might be due to the lack of sufficient knowledge of the disease, the absence of effective prevention and management strategies and permanent interaction of humans, domestic animals and wildlife that could contribute to the continuous spread of the disease. In humans, brucellosis is often easily misdiagnosed as other febrile syndromes such as malaria and typhoid fever, thereby resulting in mistreatment and underreporting. Thus, knowledge and perceptions of people regarding brucellosis appear to be different from biomedical conception which might affect the health-seeking behaviour of patients and lead to sustained transmission in these communities.

In order to contribute to efforts in developing pathways of disease control, this study aims to assess knowledge and perceptions of brucellosis regarding causality, transmission, prevention and treatment patterns among exposed communities. Focusing on sedentary agro-pastoral and mobile pastoral communities in West Africa and East Africa, the research will contribute to understanding the dynamics of brucellosis transmission at the human-animal interface and in environmental interactions, as well as the health seeking practices of the human population.

**Mentorship Team:** Francis Akindès (Université Alassane Ouattara); Rudowick Kazwala (SUA); Bassirou Bonfoh (CSRS); Constanze Pfeiffer (Swiss TPH); Henk Lucas Smits (Royal Tropical Institute, Netherlands)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any social science discipline contributing to One Health (e.g. anthropology, sociology, health geography or cultural epidemiology) will be considered. Candidates with an MSc degree in a relevant field are preferred.

**Training:** Training will be provided primarily in Côte d'Ivoire, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in Switzerland, depending on needs and internal budget considerations.



Ref: TTP2-Brucellosis-MSc1

**Project Title:** Investigating the effectiveness of sniffer rats in the diagnosis of brucellosis in human and livestock

**Enrolment:** The MSc fellow will be enrolled at SUA, Tanzania.

**Project Description:** Brucellosis is a bacterial infection that systemically affects a wide variety of mammalian species, including humans. Brucellosis occurs worldwide, both endemically and zoonotically to varying degrees, particularly in Africa. Current diagnostics for brucellosis (for both humans and animals) have several constraints which impact on planning and delivering effective control programmes. This project will explore the possible use of sniffer rats ('hero rats' - <https://www.apopo.org/en/>) to study how to train rats to diagnose brucellosis.

The student will study the most effective ways to train sniffer-rats to recognize dung from different livestock species infected with *Brucella* spp. Following the training of the rats it will be necessary to design an experiment to determine the sensitivity and specificity of the rat's diagnostic ability. If time permits and the test performs well, the diagnostic potential will be trialled through a small scale prevalence survey on local livestock herds.

**Mentorship Team:** Rudowick Kazwala (SUA); Christopher Cox (SUA-APOPO); Jo Halliday, Dan Haydon and Sarah Cleaveland (UoG)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, epidemiology or life sciences) will be considered. Candidates with an Undergraduate degree (GPA 3.5 and above) in a relevant field from a recognised university are preferred.

**Training:** Training will be provided primarily in Tanzania, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in the UK and Switzerland depending on needs and internal budget considerations.

Ref: TTP2-Brucellosis-MSc2

**Project Title:** Investigating the socio epidemiologic and behavioural drivers of brucellosis to inform strategies for control and elimination in Africa.

**Enrolment:** The MSc fellow will be enrolled at MUHAS, Tanzania, EISMV Senegal or at University of Bouaké/CSRS, Côte d'Ivoire.

**Project Description:** Brucellosis is a bacterial infection that systemically affects a wide variety of mammalian species, including humans. Brucellosis occurs worldwide, both endemically and zoonotically to varying degrees, particularly in Africa. Various studies have been conducted in both East and West Africa. Many of them have demonstrated the burden, extent of transmission of the infective agents (*Brucella* spp.) across various populations in varying ecosystems. However, appropriate intervention strategies remain to be fully developed.

Control of brucellosis on the global scale has been successful due to the availability and use of a number of tools that are effective in industrialized areas. However, in developing countries, brucellosis continues to be endemic. In these countries important gaps remain in the understanding of the epidemiology, social dynamics and the behavioural risk factors of brucellosis. Consequently, there is limited information to inform appropriate control strategies.

This project seeks to identify which routes are the most important in transmitting brucellosis to humans in rural environments, towns and rapidly expanding cities. The transmission pathways and dynamics of brucellosis are mediated by the socio-cultural milieu in which the disease occurs. In addition, there is limited information on the epidemiologic patterns of the disease in rural and urban populations in East and West Africa. This project will build on existing literature on brucellosis in Africa and elsewhere as well as on lessons learned from available interventions that have demonstrated positive results in addressing the social, epidemiologic and behavioural drivers of this disease. Cutting edge basic research will be conducted in rural Tanzania to investigate (a) the risk factors for brucellosis infection and treatment seeking patterns for patients b) the socioeconomic burden of the disease in the affected communities (c) the transmission dynamics of brucellosis in agro-pastoral communities within the Kilombero Valley and (d) to document the existing interventions and the feasibility for developing a community based intervention to address the social and behavioural risk factors for brucellosis.

The project will be based in the Mikumi-Kilombero valley ecosystems in south-eastern Tanzania or Korhogo in Côte d'Ivoire, as part of ongoing brucellosis interventions within a long-term research programme (e.g. ZELS, DTRA). It will involve fieldwork in selected locations within the valley and NCCR North-South.

**Mentorship Team:** Dan Haydon, Sarah Cleaveland and Jo Halliday (UoG); Rudowick Kazwala (SUA); Mangi J. Ezekiel (MUHAS); Gilbert Fokou and Bassirou Bonfoh (CSRS); Julius Keyyu (TAWRI)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, social sciences, geography, epidemiology or health economics) will be considered. Candidates with an Undergraduate degree (GPA 3.5 and above) in a relevant field from a recognised university are preferred.

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

Ref: TTP2-Brucellosis-MSc3

**Project Title:** Role of different livestock husbandry systems in the spread of brucellosis in animals and humans in Africa

**Enrolment:** The MSc fellow will be enrolled at SUA, Tanzania, EISMV, Senegal or Ivorian Universities, Côte d'Ivoire.

**Project Description:** Brucellosis in animals is a sub-acute or chronic disease which may affect many species of animals. The initial phase following infection is often not apparent in some animal hosts. In sexually mature animals the infection localizes in the reproductive system and, typically, produces placentitis followed by abortion in the pregnant female, usually during the last third of pregnancy, and epididymitis and orchitis in the male. Brucellosis is a disease that affects many animal species but especially livestock, including sheep (especially milk-producing), goats, cattle and pigs and, on a more localized scale, camels and water buffaloes.

Infections in sheep and goats are highly contagious owing to the pathogenicity of *Brucella melitensis* and because of the close contact caused by the density of the flocks or herds, the co-mingling of those of different owners and heavy exposure in housing. Animal-to-animal transmission occurs as a result of the large number of organisms shed in the environment.

The severity of the disease depends upon many factors such as previous vaccination, age, sex and livestock management (e.g. herd or flock size and density). Abortions are more prevalent in unvaccinated animals and numbers of organisms shed are much greater.

The purpose of this MSc fellowship is to determine the extent of infection of *Brucella* spp. across the different livestock systems in Tanzania and characterise the epidemiological determinants of the spread of brucellosis to humans and animals in the different livestock husbandry systems.

The project will be based in West and East Africa working in tandem with Zoonoses in Emerging Livestock Systems (ZELS) projects on brucellosis based in EISMV, and Tanzania (including a DTRA SUA Brucellosis project).

**Mentorship Team:** Rudowick Kazwala (SUA); Joram Buza (NM-AIST); Bassirou Bonfoh (CSRS); Esther Schelling and Jakob Zinsstag (Swiss TPH); Jo Halliday and Sarah Cleaveland (UoG)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, epidemiology and wildlife management) will be considered. Candidates with an Undergraduate degree (GPA 3.5 and above) in a relevant field

from a recognised university are preferred. Candidates with a BSc degree are preferred.

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

Ref: TTP2-Brucellosis-MSc4

**Project Title:** The role of wildlife in the transmission of brucellosis in humans and animals

**Enrolment:** The MSc fellow will be enrolled at SUA or NMAIST, Tanzania, University Félix Houphouët-Boigny, Côte d'Ivoire or EISMV, Senegal.

**Project Description:** Transmission of brucellosis in terrestrial wildlife occurs through spill-over of infection from domestic animals and endemic infection in wildlife species. Within wildlife species transmission has been shown to be dependent on species social behaviour. Social animals especially ungulates are reported to maintain high rates of transmission. In these animals, brucellosis is spread through direct contact with discharge from the vagina, aborted fetuses and per coitus. Wild ungulates also acquire infection by ingestion of contaminated pasture. Carnivores such as hyenas, jackals, and foxes are thought to be exposed through consumption of infected animals, placentas or aborted fetuses.

Transmission of *Brucella* spp. from wild animal species to man could be further facilitated by the consumption of meat products. Although this pathway is less frequently associated with infection (mainly because meat is not usually eaten raw) consumption of wild meat is a known practice among hunters and butchers. Muscle tissue usually contains low concentrations of *Brucella* while liver, kidney, spleen, udder and testis may contain much higher amounts.

This MSc fellowship will investigate the role of wildlife in the maintenance and spread of brucellosis to livestock mingling with wildlife and to humans involved in hunting and butchering of wild animals at the interface of human-livestock-wildlife in northern Tanzania. The project will work closely with hunting companies based in northern Tanzania.

**Mentorship Team:** Gabriel Shirima (NMAIST); Julius Keyyu (TAWIRI); Rudowick Kazwala (SUA); Inza Koné, Karim Ouattara, Gilbert Fokou and Bassirou Bonfoh (CSRS); Fabian Leendertz (RKI)

**Qualifications:** The candidate must be a citizen of an African country. Candidates with a BSc of veterinary medicine or wildlife management (or an equivalent qualification) will be considered.

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

Ref: TTP2-Brucellosis-MSc5

**Project Title:** Socioeconomic, institutional and policy determinants for the control and elimination of brucellosis in Africa

**Enrolment:** The MSc Fellow will be enrolled at CSRS, Côte d'Ivoire.

**Project Description:** Brucellosis is a zoonosis transmitted from livestock to humans through consumption of unpasteurized dairy products or through direct contact with infected animals, placentas or aborted fetuses. Policy efforts have been made in various parts of the world for its control. In many countries, methods for the control of the disease are backed by governmental regulations and legislations. Although there has been progress in controlling the disease in some countries of Sub-Saharan Africa, there still remain regions where the infection persists in domestic animals. As a consequence, transmission to the human population occurs frequently. Brucellosis is overlooked in humans and goes in many cases undiagnosed and untreated, leading to considerable suffering for those affected. The challenge today is to design effective interventions towards control and elimination of brucellosis. In order to do so, it is important to question those policies that have already been put in place for brucellosis control but have failed so far. Identification of the weaknesses of current policies may help designing new policies that are better adjusted for the control of brucellosis in African settings?

This MSc Fellowship study will investigate how decision-making strategies regarding brucellosis might be considered and applied in future in Africa. Based on the assumption that interventions to control and eradicate brucellosis need to be based on engagement with various stakeholders (i.e. disease control programs, livestock keepers, medical and veterinary specialists), the study will (i) analyse the existing institutional and policy frameworks at the national and regional level for zoonosis control; (ii) perform an institutional stakeholder analysis; and (iii) define determinants of inter-sectoral policies for brucellosis control. In West Africa, this study will focus on the policy context in the continuum from Sahel to the coast, and will be conducted in Mali and Côte d'Ivoire to obtain a comparative perspective.

**Mentorship Team:** Francis Akindès (Université Allasane Ouattara de Bouaké); Rudowick Kazwala (SUA); Bassirou Bonfoh and Gilbert Fokou (CSRS); Jakob Zinsstag (Swiss TPH)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, health social sciences, sociology, anthropology, geography and political science) will be considered. Candidates with an Undergraduate degree (GPA 3.5 and above) in a relevant field from a recognised university are preferred.

**Training:** Training will be provided primarily in Côte d'Ivoire and Senegal with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in Tanzania and elsewhere in Africa, depending on needs and internal budget considerations.



Ref: TTP2-Brucellosis-MSc6

**Project Title:** Molecular characterisation of *Brucella* species infecting livestock in northern Tanzania

**Enrolment:** The MSc fellow will be enrolled at NM-AIST, Tanzania.

**Project Description:** Brucellosis is a bacterial infection that systemically affects a wide variety of mammalian species, including humans. The disease occurs worldwide, both endemically and zoonotically to varying degrees, particularly in Africa. Brucellosis is caused by several different pathogen species, each of which has a complex multi-host epidemiology. Both *B. abortus* and *B. melitensis* have been detected in Tanzania; however, little is known about the presence or prevalence of these different pathogen species in different livestock hosts in northern Tanzania. Most data that have been collected to date are from serological samples. These reveal evidence of exposure to *Brucella* spp. but do not allow differentiation between *Brucella* species. The capacity for transmission of several *Brucella* species between different animal host species further complicates the interpretation of these data and the understanding of *Brucella* species-specific transmission patterns.

The MSc fellow will study the most effective ways to obtain and screen diagnostic samples for the molecular detection and typing of *Brucella* spp. in livestock. This project will involve field sample collection from livestock through links with field projects operating in the Ngorongoro Conservation Area and various districts in northern Tanzania. Targets for sampling may include individuals from herds with known *Brucella* infection status, individuals with recently reported abortion or parturition and animals that can be sampled at slaughter. Sample collection will include blood among other samples (to be specified), to enable PCR based detection of *Brucella* and typing at the species level. Data analyses will help determining which species and individuals are infected with which *Brucella* species and the risk factors for pathogen shedding.

**Mentorship Team:** Gabriel Shirima (NM-AIST); Jo Halliday and Dan Haydon, (UoG)

**Qualifications:** The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, epidemiology and life sciences) will be considered. Candidates with an Undergraduate degree (GPA 3.5 and above) in a relevant field from recognised university are preferred.

**Training:** Training will be provided primarily in Tanzania, with opportunities for further training within the Afrique One-ASPIRE consortium elsewhere in Africa, depending on needs and internal budget considerations.