

## **Opportunity for Post-Doctoral Research Fellow to be based at the Nelson Mandela-African Institution of Science and Technology (NM-AIST) in Tanzania with secondments to the University of York, UK**

### **Adaptation and Resilience to Climate change (ARCC) in the East Africa's Ecosystems**

The Nelson Mandela-African Institution of Science and Technology, (NM-AIST), Arusha, wishes to recruit a post-doctoral researcher, on a full-time 100% FTE basis for three years, starting 1<sup>st</sup> June 2017, or as soon as possible thereafter. The position is part of a three-year research project entitled Adaptation and Resilience to Climate Change (ARCC) that is focused around the themes of sustainability and resilience – tackling climate and environmental changes. The ARCC project is co-funded by the Swedish Research Council (Vetenskapsrådet), Formas and Sida. The ARCC project is coordinated by Professor Paul Lane, Professor of Global Archaeology, Uppsala University and will be conducted in close collaboration with Dr Rob Marchant, University of York, Dr Anneli Ekblom Uppsala Universit and Dr Linus Munishi NM-AIST.

### **ARCC Project Description**

In this 3-year project, we aim to understand how societies, landscapes, ecosystems and Protected Areas have responded to recent climate change and societal use, to better understand how they may respond in the future. To do this, we will focus on the temporal and spatial nature of interactions and interdependencies of social-ecological systems in north-western Tanzania over the last 300 years, and use this as a foundation to chart potential futures. Local livelihoods range from intensive agriculture to livestock herding and hunting-and-gathering, coupled with employment in tourism, conservation, or mineral extraction. Pressures from global climate change, rapid population growth, competing land use (including wildlife conservation), and governance regimes pose major threats to livelihoods, their sustainability and resilience to future socio-ecological shocks. We will use a cross-disciplinary approach integrating archaeological, environmental, archival, modern land use and remote sensing data, with collaborative modelling of future land use and land cover change scenarios, to identify past and possible future drivers of change and sources of resilience. The project will generate guidelines for land-use planning, build research capacities in Sweden (post-doctoral position) and Tanzania (post-doctoral position collaborating researcher) in sustainability studies; strengthen community awareness of and engagement in these issues.

### ***Post-Doctoral Project: Assessing Future Scenarios, ca. 2015 to 2100 AD, Tanzania***

This position is hosted at NM-AIST but will involve extensive periods of time at the University of York for analysis and training. The project will investigate future scenarios of land use and land cover changes (LULCC) and their consequences for socio-ecological-climate systems through land surface feedbacks, biodiversity and human welfare and development for the wider Serengeti region. By assessing possible future LULCC, it will be possible to embed sustainability in development strategies, ecosystem management and land use planning to Conservation, Development and Livelihood organisations within the study area. In the wider Serengeti region where people's livelihoods and national development connect strongly with their environment, threats and

challenges to ecosystems and services they provide (e.g. timber, water, carbon storage, nutrient cycling, soil formation etc.) are accelerating. The project will investigate these challenges by assessing the interaction between predicted climate change, land-use transformation, population growth, migration and complexities around local and global policy change scenarios. This position is hosted at NM-AIST but will involve extensive periods of time at the University of York for analysis and training where the researcher will be a Research Fellow within the York Institute for Tropical Ecosystems (<https://www.york.ac.uk/environment/research/kite/>).

*Specific Methods:* To better establish the trade-offs for national development between use of land for agriculture, conservation of biodiversity, provision of ecosystem services, the project will analyse, within a GIS, the interactions between changing climate and land use change scenarios. The proposed scenario framework will consist of four main steps that follows the method developed and applied by Capitani et al (2016), and will involve interaction between experts (the PDRA, facilitators and modellers) and stakeholders (i.e. those affected by or can affect socio-economic and land dynamics). The PDRA will investigate the interaction between land use and climate change by assessing the interaction between predicted climate change (Platts et al., 2013), land-use transformation, population growth, migration and complexities around local and global policy change scenarios.

## References

- Capitani, C, Mukama, K, Mbilinyi, B, Malugu, I, Munishi, PKT, Burgess, ND, Platts, PJ, Sallu, S, Marchant, R (2016). From local scenarios to national maps: a participatory framework for envisioning the future of Tanzania. *Ecology and Society* 21(3):4. <http://dx.doi.org/10.5751/ES-08565-210304>.
- Platts PJ, Omeny PA, Marchant R (2015). AFRICLIM: high-resolution climate projections for ecological applications in Africa. *African Journal of Ecology* 53, 103-108 | AFRICLIM 3.0, [doi:10.6084/m9.figshare.1284624](https://doi.org/10.6084/m9.figshare.1284624)

### **Duties and responsibilities**

This postdoctoral position entails, but is not limited to the following duties and responsibilities: To conduct individual and collaborative research that will develop scenarios of land use change and assess the interaction with climate change predictions. The role will involve combining existing data on biodiversity, land use, wildlife, water and livestock to establish recent and future land use trajectories. These mapped outputs will be useful for national development and assessing choices around the use of land for agriculture, conservation of biodiversity, provision of ecosystem services within the context of potential climate change in Tanzania and the entire region. There will be close collaboration with a second PDRA, who will be based at Uppsala University focusing on the production of palaeoenvironmental histories for the study region. The NM-AIST PDRA will

- Set up the analytical frame to investigate the interaction between climate and social scenarios for the wider Serengeti region.
- Organise a series of workshops with a wide range of stakeholders to understand the nature of past, present and potential future land use change and the drivers behind this change.
- Analyse and interpret research data within a Geographical Information System (GIS).
- Develop and coordinate a programme of public talks and dissemination events about the project.
- Develop and implement appropriate strategies for disseminating the results and insights generated by the ARCC project researchers to diverse audiences and stakeholder groups, employing different methods including social media.
- Assist with the organisation and delivery of summer school activities in East Africa.
- Other duties as specified by the Project Coordinating team.
- Write research papers and reports around the scenarios for the wider Serengeti region.

### **Qualifications and Knowledge**

Minimally, applicants will hold a PhD in an appropriate relevant discipline in the social or environmental sciences, Geo-spatial sciences, or rural development and have knowledge of the social-ecological systems in north-western Tanzania.

### **Expected Experience and Skills**

#### **Essential**

- Experience of undertaking high quality research in decision-support system, ecosystem service planning process, environmental sciences, conservation planning and/or sustainable development.
- Swahili language skills.
- Experience of using a Geographical Information Systems (GIS) platform in landscape research
- Ability to work as part of a team and to work independently using own initiative
- Willingness to undertake field and stakeholder-based interviews based research in Tanzania
- Knowledge of sustainable development, climate change mitigation, East African environmental and developmental policies, and/or ecosystem conservation.
- Very good interpersonal and communication skills in both written and spoken English

- Willingness to spend time, unaccompanied by family, in the United Kingdom for research and training related activities.

#### **Desirable**

- Good track record of work in a sector relevant to the position
- Relevant peer reviewed publications
- Knowledge of development organisations working on rural development and sustainability.
- Ability to maintain and develop websites

#### **Salary**

An attractive salary package (up to US \$40,000 per annum, with some annual increment) and research support will be offered that will be dependent on qualifications and experience.

#### **How to Apply**

Please send your application via the following email address: [arcc@nm-aist.ac.tz](mailto:arcc@nm-aist.ac.tz)

Please supply the following documents:

- A letter, of no more than two pages outlining why you are interested in this post and why you consider yourself well suited to undertake the duties outlined.
- A detailed CV listing previous education and other relevant research background, a list of publications, other papers and previous work experience.
- A 2-3 page (including graphics if desired) research plan for the next 3 years aimed at answering the specific post-doctoral research questions
- Details of at least two academic or work-related referees – these will be requested independently.

For more information, or to discuss any aspect of this position, please contact the ARCC Project Co-Investigator (Local Coordinator), Dr Linus Munishi ([linus.munishi@nm-aist.ac.tz](mailto:linus.munishi@nm-aist.ac.tz)) or Dr Rob Marchant ([Robert.marchant@york.ac.uk](mailto:Robert.marchant@york.ac.uk))

Closing Date for application: 28<sup>th</sup> March 2017

Short-listed candidates will be called for interview that may be conducted over Skype or a similar web-based system in mid April 2017.

**More information regarding working at the Nelson Mandela-African Institution of Science and Technology and the University of York can be accessed via the links below**

<http://www.nm-aist.ac.tz/index.php>

<https://www.york.ac.uk/environment/research/kite/>