VACANCIES

Postdoctoral Research and Research Assistants Positions: Sustainable and Healthy Food Systems (SHEFS-Malawi)

The Sustainable and Healthy Food Systems – Southern Africa (SHEFS-SA) consortium is a partnership between institutions in Malawi (MUBAS and LUANAR), South Africa (University of KwaZulu-Natal and the Institute of Natural Resources), Zimbabwe (University of Zimbabwe) and the United Kingdom (London School of Hygiene & Tropical Medicine, University of Aberdeen, Royal Veterinary College and University of London). The consortium is working to catalyse the transformation of Southern African food systems (focusing on Malawi, South Africa and Zimbabwe) and communities towards systems and communities that are healthy and resilient to climate risks. We will do this by:

- undertaking SHEFS transdisciplinary research to shift the understanding of complex climate change (CC) challenges for health, as mediated by food systems, within particular contexts, translated into scalable solutions and policy recommendations with high impact;
- developing a transdisciplinary Community of Practice (CoP), led by the Global South, that contextualises and applies systems thinking within an expanded climate-sensitive SHEFS Framework to improve food security, food safety, nutrition, and health, including mental health; and (iii) developing a Global South-led cohort programme to train emerging scholars and practitioners in transdisciplinary research approaches at the intersection of Climate and Health.

The SHEFS-SA consortium will focus on providing actionable evidence for informed decision-making and identifying and developing practical solutions for CC mitigation and/or adaptation while evaluating in detail how their effects connect to health, including mental health, through food security, food safety and nutrition. The programme deepens our work in South Africa and will expand to include Zimbabwe and Malawi to ensure regional policy impact.

We invite applications for two (2) Postdoctoral Research and three (3) Research Assistant Positions focused on sustainable and healthy food systems (SHEFS) in Malawi. These positions will contribute to cutting-edge research in water, energy, food, environment, and health (WEFEH) systems under climate change, aiming to enhance the country's climate resilience, particularly at the community level.

Position 1: Policy Review and Intervention Development in Water, Energy, Food, Environment, and Health Sectors

We are looking for a motivated and detail-oriented postdoctoral candidate to:

- Conduct comprehensive policy reviews/analysis/integration across the WEFEH Nexus;
- Identify gaps, synergies, and opportunities for integration within these sectors;
- Develop actionable recommendations for evidence-based interventions to address pressing global challenges; and
- Collaborate with multidisciplinary teams and stakeholders to translate research into practice.

Qualifications

- A PhD in a related field (e.g., Environmental Science, Public Policy, Engineering, or Social Sciences);
- Strong background in policy analysis, sustainability, and systems thinking;
- Excellent communication skills and ability to synthesise complex information for diverse audiences;
- Proven track record of publishing in peer-reviewed journals; and
- Experience with interdisciplinary research and stakeholder engagement is a plus.

Position 2: Assessing Air Quality, Noise, and Temperature Impacts in Health Facilities.

We are inviting applications for a postdoctoral research position to explore critical intersections of air quality, noise levels, and temperature control in healthcare facilities and their impacts on the well-being of patients and staff.

Key Responsibilities

- Conduct interdisciplinary research to assess air quality, noise, and temperature in

health facilities;

- Develop and implement measurement protocols and tools for environmental assessment;
- Analyse data to evaluate the short- and long-term impacts of environmental factors on health outcomes;
- Collaborate with a multidisciplinary team, including health professionals, engineers, and environmental scientists; and
- Publish findings in high-impact peer-reviewed journals and present the same at conferences.

Qualifications

- A PhD in Environmental Science, Public Health, Environmental Engineering, or a related field;
- Proven experience in air quality assessment, noise pollution research, or thermal comfort studies;
- Strong analytical and statistical skills, namely familiarity with tools such as R, Python, or specialised environmental modelling software;
- Excellent communication skills and a track record of academic writing; and
- Ability to work independently and collaboratively within a research team.

Position 3: Research Assistant: Groundwater Depletion Monitoring using GRACE Data and Machine Learning

We seek a motivated **Research Assistant** to join our research team in exploring innovative approaches to assess and model groundwater depletion using GRACE satellite data and advanced machine-learning techniques.

Key Responsibilities

- Process and analyse GRACE satellite data to monitor groundwater level fluctuation;
- Develop and apply machine learning models for groundwater depletion assessment;
- Conduct spatial and temporal analysis of groundwater trends and identify key influencing factors;
- Collaborate with a multidisciplinary team of researchers in hydrology, data science, and environmental studies; and
- Prepare reports, visualisations, and presentations for publications and project stakeholders.

Qualifications

- BSc or MSc in Hydrology, Environmental Science, Data Science, Geophysics, or a related field;

- Proficiency in working with Remote Sensing/GIS datasets, particularly GRACE data;
- Strong programming skills in Python, R, or MATLAB, with experience in machine learning frameworks (e.g., TensorFlow, Scikit-learn);
- Experience with geospatial tools such as ArcGIS, QGIS, or Google Earth Engine; and
- Excellent organisational, analytical, and communication skills.

Preferred Skills

- Knowledge of groundwater hydrology and water resource management;
- Familiarity with time-series analysis and predictive modelling; and
- Prior research experience in satellite data analysis or machine learning applications.

Position 4: Research Assistant: Infrastructure resilience assessment and predictive maintenance using artificial intelligence (AI)

We seek a dynamic **Research Assistant** to join our cutting-edge project focusing on using AI techniques to assess infrastructure resilience and develop predictive maintenance models.

Key Responsibilities

- Conduct research on infrastructure resilience assessment methodologies;
- Develop AI-based models for predictive maintenance of critical infrastructure systems;
- Analyse structural and operational data to identify vulnerabilities and predict failures;
- Collaborate with interdisciplinary teams, including engineers, data scientists, and urban planners; and
- Contribute to the preparation of technical reports, research papers, and presentations.

Qualifications

- BSc or MSc in Civil Engineering, Computer Science, Data Science, or a related field;
- Strong programming skills in Python, R, or MATLAB, with experience in AI/M; frameworks (e.g., TensorFlow, PyTorch, Scikit-learn);
- Familiarity with infrastructure systems and resilience assessment methodologies;
- Experience in data analysis, visualisation, and statistical modelling; and
- Excellent problem-solving, organisational, and communication skills.

Preferred Skills

- Knowledge of structural health monitoring and predictive analytics;
- Experience with large datasets, IoT sensor data, or real-time monitoring systems;
- Familiarity with GIS tools and spatial data analysis; and
- Research experience in AI applications to civil or structural engineering challenges.

Position 5: Research Assistant Opportunity: Mapping/understanding existing Early Warning Systems at different scales, consolidating adaptation tools for resilience and health, and using indigenous knowledge for climate change resilience.

We seek a motivated **Research Assistant** to join a project focused on mapping and analysing Early Warning Systems (EWS) across various scales in Malawi. The research aims to evaluate the effectiveness, scalability, and adaptability of EWS in mitigating risks and enhancing preparedness for diverse hazards.

Key Responsibilities

- Conduct a comprehensive review of existing Early Warning Systems at community and national level;
- Map EWS components, including monitoring, communication, and response mechanisms;
- Analyse the effectiveness and gaps in current systems using qualitative and quantitative methods;
- Collaborate with stakeholders, including policymakers, community leaders, and technical experts; and
- Contribute to the preparation of research reports, policy briefs, and presentations.

Qualifications

- BSc or MSc in Disaster Risk Management (DRM), Geography, Environmental Science, Public Policy, or a related field;
- Knowledge of Early Warning Systems, risk assessment frameworks, or disaster risk management strategies;
- Strong research and analytical skills, with experience in data collection and synthesis;
- Proficiency in mapping tools such as GIS, QGIS, or related software; and
- Excellent written and verbal communication skills.

Preferred Skills

- Familiarity with multi-hazard early warning frameworks and international protocols (e.g., Sendai Framework for Disaster Risk Reduction);
- Experience in working with diverse datasets and integrating qualitative and quantitative analysis;
- Ability to engage with stakeholders and conduct fieldwork (if applicable); and
- Prior research experience in resilience building or disaster preparedness.

Duration:

All these positions are tenable for a duration of one year.

How to apply:

Submit your CV, a cover letter outlining your research experience and motivation, and contact details for at least two referees through email to ckasonda@mubas.ac.mw with a copy to arhrm@mubas.ac.mw.

Applications must be received by 21 January 2025.