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SASSCAL GRADUATE STUDIES PROGRAMME: INTEGRATED WATER RESOURCES MANAGEMENT (IWRM)

CALL FOR APPLICATIONS SASSCAL Research Chair in Water Resources Reliability & Quality 2022 - 2025



IN COLLABORATION WITH





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1 WATER RESOURCES CONTEXT OF SOUTHERN AFRICA

Adequate availability of clean water is indispensable for food and energy security, sanitation and health and hence key for the development of the African societies and economies. For most Southern African countries, water demand exceeds available water resources due to changes in water availability and quality induced by the effects of climate change coupled with demographic and socioeconomic development. With increasingly unreliable water availability, partitioning of water for domestic, industrial and agricultural, as well as other forms of water use, is becoming a subject of serious concern in Southern Africa. An increase in extreme climate events is contributing to the vulnerability of the water sector severely affecting food and energy security and socio-economic stability at household, national and regional levels. Given these challenges, the sustainable management of limited water resources is becoming a major priority.

The Southern African Development Community (SADC), is challenged by increasingly stressed water resources and the need to provide reliable access to water of acceptable quantity and quality in the face of increased urbanisation, a changing and unpredictable climate, and economic instability.

Moreover, 40% of the 280 million population in SADC has no access to an adequate safe drinking water supply, whilst 60% has no access to adequate sanitation services (SADC, 2016). The water insecurity is a hindrance to efforts on poverty reduction, economic growth and regional stability.

The SADC Water Development Framework, the SADC Research Agenda and supporting strategies and plans highlight that the concept of Integrated Water Resources Management (IWRM) offers solutions to deal with interlinked socio-economic, institutional, and ethical challenges by assessing and managing water resources in space and time through an interdisciplinary and multi-sectoral approach. However, there is a limited capacity required to support an approach for sustainable water resources management and water security that contributes to sustainable socio-economic development in SADC.

2 SASSCAL GRADUATE STUDIES PROGRAMME IN INTEGRATED WATER RESOURCES MANAGEMENT (SGSP – IWRM)

In support of SASSCAL's research agenda and the expressed needs of the regional water sector for highly qualified professionals, SASSCAL, together with the Namibia University of Science and Technology (NUST) established the SASSCAL Graduate Studies Programme in Integrated Water Resources Management (SGSP – IWRM).

The programme is implemented by NUST in partnership with the International Centre of Water Resources and Global Change (ICWRGC) based at the Institute of Hydrology in Koblenz Germany. SASSCAL's financing activities towards the SGSP-IWRM are backed up by the German Government through the Federal Ministry of Education and Research (BMBF) which is the main funder of voluminous SASSCAL Programmes.

3 AIMS AND OBJECTIVES OF THE SGSP-IWRM

The overarching objective of the SGSP-IWRM is the development and deployment of innovative, excellent and collaborative education and research at PhD degree level complemented by selected tailor-made training programmes for decision makers and industry.

The programme endeavours to:

- Increase the number of highly qualified IWRM experts and knowledge in the region by providing scholarships to excellent PhD students;
- Promote innovation in interdisciplinary education and research;
- Transfer know-how and diffuse new methods, practices and tools for IWRM through offering tailor-made short-courses and specialized training to practitioners;
- Provide a national platform for knowledge sharing, policy development and advice, thereby integrating and coordinating regional initiatives;
- Support the internationalization of research and human capacity development in Southern Africa; and
- Design and accredit an innovative demand-based integrated PhD curriculum in IWRM.

4 ABOUT THE SASSCAL RESEARCH CHAIR IN WATER RESOURCES RELIABILITY AND QUALITY

The SGSP-IWRM aims at contributing to the development of regional capacity by implementing inter/multi/trans - disciplinary research, education, and training programme within the identified priorities at SADC, SASSCAL and national levels.

The specific objectives of the SASSCAL Research Chair in Water Resources Reliability and Quality are to:

- Work collaboratively with the SGSP-IWRM PhD student supervisors and post-doctoral fellows to strengthen the capacity of the SGSP-IWRM PhD students in designing and executing interdisciplinary research in line with the key thematic research areas of the SGSP-IWRM.
- Strengthen the links between the SGSP-IWRM research and capacity building activities with key stakeholders such as River Basin Organisations, industry, local authorities, and other partners and associations, through long-term partnerships.
- Foster collaboration and partnerships with renowned researchers and excellent scientists across the globe in supporting the SGSP-IWRM scientific research outputs.
- Mobilise alternative financial sources to support the SGSP-IWRM scientific research activities and outputs.
- Facilitate the internationalization of research and human capacity development in Southern Africa through the dissemination of knowledge and innovations from the SGSP-IWRM.

4.1Thematic Research Focus Areas:

A representative list of broad research priority areas that will be translated into PhD topics and projects is provided below.

Water and Wastewater Systems and Technology

- Water conservation and optimisation approaches in water abstraction and utilisation.
- Water systems engineering including irrigation, supply, storage, sanitation and wastewater treatment/recycling, water harvesting technologies, water for energy and food.

- Development and deployment of Information and Communications Technology Applications (e.g., role of artificial intelligence, big data analytics, machine learning...) in the IWRM sector, including tools for the general public.
- Drinking-water and source-water research, water pollution, drinking water taste and water quality benchmarks.

Hydrology and Geohydrology

- Basic and advanced hydrology including analysis of environmental flows.
- Integrated surface water-groundwater interactions/modelling.
- Geohydrological, chemical, and biological process analysis.
- Water quality modelling techniques

Water Security under Climate and environmental changes

- Ecological assessment of water systems, modelling, multi-criteria statistical analysis.
- Effectiveness of environmental and social impact assessment processes, including sanitation/wastewater management models (including smart/green technologies/cities concepts).
- Socio-economic dynamics implications on water security/ resilience at local, national, and/or regional levels.
- Transboundary Water Systems.

Sustainable Water, Energy and Food Security (WEF Nexus)

- Modelling, analysis of water, and energy food nexus approaches.
- Risk assessments and decision support systems for WEF nexus.
- Investigation/analysis of agricultural and other land uses on water availability and supply, including water efficient food production systems.

4.2 Call for Applications

The SGSP-IWRM is seeking one exceptional scholar to fill the position of the SASSCAL Research Chair in Water Resources Reliability and Quality.

The SASSCAL Research Chair will enhance and develop the existing SGSP-IWRM research portfolio with the aim of establishing flagship programmes in the areas of water resources reliability and quality.

4.3 Incentives for Participating in the SASSCAL Research Chairs Initiative

The SASSCAL Research Chair in Water Resources Reliability and Quality will effectively provide guidance regarding research plans and execution in support of the SGSP-IWRM candidates through means of seed funds.

The SASSCAL Research Chair in Water Resources Reliability and Quality is a non-remunerated position. The Research Chair should thus be embedded in the host university's operations.

This implies, no person shall be employed or remunerated directly for purposes of the implementation of the activities linked to the SASSCAL Chairs programme. However, the SASSCAL Research Chair in Water Resources Reliability and Quality can build in professional fees in new research and innovation grants submitted under the umbrella of the SASSCAL Research Chair on Water Resource Quantity and Availability.

The Chair and NUST will be eligible to incorporate overhead costs for projects developed under the auspices of the SASSCAL Research Chair initiative. The overall success of SASSCAL Research Chairs depends on financial and in-kind support availability. The SASSCAL Research Chairs are thus required to establish partnerships with government and affiliated agencies, local and international development partners, the private sector and industry partners for financial and technical support towards to the attainment of the goals and aspirations of the Research Chairs programme.

4.4 Benefits of Being the SASSCAL Research Chair in Water Resources Reliability and Quality

The SASSCAL Research Chair in Water Resources Reliability and Quality position offers an opportunity for an excellent researcher to grow their research and innovation portfolios through co-managing the research and capacity building activities under the SGSP-IWRM.

In addition, the SASSCAL Research Chairs initiative offers higher education and research institutions in the five SASSCAL countries with a platform for sharing knowledge and exchanging experiences at the national, regional, and global levels. The SASSCAL Research Chairs can benefit from SASSCAL's global outreach, visibility and reputation, as well as from its expertise in intellectual cooperation.

4.5 Expected Outputs

The SASSCAL Research Chair will work closely with the SGSP-IWRM PhD student supervisors from NUST, SADC, and Germany with support from the SGSP-IWRM Secretariat, and strategic guidance from the Academic and Scientific Advisory Committee (ASAC) of the SGSP-IWRM.

4.6 Expected Outcomes

The key outcomes of the SASSCAL Research Chairs include the following:

- Increased number of funded research grants that address water resources reliability and quality;
- Increased research outputs aligned to the themes/topics
- Increased number of SGSP-IWRM PhD students publishing in 'A' rated scientific journals;
 Increased regional and international partnerships established; and
- Increased recognition of the SGSP-IWRM's research and innovation excellence, and impact.

4.7 Duration of the Chairs

The advertised SASSCAL Research Chairs will be applicable for one 3-year term each, with a possibility of renewal, subject to excellent performance, availability, and ability to raise funds in support of the SGSP-IWRM thematic research areas.

4.8 Eligible Countries

Universities in SASSCAL countries are eligible to apply (Angola, Botswana, Namibia, South Africa and Zambia).

4.9 Minimum Requirements

- Employee of an academic institution in one of the SASSCAL countries (Angola, Botswana, Namibia, South Africa, and Zambia);
- A research doctorate in a relevant IWRM related field;
- An international reputation for research excellence in a relevant IWRM related discipline;
- A demonstrated track record in establishing and leading successful research teams in support of IWRM in Southern Africa;

- At least 10 years post PhD experience establishing and driving IWRM research and innovation programmes in Southern Africa;
- A proven track record in mobilising competitive research funding;
- A substantial record of successful supervision of postgraduate research students (Honours, Masters and PhD level); and
- Proven leadership excellence.

5 HOW TO APPLY

Applicants are required to follow the guidelines below:

- Applicants should submit a proposal following SGSP-IWRM template outlined in Annexure 1;
- The proposal should not exceed 10 pages, excluding annexes;
- The application should be accompanied by a letter of support from the Vice-Chancellor, Rector, or President of the host academic institution.
- Detailed CV of the applicant including key achievements relevant to the SASSCAL Research Chair position; and
- Three letters of support from partners (e.g. government, academic institutions, international cooperating partners, Non-Governmental Organisations etc.).

To access the SGSP-IWRM Science Plan, please follow the link below:

https://www.nust.na/sites/default/files/announcement/SGSP-IWRM_Science_Plan_FNL.pdf

Closing Date: 31 October 2022 Enquiries: Ms Maggie Nghiiki; T: +264 61 207 2917; E: mnghiiki@nust.na Submission of Applications: recruitment@nust.na

NOTE: Emerging researchers are encouraged to apply. Successful candidates to commence duties as of 01 December 2022.

ANNEXURE A: PROPOSAL GUIDELINE

Each proposal should follow the structure outlined below:

1. Introduction

Please provide detail on the water quality context in the five SASSCAL countries, and the SADC region. In addition, outline the main challenges to be addressed by the Research Chair's activities?

2. Objectives

Please formulate up to four objectives that you will pursue during your tenure as a Research Chair. The objective should be specific and measurable (ensure objectives are aligned to the SGSP-IWRM Science Plan 2021-2024.

3. Planned activities

Please outline all the activities or tasks that you envisage to undertake as the Research Chair (being mindful of the priority focus areas of the SGSP-IWRM as outlined in the Science Plan 2021-2024).

4. Expected outputs

List all the outputs you expect to deliver if successfully appointed as the Research Chair. Outputs can include publications produced in collaboration with the SGSP-IWRM PhD students, capacity development workshops convened, conferences and large events convened, seminars or webinars convened, networking and partnerships established, inter-university cooperation successfully forged, funding proposals successfully developed etc).

5. Expected results at the national, regional and international level

Provide a short summary of the expected impact of the Research Chairs activities on educational, socio-economic and cultural development at national, and regional regional and global levels.

6. Visibility of the project activities

Provide some detail on the communication and outreach activities that are planned.

7. Strengthening partnerships

Please indicate the the key stakeholder groups earmarked to be engaged in implementing the research Chairs programme, where possible, indicate the name(s), role(s), and contributions (institutional, intellectual, in kind, financial etc.).

8. Transfer of knowledge

Please indicate your strategy for strengthening capacity of SGSP-IWRM students and other emerging researchers in the SADC region.

9. Institutional support

Please indicate the support the host institution will provide towards the successful execution of the Research Chair activities.

(Maximum length: 10 pages, font size: Calibri 11, line spacing: 1,15).