

**CALL FOR APPLICATIONS FOR DOCTORAL (x1) AND MASTERS (x1) SCHOLARSHIPS FOR 2024 :
Enhancing the Harmonisation of Water-Energy-Food-Environment-Health (WEFEH) Sector Policies
and Advancing Cross-Sectoral Management of Related Resources Through Scenarios and Pathways
Development in South Africa (funded by the Water Research Commission of South Africa)**

The Centre for Transformative Agriculture and Food Systems at University of KwaZulu-Natal (CTAFS-UKZN) is seeking to recruit driven PhD and MSc students to participate in research for policy integration and harmonization using the nexus approach. The postgraduate students will register with and be supervised by the University of KwaZulu-Natal at the Pietermaritzburg campus in South Africa.

Project overview: Water, energy, food and land are fundamentals for socio-ecological and socio-economic sustainability, human and environmental health, dignity and prosperity. However, South Africa's Sustainable Development Goal (SDG index) of 63.4% (ranks 115th in the global list) is regressing and is below the global average of 66.3%. The country is facing challenges in achieving SDG#6 (clean water and sanitation) with a moderately improving trend, major challenges with moderately improving trends in achieving SDG#7 (affordable and clean energy) and stagnating trends in SDG#2 (zero hunger). Consequently, some South African households lack access to safe water, electricity, and adequate and nutritious food. A key determinant of the security of water, energy, food, environment, and health (WEFEH)-related resources and services amidst multiple drivers of change is how society plans, develops and manages resources through policy and governance in response to demand or scarcity. In South Africa, such policy framework includes the National Development Plan 2030 (NDP2030) and National Infrastructure Plan 2050 (NIP2050), which seek to enhance the universal security of WEFEH-related resources and services through several measures. Critiques blame the fragmented and conventional silo-based and incoherent monitoring and oversight models for the suboptimal delivery of services, duplication, and failure to address the triple challenges of poverty, inequality and employment in South Africa. Thus, this project seeks to enhance the harmonisation of WEFEH-related sector policies and inform the advancement of cross-sectoral management of WEFEH-related resources through scenarios and pathways development in South Africa. Such harmonisation of policies will potentially lead to integrated WEFEH-related programmes and cross-sectoral WEFEH-related resource management towards improved security of WEFEH resources and services for all.

Scholarships description: An aspect of the project is to develop transdisciplinary research capacity and train postgraduate students for the future who can deal with complex and dynamic systems. To that end, we seek to appoint one (1) PhD student and one (1) MSc student who will execute the following work packages and specific objectives:

- **WORK PACKAGE 1:** To conduct a global review on how the WEFEH nexus approach has been used to enhance harmonization of WEFEH sector policies and advance cross-sectoral management of WEFEH-related resources (for MSc student).
 - Specific objective 1: To conduct a global review on how the WEFEH nexus have been used to enhance harmonization of WEFEH sector policies and advance cross-sectoral management of WEFEH-related resources.

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- WORK PACKAGE 2: To quantify trade-offs and identify synergies across the WEFEH sectors in relation to South Africa's developmental agenda (for PhD student).
 - Specific objective 2: To improve the iWEF model through consideration of human health and environmental integrity.
- WORK PACKAGE 3: To conduct a policy coherence and content analysis for South Africa and identify opportunities for improved cross-sectoral coordination and implementation (for MSc student).
 - Specific objective 3: To conduct a WEFEH policy coherence and content analysis for South Africa, identify trade-offs and synergies across the WEFEH in relation to South Africa's developmental agenda and opportunities for improved cross-sectoral coordination and implementation.
- WORK PACKAGE 4: To co-develop an integrative WEFEH nexus scenario planning tool for South Africa with a focus on policy outcomes and implementation (for PhD student).
 - Specific objective 4: To co-develop an integrative WEFEH nexus scenario planning tool for South Africa with a focus on policy outcomes and implementation.
- WORK PACKAGE 5: To develop stakeholder-driven and policy-based integrated WEFEH nexus scenarios and devise feasible pathways for harmonized WEFEH policy development and implementation for sustainable WEFEH systems transformation in South Africa (for PhD student).
 - Specific objective 5: To develop stakeholder-driven and policy-based integrated WEFEH nexus scenarios and devise feasible pathways for harmonized WEFEH policy development and implementation for sustainable WEFEH systems transformation in South Africa.

Eligibility and inherent requirements: The project seeks creative, self-motivated, and energetic candidates to contribute to aspects of and be trained in this exciting and highly relevant field of research. The successful candidate should be driven, disciplined, and able to work as a member of a transdisciplinary research team and set and meet deadlines.

- PhD Scholarship: The candidate is expected to have a Master's degree (or equivalent) in any relevant natural and social sciences, and demonstrated competence in the following skills, abilities and capacities, especially in natural science field studies:
 - policy review and analysis,
 - numerical methods and techniques including modelling,
 - data collection including designing and conducting qualitative and quantitative surveys,
 - data analyses (including social) and visualisation using any established statistical package,
 - geospatial analysis (GIS),
 - narrative and discourse analyses,
 - writing clearly,
 - participate in team-based research,
 - a valid driver's licence (with appropriate driving experience), and
 - proficiency in English, both verbal and written.

Only candidates below the age of 35 will be considered for PhD students. For the PhD scholarship, a peer-reviewed scientific publication; presentation skills for internal team meetings and scientific conferences; and the ability to work independently would be an advantage.

- **MSc Scholarship:** The candidate is expected to have a suitable 4-year degree (or equivalent) in any relevant natural and social sciences. The candidate is expected to have good skills, abilities and capacities in:
 - policy review and analysis,
 - narrative and discourse analyses,
 - writing clearly,
 - participate in team-based research,
 - a valid driver's licence (with appropriate driving experience), and
 - proficiency in English, both verbal and written.

Scholarships package and benefits: Competitive stipends will be offered to successful candidates. The candidates will be expected to find private accommodation and cover all living expenses from this funding, including travel to/from the University. However, the project will cover all project-related expenses, including fieldwork and travel to/from the University to the experimental sites. PhD Scholarships are for up to three years, and Masters Scholarships are for up to two years based on satisfactory performance. The successful candidates will belong to an international and diverse working research group that forms part of the WEF Nexus Centre of Excellence (CoE) and join an exciting cohort of students working on various topics on the nexus in Africa and Asia. They will become part of a knowledgeable, high-achieving, and experienced team, with an opportunity to have a published PhD thesis and peer-reviewed journal articles.

Contact for more details: For more details on the postgraduate opportunities please contact: Cuthbert Taguta (221089062@stu.ukzn.ac.za) or Prof Tafadzwa Mabhaudhi (mabhaudhi@ukzn.ac.za).

How to apply: Interested candidates should submit a letter of motivation, one-page concept note, accompanied by a detailed CV (listing academic publications), academic transcript(s), expressing their interest and suitability to Nopayi Mkhize (mkhizen34@ukzn.ac.za), CC Cuthbert Taguta (221089062@stu.ukzn.ac.za). The one-page concept note should be a summary detailing how interested candidates plan to approach the research, including research problem(s), main research objective/question/hypothesis, specific objectives/questions/hypotheses, and a tentative methodology.

Application deadline: The closing date for receiving applications is 20 December 2024.