**New CAD 8 million project to improve early warnings and enhance resilience to changing tropical cyclones over southern Africa**

[City, Date] – Under the Climate Adaptation and Resilience (CLARE) research initiative, the Global Change Institute (South Africa), Eduardo Mondlane University (Mozambique) and the University of Bristol (United Kingdom) are excited to announce the launch of the *Resilience and Preparedness to tropical cyclones across Southern Africa (REPRESA)* project, a ground-breaking initiative focused on addressing the impacts of tropical cyclones in Madagascar, Malawi, and Mozambique. REPRESA will enhance resilience and preparedness in the face of changing tropical cyclone hazards, which cause devastating impacts in these countries.

*The devastating aftermath of Cyclone Freddy, which hit the region Feb-Mar 2023. It was unprecedented in terms of its persistence and led to hundreds of deaths. Photo credit: Maynard Nyirenda: SDI and DODMA*

REPRESA is an international collaborative effort involving partners across southern Africa, the UK and other European countries. It is co-led by the Global Change Institute at the University of the Witwatersrand (WITS) in South Africa, Eduardo Mondlane University (UEM) in Mozambique, and the University of Bristol (UoB) in the UK. This project brings together an interdisciplinary team of leading social and physical scientists, national and international hydro met services and practitioners to tackle the pressing challenges posed by tropical cyclones in the region. The team recognises the importance of substantially improving the adoption of forecast products in vulnerable communities. As result, the research process will co-develop and enhance anticipatory governance structures for flood and tropical cyclone risk management in local communities. This includes early warning dissemination and scenario-based community-specific action plans.

The project is part of the first cohort of projects under CLARE, a UK-Canada framework research programme on Climate Adaptation and Resilience, aiming to enable socially inclusive and sustainable action to build resilience to climate change and natural hazards, primarily funded by UK aid from the UK government, along with the International Development Research Centre, Canada. The REPRESA project will run from June 2023 until the end of November 2026.

Southern Africa is highly vulnerable to the destructive forces of tropical cyclones, as evidenced by the catastrophic Tropical Cyclones Idai in 2019 and Freddy in 2023. The existing early warning systems in the region, and/or the uptake of the warnings issued, are inadequate to prevent loss of life and economic hardship. REPRESA aims to fill this gap by improving early warning systems as well as conducting comprehensive research on how cyclone risks will evolve in a changing climate, and formulating adaptation options that enhance resilience in the face of these risks.

The specific objectives of the REPRESA project include:

- Quantify the changing attributes of landfalling tropical cyclones resulting from current and future global warming.
- Assess tropical cyclone flood hazards now and into the future, including effects from surface water, river and coastal flooding combined.
- Strengthen multi-hazard impact-based early warning systems and their uptake in vulnerable communities.
- Formulate adaptation options that enhance resilience to the evolving risks from tropical cyclones and intersecting vulnerabilities.

Through a series of research activities and five cross-cutting 'Living Labs', the project will generate valuable insights and actionable solutions. The Living Labs will facilitate a process of co-creation between researchers and stakeholders, creating a community of practice to develop solutions for resilience and adaptation strategies across sectors and timescales. They will cover the following topics:

1. Designing early warning systems informed by local contexts
2. Operationalising multi-hazard impact-based forecasts
3. Stress-testing anticipatory action plans
4. Climate-aware planning for conflict, migration and violence
5. Context specific climate adaptation plans

REPRESA will also foster equitable partnerships and collaboration with various stakeholders, including universities, hydrometeorological services, Red Cross organisations, development institutes and relevant practitioner and national and local government bodies. The project will harness the expertise of researchers, practitioners and in-country partners and ensure their knowledge is integrated effectively.

The outcomes of the REPRESA project will have far-reaching impacts, both within the focus countries and in developing research findings on building resilience and developing adaptation options to complex climate risks in vulnerable communities more widely. This will include improved uptake of early warning systems in vulnerable communities, strengthened humanitarian operations through anticipatory action, and enhanced climate adaptation planning at multiple levels.

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**About REPRESA:**

REPRESA aims to establish a new nexus of excellence in impact-based early warnings and climate change projection analysis, leading to improved resilience and preparedness to tropical cyclones across southern Africa. It is co-led by the University of Bristol, Wits Global Change Institute and Eduardo Mondlane University.

This ground-breaking initiative will advance the understanding and response to changing tropical cyclone risks in southern Africa and Madagascar. The project brings together African and international climate modelling capabilities, including at the University of the Witwatersrand, the Met Office Hadley Centre in the UK, the European Centre for Medium-Range Weather Forecasts (ECMWF), the University of Reading and National Hydro-Meteorological Services of Madagascar, Malawi and Mozambique.

It will also strengthen existing frameworks for disseminating early warning system information to communities and improve humanitarian programming and adaptation planning, in the context of changing climate risks, through Living Labs led by the Red Cross Climate Centre and anticipatory governance research led by North West University in South Africa.

This co-designed research, in a learning-through-doing transdisciplinary approach aims will drive climate adaptation, risk reduction, and community resilience in the region.

**About CLARE**

CLimate Adaptation and REsilience (CLARE) is a £110m, UK-Canada framework research programme on climate adaptation and resilience, aiming to enable socially inclusive and sustainable action to build resilience to climate change and natural hazards. CLARE is an initiative jointly designed and run by the UK Foreign Commonwealth and Development Office and Canada's International Development

Research Centre. CLARE is primarily funded by UK aid from the UK government, along with the International Development Research Centre, Canada.

Research supported by CLARE is bridging critical gaps between science and action: developing new tools and supporting partner governments, communities, and the private sector to use evidence and innovation to drive effective solutions to the climate challenge, whilst building capacity of both those carrying out the research and those using the resulting evidence.

We invite you to learn more about the CLARE initiative and projects, including REPRESA, by visiting the following link: CLARE - CLimate Adaptation & REsilience (clareprogramme.org)

**University of Witwatersrand**

The University of the Witwatersrand (aka Wits University) is renowned for its academic and research excellence, its commitment to social justice, and the advancement of the public good, for over 100 years. It is one of the leading institutions on the African continent that produces world-class research that is locally relevant and globally competitive.

Along with its various strategic partners, Wits is committed to solving global challenges such as global change, climate change and sustainability in a multidisciplinary and transdisciplinary manner, from its vantage point in the global south. Wits' research output has increased by over 45% in the last four years with more than 85% of its research published in international journals. Wits offers a free space for the exchange of ideas and a vibrant intellectual community that fosters debate and knowledge transfer both within and beyond its lecture halls. Wits celebrated its Centenary in 2022 and received support from its alumnae and friends for priority areas such as research, teaching, learning and infrastructure. To date the University has raised R3,1 billion with a target of R3,2 billion for 2023. Read about Wits' centenary celebrations and follow the latest Wits research.

**Universidade Eduardo Mondlane**

The Eduardo Mondlane University (UEM) is a public institution, the oldest of higher education in Mozambique. It was founded on August 21, 1962, and rose to the category of University in 1968, when it became known as University of Lourenço Marques. In May 1976, President Samora Moises Machel assigned the institution the name of Eduardo Mondlane University, named after the relevant historical role played by Dr. Eduardo Mondlane Chivambo, the first president of the Mozambican liberation movement (FRELIMO).

With an annual intake of about 4 thousand students spread over 11 faculties and 6 graduate schools, UEM aims to be become a national, regional and international reference in the production and dissemination of scientific knowledge as well as innovation, highlighting research as the foundation of teaching and learning processes, extension and outreach activities.

**University of Bristol**

The University of Bristol is at the cutting edge of global research. We have made innovations in areas ranging from cot death prevention to nanotechnology. The University has had a reputation for innovation since its founding in 1876. Our research tackles some of the world's most pressing issues

in areas as diverse as infection and immunity, human rights, climate change, and cryptography and information security. Bristol currently has 40 Fellows of the Royal Society and 13 of the British Academy – a remarkable achievement for a relatively small institution.

The University of Bristol aims to bring together the best minds in individual fields, and encourage researchers from different disciplines and institutions to work together to find lasting solutions to society's pressing problems. We are involved in numerous international research collaborations and integrate practical experience in our curriculum, so that students work on real-life projects in partnership with business, government and community sectors.

**Co-Principal Investigators**

**Prof. Francois Engelbrecht**
Francois Engelbrecht is Distinguished Professor of Climatology and Director of the Global Change Institute of the University of the Witwatersrand in South Africa. He specialises in climate model development and the simulation of climate variability and change in Africa and the Southern Hemisphere. Engelbrecht has established extensive regional climate modelling capabilities in South Africa, and leads the development of an African-based Earth System Model. He served as an invited Lead Author of the IPCC's Special Report on Global Warming of 1.5 ºC (2018) as well as of the Assessment Report Six Working Group I report (2021). Currently serves as co-chair of the Scientific Steering Group of CLIVAR of the World Climate Research Programme (WCRP), co-chair of the Joint Expert Team on Earth System Implementation of the World Meteorological Organisation and as elected President of the South African Society of Atmospheric Sciences.

**Prof. Luis Artur**
Luis Artur is a renowned social scientist who specializes in community-based disaster risk reduction and adaptation within Mozambique's most vulnerable communities. Currently, he holds the position of lecturer and researcher at Eduardo Mondlane University in Maputo, Mozambique. His research primarily delves into the interconnectedness of climate change, natural hazards, conflict, displacements, and access to land. Within the field of disasters, his primary focus lies in the dynamics between various actors involved in disaster response and the local strategies implemented to combat climate change.

**Prof. Lizzie Kendon**
Lizzie Kendon is Strategic Head of Understanding Climate Change at the Met Office Hadley Centre in the UK and Professor of Climate Science at Bristol University. She leads a team of 30 climate scientists working on understanding climate change with a view to improving climate projections. She has pioneered the field of km-scale climate modelling, with high-profile publications in Nature Climate Change (Kendon et al 2014) and Nature Comms. (Kendon et al 2019, Kendon et al 2023). This has included running the first km-scale climate simulations over the UK, Europe and Africa. Her research to date has focussed on gaining a better understanding of extreme rainfall processes and their future change.