

Africa Regional Call ARC (2024)

Preface

Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of multiple stressors, occurring at various levels, and low adaptive capacity (high confidence). According to the Climate Vulnerability Index for 2021, nine out of the top 10 world's most vulnerable countries, are in Sub-Saharan Africa. Key development sectors have experienced widespread loss and damage attributable to climate change, including biodiversity loss, water shortages, reduced crop yields, coastal tourism due to coral bleaching events, and livestock and fisheries productivity. Furthermore, adverse impacts on human health include heat stress-related diseases and increased and spatially novel vector-borne diseases, decreased shelter availability, sea level rise and damage from ocean-related hazards, exacerbation of national security issues and international conflicts as well as changes in freshwater, marine, and terrestrial ecosystems.

Africa's major economic sectors are also vulnerable to current climate sensitivity, with huge economic impacts, and this vulnerability is exacerbated by existing developmental challenges such as endemic poverty, complex governance, and institutional dimensions; limited access to capital, including markets, infrastructure, and technology; ecosystem degradation; and complex disasters and conflicts. Since 2020, Africa has lost \$7 to \$15 billion each year due to the devastating effects of climate change. This is projected to rise to \$50 billion per year by 2030, and up to 7% of Africa's GDP on average. This dire situation has been compounded by the economic impacts of the COVID-19 pandemic and by the impact of the Russia-Ukraine war on fuel and food imports. These effects have resulted in entire economies suffering and an increased burden on vulnerable populations such as women and children.

Exposure and vulnerability to climate change in Africa are multi-dimensional with socioeconomic, political, and environmental factors intersecting and will require a transdisciplinary approach and transboundary partnerships to address and provide

comprehensive solutions to its associated challenges. Over the past three years, the Belmont Forum has engaged with African researchers through a series of scoping activities to discern knowledge gaps and priorities in addressing climate change vulnerability across the continent.

In support of the African Union's climate, environment, and sustainability goals and priority areas for Agenda 2063, the NRF is leading in the development of a Belmont Forum Collaborative Research Action (CRA) Africa Regional Call to address some of the challenges outlined above.

Policy Context

The United Nations Development Programme warns that the progress in human development achieved over the last decade may be slowed down or even reversed by climate change, as new threats emerge to water and food security and public health. The impacts of climate change – sea-level rise, droughts, heat waves, floods and rainfall variation – could by 2080 push another 600 million people into malnutrition and increase the number of people facing water scarcity by 1.8 billion. A variety of climate and non-climatic processes influence flood processes, resulting in river floods, flash floods, urban floods, sewer floods, glacial lake outburst floods and coastal floods. Policy debates on the food crisis, such as the UN Food and Agriculture Organisation Food Summit in June 2008, failed to identify the role of sustainable land management in ensuring food security.

The African Union Climate change strategy was produced as a 10-year strategic planning document as part of a proactive cooperative effort to fulfill Agenda 2063. The main purpose was to tackle the implications and burdens of climate change that limit Africa's integration and development. This AU climate changes strategy also functions within the context of a wider set of international and continental plans and efforts. This includes the Paris Agreement of the UNFCCC, the African Union's Agenda 2063, the UN's 2030 Agenda for Sustainable Development goals, the UN's Convention on Biological Diversity, the Sendai Framework for Disaster Risk Reduction, the Comprehensive African Agricultural Development Programme, the Programme for Infrastructure Development in Africa, the Africa Adaptation Initiative, the African Continental Free Trade Area, Accelerated Industrial Development for Africa initiative and AU's Green Recovery Action Plan.

Under African-led and African-owned, one of the core principles of the AU CC Strategy Agenda 2063 explicitly states that the continent must generate its own dynamic scientific, technological, and entrepreneurial capability; and innovate new, predictable,

and sustainable sources of funding for its response to climate change that includes Africa's social and cultural values and natural capital endowments. This can be accomplished by promoting climate and environmental action as an investment opportunity and a source of socioeconomic improvement in high-level member-state policy forums such as the African Ministerial Conference on the Environment (AMCEN) and the United Nations Environment Assembly (UNEA).

According to COP26 under the International Monetary Fund (IMF), since the turn of the century, climate change has caused sub-Saharan Africa to suffer annual direct economic losses of more than US\$520 million. It is estimated that the continent will spend between US\$7 billion and US\$15 billion per year putting its response to the challenges posed by climate change into action. By 2050, this is anticipated to increase to US\$35 billion annually. By 2050, climate change is predicted to cost Africa 4.7% of its GDP while costing North America 1.1%. Additionally, the rate of warming on the continent is greater than the 0.15°C per decade global average between 1951 and 2020. The continent is expected to experience an increase in hot extremes and more frequent and intense rainfall extremes as a result of the observed global warming.

African nations are making efforts to lessen the effects of climate change. In 2019, African nations had already surpassed their contributions to climate change, spending an average of 5% of their annual GDP to support adaptation and mitigation efforts. Additionally, regional organizations like the African Adaptation Initiative are working hard to increase Africa's agricultural resilience. For instance, Morocco is leading the world in the production of solar energy, which prevents the world from emitting more than 760,000 tonnes of carbon dioxide each year. Another noteworthy effort to cut Kenya's emissions by 32% by 2030 is the use of geothermal energy. African nations are contributing in their own ways. However, it is ultimately up to all countries to remain dedicated to delivering on the Paris Agreement's promise of a just, equal, and forceful response to climate change.

As the world's largest island and second-biggest continent, Africa is highly dependent on coastal and marine resources. The state of the ocean influences food security, coastal protection, maritime trade and economic development and humanity's ability to meet national, regional, and global climate aspirations without urgent measures to redress the accelerating degradation of the ocean, the achievement of sustainable development goals in Africa will be compromised. The 2050 Africa Integrated Marine (AIM) Strategy, which was released in 2012, recognizes the importance of the ocean to sustainable and equitable economic development in Africa. The overarching vision of the 2050 AIM Strategy is to foster increased wealth creation from Africa's oceans and seas by developing a sustainable thriving blue economy in a secure and environmentally

sustainable manner. The Strategy recognizes the importance of increased research, innovation, and capacity in Africa to fulfill its stated strategic objectives.

In keeping with this premise, the UN Decade of Ocean Science for Sustainable Development is a UN-led initiative that provides a framework for the generation and uptake of transformative ocean science to contribute to sustainable development including the objectives and targets of the Africa Agenda 2063. Recognizing the fundamental importance of coastal and marine resources to Africa, coupled with the specific challenges faced by the Continent and the adjacent Island States, the Ocean Decade Africa Roadmap was launched in 2022 to identify priorities for ocean knowledge, capacity development, and ocean research infrastructure in the framework of the Ocean Decade.

Background and Rationale

Following four scoping meetings where a number of issues were raised by diverse participants, all the issues were synthesized and summarized into three themes namely:

1. Water – Energy – Food – Health Nexus
2. Pollution
3. Disaster Preparedness, Responsiveness, and Recovery

Green and Blue economy have also been identified as a cross-cutting issue across to the three themes. Additionally, education and awareness were identified a cross-cutting activity that involves designing and delivering educational and communication programmes and materials that can increase the knowledge and skills of the public and stakeholders on resource conservation in order to increase community participation and empowerment in the three identified themes.

Area 1

Water – Energy – Food – Health Nexus

Water, energy, and food security are inextricably linked to human, environmental, and financial sustainability. Inadequate water supply and poor water quality, unhealthy diets, unreliable or unsafe food supplies, and a lack of energy or inconsistent energy have numerous implications for human, animal, and ecosystem health – especially when these factors are combined. Furthermore, food security and safety are dependent on the

health and productivity of animals and plants, as well as the prevention of contamination and spoilage.

Across the continent, efforts to increase the sustainability of these nexus elements naturally result in benefits for both humans and the marine and terrestrial environment. It is critical that this CRA addresses the impact of climate change on water, energy, food systems while also providing mechanisms to improve health outcomes and meet the UN Sustainable Development Goals, including ending extreme poverty, improving education, creating drinkable and high-quality water, sustainably managing green and blue (land and ocean); and providing access to affordable, reliable, and clean energy sources. Opportunities also exist across the water-energy-food nexus to underpin sustainable and equitable economic development, including developing a sustainable green and blue (land and ocean) economy, yet Africa-specific science and knowledge are required to optimize this potential. Research should be innovative and promote the use of technology relevant to the African context.

The goal is to bring actors together to find innovative new solutions to the Food-Water-Energy-Health-Health Nexus challenge, with the goal of increasing access and quality of life. Therefore, contributions that support Innovative research on the Water-energy-food-and-health Nexus are encouraged for this call, such as robust knowledge and assessments of the Food-Water-Energy-Health Nexus; multi-level Governance and Management of the Food-Water-Energy-Health Nexus and managing potential strategies and Solutions to address emerging Risks and Tradeoffs of the energy transition and the Food-Water-Energy Nexus

Area 2

Pollution

Pollution inclusive of land, air, and oceans, is the world's leading environmental cause of disease and premature death. Air pollution from cooking fires, heating, biomass burning, vehicle emissions, windblown dust, and other sources account for more than 1 million deaths per year in Africa. According to Fisher et al, 2021, air pollution is second only to AIDS in terms of deaths in Africa. While these suspended particulates can occur anywhere on the continent, many African cities currently have concentrations that far exceed healthy levels as defined by the World Health Organization. Extended exposure is particularly harmful to the development of children but can result in pulmonary and cardiac disorders, stroke, and death. Some aerosols, such as black carbon and sulfate aerosols, also have impacts that can further exacerbate climate change, including rainfall patterns and extreme heat, which in turn affects health and livelihoods. Efforts to transition to renewable energy sources.

Africa is rich in natural and mineral resources; however, the exploitation of these resources, population growth, urban and industrial discharges, agricultural activities, mining, refuse dumps, e-waste, and oil spills have led to extreme pollution of the environment. Economic activities in the ocean generate other types of pollutants including underwater noise and light pollution or sea-based dumping that can affect marine ecosystems and biodiversity. The deposition of waste materials on land, underground, or in the ocean, contaminates the soil and groundwater, results in marine litter, and threatens public health, the economy, and its social fabric. Projected climate changes may further exacerbate environmental pollution. Therefore, research from this call should improve the sustainability of land and marine resources and their ability to support life systems, increase rigorous knowledge of the impact of pollution on ocean biodiversity and blue economy, and should also provide mechanisms for sustainable ocean management. It may also include mechanisms to harness the recycling of plastic waste and other land and ocean pollutants.

In this context contributions that support innovative research and new solutions for the pollution challenge in Africa are encouraged. This includes assessment of pollution impact on land, air and oceans.

Area 3

Disaster Preparedness, Responsiveness, and Recovery

The Covid-19 pandemic, floods, and droughts in various parts of the continent, and ocean-related hazards such as sea level rise, tsunamis, or more frequent and intense coastal storms demonstrate that most countries are not fully capable of designing agile and effective disaster warning, response, and recovery measures. Though minimal disaster management and recovery measures were implemented, they were insufficient to stabilize its communities' socioeconomic and ecological development activities. As a result, poverty is increasing, as well as a slew of social issues.

In this context contributions that support research that discerns effective mechanisms for disaster preparedness, response, and recovery in the most disaster-prone regions, including coastal communities, within Africa such as Disaster and multi-hazard risk assessment, mapping, response, and relief operation, Disaster early warning and alert systems and designing and implementing medium and long-term actions for Disaster recovery and reconstruction are encouraged.

Project requirements:

Proposals should include a strong and deliberate linkage between the societal and environmental aspects within global environmental challenges to ensure that they meet the Belmont Challenge for international transdisciplinary research: to provide knowledge for understanding, mitigating, and/or adapting to global environmental change.

Given the complexity and scope of these challenges, research consortia must be truly transdisciplinary, thus including researchers from: a) social sciences/humanities/economics and b) natural sciences/physical sciences/engineering/technology, as well as c) societal partners (i.e. citizens, industry, civil society organizations), using a participatory, co-designed and co-implementation approach. Additional knowledge holders are welcome to be part of the proposing consortium once this minimum criterion is met.

Successful proposals **must address the Call Theme** and *deliver on at least one of the three Areas (with cross-cutting linkages across multiple Areas as well as the integration of blue and green economies, education, and awareness encouraged)*. Submissions should clearly describe how the proposed project will address the Call Theme and accomplish the activities. Successful proposals will include well-justified budgets, partitioning of funds, and clear allocation of roles, responsibilities, and time.

Proposals are required to include:

1. **Data management Plan** including public accessibility of data, digital objects, results, and findings;
2. **Project Description** including background, research plan, and consortium composition with detailed discussion of stakeholder engagement and co-production process;
3. **Management Plan** to describe the implementation of the how the overall coordination, monitoring, oversight, and evaluation of the project;
4. **Impact, Engagement and Dissemination Plan**, including the development of introductory and valorization videos for the kick-off and end-term meetings, planned social media activities as well as any other externally facing communication activities foreseen as a result of this work, capacity building activities foreseen as part of the co-development of the research;
5. **Funding Plan**, including funding to participate in coordinated activities throughout the project's lifespan such as attending the CRA Kick-Off, Mid-Term, and End-Term meetings to be held at the [Sustainability Research and Innovation Congress](#). The expenses for these activities should be accounted for in the Funding Plan to allow participation from *at least* three Consortium members.

Project Duration:

Projects are intended to be *three* years in length, however, individual annexes may provide support for varying lengths of time up to *four* years (as defined by the funding Annex applied).

Eligibility criteria:

Proposals should address one or more of the specified themes while also meeting the Belmont Challenge for transdisciplinary research. Consortiums with a higher proportion of African or researchers based in the Global South will have an added advantage.

Given the complexity and breadth of the challenges, research consortia must be truly transdisciplinary, bringing together researchers from natural and social sciences as well as societal partners (i.e., local communities, private and public sectors, civil society organizations, NGOs, and governmental organizations) through participatory, co-design, co-development, and co-implementation approaches. Once this minimum criterion is met, additional knowledge holders are welcome to join the proposed consortium. Transdisciplinarity of research consortiums and active participation of involved stakeholders in research and innovation content is an important criterion that should be clearly demonstrated in the application.

Researchers and societal partners from countries not supported by any of the partner agencies can participate in the research project at their own expense.

To be deemed eligible for this call, research groups (“Research Consortia”) require three or more Consortium participants, representing at least three different countries, each requesting support from at least three participating funding organizations. **For each consortium, at least two countries must be from the African continent. For consortiums with a large number of countries participating, a recommended minimum of 50% should be from the African continent.**

To be deemed eligible for this call, a Research Consortium should have **three or more participants**, representing **at least three different countries**, requesting support from **at least three participating funding organizations**. Each funding organization's eligibility requirements can be found in their annex for this call on the [Belmont Forum Website](#).

Consortium members can **request funding or in-kind support** as outlined in each Annex. Additional members may participate in a self-financed capacity *if* the minimum participants from three countries, requesting from three funding organizations, is met.

Each Research Consortium **must have a Consortium Lead**, who acts to facilitate collaboration and communication across the team, submits the research proposal, and

annual reports, which are due each 15 June for the lifetime of the project. **Consortium Leads must request funding** from a participating funding agency and cannot participate in a self-financed or in-kind capacity. It is critical that each Consortium Member and Consortium Lead review the applicable funding agency annexes for this Call to determine whether their funding requests in the Funding Plan align with available support. Specific questions about eligibility should be directed to the relevant point of contact listed at the bottom of each organizational Annex. We encourage the creation of a gender and geographically-balanced Research Consortium that provides opportunities for early career researchers to participate.

Please be aware that certain funding agencies participating in this Research Call have adopted policies that may not allow funding for individuals if there is a person, public or private institution, company, or association from Russia or Belarus in the respective consortium. Consortia may be deemed ineligible for this reason.

Evaluation Criteria:

The proposals will be reviewed under the following selection criteria:

1. **Quality/Intellectual Merit**

- What is the quality of the science proposed? How innovative are the team's project goals and objectives?
 - How well does the activity advance knowledge and understanding within its own field and across different fields?
 - To what extent does the proposed activity suggest and explore creative, original, and innovative concepts?

2. **Fit to call objectives (including user engagement & societal or broader impacts)**

- Addressing at least one of the call topics
- Engagement of research users/societal actors (relevant policy makers, regulators, NGOs, communities, local and Indigenous people organizations, or industry) and effectiveness of proposed knowledge exchange activities
- Expected impacts: e.g. societal, policy related, economical
 - What may be the benefits of the proposed activity to society (e.g. policy development, economies)?
 - How have users/societal actors been engaged and how effective are the proposed mechanisms for knowledge transfer to decision makers?
 - Does the research collaboration focus on global challenges for which solutions can only be achieved by global scientific approaches?

3. **Personnel/Quality of the Consortium**

- Competence and expertise of teams and complementarities of consortium members?
 - How well qualified are the proposers (Consortium Lead and team) in terms of science knowledge, expertise and experience to conduct the project?
 - What is the quality of previous work in terms of past or potential contributions to, and impact on the proposed and other areas of research?
 - Is the Consortium Lead team (including any identified Co-Principal Investigators) able to lead the project, e.g. having strong management and leadership skills, or having complementarity of expertise and synergy of the members of the team?
- The Belmont Forum aims to increase the accessibility of research opportunities, especially to marginalized communities. In this spirit, please assess the diversity of the Consortium team considering the multiple factors including: geography, gender, ethnicity and nationality, training or background as well as the inclusion of Indigenous peoples and local knowledge holders.
- What is the added value of international cooperation? When appropriate please discuss the extent to which Partner Organizations' existing investments are leveraged in the proposed project
 - If these partnerships currently exist what does this new funding allow them to do that they could not do otherwise?

4. Co-Production and Societal Relevance

- Are there transdisciplinary approaches embedded and throughout the planned project lifecycle? (co-construction, co-identify, co-develop)
- Were societal parties/stakeholders involved in the initial framing and development of the proposal?
- Do the proposed project outcomes exhibit genuine (on-the-ground) societal relevance/impact?
- Are provisions made so that all partners (including stakeholders/society) will share equitably in on-the-ground impacts/benefits as a result of this project?

5. Resources and Management

- Appropriateness of resources and funding requested
- Balanced cooperation
- How well conceived and organized is the proposed activity?
- Is there an operational plan with well-defined milestones in place?
- Is the coordination plan adequate?
- Is there sufficient access to resources?
- Are the requested investments well justified and relevant?

- Are the scientific and financial contributions requested of the Partner Organizations from each country well balanced?

6. DDOMP

- Does the DDOMP conform to the [Belmont Forum Open Data Policy](#) and [FAIR principles](#)?
- Does the DDOMP consider [CARE](#) principles?
- Is the DDOMP appropriately detailed and resourced to be able to be taken forward effectively?

How to apply:

- All call documents, including guidelines for applicants and national/regional requirements, and the submission portal can be found at the Belmont Forum Grant Operations website: <http://bfgo.org>.
- Details of the call and the application process are presented on the Belmont Forum web site: <http://www.belmontforum.org>, where you can also find links to training modules for proposers on the Belmont Forum YouTube channel.
- Before starting to prepare proposals, applicants are advised to contact their Institutional Contact Points as listed in the annex documents for the call.

Call Timeline:

This call has a two-stage submission process. Deadlines for submission are:

- Registration (mandatory for full proposal submission) is due on **31 August 2024, 20:00 UTC** and must be submitted online.
- Capacity-building activities and Collaborative Networking activities will begin in **April** and continue to **31 December 2024**. These activities and projects are **voluntary** and are designed to enhance each consortia's proposal.
- Full proposals to be submitted online by **31 December 2024**
- All proposals may be written in English, French, Spanish, or Portuguese.

Submissions should clearly describe how the proposed project will address the Call Themes and accomplish the chosen Topics. Successful proposals will include well-justified budgets, partitioning of funds, and allocation of responsibilities and time. Projects should have well-thought-out and detailed data management, project stakeholder engagement, and communication management plans. Plans for providing broad public accessibility of data, results, and findings should be described. **Successful**

projects are expected to participate in coordinated activities throughout the lifespan of the project including Kick-Off, Mid-Term, and End-Term activities.

About Belmont Forum

Established in 2009, the Belmont Forum is a partnership of funding organizations, international science councils, and regional consortia committed to the advancement of transdisciplinary science. Forum operations are guided by the [Belmont Challenge](#), a vision document that encourages: *International transdisciplinary research providing knowledge for understanding, mitigating and adapting to global environmental change.*

Forum members and partner organizations work collaboratively to meet this Challenge by issuing international calls for proposals, committing to best practices for open data access, and providing transdisciplinary training. To that end, the Belmont Forum is also working to enhance the broader capacity to conduct transnational environmental change research through its [e-Infrastructure and Data Management initiative](#).

Since its establishment, the Forum has successfully led 21 calls for proposals, supporting more than 1,000 scientists and stakeholders, representing over 90 countries. Themes addressed by CRAs have included Freshwater Security, Coastal Vulnerability, Food Security and Land Use Change, Climate Predictability and Inter-Regional Linkages, Biodiversity and Ecosystem Services, Arctic Observing and Science for Sustainability, and Mountains as Sentinels of Change. New themes are developed through a scoping process and made available for proposals through the Belmont Forum website and its [BF Grant Operations site](#).

About National Research Foundation, South Africa

The NRF is an independent statutory body established through the [National Research Foundation Act \(Act No 23 of 1998\)](#), following a system-wide review conducted for the Department of Arts, Culture, Science and Technology (DACST). The new entity incorporated the functions of the research funding agencies that were previously servicing various sections of the research community, namely the former Centre for Science Development (CSD) of the Human Sciences Research Council (HSRC) and the former Foundation for Research Development (FRD) that included several National Research Facilities.

As a government mandated research and science development agency the NRF funds research, the development of high-end Human Capacity and critical research infrastructure to promote knowledge production across all disciplinary fields. The goal

of the NRF is to create innovative funding instruments, advance research career development, increase public science engagement and to establish leading-edge research platforms that will transform the scientific landscape and inspire a representative research community to aspire to global competitiveness. The NRF promotes South African research and innovation interests across the country and internationally, and together with research institutions, business, industry and international partners we build bridges between research communities for mutual benefit that contributes to National Development.