Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: http://unfccc.int/ttclear/support/national-designated-entity.html
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Malawi
Request title:	*Please reflect the objective of the technical assistance in the title (maximum 200 characters).* ***Community-Based AI-Powered Climate Resilience, Renewable Energy-Water Systems, and Inclusive Green Economic Transformation for Vulnerable Communities in Malawi (ClimateWISE Malawi)***
NDE	Mr. Lyson John Kampira National Commission for Science and Technology, Private Bag B 303, Lilongwe 3, Malawi
Request Applicant:	*Please add name of organisation, contact person, position, email and address of the organisation requesting assistance from the CTCN.* **Lead Institution** Mzuzu University (MZUNI) Private Bag 201 Luwinga Mzuzu 2 Malawi **Technical Lead and Contact Person** Assoc. Prof. Elijah Wanda, PhD Environmental and Social Safeguards Coordinator (ACENUB) and Deputy Dean, Faculty of Science, Technology and Innovation (MZUNI) Email: wanda.e@mzuni.ac.mw or elijahwanda@gmail.com Telephone: +265 996 723 268

Climate objective:

☒ Adaptation to climate change

☒ Mitigation of climate change

☒ Combination of adaptation and mitigation of climate change

Geographical scope:

☒ Community level

☒ Sub-national

☒ National

☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

The proposed technical assistance will focus on highly climate-vulnerable districts and communities across Malawi that are severely affected by floods, cyclones, droughts, water stress, declining agricultural productivity, ecosystem degradation, food insecurity, and energy poverty. These prioritized districts that have experienced repeated climate-related disasters and where vulnerable populations, particularly women, youth, smallholder farmers, and rural communities, face heightened socioeconomic and environmental risks. In the Southern Region of Malawi, the project will prioritize flood- and cyclone-prone districts such as Nsanje, Chikwawa, Phalombe, Mulanje, Zomba, Machinga, Balaka, Mangochi, Thyolo, and Blantyre Rural. These districts have repeatedly experienced devastating impacts from Cyclones Idai, Ana, and Freddy, including severe flooding, destruction of infrastructure, displacement of communities, loss of agricultural productivity, water insecurity, and livelihood disruptions. The Lower Shire Valley districts of Nsanje and Chikwawa remain among the most disaster-prone areas in Malawi due to recurrent flooding associated with the Shire River system. Districts such as Phalombe and Mulanje are highly vulnerable to landslides, soil erosion, and storm-related disasters, while Mangochi and Balaka face increasing drought frequency, declining fisheries productivity, and water stress linked to climate variability.

In the Northern Region, the initiative will target drought-prone and climate-sensitive districts including Karonga, Rumphi, Mzimba, Nkhatabay, and Chitipa. These districts are increasingly experiencing erratic rainfall patterns, prolonged dry spells, ecosystem degradation, declining agricultural productivity, deforestation, and limited access to renewable energy infrastructure. Karonga is vulnerable to both flooding and droughts due to changing climatic conditions around the Lake Malawi basin, while Rumphi and Mzimba continue to experience worsening food insecurity and land degradation associated with climate variability. Nkhatabay and Chitipa also face increasing challenges related to water scarcity, energy poverty, and climate-sensitive livelihoods dependent on fisheries and subsistence agriculture. Selected climate-sensitive agricultural zones in the Central Region, including Salima, Kasungu, Dedza, Ntcheu, and Nkhotakota, will also be incorporated into the technical assistance framework. These districts are increasingly affected by droughts, erratic rainfall, declining soil fertility, deforestation, and climate-related agricultural instability that threaten food security and rural livelihoods.

The initiative will specifically prioritize vulnerable women and youth-dominated livelihood systems,

including women-led households, unemployed youth, informal rural enterprises, smallholder farming communities, and climate-displaced populations with limited access to climate technologies, renewable energy services, climate finance, and digital climate information systems. Through the establishment of ClimateWISE innovation hubs and community resilience platforms, the project aims to strengthen local adaptive capacity while promoting inclusive green entrepreneurship, climate-smart livelihoods, renewable energy access, and digital climate innovation.

Although initially focused on Malawi, the ClimateWISE model is intentionally designed as a scalable and replicable climate technology and resilience framework for Southern Africa and wider Sub-Saharan Africa. The integrated AI-powered climate intelligence systems, renewable water-energy-food nexus approach, and community-centered green innovation model can be adapted and replicated in other climate-vulnerable countries such as Mozambique, Zambia, Zimbabwe, Tanzania, and Kenya, where similar climate risks, food insecurity challenges, and adaptation needs exist.

Problem statement related to climate change (up to one page):

This section should answer the question "what is the problem?" Please summarise the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.

Malawi is among the most climate-vulnerable countries in the world and continues to experience severe climate-related shocks that threaten national development, food security, infrastructure, ecosystems, and livelihoods. Largely, vulnerability is due to a lack of a comprehensive climate adaptive capacity. According to the Notre Dame Global Adaptation Initiative (ND-GAIN), Malawi ranks among the countries with the highest vulnerability and lowest readiness to adapt to climate change due to widespread poverty, heavy dependence on rain-fed agriculture, weak infrastructure, and limited adaptive capacity (ND-GAIN, 2023). Climate change is intensifying floods, droughts, cyclones, erratic rainfall, prolonged dry spells, heat stress, land degradation, and water insecurity across the country.

Recent climate-induced disasters, including Cyclone Idai (2019), Cyclone Ana (2022), and Cyclone Freddy (2023), caused widespread destruction of agricultural systems, transport infrastructure, water supply systems, schools, health facilities, energy infrastructure, and livelihoods. Cyclone Freddy alone affected more than 2.2 million people and displaced over 650,000 individuals in Malawi (Government of Malawi & UNDP, 2023). Flood-prone districts such as Nsanje, Chikwawa, Phalombe, Mulanje, and Zomba continue to experience recurring floods and storm-related disasters, while drought-prone districts in the Northern and Central Regions increasingly face prolonged dry spells, declining agricultural productivity, water scarcity, and food insecurity.

Malawi's vulnerability is worsened by its heavy reliance on rain-fed agriculture, which contributes approximately 22–30% of the national Gross Domestic Product (GDP) and supports nearly 80% of the population, particularly rural communities (World Bank, 2022). Climate variability has significantly reduced crop yields, weakened food systems, and increased poverty. According to the World Food Programme (WFP), over 5.7 million Malawians face food insecurity annually due to climate shocks and economic vulnerability (WFP, 2023). Water insecurity and ecosystem degradation are also increasing due to erratic rainfall, watershed degradation, and inadequate climate-resilient water infrastructure. In addition, our overreliance on the Shire River for electricity generation through hydropower, makes the power supply system extremely vulnerable to these climate related shocks.

The impacts of climate change disproportionately affect women, youth, smallholder farmers, and marginalized rural populations who have limited adaptive capacity and fewer economic opportunities. Women face barriers related to access to climate finance, renewable energy technologies, land ownership, and climate information services, while youth face high unemployment and limited participation in climate technology and green enterprise sectors. Climate-related disasters further increase vulnerability through displacement, livelihood losses, and reduced access to education and income-generating opportunities.

Although Malawi has made progress through the Nationally Determined Contributions (NDCs), National Adaptation Plan (NAP), Malawi Vision 2063, energy policy and renewable energy strategies, and disaster risk reduction frameworks, major technological and institutional gaps remain. Existing adaptation interventions are fragmented and insufficiently integrated across climate information systems, renewable energy deployment, water management, disaster preparedness, livelihood resilience, and digital innovation systems. Many vulnerable communities still lack access to localized climate-risk forecasting, digital early warning systems, renewable productive-use energy technologies, and climate-smart livelihood support.

In addition, electricity access remains low at 25.9% of the population (11.3% through grip power and 14.6% through off-grid solutions), particularly in rural areas where grid electricity access is at 3.8% (National Energy Compact for Malawi 2025). Access to clean cook fuels is extremely low at 2% of the population putting extreme pressure on disappearing forests due to overreliance on firewood and charcoal (GoM 2004). Weak climate technology transfer systems, limited digital infrastructure, and inadequate local technical capacity continue to constrain deployment and scaling of climate technologies. Climate innovation ecosystems remain underdeveloped, particularly for women and youth who face limited access to finance, digital skills, entrepreneurship support, and green economic opportunities. Without urgent investment in integrated climate technologies and inclusive green transformation systems, Malawi risks worsening climate vulnerability, deepening poverty, increasing food insecurity, and weakening adaptive capacity among vulnerable populations. The ClimateWISE Malawi initiative directly addresses these challenges through four integrated pillars: AI-powered climate intelligence systems that deliver actionable forecasts to vulnerable communities; renewable water-energy-food nexus technologies that reduce resource insecurity at the household and smallholder level; digital resilience infrastructure that strengthens early warning and adaptive capacity; and inclusive green entrepreneurship pathways that generate sustainable livelihoods while accelerating the low-carbon transition. Together, these pillars form a coherent, scalable framework for building long-term climate resilience across Malawi's most exposed communities

Past and on-going efforts to address the problem (up to half a page):

This section should answer the question "what has been done or is currently being done to address the problem?" Please describe past and on-going processes, projects or initiatives implemented in the country or region to tackle the climate problem as described above.

The Government of Malawi, in collaboration with development partners, civil society organizations, universities, research institutions, and international agencies, has implemented several policy, institutional, and community-level interventions to strengthen climate resilience, disaster preparedness, renewable energy access, and sustainable natural resource management. Malawi has developed key national climate policy frameworks including the Nationally Determined Contributions (NDCs), National Adaptation Plan (NAP), Malawi Vision 2063, National Resilience Strategy, Renewable Energy Strategy, and Disaster Risk Reduction (DRR) frameworks, which collectively aim to enhance climate adaptation, low-carbon development, food security, and sustainable livelihoods (Government

of Malawi, 2021).

Several climate-smart agriculture initiatives have been implemented to improve agricultural resilience through conservation agriculture, irrigation development, drought-tolerant crops varieties, watershed restoration, and sustainable land management. Programmes supported by the Government of Malawi, the Food and Agriculture Organization (FAO), the World Bank, and other partners have promoted irrigation schemes, afforestation, ecosystem restoration, and climate-resilient agricultural practices in vulnerable districts affected by droughts and floods, such as Salima and Phalombe districts. In addition, renewable energy access interventions, including solar electrification and decentralized energy projects, have been introduced to improve rural energy access and reduce dependence on biomass energy sources (World Bank, 2022). Development partners such as UNDP, UNEP, WFP, GIZ, USAID, the African Development Bank, and various NGOs have also supported flood early warning systems, disaster preparedness programmes, resilience-building interventions, community adaptation initiatives, and post-disaster recovery programmes following major climate disasters such as Cyclones Idai, Ana, and Freddy. Universities and research institutions have contributed through climate research, environmental monitoring, renewable energy innovation, and community outreach programmes aimed at strengthening local adaptive capacity and sustainable resource management.

Despite these efforts, several critical gaps persist. Existing climate adaptation interventions remain fragmented and insufficiently integrated across climate information systems, renewable energy deployment, water management, livelihood resilience, and digital innovation systems. Many vulnerable communities still lack access to localized climate-risk forecasting, low-cost climate-resilient infrastructure or facilities for water, sanitation, and hygiene, digital early warning systems, renewable productive-use energy technologies, and climate-smart livelihood support. In addition, Malawi continues to face weak climate technology transfer systems, inadequate digital climate resilience infrastructure, and limited climate innovation ecosystems, particularly for women and youth who have limited access to finance, technical skills, entrepreneurship support, and climate technology opportunities. The proposed CTCN technical assistance will complement and strengthen existing national and regional efforts by introducing next-generation climate technologies, including AI-powered climate intelligence systems, renewable water-energy-food nexus solutions, and inclusive climate innovation ecosystems that strengthen localized climate resilience, digital adaptation capacity, and green economic transformation.

Specific technology[1] barriers (up to one page):

This section should answer the questions "what are the technology barriers that hinder national efforts described above" and "how will the CTCN technical assistance complement these efforts?" Building upon the problem statement and taking into consideration the existing efforts described above, please describe the specific technology barriers encountered by the requesting applicant to identify, assess or deploy climate technology(ies) in an effort to address the problem statement. The described barriers should be within the scope of the requested CTCN technical assistance (described in the section below).

Despite ongoing national and international efforts to strengthen climate resilience in Malawi, major technology barriers continue to limit the country's ability to effectively anticipate, respond to, and recover from climate-related shocks. These barriers constrain the identification, deployment, scaling up, and sustainability of climate technologies needed to support adaptation, disaster preparedness, renewable energy access, water security, and climate-resilient livelihoods, particularly among vulnerable rural communities. One of the major barriers is the limited availability and accessibility of

[1] *"**any equipment, techniques, practical knowledge and skills** needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)*

localized climate intelligence systems. Many vulnerable communities lack access to real-time climate-risk information, localized weather forecasting, flood-risk mapping, drought prediction systems, and digital early warning dissemination platforms. Existing climate information systems remain centralized, fragmented, and often inaccessible to rural communities most affected by floods, droughts, and cyclones. In Malawi, only 10% of the people have laptop computers, making phones the most widely used digital device. However, only 66% of the adult population owns phones, and 25% have phones that can access the internet. It is even worse in rural areas, with only 30% of the adult population owning phones. Limited digitalization of climate services further weakens coordination among government institutions, local authorities, meteorological agencies, and community structures, reducing the effectiveness of climate-risk communication and preparedness systems.

Another significant challenge is the low deployment of decentralized productive-use of renewable energy systems and climate-resilient infrastructure. Many rural communities lack access to solar-powered irrigation systems, renewable mini-grids, smart water technologies, and climate-smart agricultural systems necessary for strengthening food security, water access, and sustainable livelihoods. Low electricity access, particularly in rural areas, continues to constrain climate adaptation, irrigation development, food processing, and enterprise development. Malawi also faces weak climate technology transfer systems and limited local technical capacity. Many local institutions and communities lack expertise in climate data analysis, AI-powered climate intelligence systems, renewable energy systems management, digital climate tools, and climate technology maintenance. This limits the long-term sustainability and scalability of climate adaptation interventions. In addition, climate innovation ecosystems remain underdeveloped, particularly for women and youth who face limited access to climate innovation support, green entrepreneurship incubation, digital skills, climate finance, and market opportunities.

Institutional coordination challenges also hinder effective climate action. Climate adaptation initiatives are often fragmented across ministries, local governments, research institutions, NGOs, and development partners, resulting in weak integration across sectors such as agriculture, water, energy, disaster risk reduction, and digital innovation. Furthermore, many local institutions lack climate investment readiness frameworks and scalable climate technology models required to mobilize climate finance and support large-scale deployment of climate technologies.

The proposed CTCN technical assistance will complement existing national efforts by introducing AI-powered climate intelligence systems, digital early warning platforms, renewable energy-water-food nexus technologies, and inclusive climate innovation ecosystems. The technical assistance will strengthen localized climate-risk forecasting, improve digital climate resilience infrastructure, enhance climate technology transfer and technical capacity, and support women- and youth-centered climate innovation and green entrepreneurship systems. In addition, the initiative will strengthen institutional coordination and climate investment readiness to support long-term sustainability and scalability of climate resilience interventions in Malawi.

Contribution to Programme of Work 2023-2027:

As per 3rd Programme of Work of the CTCN[2], please indicate the system transformation area related to the request:

System transformation areas

[2] https://www.ctc-n.org/resources/ctcn-third-programme-work-2023-2027

☒ Water-Energy-Food Nexus ☐ Sustainable Mobility ☒ Energy Systems ☒ Buildings and Infrastructure

☒ Business and Industry

Please indicate if this request is contributing to one of the key enablers:

Key enablers

☒ National Systems of Innovation ☒ Digitalization

Sectors:

Please indicate the main sectors related to the request:

☐ Coastal zones ☒ Early Warning and Environmental Assessment ☐ Human Health ☒ Infrastructure and Urban planning

☐ Marine and Fisheries ☒ Water ☒ Agriculture ☐ Carbon fixation

☒ Energy Efficiency ☐ Forestry ☐ Industry ☒ Renewable energy

☐ Transport ☒ Waste management

Please add other relevant sectors:

Additional Relevant Sectors

- Digital climate innovation
- Climate technology transfer
- Green enterprise development
- Community resilience systems
- Disaster preparedness systems

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☒ Communication and awareness ☒ Economics and financial decision-making ☒ Governance and planning ☒ Community based

☒ Disaster risk reduction	☒ Ecosystems and biodiversity	☒ Gender	☒ Youth
☒ Private sector engagement	☒ Research		

Technical assistance requested (up to one page):

Founded on the problem statement, past/on-going efforts and technology barriers, please describe the requested technical assistance. The technical assistance should clearly contribute to mitigation or adaptation to climate change as described in the problem statement and contribute to overcome the specific technology barriers.

Within a clearly defined scope, the description of technical assistance should be structured into the following:

- *Overall objective*
- *Anticipated groups of activities to be performed by the technical assistance*
- *Anticipated products to be delivered by the technical assistance.*

Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.

The proposed technical assistance seeks to strengthen climate resilience, adaptive capacity, renewable water-energy systems, and inclusive green economic transformation among vulnerable communities in Malawi through the deployment of AI-powered climate technologies and community-based climate innovation systems. Building on existing national climate policies, adaptation initiatives, and identified technology gaps, the technical assistance will support Malawi in addressing critical barriers related to weak localized climate intelligence systems, limited renewable productive-use energy technologies, inadequate climate technology transfer capacity, weak digital climate infrastructure, and limited climate innovation opportunities for women and youth.

The overall objective of the technical assistance is to enhance community climate resilience and sustainable livelihoods through integrated AI-powered climate-risk systems, decentralized renewable water-energy-food nexus technologies, and inclusive green entrepreneurship and climate innovation ecosystems. The technical assistance will contribute directly to both climate adaptation and mitigation by strengthening climate-risk preparedness, improving water and food security, promoting renewable energy access, supporting climate-smart livelihoods, and enhancing local capacity for climate technology deployment and innovation.

The technical assistance will support the development and deployment of localized AI-supported climate intelligence systems capable of improving climate-risk forecasting, early warning dissemination, and disaster preparedness in vulnerable districts. This will include the establishment of mobile and SMS-based climate early warning systems, GIS and satellite-supported climate monitoring tools, and community climate information platforms to improve access to real-time climate-risk information among vulnerable communities. The initiative will also strengthen technical and institutional capacity for climate data management, climate-risk communication, and community preparedness planning. In addition, the technical assistance will support the assessment and design of decentralized productive-use of renewable energy and climate-smart water systems to strengthen the water-energy-food nexus in climate-vulnerable communities. This will include technical support for solar-powered irrigation systems, smart water management models, renewable energy applications for productive livelihoods, and climate-smart agricultural systems aimed at improving food security, water access, and climate adaptation. Capacity-building activities will also be conducted to strengthen local technical expertise in

the operation, maintenance, and management of renewable energy and climate-resilient infrastructure systems.

The technical assistance will further support the establishment of ClimateWISE innovation hubs and climate entrepreneurship platforms targeting women and youth. These innovation ecosystems will promote digital climate skills, green entrepreneurship, climate technology incubation, and support for climate-tech startups and small enterprises. The initiative will strengthen participation of women and youth in climate innovation and green economic opportunities while supporting inclusive livelihood transformation and job creation. Furthermore, the technical assistance will strengthen climate technology transfer systems and institutional coordination through stakeholder engagement, institutional strengthening workshops, and multi-sectoral collaboration among government institutions, universities, research institutions, communities, civil society organizations, and private sector actors. The initiative will also support the development of climate technology transfer frameworks, climate investment readiness approaches, and scalable models for long-term climate resilience and sustainable development.
The anticipated products of the technical assistance include an AI-powered climate-risk intelligence platform, community climate information and early warning systems, renewable water-energy system implementation frameworks, ClimateWISE innovation hub models, climate technology transfer roadmaps, capacity-building toolkits and technical training manuals, and policy and investment recommendations to support scaling and sustainability of climate resilience interventions in Malawi. The technical assistance will therefore complement existing national and regional climate initiatives by introducing next-generation climate technologies and strengthening Malawi's long-term climate resilience, digital adaptation capacity, and inclusive green transformation.

Expected timeframe:

Please indicate the expected duration period for the requested technical assistance. Please note CTCN technical assistance usually has a maximum duration of 12 months.

The proposed technical assistance is expected to be implemented within a period of 12 months, in line with the standard implementation timeframe for CTCN technical assistance projects. The implementation period will allow sufficient time for stakeholder consultations, technical assessments, design and development of climate technology systems, institutional capacity strengthening, community engagement, pilot testing, and development of sustainability and scale-up frameworks. The first phase of implementation will focus on inception activities, stakeholder coordination, baseline assessments, and identification of priority climate technology needs in targeted districts. This will be followed by the development and deployment of AI-powered climate intelligence systems, climate-risk information platforms, renewable water-energy system designs, and community-based climate innovation activities. Capacity-building programmes, technical training workshops, and institutional strengthening activities will be conducted throughout the implementation period to ensure local ownership, sustainability, and knowledge transfer. The final phase of the technical assistance will focus on validation of technical outputs, policy and investment recommendations, development of climate technology transfer roadmaps, dissemination of lessons learned, and preparation of scale-up and investment readiness strategies for future implementation and resource mobilization. The proposed 12-month timeframe is considered adequate to deliver the anticipated technical outputs while establishing a strong foundation for long-term climate resilience and inclusive green transformation in Malawi.

Anticipated gender and other co-benefits from the technical assistance:

Please describe the activities with gender linkages as well as the anticipated gender and other co-

benefits (e.g. biodiversity, economic, social, cultural, etc.) that are likely to be generated as a result of the technical assistance.

For more information you can find guidelines on the CTCN's website here:
https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development

Further reading on gender can be found on the CTCN website here:
https://www.ctc-n.org/technology-sectors/gender

The proposed technical assistance will adopt a gender-responsive and socially inclusive implementation approach that mainstreams gender equality, youth empowerment, and community participation across all project activities. Women, youth, and other vulnerable groups are among the populations most disproportionately affected by climate change in Malawi due to limited access to climate information, renewable energy technologies, finance, productive resources, digital skills, and economic opportunities. The technical assistance will therefore prioritize inclusive participation and equitable access to climate technologies, climate information services, green entrepreneurship opportunities, and capacity-building programmes. The technical implementation team will deliberately include female experts, alongside beneficiaries and other vulnerable groups, with a particular focus on ensuring women's meaningful participation.

At least 60% of the direct beneficiaries of the technical assistance will be women and youth, with particular emphasis placed on child headed households, women-led households, unemployed youth, smallholder farmers, informal rural enterprises, and climate-vulnerable communities. Through the establishment of ClimateWISE innovation hubs, digital climate training programmes, and climate entrepreneurship support systems, the initiative will strengthen women's and youth participation in climate technology innovation, renewable energy systems, climate-smart agriculture, and green enterprise development. Capacity-building activities will enhance digital literacy, technical skills, climate entrepreneurship, leadership, and access to climate innovation opportunities, thereby contributing to improved livelihoods, employment creation, and inclusive green economic transformation.

The technical assistance is also expected to generate significant social, economic, environmental, and biodiversity co-benefits. Improved access to AI-powered climate intelligence systems and early warning platforms will strengthen community preparedness and reduce vulnerability to floods, droughts, cyclones, and other climate-related disasters. Renewable water-energy-food nexus technologies, including solar-powered irrigation and climate-smart water systems, will contribute to improved food security, water access, agricultural productivity, and sustainable livelihoods while reducing dependence on unsustainable natural resource use and biomass energy sources. Environmental and biodiversity co-benefits will include support for ecosystem-sensitive adaptation planning, sustainable land and water management, and reduced environmental degradation through increased use of renewable energy technologies and climate-smart practices. The initiative will also contribute to reduced greenhouse gas emissions by promoting decentralized clean energy systems and climate-resilient productive-use energy technologies.

In addition, the technical assistance will strengthen local innovation ecosystems, institutional collaboration, social inclusion, and community resilience through participatory approaches that integrate local knowledge, community ownership, and inclusive governance systems. By empowering women and youth as key drivers of climate resilience and green transformation, the initiative will contribute to long-term social equity, economic inclusion, and sustainable climate adaptation in Malawi.

Anticipated scale-up opportunities:

Please describe potential scale-up opportunities at national and/or international level or other resource mobilization plans.

The proposed ClimateWISE Malawi initiative is intentionally designed as a scalable and replicable climate technology and resilience model with strong potential for expansion at national, regional, and international levels. The integrated approach combining AI-powered climate intelligence systems, renewable water-energy-food nexus technologies, digital climate resilience infrastructure, and inclusive green entrepreneurship provides a flexible framework that can be adapted to different climate-vulnerable contexts across Malawi and Sub-Saharan Africa. At the national level, the technical assistance is expected to provide a foundation for replication and expansion into additional climate-vulnerable districts beyond the initial target areas. The development of localized climate intelligence systems, community-based innovation hubs, renewable productive-use energy models, and climate-smart water systems will generate practical implementation lessons, technical frameworks, and institutional models that can be integrated into Malawi's broader climate adaptation, disaster risk reduction, renewable energy, and rural development programmes. The initiative also has strong potential to support implementation of Malawi's Nationally Determined Contributions (NDCs), National Adaptation Plan (NAP), Malawi Vision 2063, MIP-1 and national resilience strategies through scalable climate technology deployment and strengthened local adaptive capacity. The initiative is further aligned with the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 17 (Partnerships for the Goals), as well as key United Nations frameworks including the Paris Agreement on Climate Change and the Sendai Framework for Disaster Risk Reduction, thereby positioning ClimateWISE Malawi as a strategically aligned intervention that directly contributes to global climate resilience, sustainable development, and inclusive green transformation priorities.

At the regional level, the ClimateWISE model can be adapted and replicated across other climate-vulnerable countries in Southern Africa and the wider Sub-Saharan African region facing similar challenges related to floods, droughts, food insecurity, water stress, energy poverty, and limited climate technology access. Countries such as Mozambique, Zambia, Zimbabwe, Tanzania, and Kenya could benefit from the integrated AI-enabled climate resilience and renewable energy model developed through the technical assistance. The initiative therefore has the potential to position Malawi as a regional hub for community-based climate technology innovation, digital adaptation systems, and inclusive green transformation.

The technical assistance will also strengthen climate investment readiness and resource mobilization opportunities by developing scalable climate technology frameworks, policy recommendations, and implementation models capable of attracting additional climate finance and development investment. Potential scale-up financing opportunities include future support from the Green Climate Fund (GCF), Adaptation Fund, Global Environment Facility (GEF), multilateral development banks, bilateral development agencies, philanthropic organizations, and private sector climate investors. The initiative will also promote partnerships with universities, research institutions, development partners, technology providers, financial institutions, and private sector actors to support long-term sustainability and scaling of climate technologies and green enterprise ecosystems. In addition, the initiative is expected to stimulate expansion into climate-smart agriculture, renewable energy value chains, digital climate services, green entrepreneurship ecosystems, and climate innovation markets that support long-term economic resilience, employment creation, and sustainable development. By strengthening local technical capacity, institutional coordination, and inclusive innovation systems, the proposed technical assistance will create a strong foundation for future climate technology investments and large-scale climate resilience programming in Malawi and beyond.

Key stakeholders:
Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity (NDE) - National Commission for Science and Technology	Strategic oversight and coordination
Mzuzu University - Request Applicant	Technical leadership and implementation
Department of Climate Change and Meteorological Services	Climate data and forecasting support
Ministry of Energy and Mining	Renewable energy coordination
Ministry of Agriculture, Irrigation and Water Development	Climate-smart agriculture integration
Local Governments	Community mobilization
Women and Youth Organizations	Inclusion and enterprise support
Community-Based Organizations	Local implementation
Private Sector	Technology deployment and investment
Development Partners	Technical and financial support

Alignment with national priorities (up to 2000 characters including spaces):

Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.

The proposed technical assistance is aligned with Malawi's national climate and development priorities and supports implementation of key national policies and strategies. The initiative contributes directly to Malawi's Updated Nationally Determined Contributions (NDCs) by strengthening climate adaptation in agriculture, water management, disaster risk reduction, renewable energy, climate information services, and resilience-building for vulnerable communities. It also supports mitigation through promotion of decentralized renewable energy systems, solar-powered productive-use technologies, and low-carbon development pathways. Malawi's revised NDC targets up to 51% greenhouse gas emission reduction by 2040 compared to business-as-usual scenarios.

The technical assistance is also aligned with Malawi Vision 2063, which prioritizes agricultural productivity, industrialization, digital transformation, environmental sustainability, and youth empowerment. Through AI-powered climate intelligence systems, renewable water-energy-food nexus technologies, and climate innovation ecosystems, the initiative supports climate-smart infrastructure, resilient livelihoods, and digital innovation. The project further supports the National Adaptation Plan (NAP), National Climate Change Management Policy, National Resilience Strategy, Renewable Energy Strategy, and Disaster Risk Reduction frameworks by strengthening climate-risk forecasting, early warning systems, climate technology transfer, renewable energy access,

institutional coordination, and community resilience systems in climate-vulnerable districts.

In addition, the initiative aligns with Malawi's National Youth Policy and National Gender Policy by promoting women's empowerment, youth participation, digital skills development, climate entrepreneurship, and inclusive access to climate technologies and green economic opportunities. The project complements ongoing national efforts on climate-smart agriculture, renewable energy expansion, food security, and sustainable development while addressing critical gaps in digital climate infrastructure, localized climate intelligence systems, and climate innovation ecosystems.

Reference document (please include date of document)	**Extract** (please include chapter, page number, etc.).
Malawi First Updated Nationally Determined Contribution (NDC), 2021	Chapter 4: Adaptation Priorities and Needs; Sections on Agriculture, Water, Disaster Risk Reduction, Energy, and Cross-cutting Areas including technology transfer and capacity building (pp. 23–39). The NDC prioritizes climate-resilient agriculture, early warning systems, renewable energy, resilience-building, and low-carbon development.
Malawi Vision 2063,	Chapter 3: Pillars of MW2063 — Agricultural Productivity and Commercialization, Industrialization, and Urbanization (pp. 24–38); Chapter 4: Enablers including Environmental Sustainability, Human Capital Development, and Economic Infrastructure (pp. 39–49).
Malawi National Adaptation Plan (NAP) Framework, 2020	Sections on climate-resilient agriculture, disaster preparedness, climate information services, water management, and localized adaptation planning (pp. 18–31). The framework emphasizes strengthening adaptive capacity and resilience in vulnerable communities.
2018 National Energy Policy, 2018	Chapter 1: Recognises expanding energy access across all segments of the population—especially in rural areas—and promoting the use of Decentralized Renewable Energy (DRE) solutions and clean cooking technologies. (Page 13)
Malawi Renewable Energy Strategy 2017	Chapter 5: Renewable Energy Technologies and Priority Areas (pp. 42–58). The strategy promotes decentralized renewable energy systems, mini-grids, off-grid solar technologies, and sustainable energy access for rural communities. Chapter 6: On cross-cutting issues, gender in renewable energy is promoted.
National Climate Change Management Policy, 2016	Chapter 6: Policy Priority Areas and Strategies (pp. 17–32). The policy prioritizes climate adaptation, mitigation, technology transfer, renewable energy, institutional coordination, and resilience-building.
National Resilience Strategy (NRS) 2018–2030, 2018	Pillar 1 and Pillar 2: Resilient Agricultural Growth and Risk Reduction, Flood Management, and Disaster Preparedness (pp. 15–29). Focuses on strengthening resilience to climate and economic shocks.
Malawi National Youth Policy 2023–2028, 2023	Chapter 4: Youth Economic Empowerment, Entrepreneurship, Innovation, and Skills Development (pp. 20–33). Promotes youth participation in innovation, digital skills, enterprise development, and sustainable livelihoods.

Malawi National Gender Policy, 2015	Chapter 5: Gender Mainstreaming and Women's Economic Empowerment (pp. 18–27). Supports women's participation in development, access to productive resources, leadership, technology, and inclusive economic opportunities.

Development of the request (up to 2000 characters including spaces):

Please describe how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles?) and describe any consultations or other meetings that took place to develop and select this request, etc.

The proposed request was developed through a participatory and consultative process involving Mzuzu University researchers, climate experts, local authorities, community representatives, women and youth organizations, civil society actors, and relevant government institutions working in climate adaptation, disaster risk reduction, renewable energy, agriculture, and environmental management. The process was informed by climate vulnerability assessments, stakeholder consultations, and reviews of national climate policies, resilience strategies, and technology gaps affecting vulnerable communities in Malawi. The initiative was conceptualized in response to increasing climate-related disasters, including floods, cyclones, droughts, and food insecurity affecting several districts in Malawi. Stakeholder consultations highlighted the urgent need for integrated climate technology solutions to strengthen localized climate-risk forecasting, renewable energy access, water management, climate-smart livelihoods, and inclusive green economic opportunities for women and youth. Stakeholders also emphasized improving institutional coordination, climate technology transfer, digital climate innovation, and community resilience planning.

The request was further guided by Malawi's national development priorities, including the Nationally Determined Contributions (NDCs), Malawi Vision 2063, National Adaptation Plan (NAP), National Resilience Strategy, and renewable energy and disaster risk reduction frameworks. Mzuzu University played a leading role in consolidating technical inputs, research evidence, and stakeholder recommendations in development of the ClimateWISE concept. The National Designated Entity (NDE), together with relevant stakeholders, will provide coordination, technical guidance, and endorsement support during the final review and submission process to ensure alignment with national climate priorities and CTCN requirements.

Background documents and other information relevant for the request:

- *Please list all relevant documents that will help the CTCN analyse the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.*
- *Please indicate if this request has been developed with the support of the CTCN Request Incubator.*

The development of the proposed technical assistance was informed by several national, regional, and international policy frameworks, climate strategies, technical reports, and development planning documents relevant to climate resilience, renewable energy, disaster risk reduction, climate technology transfer, and sustainable development in Malawi. These documents provide the policy and strategic

foundation for the proposed ClimateWISE initiative and demonstrate strong alignment with national climate priorities and international climate commitments.

Key reference documents include the Malawi First Updated Nationally Determined Contributions (NDCs) (2021), which identify priority adaptation and mitigation actions in agriculture, water resources management, renewable energy, disaster risk reduction, climate information services, and resilience-building for vulnerable communities. The initiative also aligns with Malawi Vision 2063 (2020), which prioritizes agricultural productivity, industrialization, digital transformation, environmental sustainability, youth empowerment, and inclusive development.

The request is further guided by the National Adaptation Plan (NAP) Framework (2020), the National Climate Change Management Policy (2016), the National Resilience Strategy (2018–2030), and the Malawi Renewable Energy Strategy (2017–2030), which emphasize climate adaptation, renewable energy access, climate-smart agriculture, disaster preparedness, ecosystem restoration, and community resilience systems. The proposal also draws from relevant frameworks related to gender equality, youth development, digital innovation, and climate-smart livelihoods, including the National Gender Policy (2015) and National Youth Policy (2023–2028).

Additional technical and strategic guidance was obtained from Green Climate Fund (GCF) investment frameworks, CTCN technical assistance guidance materials, climate resilience assessments, and lessons from previous climate adaptation and disaster recovery interventions implemented in Malawi following Cyclones Idai, Ana, and Freddy. The proposed ClimateWISE Malawi Concept Note and the Official CTCN Request Submission Template also informed the development of the request and helped align the proposal with CTCN priorities on climate technology transfer, digitalization, and innovation systems.
Relevant web links include:

- Malawi Updated NDC: https://unfccc.int/documents/497772
- Malawi Vision 2063: https://www.npc.mw
- National Adaptation Plan Framework: https://napglobalnetwork.org
- CTCN Programme Information: https://www.ctc-n.org
- Green Climate Fund: https://www.greenclimate.fund

This request was developed independently by Mzuzu University and stakeholders and was not developed through direct support from the CTCN Request Incubator.

Additional References:

Food and Agriculture Organization (FAO). (2021). *Climate-smart agriculture initiatives in Malawi*. Rome: FAO.

Government of Malawi & United Nations Development Programme (UNDP). (2023). *Post-disaster needs assessment report for Cyclone Freddy in Malawi*. Lilongwe, Malawi.

Government of Malawi. (2021). *Malawi nationally determined contribution update*. Lilongwe, Malawi.

International Energy Agency (IEA). (2022). *Africa energy outlook 2022*. Paris: IEA.

ND-GAIN. (2023). *ND-GAIN country index rankings*. University of Notre Dame. https://gain.nd.edu

World Bank. (2022). *Malawi economic monitor: Climate shocks and economic resilience*. Washington, DC: World Bank.

World Food Programme (WFP). (2023). *Malawi food security situation report*. WFP Malawi Country Office.

United Nations Development Programme (UNDP). (2023). *Post-disaster recovery and resilience interventions in Malawi*. Lilongwe, Malawi.

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound

technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 and paragraph 4, 7 and 8 of 14/CP.24 that addresses Linkages between the Technology and the Financial Mechanisms[3].

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

The proposed technical assistance is aligned with the collaboration framework between the Climate Technology Centre and Network (CTCN) and the Green Climate Fund (GCF), which aims to facilitate access to environmentally sound technologies that address climate change and its impacts through readiness and preparatory support delivered via the country's GCF National Designated Authority (NDA). The request supports Malawi's efforts to strengthen climate resilience, climate technology transfer, institutional capacity, and investment readiness in line with the guidance of the GCF Board Decision B.14/02 and relevant UNFCCC decisions, including paragraphs 4 and 7 of Decision 14/CP.22 and paragraphs 4, 7, and 8 of Decision 14/CP.24 concerning linkages between the Technology Mechanism and the Financial Mechanism.

The proposed initiative contributes to strengthening enabling environments for climate technology deployment and climate finance mobilization through support for AI-powered climate intelligence systems, renewable water-energy-food nexus technologies, climate technology transfer frameworks, and inclusive climate innovation ecosystems. The technical assistance will also strengthen institutional coordination, technical capacity, stakeholder engagement, and climate investment readiness necessary for future development of scalable climate projects and programmes.

The request has been developed with recognition of the important role of the National Designated Entity (NDE), the Green Climate Fund National Designated Authority (NDA), relevant government institutions, and development partners in supporting implementation and future resource mobilization. Any future application for GCF readiness or preparatory support associated with this request will be developed in conjunction with the NDA and will remain subject to the policies, procedures, and approval processes of the Green Climate Fund.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

☒ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly

[3] Please see: https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name: National Commission for Science and Technology

Date:

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures. This includes the active engagement as NDE together with the key project proponent / beneficiary in regular project steering meetings.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country. This includes responsiveness to NDE feedback and post-implementation forms.

The proposed technical assistance will establish a comprehensive monitoring, evaluation, learning, and reporting framework to assess progress, effectiveness, sustainability, and long-term impacts of the intervention in line with standard CTCN monitoring and evaluation procedures. The framework will support evidence-based implementation, accountability, adaptive learning, and continuous improvement throughout the implementation period and beyond. Monitoring and evaluation processes will be developed in close collaboration with the National Designated Entity (NDE), Mzuzu University, implementing partners, local authorities, community representatives, and relevant stakeholders.

The monitoring framework will include baseline and endline assessments to measure progress in climate resilience, adaptive capacity, renewable energy access, climate information dissemination, climate technology adoption, livelihood resilience, and institutional strengthening in targeted communities. Key indicators will include climate resilience indicators, renewable energy adoption metrics, climate-risk information access, early warning dissemination coverage, climate-smart livelihood outcomes, enterprise development indicators, and gender- and youth-disaggregated participation data. Regular technical assessments, stakeholder consultations, learning reviews, and project steering meetings will be conducted to assess implementation progress, identify challenges, document lessons learned, and strengthen coordination among stakeholders.

By signing this request, the National Designated Entity (NDE) confirms that processes are in place in Malawi to monitor and evaluate the technical assistance provided by the CTCN. These monitoring and evaluation processes will be explicitly identified in the CTCN Response Plan and will be used to monitor implementation of the technical assistance in accordance with standard CTCN procedures. This will include active engagement of the NDE, the project proponent, implementing institutions, and key stakeholders through regular project steering meetings, progress reviews, technical reporting, and stakeholder coordination mechanisms. The NDE and implementing institutions further acknowledge their responsibility to support CTCN efforts to measure the success and impacts of the technical assistance after project completion, including assessment of short-, medium-, and long-term outcomes.

This will include responsiveness to NDE feedback processes, completion of post-implementation reporting requirements, participation in impact assessments, and continued collaboration with CTCN and relevant stakeholders to support sustainability, knowledge-sharing, replication, and future scaling of climate resilience interventions in Malawi.

Team Composition - Summary of the project team from participating higher education institutions and government entities

Institution	Name	Role	Expertise
Mzuzu University	Assoc. Prof. Elijah Wanda, PhD	Overall Project Coordinator and Environmental and Social Safeguards Expert	Dr. Elijah Wanda serves as the Deputy Dean of the Faculty of Science, Technology, and Innovation (FoSTI) and is an expert in environmental and analytical chemistry. He is the current Environmental and Social Safeguards Coordinator for the ACENUB, which is a USD6,000,000.00 project, funded by the World Bank. He is also the Lead of the GC 3.3. - Increase Research and Innovation Outputs from HEIs of the $1, 238, 294 USAID-funded Transforming Higher Education Systems (THES) Project. He is the immediate past First Vice President for the Africa Scientific Research and Innovation Council (AU - ASRIC) Bureau, an arm of the African Union responsible for mobilization of African research excellence, science, technology and innovation (STI). He previously served as the National Resource Person for the Calestous Juma Executive Dialogue on Innovation and Emerging Technologies (CJED) by AUDA-NEPAD through African Union High Level Panel on Emerging Technologies (APET). He also served as a representative member and National Coordinator for: (1) International Science Council (ISC); (2) the International Science Granting Councils Initiative (SGCI); (3) the Open Forum for Agriculture Biotechnology in Africa (OFAB); (4) the Global Research Council (GRC); (5) the Commonwealth Society of Chemistry (CSC) Congress;(6) the Malawi Water Partnership and arm of the Global Water Partnership (GWP); (7) the International Atomic Energy Agency (IAEA); (8) the African Agriculture Transformation Forum (AATF); (9) the evidence in policy and decision making (EVI-POL); (10) Climate Technology Centre and Network (CTCN); (11) the International Food Policy Research Institute(IFPRI); (12) Urban Africa Risk Knowledge (Urban ARK); and (13) the World Academy of Sciences (UNESCO-TWAS). He worked as a principal investigator for a number of projects such as: (1) Research in Agriculture Biotechnology project on Functionalization of Black Soldier fly Frass Hermetia illucens (Diptera: Stratiomyidae), rice husk biochar and coffee ground mixture as sustainable organic fertilizer for improving soil health and agricultural productivity in Malawi and Zimbabwe, a Science Granting Council Initiative (SGCI) funded project through the National Commission for Science and Technology – 2024 – 2025; (2) Soil Amendment Works – Healthy Soils for Improved Agricultural Productivity and Commercialization for the Centre for Agriculture Transformation (CAT) SMART farms for crop diversification in Lilongwe and Zomba funded by the Foundation for Smoke

			Free World (FSFW) and Agriculture Transformation Initiative (ATI) – March 2021 to-date; (3) Citizen Science Based Eco-Friendly Phytoremediation and Mycoremediation of Polluted Soils for Soil Quality Enhancement, Risk reduction and Improvement of Agricultural Production in Malawi and South Africa', Funded by the College of Agriculture and Environmental Sciences, UNISA, 1st may, 2023 to-date; (4) Fabrication of novel and innovative membranes and materials for the removal of emerging micropollutants (EMPs) from water, wastewater and sludge, material science and membrane research, and nanotechnology as well as nanoscience for water-energy-food nexus; (5) Strengthening Management of Research Competitions and Research on Emerging Technologies and Development in Malawi - IDRC Bilateral and Trilateral Project Number: 109368-001/002 – 2021 to 2023; (6) Preparation and application of silica and germanium dioxide nanoparticles/ polyethersulfone blend membranes for removal of emerging micropollutants from water funded by the Nanotechnology and Water Sustainability Research Unit, UNISA, 2014 – 2018; Citizen Science project under Urban Africa Risk Knowledge (Urban ARK)- Breaking cycles of risk accumulation in sub- Saharan Africa – Work Package 1 funded by the Economic and Social Research Council (ESRC) together with the Humanitarian Innovation and Evidence Programme of the United Kingdom's Department for International Development (DFID) (http://www.urbanark.org), 2014 – 2020. His experience and expertise will be instrumental in managing the project to ensure its success. E-mail: wanda.e@mzuni.ac.mw
	Dr. Frank Munthambala	Soil Scientist and Circular Economy Expert	Dr. Frank Mnthambala, a senior lecturer in the Agrisciences department under the faculty of Environmental Sciences at Mzuzu University, Malawi. He studied for his PhD at Cranfield University in the United Kingdom, an MSc, and a BSc in Malawi at the University of Malawi, Bunda College. He has almost 15 years of experience working in the agriculture sector in Malawi. Currently, he has been a senior lecturer/researcher at Mzuzu University in the Department of Agrisciences for six years. As a researcher, his work focuses on Circular economy, climate change adaptation and mitigation, plant nutrition management, soil fertility management, soil sampling, and data analysis. Previously, I worked for Michigan State University as a project manager and the International Institute of Tropical Agriculture (IITA) as a research assistant. I have skills and experience in project management and supervision of both students and project team members. I have graduated at least 5 postgraduate students and over 30 undergraduate students. In six years at Mzuzu University, he has been part of the teams that won three international research grants. The first research project (2023 to 2026), which includes Mzuzu University, Makerere University, and Eawag, is funded by the Swiss government. The second project was won together with collaborators from Cornell University and Lilongwe University of Agriculture and Natural Resources. This project is funded by the McKnight Foundation (2024 to 2028). The third is funded by the Canadian government through the Social Sciences and Humanities Research Council of Canada.

	Dr. Ulemu Msiska	Postgraduate Coordination, Academic Leader and Climate Scientist	Plant Breeder and Biotechnologist responsible for conservation and Micropropagation of NUBs and providing technical expertise in micropropagation of biodiversity. As a lecturer she is responsible for imparting skills and knowledge on areas including and not limited to agro-biodiversity, invasive alien species, climate change and crop improvement. She is a seasoned crop protection specialist with vast experience in forecasting pest outbreaks, conducting pests surveillance, development of integrated pest management strategies and development of environmental social management plans. She has conducted research on the genetics of resistance to adzuki bean bruchid, soybean rust disease, groundnut leaf miners in soybean and cowpea. Currently she is leading a team of researchers in the region conducting research on Uapaca kirkiana, Amaranthus, Knobwood, cherry tomato, black jack and finger millet under the theme conservation, propagation and utilization of neglected and under-utilized biodiversity. She has published widely in peer reviewed journals. She is an expert in Environmental Health and Safety. She is dedicated to finding lasting solutions with farmers to pests like Tomato leaf miner in tomato, Fall army worm and weevils in maize. These efforts are integrated with the adaption of crop genotypes to farmers' conditions, and research on community seed systems. She works in partnership with CABI an International Organisation pioneering the implementation of plant clinics where she is a National trainer of trainers in plant health systems. Currently she is a Post Graduate Coordinator and an Academic Leader for the Agri-Sciences Department for ACENUB. In addition, she is a Board Chair for Find Your Feet NGO, a Trustee for Temwa Malawi NGO and a Consultant. Dr Msiska Ulemu is an accomplished scholar with a wide range of publications E-mail: msiska.u@mzuni.ac.mw
	Dr. Brighton Chunga	Irrigation Engineer and Integrated Water Resources Management Expert	He is a water resources management specialist with over 15 years of experience across research, practice, and academia. His work focuses on advancing sustainable, integrated water resources planning and management through interdisciplinary, evidence-based approaches across diverse environmental and socio-economic contexts. My professional experience spans the private sector, government, and academia. He has worked in irrigation and water resources engineering, public sector water management. He is currently a senior lecturer and researcher in water resources modelling and geoinformatics at Mzuzu University, Malawi. His key research expertise includes hydrology and hydrogeology; system dynamics and hydrological modelling; groundwater development; irrigation engineering; GIS and geoinformatics; water reticulation systems; and water allocation under climate change. He has held research and postdoctoral fellowships with leading institutions, including Stellenbosch University Water Institute, the Future Africa Institute at the University of Pretoria, and the University of South Africa's Institute for Sustainability and Corporate Citizenship. With

			support from major international funders, he has led and collaborated on multiple international research projects as Principal Investigator, working with partners across Africa, Europe, and North America. He is committed to mixed-method and interdisciplinary research, drawing on my engineering background alongside exposure to social science and management approaches to address complex, real-world water and development challenges. He holds a Bachelor's degree in Irrigation Engineering from the University of Malawi, a Master of Science in Water Resources Engineering and Management from the University of Stuttgart, Germany, and a Doctorate from Cranfield University in the United Kingdom.
	Assoc. Prof. Mavuto Tembo, PhD	GIS/Remote sensing and Disaster Risk Management Specialist	Dr. Mavuto Tembo is a seasoned GIS and Remote Sensing expert, researcher, and development practitioner with over 20 years of professional experience in spatial analysis, land resources management, climate risk assessment, and environmental monitoring. He holds a PhD in Geography from Maynooth University, Ireland, and an MSc in Geoinformation Science Planning and Coordination of Natural Resources Management from the University of Twente, the Netherlands. He currently serves as Director of the African Centre of Excellence in Neglected and Underutilized Biodiversity (ACENUB) at Mzuzu University. He led multidisciplinary projects funded by the World Bank, African Development Bank, UNDP, GIZ, IFAD, and other international agencies. Dr. Tembo has extensive expertise in GIS-based climate vulnerability mapping, remote sensing applications, hazard and risk assessments, land use planning, watershed management, and spatial decision-support systems. He has successfully led assignments involving climate risk modelling, ecological monitoring systems, disaster risk profiling, mobile GIS development, and participatory spatial analysis across Malawi. His research and consultancy work integrates geospatial technologies with sustainable development, natural resource management, agriculture, water resources, and climate resilience planning.
	Dr. Chrispin Gogoda	Renewable Energy Expert	With over 15yrs experience in renewable energy with specialisation in solar PV and Battery Energy Storage Systems (BESS), Chrispin, the Head of Department of Energy Systems, is currently a Faraday Institution Battery Ambassador (FIBA) for Malawi, Head of Solar PV and Energy Storage Research Group in the Department of Energy Systems and leading the Southern Africa Battery Energy Storage Systems Centre of Excellence (SABESS CoE) at Mzuzu University. During his PhD at Loughborough University whose research was on characterization of batteries under stressful conditions, Chrispin developed a remote-controlled battery test rig with standing potential for commercialization. His participation in Transforming Energy Access Learning Partnership across 23 Universities (TEA-LP) and being a member of the African Institute for Sustainable Energy and Systems Analysis (AISESA) and locally an Ex-Officio Board Member of Renewable Energy Industries Association of Malawi demonstrates his ability to

			deal with multifaceted activities in the renewable energy sector. Chrispin has led and participated in over 15 grants/projects ranging from renewable energy systems design, research into productive use of energy, women participation in clean energy enterprising and promotion of electric cooking with the gender lends for inclusivity in a just energy transition.
	Dr. Enock Tung'ande	Expert in Digital Technologies	Dr Enock Samuel Mbewe holds a PhD in Computer Science (University of Cape Town), an MSc in Information Theory, Coding and Cryptography, and a BSc in ICT, both from Mzuzu University. He serves as Acting Director of ICT and Senior Lecturer in ICT at Mzuzu University, and a seasoned AI and Digital Transformation Expert/Consultant. He has over a decade of applied experience at the intersection of AI, digital systems, and development in Malawi. He designed and delivered practical AI and digital transformation support for women-led MSMEs, including digital readiness segmentation, business digitalisation, digital finance, and AI-assisted content and decision support — directly relevant to the ClimateWISE community digital skills and innovation hub programme. As Acting Director of ICT he led major digital transformation initiatives at Mzuzu University covering enterprise information systems, cloud services, identity and access management, digital governance platforms, innovation management systems, network modernisation, and institutional adoption in resource-constrained environments. He has also conducted research on Internet measurement, DNS privacy and security, quality of digital experience, and data-informed digital decision-making through engagements with the University of Cape Town, AFRINIC, and the Internet Society. This combination of applied AI expertise, institutional digital leadership, and development-context ICT experience makes him the lead technical architect for the ClimateWISE AI climate intelligence platform, digital early warning systems, and community digital literacy programme.
	Mrs. Precious Msonda	Data Science and AI Expert	A data scientist and lecturer in Data Science. She plays a pivotal role in spearheading curriculum development, coordinating new and existing programs, and driving innovation in data science education within the ICT department. A novice in research, has expertise in machine learning, artificial intelligence, and advanced data analytics. She is committed to harnessing data-driven methodologies to tackle complex real-world challenges. Her research interests lie in AI-driven predictive modelling, computational data analysis, and the ethical application of machine learning in decision-making systems.
	Mr. Yonamu Ngwira	Provide administrative leadership of the University	Mr. Yonamu Ngwira provides overall administrative leadership to the University and plays a strategic role in supporting the implementation and management of institutional projects at Mzuzu University. Within the project, he is responsible for offering high-level administrative oversight, institutional coordination, and policy guidance to ensure that project activities are aligned with the University's strategic objectives, governance structures, and operational procedures. He facilitates effective collaboration among project stakeholders, supports decision-making processes, and ensures that

			administrative systems are conducive to efficient project implementation and accountability. Mr. Ngwira has extensive experience in managing and supporting large-scale development initiatives at Mzuzu University. He has provided administrative leadership in the implementation of all MZUNI projects and currently serves as a Project Team Member for the USD 6,300 SAVE Project funded by the World Bank. In addition, he is a member of the project team managing the USD 10 million Mzuzu University Library Construction Project, where he contributes to project coordination, institutional compliance, stakeholder engagement, and strategic oversight. His experience in university administration and project governance strengthens institutional capacity for effective project delivery, sustainability, and compliance with donor and regulatory requirements.
	Dr. Cecilia Ngwira	Gender Mainstreaming	She is the Deputy Dean in the Faculty of Tourism, Hospitality and Management. She is a Senior Lecturer with expertise in ecotourism. She is a Senior Lecturer with expertise in ecotourism. She was a key member of the team that developed the university's Gender and the Safeguarding policies and is currently overseeing their implementation. Additionally, she serves as a committee member of the University Postgraduate Studies Committee. She also works in the Student Affairs office as a warden and is responsible for students' welfare. As a result, she will be responsible for integrating gender mainstreaming and safeguarding principles into the project activities.
	Mr Chitha Msowoya	Project Accountant	Manages all project accounts of MZUNI. He will serve as a Project Accountant for the CTCN Project and is responsible for managing all project accounts of MZUNI in line with donor requirements, institutional policies, and government financial regulations. He oversees the preparation and maintenance of accurate financial records, budgets, ledgers, and supporting documentation to ensure accountability and transparency in project financial management. He monitors project expenditures, tracks budget performance, and prepares periodic financial reports, budget analyses, and forecasts to support informed decision-making by project management and stakeholders. In addition, he processes payments, reimbursements, and other financial transactions in accordance with approved budgets and procurement procedures while ensuring compliance with statutory and audit requirements. He coordinates internal and external audits by providing the necessary financial documentation and implementing recommendations where necessary. Mr Msowoya also supports procurement and asset management processes by verifying the availability of funds and ensuring adherence to financial controls. Furthermore, he advises the Project Coordinator and project team on financial planning, risk management, and cost-effective utilization of resources, while maintaining proper filing systems and strengthening financial accountability throughout the implementation of the CTCN project.

	Mr. Wanangwa Msowoya	Monitoring and Evaluation	He serves as the Monitoring and Evaluation (M&E) specialist within the Directorate of Research. In this capacity, he is responsible for the systematic monitoring and evaluation of project activities, ensuring adherence to established goals and objectives. He is the M&E for the ACENUB, which is a USD6,000,000.00 project and SAVE which is USD 6,300,000.00 both funded by the World Bank. He has also participated in Capacity Building for Sugarcane Out grower Project funded by EU implemented by Concern Universal, MSIKA Project funded by USAID implemented by Land O'Lakes, TRANSFORM Project funded by Norwegian Royal Embassy, A+ Project funded by Australian Aid through Caritas Australia, VSL Project for Smallholder farmers under KULIMA and BETTER Project funded by FAO under CADECOM.
Participating Government Institutions	Mr. Lyson Kampira	NDE – National Commission for Science and Technology	Mr. Lyson Kampira serves as the National Designated Entity (NDE) representative from the National Commission for Science and Technology and provides strategic guidance and national-level coordination for the project. He facilitates alignment of project activities with national science, technology, innovation, and climate-related development priorities. He supports stakeholder engagement between government institutions, research organizations, and development partners to strengthen project implementation and policy integration. In addition, he provides oversight on regulatory and institutional compliance, promotes knowledge sharing and dissemination of project outcomes, and supports the mobilization of partnerships that enhance sustainability and scaling of project interventions at national level.
	Dr. Austin Phiri	Ministry of Agriculture Irrigation and Water Development	Dr. Austin Phiri represents the Ministry of Agriculture, Irrigation and Water Development and provides technical and policy guidance on matters related to agriculture, irrigation, water resources management, and climate resilience. He supports the integration of project activities into national agricultural and water development frameworks and facilitates collaboration with relevant government departments and local stakeholders. He contributes technical expertise in sustainable agricultural practices, irrigation systems, and water resource management to ensure that project interventions are practical, relevant, and responsive to community needs. Furthermore, he assists in monitoring project progress, strengthening institutional coordination, and promoting the adoption of climate-smart technologies and sustainable resource management practices.
	Director	Department of Climate Change and Disaster Risk Management	The representative from the Department of Climate Change and Disaster Risk Management provides policy guidance and technical expertise on climate change adaptation, mitigation, resilience building, and disaster risk management within the project. The role involves ensuring that project activities are aligned with national climate change policies, disaster preparedness frameworks, and sustainable development priorities. The representative supports the integration of climate risk assessments and resilience strategies into project planning and implementation to enhance the sustainability and effectiveness of project interventions. In addition, the representative facilitates coordination with government agencies, local authorities, development partners, and

			vulnerable communities to strengthen climate information sharing, early warning systems, and disaster preparedness initiatives. The role also includes supporting stakeholder engagement, capacity building, and awareness creation on climate-related risks and adaptation measures. Furthermore, the representative contributes to monitoring and evaluating the impact of project interventions on climate resilience and disaster risk reduction, while promoting best practices and policy recommendations for sustainable and climate-resilient development.
	The Director of Energy Systems	Ministry of Energy and Mining	The representative from the Ministry of Energy and Mining provides technical oversight and policy guidance on energy and mining-related components of the project. The role includes supporting the integration of sustainable energy solutions and resource-efficient technologies into project implementation in line with national energy and mining policies. The representative facilitates coordination with relevant government departments, regulatory authorities, and stakeholders to ensure compliance with sector regulations and standards. In addition, the representative contributes expertise on renewable energy, energy efficiency, and sustainable resource utilization, while supporting knowledge sharing, capacity building, and the promotion of technologies that enhance environmental sustainability and socio-economic development.
	Director of ICT and Digitalisation	Ministry of Information	The representative from the Ministry of Information supports the project through strategic communication, public awareness, and information dissemination activities. The role involves facilitating effective communication between the project and key stakeholders, including government institutions, communities, media organizations, and the general public. The representative provides guidance on information management, public engagement, and visibility strategies to enhance awareness and understanding of project objectives, activities, and outcomes. Additionally, the representative supports the development and dissemination of communication materials, promotes stakeholder participation, and ensures that project information is shared in a timely, accurate, and accessible manner.
	Dr. Mary Sibande	University of Livingstonia (UNILIA)	Dr. Mary Sibande serves as the Director of Research at the University of Livingstonia (UNILIA) in Malawi and provides strategic leadership and technical support in the areas of research, collaboration, and institutional capacity strengthening within the project. She contributes to the design, coordination, and implementation of research activities, ensuring that project interventions are evidence-based, scientifically sound, and aligned with national and institutional development priorities. With vast experience in teaching, research, and resource mobilization, Dr. Sibande supports the development of strong academic and research partnerships among universities, government institutions, communities, and development partners. She plays a key role in promoting interdisciplinary collaboration, facilitating knowledge generation and dissemination, and strengthening research capacity among project participants and stakeholders. In addition, she contributes to proposal

			development, fundraising initiatives, and the mobilization of technical and financial resources to support project sustainability and impact. Dr. Sibande also provides mentorship and guidance to researchers, students, and project teams, while supporting stakeholder engagement, policy dialogue, and the integration of research findings into practice and decision-making processes. Her expertise in academic leadership and collaborative research enhances the project's ability to generate innovative solutions, strengthen institutional linkages, and contribute to sustainable development outcomes.
	Prof. Harold W.T. Mapoma	Malawi University of Business and applied Sciences (MUBAS)	Professor Harold W.T. Mapoma is the head of academic department at MUBAS in the School of Science and Technology. He holds a PhD in Engineering and majored in Hydro-geochemistry. He is currently managing the World Bank funded $5.7 million SAVE Project at MUBAS. He has worked with MUBAS since 2003. Throughout his tenure at MUBAS he has been involved in research, consultancy and outreach. Besides, he has held various leadership positions at MUBAS and participated in various technical committees at institutional and national level. He has team led and participated in drafting several grant proposals at MUBAS and the nation.

Implementation Strategy

The implementation strategy will follow five integrated phases:

Phase	**Duration**	**Main Focus**
Phase 1	Months 1–2	Inception, stakeholder engagement, baseline assessments
Phase 2	Months 3–5	Technical assessments, AI system design, climate-risk analysis
Phase 3	Months 6–8	Technology development, pilot deployment, innovation hubs
Phase 4	Months 9–10	Capacity building, validation, community implementation
Phase 5	Months 11–12	Evaluation, policy support, scale-up strategy, dissemination

Twelve-Month Timeline

Activities	Responsible Institutions	Key Outputs	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Inception and stakeholder engagement	Mzuzu University, NCST/NDE, Local Governments	Inception report and stakeholder framework	■	■										
Baseline assessments and climate vulnerability analysis	GIS Specialists, Climate Scientists, M&E Team	Baseline and vulnerability reports	■	■	■									
GIS and climate-risk mapping	GIS and Remote Sensing Team	Climate-risk maps and datasets		■	■	■								
AI climate intelligence system design	ICT Experts, AI Specialists	AI system architecture			■	■								
Development of AI-powered climate platform	ICT Team, Data Scientists	Operational AI climate platform				■	■	■	■					
GIS and satellite data integration	GIS Specialists, ICT Team	Integrated monitoring system				■	■	■						
SMS/mobile early warning system development	ICT Team, Meteorological Department	SMS/mobile warning platform					■	■	■					
Pilot deployment and testing of early warning systems	ICT Team, Local Governments	Pilot-tested warning systems							■	■				
Renewable energy and water systems feasibility studies	Irrigation Engineers, Renewable Energy Experts	Feasibility reports				■	■	■						
Renewable productive-use energy systems design	Renewable Energy Team	Renewable energy designs					■	■	■					
Smart water management system design	Water Resources Experts	Smart water management framework					■	■	■					
Climate-smart agriculture integration	Agriculture Experts, Community Organizations	Climate-smart agriculture plans						■	■	■				
Establishment of ClimateWISE innovation hubs	Mzuzu University, Partners	Functional innovation hubs						■	■	■				
Women and youth entrepreneurship programmes	Gender Team, Youth Organizations	Entrepreneurship programmes							■	■	■	■		
Climate-tech incubation and mentorship support	Innovation Hub Team, Technical Experts	Incubation and mentorship systems								■	■	■	■	
Technical training workshops	Technical Experts, Universities	Trained stakeholders				■	■	■	■	■	■	■		
Renewable energy operations	Renewable Energy Specialists	Operations training reports						■	■	■	■			

training															
AI and digital climate literacy training	ICT Team, Data Scientists	Digital climate literacy programmes													
Stakeholder and community consultations	Local Governments, NGOs, Community Organizations	Consultation reports													
Gender and youth inclusion consultations	Gender Mainstreaming Team	Inclusion reports													
Policy support and climate technology transfer roadmap	Government Ministries, Technical Team	Technology transfer roadmap													
Climate investment readiness and scale-up strategy	Investment Experts, NCST, Development Partners	Investment readiness strategy													
Quarterly monitoring and progress reviews	M&E Team, Steering Committee	Quarterly monitoring reports													
Mid-term review and learning assessment	Project Steering Committee, M&E Team	Mid-term review report													
Endline evaluation and dissemination workshop	Mzuzu University, NCST, External Evaluators	Final evaluation and dissemination report													

Budget and Budget Narrative for ClimateWISE Malawi

The proposed ClimateWISE Malawi budget of USD 398,750 has been strategically designed to support implementation of an integrated climate resilience, renewable energy, digital climate innovation, and inclusive green transformation initiative targeting vulnerable communities in Malawi. The budget prioritizes high-impact investments in AI-powered climate intelligence systems, digital early warning platforms, renewable water-energy-food nexus technologies, climate-smart infrastructure, and localized climate resilience systems aimed at improving disaster preparedness, food security, water access, renewable energy access, and sustainable livelihoods.

A significant proportion of the budget is allocated toward development of AI-powered climate intelligence and digital early warning systems, renewable energy and climate-resilient infrastructure design, baseline technical assessments, and institutional coordination to ensure effective implementation and long-term sustainability. The budget also supports establishment of ClimateWISE innovation hubs, green enterprise development, and technical training programmes targeting women and youth to strengthen climate innovation, entrepreneurship, digital skills, and inclusive green economic opportunities.

Additional investments in stakeholder engagement, policy support, climate technology transfer, monitoring and evaluation, and operational support will strengthen local ownership, institutional coordination, accountability, and climate investment readiness. Overall, the proposed budget provides a cost-effective and scalable framework for strengthening climate resilience, digital climate innovation, renewable energy access, and inclusive green economic transformation in Malawi while creating opportunities for future scale-up and replication.

Main Item	Description	Sub Item	Unit Cost (USD)	Quantity	Total (USD)
Project Coordination, Institutional Management and Stakeholder Oversight	Coordination, technical supervision, reporting, stakeholder alignment, and implementation management.	National inception workshop	7,000	1	7,000
		Project coordination meetings	1,500	8	12,000
		Technical coordination support	1,500	10	15,000
		Reporting and administrative support	1,000	4	4,000
Subtotal					**38,000**
Baseline Assessments, Technical Studies and Climate-Risk Analysis	Technical studies to guide evidence-based planning, climate-risk targeting, technology selection, and institutional readiness.	Climate vulnerability assessments	8,000	2	16,000
		GIS and climate-risk mapping	10,000	1	10,000
		Renewable energy and water systems assessments	6,000	2	12,000
		Institutional and technology gap assessments	5,000	2	10,000
Subtotal					**48,000**
AI-Powered Climate Intelligence and Digital Early Warning Systems	Development of AI, GIS, satellite, mobile and SMS systems for localized climate intelligence and early warning.	AI climate intelligence platform development	35,000	1	35,000
		GIS and satellite data integration systems	14,000	1	14,000
		SMS/mobile early warning platform	15,000	1	15,000
		Data management and cloud infrastructure	10,000	1	10,000
		Technical software development support	9,000	2	18,000
Subtotal					**92,000**
Renewable Water-Energy-	Feasibility studies and technical designs for	Solar-powered irrigation feasibility studies	10,000	2	20,000

Food Nexus and Climate-Resilient Infrastructure Design	solar irrigation, productive-use energy, water systems, and climate-smart agriculture.	Renewable productive-use energy models	8,000	2	16,000
		Smart water management system design	12,000	1	12,000
		Climate-smart agriculture technical integration	5,000	2	10,000
Subtotal					**58,000**
ClimateWISE Innovation Hubs and Green Enterprise Development	Support for women and youth climate innovation, green entrepreneurship, incubation, digital skills, and livelihood transformation.	Innovation hub setup and support	12,000	2	24,000
		Women and youth entrepreneurship programmes	6,000	2	12,000
		Climate innovation mentorship and incubation	3,000	2	6,000
Subtotal					**42,000**
Capacity Building and Technical Training	Training for institutions, communities, technicians, women and youth on AI climate tools, renewable energy, and climate technology management.	Technical training workshops	5,000	4	20,000
		Renewable energy operations training	3,500	2	7,000
		AI and digital climate literacy training	4,000	2	8,000
		Training manuals and toolkits	3,125	2	6,250
Subtotal					**41,250**
Stakeholder Engagement and Community Consultations	Participatory consultations to ensure local ownership, inclusion, community validation, gender responsiveness, and stakeholder coordination.	District stakeholder consultations	2,500	4	10,000
		Community engagement meetings	1,750	4	7,000
		Gender and youth inclusion consultations	1,500	2	3,000
		Communication and awareness materials	2,000	1	2,000
Subtotal					**22,000**
Policy Support, Technology Transfer and Investment Readiness	Development of policy recommendations, technology transfer roadmaps, and scale-up strategies to support sustainability and future financing.	Climate technology transfer roadmap	7,000	1	7,000
		Policy briefs and recommendations	3,000	2	6,000
		Investment readiness and scale-up strategy	7,000	1	7,000
Subtotal					**20,000**
Monitoring, Evaluation, Learning and Knowledge Management	Monitoring, reporting, learning, knowledge documentation, and dissemination to support accountability and replication.	Baseline and endline evaluations	6,000	2	12,000
		Knowledge products and documentation	3,500	1	3,500
		Lessons learned dissemination workshop	4,000	1	4,000
Subtotal					**19,500**
Administrative and Operational Support	Operational support for communication, logistics, documentation, digital coordination, office support, and implementation facilitation.	Office and communication support	6,000	1	6,000
		Internet and digital coordination support	6,000	1	6,000
		Logistics and documentation support	6,000	1	6,000

Subtotal					**18,000**
GRAND TOTAL					**398,750**

Value for Money

The proposed budget represents a strategic and cost-effective investment in climate resilience, renewable energy access, digital climate innovation, and inclusive green economic transformation in Malawi. The allocation prioritizes high-impact interventions that simultaneously address climate adaptation, disaster preparedness, food security, water access, renewable energy access, climate technology transfer, and livelihood resilience. By integrating AI-powered climate intelligence systems, renewable water-energy-food nexus technologies, innovation ecosystems, and institutional capacity-building within a single framework, the initiative maximizes efficiency, sustainability, and long-term development impact. The proposed investments are expected to strengthen local adaptive capacity, support women and youth economic empowerment, improve climate preparedness, and position Malawi for future climate finance and scale-up opportunities.

Gender and Social Inclusion Strategy

ClimateWISE Malawi will implement a gender-responsive and socially inclusive approach that ensures women, youth, and vulnerable communities actively participate in and benefit from project activities. At least 60% of beneficiaries will be women and youth, with priority given to women-led households, unemployed youth, and marginalized groups. The project will promote equitable access to digital climate technologies, renewable energy solutions, and climate entrepreneurship opportunities while integrating safeguarding and gender mainstreaming measures throughout implementation. Community participation, local ownership, and inclusive decision-making will be emphasized to strengthen equitable and sustainable climate resilience outcomes.

Sustainability and Scale-Up Strategy

The project will ensure long-term sustainability by strengthening local institutions, building community capacity, and promoting local ownership through training and partnerships. Scalable climate technology models and climate-smart solutions will be developed for replication across Malawi. The initiative will also enhance climate investment readiness, strengthen policy integration, and foster collaboration with government agencies, universities, development partners, and private sector actors. Lessons learned and best practices will be documented to support future scale-up. Additionally, the project is aligned with major international climate finance mechanisms, including the Green Climate Fund, Adaptation Fund, GEF, multilateral development banks, bilateral programmes, and private sector investments to support future expansion and financing opportunities.

Risk Management Framework

ClimateWISE Malawi will employ the following mitigation measures to deal with possible risks

Risk	Mitigation Strategy
Delays in stakeholder coordination	Early engagement and regular coordination meetings
Limited digital infrastructure in rural areas	Use mobile/SMS-based systems and offline solutions
Low technical capacity	Intensive capacity-building and mentorship
Climate-related disruptions	Flexible implementation scheduling
Limited community participation	Strong community mobilization and participatory approaches
Financial and operational risks	Strong financial controls and regular monitoring

Expected Outcomes

By the end of the 12-month implementation period, the ClimateWISE Malawi initiative is expected to achieve the following outcomes:

1. Improved climate-risk forecasting and early warning dissemination systems in vulnerable districts.
2. Strengthened renewable energy-water-food nexus systems and climate-smart infrastructure.

3. Enhanced adaptive capacity and climate resilience among vulnerable communities.
4. Increased participation of women and youth in climate innovation and green entrepreneurship.
5. Strengthened institutional coordination and climate technology transfer systems.
6. Improved climate investment readiness and scalability of climate resilience interventions.
7. Strengthened digital climate innovation ecosystems and localized adaptation systems.

Signature:	
NDE name:	
Date:	
Signature:	

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.