Country	**Mozambique**
Request ID#	**2024000002**
Title	**Development of a Framework and Roadmap for a National Innovation System to foster low-carbon and climate resilient economic development in Mozambique**
NDE	Ministry of Science, Technology and Higher Education, Department of Technology and Innovation, António Jorge Raul Uaissone Tonyraul13@hotmail.com; tonyraul23@gmail.com; antonio.uaissone@mctes.gov.mz
Proponent	Ministry of Science, Technology and Higher Education, Directorate of Science, Technology and Innovation Profa. Eugenia Cossa eugenia.cossa@mctes.gov.mz; eugeniacossa@gmail.com

Summary of the CTCN technical assistance

In the face of escalating climate change impacts and the imperative for sustainable development, developing countries such as Mozambique find themselves at the forefront of global challenges. Innovation is seen as a relevant tool with a double benefit, to respond to the adverse impacts of climate change, and to generate sustainable economic growth. As a structured approach to fostering innovation is required, the concept of national innovation systems (NIS) has been introduced and widely adopted at a global level. In order to harness the benefits of innovation, Mozambique has introduced the S&T Policy in 2003 and the STI strategy in 2006. Due to a lack of systemic development and a changing national and global environment, the government of Mozambique is currently revising the Policy and Strategy. A key gap is innovation, and therefore the Ministry of Science, Technology and Higher Education has requested this technical assistance on the development of a framework and roadmap for a national innovation system to foster low-carbon and climate resilient economic development. Besides the development of the NIS framework and roadmap, innovation support mechanisms will be reviewed and strengthened and an effective communication and engagement plan will be proposed.

Agreement:

(If possible, please use electronic signatures in Microsoft Word file format)

National Designated Entity to the UNFCCC Technology Mechanism
Name: ANTÓNIO JORGE RAUL UAISSONE
Title: Mr.
Date: 11/06/2024
Signature:

Proponent (signature of the Proponent is optional)
Name: Eugénia Flora Rosa Cossa
Title: Prof.
Date: 11/06/2024
Signature:

UNFCCC Climate Technology Centre and Network (CTCN)
Name: Rajiv Garg
Title: CTCN Director (a.i.)

Date: 12 June 2024

Signature: 

1. Background and context

In the face of escalating climate change impacts and the imperative for sustainable development, developing countries find themselves at the forefront of global challenges. The pursuit of economic growth, poverty alleviation, and social progress must now navigate the intricate landscape of climate vulnerability and environmental degradation. Developing countries are not only grappling with the traditional obstacles of development but are also contending with the urgent need to address climate change and build resilience against its effects.

Mozambique regularly experiences extreme weather events such as flooding, drought and cyclones. Natural disasters have repeatedly displaced tens of thousands of people. In the first half of 2019, two cyclones caused particularly severe damage, affecting some 1.8 million people. The central and northern parts of the country were hit by major tropical storms again in 2021 and 2022. Mozambique is also among the world's ten least developed countries. The country ranked 185th out of 191 countries on the Human Development Index (HDI) in 2022.

Innovation is seen as a relevant tool with a double benefit, to respond to the adverse impacts of climate change, and to generate sustainable economic growth. As a structured approach to fostering innovation is required, the concept of national innovation systems (NIS) has been introduced and widely adopted at a global level. The concept is defined as a "network of institutions in the public and private sectors, civil society, NGO's innovators and researchers whose activities and interactions initiate, import, modify and diffuse new technologies". At the core of the concept is the understanding that innovation, technical and economic progress are the result of a complex set of relationships among actors producing, distributing and applying various kinds of knowledge.

In 2003, the first Science and Technology (S&T) Policy was approved. The S&T Policy established the policies for building a national Science, Technology and Innovation (STI) system. In 2006, three years after the approval of the S&T Policy, the Government of Mozambique (GoM) approved Mozambique's Science, Technology and Innovation Strategy (ECTIM), the general objective of which was "to establish a favourable framework, including strategic objectives and programmes, which will allow Science, Technology and Innovation (STI) to be harnessed, thereby increasing its contribution to poverty reduction, economic growth and the social well-being of Mozambique's citizens".

In 2013, ECTIM had a mid-term evaluation in which it was found that the R&D system was weakly expanding and the results of technology and innovation in the country were very low. In 2020-2021, UNESCO carried out a review of the Research and Innovation (R&I) landscape in the country and concluded that the 2003 Policy and the 2006 Strategy were outdated. This review showed that although the policy and strategy had, to a certain extent, led to the expansion of the R&D system, they were largely framed around a linear approach to innovation and were not contributing adequately to the transformation of the economy. Furthermore, the National Research Fund (FNI) that has been implemented since 2009. However, lacked funds to cover the innovation sector in order to absorb the increased number of innovators.

For that purpose, the S&T Policy and ECTIM are currently being revised. One of the six strategic pillars of the draft resolution is the "Strengthening the Innovation Ecosystem" (Pillar 3). Mozambique requires a structured national innovation system to effectively foster innovation for a low-carbon and climate resilient economic development. This technical assistance aims to develop a framework and roadmap for the introduction of a national innovation system by including key stakeholders in the development process and creating platforms for continuous engagement.

2. Problem statement

Founded on the national and sectoral context as detailed in the section above, please include a brief problem statement clarifying the main problems and barriers for climate change mitigation and/or adaptation in terms of climate technologies that the CTCN Response Plan will address and overcome. (maximum 1250 characters including spaces).

While the science and technology components have made strides in being adopted, the innovation component has not been as fortunate in Mozambique. The review process of the current national policy and its strategy is in its final phase and will give more focus on innovation. To guide the enhancement of innovation capacities and outcomes for sustainable and low-carbon economic development in the country, a National Innovation System will need to be developed in a structured and strategic manner.

The innovation space currently faces several problems and barriers that are related to a lack of stakeholder coordination, governance and regulations, funding and investment, technology and infrastructure, as well as access to capacity building and support. These problems and barriers are further detailed below:

Stakeholder coordination and alignment:

- Links between national R&D institutes or centres, universities and the productive sectors are weak
- University research is not oriented to respond to the concerns of the productive sector;
- The productive sector does not have the culture of presenting its concerns to academia;

Governance and regulations:

- The 2003 S&T Policy and the 2006 ECTIM were only partially implemented and did not have a significant impact on strengthening the innovation ecosystem
- Public awareness of STI and political literacy on STI is still relatively low in the country
- Lack of adequate regulatory frameworks for new and emerging technologies such as AI, nanotechnology and the bioeconomy

Funding and investment:

- The NIF has insufficient resources, a low budget allocation and is largely centred on R&D, with little investment in technological development and innovation activities
- There is very limited funding from the business/private sector for STI
- The country relies heavily on external funding for R&D, and total annual GERD is less than 0.5 per cent of GDP
- There is excessive dependence on a very narrow range of funding sources and instruments

Capacity building and support

- The existing science and technology parks and technology transfer centres have few resources and are not well connected to SMEs, particularly those in the informal sector
- Over dependence on the Central Government for the establishment and funding of incubation facilities
- The country has a shortage of critical skills, particularly in STEM areas. Especially the number of women and girls enrolled in STEM courses is still considerably low

Technology and infrastructure

- Low advanced or cutting-edge R&D products being produced by R&D institutions;
- Over dependence of R&D funds for infrastructure on central government.

The problems and barriers are complex. This technical assistance will conduct a holistic review of the national innovation landscape in order to establish an effective framework for the Mozambique Innovation System.

3. Logical Framework for the CTCN Technical Assistance:

(Guidance: Please note that multiple activities lead to one Output, and multiple Outputs lead to one Outcome. There can be several Outputs, but only one Outcome description capturing the CTCN technical assistance. Deliverables are the products or services to be delivered to the NDE/Proponent/CTCN based on the Activities and the Outputs.)

	Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Objective: *To introduce an effective National Innovation System that fosters low-carbon and climate resilient economic development in Mozambique through endogenous innovation*															
Outcome: *The outcome of this technical assistance is an enhanced endogenous capacity for innovation through effective innovation policies, institutional innovation support and an enhancement of the innovation capacities across relevant stakeholders. Over time, this should lead to an improvement of key innovation performance indicators as defined under Activity 2.2.*															
Mandatory Output: Project management *All implementers must undertake the following project management activities at the beginning of, during and at the end of the CTCN technical assistance.*															
Activity A: Pre-implementation A detailed work plan of all activities, deliveries, outputs, deadlines and responsible persons/organisations and detailed budget to implement the Response Plan. The detailed work plan and budget must be based directly on this Response Plan; Based on the work plan, a monitoring and evaluation (M&E) plan with specific, measurable, achievable, relevant, and time-bound indicators used to monitor and evaluate the timeliness and appropriateness of the implementation. The monitoring and evaluation plan should apply selected indicators from the Closure and Data Collection report template and enable the lead implementer to complete the CTCN Closure and Data collection report at the end of the assignment (please refer to item iv below and section 14 in the Response Plan). This M&E plan also includes a CTCN Impact Description formulated in the beginning of the technical assistance which will be revised in the Closure and Data Collection report once the technical assistance is fully delivered (templates will be provided). Furthermore, a gender evaluation and gender action plan (GAP) will be prepared and followed throughout the technical assistance (a template will be provided).[1]														

[1] Additional information is available under Section 10 of the response plan.

Activity B: Implementation A project steering committee will be formed, consisting of the implementing team (international and local consultants), the NDE, the project proponent(s), and CTCN. This project steering committee will meet at least on a bi-annual basis in order to report project progress and discuss any questions and challenges.															
Activity C: Post-implementation A Closure and Data Collection report completed at the end of the technical assistance (a template will be provided). Project-end communication and dissemination activities will be conducted in collaboration with the CTCN Secretariat, which will include: • Development of a press release • Delivery of a knowledge sharing webinar • Organization of a dialogue with financial institutions for potential follow-on support															
Mandatory deliverables: Deliverable A: Detailed work plan; M&E plan; gender assessment and gender action plan Deliverable B: Project Steering Committee meeting reports Deliverable C: Closure and Data Collection report; press release, webinar, dialogue with financial institutions	X X					X						X			X X
Output 1: Introduction of Working Group															
Activity 1.1: Formulation of the NIS Working Group and inception workshop A NIS Working Group (NIS-WG) will be formed to accompany the development of the NIS framework and roadmap (Output 3), and the introduction of STI platforms (Output 4). The NIS-WG will be chaired by the Directorate of Science, Technology and Innovation and will include strategic stakeholders. The NIS-WG will consist of a maximum of 20 individuals. A fair representation of gender and youth should be ensured.															

A 2-day inception workshop will be held with the NIS-WG to present the workplan, to map the NIS environment, and to already identify expectations and requirements towards an NIS in Mozambique. The inception workshop will be held in-person. The venue and lunch/coffee supply will be covered. In addition, travel costs (lumpsum of 20 USD) will be paid for participants, but no allowances will be disbursed.														
Activity 1.2: Quarterly NIS Working Group meetings Quarterly meetings of the NIS-WG will be held in the months 4, 7, 10 and 13 to provide progress updates and validate the deliverables of outputs 2, 3, 4 and 5. A maximum of two of the quarterly meetings will be held in person. The in-person meetings will likely be in month 4 to review the market assessment (Output 2) and discuss the NIS Framework (Output 3), and in month 10 to finalize the NIS Policy Framework and initiate the work on the institutional innovation support schemes (output 4). For in-person meetings, travel costs (lumpsum of 20 USD) will be paid for participants. For virtual meetings, no costs will be covered.														
Deliverable 1: • Deliverable 1.1: NIS-WG member list, inception workshop material and attendance list with participants disaggregated by institution and gender • Deliverable 1.2: Quarterly Meeting Minutes, including meeting materials and attendance list with participants disaggregated by institution and gender	X			X			X			X			X		
Output 2: Evaluation of the national innovation environment for climate action														
Activity 2.1: Analysis of the national innovation environment for climate action As a first step, this activity will map and analyze policies and regulations related to innovation (innovation policies, intellectual property, taxations, subsidies, fiscal, import/export, etc.), related to the larger STI landscape, as well as those with a direct link to climate change and sustainable development. Special attention would be paid to the regulatory environment governing the operation of SMEs and start-ups and supporting structures, such as incubators and accelerators. On the STI-level, a review of the revised STI strategy and policy will be conducted in terms of requirements towards the development of the NIS. Beyond														

STI-related regulations, national climate action priorities, strategies, and policies, including NDCs, TNAs / TAPs, NAPs, as well as regional strategies, including the SADC industrialization strategy, will be mapped. As a second step, innovation-related organizations and initiatives as well as their activities and interactions will be mapped. Key stakeholders include, inter alia: (1) National government / ministries, (2) local government / municipalities, (3) private sector / firms / start-ups, (4) universities and research (R&D) institutions, (5) innovation support institutions (such as incubators and accelerators), (6) financing mechanisms / banks, and (7) industry associations. International organizations with relevancy for NIS in Mozambique should be included as well. For this purpose, bilateral interviews and surveys will be conducted. The Innovation Survey that was conducted by the MSTHE in 2013 – 2015 can be reviewed and used as a potential basis for this activity. As a third step, an innovation and technology assessment will be conducted in main economic sectors (agriculture, mining, etc.) and high potential economic sectors (tourism, energy, digitalization, etc.) for low carbon development, as well as high climate-vulnerability sectors. Innovations and technologies will be identified that are available immediately or in the near future and which may be of importance for Mozambique in terms of climate action and sustainable development. Several sectors have already been identified and prioritized by the updated STI Policy and Strategy which can be used as a basis. Existing studies can be used and referred to, such as the GO→SPIN Country Profile established by UNESCO in 2021 on "Mapping Research and Innovation in the Republic of Mozambique".														
Activity 2.2: Qualitative and quantitative assessment of the national innovation performance Qualitative, and quantitative innovation performance indicators will be identified and measured. These will be classified as input indicators and output indicators. Input indicators include funding (private and public sector R&D, venture capital, etc.) and human resources (professional education, higher education graduates, PhD, etc.). Output indicators include knowledge products (publications, patents, royalties, etc.), economic performance factors (per main economic sector, GDP growth, exports/imports of (high-technology) products), number of new SMEs/start-ups, innovation performance and performance with respect to "quality of life" indicators. Existing indices such as the 2019 World Economic Forum Global Competitiveness Report (GCR) and the WIPO-INSEAD-Cornell Global Innovation Index can be reviewed. Guidelines such as the OECD Oslo Manual or the African STI indicators should be considered. Where available, these indicators should also be set into perspective with countries at a similar stage of development.														

The result of this assessment should bring forth a set of indicators which can be used for periodic evaluations of the innovation performance and which inform the overall updated STI policy and strategy, in particular the planned National STI Observatory.															
Activity 2.3: Assessment of strengths, weaknesses, opportunities and barriers An analysis of the strengths, weaknesses, opportunities, and barriers related to the national innovation system will be conducted. Strengths and weaknesses are considered factors internal to Mozambique and its innovation system over which the country has some control. Whereas opportunities and barriers are external factors over which Mozambique has less control, but which can be harnessed or overcome. Strengths, weaknesses, opportunities and barriers should be classified including, inter alia, the following categories: • Policies, regulations, NDCs, TNAs etc. • Governance and leadership • Physical and digital infrastructure • Research and development (corporate and academic) • Entrepreneurship • Financing and investments • Innovation support environment • Human capital, education and skills • Gender and youth														
Deliverable 2: - National Innovation Environment Report				X											
Output 3: Development of a framework and implementation roadmap for the National Innovation System															
Activity 3.1: Development of the NIS Framework Under this activity, the Framework for the National Innovation System will be developed. This Framework will constitute a guiding document for the MCTES in terms of vision, priority areas, and mechanisms of the NIS, and how to structurally strengthen those. The Framework will include the following aspects:															

• Summary of the NIS status quo including SWOT analysis • Definition of high-level objectives of the NIS Framework • Linkages to existing STI and climate policies and strategies (as referenced under Chapter 7) and development plans, as well as to agendas of main economic sectors and related fields such as education • Innovation and R&D priorities • Design of the National Innovation System on a macro (innovation policy), meso (innovation support / promotion) and micro (innovation capacity / performance) level • Priority outputs and activities to be implemented on a short-, medium- and long-term, classified by level (macro, meso, micro) and type (regulations, governance, collaboration, capacity building, infrastructure, financing, etc.) • Monitoring and evaluation, including indicators and targets (in line with innovation indicators defined under Activity 2.3) • NIS Governance • Specific considerations for gender, youth and indigenous innovation The NIS framework should, in particular, be focused on innovation and technology for climate-neutral, sustainable economic development. A draft NIS Policy Framework will be presented at the quarterly NIS Working Group meeting in month 7, and a final draft will be submitted and validated at the quarterly meeting in month 10.														
Activity 3.2: Development of the NIS Implementation Roadmap As support for an effective operationalization of the NIS Framework, an actionable Implementation Roadmap will be developed. This roadmap will include the planned activities, including policy recommendations, support mechanisms and capacity development programmes on a timeline, as well as define the involved stakeholders, budget and the performance/impact indicators.														
Deliverables 3: • Deliverable 3.1: NIS Framework • Deliverable 3.2: NIS Implementation Roadmap							X 			X X				
Output 4: Strengthening institutional innovation support mechanisms														

Activity 4.1: Strategic recommendations for the revitalization of the Maluana Science and Technology Park A performance review of the Maluana Science and Technology Park will be conducted. Departing from the initial vision, objectives and activities, the performance in terms of satisfactory delivery of activities, resource mobilization, partnerships and private sector engagement will be evaluated. For that purpose, key documents will be made accessible by Maluana Science and Technology Park staff. Furthermore, several interviews should be conducted with staff, as well as key ecosystem stakeholders with past and present relations to the entity. Furthermore, conversations with Lund University staff who provide support to the Maluana Science and Technology Park in terms of capacity building and training will be held. A gap analysis in terms of performance and alignment with NIS requirements will then be conducted in order to identify areas of required improvement. This activity results in the development of strategic recommendations to revitalize the Maluana Science and Technology Park, in particular in terms of resource mobilization, private sector engagement, networking between stakeholders at a national level, collaboration with international institutions, and capacity building. A specific focus should be set on science and technology for climate action and sustainable economic development.														
Activity 4.2: Concept development for university innovation support centres In addition to the Maluana Science and Technology Park, a concept for the introduction of innovation support centres within universities in Mozambique will be developed. This responds to the low level of innovation outputs from universities, and the lack of collaboration between research and the private sector. This need has been identified in the UNESCO STI report from 2021, and it links to Pillar 3, Strategic Intervention (2) of the draft STI Policy and Strategy to create “Industrial Research and Development Centres” and enhance the connection between research and the private sector. These innovation support centres within universities will pursue the following objectives: • Monitor and inform research conducted at the university to identify and promote innovation • Act as points of contact for business and industry to map private sector needs and challenges, and develop joint innovation projects														

• Provide mentoring and infrastructure for students and researchers to develop startup spin-offs from university Best practices for innovation support schemes within universities will be identified at an international scale. Learnings can also be taken from the Universidade Eduardo Mondlane - Centre of Excellence for Petroleum and Gas. Consultations will be held with relevant and interested universities in Mozambique to receive inputs and feedback. This concept will provide a general framework for innovation support centres in Mozambique and will include a more detailed description for one prioritized university. This will include: • Objectives of innovation support centres • Key services areas • Potential sectoral focus areas • Governance and embeddedness in the National Innovation System landscape • Business model and funding mechanisms • Detailed concept for one prioritized university (including objectives, service areas, sectoral focus areas, governance, potential collaborations, required budget, funding mechanisms, and timeline)														
Activity 4.3: Definition of financing mechanisms and incentives for innovation support As identified in the UNESCO STI report in 2021, there is a significant gap in funding for STI overall, and in particular for innovation. The draft STI Policy and Strategy prioritizes the review of the FNI with a view to develop a strategy for mobilizing public and private funding at local and international level for STI. In line with the priority actions identified in the NIS Framework, this activity will define suitable financing mechanisms and incentives for the support of innovation activities in a detailed manner. Existing public and private sector financing options (national and international) as well as national-level incentives for innovation will be mapped again. Consultations will be held with financial institutions and startups to identify needs and challenges. International best practices in terms of financing and incentivizing innovation activities will be summarized. Concept sheets for the most suitable financing mechanisms and incentives (at least 3) will be developed. This may include: • Type of financing mechanism: Grants and subsidies, innovation funds and venture capital support, international and collaborative funding initiatives, hybrid financing models														

• Type of incentives: tax incentives, import regulations, green product indications, patent rights, R&D support, etc. • Targeted innovators: SMEs, startups, corporate innovation, academic innovation, etc.														
Deliverables 4: 1. Strategy for the revitalization of the Maluana Science and Technology Park 2. Concept note for university innovation support centres 3. Concept sheets for financing mechanisms for innovation support												X X X		
Output 5: Communication and engagement														
Activity 5.1: Development of a communication plan to promote innovation for climate action and sustainable economic development. To promote the NIS Framework, and through it the development and adoption of innovation for climate action and sustainable economic development, a multi-stakeholder communication plan will be developed. This communication plan will include the following aspects: • Objectives: What are the key objectives of communication, e.g. cultivating a culture of innovation, promoting endogenous innovation, engaging and growing the NIS, attracting resources • Key messages: What are the main messages to be transmitted to the various stakeholders? • Target audience: Who are the target audiences of the various communication activities, e.g. universities, private sector, media, financial institutions, etc. • Communication channels: What are the most suitable communication channels for each of the messages and target audiences, e.g. social media, radio/TV, websites, print media, events/conferences, etc. • Stakeholders: Who are the main stakeholders transmitting key messages, e.g. MCTES, NCST, universities, Maluana Science and Technology Park, etc.														
Activity 5.2: Organisation of an innovation dialogue An innovation dialogue will be a 1-day event to disseminate information on the NIS Framework and related resources, and most importantly facilitate dialogues between different stakeholders of the national innovation system around innovation for climate action and sustainable economic development. For that purpose, different formats will be organized, including roundtable discussions of similar stakeholders, as well as matchmaking booths for different stakeholders of the NIS to meet. The innovation dialogue will host a maximum of 50 participants from public sector, private sector, SMEs, startups, universities, NGOs,														

financial institutions and international organizations. The venue and lunch/coffee supply will be covered, but no allowances will be paid. After conclusion, an innovation dialogue report will be developed, including an outline on how such a format could be established on a regular basis to facilitate stakeholder interaction.															
Deliverables 5: - NIS Communication Plan - Innovation dialogue report, including list of participants disaggregated by gender and type of institution															X X

4. Resources required and itemized budget:

Please provide an indicative overview of the resources required and itemized budget required to implement the CTCN technical assistance, including for M&E-related activities, using the table below. Important to note that minimum 5% of the budget should explicitly target gender specific activities related to the technical assistance (please see section 10 for further information on gender). Once the Response Plan is completed, a Response Implementation partner(s) will be selected by the Climate Technology Centre (CTC). A detailed activity-based budget for the CTCN assistance will be finalized by the CTCN and selected Implementer.

Activities and Outputs	**Input: Human Resources** *(Title, role, estimated number of days)*	**Input: Travel** *(Purpose, national vs. international, number of days)*	**Inputs: Meetings/events** *(Meeting title, number of participants, number of days)*	**Input: Equipment/Material** *(Item, purpose, buy/rent, quantity)*	**Estimated cost** *Please accumulate the costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan*	
					Minimum	**Maximum**
Mandatory Output: Project Management					**6,600 USD**	**7,260 USD**
Activities: a) Pre-implementation	IE 1: 8 days NE1: 8 days NE3: 5 days				6,600 USD	7,260 USD

b) Implementation c) Post-implementation						
Output 1: Introduction of Working Group					**59,040 USD**	**64,944 USD**
Activity 1.1: Formulation of the NIS Working Group and inception workshop	IE1: 5 days IE2: 3 days IE3: 3 days NE1: 10 days NE2: 2 days NE3: 2 days	International travel for IE1, IE2, IE3 Local travel for NE1, NE2, NE3 and 20 WG participants. Lumpsum of 20 USD for local travel of participants within Maputo will be covered. 200 USD for local travel of participants from outside Maputo will be covered.	2-day NIS Working Group kick-off workshop in-person in Maputo Venue and lunch/coffee supply will be covered.		20,640 USD	22,704 USD
Activity 1.2: Quarterly NIS Working Group meetings	IE1: 10 days IE2: 10 days IE3: 6 days NE1: 8 days NE2: 4 days NE3: 4 days	2 international travels for IE1, IE2, IE3 2 local travels for NE1, NE2, NE3 and 20 WG participants.	2 NIS Working Group meetings in person in Maputo, 2 NIS Working Group meetings virtually.		34,400 USD	37,840 USD

		Lumpsum of 20 USD for local travel of participants within Maputo will be covered. 200 USD for local travel of participants from outside Maputo will be covered.	Venue and lunch/coffee supply will be covered.			
Output 2: Evaluation of the national innovation environment for climate action					**36,100 USD**	**39,710 USD**
Activity 2.1: Analysis of the national innovation environment for climate action	IE1: 15 days IE2: 15 days NE1: 25 days NE3: 5 days	Local travel for NE1, NE3 for data collection and stakeholder meetings			22,600 USD	24,860 USD
Activity 2.2: Qualitative and quantitative assessment of the national innovation performance	IE1: 10 days IE2: 5 days NE1: 10 days NE3: 1 day				9,700 USD	10,670 USD
Activity 2.3: Assessment of strengths, weaknesses, opportunities and barriers	IE1: 3 days IE2: 3 days NE1: 3 days NE3: 1 day				3,800 USD	4,180 USD

Output 3: Development of a framework and implementation roadmap for the National Innovation System					**46,800 USD**	**51,480 USD**
Activity 3.1: Development of the NIS Framework	IE1: 20 days IE2: 30 days IE3: 3 days NE1: 30 days NE2: 5 days NE3: 5 days				34,500 USD	37,950 USD
Activity 3.2: Development of the NIS Implementation Roadmap	IE1: 10 days IE2: 5 ays IE3: 2 days NE1: 15 days NE2: 2 days NE3: 2 days				12,300 USD	13,530 USD
Output 4: Strengthening institutional innovation support mechanisms					**35,600 USD**	**39,160 USD**
Activity 4.1: Strategic recommendations for the revitalization of the Maluana Science and Technology Park	IE1: 15 days IE2: 5 days IE3: 2 days NE1: 15 days NE2: 2 days NE3 : 2 days				14,800 USD	16,280 USD

Activity 4.2: Concept development for university innovation support centres	IE1: 15 days IE2: 5 days IE3: 2 days NE1: 15 days NE2: 2 days NE3: 2 days				14,800 USD	16,280 USD
Activity 4.3: Definition of financing mechanisms and incentives for innovation support	IE1: 10 days NE1: 5 days				6,000 USD	6,600 USD
Output 5: Communication and engagement					**39,960 USD**	**43,956 USD**
Activity 5.1: Development of a communication plan to promote innovation for climate action and sustainable economic development.	IE1: 5 days IE2: 2 days IE3: 15 days NE1: 5 days NE2: 10 days NE3: 2 days				14,400 USD	15,840 USD
Activity 5.2: Organisation of an innovation dialogue	IE1: 5 days IE2: 5 days IE3: 10 days NE1: 5 days NE2: 10 days NE3 : 2 days	International travel for IE1, IE2, IE3 Local travel for NE1, NE2, NE3 and 50 participants	1-day innovation dialogue with 50 participants. Venue and lunch/coffee supply will be covered.		25,560 USD	28,116 USD

		200 USD for local travel of participants from outside Maputo will be covered.				
Estimated range of costing for the entire Response Plan					**220,100 USD**	**242,110 USD**

5. Profile and experience of experts

Based on the required Human Resources identified in section 4 (Resources required and itemized budget) please provide a description of the required profile of all involved experts for the implementation of the CTCN Response Plan.

Experts required	Brief description of required profile
International consultants	
Climate innovation expert (IE1)	• Master's degree or higher in public policy, environmental policy, environmental engineering, economics, or a related field • At least 10 years of experience in a lead role in implementing national and international development projects related to climate change adaptation and mitigation projects, as well as climate innovation and policy • Experience with coordinating and liaising with multiple national and international stakeholders • Experience with developing policy frameworks linked to climate innovation • Experience with setting up innovation support schemes (i.e. incubators, accelerators) • Prior experience in Southern Africa highly desirable
Innovation policy expert (IE2)	• Master's degree or higher in public policy, environmental policy, economics, or a related field • At least 10 years of experience in developing innovation policy frameworks and roadmaps, and more specifically for national innovation systems • Experience with analyzing National Innovation Systems and STI-related performance indicators

	• Prior experience in Southern Africa highly desirable
Communication and capacity building expert (IE3)	• Master's degree or higher in public policy, communication, or a related field • At least 10 years of experience in developing communication strategies and plans related to innovation and climate change mitigation and adaptation • Experience with capacity building activities, ideally in the area of innovation and/or climate change mitigation and adaptation • Prior experience in Southern Africa highly desirable • Fluency in English and Portuguese
National consultants	
Innovation policy expert (NE1)	• Bachelor's degree or higher in public policy, environmental policy, economics, or a related field • At least 7 years of experience in developing policies related innovation and climate change mitigation and adaptation • Experience with analyzing STI-related performance indicators • Strong familiarity with the National Innovation System, including policies, strategies, stakeholders, and activities in Mozambique • Based in Mozambique • Fluency in Portuguese
Communication and capacity building expert (NE2)	• Bachelor's degree or higher in public policy, communication, social science, or a related field • At least 7 years of experience in developing communication strategies and plans related to innovation and climate change mitigation and adaptation, targeting multiple stakeholders • Experience with capacity building activities, ideally in the area of innovation and/or climate change mitigation and adaptation • Strong familiarity with the innovation and climate change mitigation and adaptation context in Mozambique • Based in Mozambique • Fluency in Portuguese

Gender expert (NE3)	• Bachelor's degree or higher in public policy, gender studies, social science, or a related field • At least 7 years of experience in integrating gender considerations in policy development, ideally in the area of innovation and/or climate change mitigation and adaptation • Experience with mainstreaming gender aspects throughout project implementation, including in market assessments, decision making processes, policy development, and capacity building • Strong familiarity with gender aspects in Mozambique • Based in Mozambique • Fluency in Portuguese

6. Intended contribution to impact over time

Please provide a brief description of the intended contribution to impact over time of the outcome and outputs provided by this technical assistance on resilience to climate change and/or carbon abatement. To the extent possible, please quantify the intended impact contribution, for example by indicated estimated number of people potentially impacted over time, GDP contribution of the focus sector, carbon emissions by the focus sector, etc. This intended contribution to impact is what will happen if the objective (as articulated in section 3) is met. Please ensure relevant complementarity with text in sections 7 to 12. (maximum 1250 characters including spaces)

Following the implementation of this technical assistance, the NIS Framework, Roadmap and Communication Plan will be executed, and the revitalization of the Maluana Science and Technology Park, and introduction of innovation support centres in universities will be operationalized. The contribution over time will be an enhanced capacity for endogenous innovation for climate change mitigation and adaptation which will eventually contribute to the low-carbon and climate resilient economic development of Mozambique. This contribution will be continuously monitored through the performance indicators (including GHG emissions, GDP contribution, people impacted, etc.) defined within the NIS Policy Framework.

7. Relevance to NDCs and other national priorities

Please identify relevance and contribution from the technical assistance to the Nationally Determined Contributions (NDC) and other relevant national prioritized efforts (TNAs, TAPs, NAPs, NAMAs, etc.). (maximum 2500 characters including spaces)

Updated NDC, 2021:
The updated National Determined Contributions from 2021 emphasize the commitment to decarbonization but also the vulnerability to climate change that Mozambique is facing. A number of technologies across sectors are prioritized that need to be adapted to the local conditions and implemented. For this purpose, science, technology and innovation efforts are crucial. This technical assistance is supporting climate technology innovation towards the NDCs.
Source: https://unfccc.int/sites/default/files/NDC/2022-06/NDC_EN_Final.pdf

Mozambique Second National Communication to the United Nations Framework Convention on Climate Change, 2022:
The Second National Communication to the UNFCCC from November 2022 details the efforts made by Mozambique in terms of climate change mitigation and adaptation, as well as the state of impact of climate change on the country. Innovation is mentioned at several moments as an important lever for climate technology development and implementation. This technical assistance is enabling climate technology innovation in favor of climate mitigation and adaptation.
Source:
https://unfccc.int/sites/default/files/resource/Mozambique%20Second%20National%20Communication.pdf

National Adaptation and Mitigation Strategy Climate Change, 2023:
The National Adaptation and Mitigation Strategy for Climate Change was published in 2023 in order to lay out objectives and strategic interventions to mitigation climate change and increase the resilience of the country to the consequences of climate change. The National ICT Strategy is cross-referenced here as an important contributor to climate technology solutions. This technical assistance is enabling climate technology innovation in favor of climate mitigation and adaptation.
Source: https://www.mta.gov.mz/wp-content/uploads/2023/09/Estrategia-Nacional-de-Adaptacao-e-Mitigacao-as-Mudancas-Climaticas-PT.pdf

National Adaptation Plan, 2023 :
The National Adaptation Plan launched in 2023 lays out a detailed action plan for adapting to impact of climate change at national level. Technology innovation is part of several strategic priorities to increase the resilience to climate change. Innovation in urban centres is mentioned several times. This technical assistance is enabling climate technology innovation in favor of climate change adaptation.
Source: https://www.mta.gov.mz/wp-content/uploads/2023/09/Plano-Nacional-de-Adaptacao-de-Mocambique_EN-1.pdf

National Science and Technology Policy and Strategy (currently under revision):
The National Science and Technology Policy and Strategy that is currently under revision aims "to guarantee excellence in Science, Technology and Innovation as fundamental catalysts for achieving a prosperous, competitive and sustainable country". It is proposing six strategic pillars:

1. Strengthening the National Science, Technology and Innovation System;
2. Promoting STI for the transformation of society;
3. Strengthening the Innovation Ecosystem;
4. Strengthening the National Human Capital;
5. Promoting International STI Partnerships;
6. Strengthening the ability to exploit cutting-edge technologies.

This technical assistance is directly responding to strategic pillar (3) on "Strengthening the Innovation Ecosystem".

8. Linkages to relevant parallel on-going activities:

Please identify relevant previous and ongoing public and private sector initiatives, projects or programmes that the CTCN assistance will specifically build on and contribute to. To the extent possible, please add practical and operational details on the linkages between existing activities and the CTCN assistance. (maximum 2500 characters including spaces)

The S&T Policy from 2003 and Strategy from 2006 is currently under revision and likely to be adopted in 2023. The draft resolution directly refers to NIS within Pillar 3 "Strengthening the Innovation Ecosystem" which includes the following strategic interventions:

- Strengthening national science and technology parks
- Support for SMEs in technological research and innovation
- Strengthening Science and Technology Parks to incubate technology-based companies

Beyond Pillar 3, the other STI-related pillars of the draft resolution are equally relevant to the NIS framework. Therefore, a close alignment with the revised S&T Policy and Strategy will be crucial for the development of an effective NIS framework.

Since 2018, the Centre for Research and Technology Transfer for Community Development (CITT) is delivering the National Competition for Innovations for Community Development in order to identify innovative solutions at national level for sustainable community development with a specific focus for each edition of the competition, such as vegetable production, post-harvest management, sustainable water use and agro-processing. This competition can be further integrated into the larger landscape of the national innovation system.

In 2023, the MSTHE has signed an MoU with UNDP to design a national platform to facilitate the sharing of innovative ideas and solutions for the sustainable development of Mozambican society, focusing on socio-economic and environmental areas. This will be a digital platform on which innovators will showcase their innovations, and interested parties (banks, companies, NGOs,

individuals, among others) will have the opportunity to interact with proponents and create synergies for the development of innovations.

The MSTHE has signed an agreement with Lund University in 2023, under which the Maluana Science and Technology Park will be supported with a focus on (1) joint development and design of innovation, science and technology frameworks, (2) promotion of joint research activities and projects, (3) promoting exchange of scientists, innovators and students for join research, teaching and study, (4) organization of joint events, training sessions, hackathons and incubation programs, (5) reciprocal visits for seminars, conference and academic meetings, and (6) exchange of publications.

9. Anticipated follow up activities after this technical assistance is completed:

The technical assistance will set a basis in terms of innovation policy, institutional innovation support and innovation capacity enhancement. In order to operationalize the elements of this technical assistance and continuously foster innovation for sustainable and low-carbon development in Zambia, national stakeholders will deliver the following activities after completion of the CTCN technical assistance:

- Adoption of the NIS Policy Framework by following the NIS Implementation Roadmap
- Continuous performance measurement of key innovation success indicators as defined per NIS Policy Framework and Implementation Roadmap
- Revitalization of the Maluana Science and Technology Park, and operationalization of the Innovation Support Centres in universities to support endogenous innovation through financing and expertise; and ongoing identification of cooperation and (co-)financing opportunities
- Introduction of innovation dialogues to incentivize communication and collaboration between stakeholders
- Delivery of the multi-stakeholder communication plan in order to create awareness about opportunities, support and event, and reduce asymmetric information

10. Gender and co-benefits:

Each technical assistance must integrate gender mainstreaming activities and lead to gender and other co-benefits. At least 5% of the technical assistance budget need to be allocated to gender mainstreaming activities.

Imbedded in design of the activities:	The technical assistance will integrate gender mainstreaming transversally in the project implementation. This will include the following actions: • Conduct innovation environment analysis with a particular focus barriers and opportunities related to gender • Support gender sensitive policy planning across all activities, ensuring that it adequately incorporates gender considerations • Ensure equal gender representation in key decisions • Advocate for equity in all policy development and implementation • Support interventions aimed at increased participation of vulnerable groups in the delivery of the innovation dialogue • Develop and implement methods to monitor the increase of opportunities for innovation by and employment of women

	A national gender expert will be included in the delivery team to ensure a gender sensitive implementation of activities. The gender expert will be tasked with conducting a gender assessment and developing a gender action plan to be implemented transversally across the project.
Gender and co-benefits intended as result of the activities:	Based on the above interventions to prioritize gender and co-benefits, the following results are expected from the technical assistance: • Gender sensitive NIS Framework that increases opportunities for women involvement and employment • Enhanced skills and inclusion of women in the area of innovation through capacity building and networking

11. Main in-country stakeholders in implementation of the technical assistance activities:

Using the table below, please list and describe the role of in-country stakeholders, participants and beneficiaries who will be involved in or directly consulted during implementation of the assistance.

In country stakeholder	Role in implementation of the technical assistance
Ministry of Science, Technology and Higher Education (incl. NDE)	Technical assistance coordination, chair of the NIS Working Group, facilitation of data collection and stakeholder meetings, framework shaping and development, participation in innovation dialogue
Ministry of Economy and Finance	Partial participation in NIS Working Group, provision of sectoral information on STI and innovation related to climate, framework shaping and development, participation in innovation dialogue
Other Ministries: - Ministry of Health - Ministry of Agriculture and Rural Development - Ministry of the Sea, Inland Waters and Fisheries - Ministry of Mineral Resources and Energy - Ministry of Industry and Trade - Ministry of Education and Human Development - State Secretariat for Youth and Employment - Ministry of Land and Environment	Partial participation in NIS Working Group, provision of sectoral information on STI and innovation related to climate, framework shaping and development, participation in innovation dialogue
National Council for Science and Technology	Partial participation in NIS Working Group, provision of sectoral information on STI and innovation related to climate, framework shaping and development, integration of innovation aspects in Council responsibilities, participation in innovation dialogue

Universities and research institutes (private and public) - Universidade Eduardo Mondlane - Universidade Pedagógica - Universidade Católica de Moçambique - Universidade Lúrio - Universidade Técnica de Moçambique - Instituto Superior de Ciências da Saúde (ISCISA) - Instituto Superior de Ciências e Tecnologias de Moçambique (ISCTEM) - Instituto Superior de Transportes e Comunicações (ISUTC) - Instituto Superior de Formação, Investigação e Ciência (ISFIC) - Instituto Superior de Ciência e Tecnologia Alberto Chipande (ISCTAC) - Instituto Superior de Ciências Empresariais e Tecnológicas (ISCET) - Centro de Investigação e Transferência de Tecnologias para o Desenvolvimento Comunitário (CITT) - Centro Nacional de Biotecnologia e Biociências (CNBB) - Instituto Nacional de Tecnologias de Informação e Comunicação (INTIC) - Academia de Ciências de Moçambique (ACM) A detailed list is available in the 2021 UNESCO report.	Partial participation in NIS Working Group, provision of information related to STI, policy shaping and development, hosts of Innovation Support Centres, participation in innovation dialogue
Lund University	Coordination of activities related to Maluana Science and Technology Park
National Research Fund (FNI)	Participation in NIS Working Group, provision of financial information related to STI, engagement as potential financing partners for follow-up activities and Innovation Support Centres, participation in innovation dialogue
Other Financing institutions and mechanisms: - Bank of Mozambique - Millennium BIM - BCI - Standard Bank	Partial participation in NIS Working Group, provision of financial information related to STI, engagement as potential financing partners for follow-up activities and Innovation Support Centres, participation in innovation dialogue

- African Business Angel Network (ABAN)	
Maluana Science and Technology Park	Provision of information related to STI support; consultation on NIS Framework; beneficiary of the strategy to revitalize Maluana Science and Technology Park; participation in the innovation dialogue
Innovation support programmes: - MozDevz - IdeiaLab	Provision of information related to STI support; consultation on NIS Framework; participation in the innovation dialogue
Private sector: - Companies - SMEs and startups	Partial participation in NIS Working Group, provision of information related to corporate STI activities, participation in innovation dialogue
Industry organizations	Partial participation in NIS Working Group, provision of information related to industrial STI activities, participation in innovation dialogue

12. SDG Contributions:

*Instructions: Please complete the grey section below for **a maximum of three SDGs** that will be advanced through this TA. A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/.*

Goal	Sustainable Development Goal	Direct contribution from CTCN TA (1 sentence for top 1-3 SDGs)
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	This technical assistance aims to build an effective National Innovation System that promotes inclusive and equitable education.
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	This technical assistance aims to promote a National Innovation System that fosters endogenous

		innovation for a low-carbon and climate resilient economic development in Mozambique. This enables sustainable economic growth and productive employment.
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient and sustainable	
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	*All TAs should indicate relevance to Goal 13 and at least one target below (13.1 to 13.b).*
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	
	13.2 - Integrate climate change measures into national policies, strategies and planning	This technical assistance aims not only to enhance the National Innovation System of Mozambique but also to mainstream climate innovation within this NIS Framework.
	13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	
	13.a - Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	
	13.b - Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

13. Classification of technical assistance:

Please indicate primary type of technical assistance. Optional: If desired, indicate secondary type of technical assistance.

Please tick off the relevant boxes below	*Primary*	*Secondary*
☐ 1. Decision-making tools and/or information provision	☐	x
☐ 2. Sectoral roadmaps and strategies	☐	☐
☐ 3. Recommendations for law, policy and regulations	x	☐
☐ 4. Financing facilitation	☐	☐
☐ 5. Private sector engagement and market creation	☐	x
☐ 6. Research and development of technologies	☐	☐
☐ 7. Feasibility of technology options	☐	☐
☐ 8. Piloting and deployment of technologies in local conditions	☐	☐
☐ 9. Technology identification and prioritisation	☐	☐

Please note that all CTCN technical assistance contributes to strengthening the capacity of in country actors.

14. Monitoring and Evaluation process

Upon contracting of the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. The monitoring and evaluation plan must include specific, measurable, achievable, relevant, and time-bound indicators that will be used to monitor and evaluate the timeliness and appropriateness of the implementation. The CTCN Technology Manager responsible for the technical assistance will monitor the timeliness and appropriateness of the Response Plan implementation. Upon completion of all activities and outputs, evaluation forms will be completed by the (i) NDE about overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance; and (iii) the CTCN Director about timeliness and appropriateness of the delivery of the activities and outputs.