

# Readiness and Preparatory Support Proposal Template

<b>Programme title:</b>	Update the technology needs assessment and develop a technology road map for prioritized technologies to address climate change challenges in the most critical sectors of the economy
<b>Country:</b>	Botswana
<b>National designated authority:</b>	Mr. Boniface Mphethle, Ministry of Finance and Economic Development
<b>Implementing Institution:</b>	UNEP – The Climate Technology Centre and Network (CTCN)
<b>Date of first submission:</b>	31 August 2019
<b>Date of current submission / version number</b>	Click or tap to enter a date. V.##



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- Please visit the [Empowering Countries](#) page of the GCF website to download the Readiness Guidebook and learn how to access funding under the GCF Readiness and Preparatory Support Programme.
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- Please be concise. If you need to include any additional information, please attach it to the proposal.
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Throughout this document, when answering questions and providing details, please make sure to pay special attention to environmental, social and gender issues, particularly to the situation of vulnerable populations, including women and men. Please be specific about proposed actions to address these issues. Consult Annex IV of the Readiness Guidebook for more information.

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## 1. SUMMARY

<b>Country submitting the proposal</b>	Country name:	Botswana	
	Name of institution representing NDA or Focal Point:	Ministry of Finance and Economic Development	
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Additional email addresses that need to be copied on correspondences:	<a href="mailto:btsealetsa@gov.bw">btsealetsa@gov.bw</a> <a href="mailto:gnmogotsi@gov.bw">gnmogotsi@gov.bw</a> <a href="mailto:PLesolle@bitri.co.bw">PLesolle@bitri.co.bw</a>		
<b>Date of initial submission</b>	31 August 2019		
<b>Last date of resubmission</b>	Click or tap to enter a date. (Please update for each resubmission.)	<b>Version number</b>	V.2
<b>Which institution will implement the Readiness and Preparatory Support project?</b>	<input type="checkbox"/> National designated authority <input type="checkbox"/> Accredited entity <input checked="" type="checkbox"/> Delivery partner		
	Please provide contact information if the implementing partner is not the NDA/focal point		
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<b>Title of the Readiness support proposal</b>	Update the technology needs assessment and develop a technology road map for prioritized technologies to address climate change challenges in the most critical sectors of the economy		



<p><b>Type of Readiness support sought</b></p>	<p>Please select the relevant GCF Readiness activity area below (click on the box):</p> <ul style="list-style-type: none"><li><input type="checkbox"/> I. Country capacity for engagement with GCF</li><li><input checked="" type="checkbox"/> II. Country programming process</li><li><input type="checkbox"/> III. Direct access to climate finance</li><li><input type="checkbox"/> IV. Climate finance accessed</li><li><input type="checkbox"/> V. Formulation of national adaptation planning and/or other adaptation planning processes</li></ul>
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**Brief summary of  
the request**

This proposal seeks to provide technical assistance to the Government of Botswana to assist it to update its Technology Needs Assessment (TNA) and develop a technology roadmap for prioritized technologies to addressing climate change challenges in the most critical sectors of the economy in line with its NDC. An international review of the state of climate change legislation in 2015 found that although Botswana's desertification is being exacerbated by climate change, a comprehensive response to climate change has still not been formulated. This proposal will build on significant policy development over the past 5 years resulting from preparation of Botswana's NDC (2015), Nationally Appropriate Mitigation Action (2016), SE4All Action Agenda (2017) and 3rd National Communication to the UNFCCC (draft, 2019).

Botswana's Vision 2036 sets a target of 50% renewable electricity on the system by 2036. In the longer-term, it is anticipated that renewable energy will make a significant contribution to the Botswana's greenhouse gas emissions targets, which, under the UNFCCC, is currently set at 15% reduction relative to business as usual by 2030. This focus on sustainable energy sources has resulted in the urgent need for the Government to update its TNA, a document published in November 2004. Botswana's NAMA (2016) cites a number of barriers aimed at explaining the lack of progress in implementing Botswana's TNA (2004), including the lack of an enabling and conducive environment for operations of the mitigation projections, the high and long term investment nature of the projects, existing subsidies on substitutes of climate mitigation projects and the lack of trained personnel to develop climate change proposal.

The initial TNA developed in 2004, focused on the following sectors with a technological focus on coal washing (CBM), biofuels and methane abatement:

Mitigation	Adaptation
Energy	Water conservation
	Social acceptability of wastewater
	Agriculture

Throughout the course of discussions with officials through the first workshop aimed at preparing this technical assistance, additional sectors were identified through discussion with the Ministries, agencies and private sector entities. The updated TNA will identify, by means of the development of local content, the most suitable environmentally sound technologies that will be integral to delivering on Botswana's mitigation and adaptation climate ambition prioritised in the NDC.

Botswana's Third National Communication to the UNFCCC (draft, 2019) identifies several factors that create barriers within the market that affects climate investment. It cites capacity building challenges such as 'Lack of capacity to develop bankable and green projects', 'lack of skilled manpower' and 'a lack of funds for specialised training'. Sectoral specific barriers include the lack of farmers adaptive capacities, lack of knowledge of water demand management and energy and housing standards and limited awareness of business models and instruments across SMEs and industry to stimulate take-up of technologies. The Government of Botswana also cited challenges of investment in renewable energy in terms of upfront costs, and challenges in terms of quality assurance associated with product deployment. The anticipated outcome of this submission is an updated TNA that presents a number of strategic, long-term, participatory measures and actions in sectors, aligned to national policy, that have the greatest contribution to meeting Botswana's energy transition as well as achieve its adaptations needs mainly in the water and Agriculture sectors. The anticipated sectors that this proposal will prioritise include:

Mitigation	Adaptation
Energy, including Renewable Electricity	Water
Energy Efficiency, the Built Environment	Agriculture
Industrial processes	

This sectoral and technology prioritization exercise will be informed by the mitigation and adaptation prioritized in the Botswana NDC (2015), NAMA (2016), and the Government's Climate smart agriculture project (2015-2025). This project will integrate the Government's efforts in infrastructure planning and design in order to mitigate the effects of climate change.

The technical assistance will support national stakeholders and engage with key beneficiaries in prioritizing key technologies in each of the selected sectors. On this basis, a technology action plan will be developed to identify the critical path of actions to be agricultural development and food security undertaken to meet Botswana's climate objectives and implementing the TNA. A process of institutional strengthening has begun through the development of its NDC (2015), as represented through the establishment of Botswana's Climate Change Committee.

These positive developments reflect a country driven and participatory approach that will enable endogenous capacities to be developed across key stakeholders within Government including Ministries involved in the process (including Environmental Affairs (Departments of Meteorological Services), Energy, Finance and Economic Development, Agricultural Development and Food Security, Tertiary Education, Research, Science and Technology, Finance and Economic Development, Basic Education). TNA development and implementation will also engage with key beneficiaries of the project throughout its various phases. Such beneficiaries include In private sector, NGOs and academia. Depending on the sector identified these beneficiaries could include technology installers, building technicians and power engineers, building owners and facilities managers, financiers, investors, commercial lenders. Engagement with government stakeholders and wider beneficiaries will aid the development and submission of environmentally sound, robust and financially scalable project ideas resulting from the technical assistance.

This GCF assistance will enable the Government of Botswana to further develop its country-driven, participatory approach to climate action and complement activities to meet the goals of their existing policies, such as its NDC (2015) and actions outlined in 11th National Development Plan (NDP, 2017-2023), including approaches to ensuring environmental sustainability and mainstreaming climate change into development processes. Goal 13 of the NDP commits to Botswana to 'Take urgent action to combat climate change and its impacts'. In pursuing this objective, the Government commits to undertake programmes and projects aimed at ensuring a high level of environmental sustainability. This proposal aims to meet this objective and will also complement the proposal aimed at NDA strengthening and country programming (2019 GCF, with GIZ as implementing partner).

The Government of Botswana has initiated the NAP process and is collaborating with NAP Global Network to establish an institutional framework and identify what technology and capabilities are required to implement the NAP Framework. This institutional framework may integrate with the national TNA institutional structure and provide them with an additional coordination function.

The work will be conducted taking into consideration the broader context of the Technology Needs Assessments conducted by many countries and recognized by the COP as a key element for technology identification and planning to address climate change challenges. The development of the reports will take into account the guidance developed and available on <http://www.tech-action.org/>. CTCN is collaborating with UNEP-DTU since Phase I of the TNA-GEF project. A preparatory meeting was held between CTCN and UNEP-DTU on the TNA process to feed also results and lessons learnt into this process and to contribute to an increased understanding and quality of the TNA process worldwide.



<b>Total requested amount and currency</b>	USD 294,659	<b>Anticipated duration</b>	18 months
<p><b>Has the country received or is expecting to receive other Readiness and Preparatory Support funding allocations (including adaptation planning) from GCF or other donors?</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>NDA Strengthening &amp; Country Programming – March 2019; Through GIZ</p> <p>“National framework for leapfrogging to Energy Efficient Appliances and Equipment in Botswana (Refrigerators and Distribution Transformers) through regulatory and financing mechanism”. Through UNEP-CTCN</p> <p>UNEP-CTCN - National framework for leapfrogging to Energy Efficient Appliances and Equipment. Delivery Partner UNEP-CTCN.</p>		

## 2. BACKGROUND

Botswana's key economic sectors are vulnerable to the impacts of climate change and so is the economy's ability to create further employment. Climate change has continued to impact negatively on the environment of Botswana resulting in prolonged droughts, severe heat waves, and extreme weather patterns that adversely affect various economic sectors, such as agriculture and health. The impact from such endemic droughts results in water and food scarcity that have accompanied shifts in the rainfall season. Botswana's strategy for economic growth and employment creation, within its 11<sup>th</sup> National Development Plan (NDP, 2017-2023), identifies areas for intervention across mitigation and adaptation technology, including sustainable management of natural resources, and relieving pressure on the social and economic systems.

Botswana is a water scarce country, with varied rainfall and is highly susceptible to drought. It is dependent on groundwater resources to meet the water demand for various sectors of the economy. The groundwater resources are mostly fossil type and caution is exercised in its exploitation to avoid their depletion. In 2015 Botswana had a population of 2.26m people, compared to 1.86m in 2005 and its population is becoming steadily more urbanized, with the percentage of the population living in urban areas increasing from 55% in 2005 to over 57% in 2015.

Botswana's climate is semi-arid, albeit hot and dry for much of the year, coupled with erratic, unpredictable and highly regional rainfall with low levels of humidity. It relies heavily on electricity, coal, fuelwood and petroleum for its energy demands and assessments show significant potential for solar energy. Currently Botswana's demand is met through electricity imports, primarily from South Africa. Agriculture, especially traditional, is a significant sector for the economy and focusses on crops and livestock production. These small-scale farmers require continued assistance in capacity building to commercialize agriculture. Crop production is hampered by traditional farming methods, recurrent drought, erosion, and disease. Diamond exports provide Botswana's economy with strong supplies of foreign exchange and have offered a basis for industrial development and stimulated improvements in Botswana's infrastructure, and seeks to further diversify its economy away from minerals.

The technical assistance will support national stakeholders in prioritizing key technologies in each of the selected sectors. On this basis, a technology action plan will be developed to identify the critical path of actions to be agricultural development and food security undertaken to meet Botswana's climate objectives and implementing the TNA. A process of institutional strengthening has begun through the development of its NDC (2015), as represented through the establishment of Botswana's Climate Change Committee.

Botswana relies mainly on electricity, coal, fuelwood and petroleum for its energy demands. It currently generates most of its power from coal and has reserves of circa 200 billion tons. The country has significant solar potential, with 3,200 hours of sunshine per year. Only a portion (450 MW) of installed capacity is available to produce power, and additional demand is met through electricity imports, primarily from neighbors South Africa, Namibia and Mozambique. The Government of Botswana has established a national electricity access target of 100% by 2030. Electrification in urban areas stands at 75 % and 57% in rural areas while national average electrification is 62%. A World Bank study on off-grid renewable energy (2016) identified how Botswana could meet 18.5% of electricity demand using renewable energy sources by 2030. This GCF project will further complement this analysis and will also be influenced by the World Bank's recent announcement (2019) to aid Botswana in developing a renewable energy strategy, whose objective is to unlock the country's solar energy potential.

Key inputs into this project include Botswana's National Development Plan 2017-2023, NDC, NAMA, UNFCCC (draft) communication and relevant ongoing UNDP and GEF projects dedicated to Botswana and alleviating the impact of climate change. Activities include assessing national policies (including development plans, private sector development strategies and existing national policies for private sector engagements and enhanced energy/environmental performance). Knowledge on mitigation and adaptation sectors for prioritization are identified within the NDC but the measures and technology priorities have not been explicitly detailed. A workshop review of existing measures, initiatives and commitments has identified the following sectors as ones where preliminary assessment could commence: (i) energy, including renewable electricity (ii) energy and the built environment (iii) water (iv) agriculture and (v) industry, including innovative business models. The project will also assess the Botswana Government's sectoral plans and proceedings from the technology workshops conducted, where stakeholders aim to establish sectoral priorities for the fulfilment of the updated TNA.. The purpose of this activity is to clearly identify the most suitable sub-sectors and validate this outcome with key stakeholders in a series of workshops. These sectoral priorities will allow for technology identification for mitigation and adaptation and a drafting of the TNA and action plan. This proposal will complement ongoing World Bank, GEF and UNDP initiatives, including the proposal aimed at NDA strengthening and country programming (2019 GCF, with GIZ as implementing partner). Identification of sectors for future economic growth and potential emissions abatement will be validated by the TNA Committee through a series of workshops and consultations with stakeholders. These sectoral priorities will allow for technology identification for mitigation and adaptation and a drafting of the TNA action plan.

The energy sector accounts for over 60% of the country's GHG emissions and this project will enable Botswana to progress along its low emission pathway. Though some efforts have been undertaken in implementing some mitigation projects across Botswana, the (draft) 3<sup>rd</sup> National Communication to the UNFCCC (2019) cites how lot of work is still required to encourage investment in large scale projects that have the potential to significantly reduce the country's GHG emissions. Electricity demand growth is coupled to the rate of future economic growth, the future of large industrial loads, the degree of energy efficiency improvement and the number of new connections. The grid-connected power sector in Botswana remains entirely state owned at present, with a single vertically integrated power company: Botswana Power Corporation (BPC). Access to electricity is mainly through on-grid connections, covering 59% of households in 2016, up from 46% in 2012. Under current trends, grid connections are expected to reach 71% of households by 2030. The greenhouse gas emission trends by Sector (2000 to 2013) below represents energy, agriculture and industrial processes and products use (IPPU) as the most demanding sectors. The 2010 inventory represented a 105% increase in emissions from 1990-2010 (from 3047 to 8307 gCO<sub>2</sub>e tonnes).

In Botswana, future energy demand growth is largely expected to come from electricity. This submission will further build on the opportunities identified for deploying renewable energy (especially PV) and improving energy efficiency, as identified in Botswana's NDC (2015) and SE4All Action Agenda (2017). It is anticipated that this can be further achieved through incentives for uptake of LEDs and white appliances and deployment of solutions, such as smart meters and production machinery at production processes. Through the inclusion of energy efficiency within the built environment, the effects of global warming will be mitigated within buildings. Potential initiatives could include the deployment of energy efficiency principles in the building regulations, and formulation of the national minimum energy performance standards. Botswana has significant GHG resulting from the energy sector and has great potential for deployment of renewable electricity via photovoltaics and concentrated solar power. Given the level of action required, the energy sector is divided into RES-E and energy efficiency in buildings within this TNA approach.

The Agricultural sector in Botswana covers both crops and livestock production. The Department of Agricultural Development and Food Security and the Botswana Farmers Association cite how traditional farming is the most

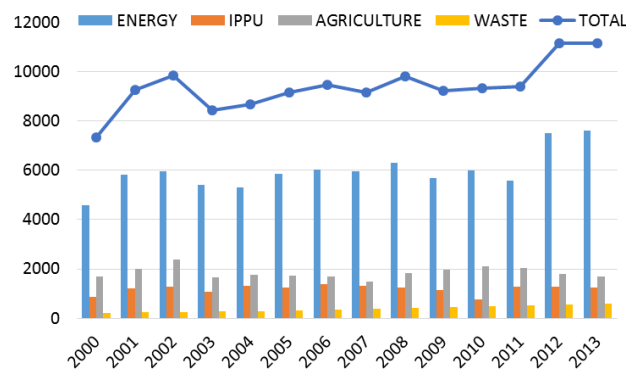


dominant, in terms of numbers of people involved and the geographical coverage, while the majority of farmers are small-scale farmers who typically need continued assistance in capacity building to commercialize agriculture.

In the last decades, Botswana's agricultural sector's performance has been poor, recording low or stagnant growth in output and productivity mainly due to development and focus given to mining sector. Therefore, Botswana relies heavily on commercial imports and occasional donor support to feed its people who are food insecure, most of them being rural dwellers. Despite all this, the agricultural sector remains fundamental as a source of food and income for nearly 50 percent of the total population. The livestock sector represents 87% of the agriculture's contribution to the GDP (FAOSTAT, 2012). As a result, the country is a net importer of most agricultural products, except beef and its by-products. At farm level, a great majority of rural dwellers depending on agriculture are net food buyers.

Climate change is advancing these challenges in the Agriculture sector. Changing weather patterns as a result of climate change particularly due to the el-Niño effect resulting to onset delays. These delays will eventually impact on the type of farming systems that are adopted by farmers. As a result, very little ploughing and planting is normally done. The UNDP's Human Development Report for 2006 acknowledged that farmers in Sub-Saharan Africa who are dependent on rain and its patterns will increasingly have to cope with unpredictable weather and this is a reality in Botswana.

The UNDP (2006) scarcity in climate change to runoff and Even during the wet continuous. throughout the domestic watering These resources are



report also highlighted water Botswana and the contribution of scarcity. Low rates of surface groundwater recharge are typical. season stream flow is not Groundwater resources are used country for livestock and and for small areas of irrigation. geologically old, and quality can

be affected by salinity and concentrations of fluorides, nitrates and other elements. These brings out the urgent need to prioritize action in the water sector. Future assessment of mitigation and adaptation technologies (especially in water and agricultural sector) will consider endogenous capabilities, natural resources, environmental and social impact, skills base, National development plan strategic areas and state plans for the fulfilment of Botswana's TNA. The prioritization is done through using the multi-criteria analysis, based on criteria covering key economic, social and environmental aspects. This ensures that technologies selected are the best available solution to fulfill key environmental and social safeguards in line with the GCF ESS guidelines that will include ensure environmental assessment of the prioritized technologies and ensuring inclusion of gender issues and vulnerable groups. This activity will focus on identifying and obtaining consensus about priority technologies by sector to fulfil the NDC. Stakeholder engagement through 4 workshops is key, alongside a market assessment of each technology will underpin this process

In order to minimize the impacts of climate change on Botswana's vulnerable economic and ecological sectors, several feasible adaptation measures and strategies will be devised and implemented through this readiness proposal. Actions includes development of initiatives across the water (wellfields, computer-controlled drip irrigation and improved water efficiency) and agriculture (crop production, soil management techniques and livestock management of diet and genetics).<sup>1</sup>

Botswana 11<sup>th</sup> National Development Plan (NDP, 2017-2023) has committed it to mainstreaming climate change both in relation to mitigating the effects of emissions, and to developing adaptation strategies for economic diversification agriculture. Stakeholder participation to reduce pollution of the environment and programmes for public education and awareness are identified as critical actions. Four strategies have been identified in Sustainable Environment Thematic Chapter for implementation during NDP 11 namely: sustainable management and use of natural and cultural resources; climate change mitigation and adaptation; integrated planning for sustainable human settlements; and a healthy environment for a healthy population. It commits to identifying the most vulnerable sectors and areas for promoting early adaptation. This GCF assistance aims to assist in delivering on this commitment.

As Botswana will be conducting the NDA strengthening and country programming, this proposed TNA work will strive to compliment this readiness work and maximize potential synergies. The TNA will focus on enhancing the technological part of the country knowledge by making sure that country programming exercise is well advised on technology needs for its effective implementation. Therefore, the TNA process will enrich the country programming by identifying and prioritizing the technology needs for identified project pipeline to enable the country to effectively respond to climate change. This work will ensure a well-coordinated engagement of the NDE and the NDA to ensure proper synergies in order to build on and enrich both the country programming process and the TNA work. For outcome 1 on the TNA committee establishment, officials involved in the country programming process will be integrated into the committee. This approach will enable knowledge and information sharing, identification of synergies and avoidance of possible work duplication.

The Government of Botswana has been active in the NDC and NAMA development, but an opportunity exists to engage more civil society, business, and more vulnerable groups to this process. This proposal incorporates the development of a TNA Committee whose members can be drawn from Botswana's National Climate Change Committee and other important stakeholders in Botswana. It will consider gender balance and appropriate representation and will ensure a country driven participatory approach is applied to this structure. Special attention will target small farmer holders and associations, disabled groups, gender specific groups and groups marginalized by their gender, such as female entrepreneurs, and indigenous people. The objective is also to ensure equitable access to the benefits accruing from the TNA. Engagement through this process can aid women's economic empowerment. This proposal recommends the delivery of several capacity building workshops that can aid sectoral and technological prioritisation.

The input from the NDE and NDA of Botswana will be critical to shaping and informing the TNA and associated action plans from the outset but also interfacing with the CTCN and its host organizations UNIDO/UNEP. This activity, being cognisant of the NDA strengthening and country programming work to be conducted in the country will ensure a coordinated approach by integrating to this committees' officials spearheading the readiness work. This approach will make it possible to identify to identify synergies and avoid any room for duplication of work. Botswana's Third National Communication to the UNFCCC (draft, 2019) has recommended a strengthening of collaboration between the Climate Change focal point, Department of Energy, BITRI and BPC to facilitate a platform for coordinated implementation of the project. This workplan will target a strengthening of cross-institutional collaboration. The Government of Botswana has initiated the NAP process and is collaborating with NAP Global Network to establish an institutional framework and identify what technology and capabilities are required to implement the NAP Framework. This institutional framework may complement the national TNA Committee and provide them with an additional coordination function.

<sup>1</sup> A number of studies have been undertaken by the Government of Botswana to promote renewable energy in the country. These include: Country Wide Survey – Solar Water Heating Systems in Botswana; Bankable Feasibility Study for a 200MW CSTP Plant in Botswana; A Feasibility Study for Production and Use of Biofuels in Botswana; Botswana Biomass Energy Strategy; and a Renewable Energy Feed-in Tariff for Botswana. The findings of these initiatives will further inform the development of the TNA project.



As the TNA work will bring into the country programming the technology dimension by identifying the technology needs of the CP. It is expected that the identified and prioritized technology projects pipeline would contribute to future GCF funding scale up. The proposed TNA activities (activity 2.5) will also complement the NDA strengthening work by advancing the NDA institution capacity on technology transfer through training and capacity building. The TNA will also largely benefit from the CP work by taking advantage of the momentum and progress made in activity such as stakeholder engagement rather than reinventing the wheel. The TA work will also consider the outcomes from the UNEP-CTCN supported project developing a National framework for leapfrogging to Energy Efficient Appliances and Equipment.

A closer coordination of these existing projects in Botswana will also be ensured in execution of outcome 2 of the TNA on the country programming. Their main task will be to mitigate the risk of overlapping with the programming work identified strengthening and country programming work. More so efforts will be put to ensure an integrated and coherent work is undertaken during their implementation. An assessment report describing the alignment and complementarity of the TNA and the County programming process (GIZ led) will be part of the initial prioritization work of Outcome 2. Such an assessment will also consider the National framework for leapfrogging to Energy Efficient Appliances and Equipment.

Private sector mobilization has, to date, focused on participation via mini-grids and the electrification of villages in rural Botswana using solar mini-grids (less than 50kW). Several targeted stakeholder workshops are anticipated through this assistance that focus on training for private organizations that manage technologies (including environmental impacts approaches and risk assessments) to help ascertain environmental benefits, aids socio-economic analysis and quantify impact potential.





				<p>Key stakeholders across Government Ministries will guide the development of the TNA and overall work of the Committee. These Ministries include Environmental Affairs (Departments of Meteorological Services), Energy, Finance and Economic Development, Agricultural Development and Food Security, Tertiary Education, Research, Science and Technology, Finance and Economic Development, Basic Education). Key beneficiaries of the project will have opportunities to engage throughout the project. Such beneficiaries include In private sector, NGOs and academia.</p> <p>Estimated completion date: Month 2.</p> <p><b>Deliverable 1.1.</b> <b>One day staff workshop</b> developing and agreeing ToR</p> <p>National TNA Committee established.</p> <p>National TNA Committee Constitution in place to inform work of TNA Committee.</p>		X																			
				<p><b>Activity 1.2: Development of the TNA work plan for monitoring and oversight</b></p> <p>The Work Plan will define and schedule TNA meetings to be conducted in Botswana. Venues will be assigned by the NDA/NDE and the Government Ministries, such as the Department of Meteorological Services. Stakeholders engaged in the TNA committee will be engaged in contributing to the work plan.</p> <p>Estimated completion date: Month 3.</p> <p><b>Deliverable 1.2.</b> <b>TNA Committee workshop</b> informing TNA processes.</p>																					





				<p><b>Report</b> presenting a review of TNA (2004), gap analysis and assessment of policies 2004-2019 to inform sectoral prioritization within the revised TNA.</p> <p><b>Report</b> describing methodology that delivers sector and subsector selection. Indicatively, this could be 5 sectors with equal allocation to technologies for mitigation and adaptation and 4 technologies for each sub-sector, including rationale and executive summary delivered and alignment.</p>				X															
				<p><b>Activity 2.2: Validate, prioritize and assess feasibility of key technologies for the fulfilment of Botswana’s TNA</b></p> <p>The objective of Activity 2.2 is to validate, prioritize and assess the feasibility of key technologies, aligned to Botswana’s energy and environmental policies and international commitments, available competencies and natural resources.</p> <p>These workshops will provide the opportunity to also engage with the beneficiary groups of potential</p>																			









<p>consultative processes</p>	<p>Some stakeholders are being consulted under the first readiness grant, however a formal consultation process has not been established for climate technology identification process</p>	<p>processes (governments, private sector, associations, civil society, academia and others for the identification of adaptation and mitigation technologies</p>	<p>This activity aims to engage in consultations with the TNA Committee and key stakeholders to discuss and validate the technology action plan. The forum will enable experience sharing, idea generation, lessons learned and best practices. Common methods utilized for that process included: interviews with experts and stakeholders; market mapping and problem trees; dedicated workshops; desk studies; and logical problem analyses.</p> <p>Estimated completion date: Month 16.</p> <p><b>Deliverable 2.4</b> A <b>Workshop</b> to validate the action plan delivered and analysis of co-benefits elaborated. (30 stakeholders and key institutions, for 1 days in Gaborone.).</p> <p><b>Meeting report</b> and List of attendance of the validation workshop provided.</p>																	
			<p><b>Activity 2.5: Support the implementation of the Technology Action Plan via Capacity building</b></p> <p>The purpose of this activity is to deliver a capacity building package for TNA key stakeholders including training and support materials for the development and application of prioritized technologies. Relevant participants will include the NDA, NDE, GCF and GEF focal points. This activity will offer complementarity of this TNA work and GIZ led NDA strengthening by advancing the NDA institution capacity on technology transfer.</p> <p>Using a results-based approach for measuring capacity building, the project implementers will apply three levels of measurement:</p> <p>1. Impact: Change in Botswana’s ability to addressing climate change challenges in the most critical sectors of the economy in line with its NDC</p>																	



				<p>2. Outcome: Change in institutional performance and adaptability by enabling the Government of Botswana to identify the most suitable environmentally sound technologies that will be integral to delivering on its mitigation and adaptation climate ambition</p> <p>3. Output: Technology Action Plan (product) produced and training services provided to enhance capacity development</p> <p>The project will focus on the following areas:</p> <ul style="list-style-type: none"> <li>a) Institutional arrangements via a coordination mechanism that promotes institutional reform</li> <li>b) Knowledge and education, training and learning for beneficiary groups concerning the potential of identified technologies</li> <li>c) Accountability that addresses the enabling environment (national and sectoral policies) as well as the organizational (business processes) and individual user (training) levels.</li> </ul> <p>Stakeholders will be provided with 4 regional training seminars on modules including (a) technology barriers to make them more familiar with identified technologies (b) gender awareness tools to enhance implementation capacities (c) importance of quality assurance, monitoring and certification systems for technologies to build trust (delivered in collaboration with Botswana Bureau of Standards)</p> <p>The delivery of a dissemination strategy is aimed at knowledge and education where material is disseminated to enhance training and learning for beneficiary groups concerning the potential of identified technologies. It includes support materials for the development and application of prioritized technologies.</p> <p>The project will also deliver market use cases/ policy briefs (3) for technologies resulting from stakeholder engagement. Examples of such resources include briefs on</p> <ul style="list-style-type: none"> <li>- Incentives for technology deployment</li> </ul>																				
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<p><b>Outcome 3:</b> Climate finance strategies strengthened, private sector mobilized, and project pipeline enhanced</p>	<p><b>Sub-Outcome 3</b> /Private sector engagement</p>	<p>1 Some private sector actors are engaged in consultative processes, however no structured dialogue established (e.g. some private sector events organized).</p>	<p>2 Private sector engagement is systematically part of the country consultative processes and structured dialogues with the NDA/FP, Accredited Entities and the GCF Secretariat</p>	<p><b>Activity 3.1: Developing a financial mobilization strategy for the climate mitigation and adaptation sectors through business model skills transfer</b></p> <p>The activity involves mobilizing private sector finance and sharing knowledge on the appropriate environment and innovative financial instruments and business models that can enhance the deployment of the prioritized technologies within the TNA.</p> <p>The development of a financial mobilization strategy is a key input and will complement Botswana’s Vision 2036 and will complement its 11th National Development Plan (NDP, 2017-2023). The intent is to respond to challenges that may hinder technology adoption including upfront costs associated with the capital investment,</p> <p>It includes the identification of new business models to mobilize private sector finance and technology investment across the technologies identified within the action plans. It includes a sharing of knowledge on innovative financial instruments and an assessment of existing mechanisms of financial support by government for new technologies. This deliverable involves mechanisms for engagement through Training Workshops (6) that mobilize SMEs and private sector input. The activity involves mobilizing the private sector action and sharing of knowledge on the appropriate environment and innovative financial instruments and business models that can enhance the deployment of the prioritized technologies within the TNA. The identified outcome is a mobilizing of investment across the technologies identified within the action plans.</p> <p>Potential new business models include a sharing of knowledge and transfer of implementation mechanisms from initiatives including (a) a pay-as-you-save (PAYs) business models to overcome upfront costs of deploying</p>																						





## 4. ADDITIONAL INFORMATION (ONLY FOR ADAPTATION PLANNING SUPPORT)

Not applicable.

## 5. BUDGET, PROCUREMENT, IMPLEMENTATION, AND DISBURSEMENT

### 5.1 Budget plan

Please complete the Budget Plan in Excel using the template available in the [Library](#) page of the GCF website.

Note in addition to the Budget Plan in excel:

Within CTCN technical assistance a minimum amount of 1% of total budget is dedicated to gender mainstreaming, assuring that the gender topic is properly embedded into the technical analysis and is assessed by a gender expert. The presence of a gender expert within the consultants roster is a requirement within the ToR of the international tender to be published by CTCN.

- CTCN gender mainstreaming tool will be used as baseline reference to assure that gender issues will be included since the early stage of the technology prioritisation of this proposal and throughout all the subsequent Outputs. A description of the gender tool can be found at this link: <https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development>
- Stakeholder engagement (community representatives, government, organizations, industrial park management, private sector, financing institutions, etc.)

5.1 Budget Plan		Detailed Budget (in US\$)										Disbursement Plan					
Outcomes		Budget Categories		Unit	# of Unit	Unit Cost	Total Budget (per budget category)	Total Budget (per sub-outcome)	Total Budget (per outcome)	3m	6m	9m	12m	15m	18m		
Please add rows for Outcomes, Outputs and Cost Categories as required. Additional budget categories may be added by manually typing them on the Budget Category sheet.																	
Outcome 1: Institutional capacity and coordination mechanisms in place to govern and coordinate climate action and finance	1.1 Establishment of National TNA Committee	Consultant - Individual - International	WDay	5	600.00	3,000.00	14,700.00	26,700.00	26,700.00								
		Consultant - Individual - Local	WDay	10	300.00	3,000.00											
		Workshop/Training	WDay	1	1,500.00	1,500.00											
	1.2 Development of the TNA work plan for monitoring and oversight	Travel - Local	WDay	4	300.00	1,200.00	9,000.00										
		Travel - International	Trip	2	3,000.00	6,000.00											
		Workshop/Training	WDay	2	1,500.00	3,000.00											
Outcome 2: Country Programming process	2.1 Pre-selection of sub-sectors for the fulfillment of Botswana's TNA	Consultant - Individual - International	WDay	20	600.00	12,000.00	24,000.00	197,400.00	197,400.00								
		Consultant - Individual - Local	WDay	20	300.00	6,000.00											
		Travel - International	Trip	2	3,000.00	6,000.00											
	2.2 Validate, prioritize and assess feasibility of key technologies for the fulfillment of Botswana's TNA	Consultant - Individual - Local	WDay	70	300.00	21,000.00	53,400.00										
		Workshop/Training	WDay	4	1,500.00	6,000.00											
		Consultant - Individual - International	WDay	35	600.00	21,000.00											
	2.3 Development of Technology Action Plan(s) per sector, quantifying the impact of priority technologies within each sector per action plan.	Travel - Local	Trip	8	300.00	2,400.00	72,000.00	197,400.00	197,400.00								
		Office Supplies		1	3,000.00	3,000.00											
		Consultant - Individual - Local	WDay	110	300.00	33,000.00											
		Consultant - Individual - International	WDay	60	600.00	36,000.00											
		Travel - International	Trip	1	3,000.00	3,000.00											
		Travel - Local	Trip	2	300.00	600.00											
	2.4 National Consultation exercise to ensure rational ownership and technology deployment	Workshop/Training	WDay	2	6,000.00	12,000.00	25,200.00										
		Consultant - Individual - Local	WDay	20	300.00	6,000.00											
		Consultant - Individual - International	WDay	6	600.00	3,600.00											
2.5 Support the implementation of the Technology Action Plan via Capacity building	Travel - International	Trip	1	3,000.00	3,000.00	22,800.00											
	Consultant - Individual - International	WDay	16	600.00	9,600.00												
	Consultant - Individual - Local	WDay	24	300.00	7,200.00												
Outcome 3: Climate finance strategies strengthened, private sector mobilised and project pipeline enhanced	3.1 Developing a financial mobilisation strategy for the climate mitigation and adaptation sectors through business model skills transfer	Workshop/Training	WDay	4	1,500.00	6,000.00	12,600.00	17,400.00									
		Consultant - Individual - Local	WDay	12	300.00	3,600.00											
		Consultant - Individual - International	WDay	6	1,500.00	9,000.00											
<b>Total Outcome Budget</b>									<b>241,500.00</b>	<b>26,700.00</b>	<b>197,400.00</b>	<b>17,400.00</b>					
<b>Project Management Cost (PMC)</b> Up to 7.5% of Total Activity Budget		Consultant - Individual - International	Days	35	300.00	10,500.00	Actual amount and % of PMC requested:		Maximum PMC that can be requested:								
		Audit Fee	Lumpsum	2	2,500.00	5,000.00	do not change the formula		do not change the formula								
		Office Supplies	Lumpsum			2,500.00	18,000.00		18,112.50								
							7.45%		7.50%								
FOR GREEN CLIMATE FUND SECRETARIAT'S USE ONLY																	
Breakdown (per budget category)		Total (per budget category)															
Audio Visual & Printing		-															
Audit Fee		5,000.00															
Consultant - Individual - International		98,700.00															
Consultant - Individual - Local		90,600.00															
Professional Services - Companies/Firm		-															
IT Equipment		-															
Office Supplies		5,500.00															
Travel - International		18,000.00															
Travel - Local		4,200.00															
Workshop/Training		37,500.00															
0		-															
0		-															
0		-															
0		-															
0		-															
<b>Total Outcome Budget + PMC</b>		<b>259,500.00</b>															
FOR GREEN CLIMATE FUND SECRETARIAT'S USE ONLY																	
<b>Total Outcome Budget</b>																<b>241,500.00</b>	
<b>Project Management Cost (PMC)</b>																<b>18,000.00</b>	
<b>Contingency</b>																<b>12,075.00</b>	
<b>Sub-Total (Total Outcome Budget + Contingency + PMC)</b>																<b>271,575.00</b>	
<b>Delivery Partner Fee (DP)</b> - Up to 8.5% of the Sub-Total																<b>23,083.88</b>	
<b>Total Project Budget (Total Activity Budget + Contingency + PMC + DP)</b>																<b>\$ 294,659.00</b>	



### 5.2 Procurement plan

Please complete the Procurement Plan in Excel using the template available in the [Library](#) page of the GCF website. For goods, services, and consultancies to be procured, please list the items, descriptions in relation to the activities in section 2, estimated cost, procurement method, relevant threshold, and the estimated dates. Please include the procurement plan for at least the first tranche of disbursement requested below and provide a full procurement plan for the entire duration of the implementation period if available at this stage.

Note in addition to the Procurement Plan in excel

5.2 Procurement Plan						
For goods, services, and consultancies to be procured, please list the items, descriptions in relation to the activities in Section 3, estimated cost, procurement method, relevant threshold, and the estimated dates. Please include the procurement plan for at least the first tranche of disbursement requested below and provide a full procurement plan for the entire duration of the implementation period if available at this stage.						
Item	Item Description	Estimated Cost (US\$)	Procurement Method	Thresholds (Min-Max monetary value for which indicated procurement method must be used)	Estimated Start Date	Projected Contracting Date
<b>Sub-Total (US\$)</b>						
<b>Consultancy Services</b>						
Contract of services to implement the technical assistance	Update the TNA and develop a technology roadmap for prioritized technologies to addressing climate change	246,500.00				
<b>Sub-Total (US\$)</b>						
Overall financial management and procurement of goods and services under this readiness and preparatory support proposal will be guided by UN regulations, rules, policies and procedures.						
UNEP will be responsible for the implementation of the readiness activities and for procurement and contractual services, as well as reporting on the progress of this implementation in close coordination and strategic guidance from the NDA/FP. The procurement actions and the operational services will be carried forward in accordance with UN policies and procurement guidelines.						
CTCN procedure for procurement: For a request that is eligible and prioritized, the Climate Technology Managers in charge of the respective request sources the appropriate expertise to develop the Terms of Reference of the assistance (called 'Response Plan' as per CTCN procedures). The response plan provides specific information on the technical assistance to be delivered, including activities, outputs, expected outcomes and impacts, timeline, indicators or measuring assistance progress and success, stakeholders to be involved, etc. The response plan, once finalized, is signed by the national focal point of the CTCN in the concerned country (National Designated Entity), the institution which originated the CTCN request for technical assistance and the CTCN Director and constitutes the basis of the assistance to be implemented and monitored upon the approval and in cooperation with the NDA. Based on the needs and expertise required in the response plan, a CTCN Network Member will be selected to implement it.						
The selection of the institution from the Network of CTCN for the execution of the technical assistance is conducted through a competitive procurement process as per UN Rules and Regulations, in line with CTCN procedures and with UN Rules and Regulations. The CTCN maintains a Network of more than 550 expert organizations in the field of low-carbon and climate resilient technologies. The required expertise to carry out the activities that define the intervention will be sourced from the Network. For this, the following four principles shall be given due consideration when undertaking the procurement functions of UNEP:						
i. Best value for money principle;						
ii. Fairness, accountability, integrity and transparency of the procurement process;						
iii. Effective competition;						
iv. The best interest of the UNEP						

Overall financial management and procurement of goods and services under this readiness and preparatory support proposal will be guided by UN regulations, rules, policies and procedures and the Framework Agreement between the GCF and UNEP.

UNEP will be responsible for the implementation of the readiness activities and for procurement and contractual services, as well as reporting on the progress of this implementation in close coordination and strategic guidance from the NDA/FP. The procurement actions and the operational services will be carried forward in accordance with UN policies and procurement guidelines.

CTCN procedure for procurement: For a request that is eligible and prioritized, the Climate Technology Managers in charge of the respective request sources the appropriate expertise to develop the Terms of Reference of the assistance (called 'Response Plan' as per CTCN procedures). The response plan provides specific information on the technical assistance to be delivered, including activities, outputs, expected outcomes and impacts, timeline, indicators or measuring assistance progress and success, stakeholders to be involved, etc. The response plan, once finalized, is signed by the national focal point of the CTCN in the concerned country (National Designated Entity), the institution which originated the CTCN request for technical assistance and the CTCN Director and constitutes the basis of the assistance to be implemented and monitored upon the approval and in cooperation with the NDA. Based on the needs and expertise required in the response plan, a CTCN Network Member will be selected to implement it.

The selection of the institution from the Network of CTCN for the execution of the technical assistance is conducted through a competitive procurement process as per UNEP Rules and Regulations, in line with CTCN



procedures and with UN Rules and Regulations (being UNEP the host of the CTCN, and a specialized agency established under the UN Charter). The CTCN nurtures a Network of more than 450 expert organizations in the field of low-carbon and climate resilient technologies. The CTCN network members are drawn from organization from different countries worldwide and with work experiences across different countries including conflict and post conflict zones. The procurement criteria for execution of this work with ensure procuring of organization with pre-requisite working experience in such environments. The required expertise to carry out the activities that define this intervention will be sourced from the Network. For this, the following four principles shall be given due consideration when undertaking the procurement functions of UNEP:

- i. Best value for money principle;
- ii. Fairness, accountability, integrity and transparency of the procurement process;
- iii. Effective competition;
- iv. The best interest of the UN.

### 5.3 Disbursement schedule

Please specify the proposed schedule for requesting disbursements from the GCF. For periodicity, specify whether it's quarterly, bi-annually or annually only.

UNEP

UNEP as the Delivery Partner for this Readiness and Preparatory Support Proposal will submit requests for disbursement for approved proposals to the GCF in accordance with the Framework Readiness and Preparatory Support Grant Agreement between the GCF and UNEP. Disbursement requests will be signed by the authorised representative of the UNEP and will include details of the bank account into which the grant will be deposited. UNEP, the Delivery Partner for this R&P Support Proposal for Botswana, will administer the grant disbursed by the GCF in accordance with UNEP's regulations, rules, and procedures including maintenance of records of grant, disbursements and expenditure.

Please choose one option among the two below and delete the one that does not apply to you. Please fill in information under brackets:

**Readiness Proposal that falls within a Framework Agreement with the GCF**

Disbursements will be made in accordance to Clause 4 "*Disbursement of Grants*" and Clause 5 "*Use of Grant Proceeds by the Delivery Partner*" of the Framework Readiness and Preparatory Support Grant Agreement entered into between GCF and UN Environment Programme on *11 October 2016*, amended on 13 December 2017 and further amended on 2<sup>nd</sup> June 2020. The Delivery Partner is entitled to submit 2 request(s) for disbursement each year and is also entitled to request one interim request for disbursement within 30 days of notification of approval.

**Readiness Proposal that requires a bilateral Grant Agreement to be signed with the GCF** (please add more disbursement as needed)

- The first disbursement *amounting [Choose Currency] [Type the amount]* will be transferred upon approval of the readiness request and effectiveness of the Grant Agreement;
- The second disbursement *amounting [Choose Currency] [Type the amount]* will be transferred upon submission of an interim progress report [and audited financial report]<sup>2</sup>, in form and substance acceptable to the Fund, [including an audited expenditure statement]; and
- The third disbursement *amounting [Choose Currency] [Type the amount]* will be made upon submission of a completion report and financial report, in form and substance acceptable to the Fund, including an audited expenditure statement.

Please include an indicative disbursement table showing the expected amounts to be requested and keep to multiples of USD 5,000.

<sup>2</sup> For second disbursement, audited financial report and audited expenditure statement are only required for readiness and preparatory support proposals expected to last over 12 months.



## 6. IMPLEMENTATION ARRANGEMENTS AND OTHER INFORMATION

### 6.1 Implementation map

Please describe how funds will be managed by the NDA and/or the Readiness Delivery Partner.

As per UN regulations, rules, and procedures, UNEP will manage the funds for the activities under this readiness proposal. UNEP will agree on a plan with Botswana NDA/NDE to monitor the implementation of the activities. However, UNEP will be responsible for the implementation of the activities under this readiness and preparatory support proposal. The implementation of this proposal will be subject to and in accordance with an amendment to the Framework Readiness and Preparatory Support Grant Agreement between GCF and UNEP on 11 October 2016, amended on 13 December 2017 and further amended on 2nd June 2020.

UNEP is the Delivery Partner for the delivery of anticipated outputs and outcomes and will report to the Green Climate Fund on project outcomes.

The selected entity from the Network will report to UNEP/CTCN as per their contractual arrangement and in line with UN rules and regulations. They will produce regular progress and financial reports and will submit deliverables to UNEP. Funds will only be released when the deliverables are satisfactory and cleared by UNEP. They will return any unspent funds within ninety days of expiry or notice of termination of the UNEP.

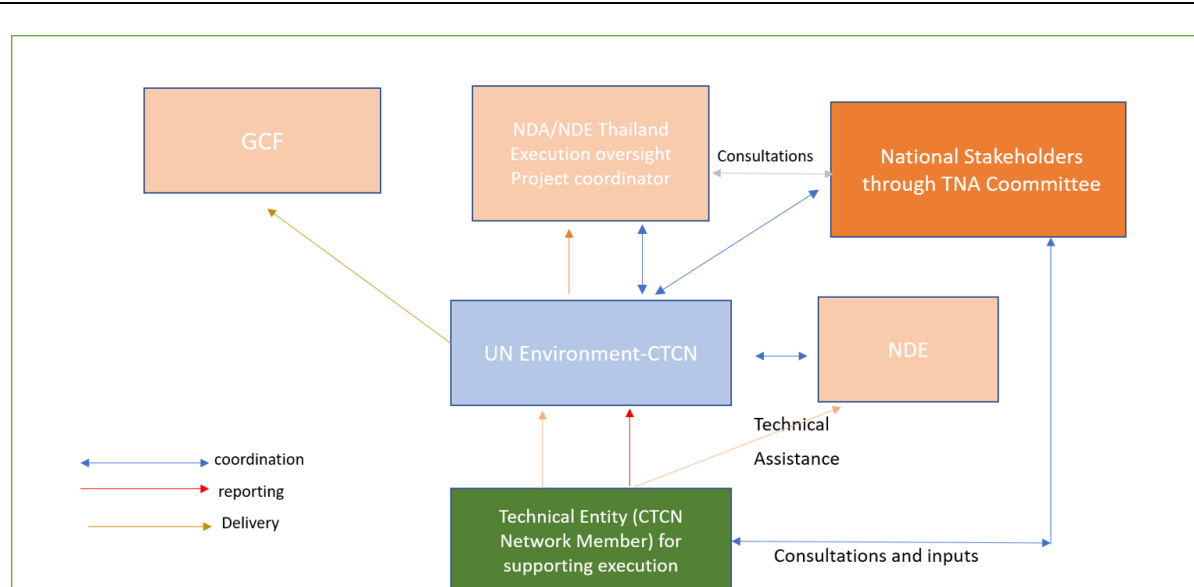
The UNFCCC country focal points for technology (NDE) and finance (NDA) will provide active support to the network member in the execution of this technical assistance. Their roles as country focal points will include, but not be limited to: Ensuring the activities associated with the implementation of this technical assistance are aligned with national climate priorities; promote and engage with key stakeholders as identified by the network member; promote and present this technical assistance in climate change-related events; and participate in CTCN events and in national workshops affiliated with this technical assistance, if required. They will also be expected to provide guidance and review any relevant documents produced and will be kept apprised of the progress of the technical assistance.

In terms of Governance: Climate Technology Centre and Network (CTCN) was established by Conference of the Parties (COP) in Cancun in December 2010. The CTCN was established to provide technical assistance and capacity building activities responding to requests from developing country parties. Following competitive bidding, the COP decided that the CTCN would be hosted by UNEP through a consortium to be co-led by UNIDO. This is the CTCN 'host'. CTCN also has an extensive network of organizations that can collaborate to successfully deliver this project. A network of 500 organizations has subsequently joined the CTCN.

The CTCN (co-hosted by UNEP and UNIDO) aims to provide technical assistance to the Government of Botswana, as per its COP Mandate, and is thus supporting Botswana to develop this readiness proposal. The CTCN Engagement with the Government of the Botswana is mature with close co-operation between the NDA and NDE.

For this work in Botswana, UNEP will be responsible for the implementation of the readiness activities and for procurement and contractual services, as well as reporting on the progress of this implementation in close coordination and strategic guidance from the NDA/FP. The procurement actions and the operational services will be carried forward in accordance with UN policies and procurement guidelines. UNEP have significant experience of delivering and supporting similar projects among other projects in developing countries. They have a wide network of local/ regional offices and expertise of the Southern African region.

The implementation map below summarizes the different interactions between the different parties involved in this technical assistance:



### CTCN processes before the selection of the network member (described in the implementation map)

The CTCN process for managing technical assistance is the following: Requests for technical assistance can be prepared by any applicant organization from a developing country, but all requests must be submitted by the CTCN NDE (national focal point in the concerned country). Once submitted, all requests submitted by developing countries are assessed as per eligibility, balancing and prioritization criteria approved by the CTCN Advisory Board. The three eligibility criteria are the following: 1) The support provided will contribute to increased resilience and/or mitigate emissions, and is aligned with national plans; 2) The support will enhance endogenous capacities; and; 3) Processes are in place in the requesting country to monitor and evaluate any support provided (that is, project accountability is ensured). Balancing criteria are looking at inter and intra-regional a geographical balance (with a preference for requests submitted by LDCs and other highly vulnerable and low capacity countries; balance between adaptation and mitigation objectives, and balance between various types of support spanning the technology cycle. Prioritization criteria consider a number of elements that demonstrate project strengthen and potential for success, including the promotion of endogenous capacities and appropriate technologies, potential for scale up, for South-South cooperation, for leveraging public and private financing, for creating social, economic and social benefits, promoting gender equality etc.

Once a request is deemed eligible and prioritized, the CTCN selects the best expertise among its consortium partners to develop a response plan. The criteria for selection are: Relevant technical expertise, Experience and network in national context, Relevant language capacity, Response Planning track record, Representative use of the consortium partners in Response Planning and Feedback/ preference from the NDE.

Based on the discussion with the NDE, NDA and request proponent and feedback from the CTCN, the consortium partner develops the response plan. Once an advanced version is prepared, it is presented to CTCN's director NDE and NDA for signature. Once the response plan is signed, the contracting of the network member starts.

The relationship between CTCN/ UNEP and the Government of Botswana is matured and there have been a history of cooperation between the two. Most recently UNEP-CTCN is implementing a GCF Readiness programme on National Framework for leapfrogging to Energy Efficient Appliances and Equipment's in Botswana through regulatory and financing mechanism. In addition, CTCN has also delivered two other technical assistance in Botswana through the NDE which are in various stages of implementation. In addition, the technology focal point (of Botswana) to the UNFCCC technology mechanism have participated in a number of CTCN regional forums and capacity building programmes. Further in line with the COP decisions as referenced below the Government of Botswana through its NDA and NDE approach CTCN to support them in development and implementation of the TNA proposal.

Decision 14/CP.22: Linkages between the Technology Mechanism and the Financial Mechanism of the Convention

Para 4. Welcomes the increased engagement between the Green Climate Fund and the Climate Technology Centre and Network, particularly with respect to utilizing the Readiness and Preparatory Support Programme and the Project Preparation Facility of the fund, noting the potential of such engagement in supporting developing country Parties to build their capacity for implementing technology projects and programmes;

Para 6. Invites Green Climate Fund national designated authorities and focal points to use the support available to them under the Readiness and Preparatory Support Programme to, inter alia, conduct technology needs assessments and develop technology action plans;

Para 7. Also invites developing country Parties to develop and submit technology-related projects, including those resulting from technology needs assessments and from the technical assistance of the Climate Technology Centre and Network, to the operating entities of the Financial Mechanism for implementation, in accordance with their respective policies and processes;

Decision 15/CP.22: Enhancing climate technology development and transfer through the Technology Mechanism

Para 13. Underlines the importance of well-functioning and strengthened collaboration between the national designated authorities for the Green Climate Fund, the focal points for the Global Environment Facility and the national designated entities for technology development and transfer

Para 15. Welcomes the increased engagement between the Green Climate Fund and the Climate Technology Centre and Network, particularly with respect to utilizing the Readiness and Preparatory Support Programme and the Project Preparation Facility of the fund in order to respond to country-driven requests for technical assistance;

Para 16. Encourages the advancement of the engagement referred to in paragraph 15 above, including through the strengthening of collaboration between national designated authorities for the Green Climate Fund and national designated entities for technology development and transfer;

Para 17. Invites the Climate Technology Centre and Network to include the outcomes of the engagement referred to in paragraphs 15 and 16 above in its annual report to the Conference of the Parties at its twenty-third session”

Below is an indication of the competencies and capabilities required from the international and local consultants required to successfully deliver on the project objectives:

Position title	Brief description of required profile aligned to logical framework
International Experts	<p><b><u>Essential</u></b></p> <ul style="list-style-type: none"> <li>- 10 years’ experience of providing technical consultancy services within a developing country, especially within the African region</li> <li>- Experience of initiatives focussing on water/agriculture, renewable electricity (especially PV), renewable heating (biogas), and efficiency within the built environment</li> <li>- Nexus experience across energy, water and agriculture sectors, specifically within the African region</li> <li>- Familiarity with the UN process, technology needs assessment methodology and technology actions planning</li> <li>- Experience of developing national plans that involve rigorous assessment of technology options and sectoral analysis at a country or regional level.</li> <li>- Knowledge innovative financing instruments such as ESCOs, PAYs, EPCs</li> <li>- Experience of engaging with multiple actors in the development of initiatives aimed at building regional/national capacity within the African region</li> <li>- Facilitation skills in delivering dedicated training workshops around the technology needs assessment process</li> <li>- Experience of conducting technology prioritisation and multi-criteria analysis</li> <li>- A formal academic qualification in engineering, science/technology, business.</li> <li>- Fluency in the English language.</li> </ul> <p><b><u>Highly Desirable</u></b></p> <ul style="list-style-type: none"> <li>- Understanding of wider policy measures and drivers to overcome barriers to the deployment of technologies and sectors for mitigation and adaptation.</li> </ul>
Local Experts	<b><u>Local experts required across the prioritised sectors and technology subsectors</u></b>



	<p><b><u>Essential</u></b></p> <ul style="list-style-type: none"> <li>- 10 years' experience of energy, water and agriculture sector within Botswana</li> <li>- Experience of initiatives focussing on water/agriculture, renewable electricity (especially PV), renewable heating (biogas), and efficiency within the built environment</li> <li>- Experience of developing, facilitating and delivering stakeholder workshops and group facilitating aimed at engaging multiple actors</li> <li>- Awareness of the methodology of technology needs assessments and/ or technology actions plans.</li> <li>- A formal academic qualification in engineering, science/technology, business.</li> <li>- Fluency in English language</li> </ul> <p><b><u>Highly Desirable</u></b></p> <ul style="list-style-type: none"> <li>- Understanding of wider policy measures and drivers to overcome barriers to the deployment of technologies and sectors for mitigation and adaptation.</li> <li>- Knowledge innovative financing instruments such as ESCOs, PAYs, EPCs</li> </ul>
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## 6.2 Risks, monitoring and evaluation (M&E), and other relevant information

Below can be found potential risks that might prevent the project objectives from being achieved and the proposed measures that address these risks at the time of project implementation:

Risk	Likelihood of occurrence	Impact level	Mitigation	Entity to manage the risk
<b>Engagement risk:</b> Lack of engagement from key stakeholders	<i>Low</i>	<i>High</i>	Dissemination strategy and an organization targeting to enhance primary stakeholders attend TNA related events. Strong linkage with NDA and NDE will lower this risk	CTCN, NDE, NDA
<b>Delay risk:</b> Delay in the implementation of the readiness proposal	<i>Low</i>	<i>Low</i>	Project management procedures in place. UNEP/ UNIDO actively engaged. It will be a requirement to have local partners within the tender evaluation criteria for bidders to comply with. In this way a locally based consultant will interact directly with the TNA national team in order to optimally track the work progress	UNEP, CTCN
<b>Recruitment risk:</b> Delays due to inability to procure consultants	<i>Medium</i>	<i>Medium</i>	Highlight need to expedite the process. Dissemination of procurement process through CTCN network and channels	UNEP, CTCN
<b>Involvement risk:</b> Lack of interest by the public and private sector key stakeholders, resulting in limited interest of local players to scale up the results of this intervention	<i>Low</i>	<i>High</i>	During project implementation a thorough consultative and participatory approach will be applied; key private sector and industry stakeholders will be identified and targeted in consultation with the NDA/ NDE. The TNA process will also leverage on the stakeholder's engagement established under the Country programing work.	UNEP, CTCN, NDE, NDA
<b>Technical/Capacity risks:</b> Lack of capacity by the national counterparts to use or implement the results and	<i>Low</i>	<i>Low</i>	The project is in line with national policies and the project will be executed in close coordination with the respective institutions;	UNEP, CTCN



conclusions of this technical assistance.			NDE/NDA/line ministries. Regional workshops and policy briefs will be delivered to enhance national capabilities. CTCN will also liaise with the country in order to support the implementation of the TAP at the end of this TA.	
<b>Management Risk:</b> Lack of effective coordination between various project partners	<i>Low</i>	<i>Medium</i>	A proper coordination will be sought through the CTCN TA framework.	CTCN
<b>Ownership of the results:</b> True ownership by the government and system operator to ensure results are used and up scaled accordingly	<i>Low</i>	<i>High</i>	The ownership of the project has been secured by the Government given that it falls under their Work Plan. NDE and NDA engagement has been already secured.	CTCN
<b>Climate Change Risk:</b> Negative impacts of climate change and extreme weather events	<i>Low</i>	<i>Low</i>	The potential impact of extreme weather events in Botswana will be considered through the engagement process.	
<b>Access to data:</b> Data accessibility	<i>Medium</i>	<i>High</i>	Communication channels and information sharing has been secured and their ownership clarified. Same for the other stakeholders.	CTCN
<b>Gender Risk:</b> Resistance against or lack of interest in, the project activities from stakeholders, especially with regard to the active promotion of gender equality. Low participation rates of suitable female candidates due to lack of interest, inadequate project activity or missing qualified female population within the i.e. engineering sector.	<i>Low</i>	<i>Low</i>	This project will pursue thorough and gender responsive integration and ensure stakeholder involvement at all levels, with special regard to involving women and men as per the GCF ESS guidelines. Following CTCN TA requirements, CTCN gender mainstreaming tool will be applied to mitigate this risk	Network member, NDE, NDA
Particular risks or vulnerabilities for money laundering, terrorist financing, or prohibited practices	<i>Low</i>	<i>low</i>	The financial management and procurement of this project will be guided by UN Financial Regulations , Rules and practices, as well as UNEP's operations manual.  The risk of GCF proceeds being utilised towards money laundering or terrorist financing is low and will be mitigated through the legal instruments with the network member. The legal instruments will include warranties and caveats by the network member to <i>inter alia</i> ensure compliance with the Anti-Fraud and Anti-Corruption Framework of the United Nations Secretariat, as well as the Green Climate Fund Policy on Prohibited Practices.	UNEP

Monitoring & Evaluation



Upon contracting of the network member, the lead network member 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 Network Member 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.

The project inherently builds sustainability at the national and regional levels by providing guidance and tools. The TNA committee allows for the introduction of a methodology and a stakeholder's process of the program once the initial phase has been completed. This is enhanced by creating close linkages with the GCF country programme. As a regular feature of all CTCN supported technical assistance feedback from the NDEs and NDA would be taken in form of closure reports and feedback forms. These feedback forms enable future supplementary work through technical assistance which may be required to be undertaken by CTCN using its own resources.

To avoid any possible conflicts of interest deriving from the delivery partner's role as an accredited entity, the prioritization of investments and projects in the context of this readiness grant, will be made through a broad consultation process with relevant stakeholders, including other potential implementing entities. The final validation of these priorities will be carried out through the countries' own relevant coordination mechanism and institutional arrangements, with the participation of other government agencies, as well as representatives from civil society and private sector as the NDA deems relevant, to ensure chosen priorities are fully aligned with national plans and strategies and adequately includes inputs from consulted stakeholders.

Start date:

The start date of the project will be as provided in the Second Amended and Restated Framework Readiness and Preparatory Support Grant Agreement between GCF and UNEP dated June 2020. The implementation period of the readiness support in this proposal will begin from the date the GCF notifies the NDA and the Delivery Partner of the approval of the proposal till five months after the end of the total duration of the project as presented in the approved proposal

AML/CFT

Risks concerning AML/CFT were properly identified and mechanisms and controls put in place to mitigate those risks within the readiness program, according to our obligations to the GCF under legal agreements and GCF AML/CFT Policy. The activities of the project do not include any hardware technology transfer as a part of this proposal. Further as per UNEP-CTCN procedures there would be no direct transfer of financial resources to the government. The work would be conducted by a CTCN approved network member the services of which would be procured through a UNEP procurement system.

## 7. ANNEX 1: PROPOSED METHODOLOGY & TECHNOLOGY ACTION PLAN

Based on the consultations with officials within the Government of Botswana the following sectors have been derived. These result from several identified measures that act as a framework that will enable the desired impact to be achieved. Several potential measures (and impacts) have been derived from national policy documents and from identified barriers to the achievement of objectives.

Sector	Challenge	Potential measures and Impact
Energy, including renewable electricity	<p>To enhance deployment of PV systems</p> <p>To reduce GHG emissions per unit of energy</p> <p>To facilitate the production of energy from waste.</p>	<p>Decarbonization of energy supply through increased renewable energy penetration (solar, biomass, CHP, wind) to meet 15% penetration of renewable energy target by 2030.</p> <p>Review electricity tariffs to incentive renewable electricity, especially for off grid communities via solar home systems, water pumps and water heaters.</p> <p>Deploy renewable energy (PV, CSP) to generate electricity in public buildings in urban areas.</p> <p>Public awareness campaigns to overcome mistrust of new technologies: Enhance services to consumers (domestic, commercial, industrial and government).</p> <p>Build capacity of equipment installers and introduce product standards and quality assurance mechanisms to build consumer confidence and stimulate investment (eliminating inferior products)</p> <p>Introduce maintenance supply chains for products and services</p> <p>Facilitate more investment in waste to energy projects focusing on biodegradable materials and developing bio-digesters and biogas (based on feasibility analysis from ongoing GEF project)</p> <p>Increase electricity supply coverage - production linked to network and expand transmission and distribution networks</p> <p>Introduce net metering to ensure that producers of electricity from renewable sources have a guaranteed market.</p> <p>Removal of subsidies on coal powered electricity generation</p> <p>Develop a plan to construct LPG/ LFG vehicles fuel stations.</p> <p>Provide private economic incentives.</p>
Energy Efficiency, including the built environment	<p>To enhance specification associated with energy and housing standards.</p> <p>To increase demand on housing appliances with high energy efficiency.</p>	<p>Finalize adopt and enforce building codes for all new buildings. Enhanced codes, legislative requirements to drive renovation of building stock, white appliances, performance and labelling.</p> <p>Introduce an energy audits for existing building stock to target retrofit to meet new building code standards.</p>



	To stimulate energy efficient lighting.	<p>Replace all lightbulbs with LED/ CFL, in line with existing government objectives and timelines. Government to consider introducing a ban on the sale of new incandescent light bulbs to support progress towards this target. Improving electricity saving by giving households CFL bulbs for free and replacing the incandescent light bulbs.</p> <p>Behavioral change and capacity building initiatives targeting building owners and facilities managers on the available options to improve energy performance. This could include highlighting the available technical solutions, such as smarter lighting systems.</p> <p>Enhanced building efficiency through deployment of solar water products, systems, heaters, pumps.</p> <p>Develop an energy policy on electric appliance standards, including taxation mechanism to discourage inefficient appliances.</p> <p>Increased local building material manufacture and standards across all technical installations, providing more low carbon solutions to economy.</p> <p>Training/accreditation of installers, building technicians and power engineers. Introduce programme of capacity building so that installers can enforce the standards put in place. Capacity building will also be critical for some of the parastatal institutions affected by these measures, most notably BHC.</p> <p>Increased networking and exchange of best energy efficiency practice by the largest users</p> <p>Improved cooking stoves, solar water heaters and mechanisms for thermal insulation.</p> <p>Modernized technologies used in electricity power generation, including advanced smart meters.</p> <p>Mechanisms deployed to stimulate R&amp;D and information dissemination on housing materials, energy efficient equipment, energy conservation and efficiency.</p>
Water	To protect and improve water quality and enable water demand management.	<p>Invest in advanced water leak detection systems.</p> <p>Introduce a smart metering pilot initiative.</p> <p>Introduce artificial groundwater recharge systems.</p> <p>Strengthen the dam walls and management of surface water resources (via centralized control models and remote monitoring)</p> <p>Construct water transfer schemes and establish annual water budgets to enable water demand management.</p> <p>Establish procedures for early warning systems in cases of drought and flood disaster.</p>
Agriculture	To increase productivity and strengthen the adaptive	Support farmers to switch from diesel powered pumps to solar powered borehole influenced mainly by their cost-effectiveness.



	<p>capacities of the Botswana people that are heavily dependent on agriculture.</p> <p>To enhance skills capacity of farmers.</p>	<p>Improved management of rain fed agriculture through advanced irrigation techniques (Sprinkler, drip, surface methods)</p> <p>Skills capacity of farmers enhanced through capacity development from enhanced crop production and pest management techniques (reducing pesticides and herbicides).</p> <p>Work with the financial industry to overcome initial investment cost for farmers to deploy PV systems.</p> <p>Promote methane capture and use for generating electricity, for heating up the ponds to speed up anaerobic processes or as cooking gas</p> <p>Promotion of smart agricultural practices aimed at stimulating the beekeeping and horticultural industries.</p> <p>Increased research into crop varieties and apply advanced systems to increase natural vegetation in pastoral areas.</p> <p>Water harvesting technologies to be exploited to ensure continuous water supply for the livestock industry.</p> <p>Enhanced soil management and stabilization practices, crop management to increase carbon storage in soils and improved techniques of nitrogen fertilizers.</p>
<p>Industry</p>	<p>To strengthen awareness of business models and instruments across SMEs and industry to stimulate take-up of technologies.</p> <p>To enhance private sector investment</p>	<p>To assist the private sector to undertake financially viable energy efficiency projects that provide significant energy and/or emissions savings.</p> <p>To accelerate the roll-out of Solar Home Systems based on a pay-as-you-save (PAYs) type business model to overcome upfront costs of deploying solar technology.</p> <p>To deploy energy performance contracts and new appropriate innovative financial instruments and model/s in order to achieve financial sustainability for national energy efficiency initiatives.</p> <p>Establish joint undertakings between Financial services providers and Government to finance renewable electricity, building retrofit and smart agriculture schemes. This could involve establishing a vehicle to design and implement innovative financing solutions to support achievement of targets. The government will have a central role in the vehicle, leveraging the low cost of Government finance, and using Government money to leverage private sector investment.</p> <p>Introduction of capacity building initiatives that are targeted at commercial lenders, so that lenders have a good understanding of how typical sustainable energy projects work and what the key risks are.</p> <p>To initiate a targeted scheme providing assessments of energy use and advice on energy management.</p>



Botswana's Action Plan will be developed to inform sectors and should:

- Elaborate very detailed project ideas (circa 15 pages), including time frames and estimated budget requirements to deliver on ideas. This will include the technology projects identified and prioritized to support the CP.
- Articulate project idea objectives, outputs, relation to national policy priorities, deliverables, activities, and monitoring/evaluation methods.
- Consider elements such as research on the prioritized technology, capacity-building, financial schemes, pilot projects and technology demonstration.
- Include a market assessment (that could include analysis of value chains, risks and overall barriers to implementation)
- Consider the realms of regulatory, institutional, financial and information frameworks that may prevent the accelerated development of markets for identified prioritized technologies.
- Determine technology impact potential in terms of Botswana's targets within its Vision 2036 (50% renewable electricity)

Each Technology Action Plan will include:

- Recommended enabling frameworks to address identified barriers
- , recommending actions that enable the transfer and uptake of prioritized technologies.
- Conduct and maintain a risk register (of policy, institutional and financial, technology risks) that may impact on project idea delivery.
- Prioritize a number of subsectors
- Present a clear financial plan with timelines, benchmarks and indicators that will elaborate measures and action across the Botswana's economy.
- Identify the requirements for financial incentives as an enabler of action, including potential domestic and international funding sources.
- Develop legal and regulatory instruments co create a sound enabling environment for identified technologies.

## 8. ANNEX 2: SUPPLEMENTARY INFORMATION

The objective of a technology needs assessment and action planning exercise is to target the transfer and diffusion of technology for mitigation and adaptation. Therefore, this proposal supported by CTCN seeks to update and develop a comprehensive 'Technology Needs Assessment and associated action plan of climate change mitigation and adaptation needs identified in Botswana's most vulnerable economic sectors. This is to be achieved through the following three outcomes:

- Outcome 1. Institutional capacity and coordination mechanisms in place to govern and coordinate climate action and finance
- Outcome 2: Country Programming process that will contribute to the development of short- and long-term solutions that aid climate change resilience and build the necessary capacity in terms of environmental systems
- Outcome 3: Climate finance strategies strengthened, private sector mobilised, and project pipeline enhanced

Central to the development of this proposal is the identification of actions that best meet the environmental, energy-efficient and resource-saving requirements of Botswana. The anticipated outcome is a TNA that presents several strategic, long-term, participatory transformational measures across sectors including agriculture, energy and industry.