

Country	Burundi
Request ID#	2019000022
Title	Support for capacity building for solar technicians – installation, maintenance, and upkeep of solar equipment
NDE	Astere Nindamutsa Geographic Institute of Burundi (IGEBU) Email: rntiharizwa@gmail.com Phone: +257 2240 4810 B.P.34 Gitega/331 Bujumbura
Proponent	Dr. Ir. Martin NDAYIZEYE, General Manager for Energy National Energy Office (DGE) Email: ndamartin2001@yahoo.fr Phone: (257) 22 22 38 88 / (257) 22 223337 B.P. 745 Bujumbura Willy Ciza Directeur des Energies Renouvelables et Efficacité Energétique National Energy Office (DGE) Email: cizwilly@yahoo.fr Phone: +257 79 30 00 67 / + 257 69 09 34 88 B.P. 745 Bujumbura

Summary of the CTCN technical assistance

A low percentage of Burundi’s population has access to grid electricity, particularly in rural settings. Only one in ten Burundians have access to electricity in the country and this drops to only 2% in rural areas [[World Bank](#)]. Burundi’s national energy production is lower than consumption, hence the increasing need to import energy [[Investment opportunities in renewable energy Burundi; October 2012](#)]. Thus, there is a need to increase national electricity production. Energy resources that are used currently are either costly, or pose threats to the environment, such as the use of firewood. Burundi has set a goal of diversifying its primary energy mix to take advantage of favorable indigenous renewable energy resources. One of the key sources of diversification will be electricity generated by solar photovoltaic (PV) technologies, which will help to reduce carbon emissions and dependency on imported fuel, address adaptive capacity to climate change, improve energy access, and increase national generating capacity. Solar energy is available and well distributed across Burundi.

Burundi has already embarked on a nationwide solar PV-based rural electrification program. However, the program is beset by several difficulties, largely related to a shortage of trained technicians capable of properly installing and maintaining solar PV systems. As a result, installed solar PV facilities are often out of order or not performing according to their designed output, which contributed to creating negative perception of solar PV as an energy solution.

This one-year CTCN technical assistance (TA) aims to address these challenges with the overall objective of increasing awareness and strengthening managerial and technical capacities around solar PV system installation and maintenance. The assistance is structured in three phases (outputs) which are 1) develop off-grid solar PV training materials 2) train and build the capacity of the various stakeholders in the installation, use, operations and maintenance, and deployment of solar PV technologies in Burundi, and 3) support Burundi’s efforts to establish the renewable energy promotion center to enhance the availability of solar energy in Burundi.

The anticipated outcome of this project will be a technically competent local solar PV trainer and installer workforce in Burundi, trained to install, operate, and maintain solar PV systems as well as to provide training on these activities, the knowledge and information required to help create a renewable energy promotion center in Burundi, and share knowledge, best practices, and examples for devising strategies to set up groups to promote research and innovation in solar energy.

Through the capacitation of the renewable energy promotion center for technicians and innovation groups, the continuity of optimally designed, correctly installed, and well-maintained PV systems will be ensured, thus helping to deliver a sustainable, low carbon energy future for Burundi. This technical assistance will also directly contribute to various national processes as it aligns with Burundi's National Strategy and Action Plan on Climate Change, adopted in March 2013, and with point 7 of the National Strategy on Climate Change, which emphasizes capacity building (training, awareness-raising, etc.).

Agreement:

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

**National Designated Entity to the UNFCCC
Technology Mechanism**

Name: Astere Nindamutsa

Title: *NDE*

Date: *10/03/2021*

Signature:



Proponent (signature of the Proponent is optional)

Name: Dr. Ir Martin NDAYIZEYE

Title: General Manager of Energy

Date:

Signature:



UNFCCC Climate Technology Centre and Network (CTCN)

Name: Rose Mwebaza

Title: CTCN Director

Date: 11/03/2021

Signature:

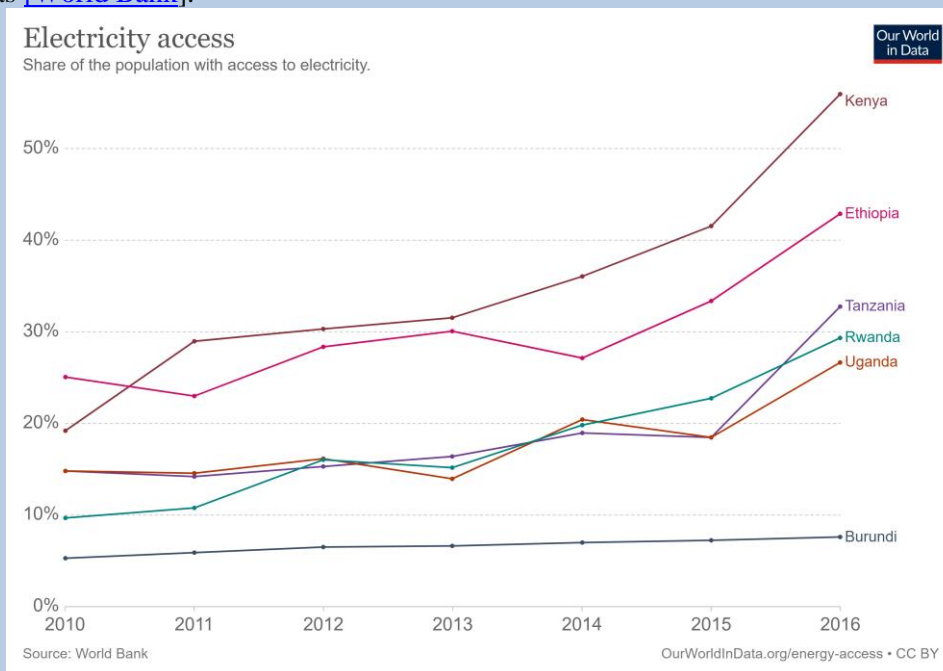


1. Background and context

Energy infrastructure is one of the critical components for development and growth. To transform Burundi's energy sector, three main areas need to be addressed [[Investment opportunities in renewable energy Burundi; October 2012](#)]:

1. increased capacity production;
2. modern energy accessibility to the entire population;
3. optimize financial and human resources by making the energy sector efficient, transparent, and equitable.

The below graph compares access to electricity in East Africa region with Burundi being at the bottom. Only one in ten Burundians have access to electricity in the country and this drops to only 2% in rural areas [[World Bank](#)].



Source: World Bank

Energy resources that are used currently are either costly or pose threats to the environment, such as use of firewood. The use of firewood is the main energy source for most artisanal or industrial activities and cooking fuel for most of the population.

Solar energy is available and well distributed across Burundi as shown in the irradiance map below. Average sunlight amounts to 4-5 kWh per sq. mile per day.

Currently, there are no formalized training centers and curricula for the installation, operation and maintenance of solar PV in Burundi. There are a few informal solar PV professional trainings available in Burundi. One of the non-profit informal solar PV training programs is offered by [GLICE](#). Therefore, the need for skilled RE technicians is critical in ensuring quality installation, provision of proper guidance to customers on the operation and maintenance of the solar system to meet customers' expectations as well as reduce the need for increasing dependence on burning fossil fuels to satisfy electricity demand.

This TA aims to address these challenges through training, and by developing intervention strategies and facilitating their implementation and dissemination to increase access to high-quality PV technologies and installations as well as help frame strategies to establish a foundation for continuous training, accreditation, quality control, and innovation through a renewable energy promotion center.

The overall objective of this TA is to:

- 1) Develop off-grid solar PV training materials;
- 2) Train and build the capacity of the various stakeholders in the installation, use, operations and maintenance, and deployment of solar PV technologies in Burundi; and
- 3) Support Burundi's efforts to establish a renewable energy promotion center and offer assistance on creating groups, developing strategies to promote a culture of research, innovation in solar energy, quality control for PV and related products and services, logistical center for other provinces for PV equipment, and accreditation system for solar installers.

This TA closely aligns with point 7 of the National Strategy on Climate Change, which emphasizes capacity building as well as aligns with Sustainable Development Goal 7; "Affordable and clean energy"

<p>Activity 1.3: Review timeline and draft outline for the training</p> <p>Schedule initial virtual meeting with the NDE, project proponent, and GLICE (local non-profit organization; training partner). The initial meeting serves to kick off the activities, define objectives, outcomes and a broad agenda of the training, as well as to identify a potential date and location for the training.</p> <p>Following the meeting, the training plan and materials will be drafted. These include:</p> <ol style="list-style-type: none"> An overview of the training objectives and outcomes Training agenda including dates¹, location, and trainers (from NREL and GLICE) Outline of training modules (theory and practice) Training module material (PowerPoint presentations, manuals, reference materials, summaries, training the trainers best practices, training certificates, etc.) List of required equipment (solar PVs, tooling, thumb drives, hard copy prints of training material, etc.) 																				
<p>Activity 1.4: Gather feedback on the training materials</p> <p>Organize a meeting with NDE, project proponent, and GLICE trainers to gather feedback on the developed materials and make changes, if required, to finalize the training materials.</p>																				
<p>Activity 1.5: Translate the materials from English to French.</p> <p>Translate the finalized training materials from English to French.</p> <p>Materials created would include translated PowerPoint presentations (i.e., from English to French) to be used for instruction and to be printed out in hard-copy form for training attendees. Materials would also include thumb drives with the power point presentations as well as related manuals and reference materials.</p>																				
<p>Deliverables 1:</p> <p>Activity 1.1:</p> <ol style="list-style-type: none"> Detailed work plan Monitoring and evaluation plan 	X																			

¹ *Training dates to be confirmed once COVID-19 situation normalizes in the country and SME's from NREL receive approval to travel. As such, training dates are tentative until restrictions are lifted, and approvals received with appropriate guidance.*

c. CTCN Impact Description	X																			X
d. Closure and Data Collection report																				X
Activity 1.2: List of Training Participants			X																	
Activity 1.3: Draft Training Plan and Materials			X																	
Activity 1.4: Final Training Plan and Materials in English					X															
Activity 1.5: Translated Training Plan and Materials in French						X														
Output 2: Conduct Training																				
Activity 2.1: Training logistics																				
Once the training dates and location are finalized, prepare a detailed itinerary of the training program as well as travel expense reports. Notify the participants about the training logistics ² .																				
Activity 2.2: Deliver Training																				
The training will be conducted over five days by NREL ³ and GLICE representatives (the duration is subject to discussion with project stakeholders).																				
The training will be divided in theoretical and practical modules. Theory concepts will be explained for the first half of each training day and practical related activities will be conducted for the second half of each training day. The last day of training will involve a summary of the theory and practice which was taught during the previous days. The training will be interactive to stimulate a better learning.																				
Activity 2.3: Post-Training debrief meeting with all the stakeholders (virtual)																				
Schedule a meeting with all the stakeholders after the training is completed to get feedback regarding the training and share experiences.																				
Stakeholders in the country will have access to training material serving as guidance to identify low quality PV																				

² Training participants would have to pay for the travel and lodging out of pocket and NREL would reimburse them after the training is completed and travel expense reports processed.

³ Due to COVID-19 travel restrictions, there is a risk of SMEs from NREL not receiving the necessary approvals to travel for in-person training to Burundi. In such case, either the in-person training is postponed or GLICE who is the local support partner would deliver the training designed to meet NREL's standard and quality. In the latter case, NREL will provide training to GLICE trainers first before they do the actual training and will do a dry run with them.

Activity 3.3: Meeting report

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 1% 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 <i>Please accumulate the costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan</i>	
					Minimum	Maximum
Output 1: Development of implementation planning, communication documents, and training materials.					\$50,000	\$50,000
Activity 1.1 a. Draft implementation plan development (detailed and updated version of the response plan) b. Monitoring and evaluation plan c. CTCN Impact Description	Senior Researchers, 4-5 days Project Manager, 4-6 days		Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 2-4 hours.			

<i>d. Closure and Data Collection report</i>						
<i>Activity 1.2: Identify stakeholders and participants</i>	<i>Project Manager, 4-5 days</i>		<i>Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 1-2 hours</i>			
<i>Activity 1.3: Review timeline and draft outline for the training</i>	<i>Senior Researchers, 2-3 days Project Manager, 2-3 days</i>		<i>Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 1-2 hours.</i>			
<i>Activity 1.4: Gather feedback on the training materials</i>	<i>Senior Researchers, 2-3 days Project Manager, 2-3 days</i>		<i>Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 1-2 hours</i>			
<i>Activity 1.5: Translate the materials from English to French</i>				<i>Translation Services and for creating hard copy training materials and USB flash drive for each participant</i>		
Output 2: Conduct Training.					\$50,000	\$50,000
<i>Activity 2.1: Training logistics</i>	<i>Project Manager, 1 day</i>	<i>Domestic travel for up to 20</i>				

	<i>Administrator, 2-5 days</i>	<i>training participants for one week</i>				
<i>Activity 2.2: Deliver Training</i>	<i>Senior Researchers, 7-14 days</i>	<i>International travel for two NREL SME from Denver to Burundi for one to two weeks</i>				
<i>Activity 2.3: Post-Training debrief meeting with all the stakeholders (virtual)</i>	<i>Senior Researchers, 1-2 days Project Manager, 1-2 days</i>		<i>Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 1-2 hours</i>			
Output 3: Development of a strategy and plan for a renewable energy promotion center					<i>\$50,000</i>	<i>\$50,000</i>
<i>Activity 3.1: Review of documents and collection of inputs</i>	<i>Senior Researcher, 1-2 days Project Manager, 2-3 days</i>		<i>Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 1-2 hours</i>			
<i>Activity 3.2 Develop of a strategy and plan for a renewable energy and promotion center</i>	<i>Senior Researchers, 1-2 days Researcher, 5-7 days Project Manager, 1-2 days</i>					

Activity 3.3 <i>Present strategy and plan to stakeholders</i>	<i>Senior Researchers, 1-2 days Project Manager, 1-2 days</i>		<i>Phone call or virtual meeting to review the draft implementation plan, NREL, CTCN, NDE, Project proponent 1-2 hours</i>			
Estimated range of costing for the entire Response Plan					<i>\$150,000</i>	<i>\$150,000</i>

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
<i>Please use the same titles for all experts as applied in section 4.</i>	<i>Please provide a short description of expertise and experience needed (education, sectors of expertise, years of experience, country experience, language requirements, etc.).</i>
Andy Walker	Dr. Andy Walker is a Senior Research Fellow at the National Renewable Energy Laboratory, where he conducts engineering and economic analysis of energy efficiency and renewable energy projects for Federal agencies such as national parks and military bases and also for commercial and industrial clients. He has lead photovoltaics training and certification efforts in Ghana and Tanzania and has experience with off-grid PV/battery/generator installations for applications such as cell phone sites. His patent on the Renewable Energy Optimization (REO) method of planning renewable energy projects across a portfolio of properties based on economic value was awarded the Thomas A. Edison Patent Award in 2015 based on innovation and impact. He has taught at the University of Colorado at Boulder, Colorado School of Mines, and at Metropolitan State University of Denver. He has led the Solar Energy Division of the American Society of Mechanical Engineers and is an ASME Fellow. Dr. Walker is the author of over 28 book chapters, journal articles, and conference papers including “Solar Energy: Technologies and Project Delivery for Buildings,” a reference book published by John Wiley and Sons; and “Sustainable Energy Technologies,” by CRC Press. Dr. Walker’s credentials include a B.S., M.S., and Ph.D. in Mechanical Engineering from Colorado State University, and he is a registered Professional Engineer in the State of Colorado.
Paul Ndione	Dr. Ndione received both his M.S. and PhD in Energy and Materials Science from the University of Quebec. His

	<p>master’s studies focused on single-shot spectral interferometry with chirped femtosecond laser pulses, while his doctorate research focused on electro-optic photonic devices based on ferroelectric materials. In 2010, Dr. Ndione joined the Process Technology and Advanced Concepts Group at the National Renewable Energy Laboratory (NREL) to conduct research on oxide semiconductor systems for photovoltaic applications. Since then, he has been involved in research activities associated with the development of high temperature solar selective absorbers for concentrated solar thermal power (CSP), new absorbers for solar water splitting, and wide bandgap semiconductors for power electronics. Dr. Ndione is currently a member of the PV Cell and Module Performance Group at NREL, where he oversees all activities related to the testing of PV modules and leads projects pertaining to the development and improvement of certification, calibration, and testing of PV devices. Dr. Ndione is a member of several international standard organization committees, including the International Electrotechnical Commission (IEC, TC 82) and the American Society for Testing and Materials (ASTM, TC E44). He also has been involved with the Clean Energy Solution Center and the Climate Technology Centre & Network.</p>
<p>Jal Desai</p>	<p>Jal Desai is a researcher at the National Renewable Energy Laboratory (NREL). He provides technical assistance to local communities and federal clients through renewable energy feasibility studies. He has been at NREL for over four years now. Jal Desai holds MS in Energy Science Technology and Policy from Carnegie Mellon University and a BS in Electrical Engineering from the Nirma University of Technology in 2015. He along with Andy Walker lead photovoltaics training in Tanzania under Climate Technology Centre & Network (CTCN). He is also involved in building energy modeling, energy policy, grid optimization, and tecno-economic analysis studies.</p>
<p>Laura Beshilas</p>	<p>Laura Beshilas is a researcher at the National Renewable Energy Laboratory (NREL). Her work includes providing technical assistance domestically and abroad with clean energy transition planning and strategy. Laura also supports energy transition research for islands, remote communities, and tribes. She coordinates the Asia LEDS Partnership Grid Renewable Energy Community of Practice (ALP GRE CoP). This includes organizing webinars, facilitating peer learning events and conversations, providing quick turnaround technical assistance, and making connections between energy practitioners in SE Asia. Laura holds an MS in Sustainability Planning and Management from the University of Colorado Boulder and a B.A in Political Science from Northwestern University.</p>

6. Intended contribution to impact over time

This TA will have an impact across short, mid, and long term as described below.

Short Term:

- Restoration of existing and defunct installations through applying the knowledge gained through the TA.
- Increased expertise for solar PV installation professionalism, maintenance, and design of small scale off-grid PV technology.
- The quality of installation of solar PV and services would improve as there will be more trained technicians locally.
- Organize training in women's employment and entrepreneurship.

Mid Term:

- Restoration of consumer confidence in the use of RE technologies
- Mainstreaming gender into the energy chain value as producers; suppliers; consumers and decision-makers
- Increased installation is directly linked to higher employment and more products would be available in the market which would increase their income.
- Through this TA, the number of innovative solutions for various solar applications will increase.

Long Term:

- Increased private sector participation in the use and promotion of RE technologies in the provision of off-grid energy services.
- Providing the market with services and products that are needed based on low carbon development to power activities allowing more efficient and permanent business cycles whilst reducing GHG emissions.
- Greater interest in solar energy will reduce deforestation and address health problems linked to indoor air pollution.

7. Relevance to NDCs and other national priorities

The technical assistance requested matches the following official national priorities of the country:

- a. [National Development Plan for the 2018-2027 period \(PND Burundi 2018-2027\)](#) . There are in total 16 areas of intervention where the government action would be focused. Three areas that are directly related are:
 1. Axis 2: Development of Infrastructures (Energy, Drinking water, Transport, ICT.)
 2. Axis 5. Strengthening education system and improving the quality of education and the supply of training;
 3. Axis 9. Sustainable management of the environment
- b. [Energy Policy Letter](#), January 2011, which talks about electrification of sites through solar energy of social interest which for technical and economic reasons cannot soon be connected to the network interconnected. The letter also mentions promoting energy research and development for the use of renewable energy and increasing acceptability of the use of technologies from the point of view of women.

- c. In addition, the Burundian government has set up, in particular, [\(i\) a National Climate Change Policy and \(ii\) National Strategy and Action Plan on Climate Change \(2012\)](#). This TA aligns with the “Capacity-building, knowledge, management, and communication” point mentioned in the action plan.

This TA will support these ambitions and will focus on increasing awareness and strengthening managerial and technical capacities around solar PV system installation and maintenance.

8. Linkages to relevant parallel on-going activities:

Burundi joined [SE4ALL](#) (Sustainable Energy For All) in 2013 which is an initiative to encourage stakeholders to make sustainable energy for all a reality by 2030. The three key objectives of this initiative are:

- a. Ensure universal access to modern energy services.
- b. Double the global rate of improvement in energy efficiency.
- c. Double the share of renewable energy in the global energy mix.

[World Bank’s](#) subsidiary, International Development of Association (IDA) approved “The Solar Energy in Local Communities (SOLEIL) or Nyakiriza (‘enlighten me’) project which will improve and double the rate of electricity access in the country through mini-grids or standalone solar systems. This project will provide a total of 17 MW off-grid renewable generation capacity.

[Decentralized Rural Electrification Strategy \(2015–2017\)](#) action plan consists of the following five activities:

- a. Establishing a necessary legal and regulatory framework
- b. Supporting national use and development of off-grid energy solutions
- c. Electrifying social infrastructure through solar PV
- d. Expanding energy access for vulnerable households through off-grid energy solutions and rural distribution models
- e. Support further scale-up of proven renewable energy solutions

[Vision Burundi 2025](#): It was approved by UNDP in 2011 and the Government of Burundi. Through this plan, Burundi has set a target to achieve electrification rate of 25% by 2025 through micro and mini renewable plants.

Establishment of [Agence de Régulation des secteurs de l’Eau potable, de l’Electricité et des Mines \(AREEM\)](#) of Burundi whose mission is to ensure orderly and profitable development of Burundi’s drinking water and electricity sector.

Two legislations were passed by the Burundi government in 2015; [Law no. 1/13 of 25 April 2015 on the Reorganization of the Electricity Sector](#) which promotes renewable energy and Law no. 1/19 of 19 July 2019 superseding Law no. 1/14 of 27 April 2015 on the General System for Public-Private Contracts (PPPs) to attract investments for projects involving the private sector – water, electricity, mining, and oil.

A rural electrification agency was established by Decree No. 100/318 dated 22 December, 2011; Burundian Agency for Rural Electrification (ABER). The objective of this agency is to develop and implement rural electrification projects and programmes, including small-scale hydropower, solar and wind energy, as well as other forms of energy that can improve electricity access for the rural population.

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

- This project will ensure the foundations based on lessons learned to scale it up along the country to open different scenarios for resilience activities to adapt and mitigate to climate change.
- Once the implementation of this technical assistance has been completed, the country will have a functioning training center through which other local technicians, managers, people at Department for Renewable Energy and Energy Efficiency will be trained.
- The short-term direct benefit through this assistance would help build in-country expertise in the field of renewables and the knowledge will be applied to restore existing and defunct PV installations at various locations.
- More of medium to long term outcome after successful implementation of this assistance would be:
 - a. Help consumers restore confidence in the use of RE technologies.
 - b. Mainstreaming gender into the energy chain value as producers; suppliers; consumers and decision-makers
 - c. Increase capacity production which in turn would increase electrification rate and improve energy access in areas specifically rural.

d. Gender and co-benefits:

Imbedded in design of the activities:	<p>A gender expert will be assigned to carry out an assessment and evaluation regarding gender mainstreaming during the implementation of this technical assistance. It will be ensured that these women will be represented accordingly, in all training activities carried out during the implementation of this response plan if it is applicable with the required expertise. Furthermore, it will be ensured that female experts are involved in all consultations to ensure their perspectives are considered.</p> <p>This Project will pursue thorough and gender-responsive integration and ensure stakeholder involvement at all levels, with special regard to involving women.</p> <p>It will be ensured that women are included in the development of training materials and women’s interests are considered during the development.</p>
Gender and co-benefits intended as result of the activities:	<p>It is intended that the role of the trained female experts in the team will be strengthened to ensure equal opportunities.</p>

e. 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
Geographic Institute of Burundi	NDE
National Energy Office (DGE)	Energy policy development and application
Ministry of the Environment, Agriculture and Livestock	Advocacy, monitoring & evaluation
NGOs (Multiple)	Technology user promoters

Retailers	Technology use distributors
Solar installers	System planning and installation
GLICE	Training partner
Municipalities	Technology user promoters

f. 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	Solar PV can provide lost-cost energy and job opportunities.
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	
5	Achieve gender equality and empower all women and girls	Access to solar energy can enhance gender equality by removing or reducing the need to gather other energy sources and by enabling new entrepreneurial endeavors.
6	Ensure availability and sustainable management of water and sanitation for all	Solar PV can be used for irrigation and water pumping.
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	This TA will support Burundi in diversifying the traditionally fossil fuel dependent primary energy mix through a significantly increased share of electricity generated by renewable energy resources
	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	
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	Solar PV can reduce pollution from other energy sources (e.g., wood burning and charcoal).
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	This TA will support Burundi to mitigate GHG emissions from the electricity sector by scaling up electricity generated from renewable energy resources. This TA aligns with the Point 7 of the National Strategy on Climate Change which emphasizes capacity building (training, awareness-raising etc.)
	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	
	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	Solar PV can reduce pollution from other energy sources (e.g., wood burning and charcoal).
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	

g. Classification of technical assistance:

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

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

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

h. 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.

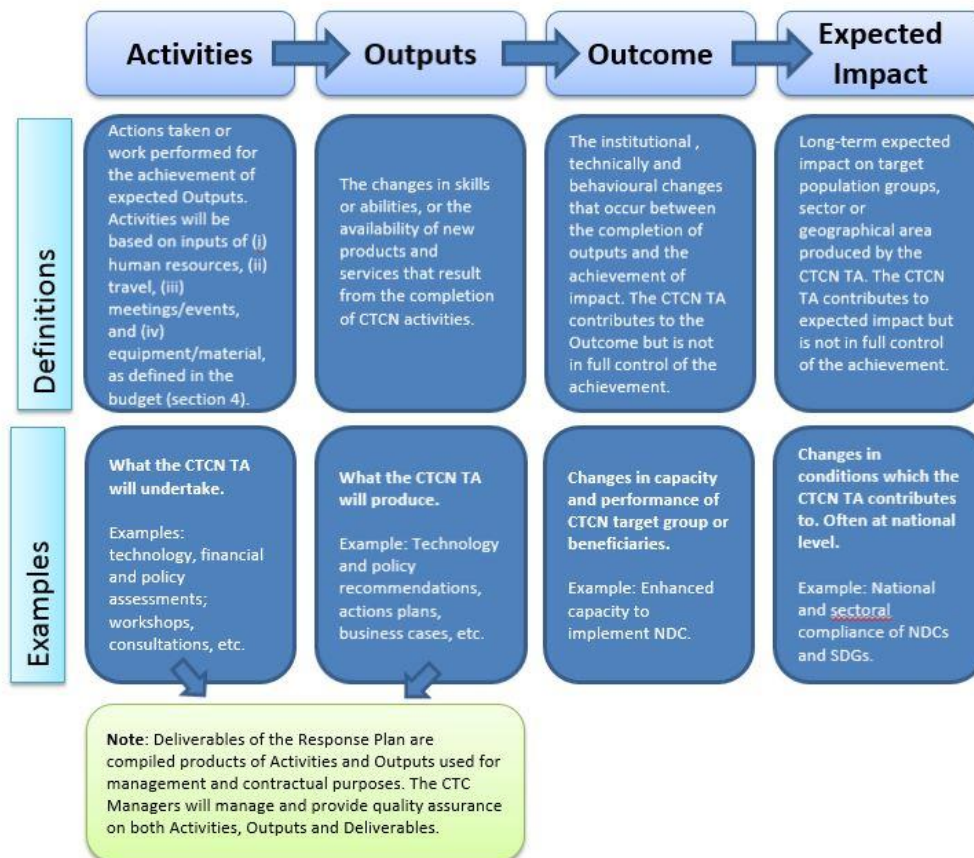
Annex 1: Guidance note for designing a Response Plan (to be deleted when submitting the Response Plan)

1. Objective of the Response Plan

The Response Plan is developed by CTCN specialists in response to a country request for technical assistance. It constitutes the Terms of Reference of the CTCN technical assistance that will be provided to the country and it provides the formulation of and subsequent basis for the monitoring and evaluation of the Response Plan implementation, as well as its expected outcomes and anticipated impacts.

2. Results chain and Logical Framework Approach to be defined in the CTCN Response Plan

The result chain is the causal sequence that stipulates the necessary flow of actions and processes to achieve desired objectives and results – beginning with inputs, moving through activities and outputs, and culminating in individual outcomes. The outcome will contribute to the desired impact in the society. The Logical Framework Approach is an analytical process used to support objectives-oriented project planning and management. It provides a set of pre-defined concepts which are used as part of an iterative process to aid structured and systematic analysis and management of the CTCN technical assistance.



3. Role of the Response Planning Design Team

The Response Planning Design Team is selected by the Climate Technology Centre (CTC). The composition of the team depends on each particular request but may include the National Designated Entity (NDE), the request Proponent, Climate Technology Manager of the CTCN, experts from the CTCN Consortium, UNIDO and UNEP experts from regional offices and other experts as needed.

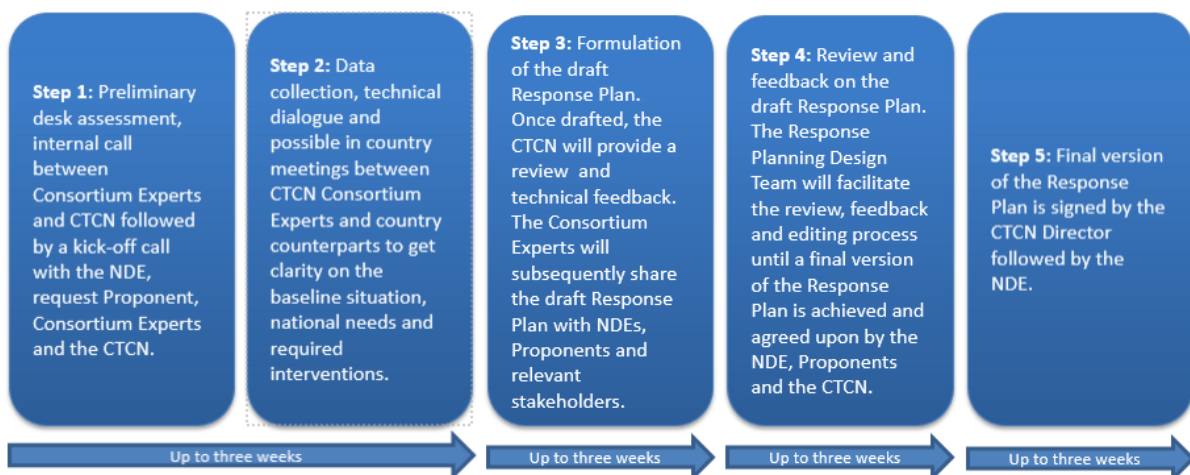
The role of CTCN Consortium experts is to lead the design of the Response Plan. The NDE will provide overall guidance on national context and priorities whereas the request Proponent will provide more detailed information on the sector, barriers and requested assistance. The Climate Technology Manager of the CTCN will provide quality assurance of timeliness and appropriateness of the Response Plan.

The Response Planning Design Team will draft all sections of the Response Plan template building on the information contained in the CTCN Request, based on expertise on the given topic and potentially further data collection, as required. This will be done by the CTCN Consortium Experts in consultation with the NDE, request Proponent and relevant stakeholders. The Response Plan has to be agreed to and approved by the NDE and the CTCN Director. This Response Plan will serve as the basis to identify, select and engage an expert institution from the Climate Technology Network or Consortium to lead the implementation of the CTCN Response Plan in the requesting country.

To the extent possible, staff from UNEP and UNIDO Regional, Sub-Regional and/or National Offices should be involve in all stages of formulation of the Response Plan to maximize synergies and avoid overlap with ongoing initiatives, as well as ensure relevance to regional and national context.

4. Process for designing the Response Plan

The Response Planning process should be completed over a period of up to 60 working days (12 weeks). Indicative steps and related timelines are laid out below:



5. Design Considerations

In order to maximize the impact of the technical assistance provided by the CTCN and provide an effective M&E process, the Response Plan should integrate as much as possible the considerations below:

Climate Technology focus: The Response Plan should have a clear focus on climate technologies, and identify activities that enable the identification, development, deployment or diffusion of one or several specific technologies (including equipment, techniques, knowledge and skills).

Barrier removal / Problem solving: The activities should contribute to address the specific problem statement identified in the Request. The barriers identified should be those hampering the identification, development, deployment or diffusion of one or several climate technologies or climate actions. Therefore, it may be necessary to limit the CTCN Response Plan to a set of activities for technical assistance commonly agreed with the NDE (and Proponent when needed) compared to the original request submitted. The CTCN will liaise with NDEs and Proponent in case the scope of the technical assistance deviates from the original request.

Use of the CTCN assistance by stakeholders: The Response Plan should identify clearly how the products of the CTCN assistance will be used in the short term once support is delivered, by who and when, to ensure it will lead to specific impacts in the country. The activities should engage the stakeholders that will use the concrete results of the assistance to deploy the technologies, including from the private sector, the public sector, research institutions, etc.

Within the scope of CTCN resources: The cost of the technical assistance provided by the CTCN cannot exceed USD 250,000 per Response Plan. Therefore, it may be necessary to prioritize activities and limit the CTCN Response Plan to a set of priority activities commonly agreed with the Proponent and the NDE to remain under this value. Under section 4 of the Response Plan template, an indicative activity based budget should be presented. The proposed budget is indicative and should present an estimated costing range per activity, output as well as a total costing range for the delivery of the Response Plan. Once the Response Plan is finalised and published for tendering, interested parties will provide competitive offer against the indicative budget.

CTCN activities and outputs should be linkable to monitoring and evaluation indicators: All proposed activities and outputs must be linkable to monitoring and evaluation indicators that are specific, measurable, achievable, relevant, and time-bound. The monitoring and evaluation process and corresponding indicators will be developed by the Lead Implementer as part of the work plan and will allow the CTCN technology Manager to monitor the timeliness and appropriateness of the implementation.

Synergies with existing efforts: The Response Plan should focus on activities that are not already being fully supported or that are in the process of being fully supported by another national, regional or international organization. Synergies and complementarity also require that the CTCN assistance is not duplicating past activities. It is possible in the Response Plan to indicate co-financing from the government, the Proponent or another stakeholder, that will maximize the effectiveness of the CTCN assistance.

Gender mainstreaming: The CTCN mission is to build or strengthen developing countries' capacities to identify technology needs, to facilitate the preparation and implementation of technology projects and strategies taking into account gender considerations. The Response Plan must therefore describe how gender considerations will be included and monitored within the proposed activities, and any gender co-benefits that will be gained as a result of implementing the CTCN technical assistance.