

Country	Georgia
Request ID#	AF- 2021000119
Title	Building up integrated monitoring and early warning forest fires detection system in Borjomi - Kharagauli National Park by innovative remote sensing tools
NDE	Ministry of Environmental Protection and Agriculture of Georgia Address: 6 M. Gelovani avenue, Tbilisi, 0159 Georgia Website: http://www.mepa.gov.ge Focal point Ms. Maia Tskhvaradze, Head of Climate Change Division Telephone: +995 322 47 01 01 E-mail: maia.tskhvaradze@mepa.gov.ge
Proponent	Agency of Protected Areas of Georgia Davit Iosebashvili – Chairman of the Agency Georgia, 0114 Tbilisi G. Gulua Str. # 6 Tel: +995 577 15 00 83 E-mail: davit.iosebashvili@apa.gov.ge ; takokhakhishvili@gmail.com

Summary of the CTCN technical assistance

The summary should provide a brief description of the problem (barrier to climate technology deployment) and how the technical assistance will address it (summary of outputs and activities). Please also briefly indicate national actors involved and the anticipated timeline.

The purpose of this technical assistance is to benchmark, select, design and test a suitable integrated monitoring and early warning forest fire detection system in Borjomi-Kharagauli National Park. A site-specific fire monitoring policy that allows local populations with high risks of exposure to forest fire hazards to take appropriate actions to avoid or reduce risks and to prepare effective responses will be redacted, and users and administrators of the future system trained to its functionalities.

Preservation of forests contributes to the significant reduction of Greenhouse Gas (GHG) removal towards improvement of the resilience of ecosystems to climate change while minimizes the impact of extreme weather phenomena such as flooding. Therefore, it is a very important to develop a system for early detection of wild fires towards protecting the environment contributing to the climate change resiliency.

Agreement:

National Designated Entity to the UNFCCC

Technology Mechanism

Name: Maia Tskhvaradze

Title: Head of Climate Change Division

Date: 1.02.2022

Signature:



Proponent (signature of the Proponent is optional)

Name: Davit Iosebashvili

Title: Chairman of the Agency of Protected Areas

Date: 27.01.2022

Signature:



UNFCCC Climate Technology Centre and Network (CTCN)

Name: Rose Mwebaza

Title: CTCN Director

Date: 03/02/2022

Signature:



1. Background and context

Please provide a brief description of the background and context for the CTCN Response Plan. Please include national and sectoral information using recognized and publicly available sources.

Georgia is a rich forested country (approximately 40% of area). A massive wildfire was raging in Borjomi - Kharagauli National Park in summer of 2017. It lasted over a month.

The protected territory of Borjomi - Kharagauli is in a central part of the Caucasian throat and includes eastern part of the Lesser Caucasus mountains. It spans an area of 107 000 ha with a total length of 95 km from west to east and a width between 3 and 26 km. Borjomi-Kharagauli National Park and Borjomi State Nature Reserve are bordered by the Mtkvari river and Tbilisi-Akhalsikhe motorway and railway from the south-east to the north. To the north, the protected area extends over the Achara-Imereti Ridge and, from east to west, the River Tskaltsiteli Valley borders the park to the distance of 30 km. Nedzvi Managed Reserve is located on the right bank of the river Mtkvari, at the south-east border of the Borjomi-Kharagauli National Park.

The biggest wealth of Borjomi-Kharagauli National Park is the forest (75% of the territory) where large areas of the untouched sections of the mixed forests of Caucasus are protected. Approximately a quarter of the park is taken by sub-alpine and alpine meadows as well as Dekani (relic *Rhododendron Caucasicum*). In addition, pure *Picea* and *Pinus* massifs located at 1400-1800 m subsea level are gathered here. All the forest forming conifers are the Caucasus endemism: *Picea orientalis*, *Abies nordmanianna* and *Pinus kochiana*. As for the broad-leave plants, there are *Quercus iberica* and *Caprinus caucasica* prevailing in the lower zones and *Fagus orientalis* - in the upper zones; *Castanea sativa*, etc. registered in the Red List of Georgia are frequently observed there as well. These species create various combinations at various zones and habitats. Subalpine *Betula litwinowii* can be observed in various spots of the territory as well.

2. Problem statement

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

The problem the project aims to address is reducing the danger of uncontrolled forest fires upon the ecosystem of the protected target area.

Short and long-term impacts on the specific values of the protected territories, especially natural fires, forest massif diseases caused by pests and climate change need special attention. Administration of the protected territories should maintain balance and, on the one hand, allow to develop the natural processes to identify environmental condition of the protected territories and, on the other hand, focus on those specific values the protection, conservation, and maintenance of which is the responsibility of the Agency of Protected Areas, project proponent of this Technical Assistance.

The Agency of the Protected Areas manages the protected territories following the following general principles:

- Fire prevention and control from time to time - naturally occurred fires are the factors determining the environmental condition of the protected territories.
- Management of the protected territories often admit that the fire is part of the natural processes and consider that there is no need of interference in such cases.

- In case of Borjomi - Kharagauli protected areas, the uncontrolled fires can put such ecological values under danger due to the increased number of visitors. These healthy forests and meadows, wild plants and animals, picturesque views, natural resources upon which still a lot of residents depend on.

Based on the above-mentioned reasons, the purpose of the technical assistance is to benchmark, select and design an integrated monitoring and early warning forest fires detection system in the Borjomi - Kharagauli National Park, to define a fire monitoring policy and train future users and administrators on the system.

forest fires.																		
<p>Activity 2.1: Map stakeholders The activity will identify relevant stakeholders among governmental institutions at the national and sub-national levels, private sector, civil society, academic institutions, and beneficiaries. Based on these stakeholders, define a limited stakeholder working group (8 to 10 persons) that shall maintain a gender balance and an adequate representation from vulnerable groups. It will provide a technical overview and a high-level guidance at every stage of the implementation of the technical assistance. The stakeholders will be mapped with the support of the NDE and project proponent.</p>																		
<p>Activity 2.2: Organize an inception meeting An inception meeting will be organised to present the goals, milestones, anticipated deliverables, and the role of the stakeholder working group which should be limited to 8-10 persons. Results of the inception meeting will be fed into the implementation plan elaborated under Activity i of the Mandatory output. During this meeting, the stakeholders will list of the existing documents, including maps, reports, studies, regulations, frameworks or else related to forest fires monitoring in Borjomi - Kharagauli National Park. These documents will be shared with the implementer following the closure of the meeting.</p>																		
<p>Activity 2.3: Develop a risk assessment of forest fires procedures and technologies used in Borjomi - Kharagauli National Park Based on the documents shared by the stakeholders, the implementer will analyse current practices used in the Borjomi - Kharagauli National Park and related to the procedures, mechanisms, technologies used to control forest fires in the park. The implementer will summarize the results of this analysis in a risk assessment report that will include at least the impact of risk as well as the probability of risks (ranked from 1-5 in which 5 is the higher) and finally the significance of the risk (Low, Moderate or High) for, at least, the following aspects:</p>																		

2.4 b List of recommendations and measures identified with the stakeholders to mitigate the identified risks.			X																
Output 3: Benchmark, select and design of the integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park																			
<p>Activity 3.1: Benchmark existing integrated monitoring and early warning forest fires detection technologies.</p> <p>Forest fires are extremely complex physic-chemical processes, reflecting the different materials, the rouged terrain, the changing environmental conditions. The complexity of these phenomena leads to many different signals produced during a forest fire.</p> <p>In this activity, the implementer will benchmark the most representative forest fires detection systems including optical remote sensing, as well as digital image processing and classification techniques. Depending on the acquisition level, three broad categories of widely used systems that can detect or monitor active fire or smoke incidents in real/near-real-time, namely terrestrial, aerial, and satellite.</p> <p>The positive use of each of these 3 categories will be analysed in the context of the Borjomi - Kharagauli National Park. The results of this activity will be summarized in a report that will include the component requested for each category (sensing technologies, video flame and or smoke methodologies, visible or/and InfraRed (IR), airborne systems, machine learning etc) and present the strength and weaknesses of the methods in the context of the Borjomi - Kharagauli National Park.</p> <p>Additionally, an estimation of the costs of implementation and maintenance of each system will be established. At this stage, the cost analysis doesn't need to be extremely precise, but it should provide ranges of price so that the cost could be considered during the prioritization process.</p>																			

<p>Finally, the results will be summarized in a matrix and the draft prioritization of the most suitable method(s) for the use in Borjomi - Kharagauli National Park will be prepared by the implementer in prevision of the next activity.</p>																				
<p>Activity 3.2: Organize a prioritization meeting with the stakeholder working group The implementer will organize a meeting with the stakeholder working group to present the benchmark of existing technologies to monitor forest fires, along with the component that composed each system as well as the draft prioritization system. The objective of this meeting will be to decide, in cooperation with the stakeholders, which technologies should be designed and deployed in the future in Borjomi - Kharagauli National Park.</p>																				
<p>Activity 3.3: Design the integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park Once the technology will have been selected by the stakeholder working group, the implementer will design the full architecture of the integrated monitoring and early warning forest fires detection system to be used in Borjomi - Kharagauli National Park. This will include but no be limited to:</p> <ul style="list-style-type: none"> • all the components that will be requested by type • The Spectral Bands • as well as the electricity (systems) needs • The correlation between the items • The way data collection will work • Backup solutions • Communication channels from the machine to the users • Spatial Scale • Spatial resolution • Data coverage • Accuracy coverage 																				

<ul style="list-style-type: none"> • And all other functionalities that are part of an integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park • As well as a list of Specs/Advantages/Limitations <p>This information will be summarized first with the architecture of the system, then in a report that will provide details about the components and the specificity of the designed system.</p>																				
<p>Activity 3.4 Organize a stakeholder meeting to introduce the draft architecture of the integrated monitoring and early warning forest fires detection system to be used in Borjomi - Kharagauli National Park.</p> <p>The implementer will organize an in-person meeting with the stakeholder working group to introduce the draft architecture of the integrated monitoring and early warning system designed. The system designed will be explained to the stakeholder working group. The limits, specificities and advantages of the system will also be exposed to the stakeholder working group.</p> <p>Possible comments or request of the stakeholder working group could lead to some modifications of the draft architecture. Should it be the case, these changes will be applied to the architecture and second draft of the architecture will be circulated to the stakeholder working group and explained during a virtual meeting.</p> <p>Up to 3 rounds of revisions will be attended until the final architecture is understood and approved by the stakeholder working group.</p>																				
<p>Activity 3.5: Establish a detailed cost analysis of the system</p> <p>The implementer will define the cost of implementation, operation, and maintenance of the approved design of the integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park.</p> <p>This report will be circulated to the stakeholder working group and discussed /explained in a meeting.</p>																				
<p>Deliverables 3:</p>																				

<p>The purpose of this meeting will be to select which of these 5 sites will be best suited for the pilot. The selected pilot along with the criteria that were used to validate the selection will be described in a report along with the minute of the meeting.</p>																			
<p>Activity 4.2 Implement the integrated monitoring and early warning forest fires detection system in the selected location The integrated monitoring and early warning forest fires detection system will be developed and implemented in the selected location of Borjomi - Kharagauli National Park¹.</p>																			
<p>Activity 4.3 Internal test the system by the implementer The implementer will run a test of the integrated monitoring and early warning forest fires detection system in the selected area. All bugs will be solved to deliver a fully operational pilot to the country at the end of this Technical Assistance.</p>																			
<p>Activity 4.4 Train the future users and administrators of the system during a 2-day workshops held onsite. A demonstration workshop will be organized in the selected area in presence of the future users and administrators of the system to a) explain the way the system works, b) let the future users and administrators test the system by their own, c) explain the operational procedures that should be implemented based on the responses generated by the system, d) answer and clarify any questions the future users and implementers may have. An average of 25 persons are expected.</p>																			
<p>Deliverables</p>																			

¹ Please note that a maximum of 50,000 USD of the funding received from the CTCN could be used to develop and implement the integrated monitoring and early warning forest fires detection system. This amount should be used to develop and implement the hardware components of the technology for the selected location of Borjomi - Kharagauli National Park. Should additional funding be required, these funding will need to come from other sources. It will be the responsibility of the implementer to leverage these additional sources of funding. In case the additional funding required could not be leverage, activities 4.2 and 4.3 and 4.4 will be cancelled and the respective amount of funding will be refunded or retained by the CTCN.

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 and communication documents						
Activity 1.1: Formulation of a) Detailed work plan, ii) Monitoring and evaluation plan, iii) CTCN Impact Description, iv) Closure and Data Collection report.	Team leader: 5w/days KE1: 4 w/d KE2: 2 w/d KE3: 1 w/d NKE1: 1 w/d NKE2: 1w/d	/	/		5.000	6.500
Output 2: Contextualize, map the stakeholders, analyse current practices used in Borjomi - Kharagauli National Park to monitor forest fires						
Activity 2.1: Map stakeholders	Team leader: 2w/d KE1: 1 w/d KE3: 2 w/d	N/A	N/A	/	1.000	1.200
Activity 2.2: Organize	Team leader: 5	One international travel	One inception		5.000	9.000

an inception meeting	KE1: 1 KE2: 1 KE3: 1 NKE1: 1	from the Team Leader to Georgia for the inception meeting at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget : 2.200 USD. 15 participants expected to participate to the workshop at 100 USD/day each.	workshop at 1.500 USD all costs inclusive.	/		
Activity 2.3: Develop a risk assessment of forest fires procedures and technologies used in Borjomi - Kharagauli National Park	Team leader: 2 w/d KE1:2 w/d KE2: 2w/d KE3: 2w/D	N/A	N/A	/	3.000	4.200
Activity 2.4.: Organize an in -person meeting with the stakeholder working group to present the results of the risk assessment	Team leader: 5 w/d KE1: 2 w/d KE2: 1 w/d KE3: 2w/d KE1 : 1 w/d	One international travel from the Team Leader to Georgia for the presentation of the results from the risk assessment at 2,200 USD including the	One workshop at 1.500 USD all costs inclusive.	/	6.000	10.000

		<p>flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD.</p> <p>15 participants expected to participate to the workshop at 100 USD/day each.</p>				
Output 3: Benchmark, selection and design of the integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park						
Activity 3.1. - Benchmark existing integrated monitoring and early warning forest fires detection technologies	Team leader: 1 w/d KE1: 5 w/d KE2: 2w/d KE3: 5w/D	N/A	N/A	/	3.000	5.000
Activity 3.2. - Organize a prioritization meeting with the stakeholder working group	Team leader: 1 KE1: 3 KE2: 2 KE3: 5 NKE1: 1	<p>One international travel from the Team Leader to Georgia for the prioritization workshop at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD.</p> <p>15 participants expected</p>	One workshop at 1.500 USD all costs inclusive.		6.000	8.000

		to participate to the workshop at 100 USD/day each.				
Activity 3.3. - Design the integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park	Team leader: 5 KE1: 10 KE2: 10 KE3: 10 NKE1: 5	N/A	N/A		15.000	15.500
Activity 3.4. - Organize a stakeholder meeting to introduce the draft architecture of the integrated monitoring and early warning forest fires detection system to be used in Borjomi - Kharagauli National Park	Team leader: 1 KE1: 5 KE2: 5 KE3: 5 NKE1 : 1	One international travel from the Team Leader to Georgia for the prioritization workshop at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD. 15 participants expected to participate to the workshop at 100 USD/day each.	One workshop at 1.500 USD all costs inclusive.		6.000	8.000
Activity 3.5. - Establish a detailed	KE1: 10 KE2 : 5	N/A	N/A		15.000	15.500

cost analysis of the system						
Output 4: Develop and Test the system in one specific area of the National Park						
Activity 4.1. Organize a workshop to select the area in which the pilot will be implemented	Team leader: 1 KE1: 5 KE2: 1 KE3: 5 NKE1: 1	One international travel from the Team Leader to Georgia for the prioritization workshop at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD. 15 participants expected to participate to the workshop at 100 USD/day each.	One workshop at 1.500 USD all costs inclusive.		7.000	8.000
Activity 4.2. - Implement the integrated monitoring and early warning forest fires detection system in the selected location	Team leader: KE1: 10 KE2: 25 KE3: 10 NKE1 : 5	N/A	N/A	Hardware for a maximum of 50,000 USD	70.000	75.000
Activity 4.3. – Internal test the system by the implementer	KE1: 5 KE2: 5 KE3: 5	Three international experts travelling to test the pilot at 2.200 USD including the flight,	N/A		10.000	12.000

		accommodation, and DSA for 5 Business days. Total budget: 6.600 USD.				
Activity 4.4. - Train the future users and administrators of the system during a 2-day workshops held onsite	TL: 1 w/d KE1: 5 w/d KE2: 5 w/d KE3: 2 w/d NKE1 : 1 w/d	One international travel from the Team Leader to Georgia for the prioritization workshop at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD. 30 participants (including team of experts) expected to participate to the workshop at 100 USD/day each. Plus accommodation for the participants in the area at 200 USD/each.	2 – day workshop, 27 participants (2 trainers + 25 Trainees)	Rented workshop space Presentation means (laptop, video projector) Printed materials Accommodation in the area 2 nights full board per participant Off – road transport	15.000	18.000
Output 5: Define a standard operation procedure for an efficient use of the designed integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park						
Activity 5.1. - Define	Team leader: 1	N/A	N/A		3.000	3.500

<p>a draft standard operation procedure for an efficient use of the designed integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park</p>	<p>KE1: 5 KE3: 2 NKE1: 1</p>					
<p>Activity 5.2. - Conduct an official review workshop</p>	<p>Team leader: KE1: KE2: KE3:</p>	<p>One international travel from the Team Leader to Georgia for the prioritization workshop at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD.</p> <p>15 participants expected to participate to the workshop at 100 USD/day each.</p>	<p>One workshop at 1.500 USD all costs inclusive.</p>		<p>5.000</p>	<p>6.000</p>
<p>Activity 5.3. - Incorporate comments and develop second draft of the procedures</p>	<p>KE1: 3</p>	<p>N/A</p>	<p>N/A</p>		<p>1.000</p>	<p>1.500</p>

Activity 5.4. - Incorporate comments and develop final drafts of the procedures	Team leader: 1 KE1: 2	N/A	N/A		1.000	1.500
Output 6: Dissemination modules and training of trainers						
Activity 6.1. - Elaborate dissemination modules to demonstrate the advantages of integrated monitoring and early warning forest fires detection system for the Borjomi - Kharagauli National Park	Team leader: 1 KE1: 5 KE2: 5 KE3: 5 NKE1: 2	N/A	N/A	Translation of the document into local language	5.000	7.000
Activity 6.2. - Organise a workshop with national officers of the Ministry of Environmental Protection and Agriculture and the Agency of Protected Area of Georgia	Team leader: 1 KE1: 5 KE2: 1 KE3: 5 NKE1: 1	One international travel from the Team Leader to Georgia for the workshop with national officers at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD. 30 participants expected to participate to the	One workshop at 1.500 USD all costs inclusive.		10.000	11.000

		workshop at 100 USD/day each.				
Activity 6.3. - Organize a stakeholder engagement workshop with finance agencies	Team leader: 5 KE3: 1	One international travel from the Team Leader to Georgia for the workshop with national officers at 2,200 USD including the flight, accommodation, and DSA for 5 Business days. Total budget: 2.200 USD. 25 participants expected to participate to the workshop at 100 USD/day each.	One workshop at 1.500 USD all costs inclusive.		8.000	11.900
Activity 6.4. - Redact a concept note	Team leader: 5 KE1: 5 KE2: 5 KE3: 5 NKE1: 5 NKE2: 5	N/A	N/A		10.000	15.000
Estimated range of costing for the entire Response Plan					210.000	250.000

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
Team Leader	<ul style="list-style-type: none"> • Master’s degree in economics, business or project management; • At least 10 years of working experience in Management and coordination of the projects in the framework of international and regional programmes. • At least 5 references working as a Team Leader for multilateral funds (UN agencies, World Bank, IDB, IADB, AfDB, BEI, EC, or others) • Experience in managing complex projects in the presence of various stakeholders. • Previous experience in Eastern Partnership Country (Black Sea Basin countries) is a plus. • Fluency in English is mandatory.
Key – Expert 1 KE1 - Expert in forest fires prevention	<ul style="list-style-type: none"> • Master’s in agriculture, AFOLU, ecosystem and biodiversity, agriculture engineer, or similar. • At least 10 years of experience in the forest fires prevention • At least 5 references demonstrating experience in the design and implementation of procedures to monitor forest fires prevention in protected area. • Experience in capacity building, organizing workshops and capacity building • Experience in managing complex projects in the presence of various stakeholders. • Previous experience in Eastern Partnership Country (Black Sea Basin countries). • Fluency in English is mandatory.
Key – expert 2 KE2 - IT Expert in integrated monitoring and early warning systems	<ul style="list-style-type: none"> • Master in technical sciences or climate technologies or IT design focus on climate change or affiliate; • At least 15 years of experience in IT System/infrastructure architecture, development, and construction; • Minimum of 5 years’ experience in designing early warning systems and integrated monitoring systems for climate change sector • Previous experience in Eastern Partnership Country (Black Sea Basin countries). • Fluency in English is mandatory.
Key – expert 3 KE3 - Forest management	<ul style="list-style-type: none"> • Master or above in agriculture, AFOLU, management of protected area, forest management or affiliate. • Minimum 8 years’ experience in forest management or protected area management in Eastern Partnership Country (Black Sea Basin countries). • At least 5 experiences in defining procedures, roadmaps, action plans to protect the forest and/or protected areas in Eastern Partnership Country (Black Sea Basin countries). • Presence in Georgia desired or availability to travel frequently

	<p>and for long periods.</p> <ul style="list-style-type: none"> • Fluency in Georgian is mandatory. Good level of English is valued.
<p>Non – key Expert 1 NKE1 - Gender expert</p>	<ul style="list-style-type: none"> • Graduate of social sciences, gender management or affiliate. • Minimum 8 years of experience in implementing policies on gender equality / evaluating gender related issues • Gender experience in the context of forest management, management of protected area, AFOLU, or affiliate. • At least 5 references in Eastern Partnership Country (Black Sea Basin countries). • Gender issues analysis / evaluation in Georgia is a plus. • Presence in Georgia desired or availability to travel frequently and for long periods. • Fluency in English is mandatory.
<p>Non – key Expert 2 NKE2 – CBA Expert</p>	<ul style="list-style-type: none"> • Financial expert with sound CBA expertise • Experience in designing applications with UN, World Bank, other international donors • Experience with EU financed projects is a plus.

6 Intended contribution to impact over time

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

It is expected that the project will enable a better management of the Borjomi-Kharagauli National Park, which is a protected area. This will protect the ecosystems and biodiversity of the National Park. The early warning and integrated monitoring systems will also establish procedures to inform the populations leaving closed by and define an evacuation plan. Finally, it is expected that the early warning system will enable to manage future forest fires more efficiently and avoid the destruction of future forest lands, as well as the emissions of unexpected GHG emissions which result from forest fires.

7 Relevance to NDCs and other national priorities

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

Reference document	Extract
Nationally Determined Contribution (NDC)	<p>Georgia's Updated Nationally Determined Contribution – updated version April 2021</p> <p>Chapter 1 - DESCRIPTION OF GEORGIA'S NATIONALLY DETERMINED CONTRIBUTION, Section 1.1. Targets – Forestry sector is one of the seven sectors considering for establishing emission limitation targets</p> <p>Chapter 2 - NATIONAL CIRCUMSTANCES AND INSTITUTIONAL ARRANGEMENT, Section 2.4. Geographic Profile - 43. Georgia also draws attention to the fact that 43.5% of the country's territory is covered by forests aims to maintain and increase the capacity of GHG absorption and adaptation of the forests</p> <p>Chapter 4 - MITIGATION - 59. Georgia intends to increase the carbon capturing capacity through the forestry sector by [10%] for 2030 compared to 2015 level.</p> <p>Chapter 5 – ADAPTATION -Georgia intends to study climate change impact upon the economic situation of the mountainous regions and living standards of the local population for the sustainable management of these regions. A special accent is put on studying the most vulnerable areas of forestlands in the preselected territories.</p>
Technology Needs Assessment	Early Warning Systems are identified in the Technology Needs Assessment of Georgia (2012) in connection with Priority technologies for adaptation.
National Adaptation Plans	Georgia continues to use 2006 IPCC Guidelines for National Greenhouse Gas Inventories and 2013 Supplement to the 2006 IPCC

	<p>Guidelines for National Greenhouse Gas Inventories. The sectoral targets for mitigation stated in the updated Nationally Determined Contribution follows the assumptions and methodologies used by the forthcoming Climate Action Plan (2021-2023). The EX-Ante Carbon-balance Tool version 7 has been applied for mitigation targets setting in the Forest sector.</p>
<p>Add others here as relevant</p>	<p>The Georgian Road Map on Climate Change Adaptation (2016) Chapter 3.2 Sensitivity of agricultural sector and forest ecosystems to climate change, Section 3.2.2 Forest ecosystems - It was concluded based on the analysed materials that the current features of climate change facilitated the increase in fire hazard and the expansion of favourable areas and spread of pests in Borjomi - Bakuriani forests. This trend will be even further strengthened by future conditions of climate change (p.100).</p> <p>The Role of Protected Areas about Climate Change. Scoping Study, Georgia – Chapter 4 - Protected Areas of Georgia and Climate Change highlights the economic importance of natural resources in the Borjomi - Kharagauli National Park; Chapter 5.2. Mitigation and Adaptation Measures in and around Georgian Protected Areas refers to the CO2 storage capacity of the area.</p>

8 Linkages to relevant parallel on-going activities:

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

The past and on-going efforts consist of implementing the tasks of the relevant forest management bodies as described below.

The main agencies that present the relevant forest management bodies are responsible for carrying out of prevention measures of forest fire in Georgia, namely: LEPL - National Forest Agency and LEPL - Agency of Protected Areas of the Ministry of Environment Protection and Agriculture of Georgia as well as the Forest Agency of the Autonomous Republic of Adjara.

The main responsibilities of agencies to prevent forest fires are following:

1. Identification of fire-hazardous forest areas based on forest inventory.

Forest inventory has not been fully implemented during the last 10 years in Georgia. Inventory processes started in 2014, where approximately 21% of Georgia's forest inventory has been conducted, forest management plans have been prepared, fire-hazardous forest areas have been identified.

Fire-hazardous Forest areas have been identified according to the following rule:

The degree of origin of forest fires in relation to the conditions of the site is determined by the forest fire risk assessment scale. Class I pine groves, young coniferous groves, coniferous shrubs on the slopes of the southern exposure; Class II Oak, hornbeam, chestnut, acacia, brushwood groves, deciduous shrubs on the slopes of the southern exposure; Class III I groves on northern exposure slopes and Class IV groves on southern exposure slopes; Class IV groves of fir, spruce, beech and other species on the slopes of the northern

exposure; Grade V groves of willow, willow, laurel, poplar, eucalyptus, evergreen shrubs, floodplain forests and groves in other wetlands. The fire hazard class is determined for each quarter by means of the relevant data of the letters included in it.

2 Developing fire prevention measures for forest fires and coordinate their implementation.

The measures to be taken for the prevention of forest fires are also described in the above-mentioned forest management plan, as well as in the annexes to the Resolution N 508 of the Government of Georgia of September 24, 2015 "On Approval of the National Civil Security Plan".

3. Primary respond to forest fires.

Immediate responding to the regional services of the forest management bodies in case of fire.

4. Provision of additional firefighting equipment, transport, and equipment in case it becomes necessary.

All necessary vehicles (vehicles, firefighting equipment, etc.) are mobilized in case it becomes necessary. Note: Management bodies do not have heavy fire-fighting equipment.

5. Provision of fire-fighting equipment (fire extinguisher, hoe, bar, benzo pump); ensuring periodical check and update them if necessary.

Most of the regional services of the governing bodies have fire-fighting equipment (fire extinguisher, benzo saw, etc.). The equipment is being periodically updated within the capabilities and financial resources.

6. Hiring temporary (firefighting) personnel during the fire-hazardous period (for permanent control of fire-hazardous forest groves) in case of necessity.

Temporary staff is to be hired during the fire-hazardous period as far as it becomes possible. For example, the Forest Agency hired 7 people in 2019 and 30 in 2020.

7. Informing the population through mass media;

Informing the public about the ministry and agencies of ministry through websites and Facebook pages. Regional services also periodically provide information to local communities.

8 Pre-selection / offer of places for water supply and placement of aircraft (helicopter, drone) in case of fire

In case of fire, the regional services identify the places for water supply and aircraft (helicopter, drone)

9. Cleaning of wood-cutting leavings and waste because of barricaded deforestation sites (especially in coniferous groves) or placed in shrubs.

Waste disposal is carried out directly by the management bodies during timber production. And in the contracts with the contracting companies, the obligation to dispose of the generated waste is emphasized, otherwise they will be fined and the contract will be terminated.

Currently, fire prevention and control are carried out only from time to time and not on a structured basis.

Now, the detection of smoke or fire is carried out by rangers who periodically walk around and observe the staircases. Also, local shepherds if they notice smoke or fire, inform the rangers. Upon detection of smoke/fire, the appropriate fire brigade arrives at the scene. Dedicated smoke/fire detection tools are not used today.

Thus, the lack of a structured fire prevention and control strategy means that the methods currently used to combat forest fires are reactive rather than proactive.

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

Please describe the expected future use of the outputs and deliveries produced by this technical assistance, after the CTCN implementation is completed, towards contributing to the anticipated impacts over time articulated in section 6. For example, what organizations or stakeholders will use the outputs of the technical assistance after it is completed, for what purpose, at what scale and scope the outputs and deliveries will be applied, when and what will be the next steps undertaken, etc. (maximum 2500 characters including spaces)

The TA will end with the preparation of concept note that will support the country in leveraging funds to ensure the implementation of the integrated monitoring and early warning system in the selected area. It is expected that the country will implement, under a short-term period, the designed system.

10 Gender and co-benefits:

<p>Imbedded in design of the activities:</p>	<p><i>A gender mainstreaming analysis is mandatory to include for all technical assistances. A gender expert will be assigned to carry out an assessment and evaluation regarding gender mainstreaming during the implementation of the TA.</i></p> <p><i>In addition, please describe all support to gender aspects, women’s equality and other co-benefits embedded into the Response Plan (please include a reference to the actual activities and outputs as described in section 3).</i></p> <p>The project has a definite contribution to gender issues as long as it promotes security and predictability of life conditions for about 174,115 people people living in the area, out of which 52 % are women (83,334 men and 90,781 women).</p> <p>Within the M&E process, an assessment and evaluation of gender mainstreaming within the implementation of the technical assistance process will be carried on.</p>
<p>Gender and co-benefits intended as result of the activities:</p>	<p><i>Please describe all gender aspects, women’s equality and other co-benefits expected as a result of the CTCN technical assistance.</i></p> <p>Gender parity will be insured throughout implementation of the activities of the project.</p> <p>Considering that the project area is a mountainous area, other disadvantaged groups will have better living conditions, that is people in remote</p>

	<p>communities and people working under harsh conditions such as the shepherds. At the level of the project team there will be equal opportunities for both women and men based strictly on their professional expertise. The applicant has strict policies for gender equality and equal treatment.</p> <p>By increasing the capacity of the natural reserve administration to understand the phenomenon of forest fires in the area and to develop a fire zonal plan, there are better chances for sound biodiversity protection, with minimum human intervention made only when forest fires put really at risk both flora, fauna and human beings living in the area.</p> <p>Protection against uncontrolled forest fires secures the economic resources provided by the forests and the economic and social benefits for the residents of the area. A safer area is more suitable for tourism which also contributes to social and economic welfare.</p>
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11 Main in-country stakeholders in implementation of the technical assistance activities:

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

In country stakeholder	Role in implementation of the technical assistance
National Designated Entity	Supervisor and member of the stakeholder working group
National Designated Authority	Oversee the project in all its stages
Project Proponent	Beneficiary and member of the stakeholder working group
LEPL - National Forest Agency	Indirect Beneficiary
Ministry of Environment Protection and Agriculture of Georgia	Holding the project proponent agency
Forest Agency of the Autonomous Republic of Adjara.	stakeholder

12 SDG Contributions:

Instructions: Please complete the grey section below for a maximum of three SDGs that will be advanced through this TA. A complete list of SDGs and their targets is available here:

<https://sustainabledevelopment.un.org/partnership/register/>.

Goal	Sustainable Development Goal	Direct contribution from CTCN TA (1 sentence for top 1-3 SDGs)
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	

7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable, and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, 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	The project will benchmark and design an integrated monitoring system with the objective to limit forest fires and reduce their impacts, to protect the biodiversity and ecosystems but also to protect the population living in the area.
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	<i>All TAs should indicate relevance to Goal 13 and at least one target below (13.1 to 13.b).</i>
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	Forest fires increase the probability of heavy rains and extreme weather events. The integrated monitoring system should, once implemented, enable a better management of the forest, and limit the occurrence of forest fires.
	13.2 - Integrate climate change measures into national policies, strategies, and planning	A procedure guide will be established to describe the succession of events that should be put in place in case of forest fires.
	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	An early warning system for forest fires is a management and planning tool that will have direct impacts on women and youth.
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	The early warning system and integrated monitoring system will focus on the protection of the forest from fires on a protected area in Georgia.
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

13 Classification of technical assistance:

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

<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	X	<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	X	<input type="checkbox"/>
<input type="checkbox"/> 8. Piloting and deployment of technologies in local conditions	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 9. Technology identification and prioritization	X	<input type="checkbox"/>

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

14 Monitoring and Evaluation process

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