CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Technical Assistance Response Plan – Terms of Reference

Country	**Nepal**
Request ID#	**2021000030**
Title	Developing integrated water resources management (IWRM) models for hill ecosystem in Nepal
NDE	*Please add name, position, organization, email and address* Mr. Raju Sapkota Under-Secretary and Head, Climate Change Section Ministry of Forests and Environment rajusapkota140@gmail.com Singhadurbar, Kathmandu, Nepal
Proponent	*Please add name, position, organization, email and address* Mr. Brahma Dhoj Gurung Chairperson Environment Culture Agriculture Research and Development Society Nepal (ECARDS-Nepal) gurungbd@gmail.com; ecards@ecardsnepal.org.np Post Box no 8115, Amarawoti Marg Koteswor, Kathmandu Nepal

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 (brief summary of outputs and activities). Please also briefly indicate national actors involved and the anticipated timeline. Please note this summary will be used for public communication purposes so it is important that it is well written. (maximum 1250 characters including spaces)

Climate change affects the mid-hill areas of Nepal where rainfed agriculture is prevalent. The objective of the technical assistance (TA) is to demonstrate effectiveness of a rainwater harvesting technology and a solar powered water lifting technology (water pumping from river) for sustainable water storage and supply for agricultural practices in the mid-hill areas of Nepal. Sunapati and Khandadevi Rural Municipalities of Ramechhap District are selected for pilot testing of the technologies. In this TA, site selection for pilot testing and design of the technologies will be conducted based on stakeholder consultations and results of investigation of the Rural Municipalities. The technologies will be then installed and monitored at the selected sites. Moreover, locally lead business models for deployment of the technologies will be developed, and activities for capacity building and awareness raising for sustainable use of the technologies and the harvested water in local communities will be provided. Sustainable water supply for irrigation will be available by using the technologies to be tested through the TA, which will contribute to enhancing climate resilience in agriculture sector in the mid-hill areas of Nepal.

Agreement:

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

National Designated Entity to the UNFCCC Technology Mechanism
Name: Raju Sapkota
Title: Under-Secretary and Head, Climate Change Section
Date: September 5, 2021
Signature:

Government of Nepal
Ministry of Forest and Environment
Singh Durbar, Kathmandu

Proponent (signature of the Proponent is optional)
Name: Brahma Dhoj Gurung
Title: ECARDS-Nepal Chairperson
Date: September 5, 2021
Signature:

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इकार्ड्स नेपाल

UNFCCC Climate Technology Centre and Network (CTCN)

Name: Rose Mwebaza
Title: CTCN Director
Date: 06/09/2021
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. (maximum 2500 characters including spaces).

Nepal is a landlocked country vulnerable to climate change. According to Germanwatch, Nepal was one of the top 10 countries with the highest climate risk affected by extreme weather events between 2000 and 2019[1]. By the 2080s, temperature in Nepal is projected to increase by 1.2 - 4.2 °C under the highest greenhouse gas emission scenario (Representative Concentration Pathways 8.5) compared to the baseline period (1986 – 2005)[2]. Average annual precipitation in the country is also expected to increase; however, high and middle mountain Districts have decreased precipitation, showing that there is no clear pattern of trends in the number of wet days of the country[3]. Change in temperature and precipitation in Nepal has been faster than the global average[4], which affects food production and water resource management in the country[5].

Agriculture accounts for 25% of the Nepal's GDP in 2019[6], and small-scale, subsistence agriculture is prevalent in the country[7]. Most of the agricultural areas are rainfed[8] and influenced by impacts of climate change. The Ministry of Forests and Environment (MoFE) reported that climate change has caused 10 - 30% of agricultural production losses in Nepal, noting that drought (with frequency and intensity increased due to climate change) was the most severe hazard, accounting for 38.9% of all losses caused by weather and climate-related events between 1971 and 2007[9]. MoFE also indicated that although temperature rise has brought about positive effects in some areas, it would make productivity of major crops decreased in most areas of the country.

Ramechhap District is a part of Bagmati Province in Nepal, consisting of eight local administrations (Rural Municipalities). According to MoFE, this mountain District is highly vulnerable and sensitive to climate change and had registered decreased precipitation (-9.56 mm/yr) during the period from 1971 to 2014[10], which has affected rainfed agriculture in the District. Local farmers have suffered

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[1] Germanwatch (2021) Global Climate Risk Index 2021. Germanwatch. https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf
[2] WBG and ADB (2021) Climate Risk Country Profile: Nepal. World Bank Group and Asian Development Bank. https://www.adb.org/sites/default/files/publication/677231/climate-risk-country-profile-nepal.pdf
[3] MoFE (2021) Vulnerability and Risk Assessment and Identifying Adaptation Options: Summary for Policy Makers. Ministry of Forests and Environment, Government of Nepal.
[4] USAID (2017) Climate Risk Profile: Nepal. United States Agency for International Development. https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20CCIS_Climate%20Risk%20Profile_Nepal.pdf
[5] MoFE (2021) Vulnerability and Risk Assessment and Identifying Adaptation Options: Summary for Policy Makers. Ministry of Forests and Environment, Government of Nepal.
[6] WBG and ADB (2021) Climate Risk Country Profile: Nepal. World Bank Group and Asian Development Bank. https://www.adb.org/sites/default/files/publication/677231/climate-risk-country-profile-nepal.pdf
[7] Holmelin, N. B. (2021) National Specialization Policy versus Farmers' Priorities: Balancing Subsistence Farming and Cash Cropping in Nepal. Journal of Rural Studies, 83, 71-80.
[8] USAID (2017) Climate Risk Profile: Nepal. United States Agency for International Development. https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20CCIS_Climate%20Risk%20Profile_Nepal.pdf
[9] MoFE (2021) Vulnerability and Risk Assessment and Identifying Adaptation Options: Summary for Policy Makers. Ministry of Forests and Environment, Government of Nepal.
[10] MoFE (2021) Vulnerability and Risk Assessment and Identifying Adaptation Options: Summary for Policy Makers. Ministry of Forests and Environment, Government of Nepal.

from drought and other water related hazards (e.g., rain pattern change and flood) whose impacts are more severe than before due to climate change[11]. Ponds, which used to be a common feature of the landscape in the mid-hill areas of Nepal, including Ramechhap District, were water resources for agriculture in the District. However, due to impacts of climate change, many of them have disappeared or dried up in the last decades. Lack of water resources is affecting the livelihood and agricultural practices of local farmers in the District.

2. Problem statement

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

Adverse impacts of climate change are critical issues in Nepal where the large portion of population relies on agriculture for their livelihood[12]. In particular, variation in the amount and pattern of rainfall and decrease in water resources caused by climate change have seriously affected crop production in the mid-hill areas of Nepal where rainfed agricultural system is prevalent. It is imperative to identify and deploy adaptive measures that can ensure access to sustainable water supply for agricultural practices of local farmers and communities living in such areas. However, there are limited technological and institutional capacities in Nepal to enhance climate resilience in agriculture sector in the mid-hill areas of the country.

The CTCN is requested to demonstrate the effectiveness of a rainwater harvesting technology and a solar powered water lifting technology for sustainable water storage and supply for irrigation in the mid-hill areas of Nepal. Based on consultations with the NDE of Nepal and the proponent (Environment Culture Agriculture Research and Development Society Nepal, ECARDS-Nepal), Sunapati and Khandadevi Rural Municipalities of Ramechhap District are selected as areas for pilot testing of the technologies.

[11] Barrueto, A. and Dahal, U. (2013) Vulnerability and Risk Assessment using the CRiSTAL Tool: Climate Change in Ramechhap and Sindhupalchowk Districts, Nepal. https://www.researchgate.net/profile/Andrea-Barrueto/publication/274570188_Vulnerability_and_Risk_Assessment_using_the_CRiSTAL_Tool_Climate_Change_in_Ramechhap_and_Sindhupalchowk_Districts_Nepal/links/55238b640cf29dcabb0f02fb/Vulnerability-and-Risk-Assessment-using-the-CRiSTAL-Tool-Climate-Change-in-Ramechhap-and-Sindhupalchowk-Districts-Nepal.pdf

[12] Kattel, R. R. (2015) Rainwater harvesting and rural livelihoods in Nepal. Working Paper No. 102–15. South Asian Network for Development and Environmental Economics. http://www.sandeeonline.org/uploads/documents/publication/1078_PUB_Working_Paper_102_Rishi.pdf

3. Logical Framework for the CTCN Technical Assistance:

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

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Objective: Support to demonstrate effectiveness of a rainwater harvesting technology and a solar powered water lifting technology[13] to address water scarcity issues related to irrigation needs in the mid-hill areas of Nepal												
Outcome: Sustainable water supply to local communities will be available by using the water harvesting technologies to be tested through the technical assistance (TA), which will contribute to enhancing climate resilience in agriculture sector in the mid-hill areas of Nepal.												
Output 1: Development of implementation planning and communication documents												
Activity 1: The lead implementer must undertake the following activities at the beginning and at the end of the CTCN TA. i) A detailed work plan of all activities, deliveries, outputs, deadlines and responsible persons/organizations and detailed budget to implement the Response Plan developed. The detailed work plan and budget must be based directly on this Response Plan; ii) Based on the work plan, a monitoring and evaluation (M&E) plan with specific, measurable, achievable, relevant and time-bound indicators provided and used to monitor and evaluate the timeliness and appropriateness of the implementation (a template will be provided). The M&E plan should apply selected indicators from the technical assistance closure report template and enable the lead implementer to complete the technical assistance closure report at the end of the assignment (please refer to item iv below and section 14 in the Response Plan); iii) Impact statement formulated at the beginning of the TA and updated/revised once the TA is fully delivered												

[13] I.e., technologies to pump water from river.

(a template will be provided); and iv) A technical assistance closure report completed at the end of the TA (a template will be provided).	
Deliverables 1: i) Detailed work plan ii) M&E plan and impact statement iii) Technical assistance closure report	
Output 2: Site selection for pilot testing and design of a rainwater harvesting technology and a solar powered water lifting technology at the selected sites	
Activity 2.1: A kick-off meeting and stakeholder consultations A kick-off meeting and consultations with federal/provincial/local government and non-government stakeholders (including local farmers' groups and water user groups) will be carried out (in-person or online[14]). Through this activity, the lead implementer will understand the expectations of stakeholders about the TA. Information on water scarcity and water supply for agriculture and agro-forestry in the mid-hill areas of Nepal, including Sunapati and Khandadevi Rural Municipalities of Ramechhap District, will be shared with the lead implementer during stakeholder consultations. Moreover, consultations with government and non-government stakeholders should also contribute to a deeper understanding of climate change vulnerability issues facing communities and regions in the mid-hill areas of Nepal, including the two Rural Municipalities (to be complemented in Activity 2.3 with additional data gathering efforts). Insights will be sought on barriers to the wide scale adoption of water harvesting technologies and practices already piloted in Nepal. This will lead to an understanding of the potential to scale up the TA and its findings to other regions in Nepal.	
Activity 2.2: Organization of a stakeholder working group A restrictive group of key stakeholders (up to 10 persons) will be created, in consultations with the NDE of	

[14] If the border lockdown is continued due to the COVID-19 pandemic, the lead implementer will take into account conducting the kick-off meeting and stakeholder consultations on an online basis with support from the proponent and the national expert.

Nepal and the proponent (ECARDS-Nepal). The stakeholder working group shall maintain a gender balance and an adequate representation of vulnerable groups. The members of the group will provide inputs and guidance during activities in Outputs 2 and 3. For this purpose, they should have the capacity to take key decisions with regards to pilot testing of rainwater harvesting technologies and solar powered water lifting technologies (water pumping from river) in Sunapati and Khandadevi Rural Municipalities of Ramechhap District.	
Activity 2.3: Investigation of current condition of water supply for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District and site visit The lead implementer will carry out literature review and assessment to gather at least (but not limited to) the following information: • Climate change impacts on water availability and agricultural activities in Sunapati and Khandadevi Rural Municipalities of Ramechhap District • Water resources for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District • Existing technologies applied (or previously piloted) for water harvesting and storage, and water supply for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District • Current status and use of traditional ponds and other water harvesting technologies for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District • Completed or ongoing programmes/projects on water management and/or water supply for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District Based on such information, potential sites for pilot testing of the rainwater harvesting technology and the solar powered water lifting technology in the two Rural Municipalities will be listed and consulted with the NDE of Nepal and the proponent to prioritize them. During Activity 2.1, the lead implementer with support from the proponent, will visit prioritized potential sites for the pilot testing. Water resources and technologies used for water supply for agriculture and agro-forestry in	

each potential site will be investigated during the site visit.												
Activity 2.4: Assessment of rainwater harvesting technologies and solar powered water lifting technologies The lead implementer will review different cases and references on the best practices associated with rainwater harvesting technologies and solar powered water lifting technologies that could be adopted to address water scarcity and climate change vulnerability issues of Sunapati and Khandadevi Rural Municipalities of Ramechhap District. In consideration with the results of Activity 2.3, best practices associated with those technologies will be evaluated, opportunities for addressing potential barriers to upscaling adoption of those technologies will be studied, and their impacts on water supply for agriculture and agro-forestry in the two Rural Municipalities will be estimated. A list of the appropriate best practices and associated technologies will be identified in consultation with the NDE of Nepal and the proponent, and a selection will be made using appropriate decision-making tools regarding the technologies to be tested in each municipality. It is expected that, at a minimum, 2 technologies for rainwater harvesting technologies and 1 solar powered water lifting technology will be tested in each municipality.												
Activity 2.5: Site selection for pilot testing of the rainwater harvesting technology and the solar powered water lifting technology in Sunapati and Khandadevi Rural Municipalities of Ramechhap District Potential sites for the pilot testing will be selected by applying a relevant decision-making tool (e.g., multi-criteria analysis). The stakeholder working group will be requested to participate in a virtual meeting to discuss the selection of the sites for the pilot testing in Sunapati and Khandadevi Rural Municipalities of Ramechhap District. The number of sites for pilot testing of each technology and expected beneficiaries (households) in the two Rural Municipalities are as below[15]: • The number of sites for pilot testing of 2 rainwater harvesting technologies: total of 3-4 sites in each												

[15] The number of pilot sites is indicative, as costs vary significantly depending on the technology selected as well as site conditions. The exact number of sites in each municipality will be determined, in close consultation and agreement with the Proponent, local authorities and key stakeholder group, and the NE, considering the total amount budgeted for these activities.

Rural Municipality (expected beneficiaries: 30 - 50 households in each site) • The number of sites for pilot testing of the solar powered water lifting technology: 1 in each Rural Municipality (expected beneficiaries: 30 - 50 households in each site) In the meeting, the lead implementer will provide a concept design of the rainwater harvesting technologies and the solar powered water lifting technology at the short-listed potential sites, as well as a detailed plan for testing of the technologies selected.	
Activity 2.6: Detailed engineering design of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites The lead implementer will investigate case studies regarding the design and installation of the rainwater harvesting technology and the solar powered water lifting technology. Based on findings from investigation and results of Activities 2.3 and 2.4, detailed engineering design of the technologies for the pilot testing at the selected sites will be made. At least (but not limited to) the following matters should be produced in conducting this activity: • Blueprint of the rainwater harvesting technology and the solar powered water lifting technology • Detailed information on the capacity of water storage and supply of the rainwater harvesting technology and the solar powered water lifting technology • Anticipated implementation period of the rainwater harvesting technology and the solar powered water lifting technology • Anticipated beneficiaries (including the number of households and communities) of the rainwater harvesting technology and the solar powered water lifting technology The national expert will be actively involved, providing practical information and/or field data required during the period of this activity.	
Activity 2.7: Organization of a meeting with the stakeholder working group The results of Activity 2.6 will be shared with the stakeholder working group in a virtual meeting. The lead implementer will present the design of the rainwater harvesting technology and the solar powered water lifting	

technology at the selected sites. Depending on feedback from the stakeholder working group, the lead implementer will be requested to amend the detailed engineering design of the technologies. Particular attention should be given to identifying possible barriers to upscaling of these technologies, and ways to overcome those barriers[16].												
Deliverables 2: i) Report on the kick-off meeting and stakeholder consultations ii) Detailed description of the stakeholder working group, with name and contact details of the members, respective institutions, gender, etc. iii) Report on the investigation of current condition of water supply for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District and the site visit iv) Report on the assessment of rainwater harvesting technologies and solar powered water lifting technologies v) Report on the site selection for pilot testing of the rainwater harvesting technology and the solar powered water lifting technology in Sunapati and Khandadevi Rural Municipalities of Ramechhap District (including the concept design of the technologies at the short-listed potential sites and the plan for pilot testing of the technologies selected) vi) Detailed engineering design of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites vii) Minutes of the stakeholder working group meeting with a list of participants disaggregated by gender, materials used, and summary of the discussions held.												
Output 3: Pilot testing and monitoring of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites												
Activity 3.1: Installation of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites												

[16] A key objective of this TA is to seek to increase understanding on ways to engage communities, local authorities and other relevant stakeholders in the use of these water harvesting related technologies and best practices, so that their adoption can be accelerated. Discussions with the Stakeholder Group and communities at the pilot sites throughout the implementation of the TA will contribute to a common understating on what needs to be in place for a successful replication/scale up of best performing technologies.

Based on the design and feedback received from the stakeholder working group, the lead implementer will install the rainwater harvesting technology and the solar powered water lifting technology at the selected sites. The lead implementer will be requested to report the progress of the technology installation at the selected sites regularly to the CTCN as well as the NDE of Nepal and the proponent[17].					■	■	■						
Activity 3.2: Monitoring of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites After installation of the rainwater harvesting technology and the solar powered water lifting technology, the lead implementer with support from the national expert will monitor the technologies on a regular basis[18].								■	■	■			
Activity 3.3: Organization of a meeting with the stakeholder working group The results of Activities 3.1 and 3.2 will be shared with the stakeholder working group in a virtual meeting. The lead implementer will present the process of installing the rainwater harvesting technology and the solar powered water lifting technology at the selected sites and their current operational status as well as show the results of monitoring the technologies at the selected sites.										■			
Deliverables 3: i) Installation and commissioning test of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites ii) Report on the monitoring of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites iii) Minutes of the stakeholder working group meeting with a list of participants disaggregated by gender, materials used, and summary of the discussions held.							■			■			

[17] The frequency of reporting to the CTCN as well as the NDE of Nepal and the proponent will be further decided later after the detailed engineering design of the technologies (Activity 2.6) is completed.

[18] The frequency of monitoring the technologies will be further discussed with the CTCN as well as the NDE of Nepal and the proponent in consideration with environmental condition at the selected site. These monitoring activities should also aim to involve relevant stakeholders.

Output 4: Development of business models for the rainwater harvesting technology and the solar powered water lifting technology and assessment of the financial opportunities for their deployment in Sunapati and Khandadevi Rural Municipalities of Ramechhap District												
Activity 4.1: Feasibility analysis for deployment of the rainwater harvesting technology and the solar powered water lifting technology The lead implementer will conduct feasibility analysis regarding the deployment of the rainwater harvesting technology and the solar powered water lifting technology in Sunapati and Khandadevi Rural Municipalities of Ramechhap District. Through this activity, possible barriers and challenges that could make the implementation, operation and maintenance of the technologies difficult will be identified. Considering such factors, the lead implementer will assess the technologies in the context of geographical, environmental and socio-economic conditions of the two Rural Municipalities, determining whether (and under which conditions) the technologies are viable and replicable.												
Activity 4.2: Cost-benefit analysis (CBA) for deployment of the rainwater harvesting technology and the solar powered water lifting technology As part of the feasibility analysis, a CBA of replacing the current practices related to water storage and supply in the two Rural Municipalities with the rainwater harvesting technology and the solar powered water lifting technology will be conducted. Cost-Benefit Ratio (CBR), Net Present Value (NPV) and Internal Rate of Return (IRR) will be estimated for the technologies, based on Business as Usual (BAU) scenario. The results of the CBA will be taken into account when assessing the feasibility of the technologies for Sunapati and Khandadevi Rural Municipalities of Ramechhap District (Activity 4.1).												
Activity 4.3: Design of business models for deployment of the rainwater harvesting technology and the solar powered water lifting technology Based on the results of Activities 4.1 and 4.2, the lead implementer will design business models that could facilitate engagement of local communities in deploying the rainwater harvesting technology and the solar												

powered water lifting technology in Sunapati and Khandadevi Rural Municipalities of Ramechhap District. The locally led business models will be developed focusing on environmental sustainability and adaptation to climate change, as well as on the potential for replication in other mid-hill areas of Nepal.												
Activity 4.4: Identification of financing mechanisms for deployment of the rainwater harvesting technology and the solar powered water lifting technology The lead implementer will identify and assess potential financing mechanisms or instruments that could be used to finance the deployment of the rainwater harvesting technology and the solar powered water lifting technology in Sunapati and Khandadevi Rural Municipalities of Ramechhap District and in other areas of the country where these technologies can be replicated. The lead implementer will carry out this activity in close collaboration with the NDE of Nepal and the proponent.												
Deliverables 4: i) Report on the feasibility analysis for deployment of the rainwater harvesting technology and the solar powered water lifting technology ii) Report on the CBA for deployment of the rainwater harvesting technology and the solar powered water lifting technology iii) Report on the design of business models for deployment of the rainwater harvesting technology and the solar powered water lifting technology iv) Report on the identification of financing mechanisms for deployment of the rainwater harvesting technology and the solar powered water lifting technology												
Output 5: Capacity building and awareness-raising for sustainable use of the rainwater harvesting technology and the solar powered water lifting technology and related best practices in local communities[19]												

[19] All activities and deliverables related to this output will be conducted and developed strategically, aiming to contribute to accelerating the large scale adoption of these technologies.

Activity 5.1: Development of a policy brief on use of the rainwater harvesting technology and the solar powered water lifting technology for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal The lead implementer, with support from the NDE of Nepal and the proponent, will develop a policy brief regarding the rainwater harvesting technology and the solar powered water lifting technology as technical solutions for sustainable, climate resilient agriculture and agro-forestry in the mid-hill areas of Nepal. In the policy brief, the impact of climate change on water scarcity as well as water storage and supply for agriculture and agro-forestry will be explained, and environmental, social, economic benefits from the use of the technologies will be elaborated. The lead implementer will assess barriers and challenges regarding the adoption of the technologies (part of them identified through Activity 4.1) and provide recommendations to facilitate their deployment in the mid-hill areas of Nepal, including Sunapati and Khandadevi Rural Municipalities of Ramechhap District. During this activity, government officials from federal government (e.g., Department of Water Resources and Irrigation, Ministry of Energy, Water Resources and Irrigation) and from provincial government (e.g., Ministry of Industry, Tourism, Forest and Environment and Ministry of Land Management, Agriculture and Co-operatives of Bagmati Province) will be requested to review the policy brief and provide their inputs to complete it.												
Activity 5.2: Development of a manual for the rainwater harvesting technology and the solar powered water lifting technology A manual that guides the operation & maintenance (O&M) process of the rainwater harvesting technology and the solar powered water lifting technology will be documented and shared with local government officials and communities at the selected sites. The lead implementer will be requested to provide the manual in both English and Nepali in consideration with the level of technical understanding of the local government officials and the communities.												
Activity 5.3: Development of an educational material for sustainable agricultural practices and income generation by using the harvested water												

The lead implementer with support from the proponent will develop and provide an educational material about sustainable agricultural practices and technologies (e.g., sprinkler and drip irrigation technology), which could be used by local government officials and farmers in Sunapati and Khandadevi Rural Municipalities of Ramechhap District and other mid-hill areas of Nepal with limited water resources (e.g., harvested water) for agriculture. The objective of this activity is to support local farmers to increase the efficiency and production of agriculture as well as their income generation. The lead implementer will be requested to develop the educational material in both English and Nepali.													
Activity 5.4: Capacity building of a farmers' group for sustainable use of the harvested water for agriculture and agro-forestry The lead implementer will organize a 2-day training program for local farmers in Sunapati and Khandadevi Rural Municipalities of Ramechhap District on the use of the harvested water for agriculture and agro-forestry. The objective of the program is to enhance capacity of local farmers for use of sustainable agricultural practices and technologies to adapt to environmental condition and increase their income. A program curriculum will be developed based on findings from Activity 5.3. Trainees of the program will be selected in consultation with the NDE of Nepal and the proponent. After the program, satisfaction survey from the trainees will be conducted to identify the level of their understanding regarding the sustainable agricultural practices and technologies.													
Activity 5.5: Organization of a dissemination and demonstration workshop for government bodies and relevant stakeholders The lead implementer will organize and facilitate a 2-day workshop for federal/provincial/local government officials and relevant stakeholders in Sunapati and Khandadevi Rural Municipalities of Ramechhap District. On the first day, a dissemination workshop will be organized, and findings from activities in the TA, including the results of the pilot testing, will be introduced to participants. On the second day, the lead implementer will organize site visit for the participants. During the site visit, participants will be able to see how the rainwater harvesting technology and the solar powered water lifting technology are operated at the selected sites and will have the opportunity to communicate with local farmers and communities who use the harvested water for													

agriculture and agro-forestry at the selected sites. After the workshop, satisfaction survey from participants will be conducted to identify the level of their understanding.												
Deliverables 5: i) Policy brief on use of the rainwater harvesting technology and the solar powered water lifting technology for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal ii) Manual for the rainwater harvesting technology and the solar powered water lifting technology (in both English and Nepali) iii) Educational material for sustainable agricultural practices and income generation by using the harvested water (in both English and Nepali) iv) Materials for the training program (e.g., presentations, satisfaction survey template, etc.) v) Report on the training program on the use of the harvested water for agriculture and agro-forestry vi) Materials for the dissemination and demonstration workshop (e.g., presentations, satisfaction survey template, etc.) vii) Report on the dissemination and demonstration workshop												

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** *Please accumulate the costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan*	
					Minimum	**Maximum**
Output 1: Development of implementation planning and communication documents					***4,200***	***7,200***
Activity 1: i) Detailed work plan, ii) M&E plan and impact statement, iii) Technical assistance closure report	*I1: 2 days* *I2: 3 days* *I3: 2 days* *I4: 3 days* *N1: 2 days* *N2: 3 days*				*4,200*	*7,200*
Output 2: Site selection for pilot testing and					***41,800***	***62,800***

design of a rainwater harvesting technology and a solar powered water lifting technology at the selected sites						
Activity 2.1: A kick-off meeting and stakeholder consultations	*I1: 5 days* *I2: 7 days* *I3: 2 days* *I4: 2 days* *N1: 3 days* *N2: 5 days*	*[International travel]* *2 international experts for the duration of 5 days each for the kick-off meeting, the stakeholder consultations and the site visit (Activity 2.3)* *[Domestic travel]* *2 international experts and 2 national experts for the duration of 2 days each for the site visit (Activity 2.3)*	*Kick-off meeting, 10 participants (including women's representative), 1 day* *Stakeholder consultations, 15 participants (including women's representative), 1 day*		*13,200*	*16,200*
Activity 2.2: Organization of a stakeholder working group	*I1: 1 day* *I2: 2 days* *I4: 1 day* *N1: 1 day* *N2: 2 days*				*1,100*	*4,100*
Activity 2.3: Investigation of current condition of	*I1: 3 days* *I2: 7 days* *I3: 1 day*				*6,200*	*9,200*

water supply for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District and site visit	*I4: 2 days* *N1: 2 days* *N2: 5 days*					
Activity 2.4 Assessment of rainwater harvesting technologies and solar powered water lifting technologies	*I1: 2 days* *I2: 4 days* *I3: 1 day* *I4: 2 days* *N2: 2 days*				*2,900*	*5,900*
Activity 2.5: Site selection for pilot testing of the rainwater harvesting technology and the solar powered water lifting technology in Sunapati and Khandadevi Rural Municipalities of Ramechhap District	*I1: 2 days* *I2: 5 days* *I3: 2 days* *I4: 2 days* *N1: 2 days* *N2: 3 days*		*Stakeholder working group meeting (online), 10 participants (including women's representative), 1 day*		*4,500*	*7,500*
Activity 2.6: Detailed engineering design of the rainwater harvesting technology and the solar powered water lifting	*I1: 5 days* *I2: 15 days* *I4: 5 days* *N2: 8 days*				*11,400*	*14,400*

technology at the selected sites						
Activity 2.7: Organization of a meeting with the stakeholder working group	*I1: 1 day* *I2: 3 days* *I3: 1 day* *I4: 2 days* *N1: 1 days* *N2: 3 days*		*Stakeholder working group meeting (online), 10 participants (including women's representative), 1 day*		*2,500*	*5,500*
Output 3: Pilot testing and monitoring of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites					***75,600***	***84,600***
Activity 3.1: Installation of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites	*I1: 4 days* *I2: 15 days* *I4: 5 days* *N2: 20 days*	*[International travel] 1 international expert for the duration of 6 days for installing the rainwater harvesting technology and the solar powered water lifting technology (2 times)* *[Domestic travel] 1 international expert and 1 national expert for the duration of 5*		*A package of the rainwater harvesting technology and the solar powered water lifting technology for installation*	*68,700*	*71,700*

		days each for installing the rainwater harvesting technology and the solar powered water lifting technology (2 times)				
Activity 3.2: Monitoring of the rainwater harvesting technology and the solar powered water lifting technology at the selected sites	*I1: 3 days* *I2: 6 days* *N2: 6 days*				*4,400*	*7,400*
Activity 3.3: Organization of a meeting with the stakeholder working group	*I1: 1 day* *I2: 3 days* *I3: 1 day* *I4: 2 days* *N1: 1 day* *N2: 3 days*		*Stakeholder working group meeting (online), 10 participants (including women's representative), 1 day*		*2,500*	*5,500*
Output 4: Development of business models for the rainwater harvesting technology and the solar powered water lifting technology and assessment of the financial opportunities for					***19,800***	***31,800***

their deployment in Sunapati and Khandadevi Rural Municipalities of Ramechhap District						
Activity 4.1: Feasibility analysis for deployment of the rainwater harvesting technology and the solar powered water lifting technology	*I1: 2 days* *I2: 7 days* *I3: 2 days* *I4: 3 days* *N1: 2 days* *N2: 2 days*				*5,300*	*8,300*
Activity 4.2: Cost-benefit analysis (CBA) for deployment of the rainwater harvesting technology and the solar powered water lifting technology	*I1: 2 days* *I2: 2 days* *I3: 7 days* *I4: 3 days* *N1: 2 days* *N2: 2 days*				*5,300*	*8,300*
Activity 4.3: Design of business models for deployment of the rainwater harvesting technology and the solar powered water lifting technology	*I1: 3 days* *I2: 4 days* *I3: 2 days* *I4: 4 days* *N1: 2 days* *N2: 2 days*				*5,300*	*8,300*
Activity 4.4: Identification of	*I1: 2 days* *I2: 2 days*				*3,900*	*6,900*

financing mechanisms for deployment of the rainwater harvesting technology and the solar powered water lifting technology	*I3: 4 days* *I4: 2 days* *N1: 2 days* *N2: 2 days*					
Output 5: Capacity building and awareness-raising for sustainable use of the rainwater harvesting technology and the solar powered water lifting technology and related best practices in local communities					***47,000***	***62,000***
Activity 5.1: Development of a policy brief on use of the rainwater harvesting technology and the solar powered water lifting technology for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal	*I1: 5 days* *I2: 3 days* *I3: 3 days* *I4: 3 days* *N1: 2 days* *N2: 3 days*				*6,500*	*9,500*

Activity 5.2: Development of a manual for the rainwater harvesting technology and the solar powered water lifting technology	*I1: 2 days* *I2: 5 days* *I4: 3 days* *N2: 5 days*				*4,200*	*7,200*
Activity 5.3: Development of an educational material for sustainable agricultural practices and income generation by using the harvested water	*I1: 2 days* *I2: 3 days* *I3: 1 day* *I4: 7 days* *N1: 2 days* *N2: 5 days*				*5,900*	*8,900*
Activity 5.4: Capacity building of a farmers' group for sustainable use of the harvested water for agriculture and agro-forestry	*I1: 4 days* *I2: 8 days* *I4: 8 days* *N1: 4 days* *N2: 8 days*		*Training program, 20 participants (including women's representative), 2 days*		*12,500*	*15,500*
Activity 5.5: Organization of a dissemination and demonstration workshop for government bodies and relevant stakeholders	*I1: 4 days* *I2: 7 days* *I3: 2 days* *I4: 7 days* *N1: 3 days* *N2: 5 days*	*[International travel] 3 international experts for the duration of 6 days each for the dissemination and demonstration workshop and the training program*	*Dissemination and demonstration workshop, 25 participants (including women's representative), 2 days*		*17,900*	*20,900*

		(Activity 5.4) *[Domestic travel] 3 international experts and 2 national experts for the duration of 5 days each for the dissemination and demonstration workshop and the training program (Activity 5.4)*				
Estimated range of costing for the entire Response Plan					***188,400***	***248,400***

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
Please use the same titles for all experts as applied in section 4.	*Please provide a short description of expertise and experience needed (education, sectors of expertise, years of experience, country experience, language requirements, etc.).*
Project Manager (I1) (International expert)	The project manager shall have the following expertise and experience: • Master's degree or above (or equivalent experience) in water engineering, technology and/or management, climate technology, climate change response, environmental management, or an affiliated major • Experience in leading and managing a project and a team of experts from different cultural background and fields of expertise • At least 10 years of experience in designing and/or deploying climate technologies in water and/or agriculture sectors and developing business models for their deployment • At least 5 references demonstrating experience in the design and deployment of climate technologies in water and/or agriculture sectors in developing countries • Experience with community engagement and participatory planning

	• Experience in developing capacity building programs and in organizing workshops and/or capacity building trainings • Previous experience in Nepal will be valued. • Excellent written and communication skills in English are required.
Expert in water harvesting technology design (I2) (International expert)	The expert in water harvesting technology design shall have the following expertise and experience: • Master's degree or above (or equivalent experience) in water engineering and/or technology or an affiliated major • At least 8 years of experience in designing, developing and deploying water harvesting technologies including the rainwater harvesting technologies and the solar powered water lifting technologies for agriculture and agro-forestry • At least 5 references demonstrating experience in the design, development and/or deployment of water harvesting technologies in developing countries • Experience in conducting feasibility analysis and developing business models for deployment of the water harvesting technologies for sustainable water supply to agriculture and agro-forestry • Experience in organizing workshops and/or capacity building trainings • Previous experience in Nepal will be valued. • Excellent written and communication skills in English are required.
Expert in economic analysis and climate finance (I3) (International expert)	The expert in economic analysis and climate finance shall have the following expertise and experience: • Master's degree or above (or equivalent experience) in economics, environmental management or an affiliated major • At least 8 years of experience in conducting economic analysis including CBA for deployment of the water harvesting technologies at the local level • At least 5 references demonstrating experience in economic analysis including CBA for implementation of the water harvesting technologies at the local level in developing countries • Experience in conducting feasibility analysis and developing business models for deployment of the water harvesting technologies for sustainable water supply to agriculture and agro-forestry • Experience in identifying and prioritizing climate finance for deployment of the climate technologies in water and/or agriculture sectors in developing countries • Previous experience in Nepal will be valued. • Excellent written and communication skills in English are required.

Expert in agriculture technology (I4) (International expert)	The expert in agriculture technology shall have the following expertise and experience: • Master's degree or above (or equivalent experience) in agricultural engineering and/or technology, climate technology or an affiliated major • At least 8 years of experience in identifying, evaluating, and/or deploying climate technologies in agriculture sector • At least 5 references demonstrating experience in the implementation of the climate technologies in agriculture sector in developing countries • Experience in conducting feasibility analysis and developing business models for deployment of the water harvesting technologies for sustainable water supply to agriculture and agro-forestry • Experience in organizing workshops and/or capacity building trainings • Previous experience in Nepal will be valued. • Excellent written and communication skills in English are required.
Gender expert (N1) (National expert)	The gender expert shall have the following expertise and experience: • Bachelor's degree or above (or equivalent experience) in social science or an affiliated major • At least 5 years of experience in gender studies and/or management of equality policies • At least 2 references demonstrating experience in gender studies in water and/or agriculture sectors in developing countries • Experience in community engagement processes • Excellent written and communication skills in Nepali and English are required. • It is expected that the gender expert will be based in Nepal or with the availability to travel frequently and for long periods of time in Nepal.
Water resource expert (N2) (National expert)	The water resource expert shall have the following expertise and experience: • Master's degree or above (or equivalent experience) in water engineering, technology and/or management or an affiliated major • At least 8 years of experience in water resource management for agriculture in Nepal • Experience in community engagement processes, organizing workshops and/or capacity building trainings • Excellent written and communication skills in Nepali and English are required. • It is expected that the water resource expert will be based in Nepal or with the availability to travel frequently and for long periods of time in Nepal.

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)

Local farmers in Sunapati and Khandadevi Rural Municipalities of Ramechhap District are facing impacts of climate change. Considerable low amount of rainfall has affected rainfed agricultural system in the Rural Municipalities. Ponds and springs used as water resources for agricultural practices have been depleted due to effects of climate change. Most of the local farmers in the Rural Municipalities rely on small-scale subsistence agriculture. They hardly produce their commodities for sale due to lack of irrigation resources and capacities. There are rivers flowing around the Rural Municipalities which could be used as water resources for irrigation. However, they are in lower altitude than the agricultural areas so that proper technologies need to be deployed to pump water from the rivers.

By using the water harvesting technologies to be tested through the TA, sustainable water storage and supply for irrigation would be available at the selected sites of the Rural Municipalities. Moreover, findings from the TA could be further replicated, increasing climate resilience in agriculture sector in the mid-hill areas of Nepal as well as enhancing capacity of local farmers to extend the size of agricultural practices for income generation.

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)

The TA is in line with national strategies and plans of Nepal for climate change response.

- **Second Nationally Determined Contribution (NDC) (2020):** 4. Adaptation Component of NDC (page 19)
  - Adaptation measures based on circular economy and sustainable resource use will be developed and implemented.
- **National Climate Change Policy (2019)**: 8. Policies – 8.3 Water Resources and Energy – Strategies and Working Policies (page 10)
  - Technologies for storage, multiple use and efficient use of water will be developed and promoted in risk-prone areas and settlements considering the effects of climate change on availability of and access to water
  - Rainwater harvesting ponds will be constructed for groundwater recharge and their multiple use

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)

A roadmap for NDC implementation is under development in Nepal, and prioritized strategies and actions at the national level would be included in the roadmap. Moreover, a climate action plan at the provincial level is also under development. Outputs and associated activities in the TA would be linked with national and provincial efforts to enhance climate resilience in agriculture sector in the country.

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)

Once the TA is completed, the local governments of Sunapati and Khandadevi Rural Municipalities, with support from the NDE of Nepal and the proponent (ECARDS-Nepal), could conduct projects/programs to facilitate deployment of the rainwater harvesting technology and the solar powered water lifting technology by adopting the locally led business models to be developed through the TA. For this, collaboration with financing mechanisms or instruments identified through the TA would be taken into account in close consultations with the NDE of Nepal and other relevant federal/provincial ministries. Moreover, it is expected that various activities and programs would be initiated in other mid-hill areas of Nepal to replicate or scale up the results of the TA, which could enhance capacities of local farmers and communities for climate change adaptation in agriculture sector in those areas.

10. Gender and co-benefits:

Imbedded in design of the activities:	*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.* *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).* Most activities of the TA are designed to ensure gender mainstreaming and to provide co-benefits to vulnerable groups. The lead implementer will be requested to assign a gender expert to conduct the monitoring and evaluation of gender mainstreaming during the implementation of the TA.
Gender and co-benefits intended as result of the activities:	*Please describe all gender aspects, women's equality and other co-benefits expected as a result of the CTCN technical assistance.* Climate-induced drought and the low amount of precipitation worsen the problem of water scarcity in the mid-hill areas of Nepal where water supply for irrigation is already limited. Such situation increases the workload of

	women. In local communities of Nepal, climate change is a push factor for men to leave their households and communities for employment overseas or in neighboring countries[20]. Male migration for livelihood diversification has led to more engagement of women in farming as well as household responsibilities. Women suffer from climate change and face higher risks and greater burdens of work within their society. Installation and operation of the water harvesting technologies to be tested through the TA would not only fulfil water needs for irrigation but also reduce the amount of labor of women in the mid-hill areas of Nepal.

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

In country stakeholder	Role in implementation of the technical assistance
Ministry of Forests and Environment (MoFE), Government of Nepal *(National Designated Entity)*	- Support for coordination of the TA and facilitation of stakeholder engagement - Provision of overall feedback to the CTCN and the lead implementer during the implementation of the TA - Consultation about the policy brief on use of the water harvesting technologies for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal
Environment Culture Agriculture Research and Development Society Nepal (ECARDS-Nepal) *(TA Proponent)*	- Support for coordination of the TA and facilitation of stakeholder engagement - Provision of feedback (practical and technical components) to the CTCN and the lead implementer during the implementation of the TA
Sunapati and Khandadevi Rural Municipalities, Ramechhap District *(Local government)*	- Consultation about current condition of water supply for agriculture and agro-forestry in the Rural Municipalities - Consultation about site selection for pilot testing of the water harvesting technologies in the Rural Municipalities - Consultation about design, installation and monitoring of the water harvesting technologies for pilot testing in the Rural Municipalities - Consultation about business models and financing mechanisms for deployment of the water harvesting technologies in the Rural Municipalities - Consultation about the educational material for sustainable agricultural practices and income

[20] MoFE (2021) Vulnerability and Risk Assessment and Identifying Adaptation Options: Summary for Policy Makers. Ministry of Forests and Environment, Government of Nepal.

	generation by using the harvested water - Consultation about capacity of the farmers' group in the Rural Municipalities for sustainable use of the harvested water for agriculture and agro-forestry
Ministry of Industry, Tourism, Forest and Environment, Bagmati Province *(Provincial government)*	- Consultation about current condition of water supply for agriculture and agro-forestry in the Rural Municipalities - Consultation about site selection for pilot testing of the water harvesting technologies in the Rural Municipalities - Consultation about the policy brief on use of the water harvesting technologies for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal
Ministry of Land Management, Agriculture and Co-operatives, Bagmati Province *(Provincial government)*	- Consultation about current condition of water supply for agriculture and agro-forestry in the Rural Municipalities - Consultation about site selection for pilot testing of the water harvesting technologies in the Rural Municipalities - Consultation about the policy brief on use of the water harvesting technologies for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal
Department of Water Resources and Irrigation, Ministry of Energy, Water Resources and Irrigation, Government of Nepal *(Federal government)*	- Consultation about the policy brief on use of the water harvesting technologies for sustainable agriculture and agro-forestry in the mid-hill areas of Nepal
Division Irrigation Office, Bagmati Province *(Provincial government)* and Ramechhap District Office *(Local government)*	- Consultation about current condition of water supply for agriculture and agro-forestry in the Rural Municipalities - Consultation about site selection for pilot testing of the water harvesting technologies in the Rural Municipalities - Consultation about design, installation and monitoring of the water harvesting technologies for pilot testing in the Rural Municipalities
Agriculture Knowledge Center Ramechhap	- Consultation about the educational material for sustainable agricultural practices and income generation by using the harvested water - Consultation about capacity of the farmers' group in the Rural Municipalities for sustainable use of the harvested water for agriculture and agro-forestry
Farmer groups / local communities in Sunapati and Khandadevi Rural Municipalities, Ramechhap District	- Consultation about current condition of water supply for agriculture and agro-forestry in the Rural Municipalities

	- Consultation about business models for deployment of the water harvesting technologies in the Rural Municipalities - Consultation about the educational material for sustainable agricultural practices and income generation by using the harvested water - Consultation about capacity of the farmers' group in the Rural Municipalities for sustainable use of the harvested water for agriculture and agro-forestry

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	Sustainable water supply will be available by using the water harvesting technologies to be tested through this TA, which will contribute to enhancing climate resilience in agriculture sector in Sunapati and Khandadevi Rural Municipalities of Ramechhap District.
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	This TA will contribute to deployment of the water harvesting technologies for sustainable water supply for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District.
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient and sustainable	
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	This TA will conduct pilot testing of the water harvesting technologies and develop business models for their deployment, which will contribute to enhancing capacity of water storage and supply

		for agriculture and agro-forestry in Sunapati and Khandadevi Rural Municipalities of Ramechhap District.
	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	This TA will (1) develop the educational material for sustainable agricultural practices and income generation by using the harvested water, (2) organize the training program for capacity building of the farmers' group in Sunapati and Khandadevi Rural Municipalities of Ramechhap District for sustainable use of the harvested water for agriculture and agro-forestry and (3) organize the dissemination and demonstration workshop for federal/provincial/local government officials and relevant stakeholders in the two Rural Municipalities to provide findings from the TA to the participants and their visit to the pilot testing sites to show operation of the water harvesting technologies installed and monitored in the sites through the TA.
	13.a - Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	
	13.b - Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

13. Classification of technical assistance:

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

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

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

14. Monitoring and Evaluation process

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