# Technical Assistance Closure Report Template

**Objective of the technical assistance (TA) Closure Report:**

- To communicate publicly in one document a summary of progress made and lessons learned during the TA towards the anticipated impact (sections 1-4).
- To document qualitative and quantitative data collected during TA, for use in donor and UN reporting (Annex 1).

**Steps for completing the TA closure report:**

1. The lead TA implementer submits the closure report at the end of the technical assistance as a final deliverable. The TA closure report will capture outputs, outcomes and impacts of all activities conducted under the TA. Please copy and summarise relevant material from previous TA outputs/deliverables and the Response Plan, as relevant.
2. A CTCN Manager will review and revise the closure report before final approval by the CTCN Deputy Director.

**Important note on public and internal use of the closure report**:
Once approved by the CTCN Deputy Director, the TA closure report will be a public document available on the CTCN website www.ctc-n.org. Selected content will be used for targeted communication activities. Annex 2 is for internal use only and will not be publicly available.

## Closure Report for CTCN Technical Assistance

### 1. Basic information

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| Title of response plan | *Developing a framework and methodology to carbon sinks from the forestry sector using Earth observation in Samoa* |
| Technical assistance reference number | *CTCN 22-016* |
| Country / countries | *Samoa* |
| NDE organisation | *Ministry of Natural Resources and Environment* |
| NDE focal point | *Ms. Frances Reupena (CEO), Anne Rasmussen, ACEO Climate Change Division, Ministry of Natural Resources and Environment* |
| NDE contact information | *bettahroreta87@gmail.com* |
| Proponent focal point and organisation | *Elisapeta R Areta, Ministry of Natural Resources and Environment, bettahroreta87@gmail.com* |
| Designer of the response plan | *CTCN* |
| Implementer(s) of technical assistance | *National Institute of Green Technology* |
| Beneficiaries | *Ministry of Natural Resources and Environment: By developing a robust framework and methodology for mapping the forestry sector and estimating carbon sinks, the government will gain valuable tools and data to inform policy decisions and forest management strategies. This aligns with Samoa's commitment to* |

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| | *managing forests sustainably and increasing total forest cover by 2 percent by 2030*<br>*Stakeholders: The enhanced capacity to manage Samoa's forest resources sustainably will benefit various stakeholders involved in environmental management, forestry, and climate action. These include government agencies, local communities, NGOs, and private sector entities involved in environmental conservation and carbon management.*<br>*Local Communities: They will benefit from improved forest management practices, potentially increased forest cover, and the socio-economic benefits of sustainable forest management and carbon credit opportunities.*<br>*Future Administrators and Users of the Model: These individuals will be equipped with the tools and knowledge to use the developed model for estimating carbon sinks, which is crucial for planning and managing Samoa's forest resources.*<br>*General Population of Samoa: Indirectly, the general population will benefit from the environmental and economic improvements resulting from sustainable forest management and the potential revenue from carbon credits.* |
| Sector(s) addressed | *Forestry* |
| Technologies supported | *Carbon stock measurement, monitoring and verification*<br>*Sustainable forest management* |
| Implementation start date | *(01/10/2022)* |
| Implementation end date | *(30/06/2024)* |
| Total budget for implementation | *250,000 USD* |
| Description of delivered outputs and products as well as the activities undertaken to achieve them. In doing so, review the log frame of the original response plan and refer to it as appropriate | ***Output 1: TA Coordination Mechanism Established***<br><br>*Activity 1.1: Map Relevant Stakeholders and Establish a Stakeholder Working Group*<br>*Activity 1.2: Organize Consultative Meetings with the Working Group*<br>*Activity 1.3: Organize a Multi-Stakeholder Inception Workshop*<br><br>*Deliverables*<br>*- 1.1: Stakeholder mapping report with a comprehensive list.*<br>*- 1.2: Minutes of consultative meetings.*<br>*- 1.3: Minutes of the inception workshop, including participant list, materials used, and event photos.*<br><br>***Output 2: Forest Mapping and Carbon Sinks Potential in Samoa***<br><br>*Activity 2.1: Preliminary Analysis/Survey of Available Gridded Datasets and Climate Data Collection*<br>*Activity 2.2: Classification of Forest and Land Cover by Categories*<br>*Activity 2.3: Meeting with the Working Group* |

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| | *Activity 2.4: Assessment of Map Accuracy Through Field Data Collection*<br>*Activity 2.5: Meeting to Discuss Carbon Sink Estimation Model*<br>*Activity 2.6: Define Methodology and Create a Carbon Sink Estimation Model*<br>*Activity 2.7: Present the Model in a Workshop*<br>*Activity 2.8: Testing of the Model*<br>*Activity 2.9: Guide for the Use of the Model*<br><br>*Deliverables*<br>*- 2.1: Preliminary analysis report of datasets and climate data.*<br>*- 2.2: Classification report of forest and land cover.*<br>*- 2.3: Meeting minutes discussing forest cover classification.*<br>*- 2.4: Report on map accuracy assessment and field data collection.*<br>*- 2.5: Report on carbon sink estimation model discussion.*<br>*- 2.6: Methodology and model for carbon sink estimation.*<br>*- 2.7: Workshop report on model presentation.*<br>*- 2.8: Report on model testing, including issues identified.*<br>*- 2.9: User guide for the model.*<br><br>***Output 3: REDD+ and Carbon Sinks Potential Framework Development***<br><br>*Activity 3.1: Analyze National Strategies and Identify Barriers or Opportunities for REDD+*<br>*Activity 3.2: Define the Framework's Vision and Mission*<br>*Activity 3.3: Define the Framework Objectives*<br>*Activity 3.4: Define Guiding Principles*<br>*Activity 3.5: Formulate Draft Framework Policy*<br>*Activity 3.6: Share Draft Framework for Comments*<br>*Activity 3.7: Finalize the Framework Based on Comments*<br><br>*Deliverables*<br>*- 3.1: Report on REDD+ opportunities and roadmap.*<br>*- 3.2: Vision and mission report from the workshop.*<br>*- 3.3: Report on framework objectives and workshop details.*<br>*- 3.4: Report on guiding principles and workshop outcomes.*<br>*- 3.5: Draft framework for sustainable forest management.*<br>*- 3.6: Revised draft framework with comments.*<br>*- 3.7: Final framework policy document.* |
| Methodologies applied to produce outputs and products | *Literature review and data collection*<br>*Interviews and meetings with key stakeholders* |

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| | *Field visit and survey*<br>*Modelling*<br>*Stakeholder training workshops* |
| Reference to knowledge resources | *N/A* |
| Deviations | *The implementation period has been extended for 3 months without budget variations to coordinate the optimal dates for the invitational workshops in South Korea* |
| Anticipated follow-up activities and next steps | *Follow-up and formal submission of funding proposal (Korea ODA)* |

## 2. Lessons learned

| | **Lessons learned** | **Recommendations** |
|---|---|---|
| Lessons learned from the CTCN TA process | *Describe lessons learned from following the steps of the TA process and interacting with the CTCN Secretariat. What were the challenges and essential factors contributing to successful implementation* | *Considerations for increased success of similar efforts (i.e. regulatory, legal, stakeholders, communication, etc.): To ensure the success of forest mapping and carbon sink projects using REDD+ mechanisms, it is crucial to establish clear legal frameworks, comply with international standards, and develop supportive policies. Prioritize robust data collection, adaptability, and sustainable practices, ensuring adequate and long-term funding. Implement environmental impact assessments, social safeguards, and gender inclusion to protect ecosystems and communities. Continuous monitoring, adaptive management, and independent audits are essential for transparency and effective project outcomes.* |
| Lessons learned related to climate technology transfer | *Describe lessons learned, opportunities, and barriers for the use and deployment of the technology or technologies supported by the TA. The objective is to identify specific success factors for technology transfer* | *Long-term sustainability (e.g. building endogenous capacities, funding opportunities, etc.): To ensure long-term sustainability, it is crucial to develop local expertise through training programs for communities, officials, and stakeholders in forest management, Earth observation, and carbon accounting. Establishing* |

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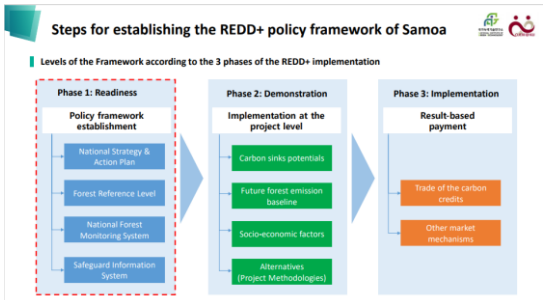
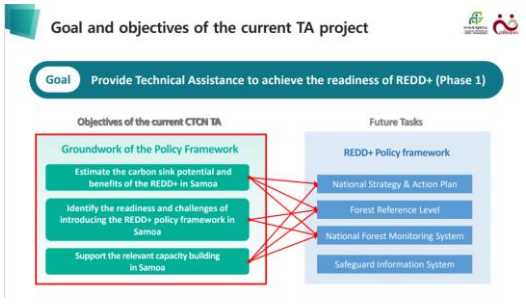
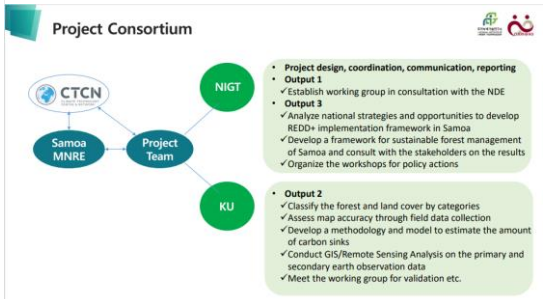
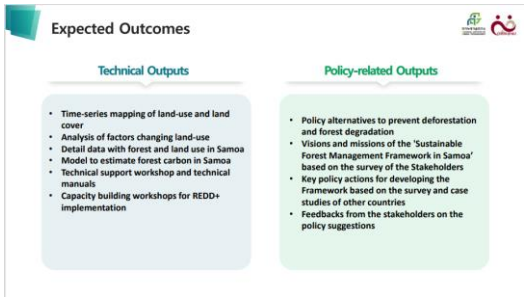
| | | *educational initiatives in local institutions will maintain a steady supply of skilled professionals. Ongoing technical training and workshops will keep stakeholders updated on the latest methodologies, while strong community engagement will ensure local knowledge and needs are integrated into project activities.* |

## 3. Illustration of the TA and photos





**4. Impact Statement**

The information in the table below will be used to communicate results and anticipated impacts of this technical assistance publicly. Please copy information from impact statement developed in the M&E Plan and update as relevant.

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| **Challenge** | *Filling out missing data (especially that should be obtained through field investigation) is the most challenging part for carrying out analytical activities since this impacts the result of the overall accuracy of the developed model.* |
| CTCN Assistance | • *Producing practical technical guidelines for land cover classification and estimation of forest carbon potential using spatial analysis for practitioners*<br>• *Producing forest and land use information using field surveys and remote sensing, and developing spatial information-based forest carbon estimation technology*<br>• *Building the foundation for developing a framework for sustainable forest management and monitoring changes in forest carbon stocks (including building capacity to conduct MRV)*<br>• *Analyzing REDD+ policy and technical readiness and estimate carbon reduction potential*<br>• *Producing policy recommendations for developing a framework for sustainable forest management* |
| Anticipated impact | *Anticipated number of direct and indirect beneficiaries as a result of the TA (The main output of this TA; technical guidelines and policy framework are expected to contribute to the facilitation of the policy implementation in the field and could also help practitioners in the field to be equipped with practical knowledge and know-how on how to process advanced earth observation data.)* |
| Co-benefits: Achieved or anticipated co-benefits from the TA | *Boost involvement in carbon credit projects linked to REDD+ by furnishing dependable technical review opinions, establishing a track record for subsequent initiatives. Additionally, contribute to shaping government policies that advocate for international greenhouse gas reduction, with a particular focus on 'forestry,' a sector in high demand in developing nations. This effort aims to lay the groundwork for technology transfer and standardized business models in the field.* |
| Gender aspects of the TA | *REDD+ initiatives hold potential gender benefits by empowering women in forest management, promoting income generation through sustainable practices, and recognizing and incorporating indigenous knowledge led by women. These programs also improve health and well-being, as sustainable* |

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| | *forest management enhances access to essential resources. Capacity-building efforts under REDD+ contribute to women's skills and knowledge, fostering long-term gender equality. By reducing vulnerability to climate change and promoting social inclusion through multi-stakeholder collaboration, REDD+ can create more equitable and sustainable outcomes for communities, with a particular focus on women's roles and contributions.* |
| Anticipated contribution to NDC | • *Emission Reductions: REDD+ directly contributes to Samoa's NDC goal of reducing overall greenhouse gas emissions by 26% by 2030, particularly in the AFOLU sector, by preventing deforestation and forest degradation.*<br>• *Sector-Specific Targets: The sustainable practices promoted by REDD+ align with Samoa's NDC sector-specific targets, such as the 30% reduction in GHG emissions in the energy sector, contributing to broader mitigation efforts.*<br>• *Adaptation Measures: REDD+ initiatives, through sustainable forest management and community engagement, support Samoa's adaptation strategies by preserving biodiversity, enhancing resilience, and involving local communities in climate resilience efforts.*<br>• *Financial Support: REDD+ projects often attract external funding, offering financial support crucial for achieving Samoa's NDC targets, including implementing projects that promote sustainable practices and contribute to both emission reduction and climate resilience.* |
| The narrative story | *The Paris Agreement emphasizes the importance of climate technology transfer and cooperation to support less prepared countries, such as Samoa. Samoa has submitted its second NDC, which shows a 2% increase in forest cover by 2030 (compared to 2013). In order to achieve the goals outlined in the NDC requires specific infrastructure and organizational structuring for building the foundation for sustainable forest and land management. In that context, land use management without a time-series land cover and land use map is a time and resource consuming process as the map provides specific areas for management. Therefore, this TA supports Samoa's forest management, land use strategies and forest carbon estimation by producing time series land cover and land use maps. In addition to this technical assistance, a framework is proposed to enable Samoa to implement REDD+ in the long term.* |
| Contribution to SDGs<br><br>A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/ | • *SDG 13 - Climate Action:*<br>*Target 13.1: REDD+ enhances resilience to climate-related hazards and natural disasters by preserving and restoring forests.*<br>*Target 13.2: It integrates climate change measures into national policies by promoting sustainable forest management and conservation strategies.*<br>*Target 13.3: REDD+ projects raise awareness and build capacity for climate change mitigation and adaptation, involving local communities.*<br>• *SDG 15 - Life on Land: Target 15.2: REDD+ supports sustainable forest management, reduces deforestation, and contributes to afforestation and reforestation efforts globally.*<br>• *SDG 1 - No Poverty: Target 1.4: REDD+ involvement of local communities provides equal rights to economic resources, promotes sustainable resource use, and contributes to poverty reduction.* |
| Reference to knowledge products | *IPCC guideline for LULUCF (Land use, Land-Use Change and Forestry)* |

**Annex 1 Technical assistance data collection**

Please add quantitative and qualitative values for the indicators selected in the M&E plan and monitored throughout the technical assistance in the tables below. Indicators which have been monitored in addition to the proposed indicators below may be added at the end of table A. Non-relevant indicators should be left blank.

## A. Output and outcome indicators

| **Indicator**<br><br>Please note indicators below highlighted as **anticipated** | **Quantitative value**<br>*Numerals only; disaggregates must sum to the total* | **Qualitative description**<br>*List the various elements corresponding to the quantitative value as well as timelines and responsible institutions* |
|---|---|---|
| Total number of events organized by proponents and implementing partners | *9* | *1 Working group kick-off meeting*<br>*4 Consultative meetings with the working group*<br>*1 Inception workshop*<br>*1 Steering Committee meeting*<br>*2 Training workshops* |
| Number of participants in events organized by proponents and implementing partners | *40* | |
| a) Number of men | *20* | |
| b) Number of women | *20* | |
| Number of climate technology RD&D related events | *2* | *2 Training workshops* |
| Number of participants in climate technology RD&D events | *25* | |
| a) Number of men | *15* | |
| b) Number of women | *10* | |
| Number of training organized by proponents and implementing partners | *2* | *2 Training workshops* |
| Number of participants in trainings organized by proponents and implementing partners | *25* | |
| a) Number of men | *15* | |
| b) Number of women | *10* | |
| Total number of institutions trained | *2* | |
| a) Governmental (national or subnational) | *1* | *Ministry of Natural Resources and Environment* |
| b) Private sector (bank, corporation, etc.) | | |
| c) Nongovernmental (NGO, University, etc.) | *1* | *National University of Samoa* |
| Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form) | *N/A* | |
| Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form) | *N/A* | |
| a) Percentage of men | | |
| b) Percentage of women | | |

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| Total number of deliverables produced during the assistance (excluding mission, progress and internal reports) | *8* | |
| a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc. | *3* | *1 Stakeholder mapping report containing a complete stakeholder list*<br>*1 Analytical report on map accuracy assessment based on field survey and earth observation analysis*<br>*1 REDD+ framework* |
| b) Number of tools and technical documents strengthened, revised or developed | *2* | *2 Technical manuals (Manual for Forest Land Classification, Manual for Forest Soil Carbon Stock Assessment)* |
| c) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.) | *3* | *1 PPT material for the Inception workshop*<br>*2 PPT materials for the Training workshops* |
| Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance | *1* | |
| a) Adaptation related | | |
| b) Mitigation related | *1* | *1 REDD+ framework* |
| c) Both adaptation- and mitigation related | | |
| **Anticipated** number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA | *1* | |
| a) Adaptation related | | |
| b) Mitigation related | *1* | *1 REDD+ framework* |
| c) Both adaptation- and mitigation related | | |
| **Anticipated** number of technologies transferred or deployed as a result of CTCN support | *1* | *Carbon stock measurement, monitoring and verification* |
| **Anticipated** number of collaborations facilitated or enabled as a result of technical assistance | *1* | |
| a) Number of South-South collaborations | | |
| b) Number of RD&D collaborations | *1* | *National University of Samoa* |
| c) Number of private sector collaborations | | |
| Number of countries with strengthened National System of Innovation as a result of CTCN support | *1* | *Samoa* |
| **Insert any additional indicators here** | | |

## B. Core impact indicators

Please fill in the tables for anticipated impacts of the CTCN assistance. Every technical assistance should contribute to at least one of the indicators below. For guidance on how to report on core indicators see the 'M&E Guidance Document for TA Implementers'.

| **Core indicator 1** | **Anticipated metric tons of $CO_2$ equivalent ($CO_2e$) emissions reduced or avoided as a result of CTCN TA** |
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| | *Please add your calculations in word or excel format as an Annex to this Closure Report, where applicable.* | |
| | Anticipated metric tons of $CO_2e$ reduced or avoided as a result of the TA **on an annual basis** | Anticipated metric tons of $CO_2e$ reduced or avoided as a result of the TA **in total** |
| Quantitative value *(emissions reductions)* | *N/A* | *N/A* |
| Unit | $tCO_2e$ | $tCO_2e$ |
| **GHG assessment boundary (project emissions)**<br><br>Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions | *The TA was designed to help build the methodological and institutional foundations necessary for REDD+ activities that can contribute to GHG emission reductions. However, as the TA covers general preparatory work, the scope of post-TA activities can vary widely, making it difficult to precisely define the boundaries for quantifying GHG emission reductions.* | |
| **Baseline emissions**<br><br>Describe baseline scenario, baseline candidates, emission factors and emissions calculated | *Annual historical emissions (deforestation + degradation) of Samoa are estimated at 296,830 ($tCO_2e$) on average (2013-2022)*<br><br>*Carbon stock = (Aboveground biomass + belowground biomass) x 0.47*<br><br>*Emission factor = (Carbon stock before land use conversion – Carbon stock after land use conversion) x 44/12* | |
| **Methodology**<br>Explain the method or process of verifying the indicator and how data was gathered | | |
| **Assumptions**<br>Describe assumptions made during calculation and quantification of GHG reductions | | |

| **Core indicator 2** | **Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts as a result of technical assistance**<br><br>*Please provide a **qualitative** description of the anticipated impacts on the categories below* |
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| **Infrastructure and built environment**<br>Anticipated increased infrastructure resilience (avoided/mitigated climate | *Mitigating natural disasters by stabilizing slopes and lowering landslide risks, especially in hilly or mountainous areas* |

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| induced damages and strengthened physical assets) | |
| **Ecosystems and biodiversity**<br>Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates) | *Enhancing biodiversity conservation and maintaining ecosystem stability: Forests are home to many plant and animal species, and protecting these habitats helps conserve biodiversity. Additionally, forests play a critical role in maintaining the water cycle through watershed protection, including water filtration, groundwater recharge, and flood regulation. Furthermore, forests help prevent soil erosion by stabilizing the soil with their root systems, reducing sedimentation in rivers and lakes, and protecting water quality and aquatic habitats.* |
| **Economic**<br>Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood) | *Increasing sustainable resource use and enhancing agricultural productivity: Forests offer a range of non-timber products such as fruits, nuts, medicinal plants, and resins, ensuring these resources remain available for local communities. Additionally, intact forests attract ecotourism, creating economic opportunities through activities like hiking, wildlife watching, and cultural experiences. Forests also support long-term agricultural productivity by maintaining soil fertility, which benefits surrounding farms, and by providing habitat for pollinators essential for crop productivity, ensuring a stable agricultural sector.* |
| **Health and wellbeing**<br>Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security) | *Enhancing community livelihoods by supporting sustainable income opportunities for forest-dependent communities: Communities benefit from ongoing access to resources and the preservation of cultural traditions. Additionally, forests play a crucial role in disaster risk reduction by mitigating the impacts of natural disasters such as floods, landslides, and storms, thereby protecting both communities and infrastructure. They also bolster climate adaptation by contributing to local climate resilience, helping communities effectively respond to changing climatic conditions.* |

| **Core indicator 3** | **Anticipated number of direct and indirect beneficiaries as a result of the TA** | |
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| | **Quantitative value** | **Means of verification** |
| Total beneficiaries | *220,000* | *Total population of Samoa (2023)* |
| Number of adaptation beneficiaries | *220,000* | *Preventing deforestation and forest degradation benefits the entire population of Samoa by improving their environment and enhancing resilience to climate impacts, both directly and indirectly.* |
| Number of mitigation beneficiaries | *77,000* | *Although about 80% of Samoa's land is mountainous, due to economic and practical factors, only 35% of the population lives in these areas. Once results-based payment mechanisms are implemented, this 35% may benefit from payments for forest carbon reductions.* |
| Number of adaptation-and mitigation beneficiaries | | |

| **Core indicator 4** | **Anticipated amount of funding/investment leveraged (USD) as a result of TA (disaggregated by public, private, national, and international sources, as well as between anticipated/confirmed funding)** | | | |
|---|---|---|---|---|
| | **Quantitative value confirmed** *in USD* | **Quantitative value anticipated** *in USD* | **Qualitative description** *List the institutions, timelines, and description or title of the investment* | **Methods** *Describe methods used for quantification of funds leveraged* |
| Total funding | *Total number in USD (numerals only, no rounding or abbreviations)* | *Total number in USD (numerals only, no rounding or abbreviations)* | | |
| Anticipated amount of public funding mobilised from national/domestic sources | | *1,100,000* | *Korea ODA (Ministry of Science and ICT; Development of web-based system of forest carbon estimation and REDD+ policy framework)* | *A 3-year ODA funding for feasibility study and demonstration* |
| Anticipated amount of public funding mobilised from international/ regional sources | | | | |
| Anticipated amount of private funding mobilised from national/domestic sources | | | | |
| Anticipated amount of private funds mobilised from international/regional sources | | | | |

**Annex 2 (for internal use – to be filled in by the CTCN)**

**CTCN evaluation**

This section will be completed by the relevant CTCN Technology Manager.

- Evaluation of the timeliness of the TA implementation as measured against the timeline included in the response plan;
- Evaluation of TA quality as defined in the response plan;
- Overall performance of the Implementers;
- Overall engagement of the NDE and Proponent;
- Lessons learned on the CTCN process and steps taken by the CTCN to improve.