# 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.

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## Closure Report for CTCN Technical Assistance

### 1. Basic information

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| Title of response plan | **Soil erosion evaluation using advanced laboratory measurement methods to support climate-resilient agriculture and food security** |
| Technical assistance reference number | **2022000003** |
| Country / countries | **SUDAN** |
| NDE organisation | **Higher council for Environment and Natural Resources** |
| NDE focal point | *Huyam Ahmed Abdalla* |
| NDE contact information | *Email;hoyamahmed66@gmail.com*<br>*Tel:00249908273803* |
| Proponent focal point and organisation | **Natural Resources General Directorate /Ministry of Agriculture and Forests (MoAF)**<br>*Dr.Sawsan Khair Elsied Abdel Rahim Mustafa*<br>*Email: Dr.Sawsan Khair Elsied Abdel Rahim Mustafa*<br>*Director General*<br>*Tel:00249912559438* |
| Designer of the response plan | *Name, organization, email*<br>*RCMRD,*<br>*sabukashawa@rcmrd.org* |
| Implementer(s) of technical assistance | *Implementer(s)*<br>- ***Regional Center for Mapping Resources for Development (RCMRD)*** |

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| | - ***Natural Resources General Directorate (NRGD), Ministry of Agriculture and Forests (MoAF)***<br><br>***Implementing Partners***<br>- ***Soil survey team***<br>*1.Dr* Dr. Mohammed Abdalla Elsheikh UofK-Institute of desertification and desert cultivation studies Soil Specialist<br>2.Mohamed Suliman –NRGD-Head of soil laboratory.<br>3.Dr.Reem Ahmed Housan –NRGD-Soil Specialist<br>4.Dr.Ali El-Khazin Ali Yousif-ARC-River Nile- soil specialist<br>5. Abdulrahim Altayb Basheer-ARC- Madani-Soil specialist.<br>- ***TWG***:<br>1.Dr. Sawsan Khair Elsied –NRGD-MOAF<br>2.Dr.Mohammed Abdalla El sheikh –Institute of desertification and desert cultivation studies-UofK<br>3.Dr.Mohamed Salih Dafalla-Head of Soil and Environment Dept.<br>4.Dr.Adil Mahgoub Farah-ARC-Dry land Centre.<br>5.Dr.Reem Ahmed Housan-NRGD-MOAF<br>6. Mohamed Suliman –NRGD-MOAF.<br>7. Dr.Ali El-Khazin Ali Yousif-ARC-River Nile.<br>8.Huyam Ahmed Abdella-HCENR<br>9.Isra Idris –HCENR.<br>10.Hatim Elobade Ibrahium – Remote Sensing Seismology Authority-National Centre for Research.<br><br>***Other Partners:***<br>- General Director of .Ministry of Production and Economic Resources-River Nile State.<br>- Director of . Akashi Agricultural project –River Nile –Private Sector.<br>- Director of .El Mukabrab Agriculture Project-River Nile-Public sector.<br>- Early warning unit –River Nile. Asma Mohamed & Fatima Abdel Fatah -<br>- El Damer Food Security progect-River Nile state.<br>- Security and intelligence services - River Nile. |
| Beneficiaries | 1. *NRGD-MOAF*<br>2. *Ministry of Production and Economic Resources-River Nile State.*<br>3. *18 Participants in the inception workshop.*<br>4. *Nine experts attend TOT in Kenya (RUSLE) model and data processing*<br>5. *Akashia Agricultural project.*<br>6. *El Hodiba Research centre -RN* |
| Sector(s) addressed | *CTCN Adaptation sector* |

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| | *A:Sector*<br>***Early warning and environmental assessment***<br>*B:Technology group*<br>*Remote sensing and GIS*<br>*C:technology :Hazard mapping solution*<br>*B:Technology group*<br>*Monitoring system*<br>*C:technology:climate change monitoring*<br>*A:Sector*<br>***Agricultural and Forestry***<br>*B:Increasing crop resilience and productivity*<br>*C:Wind breaks* |
| Technologies supported | 1. *Crop* land management<br>2. Soil management<br>3. Restoration of degraded land<br>4. Hazard mapping solution<br>5. Climate change monitoring<br><br>*Additional suggestion:*<br><br>*6.* Environmental *impact assessment of land degradation* |
| Implementation start date | *TOR virtual signature 13/5 /2022* |
| Implementation end date | *End of training 8/6/2024* |
| Total budget for implementation | - *250,000 $*<br>- *(two Computers- One printer-One Digital Camera, Two GPS –office and car )* supported by the Ministry of Production and economic resources River Nile.<br>- NRGD provided the hosted the technical group meetings and peridium. |
| 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 | *Delivered outputs:*<br>*1. Detail Implementation plan*<br>*2. Monitoring and evaluation plan*<br>*3. Minute of the inception workshop*<br>*4. Selection of the implementation sites.*<br>*5. Russle modelling ToT*<br>*6. Soil erosion mapping*<br>*7. Drone Mapping TOT*<br>*8. Digital GIS Mapping TOT*<br>*9. Closer report Template* |
| Methodologies applied to produce outputs and products | Kick of implementation started by Multi- Stakeholder inception workshop held in EL Salam Hotel, Khartoum –Sudan on 18-21 July 2022. During the workshop, deep discussion of relevant stockholders, implementation of field work plan methods and methodologies, and proposed selected sites visits have been done. Then, many virtual and physical meetings held among Technical Working Group at National and sub National level among experts in the different sectors including governmental staff at National and Sub-National levels, researchers, and Academia to agree with work timeline, identify the roles and responsibilities. The project action plan and financial details were discussed and approved. At Sub-National level meetings held with partners, stakeholders and related authorities. As well as technical meeting among implementation experts to identify |

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| | methods and methodologies, team, maps, field survey tools and equipment's as well as daily field work.<br><br>**Office work:**<br><br>1. Collection of previous studies of the implementation sites (Agricultural projects within study area).<br><br>2. Topography, climate, geology, vegetation cover, water resources and other natural resources of the study area.<br><br>3. Preparation of location and topographic maps.<br><br>4. preparation and interpretation of satellite images.<br><br>5. Technical and administrative preparation.<br><br>**Field work:**<br><br>1. Satellite image interpretation .<br><br>2. Based on field visit two levels of soil survey carried for ground truth<br><br>3. Global positioning system (GPS) used in the field work for the following activities:-<br><br>i. A grid system of augers observations applied for verification and delineation of different soil units and site characteristics.<br><br>ii. The intensity of observation for one auger for 25 ha (60 feddans) each 500m a parts for semi detailed soil survey in the project area for the locality soil survey (reconnaissance survey) each 10 km a parts.<br><br>iii. Digging, description and sampling of soil profiles, one pit per each soil mapping unit<br><br>iv. Soil auger samples collected for tow depths (0-30, 30-60 cm).<br><br>v. Soil description based on FAO (1997) soil profile description.<br><br>vi. Location map presenting the auger and profile site<br><br>vii. Soil map |
| Reference to knowledge resources | TEC strategy for collaborative partnerships and engagement TEC rolling work plan 2023-2027<br><br>*Link to TEC knowledge database:*<br>*https://unfccc.int/ttclear/tec/documents.html* |
| Deviations | - *The drone mapping to collect the data was replaced by satellite images.*<br>- *The determination of the soil micro elements by using the atomic absorption spectrometer (AA spectrometer)instrument.* |
| Anticipated follow-up activities and next steps | *1. Completion of the EO for the River Nile state.* |

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| | 2. *Apply of RUSSLE model prepared by CTCN in degraded land.*<br>3. *Dissemination of report drafted by the CTCN.*<br>4. *Use of new expertise acquired during training led by CTCN.*<br>5. *Engagement of stockholders and partner's in upcoming proposals and implementation.*<br>6. *Develop a national policies and regulations to support soil health.*<br>7. *Build the capacity of the local scientist, academia, and professionals on soil modelling and digital soil mapping.*<br>8. *Develop an education curriculum in the field of soil science in both the graduate and post graduate levels, and update the current once.* |

## 7. Lessons learned

| | **Lessons learned** | **Recommendations** |
|---|---|---|
| Lessons learned from the CTCN TA process | *<u>Successful:</u>*<br>1. *Clearness of implementation plan .*<br>2. *Participation of Academia ,Governmental (National and Sub National) and researchers in EO implementation*<br>3. *Key stockholders participatory approach in inception workshop.*<br>4. *Training and capacity building of modelling .*<br>5. *CTCN guidance to implement TA(response plan).*<br><br>***Challenges***<br>*<u>Technical:</u>*<br>1. *Security situation cause un permission from security authorities to use CTCN Drone in study area.*<br>2. *Soil samples analysis in ARC in Madani un completed as a result of the conflict.*<br><br>*Financial:* | 1. *More Capacity building to use drone , GIS mapping, and RUSSLE modeling to support climate change adaptation.*<br>2. *Include more number of the national experts to support projects of this nature specifically in the field environmental assessment.*<br>3. *Advocacy of legal framework in land use legislations and law.*<br>4. *Support communication plan.*<br>5. *Financial support for implementation TA .* |

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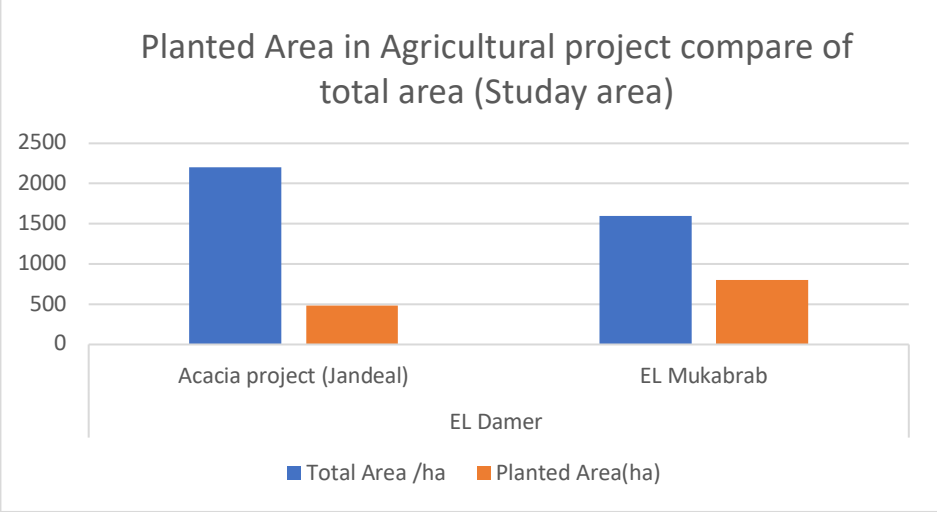
| | 1. *The unstable USD rate.*<br>2. *Difficulty of fund transfer to Sudan.*<br>3. *The inflation affected the soil survey cost.* | |
| Lessons learned related to climate technology transfer | *Technology transfer success factors:*<br>1. *Ability of experts to learn new technology.*<br>2. *Mainstreaming of CTCN technologies by TOT to enable more and other trainees to apply Russle modelling .*<br>3. *Good CTCN experts(RCMRD experts) and experience to support climate technology.*<br>4. *Provided trainees by Software to apply modelling.*<br>*Barriers :*<br>1. *Loss of Computers and lab top devices in Khartoum because of war.*<br>2. *Drone device un available in Sudan.* | 1. *Purposed reclamation measures to decrease land degradation.*<br>2. *Mainstreaming and Sustainable good practices (such as water harvesting) to support climate adaptation*<br>3. *Complementation risk mitigation measures in exhibtation area of climate changes*<br>4. *Technical and financial support in others degraded areas.* |

**3. Illustration of the TA and photos**

For communication purposes, please provide 2-4 Power Point slides, including illustrations or charts, describing barriers, opportunities, methodology, activities, outputs and achieved results. The illustrations must be copied into the TA Closure report but must also be delivered as power point files. Also, please provide at least five high-resolution pictures in jpg format, capturing technical assistance. The pictures should illustrate how the TA has impacted the lives of the beneficiaries in particular and the communities in general.



## 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** | *The Technical Assistance faced significant challenges due to political unrest in Sudan, disrupting activities such as UAV-based data collection and soil analysis. Consequently, legacy soil data had to substitute for digital mapping. Hurdles further delayed fund transfers and restricted UAV operations, preventing timely data collection. Sudan's inflation also inflated project costs, exceeding budgets by over 20%, particularly impacting staff and capacity development expenses. Key lessons highlight the importance of robust risk assessment, mitigation planning, and effective local stakeholder engagement in ensuring successful project outcomes amidst complex operational environments.* |
| CTCN Assistance | *2 to 4 bullet points. Approximately 450 characters with spaces* |
| Anticipated impact | The River Nile State, amidst Sudan's conflict, is relatively stable and hosts numerous food security projects, despite facing challenges with land degradation. The project implementation site is significantly affected by soil erosion, primarily water and wind erosion, posing a threat to agricultural land. Achieving food security requires a collaborative effort across technical, financial, political, and research sectors. Key strategies include enhancing soil surveys, analysis, and land reclamation, and addressing irrigation challenges with solar energy solutions. Technical assistance, utilizing Earth Observation, mapping, and modeling through satellite imagery and UAVs, is crucial for predicting soil erosion and recommending effective measures. Relevant stakeholders include the Ministry of Production, Agriculture Private Sector, ARC River Nile State, and HCENR. |
| Co-benefits: Achieved or anticipated co-benefits from the TA | The technical assistance will improve technology skills by providing needed information, training people, and showing how to use Earth Observation technologies. It will also help transfer technology by teaching how to use atomic absorption and Earth Observation tools, like UAVs, to monitor climate change effects on soil and agriculture. This will strengthen soil monitoring and make agriculture more resilient to challenges. |
| Gender aspects of the TA | *A three-day workshop concluded with a session on gender analysis and a gender action plan. The Technical Working Group (TWG) learned* |

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| | *about gender concepts like gender norms, roles, discrimination, and social inclusion. They discussed Sudan's vulnerability to climate change, noting its impacts on heat stress, floods, and storms, emphasizing that climate change affects men and women differently due to their distinct use of natural resources.*<br><br>*In rural River Nile State, women's roles are confined due to safety concerns, with men and boys more active in public life. The workshop ended with plans for a gender action plan and a call for continued training to enhance gender equality efforts, reflecting a balanced TWG composition of 8 women and 7 men actively engaged in discussions.* |
| Anticipated contribution to NDC | The TA results will provide information to support the LDN activities and to enhance the studies in this area. |
| The narrative story | *Northern Sudan faces increasing climatic extremes like droughts, strong winds, erratic rainfall, and floods, causing both wind and water erosion. Human activities such as improper land use and excessive resource exploitation worsen soil erosion. This harms grazing and farming lands, rural livelihoods, and food security. Understanding these impacts is difficult due to the complex link between climate change and land degradation, and the lack of clear soil health indicators and methods to assess erosion effects on crops.*<br><br>*To tackle these challenges, Sudan's Ministry of Agriculture sought help from the UN Climate Technology Centre. They aimed to use advanced soil analysis, Earth Observation (EO), and Predictive Soil Modelling (PSM) technologies like atomic absorption and UAVs. The goal was to support resilient agriculture and food security by mapping erosion risks, soil properties (like organic carbon and pH), estimating annual soil loss, and identifying areas needing Climate-Smart and Sustainable Land Management.*<br><br>*Despite obstacles in technology, finances, and infrastructure, the Regional Centre for Mapping of Resources for Development (RCMRD) was chosen for its expertise. They will train, assess resources, and apply geospatial technologies to enhance Sudan's capacity in EO and UAVs. This effort aims to strengthen soil monitoring and increase agricultural resilience against climate and human-induced soil degradation.* |
| Contribution to SDGs | **SDG1: No Poverty**<br>*- Addressing land degradation to safeguard agricultural productivity.* |

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| A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/ | *- Supporting food security projects in the River Nile State.*<br><br>**SDG2: Zero Hunger**<br>*- Enhancing soil surveys, analysis, and land reclamation efforts.*<br>*- Using modern technologies like UAVs and satellite imagery to predict soil erosion and improve agricultural productivity.*<br><br>**SDG13: Climate Action**<br>*- Implementing solar energy solutions for sustainable irrigation.*<br>*- Building capacity in EO, satellite image interpretation, and soil analysis to combat climate-induced soil degradation.*<br>*- Strengthening climate change adaptation in agriculture through scientific research and training programs.* |

CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

**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 | *List total number here*<br><br>*7 Events organized* | *An Inception workshop organized by CTCN and relevant stakeholders.*<br><br>*Three physical meetings held to finalize the implementation plan with TWG and the Earth Observation (EO) team.*<br><br>*Two virtual meetings conducted between NRG and the Technical Working Group (TWG).*<br><br>*A kick-off meeting conducted in River Nile (RN) to launch the project.* |
| Number of participants in events organized by proponents and implementing partners | *18 person attend inception workshop*<br><br>*10 person attend Technical working Group meeting*<br><br>*10 person attend Kick off implementation meeting* | ***Inception Workshop Participants:***<br><br><u>Technical Working Group (TWG):</u><br>*- 3 representatives from NRGD (Natural Resources General Directorate)*<br>*- 2 representatives from HCNR (Higher Council for Natural Resources)*<br>*- 2 representatives from ARC (Agricultural Research Corporation)*<br>*- 2 representatives from University of Khartoum (UofK) Academia*<br>*- 1 representative from RSSA (Remote Sensing and Seismology Authority)*<br><br><u>Other Participants:</u> |

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| | | *- TA National Coordination*<br>*- General Director from the Ministry of Production and Economic Resources*<br>*- Security Authority of River Nile*<br>*- 2 representatives from El Damer Food Security Project*<br>*- Ministry of Irrigation and Water Resources*<br>*- 2 representatives from the Early Warning Unit*<br>*- 2 representatives from the Agricultural Directorate* |
| a) Number of men | *10 men attended the inception workshop*<br><br>*6 men TWG* | *Disaggregate by country*<br><br>*2 Kenya*<br><br>*8 Sudan*<br><br>*Sudan* |
| b) Number of women | *8 women attend inception workshop*<br><br>*4 Women TWG* | *1 Kenya*<br>*7 Sudan*<br><br>*Sudan* |
| Number of climate technology RD&D related events | *1 Technical training in RCMRD on GIS, RUSEL, UAV* | *Sudan* |
| Number of participants in climate technology RD&D events | *10* | |
| a) Number of men | *7 Men* | - |
| b) Number of women | *3 Women* | - |
| Number of training organized by proponents and implementing partners | List total number here<br><br>2 training | *RUSSULE modelling*<br>*Gender mainstreaming*<br>*GIS Soil Mapping*<br>*UAV mapping* |
| Number of participants in trainings organized by proponents and implementing partners | List total number here<br><br>10 Participants | |
| a) Number of men | **7** | |
| b) Number of women | **3** | |

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| Total number of institutions trained | *List total number here:*<br><br>*4 Institution:*<br><br>*2 participants Governmental at National level*<br>*1 participant of Governmental at sub National*<br>*2 participants of ARC*<br>*1 participant of Academia* | |
| a) Governmental (national or subnational) | **4 trainees** | *NRGD-MOAF*<br>*Ministry of irrigation and water resources.*<br>*ARC* |
| b) Private sector (bank, corporation, etc.) | **Non** | *List the name of organisations trained here* |
| c) Nongovernmental (NGO, University, etc.) | **4** | *University of Kodrofan*<br>*UofK*<br>International university of Africa<br>Center for land and Environmental Governance (ISTIDAMA) |
| Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form) | **BY CTCN QUESTINNAR** | *Satisfied= 4+ on 5-pt scale* |
| Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form) | **BY CTCN QUESTINNAR** | *Increased knowledge, capacity and/or understanding= 4+ on 5-pt scale* |
| a) Percentage of men | **60%** | |
| b) Percentage of women | **40%** | |
| Total number of deliverables produced during the assistance (excluding mission, progress and internal reports) | *8 TA document* | 1. *Technical implementation report - final draft*<br>2. *Work plan for DSM & SEM*<br>3. *Guidelines for soil sampling and description - RNS 1.0*<br>4. *Guidelines for DSM and RUSLE modelling - RNS 1.0*<br>5. *Criteria and indicators for soil erosion monitoring - al Damar*<br>6. *Multi-stakeholder inception workshop* |

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| | | 7. *Training of stakeholders and dissemination of information about the results of the technical assistant report*<br>**8.** *Inception workshop minutes.* |
| a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc. | 4 | - *List the name of the documents*<br>- *CTCN Final Report*<br>- *LinkedIn at CTCN account*<br>- *Landin at RCMRD account* |
| b) Number of tools and technical documents strengthened, revised or developed | **2** | 1. *EO Forms (LDSF)*<br>2. *soil action plan - al Damar* |
| c) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.) | **5** | 1. *Guidelines for DSM and RUSLE modelling - RNS 1.0*<br>2. *Guidelines for soil sampling and description - RNS 1.0*<br>3. *Training manual – RUSLE*<br>4. *Training manual – DSM*<br>5. *Training manual - UAV* |
| Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance | *2* | - *Soil survey and land Evaluation plan*<br>- *Soil reclamation plan* |
| a) Adaptation related | **1** | - *Soil map* |
| b) Mitigation related | **1** | - *Earth observation interpretation* |
| c) Both adaptation- and mitigation related | **1** | - *Final report recommendation* |
| **Anticipated** number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA | | |
| a) Adaptation related | **2** | • *Soil degradation map.*<br>• *Land use map* |
| b) Mitigation related | **2** | • *Water harvesting techniques*<br>• *Planted trees around Agriculture projects.* |
| c) Both adaptation- and mitigation related | **2** | • *Land use law*<br>• *SOIL ACTION PLAN - Al Damar* |
| **Anticipated** number of technologies transferred or deployed as a result of CTCN support | *3* | • *Sector: Agriculture* |

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| | | *Technology group :crop land*<br>*Technology :soil management.*<br>• ***Sector: Early warning and Environmental assessment***<br>*Technology group :RS&GIS*<br>*Technology Disaster Risk Assessment tools*<br>*Technology group: Monitoring system*<br>*Technology: climate change monitoring.* |
| **Anticipated** number of collaborations facilitated or enabled as a result of technical assistance | *6* | *1. Institute of desertification and desert cultivation studies*<br>*2. MOAF-NRGD*<br>*3. ARC -Shandi Research Station*<br>*4. University of Khartoum*<br>*5. Jomo Kenyatta University of Technology*<br>*6. International university of Africa* |
| a) Number of South-South collaborations | **5** | **1.** RCMRD & University of Kordofan<br>*2.* RCMRD and *ARC - Shandi Research Station*<br>*3.* RCMRD and *University of Khartoum*<br>*4.* RCMRD and *Jomo Kenyatta University of Technology*<br>**5.** RCMRD and *International university of Africa* |
| b) Number of RD&D collaborations | | *List the names of the organisations (excluding the CTCN or TA implementers)* |
| c) Number of private sector collaborations | **NA** | *List the names of the organisations (excluding the CTCN or TA implementers)* |
| Number of countries with strengthened National System of Innovation as a result of CTCN support | **1** | *List names of countries*<br>***Sudan*** |
| **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**<br><br>*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 annual basis** | Anticipated metric tons of $CO_2e$ reduced or avoided as a result of the TA **in total** |
| Quantitative value *(emissions reductions)* | *Total number (numerals only, no rounding or abbreviations)* | *Total number (numerals only, no rounding or abbreviations)* |
| 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 | | |
| **Baseline emissions**<br><br>Describe baseline scenario, baseline candidates, emission factors and emissions calculated | | |
| **Methodology**<br><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* |
|---|---|
| **Infrastructure and built environment** | **Indicator 1.1.8** |

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| Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets) | Definition of indicator :Increased infrastructure and built environment resilience refers to the anticipated improvement of physical assets (such as Water harvest dam )<br>Unit of measure: number of water harvesting pool<br><br>**Theory of change:**<br>Water harvesting reduces flood disasters, particularly during the rainy season in the Ethiopian highlands every August, benefiting towns and cultivated areas. The harvested water supports irrigation during dry seasons, expanding agricultural productivity and enabling pastoralists to provide water for their animals. This initiative also improves infrastructure and offers solutions to safeguard human settlements, cultivated lands, and the broader environmental climate. Overall, the implementation of this Technical Assistance (TA) enhances resilience, fosters sustainable development, and mitigates environmental risks in the region. |
| **Ecosystems and biodiversity**<br>Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates) | |
| **Economic**<br>Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood) | |
| **Health and wellbeing**<br>Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security) | |

| **Core indicator 3** | **Anticipated number of direct and indirect beneficiaries as a result of the TA** | |
|---|---|---|
| | **Quantitative value** | **Means of verification** |
| Total beneficiaries | *Total number*<br>*At least 1000 person* | *Number of Local communities*<br>*CTCN Report* |
| Number of adaptation beneficiaries | | *Describe calculation methods and assumptions made* |
| Number of mitigation beneficiaries | | *Describe calculation methods and assumptions made* |

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| Number of adaptation- and mitigation beneficiaries | | *Describe calculation methods and assumptions made* |

| **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)** | | | |
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| | **Quantitative value confirmed** *in USD*<br>*250,000 USD* | **Quantitative value anticipated** *in USD* | **Qualitative description**<br>*List the institutions, timelines, and description or title of the investment*<br><br>*NRGD –MOAF- 6 month to implement planted trees around degraded Agricultural land , and built small and medium water harvesting dam to avoid water erosion and flood with cooperation of related partners.* | **Methods**<br>• *Expert approximate estimates*<br>• *Implementation cost* |
| Total funding | *Total number in USD (numerals only, no rounding or abbreviations)*<br><br>*USD 250,000 USD* | *Total number in USD (numerals only, no rounding or abbreviations)*<br><br>*USD 250,000 USD* | | |
| Anticipated amount of public funding mobilised from national/domestic sources | | | | |
| 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.