

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

Title of response plan	Carbon Reduction and Health Improvement by Retrofitting a Biogas Plant in Tanzania
Technical assistance reference number	2023000014
Country / countries	Tanzania
NDE focal point and organisation	Tanzania Commission for Science and Technology Name: Dr. Gerald Majella Kafuku Address: P.O. Box 4302, Ali Hassan Mwinyi Road, Kijitonyama (Saynasi) COSTECH Building, Dar es Salaam, Tanzania
Proponent focal point and organisation	Prof. Dong-Hoon Kim (Lead Investigator) Department of Smart-city engineering Inha University, South Korea
Designer of the response plan	Prof. Dong-Hoon Kim (Lead Investigator)
Implementer(s) of technical assistance	Dong-Hoon Kim Professor Inha university South Korea Lead Investigator Si-Kyung Cho

	<p>Professor Dongguk University South Korea Co-Team Investigator 1</p> <p>Chang-Kyu Lee CEO and Founder R.E.D. Corp. South Korea Co-Team Investigator 2</p> <p>Seongwon Im Assistant Professor Suchon University</p> <p>Om Prakash Post-Doc fellow Inha University</p> <p>Ali Ashraf Joolaei Ph.D. student Inha University</p> <p>Min-sang Kim Ph.D. student Dongguk University</p>
Beneficiaries	<p>Prof. Askwar Hilonga Professor Nelson Mandela African Institution of Science and technology Arusha, Tanzania</p>
Sector(s) addressed	Anaerobic digestion and biogas generation improvement
Technologies supported	<i>Renewable energy → Bioenergy → Biogas for heating, Energy supply from waste, Biogas power, Household biogas</i>
Implementation period and total duration in months	June 2024-March 2025
Total budget for implementation	\$141,225 (pro-bono)
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	<ul style="list-style-type: none"> — Clean and renewable energy production — Reduce GHG emissions — Improve the local and personal hygiene — Improve indoor air quality thus overall health improvement — Reduce the burden due to high fuel costs (firewood, charcoal, etc.) — Digested sludge as fertilizer will enhance sludge disposal and soil quality <p>The implementation team were quite successful to deliver all the deliverables mentioned in the log frame of the original response plan.</p>
Methodologies applied to produce outputs and products	<p>Onsite inspection of the biogas plant and current status of biogas generation</p> <p>Finding the reason for low biogas generation</p>

	<p>Cleaning of the digester tank since it was filled with silt and sediment because of no agitation facilities</p> <p>Characterization of samples for organic content and sediment portion.</p> <p>Analysis of biomethane potential to anticipate the biogas production from feedstock and the reduction of carbon emissions.</p> <p>Utilization of digestate from the biogas reactor to study its benefits for plant growth.</p> <p>A survey on local people of Arsuha, Tanzania about their health improvement after utilizing biogas for cooking and heating purpose.</p> <p>Air quality test for comparison between biomass and biogas burning.</p>
<p>Deviations</p>	<p>There was a slight deviation as earlier there was discussion to get the digester samples for microbial community analysis and further characterisation in South Korea, however due to travel restriction and permission denied by Korean authority the plan was cancelled. Another plan to export the chemicals for analytical purpose to Tanzania from South Korea that was also could not possible due to export restrictions. However, this deviation did not hinder the workflow.</p>
<p>Anticipated follow-up activities and next steps</p>	<p>The technical assistance work make sure that the retrofitted biogas plant will be operating without any hassle.</p> <p>The following steps shall be taken to enhance the working condition of the digester tank without any problem:</p> <ul style="list-style-type: none"> — Cleaning the digester tank every couple of years would prevent the biogas plant — An awareness and technical training program which includes basics concept of anaerobic digestion to local people — Sieving the sediment out from the feedstock will prevent the accumulation of sediment into digester tank and will enhance biogas generation period. — Inspection of biogas leaking at the delivery point and near the digester tank will enhance the everyday biogas productivity. —

2. Lessons learned

	Lessons learned	Recommendations
Lessons learned from the CTCN TA process	It was a good opportunity to work as technical assistance for the CTCN project. It enables to face the real challenges the world is facing. This experience will further motivate us to involve in CTCN project where our knowledge can be delivered for the benefit of society. The CTCN secretariat were quite helpful and had a good understanding of challenges that could be faced by the technical assistance team.	<p><i>Recommendations include</i></p> <ul style="list-style-type: none"> • <i>The CTCN process involved for technical assistance was quite good. However, periodical guidance regarding response plan would be recommended.</i>
Lessons learned related to climate technology transfer	Since the CTCN project usually bring two different nations together and the working environment is quite challenging related to paperwork and permission grants. Sometimes the plan has to be modified based on the circumstances (like in our case we could not import the samples for microbial analysis due to safety issues). However, the technical assistance team were successfully deployed the instruments and installed for better inspection of biogas plant. The technical team also taught the NM-AIST students about analytical techniques and biogas potential experiment, which would definitely improve their skills in this field.	<p>Recommendations include</p> <ul style="list-style-type: none"> • The outputs can be used by governmental agencies, non-profitable organizations, non-governmental organizations to promote and expand the biogas technology into other rural areas. • Using the current biogas operational cost and efficiency new and bigger biogas plant can be built in and around Arusha to support the rural communities and reduce the carbon emissions concomitantly. • Tanzania governmental agencies, local governmental agencies can bring the policies related to biogas plant construction and utilization. If possible, they can provide subsidies to local players to ease the financial burden on setting up the biogas plant.

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.



Image 1. Initial on-site inspection of the biogas plant and lecture to the stakeholders by the South Korean team, Arusha, Tanzania.



Image 2. Retrofitting work for digester tank and biogas plant, Arusha, Tanzania.



Image 3. Analytical work was done by South Korean team (Inha university) during second visit of Arusha, Tanzania, NM-AIST student were also took part to learn the basics of biogas concept.



Image 4. The south Korean (Dongguk University) visited and performed air quality monitoring between biomass and biogas burning, the digestate were used as fertilizer for plant growth.



Image 5. During the second visit the South Korean team inspect the is working condition condition of biogas plant and provide lectures to the students of NM-AIST, Arusha, Tanzania.

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.

<p>Challenge</p>	<p><i>Tanzania aims to meet 60% of its energy needs from renewable sources by 2026, but rural areas still rely heavily on biomass, causing pollution and health issues. Additionally, improper disposal of cattle waste contributes to soil pollution and greenhouse gas (GHG) emissions. To address this, a biogas plant was set up in Arusha, Tanzania having a capacity of 10 m³, using locally sourced cattle manure. However, the efficiency of the biogas plant is low due to sludge accumulation, temperature fluctuations (20-40oC), an unoptimized manure-water mixing ratio, and biogas leakage. During the technical assistance accumulated sludge cleaning with overall retrofitting of the digester tank, methane potential of feedstock,</i></p>
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	<i>process optimization such as feed rate and interval of feeding was designed.</i>
CTCN Assistance	<ul style="list-style-type: none"> - <i>Onsite inspection of the biogas plant and current status of biogas generation and utilization in Arusha, Tanzania</i> - <i>Cleaning of accumulated sludge in the digester tank</i> - <i>Biochemical CH₄ potential (BMP) test based on temperature variation and cattle manure-water mixing ratio</i> - <i>Change in feeding pattern to maximize digestion process during the daytime</i>
Anticipated impact	<ul style="list-style-type: none"> - <i>Clean and renewable energy production</i> - <i>Reduce GHG emissions</i> - <i>Improve the local and personal hygiene</i> - <i>Improve indoor air quality thus overall health improvement</i> - <i>Reduce the burden due to high fuel costs (firewood, charcoal, etc.)</i> - <i>Digested sludge as fertilizer will enhance sludge disposal and soil quality</i> - <i>GHG assessments</i>
Co-benefits: Achieved or anticipated co-benefits from the TA	<i>Women use biomass such as wood and charcoal for cooking in most of the rural Tanzania suffers lung problems due to toxic smoke and particulate matters comes out from biomass. It increases the burden of social health infrastructure and personal medical expenses which could have been used otherwise for social development or education purposes. Biogas does not produce smoke on burning and release CO₂ and water vapor both are harmless. Thus, save women from getting lung problems and reduce the medical expenses.</i>
Gender aspects of the TA	<p><i>Traditional cooking through firewood and charcoal leads to significant indoor air pollution causing respiratory diseases, eye related problems and other pollution related health complexities to women and children. This reduces an average life expectancy.</i></p> <p><i>The responsibility of fuel collection often falls on girls, reducing the time for school attendance and study. In areas without biogas plants, girls are more likely to be pulled out of school to assist with household energy needs, perpetuating gender disparities in education.</i></p> <p><i>Women and girls who travel long distances to collect firewood may face heightened risks of violence. This is particularly true in</i></p>

	<p><i>conflict zones or areas with insecure environments.</i></p> <p><i>A survey was taken among the local population with high number of women's involved. The survey was regarding the improvement in indoor air quality and got the positive response.</i></p>
<p>Anticipated contribution to NDC</p>	<p><i>- NDC provided the required facilities and transportation.</i></p> <p><i>- NM-AIST also discussed the details of the biogas plant with the technical assistance team, which helps to identify the basic problems they had while running the biogas plant.</i></p>
<p>The narrative story</p>	<p>Context: <i>Biogas is a composition of CH₄, CO₂ with small amount of H₂S and water vapor produced by degradation of organic matter in an anaerobic environment. The CH₄ content in biogas generally varies from 55-70%, with most of the remainder being CO₂. It makes biogas a flammable gas with an energy content of 28MJ/m³. Biogas can be used as cooking gas, transportation fuel, electricity and heat generation.</i></p> <p>Problem: <i>Improper disposal of cattle waste contributes to soil pollution and greenhouse gas (GHG) emissions. In rural Tanzania almost 92% homes still use biomass and charcoal as fuels. And the use of biomass and charcoal is one of the main CO₂ and GHG emitters. Biomass and charcoal does not only responsible for GHG emission, but they are also responsible for smoke, toxic gases such as CO, NOX, VOC, black carbon and PM_{2.5}. It deteriorates the woman health mostly, since they expose themselves for longer period of time affecting the respiratory system. According to Ahamad et al., (2021), Tanzania's smoke exposure risk (SER) is 84.3% and it belongs to high SER countries. Therefore, usage of biogas that meets WHO's standards can lower the SER to 14.6%.</i></p> <p>Technical Assistance: <i>To address this, a biogas plant was set up in Arusha, Tanzania having a capacity of 10 m³, using locally sourced cattle manure. However, the efficiency of the biogas plant is low due to sludge accumulation, leakage and improper maintenance. A technical assistance plan was proposed for retrofitting the biogas</i></p>

	<p><i>plant by cleaning the accumulated sludge inside the reactor, checking for the leakage source and by installing the gas flow meter to measure the biogas output. Use of digested sludge was tested for fertilizers.</i></p> <p>Expected Outcome: <i>After retrofitting, it was expected that the biogas production will enhance and will reach its theoretical outcome which was considered to be 70% of the digestion efficiency. Since biogas is a clean source of energy and can be used as cooking gas. Since it does not produce smoke, it will enhance the indoor air quality, ultimately improving the health condition of people. Further, use of digested sludge could be a good fertilizer for plant growth.</i></p> <p>Achieved Outcomes: <i>After retrofitting, the biogas production was measured, and it reached to 2.5 m³/d. It showed an increment of 400% compared to the biogas produced before retrofitting. Digestate sludge as fertilizer improved the growth of plants after addition. Through this work 1.0 ton CO₂eq. can be reduced per year.</i></p>
<p>Contribution to SDGs</p> <p>A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/</p>	<p>- Good health and well being: <i>By using biogas instead of biomass and charcoal will reduce the air pollution and improve the indoor air quality. Minimizing the chances to get respiratory problems.</i></p> <p>- Affordable clean energy: <i>Biogas (clean energy) produced through biowaste which is easily available and can be used as feedstock otherwise could have created nuisance and water and air born disease.</i></p> <p>- Decent work and economic growth: <i>Promoting and utilization of biogas not only improve the air pollution, and provide clean energy, it also improve the local economy by providing jobs of maintenance, attract the youth towards scientific way to produce clean energy. Improve the money flow since it works with minimum cost and does not bear a high production value.</i></p>

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	Quantitative value Value and unit	Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions
Please note indicators below highlighted as anticipated		
Number of communication and outreach activities conducted by proponents and implementing partners to showcase CTCN support	<i>There is total 7 meetings held. Out of that 5-meetings happened between the proponent and the technical assistance team.</i>	<i>Events (titles): News release: Newsletter: Articles: Presentations on the results of the TA: 1 Social media postings: 0 Etc.</i>
Number of participants in the events above	50	
a) Number of men	46	
b) Number of women	4	
Number of training sessions and capacity strengthening activities	3 training sessions happened with a participant of up to 5 people every time.	<i>- Understanding the basic of biogas technology. - The importance of microorganism and their contribution in biogas technology. - Training regarding the analytical tools to quantify the biogas performance and understand the parameters which favors the biogas plant performance.</i>
Number of people who received the training	15	<i>Most of the trainee were students and some labour workers who primarily manage the biogas plant.</i>
a) Number of men	12	
b) Number of women	3	
Total number of institutions trained	2	NM-AIST, Arusha, Tanzania, and Gongali model pvt ltd.
a) Number of research organisations, laboratories and universities	1	NM-AIST, Arusha, Tanzania.

b) Number of private companies	1	Gongali model pvt ltd. Arusha Tanzania
c) Number of cities and local government		List the name of organisations trained here
d) Number of communities		List the name of organisations trained here
e) Number of ministries		List the name of organisations trained here
f) Number of specialised governmental institutions	1	NM-AIST, Arusha, Tanzania.
g) Number of non-profit organisations		List the name of organisations trained here
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)		Satisfied= 3+ on 5-pt scale Indicate breakdown of categories here based on the results of the CTCN training feedback forms
Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form)		Increased knowledge, capacity and/or understanding= 3+ on 5-pt scale Indicate breakdown of categories here based on the results of the CTCN training feedback forms
a) Number of men		
b) Number of women		
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	List total number here	
a) Number of tools and technical documents strengthened, revised or developed	2	-Technical guidelines for operation and management biogas plants for Co-digestion. -Techno-economic assessment for low-tech biogasification plants in Tanzania.
b) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)	3	- PowerPoint regarding the basics understanding of biogas plants. - PowerPoint regarding the role and understanding of microbial community involved in anaerobic digestion. - Video files which explains the how to perform the analytical techniques such as estimating biomethane potential and sludge characteristics.
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	List total number here	
a) Adaptation related		List the type and name of documents supported
b) Mitigation related		List the type and name of documents supported

c) Both adaptation- and mitigation related		<i>List the type and name of documents supported</i>
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA		
a) Adaptation related		<i>List the type of documents anticipated to be proposed, adopted or implemented</i>
b) Mitigation related		<i>List the type of documents anticipated to be proposed, adopted or implemented</i>
c) Both adaptation- and mitigation related		<i>List the type of documents anticipated to be proposed, adopted or implemented</i>
Anticipated number of technologies transferred or deployed as a result of CTCN support	3	- Biogas for heating - Energy supply from waste - Household biogas
Number of South-South collaborations enabled during or through CTCN TA support		<i>List the names of the organisations (excluding the CTCN or TA implementers)</i>
Number of climate technology RD&D related outreach activities		
Number of participants in climate technology RD&D related workshops and events		<i>Disaggregate by country</i>
a) Number of men		
b) Number of women		
Anticipated number of cooperative research, development, and demonstration programmes facilitated as a result of CTCN TA		
Number of countries with strengthened National System of Innovation as a result of CTCN support		
Number of organisations engaged through CTCN support		<i>Disaggregate by type of organisations</i>
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 ₂ e) emissions reduced or avoided as a result of CTCN TA	
	Anticipated metric tons of CO ₂ , equivalent emissions reduced or avoided as a result of the TA on annual basis	Anticipated metric tons of CO ₂ , equivalent emissions reduced or avoided as a result of the TA in total
Quantitative value	1 metric ton CO ₂	= 1 *30 years (avg. lifespan of a rural biogas plant) = 30

Unit	Metric ton CO _{2eq} /year	Metric ton CO _{2eq} .
<p>Methodology</p> <p>Explain the method or process of verifying the indicator and how data was gathered</p>	<p>The following two international methodologies can be used: a) AMS-III.D. Methane recovery in animal manure management systems, and b) AMS-I.D. Grid connected renewable electricity generation. Generally, AMS-III.D is applicable for slurry manure, which is commonly stored under anaerobic conditions.</p> <p>Methane recovery-0.23-ton CO₂ eq./y (0.03 ton/d × 169.4 kg VS/ton × 4.4 g CH₄/kg VS (CH₄ emissions factor for cattle, IPCC guideline) × 28 (CH₄ GWP) × 1/1000 × 365) and b) Electricity generation-0.77-ton CO₂ eq./y ((2.5 m³ biogas/d × 0.6 (CH₄ content assumption) × 35.7 MJ/m³ CH₄ × 0.278 kWh/MJ × 0.3 (Electricity conversion efficiency) × 0.467 kg CO₂ eq./kWh × 1/1000 × 365)).</p>	AMS-II-d methodology was implemented.
<p>GHG assessment boundary</p> <p>Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions</p>	<p><i>Estimated of volatile solids before and after anaerobic digestion of cattle manure could provide the glimpse of GHG emissions as 1 g VS is expected to produce 500-530 mL of methane. Therefore, the more reduction of VS during anaerobic digestion represents the more reduction in GHG emissions in terms of CO_{2eq}.</i></p>	
<p>Baseline candidates</p> <p>Define alternative technologies or practices used in baseline calculation to represent possible alternatives to the project activities</p>	<p><i>Not applicable</i></p>	
<p>Baseline emissions</p> <p>Describe baseline scenario and emissions calculated</p>	<p><i>The baseline emission was considered as the undigested cattle manure into the digester tank. For example, before retrofitting of the reactor the daily biogas production rate was 0.5 m³/day which improved to 2.5 m³/day after retrofitting.</i></p>	
<p>Assumptions</p> <p>Describe assumptions made during calculation and quantification of GHG reductions</p>	<p><i>To calculate the estimated CO₂ reduction, form the retrofitted biogas plant. The biogas production before retrofitting and after retrofitting were taken into account and then compared the difference. For example, before retrofitting the biogas production was 0.5 m³/day, which increased by 400 % and become 2.5 m³/day. The improved quantity was</i></p>	

	converted into CO ₂ reduction since CH ₄ is 28 times higher potential than CO ₂ .	
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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 <i>Please provide a qualitative description of the anticipated impacts on the categories below</i>
Infrastructure and built environment Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)	- Affordable clean energy: Biogas (clean energy) produced through biowaste which is easily available and can be used as feedstock otherwise could have created nuisance and water and air born disease.
Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	
Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)	- Decent work and economic growth: Promoting and utilization of biogas not only improve the air pollution, and provide clean energy, it also improves the local economy by providing jobs of maintenance, attract the youth towards scientific way to produce clean energy. Improve the money flow since it works with minimum cost and does not bear a high production value.
Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)	- Good health and wellbeing: By using biogas instead of biomass and charcoal will reduce the air pollution and improve the indoor air quality. Minimizing the chances to get respiratory problems. Mainly for women and girls who usually suffer respiratory problems due to the constant use of charcoal/and wood biomass for cooking purposes.

Core indicator 3	Anticipated number of direct and indirect beneficiaries as a result of the TA		
	Direct beneficiaries	Indirect beneficiaries	Means of verification
Adaptation related			
Mitigation related			
Both adaptation-and mitigation related	3000 people	Government of Tanzania	The biogas produced using the biogas plant is able to generate 2.5 m ³ /d and it has a calorific value of 33 MJ/kg, which can directly use for cooking purposes ass per observation on the

			<p>normal cooking stove the amount of biogas burns for 7-8 hours.</p> <p>a small biogas plant with a feed around 7,000 kg cattle manure/day as mentioned can benefit almost 500 families which could be an average village population in Tanzania. The current project will not have immediate impact on the GDP contribution of the focus sector. However, slow and steady progress in biogas technology in Arusha and other cities will have greater impact on the national economy. An estimated carbon emission reduction from 3-10 m³ biogas plant would be almost 55.4 ton CO₂ eq./y (51.8 ton CO₂ eq./y from CH₄ recovery + 3.6 ton CO₂ eq./y due to renewable energy generation).</p>
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Core indicator 4	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 Value and currency	Qualitative description List the various elements corresponding to the quantitative value as well as expected timelines and responsible institutions	Methods Describe method use for quantification of funds leveraged including assumptions made and attention paid to causality, attribution and avoidance of double-counting
Total anticipated amount of funding/investment mobilised or leveraged (USD) as a result of the TA			
Anticipated amount of public funding mobilised from national sources (USD)			
Anticipated amount of public funding mobilised from international and regional sources as a result of the TA			
Anticipated amount of private investment mobilised (in USD)			

from national sources as a result of the TA			
Anticipated amount of private investment mobilised (in USD) from international and regional sources as a result of the TA			

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.