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	Provision of technical assistance for the development of green building standards for Ghana
Technical assistance reference number	Contract No. UNEP/2023/066 (4700025134)
Country / countries	**Ghana**
NDE focal point and organisation	**Environmental Protection Authority**
Proponent focal point and organisation	
Designer of the response plan	**UNEP – The Climate Technology Centre and Network (CTCN)**
Implementer(s) of technical assistance	HEAT GmbH, DEM, and BCA (local partner)
Beneficiaries	*Environmental Protection Authority* *Energy Commission* *Ministry of Works and Housing*
Sector(s) addressed	***Energy efficiency in buildings***
Technologies supported	*Building technologies* *Efficient Building Design* *Building Renewable Energy*

Implementation period and total duration in months	***Originally April 2024 – June 2025 (15 months). A no-cost extension was executed to allow more time on the collection of building data.*** ***April 2024 – September 2025 (18 months)***
Total budget for implementation	*208329*
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	The main delivered output for this project is a Green Building Guidelines document to support a transition of the building sector towards low climate impacts. In addition, the project delivered the following ancillary outputs: 1. Baseline analysis of the buildings sector that includes a look at policy, regulations, building practices, and building performance as much as possible. 2. A database of high-performance building materials for different sectors of the building sector. 3. An MVE strategy to support monitoring and enforcement of the implementation of GBS. 4. Capacity building workshop, including related materials. 5. User guide for the green building guidelines. 6. The establishment of a PWG that is set to continue cooperation after the project, and the associated meeting notes.
Methodologies applied to produce outputs and products	Several activities were carried out to collect data, perform analysis, carry out projections, deliver capacity building, and engage with the relevant stakeholders, including: 1. Workshops with stakeholders. 2. Extensive desk research 3. Using existing building drawings to carry out building performance simulations. 4. Bilateral meetings 5. Collection of statistics from electricity providers, building owners, existing reports, etc. 6. Policy and regulatory analysis to understand existing frameworks. 7. Statistical analysis to estimate energy saving potential and related projections of the market. 8. Carried out workshops to engage, consult, and capacitate domestic stakeholders.
Deviations	Deviations were primarily related to data availability in the early parts of the project. Stakeholders engaged but did not deliver sufficient data. This resulted in the need to supplement data with proxies, assumptions, and expertly chosen default values for the initial assessments. After this, more stakeholders were forthcoming with data, and a more complete assessment was possible. Another deviation occurred when the PWG indicated the impossibility for the project to really deliver an officially accepted Green Building standard through the legal processes of the country. As such, the team was directed to deliver a Guidelines Document that will form the basis of the legal process in the future.

	It is also important to note that for a long part of the project, there was a persistent misunderstanding regarding the scope of the project. Primarily, the understanding of the Green Buildings concepts really includes several topics that were not part of the scope. For this, it is recommended that better communication occurs between CTCN and project proponents to name projects with clarity to support project implementation.
Anticipated follow-up activities and next steps	The topic of Green Building and EE in buildings has been identified as a priority in Ghana. However, national stakeholders with overlapping portfolios still need to agree on a common approach. National stakeholders intend to advance this topic: 1. EPA, EC, and MNHW intend to advance the topic by developing a clear understanding of the roles and responsibilities for each. 2. Review options for implementation of the generated GBS. This includes mandatory and/or voluntary options, assessing possible timing, and related details. 3. Pick up the work from this project and previous reports by the EC to advance EE objectives. 4. Ultimately, to implement the GBS.

2. Lessons learned

	Lessons learned	**Recommendations**
Lessons learned from the CTCN TA process	• TAs need to better develop the roles and responsibilities to ensure that the TA can be more easily followed up with. • The required reporting framework for the project adds significant effort for project delivery and duplication of effort in places. • TA would benefit from having a strong champion in the local government in the form of a senior official who believes in the topic and wants change. • The consulting rates currently used to estimate project budgets may need to	• Determine the legal and policy powers of the key beneficiaries as part of the funding approval process. This includes determining the bodies' ability to implement policy. • Minimise reporting needs for essential documents. • Ensure that TAs will have a significant presence and follow-up from a senior enough official to ensure results. This would increase participation and responsiveness from local SH. • Ensure that line ministries are engaged during the TA design stage to ensure they know their roles and responsibilities. • Ensure that TA budgets are developed with a greater understanding of the topic, local

	be reviewed as they are out of date. • It is important to consider local customs when relating to development projects. In this case, workshop participants required a 'per diem' to be provided, which was not accounted for in the TA design.	context, international consultants' context, etc.
Lessons learned related to climate technology transfer	• Barriers can take many shapes, and the lack of government cohesion on the topic if TA seemed to be significant. • Government champions at the senior level can lend a strong impetus to the work. • Limited engagement from domestic stakeholders takes place in different shapes. In this case, while participation was high, follow-up was weak. It would be important to have strong government support to ensure resources are used optimally.	• CTCN to encourage/require the assigning of high-level political champions to projects to overcome cooperation barriers. • It would be important to have a strong agreement about the level of engagement and commitment required from the key beneficiaries in the project. Especially in terms of the man-hours to follow up with engagement from the government stakeholders.

3. Illustration of the TA and photos

For communication purposes, please provide 2-4 PowerPoint 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.

Session 1 Making a Case for BEEG

Energy Production and Consumption Trends

Energy Demand Growth and Consumption

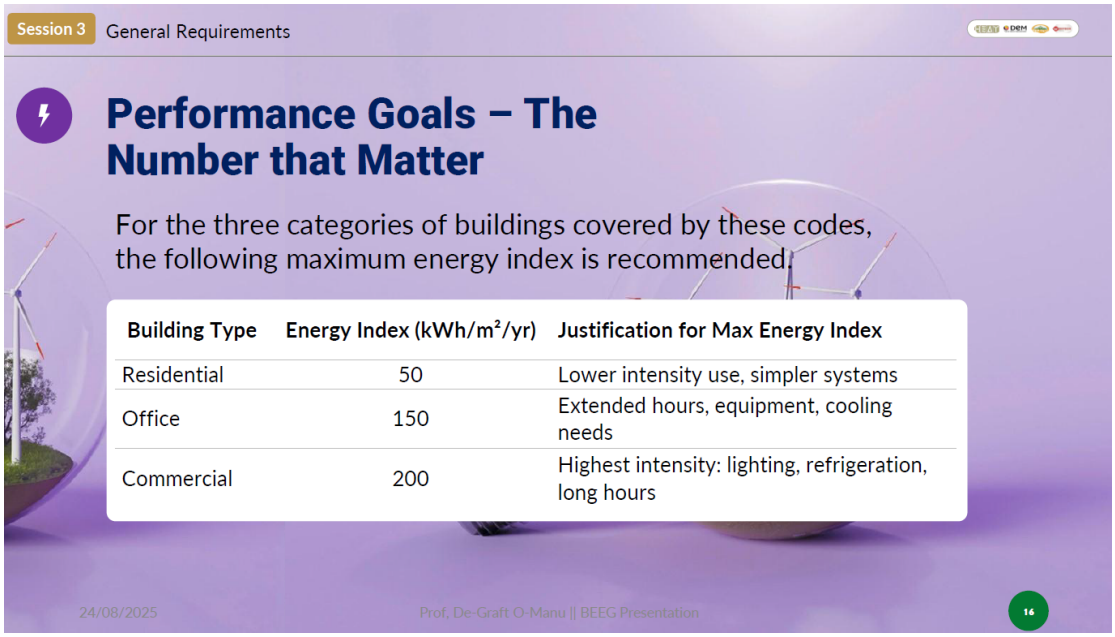
Largest electricity-consuming sectors in Africa, 2022

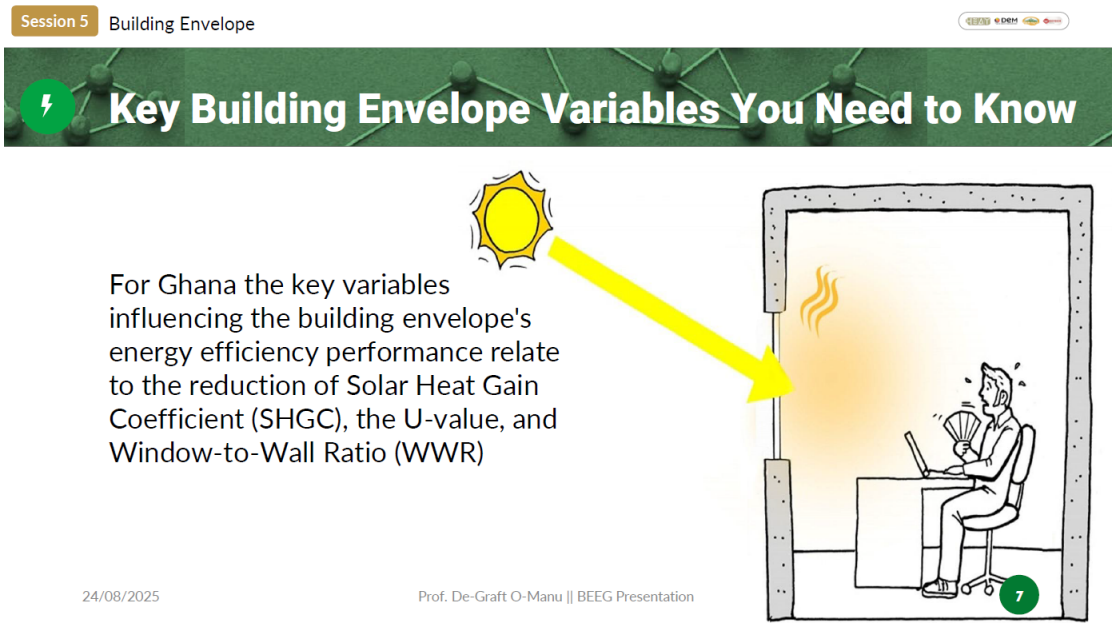
37%

Industry, 2022

36%,

Residential . 2022





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.

Challenge	*The need to address climate change has become more urgent than ever as the impacts of climate change intensify and the need for proactive measures becomes clearer. In response, the Government of Ghana, in collaboration with the CTCN, has initiated the development of a Building Energy Efficiency Guidelines (BEEG) document. These Guidelines aim to support a transition towards more climate-friendly operations in the building sector, which is a*

	significant contributor to the country's greenhouse gas emissions. *The primary objective of the Building Energy Efficiency Code is to provide the technical foundation for the construction of energy-efficient buildings. These buildings offer multiple benefits, including reduced emissions during construction, improved structural quality and resilience, enhanced occupant health and comfort, and overall environmental sustainability.*
CTCN Assistance	• *Provide technical support to develop a Green Building Standard in Ghana.* • *Coordinate stakeholder engagement and government direction for set a more cohesive approach.* • *Carry out a baseline assessment to understand the current situation.* • *Provide a set of technical documents that will serve as the basis for the development of new GB policies.*
Anticipated impact	*Dependent on eventual implementation of the GBS, the main anticipated impacts from this TA focus on:* • *Energy demand reduction* • *GHG emissions reduction.*
Co-benefits: Achieved or anticipated co-benefits from the TA	*It is also anticipated that the successful implementation of a GBS can also deliver several associated co-benefits:* • *Improved culture in the construction industry and housing/building markets towards improved quality of stock.* • *Reduced maintenance and running costs of the building stock resulting from higher quality and lower energy bills.* • *Improved housing quality is also associated with positive social outcomes such as improved health and wellbeing.* • *Increased capacity at the cutting edge of an industry that is vital to the economy of the country.* • *Increased adaptation capacity in the built environment communities.*
Gender aspects of the TA	The technical assistance also involved women and gender specialists in the design of the GBS and its implementation tools. As a result, the intervention is expected to generate several co-benefits for women,

	youth, and other vulnerable groups, including improved access to household energy services that particularly benefit women, as well as enhanced housing quality linked to better health outcomes and a reduced risk of domestic violence. In addition, strengthened capacity, awareness, and skills within these sectors are expected to expand economic opportunities for women, including the creation of new business opportunities in the buildings and construction sector.
Anticipated contribution to NDC	*Ghana's updated Nationally Determined Contribution sets out an economy-wide pathway to significantly reduce greenhouse gas emissions by 2030, with the buildings sector identified as a key area for mitigation. Within the built environment, Ghana's NDC emphasizes improvements in energy efficiency in both residential and commercial buildings as a means to curb rising electricity demand and associated emissions. In this context, the implementation of the Green Building Standard (GBS) will directly contribute to Ghana's mitigation objectives by lowering energy consumption across building types, thereby supporting national climate targets while also reducing pressure on the power system and improving overall building performance.*
The narrative story	*In Ghana, the energy sector is a major contributor to national greenhouse gas emissions, driven in part by rapidly growing electricity demand from the built environment, including residential, office, and commercial buildings. As highlighted in Ghana's long-term climate and energy strategies, electricity consumption in buildings represents a significant share of total energy-related emissions, reflecting rising urbanization, expanding housing demand, and increased use of appliances and cooling. The absence of comprehensive and consistently enforced building standards—particularly in peri-urban and rural areas—has contributed to urban expansion characterized by inefficient and unsustainable construction practices, increasing long-term energy demand and emissions.* *The rollout of green building standards in Ghana faces several interrelated challenges. Regulatory barriers persist due to limited binding energy performance*

	requirements and the absence of clear quantitative targets for the buildings sector, which weakens incentives for sustainable construction. Institutionally, responsibilities for buildings, energy, housing, and urban development are spread across multiple ministries and agencies, often with insufficient coordination and policy alignment. Capacity and awareness constraints remain, including a shortage of technical expertise to develop and enforce advanced building codes, as well as limited availability of reliable building performance data. Financial barriers are also significant, as stakeholders often perceive energy-efficient buildings and technologies to involve higher upfront costs and longer payback periods, compounded by limited access to tailored financial instruments such as incentives, tax relief, or revolving funds. Finally, technology-related challenges include the limited local availability of affordable, energy-efficient, and low-emission construction materials. In this context, the technical assistance aims to support Ghana in developing robust green building standards, policy guidelines, and monitoring, verification, and enforcement frameworks to mainstream sustainable building practices nationwide, with the overarching objectives of reducing energy demand and lowering greenhouse gas emissions from the building stock.
Contribution to SDGs A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/	*SDG 7* • *Implementation of green building standards will contribute towards reducing energy consumption in existing buildings and energy demand in new buildings, thus making energy supply more reliable and sustainable.* • *Green building standards will facilitate the use of renewable energy and energy efficiency technologies. This will contribute to making the national energy supply cleaner and modern.* • *Implementation of the green building standards will generate new opportunities for international cooperation on energy efficiency and renewable energy technologies.*

	SDG 11 • *Green buildings can include benefits beyond environmental performance, but also positive social contact, community development, and safe and inclusive interactions.* *SDG 13* • *Capacity building and awareness-raising activities will facilitate the implementation of green building standards in existing and new buildings, thus contributing to climate change mitigation*

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 Please note indicators below highlighted as **anticipated**	**Quantitative value** Value and unit	**Qualitative description** List the various elements corresponding to the quantitative value as well as timelines and responsible institutions
Number of communication and outreach activities conducted by proponents and implementing partners to showcase CTCN support	*15*	*The activities of engagement included:* *Policy working group meetings* *Steering group meetings* *Inception meeting* *Consultation of Final outputs.* *Capacity building workshop* *On top of these meetings, there were a series of one-on-one meetings with a number of organizations from private sector and government to consult on data, policy, building practices, and more*
Number of participants in the events above	*~120*	*This figure is estimated as not all the meetings had official records. Especially one-on-one meetings and informal conversations.*
a) Number of men	*80*	
b) Number of women	*40*	
Number of training sessions and capacity strengthening activities	**1**	*One three-day capacity building workshop was held per the ToR.*
Number of people who received the training	**72**	
a) Number of men	**55**	
b) Number of women	**17**	
Total number of institutions trained	*22*	
a) Number of research organisations, laboratories and universities	**5**	*Ghana Institute of Engineers* Institute of Journalism Ghana Institute of Architects KNUST Building and Road Research Institute - CSIR

b) Number of private companies	**6**	Quantitiy Surveyor Peninsula Resort Architectural Services LTD Imperial Homes Ltd Wisstech FCC Resources Ltd
c) Number of cities and local government	**1**	Ministry of Local Government and Rural Development
d) Number of communities		*List the name of organisations trained here*
e) Number of ministries	**3**	Ministry of Local Government and Rural Development Ministry of Sanitation and Water Resources Ministry of Works and Housing
f) Number of specialised governmental institutions	**3**	*Environmental Protection Authority* Energy Commission Ghana Standards Authority
g) Number of non-profit organisations	**2**	*Ghana Green Building Council* National Home Ownership Fund
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)	**N/A**	*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)	**N/A**	*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	**N/A**	
b) Number of women	**N/A**	
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	*13*	
a) Number of tools and technical documents strengthened, revised or developed	**6**	1. *Baseline assessment report including policy review, stakeholder mapping, building performance review.* 2. *Green Building Standards Draft* 3. *Green Building Standards Final* 4. *MVE Framework* 5. *User Manual* 6. *Training PPTs from capacity building workshop*
b) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)	**7**	1. *PWG ToR* 2. *PWG Quarterly meeting reports * 4* 3. *Inception report*

		4. Capacity Building Workshop Report.
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	*1*	
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	**1**	*Green Building Guidelines*
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	**1**	
a) Adaptation related		*List the type of documents anticipated to be proposed, adopted or implemented*
b) Mitigation related		*List the type of documents anticipated to be proposed, adopted or implemented*
c) Both adaptation- and mitigation related	**1**	*Green Building Guidelines*
Anticipated number of technologies transferred or deployed as a result of CTCN support	**Multiple**	*Low carbon cement* *Low carbon steel* *Energy Efficient Windows* *Energy Efficient building materials*
Number of South-South collaborations enabled during or through CTCN TA support	**0**	
Number of climate technology RD&D related outreach activities	**N/A**	
Number of participants in climate technology RD&D related workshops and events	**N/A**	*Disaggregate by country*
a) Number of men		
b) Number of women		
Anticipated number of cooperative research, development, and demonstration programmes facilitated as a result of CTCN TA	**N/A**	
Number of countries with strengthened National System of Innovation as a result of CTCN support	**1**	
Number of organisations engaged through CTCN support	**~20**	*Central government* *Customs department* *Private sector* *NGO* *Research institutes* *Standards Authorities*
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**	
	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	2.9 MtCO2e per year by 2050 assuming enforcement from 2026.	Around 33.5 $MtCO_2e$ assuming 2026 enforcement
Unit	MtCO2e	MtCO2e
Methodology Explain the method or process of verifying the indicator and how data was gathered	A market study using a stock and flow model was carried out, which included: •projections of building rates based on GDP and population increase. •Baseline performance assumptions based on national averages. •Assumed improved performance of stock based on international experience on the implementation of GBS. Emissions reductions are assumed at the current grid emissions factor based on the reduced electricity demand.	Annual emissions are added starting in 2027 from the 2026 implementation of the GBS.
GHG assessment boundary Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions	Post TA, the Ghana government is planning to have internal coordination discussions to assess how best to implement the GBS. This will require some of the following steps: • Engage the industry and the market. • Allocate resources for enforcement. • Allocate appropriate roles and responsibilities. Ensure strong follow-up from the central government.	
Baseline candidates Define alternative technologies or practises used in baseline calculation to represent possible alternatives to the project activities	Existing building practices as per the baseline report. This is generally assumed to be the use of poor performing building materials and low-quality building practices.	
Baseline emissions Describe baseline scenario and emissions calculated	As per the methodology described above. A stock and flow model were used to determine market dynamics while unit performance was determined by data collected from the market and averaged for capacity levels.	

Assumptions Describe assumptions made during calculation and quantification of GHG reductions	Assumptions were made for: • GDP growth • Population growth • Progressions of the electricity system. • Progressions of the GBS Life of the building stock.	

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** *Please provide a **qualitative** description of the anticipated impacts on the categories below*
Infrastructure and built environment Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)	In the Ghanaian context, the implementation of Green Building Standards (GBS) goes beyond energy and emissions benefits and is closely linked to overall improvements in building quality and functionality. By promoting better design, construction practices, and material choices, GBS supports the development of buildings that are more durable, climate-resilient, and better suited to Ghana's climatic conditions, including higher temperatures, heavy rainfall, and increasing climate variability. Improved thermal performance, ventilation, and moisture control contribute to longer building lifespans, lower maintenance costs, and enhanced comfort and safety for occupants. As a result, buildings developed under GBS are better able to withstand climate-related stresses and adapt over time, supporting Ghana's broader climate adaptation and resilience objectives. At the market level, the widespread adoption of GBS can gradually shift expectations and norms within the construction and real estate sectors. As developers, financiers, and users become accustomed to higher-quality, better-performing buildings, demand is likely to increase for similarly improved standards across related infrastructure systems, such as energy, water, transport, and urban services. This virtuous cycle can help raise overall infrastructure quality beyond the buildings sector, encouraging innovation, professionalism, and long-term value creation. In this way, GBS implementation can act as a catalyst for broader sustainable development in Ghana, strengthening resilience, improving service delivery, and supporting a transition toward higher-quality, climate-smart infrastructure across the economy.
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)	The access to high performing buildings will result in lower energy and maintenance bills for building owners while benefiting from improved quality of buildings.

	Reduced electricity demand from these consumers will also support an improved performance of the energy system and enable it to reach a greater proportion of the population at a reasonable cost.
Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)	Improved quality buildings are associated with a number of social benefits as improved comfort often translates to improved wellbeing, improved satisfaction, lower domestic violence, and lower incidence of health issues, specially of respiratory issues.

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			*Describe calculation methods and assumptions made*
Mitigation related			*Describe calculation methods and assumptions made*
Both adaptation-and mitigation related			*Describe calculation methods and assumptions made*

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.