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	National framework for leapfrogging to Energy Efficient Appliances and Equipment in Botswana (Refrigerators and Distribution Transformers) through regulatory and financing mechanism
Technical assistance reference number	2019000042
Country / countries	Botswana
NDE organisation	Botswana Institute for Technology Research and Innovation (BITRI)
NDE focal point	Ms. Penny Lesolle, Researcher
NDE contact information	*PLesolle@bitri.co.bw*
Proponent focal point and organisation	Ms. Keineetse Lepekoane, Ministry of Finance *klepekoane@gov.bw*
Designer of the response plan	UNEP - The Climate Technology Centre and Network (CTCN)
Implementer(s) of technical assistance	CLASP / Green Issues Botswana
Beneficiaries	• Department of Energy, Ministry of Minerals of Energy • Botswana Bureau of Standards, Ministry of Investment, Trade and Industry

	• Botswana Power Corporation
Sector(s) addressed	Energy Efficiency
Technologies supported	Appliance standards for refrigerators and distribution transformers
Implementation start date	14/01/2020
Implementation end date	30/09/2022
Total budget for implementation	USD 266,250
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	Detailed log frame provided in the GCF completion report, available HERE • Detailed market analysis for higher efficiency refrigerators and DTs • Constituting the Policy Working Group (PWG) to serve as a steering committee for the design and future implementation of the national policy roadmaps for the promotion of higher efficiency refrigerators and DTs • Formation of technical committees housed within BOBS for refrigerators and DTs to provide a forum for adoption of test standards and MEPS • National public consultations on the draft test standards and MEPS before finalisation • Development of national policy roadmaps for DTs and refrigerators including MEPS-HEPS, labelling scheme, consumer awareness, capacity building for officials and MV&E framework • Financing mechanisms and recommendations developed for the promotion of higher efficiency DTs and refrigerators • Coordination between NDA, NDE and other climate focal points in Botswana
Methodologies applied to produce outputs and products	• Market assessments including desk studies, surveys and interviews with consumers and other beneficiaries • Questionnaires • Meetings with various key stakeholders • Public consultation workshops • Training sessions held for capacity building

Reference to knowledge resources	Tools and resources from other initiatives such as United for Efficiency (U4E) initiative, Montreal protocol, Kigali Cooling Efficiency programme and Stockholm convention (for PCBs in transformers), were used as a starting point for development of the policy framework at the national level. Additionally, the TCO model developed by U4E for Distribution Transformers as used for the training of utility procurement officials in Botswana. The project adapted the U4E Model Regulations for refrigerators and for distribution transformers and customized them for Botswana context. *Link to TEC knowledge database:* *https://unfccc.int/ttclear/tec/documents.html*
Deviations	• Most meetings were held virtually due to the travel restrictions due to COVID 19 in the earlier months of the project • The project took 21 months which was 3 months longer than the initially planned 18 months due to delays experienced in the process of standards development • The public consultation mechanism in Botswana is a 60-day public period not a single day workshop which meant that all the test standards and MEPS were taken through the mandatory national consultation period and the comments were addressed by BOBS in the preparation of the final standard.
Anticipated follow-up activities and next steps	*Instruction: Please describe planned follow-up activities after completion of technical assistance, including information on involved stakeholders and anticipated timelines.* • Submission of the adopted MEPS for refrigerators and distribution transformers to parliament for gazettement into law. BOBS Technical Advisory Committee to submit the minutes of their meeting together with the 2 standards in January 2023. • Implementation of activities proposed in the national roadmaps to prepare for

	monitoring, verification and enforcement activities once the MEPS are implemented. DOE and BOBS to train BERA on how to conduct compliance checks. BERA to begin the printing of labels for compliant products. This is scheduled for Q2 and Q3 of 2023. • Implementation of newly gazetted MEPS for both appliances begins in January 2024. • Use of new expertise acquired during training led by CTCN: BPC to begin incorporating the gazetted MEPS for DTs into their procurement guidelines in 2023 and implementing the TCO model to inform procurement decisions. Further planned activities are listed in the National Policy Roadmap.

2. Lessons learned

	Lessons learned	**Recommendations**
Lessons learned from the CTCN TA process	*Describe lessons learned from following the steps of the TA process and interacting with the CTCN Secretariat. What were the challenges and essential factors contributing to successful implementation* • Frequent communication and updates are important to allow for faster resolution of challenges or delays being faced. • Documentation is key to provide evidence of the process that was followed and the engagements held with various key stakeholders. • Collaboration with the CTCN secretariat improved the quality	*Recommendations include* • *Steps which could be taken to improve the CTCN TA process* – Before fixing a timeline for the various projects, it would be helpful to convene an inception meeting with the agencies involved to get an understanding of their typical process times for standards development and policy approvals to allow for more reflective scheduling of the various activities. • *Considerations for increased success of similar efforts (i.e. regulatory, legal, stakeholders, communication, etc.)* – In-person meetings are more valued when introducing policy or building capacity with government agencies. The more face time the process has, the higher the

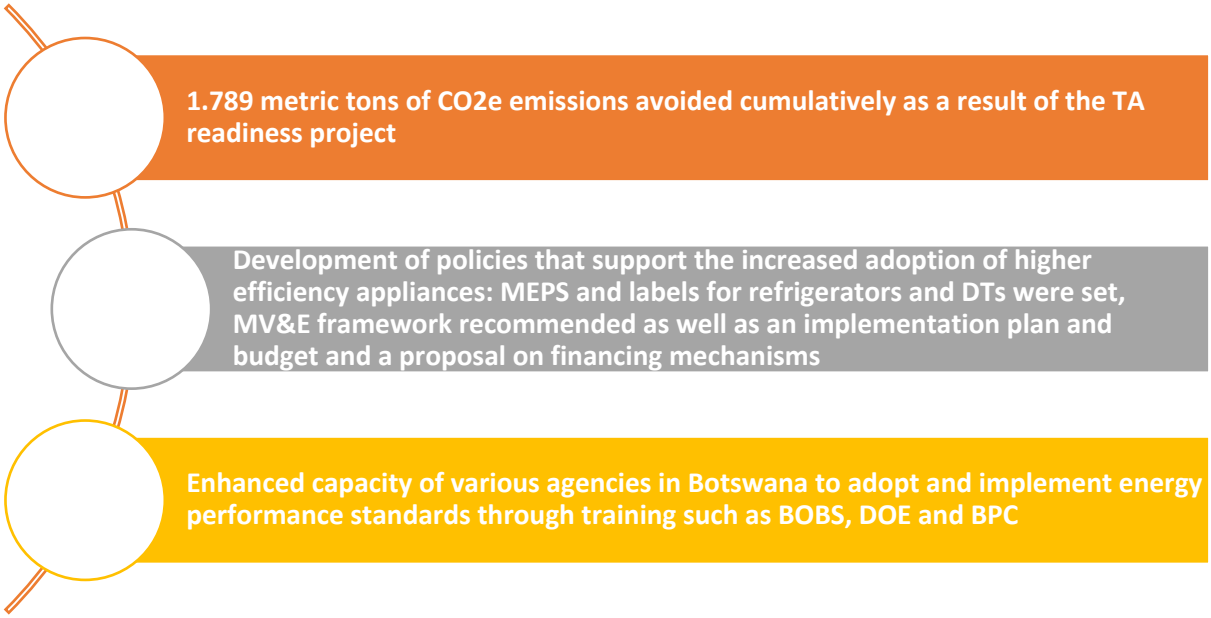
	of the technical outputs by getting the reports reviewed by the U4E team for accuracy.	odds of success as it builds trust and allows for free flow of communication which is helpful for troubleshooting and problem solving.
Lessons learned related to climate technology transfer	*Describe lessons learned, opportunities, and barriers for the use and deployment of the technology or technologies supported by the TA. The objective is to identify specific success factors for technology transfer* • The continuous engagement of BOBS and the Department of Energy has built their capacity sufficiently to lead the process of developing and adopting standards for other potent appliances. As this were Botswana first ever appliance standards, there is a vast opportunity for more appliances to be regulated especially air conditioners, lighting and motors which contribute to a significant component f the electricity demand in the country. • The main barrier would be the initial lack of experience of their energy regulator (BERA) in regulating appliances and thus the implementation will likely be slower in the beginning as they learn how to operationalise the compliance framework.	*Recommendations include* • *Risk mitigation measures* An assessment of the different capabilities of the various agencies mandated by law to carry out the implementation should be done at the beginning of the process during the consultation phase to inform the specific capacity building requirements. In the case of Botswana, though BERA is the legal entity mandated to regulate appliance standards, they have limited capacity at it is still a fairly new agency and thus BOBS and DOE will spearhead in the initial stages though that might lead to inter-ministerial inefficiencies. • *Identified opportunities for over-coming barriers* Second staff temporarily from BOBS to BERA to fast track the capacity building at BERA Develop a curriculum on best practise for compliance that BERA can reference. • *Long-term sustainability (e.g. building endogenous capacities, funding opportunities, etc.)* Continued capacity building for BOBS, BERA and DOE (both number of people and upskilling the existing staff) to allow them to successfully develop and implement other appliance standards. Improved gender representation in the various agencies of government such as DOE, BOBS and BERA

		especially within their technical teams to allow more diverse voices in the design Enhanced grant writing and other fund-raising activities for the Department of Energy to support the expansion of the appliance energy efficiency program.

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.

- **Results achieved**



- **TA Approach**

Methodology

- Market assessments including desk studies, surveys and interviews with consumers and other beneficiaries
- Questionnaires
- Meetings with various key stakeholders
- Public consultation workshops
- Training sessions held for capacity building

Activities

- Conducting detailed market assessments for refrigerators and DTs
- Formation of Policy Working Group and Technical Committees for refrigerators and DTs
- Development of test standards, MEPS and HEPS for refrigerators and DTs
- Design of a labelling scheme and consumer awareness campaign for refrigerators and DTs
- Development of a monitoring, verification and enforcement framework
- Proposing financing mechanisms for the higher efficiency DTs and refrigerators
- Conducting public stakeholder consultation on the proposed standards and labels, MV&E framework and financing mechanisms

NATIONAL FRAMEWORK FOR LEAPFROGGING TO ENERGY EFFICIENT APPLIANCES AND EQUIPMENT IN BOTSWANA

Outputs

- Detailed Market Assessment for refrigerators and DTs in Botswana
- National policy roadmaps for the adoption of higher efficiency refrigerators and distribution transformers
- Report on recommendations for financing mechanism
- Training reports for capacity building sessions on MEPS, financing mechanisms and the TCO model for distribution transformers
- Stakeholder consultation feedback

Opportunities

- Existing capacity at BOBS and the DOE to continue with the standards development for new appliances
- A well-structured NDA and country prioritization process that ensure inter ministerial collaboration and support for projects

Barriers

- Limited capacity at BERA for the implementation of the compliance framework to support the introduction of the MEPS and labels
- Funding limitations to support the Standards and Labelling program in Botswana

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.

Challenge	*Approx. 500 characters with spaces* Refrigerator demand is expected to significantly increase in Botswana with economic development, contributing to baseload, and from the consumer side, a significant share of household incomes. On the other hand, Distribution transformers (DTs) are typically responsible for 30% of distribution losses. In this regard it's critical to address lack of dedicated policies for energy efficient products and appliances including absence of minimum energy performance standards, and lack of information and awareness on the importance of efficient appliances. This will induce a sustainable market transformation in favour of higher efficiency products therefore reducing electricity losses which bring a heavy burden on the government's budget and hampers the country's electrification potential.
CTCN Assistance	*2 to 4 bullet points. Approximately 450 characters with spaces* • Development of Mandatory Minimum energy performance standards and labeling schemes for refrigerators and distribution transformers • Development of national policy roadmaps and enabling environment for implementation of standards and label for refrigerators and distribution transformers • Development of appropriate financing mechanisms to accelerate deployment of energy efficient refrigerators and distribution transformers.

	• Strengthened national capacity for Botswana to be able to later develop standards and labels for other appliances in future.
Anticipated impact	*Summarize the problem statement and desired impact. Describe how the TA is expected to lead to the desired impact. Include description of stakeholders, deliverables and timelines. As a minimum, please include at least one of the core impact indicators from the closure report Annex.* Key outcomes produced within the project strengthened the existing policies and regulatory frameworks through 1. The adoption of national testing standards for refrigerators and DTs, 2. The adoption of mandatory Minimum Energy Performance Standards (MEPS), as well as adoption of High Energy Performance Standards (HEPS) 3. Labelling scheme 4. The design of consumer awareness campaigns 5. Capacity building on finance mechanisms.
Co-benefits: Achieved or anticipated co-benefits from the TA	*Instruction: Please indicate expected co-benefits as described in the response plan and in the relevant deliverables* This readiness proposal resulted in Botswana having a regulatory framework and an agreed MEPS and labelling scheme for Refrigerators and Distribution transformers. This will result in reduced electricity losses and strain on the grid, therefore increasing the ability to extend electricity access especially in rural areas. In addition, the regulations will reduce household's electricity bills and potentially reduce GHG emissions. The adoption of the proposed MEPS for Distribution Transformers holds the potential to lead to a cumulative energy savings up to 2040 of 1,025 GWh and CO2 savings of 1.209MtCO2. The cumulative energy savings under the MEPS for refrigerating appliances from 2022–2030 were estimated to be 407 GWh cumulatively while the CO2 emissions savings for refrigerating appliances through 2030 were estimated to be 0.58MtCO2.
Gender aspects of the TA	*Instruction: Please indicate if technical assistance was supported by a gender analysis. Describe gender aspects identified and additional considerations taken to mainstream gender (e.g. equal participation in trainings, gathering of gender-disaggregated data, etc.).* The project pursued thorough and gender responsive integration especially during the data collection phases and ensured stakeholder involvement at all levels. Regulatory framework and financial mechanism was designed based on a gender-differentiated understanding of opportunities, gender consideration related to refrigerators and DTs, and constraints to optimize their social and climate impact.
Anticipated contribution to NDC	*2 to 4 bullet points. Approximately 350 characters with spaces* The INDC document which Botswana submitted in 2015 to UNFCCC contains Botswana's commitment to reduce GHG emissions and hence combat climate change. Botswana intends to reduce overall emissions by 15% from the base year of 2010 by 2030. Amongst Botswana's prioritized sectors include the energy sector.
The narrative story	*Approximately 1200 characters with spaces* *Please provide a brief description of the background and context for the technical assistance. Describe the main problems and barriers for climate change mitigation and/or adaptation in terms of climate technologies that the CTCN technical assistance will address*

	The electrification rate in Botswana is nearly 65%, with 81% of urban population having access to electricity (2018, World Bank). Botswana's electricity sector is largely dependent on generation by thermal coal power plants, and electricity imports. The Government of Botswana aims to achieve 100% electrification rate by 2030, which will put a strain on electricity grid and the supply. Energy efficiency can help mitigate the future growth in demand and reduce burden on the grid. Adoption of energy efficiency policies for appliances and electricity-using equipment can significantly reduce electricity use and cost. In this context, Botswana requested support from CTCN through UNEP to implement a GCF Readiness proposal that aims to develop a national framework for leapfrogging to energy-efficient refrigerators and distribution transformers through regulatory and financing mechanism. CTCN assistance resulted in Botswana having: • Minimum Energy Performance Standards (MEPS), High Energy Performance Standards (HEPS), and labeling schemes for refrigerators and distribution transformers • National policy roadmap and enabling environment for implementation of standards and label for refrigerators and distribution transformers • Appropriate financing mechanisms to accelerate deployment of energy efficient refrigerators and distribution transformers. • Strengthened national capacity to develop standards and labels for other appliances in future. This will create an enabling policy and regulatory environment for appliance thus leading to market transformation. Consequently, the appliance market transformation will reduce strain on the electricity grid therefore increasing the ability to extend the electricity grid to other areas.
Contribution to SDGs A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/	*To the extent possible, please describe contribution to approximately 3 SDGs, including SDG13, with a few sentences for each SDG concerned.* SDG 1: End poverty in all its forms everywhere: Energy efficiency is a major contributor in the reduction of fuel poverty. SDG 7: Ensure access to affordable reliable, sustainable and modern energy for all: By 2030, double the global rate of improvement in energy efficiency: Energy efficiency will be improved in the buildings sector through energy efficient appliances. SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation: The standard and labelling programmes will promote product innovation among local manufacturers to improve the performance and sustainability of refrigerators and DTs. SDG 13: Take urgent action to combat climate change and its impacts: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. The long-term impact of reduced electricity consumption mitigates dependency on climate sensitive electricity. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning: Future awareness raising, in accordance with the strategy developed in this TA, informs consumers and manufacturers about the benefits of energy efficient appliances.

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** *Numerals only; disaggregates must sum to the total*	**Qualitative description** *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* 9	• 4 PWG meetings • 4 TC meetings • 1 Stakeholder consultation workshop for refrigerators and DTs
Number of participants in events organized by proponents and implementing partners	60	Botswana 22 – PWG members 17 – TC members 21 – Stakeholder workshop TOTAL: 60
a) Number of men	*List total number here* *47*	*Disaggregate by country* Botswana 17 – PWG 14 – TC 16 – Stakeholder workshop TOTAL: 47
b) Number of women	*13*	Botswana *5 - PWG* *3- TC* *5 – Stakeholder consultation* TOTAL: 13
Number of climate technology RD&D related events	*1*	TCO training for procurement officers at BPC
Number of participants in climate technology RD&D events	*List total number here* 21	
a) Number of men	20	Botswana

b) Number of women	1	Botswana
Number of training organized by proponents and implementing partners	*List total number here* 2	*List the title of the training sessions and capacity strengthening activities* • Financing mechanisms training • MEPS training for Customs Officers and retail market inspectors
Number of participants in trainings organized by proponents and implementing partners	*List total number here* 28	15 – MEPS training 13 – Financing mechanisms training
a) Number of men	26	Botswana
b) Number of women	2	Botswana
Total number of institutions trained	*List total number here* *9*	
a) Governmental (national or subnational)	4	*List the name of organisations trained here* • Botswana Power Corporation • Department of Meteorology • Department of Energy • Botswana Bureau of Standards
b) Private sector (bank, corporation, etc.)	1	*List the name of organisations trained here* • CITF
c) Nongovernmental (NGO, University, etc.)	4	*List the name of organisations trained here* • Gaborone Technical College • New Era College • Botswana Refrigeration and Air Condition Association (BRACA) • Department of Environmental Affairs
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)		*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)		*Increased knowledge, capacity and/or understanding= 4+ on 5-pt scale*
a) Percentage of men		
b) Percentage of women		

Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	*List total number here* 10	
a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc.	0	*List the name of the documents*
b) Number of tools and technical documents strengthened, revised or developed	3	*List the name of the documents* • MV&E report for refrigerators and DTs • Labelling scheme and consumer awareness plan • Financing mechanism and implementation plan for refrigerators and DTs
c) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)	7	*List the name of the documents* • Stakeholder consultation workshop report • MEPS training presentation • MEPS training report • TCO training presentation • TCO training report • Financing training presentation • Financing training report
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	*List total number here* *4*	
a) Adaptation related	0	*List the type and name of documents supported*
b) Mitigation related	0	*List the type and name of documents supported*
c) Both adaptation- and mitigation related	4	*List the type and name of documents supported* • MEPS and HEPS for refrigerators • MEPS and HEPS for DTs • National roadmap for refrigerators • National roadmap for DTs
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	*List total number here* 4	
a) Adaptation related	0	*List the type of documents anticipated to be proposed, adopted or implemented*

b) Mitigation related	0	*List the type of documents anticipated to be proposed, adopted or implemented*
c) Both adaptation- and mitigation related	4	*List the type of documents anticipated to be proposed, adopted or implemented* • MEPS and HEPS for refrigerators • MEPS and HEPS for DTs • National roadmap for refrigerators National roadmap for DTs
Anticipated number of technologies transferred or deployed as a result of CTCN support	*List total number here* 2	*Instruction: List the type of technologies supported by this assistance. Technologies must be identified from the CTCN taxonomy of climate sectors and technologies (download in pdf format and choose from column C): https://www.ctc-n.org/resources/ctcn-taxonomy* • Appliance standards • Energy labelling For both DTs and refrigerators
Anticipated number of collaborations facilitated or enabled as a result of technical assistance	*List total number here*	
a) Number of South-South collaborations		*List the names of the organisations (excluding the CTCN or TA implementers)*
b) Number of RD&D collaborations		*List the names of the organisations (excluding the CTCN or TA implementers)*
c) Number of private sector collaborations		*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		*List names of countries*
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**

	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** As the MEPS introduced in Botswana are introduced in phases, the annual figure is not constant year on year thus the cumulative saving is provided.	Anticipated metric tons of CO2e reduced or avoided as a result **of the TA in total** Reliable estimations using the transformer stock model for Botswana until 2040 indicates that the adoption of the proposed MEPS for **Distribution Transformers** holds the potential to lead to a cumulative energy savings up to 2040 of 1,025 GWh and CO_2 savings of 1.209$MtCO_2$. The cumulative energy savings under the MEPS from 2022–2030 for **refrigerators, refrigerator-freezers, and freezers** were estimated to be 39 GWh, 212 GWh, and 156 GWh, respectively. The cumulative CO_2 emissions savings through 2030 (MT) under the MEPS scenario for the refrigerators, refrigerator-freezers, and freezers were estimated to be 0.58$MtCO_2$.
Quantitative value *(emissions reductions)*	*Total number (numerals only, no rounding or abbreviations)*	*Total number (numerals only, no rounding or abbreviations)* **1.789 $MtCo_2e$**
Unit	tCO_2e	$MtCO_2e$ (metric tonnes**)**
GHG assessment boundary (project emissions) Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions		The introduction of MEPS for refrigerators and DTs is expected to eliminate the less efficient models of these appliances and those savings as a result of the equipment drawing less electricity are expected to have a CO_2 emission reduction effect because most of the power generated in Botswana is from thermal sources. For refrigerators the modelling was done until 2030 while for DTs until 2040 because they have a much longer lifetime.
Baseline emissions Describe baseline scenario, baseline candidates, emission		Currently the country has no energy performance standards for any appliance thus very inefficient models for refrigerators and distribution transformers are in use

factors and emissions calculated		increasing the demand in the grid which is powered primarily by thermal generators. The grid emission factor is 1.179467533 $kgCO_2/kWh$. The baseline emissions from DTs in 2022 is 244.71 $ktCO_2$ while from refrigerators is 518.8 $ktCO_2$.
Methodology Explain the method or process of verifying the indicator and how data was gathered		For transformers, a projection was done between 2020 and 2040 comparing the business as usual case from the stock model against the energy efficiency case. For refrigerators, the projection was until 2030. The difference in energy consumption between the two cases was compared and multiplied by the grid emission factor to estimate the cumulative CO_2 reduction. The calculations were done by using MEPSY a reliable online tool that compares the impacts of introducing MEPS over a period of time.
Assumptions Describe assumptions made during calculation and quantification of GHG reductions		The DT stock model is assumed to be reflective of the procurement plan for Botswana over the next few years The calculations assume that the proposed MEPS will be implemented in the years proposed in the roadmap but there might be delays in country before the MEPS are rolled out.

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)	The reduction of pressure on the grid as a result of reduced demand from household refrigerators is expected to contribute towards less damage to power lines as a result of overloading. Additionally, having more efficient DTs contributes towards having to commission fewer thermal generation plants contributing towards improved climate adaptation for the national grid network.
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)	A more efficient appliance is essentially supposed to contribute towards the lowering of electricity bills for households which would lead to more income retained for other uses.
Health and wellbeing 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*	
Number of adaptation beneficiaries	0	*Describe calculation methods and assumptions made*
Number of mitigation beneficiaries	0	*Describe calculation methods and assumptions made*
Number of adaptation-and mitigation beneficiaries	49	*Describe calculation methods and assumptions made* Assumed the direct beneficiaries of the TA were all those who participated in the training on TCO, MEPS and Financing. Summed up the participant numbers (46 men and 3 women)

Core indicator 4	**Anticipated amount of funding/investment leveraged (USD) as a result of TA (disaggregated by public, private, national, and international sources, as well as between anticipated/confirmed funding)**			
	Quantitative value confirmed *in USD*	**Quantitative value anticipated** *in USD*	**Qualitative description** *List the institutions, timelines, and description or title of the investment*	**Methods** *Describe methods used for quantification of funds leveraged*
	USD 666,750		Funded through the National Development Priorities budget in the Ministry of Finance	The total amount that would be required to deliver the national

				roadmap for refrigerators and DTs described above.
Total funding	*Total number in USD (numerals only, no rounding or abbreviations)*	*Total number in USD (numerals only, no rounding or abbreviations)*		
Anticipated amount of public funding mobilised from national/domestic sources				
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 1b (Modelling spreadsheets calculating the CO2 emission reduction)

Refrigerators: linked here

Distribution transformers: linked here

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.