

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	Pre-feasibility study of the use of photovoltaic systems on the roofs of public buildings in the Comoros, with a connection to the grid, and the definition of a net metering policy.
Technical assistance reference number	2022000047
Country / countries	Union of the Comoros
NDE focal point and organisation	Ms. Fatima Athoumani, Ministère de la Production, de l'Environnement, de l'Energie, de l'Industrie et de l'Artisanat
Proponent focal point and organisation	Société Nationale d'Électricité (SNE), Union of the Comoros.

Designer of the response plan	Climate Technology Centre and Network (CTCN), hosted by UNEP, in coordination with the Comoros NDE and SNE.
Implementer(s) of technical assistance	MRV Énergie Conseils Inc. (lead implementer) with Comoros-based experts (solar PV, power systems, climate finance, gender) and stakeholder support from national institutions.
Beneficiaries	<p>Primary: DGME and Ministry of Energy; SNE (utility/operator); national GCF focal point; ministries responsible for regulatory endorsement and implementation of net metering.</p> <p>Secondary: public institutions owning/operating the selected buildings; local solar sector actors; universities and civil society organisations; end-users benefiting from improved service quality and reduced dependence on diesel generation.</p>
Sector(s) addressed	Energy (electricity generation, transmission and distribution), renewable energy integration, and energy policy/regulation.
Technologies supported	<ul style="list-style-type: none"> • Grid-connected rooftop/distributed solar PV systems • Net metering mechanism (billing, settlement and compensation rules) • Power system analysis and modelling tools (e.g., power flow and capacity assessment) • Geospatial/GIS and satellite-based site screening tools
Implementation period and total duration in months	18 months (as per the Response Plan).
Total budget for implementation	USD 122,060.70
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	<p>The TA delivered the following core outputs:</p> <ul style="list-style-type: none"> • Inception package: detailed work plan, monitoring & evaluation plan, expected impact statement, and closing report. • Territorial/geospatial diagnosis of the national electricity system, including updated

	<p>mapping and baseline performance indicators (generation mix, losses, quality of supply, etc.).</p> <ul style="list-style-type: none"> • Assessment of grid capacity to absorb additional solar generation, including demand/growth scenarios (2025/2030/2050), solar potential analysis and integration constraints. • Net metering opportunity assessment (benchmark, tariff review, SWOT and recommendations). • Draft net metering policy developed through iterative consultation (working group review, wider stakeholder review, and public consultation) and prepared for national endorsement. • MAF Proposal prepared, shared for stakeholder input, revised based on feedback, and submitted. • Rooftop PV pre-feasibility for Moroni public buildings: GIS screening, performance and financial analysis, and site-specific technology sheets with preliminary system architecture.
<p>Methodologies applied to produce outputs and products</p>	<ul style="list-style-type: none"> • Desk review of national strategies, regulations and existing studies; structured stakeholder interviews. • Geospatial screening using satellite imagery and GIS to identify suitable public buildings and constraints. • Solar resource assessment and PV energy yield modelling (including losses, shading, and operational constraints). • Power system capacity assessment (scenario development, reserve margin/operational flexibility considerations, and qualitative integration constraints for isolated grids). • Economic/financial modelling (CAPEX/OPEX, LCOE, NPV/IRR/payback) and

	<p>sensitivity tests for net metering compensation options.</p> <ul style="list-style-type: none"> • Iterative consultation methodology: core working group sessions, technical validation meetings, and public consultation process. • Quality assurance: internal peer review, consistency checks across technical/financial/policy components, and risk/mitigation tracking.
<p>Deviations</p>	<p>No material deviations from the approved scope were performed. Minor adjustments may have occurred to sequencing and workshop scheduling due to (i) data availability/quality, and (ii) stakeholder calendars. Where needed, virtual or hybrid meetings have been used to maintain timelines.</p> <p>The conceptual note has been sent to MAF replacing the initial scope of GCF.</p> <p>The adoption of the Net metering policy by the Comorian government could not occur before the end of the contract but it has been highlighted as next steps.</p>
<p>Anticipated follow-up activities and next steps</p>	<ul style="list-style-type: none"> • Formal national endorsement and operationalization of the net metering policy (designation of responsible agencies, procedures, and compliance mechanisms). • Preparation of procurement packages and investment planning for priority rooftop PV sites (detailed design and tender documents). • Submission of the MAF full funding proposal upon approval of the initial proposal. • Grid strengthening and loss-reduction actions to increase hosting capacity and improve reliability. • Continued capacity building for SNE/DGME on distributed generation interconnection, metering, and data management.

2. Lessons learned

	Lessons learned	Recommendations
Lessons learned from the CTCN TA process	<ul style="list-style-type: none"> • Early agreement on data access (network maps, generation and loss data, tariff structures) is critical to avoid delays. • A clearly defined core working group (roles, responsibilities and decision rights) improves review cycles and ownership. • For policy deliverables (net metering), structured review windows and a transparent comment-resolution log are essential. • Hybrid engagement (virtual + in-person) increases participation across islands and reduces schedule risk. 	<ul style="list-style-type: none"> • Formalize a data-sharing protocol between key institutions at inception (formats, owners, update frequency). • Maintain a single shared collaboration space for policy drafting with version control and tracked resolutions. • Schedule workshops early and align them with national decision-making calendars. • Use standardized templates for minutes, attendance sheets and workshop outputs to support M&E reporting.
Lessons learned related to climate technology transfer	<ul style="list-style-type: none"> • Isolated island grids are sensitive to variable PV; hosting capacity, protection settings and operational reserves must be explicitly addressed. • Net metering design must balance (i) customer attractiveness and (ii) utility financial sustainability, particularly where losses and diesel costs are high. • Bidirectional metering, clear interconnection standards and safety 	<ul style="list-style-type: none"> • Implement PV deployment in phases with conservative penetration limits and monitoring, then adjust based on measured grid performance. • Define clear technical requirements (interconnection, protection, metering, data) and compliance processes before roll-out. • Align compensation with avoided costs and system constraints; document assumptions transparently to support acceptance. • Build endogenous capacities within SNE/DGME (training +

	<p>rules (anti-islanding, disconnection/access) are prerequisites for scalable deployment.</p> <ul style="list-style-type: none"> • Rooftop PV is attractive in land-constrained urban areas but requires careful structural, O&M access and safety considerations. 	<p>tools) to sustain planning and implementation.</p>
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3. Illustration of the TA and photos

Illustrations and photos: 2–4 PowerPoint slides (barriers, opportunities, methodology, activities, outputs and results) and a set of at least five high-resolution photos shall be provided as separate attachments alongside this report (to be submitted at TA closure).

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>The Comoros electricity sector relies predominantly on imported diesel, faces aging assets, very high network losses and frequent outages, and has limited electricity access. The absence of an operational framework for distributed generation and net metering constrains investment in rooftop solar PV despite strong solar resources.</p>
<p>CTCN Assistance</p>	<ul style="list-style-type: none"> • Diagnose and map the electricity system and establish a baseline. • Assess grid hosting capacity for additional solar PV. • Analyse and design a net metering policy (technical, legal and financial).

	<ul style="list-style-type: none"> • Prepare a MAF concept note to mobilize finance for solar deployment. • Pre-feasibility of rooftop PV on public buildings in Moroni (site screening, yields, financials, and concept designs).
Anticipated impact	<ul style="list-style-type: none"> • Enabling environment for distributed solar PV through a clear net metering framework. • Investment-ready pipeline of priority rooftop PV projects for public buildings. • Reduced diesel generation, improved energy security and lower GHG emissions. • Strengthened national capacity for grid planning and renewable integration.
Co-benefits: Achieved or anticipated co-benefits from the TA	<ul style="list-style-type: none"> • Reduced fuel import dependency and exposure to oil price volatility. • Potential reduction of electricity supply cost over time. • Local job creation and private sector development in solar services. • Improved service quality (reduced load shedding) as PV and grid improvements are implemented.
Gender aspects of the TA	<p>A dedicated gender expert supported mainstreaming throughout stakeholder engagement. Participation targets and gender-disaggregated attendance data was collected for workshops. Analysis has considered gender-differentiated impacts of access and affordability, and ensure inclusive</p>

	<p>consultation (women’s associations, youth and vulnerable groups).</p>
<p>Anticipated contribution to NDC</p>	<ul style="list-style-type: none"> • Supports NDC mitigation objectives by enabling increased renewable electricity generation. • Contributes to long-term decarbonization of an oil-import dependent power system. • Establishes the regulatory basis for scaling distributed PV and associated emissions reductions.
<p>The narrative story</p>	<p>Challenge. Comoros faces persistent constraints in its electricity sector, including limited generation diversification, weak service reliability, and insufficient technical and regulatory readiness to absorb additional solar photovoltaic generation into the grid.</p> <p>Request submitted by Comoros. To address these barriers, Comoros requested technical assistance to support a structured pathway toward distributed solar deployment, combining power-system diagnosis, policy design, climate-finance preparation, and early-stage project development.</p> <p>Project implementation and results. The technical assistance was implemented through a stepwise approach. It first established an updated diagnosis of the electricity system and assessed its capacity to integrate additional solar generation. It then supported the design of a net metering policy intended to be technically secure, legally enforceable, and financially</p>

	<p>sustainable. In parallel, the assignment prepared a Green Climate Fund concept note to help mobilize implementation financing. Finally, it developed a pre-feasibility pipeline for rooftop photovoltaic systems on public buildings in Moroni, including site screening, energy yield assessment, financial analysis, and preliminary system architecture. The assignment delivered concrete technical, regulatory, and financial outputs that reduced key barriers to investment, strengthened institutional capacity, and identified priority opportunities for implementation.</p> <p>Next steps. Building on these results, the next phase consists of validating the proposed net metering framework, advancing the identified rooftop PV subprojects toward full feasibility and detailed design, and mobilizing climate and investment financing for implementation.</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>SDG 7 (Affordable and Clean Energy): Supports improved access and reliability through scalable distributed solar PV and enabling regulation.</p> <p>SDG 13 (Climate Action): Facilitates emissions reductions by displacing diesel generation and strengthening climate finance readiness.</p> <p>SDG 9 (Industry, Innovation and Infrastructure) and SDG 5 (Gender Equality): Strengthens grid planning capacity and integrates</p>

	gender-responsive stakeholder processes.
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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	8	Planned/held activities have included: inception virtual meeting; kick-off workshop; activity 3 results workshop; net metering fundamentals session; working group review meetings; public consultation launch; rooftop PV results workshop; dissemination meeting(s).
Number of participants in the events above	32	Has been compiled from attendance sheets and participation lists
a) Number of men	22	
b) Number of women	10	
Number of training sessions and capacity strengthening activities	4	Indicative sessions: (1) Net metering fundamentals and policy components; (2) Grid integration of distributed PV and interconnection requirements; (3) Climate finance / GCF concept note clinic for national counterparts.
Number of people who received the training	8	
a) Number of men	7	

b) Number of women	1	
Total number of institutions trained	<i>List total number here</i>	
a) Number of research organisations, laboratories and universities		<i>List the name of organisations trained here</i>
b) Number of private companies		<i>List the name of organisations trained here</i>
c) Number of cities and local government		<i>List the name of organisations trained here</i>
d) Number of communities		<i>List the name of organisations trained here</i>
e) Number of ministries		<i>List the name of organisations trained here</i>
f) Number of specialised governmental institutions		<i>List the name of organisations trained here</i>
g) Number of non-profit organisations		<i>List the name of organisations trained here</i>
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)		<i>Satisfied= 3+ on 5-pt scale</i> <i>Indicate breakdown of categories here based on the results of the CTCN training feedback forms</i>
Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form)		<i>Increased knowledge, capacity and/or understanding= 3+ on 5-pt scale</i> <i>Indicate breakdown of categories here based on the results of the CTCN training feedback forms</i>
a) Number of men		
b) Number of women		
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	27	Deliverables include: work plan, M&E plan, impact description, closing report; meeting minutes; stakeholder lists/ToR; grid diagnosis report; scenario and hosting capacity report; net metering benchmark and SWOT reports; net metering policy drafts and revisions through consultation; GCF meeting report and concept note drafts/revisions; Moroni rooftop GIS outputs, performance/financial assessments and site technology sheets; workshop reports.

a) Number of tools and technical documents strengthened, revised or developed		<i>List the name of the documents</i>
b) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)		<i>List the name of the documents</i>
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	1	Mitigation-related: Net metering policy (drafted through stakeholder consultation; endorsement status TBD/anticipated).
a) Adaptation related		<i>List the type and name of documents supported</i>
b) Mitigation related		<i>List the type and name of documents supported</i>
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	1	Net metering policy to be proposed and endorsed by the responsible national body (timeline per Response Plan: Month 11).
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	Rooftop PV deployment on priority public buildings (12 sites screened; priority pipeline expected).	Technology transfer supported through (i) pre-feasibility and system architecture sheets, (ii) interconnection and metering requirements, and (iii) net metering framework enabling deployment.
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	Anticipated: 12 institutions	Expected engagement: DGME/Ministry of Energy; SNE; regulatory/legal bodies; national GCF focal point; owners of public buildings; municipalities; universities/research centres; NGOs; women's and youth associations; private solar sector actors.
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	≈ 2,800 (indicative)	≈ 56,000 (indicative over 20 years)
Unit	tCO ₂ e/year	tCO ₂ e (total)
Methodology Explain the method or process of verifying the indicator and how data was gathered	Indicative calculation: annual PV generation (MWh) × grid emission factor (tCO ₂ e/MWh). PV generation to be based on the pre-feasibility yield estimates; emission factor to be validated with SNE/UNEP (diesel-dominated system).	
GHG assessment boundary	Boundary includes displacement of diesel-based electricity generation associated with post-TA deployment of rooftop PV	

Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions	systems enabled by the net metering policy and investment pipeline. Does not include upstream embodied emissions.	
Baseline candidates Define alternative technologies or practises used in baseline calculation to represent possible alternatives to the project activities	Baseline candidate: continued electricity supply from diesel thermal generation with current grid performance (losses and outages).	
Baseline emissions Describe baseline scenario and emissions calculated	Baseline emissions derived from diesel generation emission factor applied to the electricity that would otherwise be generated to supply the same load.	
Assumptions Describe assumptions made during calculation and quantification of GHG reductions	Assumptions: PV plants operate as modelled; exported/self-used energy displaces diesel generation; emission factor and losses remain within expected ranges. Values are indicative and shall be updated with verified national data at TA closure.	

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)	Anticipated increased resilience of electricity infrastructure through diversified generation (distributed PV) and improved planning for grid integration, reducing vulnerability to fuel supply disruptions and extreme price volatility.
Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	Indirect benefits through reduced local air pollution and lower pressure on fossil fuel logistics; no direct ecosystem interventions are included under this TA.

<p>Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)</p>	<p>Improved economic resilience by reducing exposure to oil price shocks, enabling public sector electricity cost savings over time, and supporting local PV services value chains.</p>
<p>Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)</p>	<p>Improved well-being anticipated through more reliable electricity supply (as PV is deployed) supporting public services (health, education, administration) and reducing reliance on expensive/unsafe backup solutions.</p>

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			<i>Describe calculation methods and assumptions made</i>
Mitigation related	≈ 50–100 (indicative)	TBD (as PV deployment proceeds)	<p>Direct beneficiaries: TA participants (SNE/DGME staff and stakeholders) based on attendance sheets.</p> <p>Indirect beneficiaries: estimated from SNE customer statistics in Moroni/selected service areas once rooftop PV systems are deployed; to be updated during the following phase with verified numbers.</p>
Both adaptation-and mitigation related	≈ 50–100 (indicative)	TBD (national electricity consumers affected over time)	<p>Method: direct beneficiaries as above. Indirect beneficiaries estimated from the number of electricity customers experiencing improved service reliability and reduced outages as the distributed</p>

			PV pipeline is implemented; verification via SNE statistics and monitoring reports.
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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	USD 12 million	A MAF concept note was prepared to mobilize a total programme envelope of USD 12 million for scaling rooftop PV systems, and potentially broader solar deployment. The concept note also identified the need for an appropriate financial structuring package to enable private-sector participation, including banking instruments such as guarantees, credit enhancement mechanisms, and potentially concessional lending arrangements to support commercial bank involvement. The precise financing structure, including any	Quantification method: report confirmed commitments (letters, approvals) separately from anticipated amounts. Avoid double-counting by attributing only funds directly linked to the TA-enabled concept note/policy framework.

		private-sector participation and associated risk-mitigation instruments, was to be defined during subsequent appraisal and structuring.	
Anticipated amount of public funding mobilised from national sources (USD)	TBD	To be confirmed during concept note development and stakeholder engagement.	As above; distinguish confirmed vs anticipated sources and document evidence.
Anticipated amount of public funding mobilised from international and regional sources as a result of the TA	USD 6 million	MAF. To be confirmed during concept note development and stakeholder engagement.	As above; distinguish confirmed vs anticipated sources and document evidence.
Anticipated amount of private investment mobilised (in USD) from national sources as a result of the TA	USD 6 million	National Bank. To be confirmed during concept note development and stakeholder engagement.	As above; distinguish confirmed vs anticipated sources and document evidence.
Anticipated amount of private investment mobilised (in USD) from international and regional sources as a result of the TA	TBD	To be confirmed during concept note development and stakeholder engagement.	As above; distinguish confirmed vs anticipated sources and document evidence.

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.