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	Developing a national policy for deploying and scaling up E-mobility and supporting sustainable infrastructure in Papua New Guinea
Technical assistance reference number	2021000023
Country / countries	Papua New Guinea
NDE organisation	Climate Change and Development Authority
NDE focal point	William Lakain Acting Managing Director CCDA
NDE contact information	*info@ccda.gov.pg*
Proponent focal point and organisation	Alfred Rungol/Debra Sungi NDC National Focal Point Climate Change and Development Authority *Debra.sungi@ccda.gov.pg*
Designer of the response plan	*CTCN*
Implementer(s) of technical assistance	*CCDA and Department of Transport (DoT)*
Beneficiaries	*CCDA and Department of Transport (DoT)*
Sector(s) addressed	*Transport*
Technologies supported	*Transport* *E-mobility: E-buses, Charging infrastructure*

Implementation start date	*Contract signed 01/12/2021.* *Kick off meeting 04/02/2022*
Implementation end date	*31/05/2023*
Total budget for implementation	*USD 179,340*
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	<u>Output 1: Inception meeting and development of implementation planning and communication documents</u> i) Inception meeting report ii) Detailed work plan A kick-off meeting was held for the Sub Technical working group on energy where the project was introduced to this close group to gain their understanding of the project and their expected participation. An inception meeting was held 08/03/2022 with the participation of 47 participants (15 women). The project goals were presented and a workplan was agreed upon. <u>Output 2: Assessment of the options available and barriers to the market adoption of electric mobility in PNG as an approach to low carbon land transport and draft the national policy on EV (Electric Vehicles) for land transport</u>. (i) A policy document also including the baseline assessment and barrier analysis to implement the policy, including the charging infrastructure required and battery management. Various discussions were undertaken with identified stakeholders to gain an understanding of the status quo situation in the country with respect to e-mobility and its related sectors (electricity supply network, data on vehicle imports, import hurdles, existing bus service etc). A detailed list of barriers were identified which were then discussed and brainstormed in a stakeholder information exchange workshop. Based on agreements on the barrier analysis , details on the draft EV policy were developed. This draft policy was once again presented to stakeholders for their comments and buy-in on how this policy will need to be developed further to ensure a comprehensive policy is finalized by DoT as the custodian of policy in the transport sector <u>Output 3: Under the scope of proposed policy, recommend on the implementation roadmap for deployment and upscaling of the EV and supporting sustainable infrastructure with an integrated approach to climate change mitigation and adaptation based on local context</u>

	i) Draft and final report on implementation roadmap ii) Stakeholder consultation workshop and synthesized report on the same For the purpose of the Roadmap, additional discussions and consultations were taken up with specific stakeholders i.e DoT, CCDA, NCDC, PNG power, NEA including private industry. The Roadmap developed 3 scenarios based on the time frame of implementation aligning to the overall draft EV policy recommendations. A stakeholder workshop was held where the Roadmap was presented. Output 4. <u>Conduct detailed feasibility study on selected action plans to develop business case on procuring and deploying electric vehicles and sustainable supporting infrastructure. The action plan(s) from implementation roadmap will be selected for detailed feasibility study based on their assessed investment size and horizon that can be accommodated in the preparatory fund support.</u> i) Draft and final report on the feasibility study conducted. ii) Draft GCF concept note The feasibility study for e-bus pilot was developed through interactions with NCDC as the main authority involved in currently operating buses in Port Moresby. Discussions were also held with NEA with respect to charging stations requirements and RE adoption. Given the limited knowledge on the technical details regarding EVs and E-bus in general, a knowledge exchange was conducted with relevant stakeholders on the E-bus associated technology like battery and charging stations. Discussions were also held on RE installations and how this can be implemented. GCF concept note was developed based on the feasibility study. Discussions were held with other donors like GGGI to understand the initiatives they are undertaking in the e-mobility space with respect to PNG so as to work towards a complimentary plan for future funding. <u>Output 5: Facilitate capacity building and awareness of relevant stakeholders from government and EV</u> i) Report on capacity gaps based on the assessment of the awareness of the stakeholders. A section to be included on gender gap analysis. ii) Virtual sessions on capacity building and training with relevant materials iii) Awareness raising factsheets, brief manuals and brochures

	The capacity needs assessment including the gender analysis components were conducted during the primary data collection survey and through ongoing interactions with varied stakeholders on the aspects of adoption of e-mobility in PNG. Given the limited knowledge about e-mobility in PNG, the recommendations are based on international best practice on how to bridge the information/awareness gap in a country that is just starting on e-mobility. The project undertook to conduct the following trainings and knowledge exchange based on the need to inform and create awareness among stakeholders about e-mobility aspects which were totally new to them: • Identifying Barrier to E-mobility • Framework for GHG monitoring • Understanding E-bus technology – Feasibility study • Gender mainstreaming. A total of 3 factsheets were developed based on the needs identified by stakeholders • Framework for GHG emissions monitoring • Standards for Building codes related to EV charging • Gender mainstreaming
Methodologies applied to produce outputs and products	(i) Primary data collection survey (159 commuters were interviewed). Several individual meetings were held with government and private stakeholders to understand the various issues related to adoption of e-mobility in PNG. (ii) Secondary data analysis. Data was collected from MVIL on vehicle numbers, as well as general reports on the transport sector from PNG Ie. National plans, policies etc. (iii) Desk study on international best practices. (iv) Consultation and workshops involving stakeholders
Reference to knowledge resources	*NA*
Deviations	• The project was originally planned only for 11 months however it experienced several hurdles which led to the request for extension of the project completion deadline by 3 months until May 2023. - National elections which impacted primary data collection and consultations as office were closed due to disturbances in the city - There was a personnel change at the NDE focal which created some delays in implementation - Also in November 2022 our Gender expert suddenly passed away, leading to the project to look for a replacement

Anticipated follows up activities in the next stage	• The draft EV policy needs to be endorsed specially by the Ministry of Finance on specifics related to incentives. • Involvement of other donors in developing a GCF readiness proposal on e-mobility in PNG • Additional funding request by the NCDC through the City Climate Finance Gap Fund or other sources for collating a comprehensive financial assessment for e-bus pilot as well as climate proofing report and legal provisions. • Dissemination of deliverables among stakeholders to create necessary awareness on e-mobility • DoT should improve the forms used at the time of vehicle registration to have appropriate data necessary for calculating GHG emission emissions

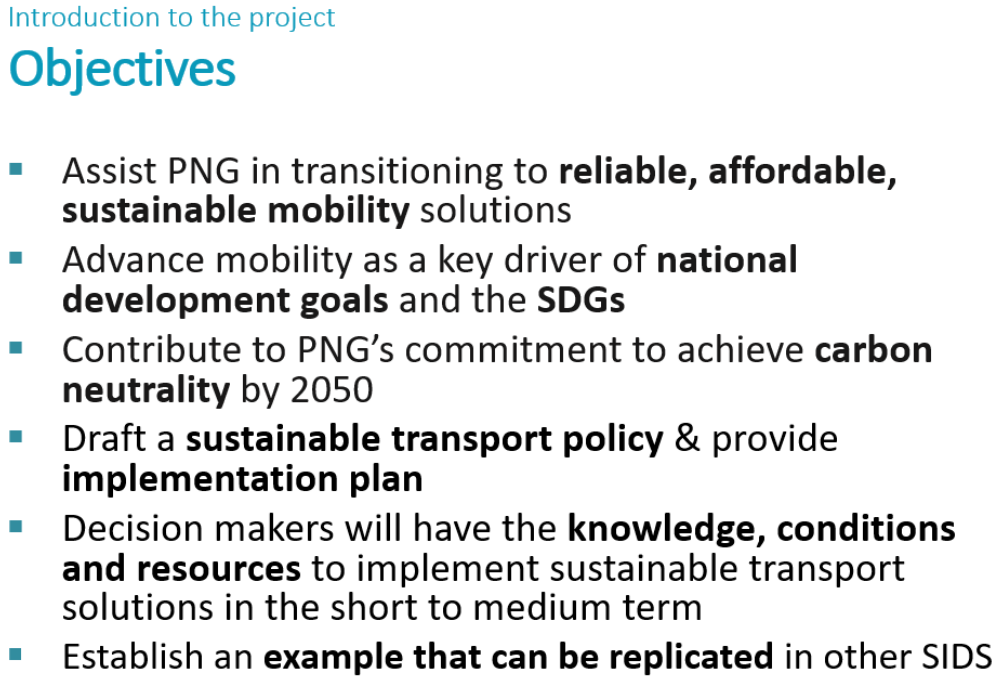
2. Lessons learned

	Lessons learned	**Recommendations**
Lessons learned from the CTCN TA process	The ToRs for the e-mobility project were too extensive covering too many aspects (conducting a market assessment, drafting an EV policy, developing a roadmap, carrying out a feasibility study and a pilot) especially as the entire subject of e-mobility is completely new to the country and the decision makers.	The project team had to spend quite some time trying to explain the basic idea of e-mobility and what it entails and also create motivation among stakeholders on the importance of the idea of e-mobility. **Recommendations:** Create TOR depending on current level of knowledge in the country.
	Within the short time frame (11months), the project should have supported only 1 or 2 few specific activities giving the consultants sufficient time to develop them comprehensively and create a better understanding of those among the stakeholders to enable them to work more effectively on the next stage of activities.	While the project has developed a long list of deliverables as requested by the ToRs, we understand that the entire process has been an information overload for the stakeholders. We hope that the deliverables provide them with guiding information that can be used as the country tries to move towards e-mobility. **Recommendations:** Create TOR with 1 or 2 project components that can be developed in depth.
Lessons learned related to climate technology transfer	Fundamental gaps exist that is likely to have a bearing on how quickly e-mobility can be adopted. I.e A serious shortage of grid electrical power but no policy/plan/incentive in place in the country to support renewable energy.	The project did try and raise this issue with the National Energy Authority and the PNG Power. • Project also recommended the option of opting for hybrid EV as a stop gap solution.
	There is a huge security and safety issue in the country that prevents adoption cycles, 2 & 3	This aspect is beyond the project mandate and could only be highlighted in the reports.

	wheelers as suitable transport options	

3. Illustration of the TA and photos

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



Implementation strategy: Overall approach

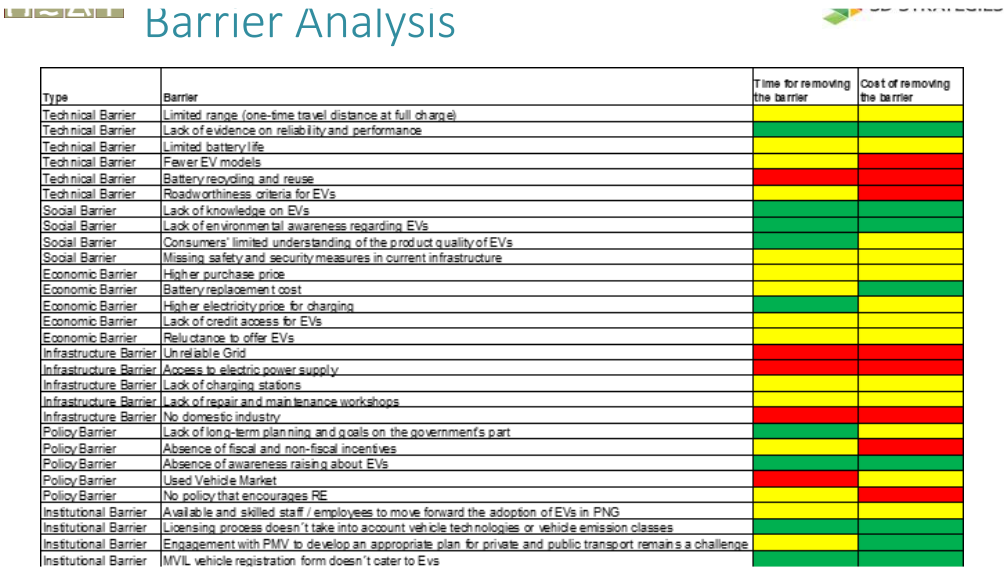
- **Build on abundance of worldwide experiences**, information & data gathered, including from SIDS
- Collect, validate & **process existing data** & information in PNG
- **Gather new data** through surveys and analysis
- Work closely with, and benefit, **public decisionmakers & private-sector stakeholders**

The project outputs to be achieved over the 11-month duration were:

1. **Inception report**, CTCN working docs
2. Assessment of
   a) **risks and barriers** to e-mobility investments
   b) e-mobility **policy & finance instruments**
3. **Roadmap** & stakeholder **workshop**
4. **Feasibility study** & GCF **concept note**
5. Awareness & **capacity building** events

Capacity building initiatives

A comprehensive **barrier assessment** was done and was also an awareness and capacity building effort for the stakeholders, many of whom were completely new to the topic of e-mobility and what it entails and how PNG should prepare for moving towards e-mobility solutions.

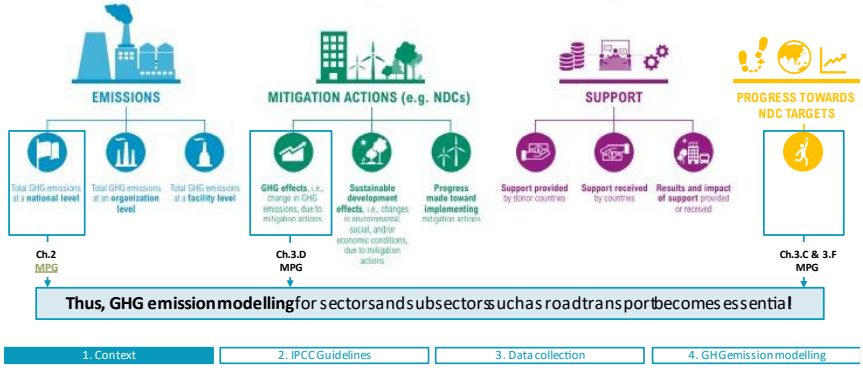


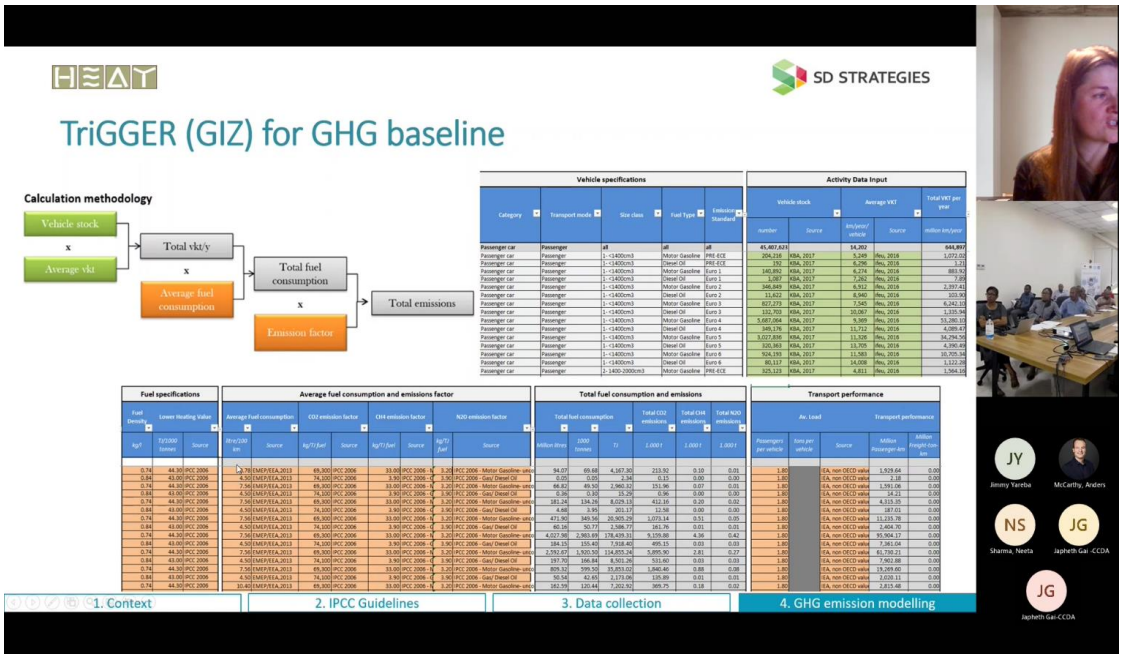
Type	Barrier	Time for removing the barrier	Cost of removing the barrier
Technical Barrier	Limited range (one-time travel distance at full charge)		
Technical Barrier	Lack of evidence on reliability and performance		
Technical Barrier	Limited battery life		
Technical Barrier	Fewer EV models		
Technical Barrier	Battery recycling and reuse		
Technical Barrier	Roadworthiness criteria for EVs		
Social Barrier	Lack of knowledge on EVs		
Social Barrier	Lack of environmental awareness regarding EVs		
Social Barrier	Consumers' limited understanding of the product quality of EVs		
Social Barrier	Missing safety and security measures in current infrastructure		
Economic Barrier	Higher purchase price		
Economic Barrier	Battery replacement cost		
Economic Barrier	Higher electricity price for charging		
Economic Barrier	Lack of credit access for EVs		
Economic Barrier	Reluctance to offer EVs		
Infrastructure Barrier	Unreliable Grid		
Infrastructure Barrier	Access to electric power supply		
Infrastructure Barrier	Lack of charging stations		
Infrastructure Barrier	Lack of repair and maintenance workshops		
Infrastructure Barrier	No domestic industry		
Policy Barrier	Lack of long-term planning and goals on the government's part		
Policy Barrier	Absence of fiscal and non-fiscal incentives		
Policy Barrier	Absence of awareness raising about EVs		
Policy Barrier	Used Vehicle Market		
Policy Barrier	No policy that encourages RE		
Institutional Barrier	Available and skilled staff / employees to move forward the adoption of EVs in PNG		
Institutional Barrier	Licensing process doesn't take into account vehicle technologies or vehicle emission classes		
Institutional Barrier	Engagement with PMV to develop an appropriate plan for private and public transport remains a challenge		
Institutional Barrier	MVIL vehicle registration form doesn't cater to Evs		

Developing inventory for GHG emissions for transport sector

The stakeholder requested a capacity building on how best to collect accurate GHG emission from the transport sector in order to be able to effectively monitor how moving away from fossil fuels in the sector would impact their overall transport emissions.

Types of Measurement, Reporting and Verification (MRV



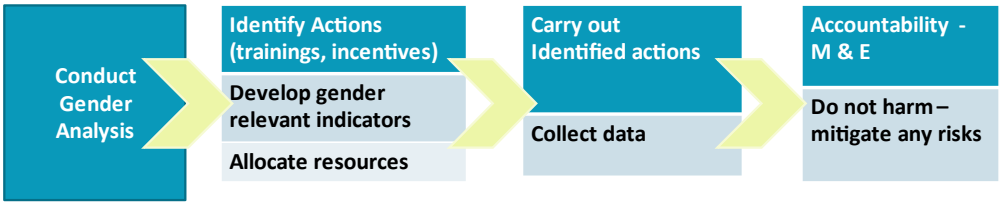


Gender mainstreaming training was conducted addressing some of the issues faced by women in PNG and also especially related to accessing transport services.

Gender mobility needs

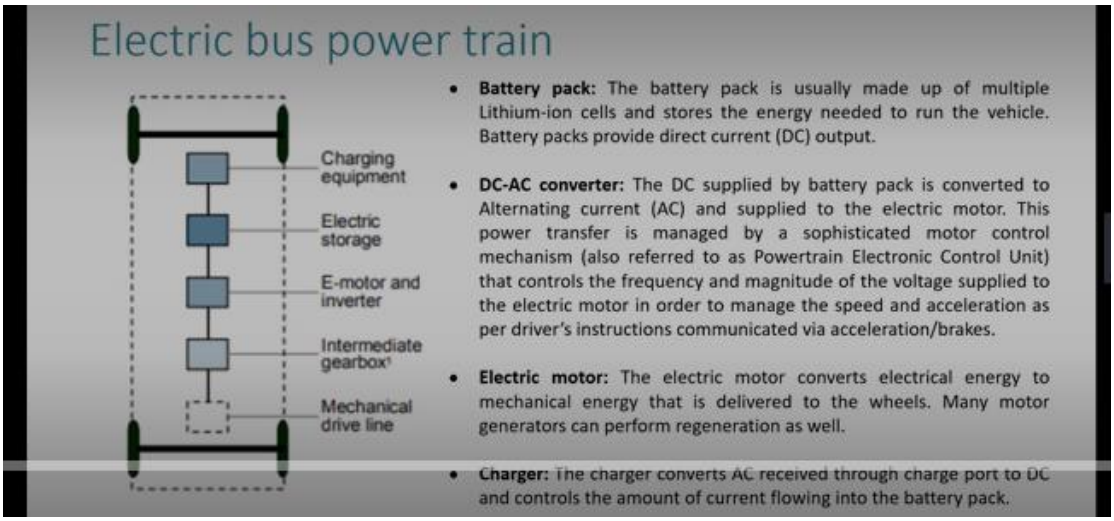
- **55% online respondents– POM indicate use of transport to & from workplace, shopping , leisure & visit friends/family.**
  - Safety of bus tops and travel ranks .
  - Quality & reliability of transport services
  - Servicing of completed designated routes is not often the case & drivers resort to take short cuts .
  - Unjustified increase of bus fares
  - Unroad-worthy PMVs and careless/unsafe driving practices .
  - Passengers also encounter unruly behaviour of other passengers
  - Smoking/chewing/drinking on the bus & loud music.
  - There is no definite schedules governing the routine runs of the PMVs
  - Buses change routes depending on the passengers demand for certain destination & sometimes avoid traffic officers because either the bus is not registered or not road worthy
  - Designation of routes is not based on demand but on the service owners preferences "where highly populated areas have fewer buses to passenger ratio while other areas have a much larger ratio of buses to passengers."

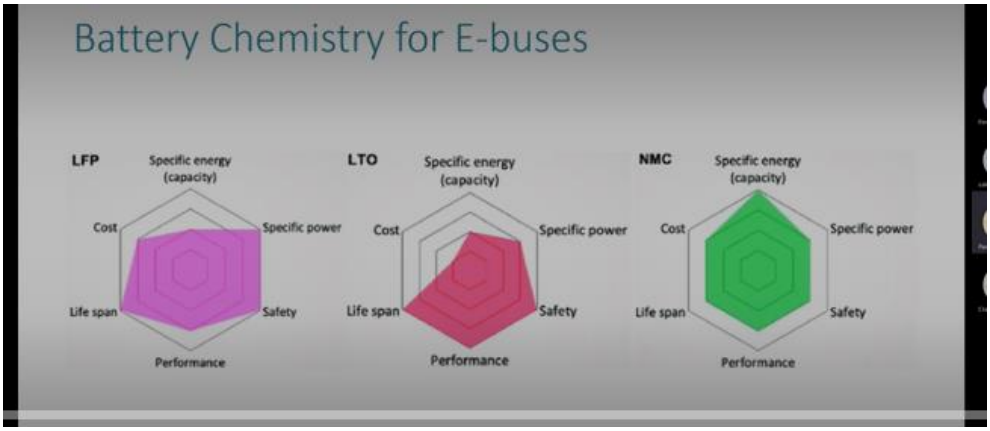
GESI mainstreaming process in e-mobility cont..



Understanding EV technologies – Feasibility study

The aim was to inform and create awareness about the various technical aspects of related to EV and E-buses PNG will have to consider as it embarks on the adoption of E-mobility.





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	*Papua New Guinea's transport sector is highly dependent on imported fossil fuels. Mobility services across the islands are currently inadequate. Partly as a result of plans for a vast expansion of the road network, the total number of vehicles is expected to grow from 155,000 in 2005 to 600,000 in 2030 acc. to the RFP, leading to a large increase in emissions and travel congestion. Electric mobility solutions fuelled by domestic renewable sources can reduce emissions, increase affordability and reliability, and reduce inequalities. However, PNG currently lacks the financial and technical resources and capacity to develop electric mobility infrastructure.*

CTCN Assistance	• ***Assess the potential for e-mobility in PNG***
	• ***Draft a national EV policy,*** *based on an evaluation of*
	  ○ *transport mode shares, travel behaviours and infrastructures*
	  ○ *technology options*

	○ *local manufacturer and service centre markets* ○ *environmental impacts* ○ *technical, social, economic and policy barriers* • *Undertake **feasibility studies** on selected interventions* • *Develop a national electric mobility **implementation roadmap*** • *Support local **capacity building***
Anticipated impact	• ***Improved framework conditions** for mobility services* • ***Enhanced capacity** within the gov´t to promote the uptake of EVs by* ○ *adapting existing policies and regulations* ○ *implementing the national EV policy* ○ *submitting a funding proposal to GCF* ○ *planning an EV trial* • ***Increased awareness** of the need for the transition*
Co-benefits: Achieved or anticipated co-benefits from the TA	*The project established the framework for policies and actions to adopt and scale up e-mobility. Apart from reduced greenhouse gas emissions, the adoption of e-mobility will lead to* • ***improvement of public health** due to reduced local pollution, currently caused by combustion engines and due to the provision of enhanced road safety which is a huge problem in PNG (SDG3)* • ***reduced inequalities** due to enhanced access to safe and reliable e-mobility options / public transport for all people in society regardless of their age, sex, ethnicity, origin, religion, economic status or any disability (SDG10)* • ***reduced dependence on imported fossil fuel** and improved access to **affordable, reliable and sustainable energy for all**.* • *enhanced opportunities for **decent work and economic growth***
Gender aspects of the TA	*The project adopted a gender-responsive approach to e-mobility, aiming to advance gender equality by accelerating the provision of accessible, affordable, reliable and safe public transport. This will facilitate greater independence as well as new jobs and economic opportunities for women.*

Anticipated contribution to NDC	*PNG's Enhanced NDC features Transport as a focus development sector and includes a commitment to review approaches to reduce transport emissions. This project will significantly contribute to that commitment.* • *Green Transport – Development of an e-mobility policy, as announced in the NDC, was drafted under the project.* • *The project is expected to contribute to overall GHG emissions reduction by facilitating the uptake of EVs and renewable energy generation.* • *The deliverables from this project, as well as the experiences implementing it, helps creating an agreement among key public and private stakeholders about new, more concrete, and ambitious climate commitments.*
The narrative story	*The government of PNG has initiated a program to significantly expand and rehabilitate the country's road network. Together with increasing urbanization, this is expected to result in a nearly fourfold increase of the number of vehicles by 2030, compared to 2005.* *To avoid a concomitant increase in GHG emissions and meet the commitments in its NDC, the government of PNG has decided to explore the potential of the adoption of electric mobility solutions, combined with an effort to expand and promote the use of public transportation and non-motorized transport. The main objectives are to enhance access to mobility services and increase economic opportunity in a manner compatible with the Paris Agreement and advancing the SDGs.* *Barriers to the uptake of electric mobility in PNG are addressed within this TA and include: 1) a lack of awareness and knowledge regarding EV technology and the benefits of electric mobility among decisionmakers, key stakeholders, potential investors and the general population; 2) the absence of an effective electric mobility strategy including policy and finance instruments and other supportive measures; and 3) limited in-country capacity to conduct technical assessments and feasibility studies.*

Contribution to SDGs A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/	• *Improvement of public health due to reduced local pollution & enhanced road safety (SDG 3)* • *Gender equality: This project will enhance safety, mobility & opportunities for men and women (SDG 5)* • *Reduced dependence on imported fossil fuel & improved access to affordable, reliable and sustainable energy for all (SDG 7)* • *The project will create new opportunities for decent work and economic growth (SDG 8)* • *Reduced inequalities due to enhanced access to safe and reliable e-mobility options/public transport for all independent of age, sex, disability, ethnicity, race, origin, religion, or economic status (SDG 10)* • *Sustainable cities and communities: This project will facilitate the development of sustainable transport infrastructure in PNG's cities and communities (SDG 11)* • *Reduced greenhouse gas emissions and better adaptation to climate change (SDG 13)*

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	*4*	1. *Energy Sub-committee working group meeting (24/02/2022)* 2. *Inception workshop (08/03/2022)* 3. *Draft policy presentation (15/09/2022)* 4. *EV Roadmap (19/04/2023)*
Number of participants in events organized by proponents and implementing partners	*80*	
a) Number of men	*56*	*PNG*
b) Number of women	*24*	*PNG*
Number of training organized by proponents and implementing partners	**4**	1. *Barrier Analysis (21/07/2022)* 2. *GHG Inventory development (01/12/2022)* 3. *Understanding EV technology (03/04/2023)* 4. *Gender mainstreaming (19/04/2023)*
Number of participants in trainings organized by proponents and implementing partners	**52**	
a) Number of men	**39**	
b) Number of women	**13**	
Total number of institutions trained	*13*	
a) Governmental (national or subnational)		1. CCDA 2. Dept of Transport 3. Dept of Works 4. Dept of Finance 5. Customs 6. National Energy Authority 7. PNG Power 8. CEPA

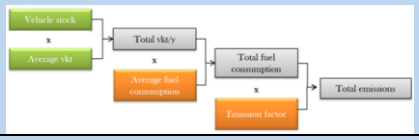
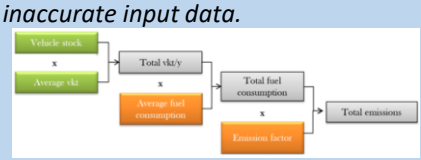
		9. POMTECH - DHERST
b) Private sector (bank, corporation, etc.)		1. Ela motors 2. Boroko motors 3. Astra Solar 4. Telikom 5. Guard dog security
c) Nongovernmental (NGO, University, etc.)		GGGI
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)		*NA*
Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form)		*NA*
a) Percentage of men		NA
b) Percentage of women		NA
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)		**11**
a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc.		*3 factsheets*
b) Number of tools and technical documents strengthened, revised or developed		1. Barrier Analysis 2. Draft EV Policy 3. GHG inventory development 4. Market Survey 5. Roadmap 6. Feasibility Study **7.** Capacity Needs assessment
c) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)		*Presentations* *1. Inception meeting* *2. Policy presentation* *3. GHG inventory presentation* *4. Feasibility study* *5. Roadmap List the name of the documents*
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	*List total number here*	*1*
a) Adaptation related		
b) Mitigation related		*Draft EV policy*
c) Both adaptation- and mitigation related		
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	*4*	*1. The EV policy based on the draft developed under this TA* *2. A phase-out policy for ICEVs* *3. A phase-out policy for fossil fuel subsidies*

		4. *A Gender Equity and Social Inclusion mainstreaming guidelines*
a) Adaptation related		
b) Mitigation related	**3**	
c) Both adaptation- and mitigation related	**1**	
Anticipated number of technologies transferred or deployed as a result of CTCN support	*1*	*The project transferred knowledge on e-mobility, and specifically e-buses*
Anticipated number of collaborations facilitated or enabled as a result of technical assistance	*2*	1. *GGGI – GCF readiness proposal being developed* 2. *NCDC – informed about the GAP fund*
a) Number of South-South collaborations		*Through GGGI their Fiji team participated in many of the workshops* *PCREE too participated initially in the project and had meetings with the project team*
b) Number of RD&D collaborations		*NA*
c) Number of private sector collaborations		*NA*
Number of countries with strengthened National System of Innovation as a result of CTCN support		*NA*
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**	Anticipated metric tons of CO_2e reduced or avoided as a result of the TA **in total**
Quantitative value *(emissions reductions)*	*Total number (numerals only, no rounding or abbreviations)*	*Total number (numerals only, no rounding or abbreviations)*
Unit	tCO_2e	tCO_2e
GHG assessment boundary (project emissions)	*See below under section of methodology*	*See below under section of methodology*

Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions		
Baseline emissions Describe baseline scenario, baseline candidates, emission factors and emissions calculated	*The **Baseline Emissions** are considered under the **Business-As-Usual Scenario** which assumes an electrification rate of 0% and shows how GHG emissions would develop from 2024 until 2035 and 2050 if the number of vehicles increase yet e-mobility is not adopted:* *2035: 1,734,497* *2050: 2,123,263*	*The **Baseline Emissions** are considered under the **Business-As-Usual Scenario** which assumes an electrification rate of 0% and shows how GHG emissions would develop from 2024 until 2035 and 2050 if the number of vehicles increase yet e-mobility is not adopted:* *2035: 19,034,606* *2050: 48,162,188*
Methodology Explain the method or process of verifying the indicator and how data was gathered	*The **IPCC Tier 2 Methodology** was applied. Due to limited data, however, a lot of assumptions were taken and thus, the GHG emission reduction potential through the shift from ICE to EV is a very rough estimation due to inaccurate input data.* 	*The **IPCC Tier 2 Methodology** was applied. Due to limited data, however, a lot of assumptions were taken and thus, the GHG emission reduction potential through the shift from ICE to EV is a very rough estimation due to inaccurate input data.* 
Assumptions Describe assumptions made during calculation and quantification of GHG reductions	***Number of vehicles in various categories:*** • *Baseline: insured vehicles in 2021 based on data shares by MVIL (Motor Vehicles Insurance Limited)* • *Projections: based on population growth* ***Fuel consumption:*** • *<u>For buses, PMVs and trucks:</u> 100% diesel* • *<u>For passenger cars:</u> 50% diesel / 50% gasoline* • *Consumptions based on EMEP/EEA air pollutant emission inventory guidebook 2016* ***Distances travelled:*** • *<u>For buses:</u> public bus route lengths* • *<u>For PMVs:</u> based on a study done in Lae* • *<u>For trucks:</u> daily distances travelled by commuters in other countries*	***Number of vehicles in various categories:*** • *Baseline: insured vehicles in 2021 based on data shares by MVIL (Motor Vehicles Insurance Limited)* • *Projections: based on population growth* ***Fuel consumption:*** • *<u>For buses, PMVs and trucks:</u> 100% diesel* • *<u>For passenger cars:</u> 50% diesel / 50% gasoline* • *Consumptions based on EMEP/EEA air pollutant emission inventory guidebook 2016* ***Distances travelled:*** • *<u>For buses:</u> public bus route lengths* • *<u>For PMVs:</u> based on a study done in Lae* • *<u>For trucks:</u> daily distances travelled by commuters in other countries*

	• *<u>For passenger cars:</u> based on mileage information of second-hand cars sold in PNG and average*	• *<u>For passenger cars:</u> based on mileage information of second-hand cars sold in PNG and average*

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)	Assuming an e-bus pilot project is going to be implemented in Port Moresby, the relevant infrastructure such as charging stations need to be assessed from a **climate proofing** perspective.
Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	na
Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)	Through the adoption of e-mobility there will be **job opportunities** to operate charging stations and more public buses requiring attendance, drivers, etc..
Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)	In addition, through improved air quality and reduced GHG emissions, there will be **health benefits** for the population.

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

Core indicator 4	**Anticipated amount of funding/investment leveraged (USD) as a result of TA (disaggregated by public, private, national, and international sources, as well as between anticipated/confirmed funding)**			
			Qualitative description *List the institutions, timelines, and description or title of the investment*	**Methods** *Describe methods used for quantification of funds leveraged*
Total funding	*NA*	**NA**		
Anticipated amount of public funding mobilised from national/domestic sources	na	na	na	na
Anticipated amount of public funding mobilised from international/ regional sources	na	• City Climate Finance Gap Fund: 150,000 - 200,000USD (estimated) • GCF: 2,000,000 USD (estimated)	• City Climate Finance Gap Fund: to prepare an e-bus pilot project with NCDC • GCF: to implement an e-bus pilot project with NCDC and DoT	• City Climate Finance Gap Fund: based on similar TA • GCF: based on market prices / cost estimates for 5 e-buses and the required charging infrastructure
Anticipated amount of private funding mobilised from national/domestic sources	na	na	na	na
Anticipated amount of private funds mobilised from international/regional sources	na	na	na	na

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.