



GEF-7 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project

TYPE OF TRUST FUND: GEFTF

PART I: PROJECT INFORMATION

Project Title: Supporting Sierra Leone with the Shift to Electric Mobility			
Country(ies):	Sierra Leone	GEF Project ID:	10273
GEF Agency(ies):	UNEP	GEF Agency Project ID:	01721
Project Executing Entity(s):	Environmental Protection Agency – Sierra Leone	Re-Submission Date:	April 2021
GEF Focal Area (s):	Climate Change Mitigation	Expected Implementation Start:	1 July 2021
		Expected Completion Date:	30 June 2025
Name of Parent Program	Global Programme to Support Countries with the Shift to Electric Mobility	Parent Program ID:	10114

A. FOCAL/NON-FOCAL AREA ELEMENTS

Programming Directions	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Confirmed Co-financing
CCM 1-2	Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technology and electric mobility	GEF TF	423,716	1,651,600
Total project costs			423,716	1,651,600

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To mitigate GHG emissions in Sierra Leone by accelerating the introduction of electric mobility through development of legal, regulatory and institutional framework, capacity building, demonstration pilots of electric vehicles, development of business models for private sector engagement and finance schemes for upscaling and replication.

Project Components/ Programs	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 1. Institutionalization of low-carbon electric mobility	TA	1. The government has established a coordinated institutional framework and endorses a gender sensitive strategy for the promotion of low-carbon electric mobility	1.1. An inter-sectorial electric mobility coordination body is established. 1.2. A gender sensitive national e-mobility strategy is developed and formally proposed. 1.3. Key stakeholders are trained in the EV Global Programme activities (national and regional workshops, trainings and thematic working groups) and awareness is raised among key stakeholders on electric mobility.	GEF TF	86,010	47,900

Project Components/ Programs	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 2. Short term barrier removal through low-carbon e-mobility demonstrations	INV	2. Technical, financial and environmental feasibility of introducing e-mobility in the country is successfully demonstrated by developing a business case for e-kekes	2.1. A comprehensive implementation plan for electric vehicles demonstration including a low-carbon charging scheme, and a data collection framework are developed along with the reporting and analytical framework. 2.2. Demonstration vehicles and charging equipment are procured, staff trained, demonstration projects are implemented, monitored and data are collected, analysed and disseminated.	GEF TF	141,656	107,900
Component 3. Preparation of scale-up and replication of electric mobility	TA	3. The government adopts fiscal policies & regulations and endorses a financing scheme to accelerate introduction of electric vehicles in Sierra Leone	3.1. Fiscal policies and regulatory schemes to incentivize the uptake of electric mobility are developed and formally proposed. 3.2. Based on the demonstration project, a financing scheme including a procurement guideline and business models for the procurement of electric vehicles is developed and formally proposed.	GEF TF	72,700	1,347,900
Component 4. Long-term environmental sustainability of low-carbon electric mobility	TA	4. Measures are developed to ensure long-term environmental sustainability of electric mobility in Sierra Leone	4.1. A study on integration of renewable power for electric vehicle charging is carried out and formally disseminated. 4.2. A scheme for re-use, recycling and sound disposal of used electric vehicle batteries is developed and formally proposed.	GEF TF	52,450	47,900
Monitoring and Evaluation				GEFTF	32,400	0
Subtotal					385,216	1,551,000
Project Management Cost (PMC)				GEF TF	38,500	100,000
Total project costs					423,716	1,651,600

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: **Not applicable.**

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount (\$)
Recipient Country Government	Environmental Protection Agency – Sierra Leone	In-kind	Recurrent expenditures	191,600
Recipient Country Government	Ministry of Transport and Aviation	In-kind	Recurrent expenditures	50,000
Recipient Country Government	Ministry of Energy	In-kind	Recurrent expenditures	50,000
Recipient Country Government	Ministry of Energy	Public Investment	Investment Mobilized	1,300,000
GEF Agency	UNEP	Grant	Investment Mobilized	60,000
Total Co-financing				1,651,600

Describe how any “Investment Mobilized” was identified:

Investment mobilized was identified through bilateral meetings with the potential co-financiers within the government:

- Ministry of Energy (USD 1,300,000): the investment mobilized through renewable power projects implemented by Ministry of Energy of Sierra Leone is based on the share of annual power demand of an up-scaled electric 2&3 wheeler fleet on the power generation of renewable power projects, which are currently implemented, or which will be implemented during the time of the Sierra Leone E-Mobility Project. The development of renewable power generation capacity feeding into the national grid is directly contributing to the objectives of the project intervention which is to reduce greenhouse gas (GHG) emissions from the transport sector through the integration of electric mobility. Low carbon electric mobility will need the provision of low carbon footprint electricity. The identified renewable power projects will add an additional generation capacity of 56 MW add estimated costs of 62.6 million USD. It is envisaged that the fleet of electric 2&3 wheelers directly attributable to the project interventions will reach about 8,000 units by 2030. The power demand stemming from the use of these electric 2&3 wheelers is estimated to account for about 2%¹ of the annual power generation produced by the renewable power projects mentioned in the co-finance letter. This co-finance contribution in form of investment mobilized is therefore set to 2% of the total investment in renewable power projects implemented by Ministry of Energy and occurring during the project time frame 2021 to 2025, amounting to USD 1.3 million.
- UNEP (USD 60,000): UNEP will mobilize a small grant of USD 60,000 through the European Commission funded Solutions Plus project (Grant Agreement number: 875041 - SOLUTIONSplus - H2020-LC-GV-2018-2019-2020/H2020-LC-GV-2019, which has started implementation January 2020). This grant is to build upon an existing project with electric vehicle demonstration activities, and to replicate lessons learnt from the Solutions Plus demonstration projects. The grant portion will be used by UNEP for the procurement of charging equipment and for targeted support of local innovators to install and/or operate that equipment.

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, COUNTRY, FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=(a)+(b)
UNEP	GEF TF	Sierra Leone	Climate Change	CCM 1-2	423,716	38,134	461,850
Total GEF Resources					423,716	38,134	461,850

¹ Based on a e-2&3 wheeler fleet of 8,000 units, with an average power consumption of 5kWh per 100km, and an annual driving distance of an estimated 28,800 km. It is assumed that 80% of the vehicles will be charged using grid electricity. Overall power Generation is assumed to double by 2030 compared to 2015. Therefore, the average share of annual power generation from the outlined MoE PV projects on total power generation in Sierra Leone is estimated to be 23%.

E. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? YES NO

If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund.

F. PROJECT’S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Project Core Indicators		Expected at CEO Endorsement
6	Greenhouse Gas Emissions Mitigated (metric tons of CO _{2e})	Direct: 116,422 tCO _{2eq} Indirect: 271,162 tCO _{2eq} (over the 2021-2036 period)
11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment	Women: 477 Men: 738 Total: 1,215

Methodology for the estimation of GHG reductions and energy saving are illustrated in Annex M.

The number of direct beneficiaries is the combination of:

- Participants in workshops and trainings over the duration of the project (estimated to a total of 90 people): with the 30% target for female representation, it is estimated that 27 women and 63 men will participate in meetings, trainings and events organized either as part of this project or through the Global Electric Mobility Programme (including the Africa Support and Investment Platform).
- Users of the demonstration vehicles: the number of unique passengers being transported by the demonstration electric vehicles (15 e-keke units) throughout the project duration has been obtained based on assumptions on total lifecycle trips, average amount of passengers as well as assumptions trips per unique passenger we estimate the demonstration beneficiaries to amount to 450 women (40%) and 675 men (60%)².

G. PROJECT TAXONOMY

Level 1	Level 2	Level 3	Level 4
Influencing models	Transform policy and regulatory environments		
	Strengthen institutional capacity and decision-making		
	Demonstrate innovative approaches		
	Convene multi-stakeholder alliances		
	Deploy innovative financial instruments		
Stakeholders	Private Sector	Capital providers	
		Financial intermediaries and market facilitators	
		Large corporations	
		SMEs	
	Civil Society	Individuals/Entrepreneurs	
		Non-Governmental Organization	
	Type of Engagement	Academia	
		Information Dissemination	
		Consultation	
		Partnership	
Communications	Participation		
	Awareness Raising		

² Based on punctual data on mode choice by gender published in “Gender and Transport in Less Developed Countries: A Background Paper in Preparation for CSD-9”, Paper commissioned by UNED Forum as input for the workshop "Gender Perspectives for Earth Summit 2002: Energy, Transport, Information for Decision-Making" Berlin, Germany, 10 - 12 January 2001

Level 1	Level 2	Level 3	Level 4	
		Education		
		Public Campaigns		
		Behaviour Change		
Capacity, Knowledge and Research	Capacity Development			
	Knowledge Generation and Exchange			
	Innovation			
	Knowledge and Learning	Knowledge Management		
		Innovation		
		Capacity Development		
Gender Equality	Gender Mainstreaming	Learning		
		Beneficiaries		
		Sex-disaggregated indicators		
	Gender results areas	Gender-inclusive indicators		
		Access to benefits and services		
Focal Areas/Theme	Climate Change	Climate Change Mitigation	Sustainable Urban Systems and Transport	
			Energy Efficiency	
			Renewable Energy	
			Technology Transfer	
Rio Markers	Climate Change Mitigation 2			
	Climate Change Adaptation 0			

PART II: PROJECT JUSTIFICATION

1a. Changes in project design

Describe any changes in alignment with the project design with the original child project concept note (i.e. changes in component, outcome or output wording, changes in GEF funds allocation per component/outcome, changes in co-finance commitments and allocation per component/outcome, etc.).

While the concept targeted the demonstration of electric cars, motorcycles and 3 wheelers, the final project aims for the demonstration of about 15 electric 3-wheeler taxis alongside the necessary charging infrastructure. The focus on a limited number of demonstration vehicles is due to limited project resources as well as limited financial capacity of private sector project stakeholders to invest in new vehicles. It helps also to provide a critical threshold of vehicles to ensure ongoing and sustainable operation and maintenance.

The concept initially outlined three components: 1) Institutionalization of electric mobility in Sierra Leone; 2.) Demonstration project; 3) Preparation of scale-up and replication of electric mobility. The final project has four components, to better align with the standard component structure of the e-mobility programme: 1) Institutionalization of low-carbon electric mobility; 2) Short term barrier removal through low-carbon e-mobility demonstrations; 3) Preparation of scale-up and replication of electric mobility; and 4) Long-term environmental sustainability of low-carbon electric mobility.

As for the co-finance budget, the initial plan was to mobilize USD 2,266,000 of co-finance including in-kind support from EPA-SL, investment from Solar Park Freetown Project, the International Renewable Energy Agency, the Abu Dhabi Fund for Development, and equity investment from the private sector. At CEO Endorsement stage, this situation has evolved and the project has now secured a total co-finance of **USD 1,651,600**, including in-kind contributions from the EPA-SL (USD 191,600), public investment and in-kind contributions from the Ministry of Energy (USD 1,350,000), in-kind contributions from the Ministry of Transport and Aviation (**USD 50,000**) and finally a grant from UNEP (USD 60,000).

The budget allocations across components have been made to ensure that the project can deliver on the necessary set-up of an institutional framework, the development of adequate policy measures and the establishment of viable business cases. This enhances the potential for catalytic impact of the project and strengthens project sustainability.

1b. Project Description

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

Global environmental problem:

A global transition to low- and zero-emissions mobility is essential to meeting international climate commitments, including the Paris Climate Agreement. The transport sector is currently responsible for approximately one-quarter of energy-related carbon dioxide emissions³, this is expected to grow to one-third by 2050, faster than any other sector. In addition, the transport sector is a leading contributor to short-lived climate pollution, especially black carbon which can warm the Earth faster compared to carbon dioxide

The global vehicle fleet is set to double by 2050, and almost all this growth will take place in low- and middle-income countries⁴. By 2050 two out of three cars will be found in developing countries. This means that achieving global climate targets will require a shift to zero-emissions mobility in all countries, including low- and middle-income ones.

³ CO₂ Emissions from Fuel Combustion Highlights (2019 edition), IEA 2019

⁴ IEA Mobility Model 2017

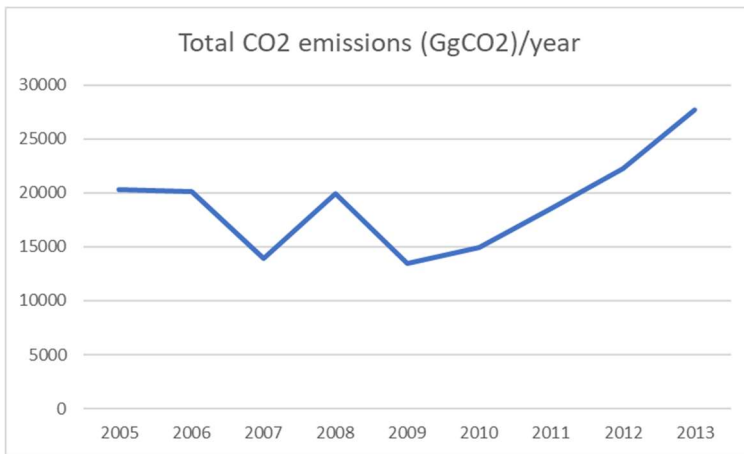


FIGURE 1 TOTAL CO2 EMISSIONS

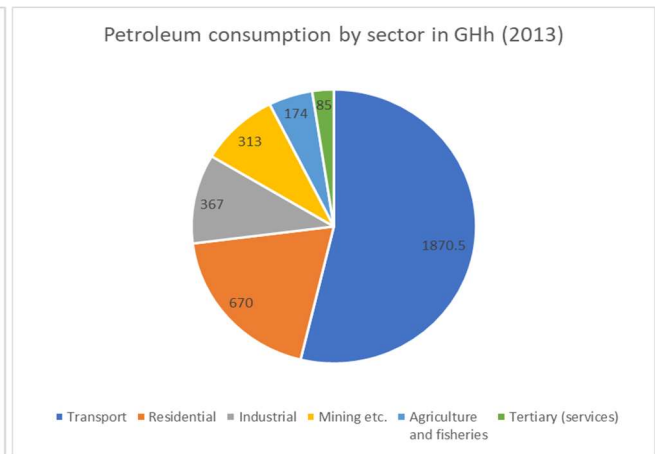


FIGURE 2 PETROLEUM CONSUMPTION BY SECTOR

Since 2009, total CO₂ emissions grew substantially (Figure 1⁵) and there is a high potential to reduce greenhouse gas (GHG) emissions in Sierra Leone’s transport sector. While there is no reliable data on the country’s GHG emissions broken down by sector, transport is the single biggest user of petroleum in the country (Figure 2⁶) and it is the fastest-growing energy demand sector. As Sierra Leone intends to maintain its emission levels to be relatively low by 2035 or to achieve carbon-neutral by 2050 according to their Intended Nationally Determined Contribution (INDC), significant improvements in energy efficiency should be made in the transport sector.

In addition, the transport sector is expected to account for a large share of urban air pollution as motorization and urbanization continue to rise. Between 2002 and 2014, the vehicle fleet in Sierra Leone more than tripled (Figure 3⁷), with the largest growth coming from 2&3-wheelers growing by a factor of 12 to hit 19,969 in 2013. As of 2019, there were 403,264 vehicles on the road, of which 8,162 were taxis, according to Sierra Leone Road Safety Agency (SLRSA) database. All of the 2&3-wheelers are imported with most of them used as taxis, filling in the vacuum left by inadequate public transport services along with a growing number of 3-wheelers.

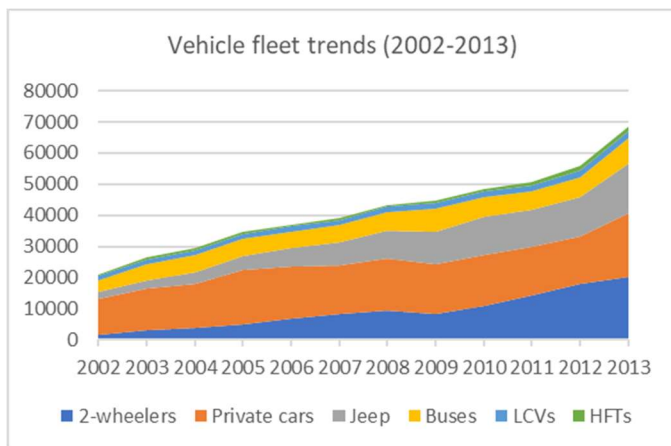


FIGURE 3 VEHICLE FLEET TRENDS (2002-2013)

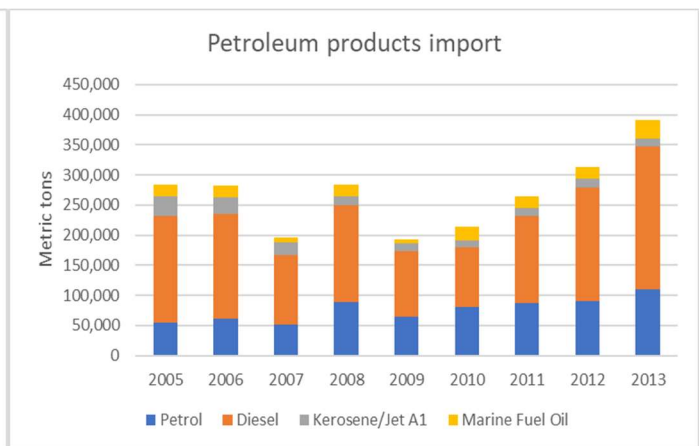


FIGURE 4 PETROLEUM PRODUCTS IMPORTS

The private sector is the major provider of transport services in Freetown, accounting for nearly 85 percent of the market share⁸: (a) poda-podas, which are minibuses carrying approximately up to 15 passengers, are often not professionally driven or adequately maintained, and circumvent fare regulations (passenger demand share 28 percent); (b) shared taxis

⁵ Third National Communications Report of Sierra Leone to the United Framework Convention of Climate Change (UNFCCC), UNFCCC, 2017

⁶ Third National Communications Report of Sierra Leone to the United Framework Convention of Climate Change (UNFCCC), UNFCCC, 2017

⁷ Transport Sector Statistics Bulletin 2013, Statistics Sierra Leone 2014

⁸ Integrated Resilience Urban Mobility Project (IRUMP, P164353), World Bank 2019

(passenger demand share 27 percent); (c) Okadas, which are two-wheel motorcycles (passenger demand share 16 percent); and (d) kekes, which are three-wheel auto-rickshaws (passenger demand share 14 percent).

With no indigenous sources of coal or natural gas, Sierra Leone's reliance on imported energy is high. The majority of Sierra Leone's population relies on inefficient, polluting conventional fuels. At the same time, imports of petrol and diesel in Sierra Leone increased by 38 percent and 136 percent respectively between 2010 and 2013 (Figure 4⁹). Sierra Leone depends mainly on petroleum products (petrol, diesel, liquid petroleum gas, kerosene, and heavy fuel oil) and fuelwood) for its sources of energy.

This upward trend in petroleum fuel imports is projected to grow unless adequate intervention is made, which will lead to increased CO₂ emissions and deteriorating air quality.

In 2015, the total production of electricity was 28 ktoe of which 46.4 percent came from fossil fuels and 42.8 percent from hydro sources¹⁰. Given that most of the fossil fuel power generation in Sierra Leone is based on the use of heavy fuel oil burned in diesel generator sets, the overall carbon footprint of power in Sierra Leone is estimated to be around 450 gCO₂/kWh. Based on this and with ongoing investments in renewables in the country, the use of grid electricity in transport applications immediately generates GHG and air pollutant emission reduction. Therefore, the project aims to support Sierra Leone in introducing electric vehicles in passenger transport fleets by decoupling increased mobility needs from increased CO₂ emissions and fossil fuel imports.

Root causes:

The transport sector is a key to economic recovery that is much needed for Sierra Leone, which has suffered severely from the Ebola outbreak 2014-2015 and the civil war 1991-2002. The lack of basic infrastructure and the influx of large amounts of old and polluting vehicles are compounded by a lack of regulations and institutional capacity. A World Bank report¹¹ investigated the impact of Freetown City on the national economy and found out that more than 30% of Sierra Leone's GDP is generated in the city. Against this background, urban transportation in Freetown has a significant contribution to the national economy.

In order to successfully transition to a low-emissions pathway through electric mobility, a number of barriers need to be addressed in Sierra Leone: 1) Lack of information and awareness; 2) Policy and planning barrier 3) Institutional capacity barrier; 4) Financial barriers, and 5) Technical barriers.

1. **Lack of information and awareness** – In Sierra Leone, the concept of electric mobility is not well understood and cheaper vehicles are preferred, irrespective of fuel economy and total cost of ownership. In many middle and low-income countries, low-emissions transport is still perceived as an expensive technology that is not suitable for local conditions. At the same time, the short- and long-term benefits of using low-emission vehicles, like reduced energy use, CO₂ and air pollutant emissions are often overshadowed.
2. **Policy and planning barrier** – The development and implementation of policies to foster the uptake of low-emission mobility most often includes stakeholders from various ministries and marginalised groups and requires thorough analysis and understanding of the national transport sector. There is a range of policy options to incentivise low-emissions vehicles and a tailored set of interventions needs to be developed based on the local context. Currently, the transport sector policies and regulations of Sierra Leone are largely based on internal combustion vehicles and there is no national policy in place to guide the transition to low-emission transport. Although an Integrated Transport Policy, Strategy and Investment Plan was developed in 2013, implementation was stalled through the 2014 to 2016 Ebola Pandemic. The 2013 strategy has a focus on road infrastructure, international connectivity and improving urban mobility, among others. However, the strategy has very little

⁹ Third National Communications Report of Sierra Leone to the United Framework Convention of Climate Change (UNFCCC), UNFCCC, 2017

¹⁰ Africa Energy Statistics 2015 Edition

content on energy efficiency in the transport sector and how to address the increasing fleet of vehicles coming hand in hand with increased energy use, GHG and air pollutant emissions and fuel expenditures¹².

3. **Institutional capacity barrier** – At present, the public transport sector in the country’s capital is largely inefficient and unreliable. Lack of capacity to put in place strategies and agreements to enable the provision of sustained public transport services is a root cause to prevent systematic development of the transport sector in Sierra Leone. For example, recently the government had to stop operating a newly purchased fleet of 50 school buses, which was to ferry children to schools. Soon after the launch of the service, Districts and City Councils could not sustain the prohibitively high costs to operate the fleet including fuels and drivers. As a result, the service could not be sustained although the initiative was very much appreciated by the public.
4. **Financial barrier** – The low purchasing power of Sierra Leone is a key obstacle to harnessing both – electric mobility and the countries’ natural resources, even though there is a great potential for integrating them with cleaner and more efficient mobility. Since a large share of the population lives below the national poverty line, the proliferation of cheaper and polluting vehicles with low technological standards and shorter lifespan persists. Although the gap is closing, the purchase of electric vehicles is still more expensive than their internal combustion engine (ICE) counterparts and thus even less affordable than other vehicles. This situation is made even more impeded by preventatively high-interest rates for consumer loans, well above 20% on average and often close to 30%. This is an impediment adding to the already existing lack of interest from the private sector on electric mobility. This conundrum leads to little or no availability of e-mobility products in the local market, preventing stakeholders from considering cleaner and more efficient vehicles.
5. **Technical barrier** - Lack of expertise in procurement, operation and maintenance of electric vehicles in fleets poses another challenge. This is true for both publicly and privately operated vehicle fleets, including two- and three-wheelers, cars, and buses. Unstable availability of relevant auto parts as a persistent problem with even combustion engine vehicles throughout the country only compounds this technical barrier.

2) Baseline scenario and any associated baseline projects

Current institutional, regulatory, and fiscal frameworks for the transport and energy sector

Key stakeholders when it comes to the introduction of e-mobility in Sierra Leone are the Environmental Protection Agency – Sierra Leone (EPA-SL), responsible for air pollution and climate change policies, the Ministry of Transport and Aviation (MoTA), with overall responsibility for transport policy and planning; the Ministry of Energy which oversees the country’s energy supply and planning, the Sierra Leone Road Safety Authority (SLRSA), responsible for vehicle registrations, and traffic management; the Freetown City Council (FCC), responsible for the management of parking; and the Sierra Leone Police, responsible for controlling operations and enforcing regulations.

The Government of Sierra Leone recognizes that the high-level of dependence on imported fossil fuel poses several challenges in the transition to a low emissions pathway that would reduce GHG emissions and air pollution in the country. In its INDC, Sierra Leone indicates its intention to maintain its emissions levels below 7.58 MtCO₂e by 2035 and to be carbon neutral by 2050. Since both power generation and the transport sector largely depend on the importation of fossil fuels, international petroleum prices have a great impact on local prices and inflation. Since the volatility of international petroleum fuel price is partly buffered by the government through adjustment of taxes, it has a direct bearing on the national accounts.

	Item	Cost (SLL)
Car	New Registration	610,000
	Renewal	245,000
Taxi	New Registration	680,000

¹² Sierra Leone Integrated Transport Policy, Strategy and Investment Plan, 2013

	Renewal	400,000
Commercial Bike	New Registration	505,000
	Renewal	265,000
Private Bike	New Registration	515,000
	Renewal	250,000
Jeep	New Registration	690,000
	Renewal	290,000
Insurance	This varies by the cubic capacity of the vehicle engine and use	80,000-100,000

TABLE 1 COSTS OF VEHICLE REGISTRATION (SOURCE: SLRSA)

However, the transport policies and regulations of Sierra Leone are still predominantly based on internal combustion vehicles with no national policies to promote low-emission transport. The Integrated Transport Policy, Strategy and Investment Plan (2013) does not feature issues of energy efficiency, GHG and air pollutant emissions and fuel expenditures¹³ in the transport sector.

Local policies on vehicles and spare parts require that all vehicles in Sierra Leone, irrespective of their fuel type, must have a roadworthiness certificate, an auto insurance certificate, and a number plate and are subject to valued road taxes to be allowed to be driven on public highways. Table 1 shows the costs of registration for various vehicle categories. This is a standard requirement for all users of vehicles. Currently, there is no difference in licencing fees for all engine sizes and vehicle capacity with new vehicle classification to be introduced in 2020. The vehicle registration process in Sierra Leone, managed by the Sierra Leone Road Safety Authority (SLRSA), is outlined in Figure 5 below.

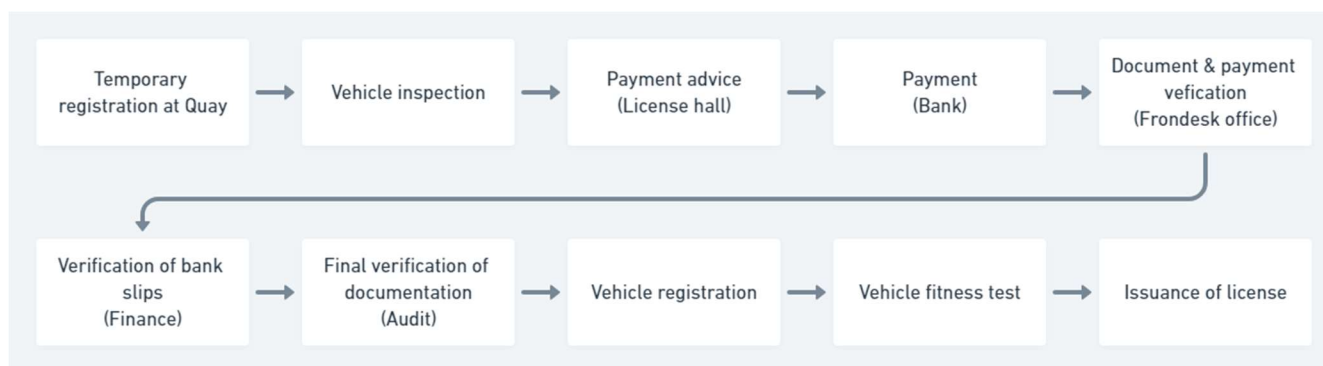


FIGURE 5 VEHICLE REGISTRATION PROCESS (SOURCE: SLRSA)

Sierra Leone has no age limitation on used imported vehicles. Customs department levies import duties on used vehicles depending on their age. Vehicles older than ten years are subject to a thirty percent duty on the value of the car while those that range between four to ten years old are charged with a twenty percent import duty. Vehicles of up to four years old are imposed an import duty of five percent on the car value. Thus, the importation of very old vehicles to Sierra Leone is disincentivized through significantly higher taxation but there are no measures in place to support the purchase of energy-efficient vehicles.

Currently, the existing institutional framework for urban transport management in Freetown is restricted by overlapping and ambiguous mandates and the lack of a formal mechanism for coordination. This is compounded by the cross-cutting nature of electric mobility that requires multiple sectors to work together, including transport, energy, industry, and environment. Hence the introduction of electric mobility could be achieved only by establishing a formal coordination mechanism.

When it comes to the energy policy, the Government of Sierra Leone's Energy Sector Strategy aims to 1) raise the rate of access of population to power; and 2) increase the availability of reliable and sustainable power in the country. By

¹³ Sierra Leone Integrated Transport Policy, Strategy and Investment Plan, 2013

2018, 339 MW of power generation have been installed in the country (of which about half is from renewable sources of energy, see section 1) and the shortfall of power capacity is estimated to be about 800MW (http://energy.gov.sl/Energy_Taskforce.html), which is partly bridged by captive generation (industry) diesel generators (residential). Access rate of population to grid electricity is estimated to be only around 23%¹⁴. The increased availability will need to come from more diversified power sources to achieve an energy mix that can offer affordable tariffs, which is shown in a number of legislative, regulatory, structural and infrastructural improvements albeit at a slow pace. Currently, the electricity tariff regime is heavily subsidised and amounts to USD 0.28 /kWh¹⁵. The government has ambitious plans to increase power supply.

The regulatory framework is conducive to investment in the energy sector, despite the persisting challenges with staff capacity and weak coordination across the involved entities. With the National Electricity Act (2011), the power sector in Sierra Leone is prepared for the integration of renewable power from independent power producers, as power generation (Electricity Generation and Transmission Company, EGTC) has been unbundled from power distribution (Electricity Distribution and Supply Authority, EDSA). EGTC deals with generation and transmission at high voltage levels whilst EDSA is in charge of sub-transmission at 33 kV and electricity distribution (WB, PAD2897, 2019). The power sector operates under a “single-buyer” model, which requires power produced to be sold to EGTC. The National Electricity Act establishes a basis for power purchase agreements between relevant parties. The unbundling was further supported by the Electricity and Water Regulatory Commission (EWRC), an independent regulator.

Sierra Leone, in its National Renewable Energy Action Plan¹⁶ states a target of 65.3% renewable energy share of the total installed capacity, including medium and large hydro, for the year 2030 (compared to the baseline shares of 57.8% in 2010 and 52.3 % in 2020).

Related baseline projects

Numerous projects aiming at improving the transportation sector and to increase hydropower and solar power generation in Sierra Leone are under development. The below table summarises the related baseline projects happening in Sierra Leone:

Sector	Project title	Project activities	Implementing and funding entities	Budget
Transport	Integrated and Resilient Urban Mobility Project (IRUMP)	<ul style="list-style-type: none"> Modernization and professionalization of transport services Strategic resilient mobility investments (public transport) Building human capital 	The Ministry of Transport / Aviation World Bank	\$52 million
Energy	Solar Park Freetown Project	<ul style="list-style-type: none"> Support the energy sector in the country through building a 6 MW solar power plant in the city of Freetown. Extension of the 161KV grid power line, a distribution substation, and a MV/HV substation 	Ministry of Energy / International Renewable Energy Agency & Abu Dhabi Fund for Development	\$12.6 million

¹⁴ Africa Energy Portal, AET <https://africa-energy-portal.org/country/sierra-leone>, accessed September 2020

¹⁵ <https://www.investingsierraleone.com/energy/>, accessed May 2020

¹⁶ National Renewable Energy Action Plan (NREAP) of the Republic of Sierra Leone, ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), 2015

Energy	Rural Renewable Energy Project	<ul style="list-style-type: none"> Installation of solar power in community health centres, was completed in July 2017. The second phase is focusing on providing access to electricity to houses, schools and businesses in 50 rural villages, by expanding the existing health centre solar power stations, and installing distribution networks to create 50 independent mini-grids 	UNOPS, UK Department for International Development	£34.5 million
Energy	Enhancing Sierra Leone Energy Access	<ul style="list-style-type: none"> Electrification of towns and communities through grid extension Electrification through mini-grid and standalone solar systems Human capital development and project implementation support 	Ministry of Energy, Electricity Distribution and Supply Authority, Ministry of Finance / World Bank	\$52.70 million

First and foremost, Sierra Leone is currently developing an Integrated and Resilient Urban Mobility Project (IRUMP) funded by the International Development Association (IDA) of the World Bank (WB), approved in June 2019. The project has a total volume of USD 52 million, including an IDA grant of USD 50 million, which will be mainly used to for the 1) modernization and professionalization of transport services, 2) strategic resilient mobility investments and 3) building human capital (WB, PAD2711, May 2019). The IRUMP is being implemented by Ministry of Transport and Aviation (MoTA). MoTA will be part of the Project Steering Committee and is envisaged to play a substantial role during project implementation. Extensive discussions took place between EPA-SL, the World Bank and the Ministry of Transport and Aviation on collaborating to seek synergies between the IRUMP and the Sierra Leone E-Mobility Project, especially as it relates to capacity building. Under IRUMP's component 1, "modernization and professionalization of transport services", IRUMP is focussing on the formalization of the informal transit in Freetown. Relevant stakeholders united in the Steering Committee chaired by MoTA and the Freetown City Council and including SLRSA, the Sierra Leone Road Transport Corporation (SLRTC), the traffic police, the Transport Union, the Traders Union and the Passenger's Welfare Association¹⁷. The GEF project will reach out to the IRUMP Steering Committee to include electric mobility and in particular e-kekes as part of the Transit Reform Approach, which is based on three pillars, namely routes, infrastructure and vehicles. While the IRUMP is much focussing on developing a scheduled bus system in Freetown, it will need to consider the integration of passenger transport through last-mile connectivity routes using motorcycle and 3-wheeler taxis.

On the energy side, the Ministry of Energy's pipeline will bring up to 156 MW installed capacity, of which 56 MW are renewable power projects (solar PV) and up to 100 MW are based on ship-based heavy fuel oil (HFO) power generation. The HFO based power supply is considered a short to medium-term solution to rapidly address the shortage in power generation capacity and shall be implemented in 3 one-year expansion steps of approximately 30 MW each. Costs are still unclear, and it remains to be seen whether this additional non-sustainable power generation capacity will indeed go on-line. This added HFO power generation capacity is contradictory to the vision to "make Sierra Leone Africa's first Zero-Carbon middle-income economy by 2040".

Solar radiation in the country averages between 1,460 - 2,200 kWh/m, which is suitable for exploitation¹⁸. There are upcoming investments implemented by Ministry of Energy such as the USD 12.6 million Solar Park Freetown Project that will generate about 6 MW of power. In addition, a USD 52.7 million project funded by World Bank and implemented by the Ministry of Energy and EDSA is planning to install mini-grid and standalone solar systems in rural Sierra Leone, which will further increase the share of renewable energy in the national power generation mix and will allow the integration of renewables to e-mobility.

¹⁷ Informal transit reform Case of Freetown – Fatima Arroyo-Arroyo, World Bank, 2019

¹⁸ REEEP, 2012

United Nations Office for Project Services (UNOPS) is currently implementing a £34.5 million “Rural Renewable Energy Project”, which is funded by the UK Department for International Development (DFID)¹⁹. The project will be completed in several phases over a period of four years. The first phase targeting the installation of solar power in community health centres, was completed in July 2017. The second phase is focusing on providing access to electricity to houses, schools and businesses in 50 rural villages, by expanding the existing health centre solar power stations, and installing distribution networks to create 50 independent mini-grids (at around 30-49kW each).

In addition to the ongoing or approved solar PV projects, additional utility-scale solar power projects are in the pipeline in Bo, Fourah Bay and at Njala. Smaller-scale developments such as solar-powered street lights in rural communities involve the development of 50,000 solar-powered street lights across all 190 chiefdoms (<https://www.investingsierra Leone.com/energy/>).

Sierra Leone still has significant additional hydropower potential. The Bumbuna dam on the Seli River is currently the largest hydropower dam with a peak capacity of 50 MW and government is planning an expansion by 143 MW. In addition to the expansion of the Bumbuna plant, the government has identified up to 27 hydropower sites suitable for development* (2017), with a total anticipated capacity of 1,513 MW. These include a large-scale hydro plant at Bikongor with a potential capacity of up to 200 MW and other mini-hydro plants, which are expected to be a means of widening access to power in Sierra Leone

Depending on the inclusion of new HFO power generation capacity and the feasibility of the envisaged large scale hydro projects, the future carbon footprint of Sierra Leone’s grid power mix will range between today’s level of about 450 gCO₂/kWh and a value below 200 gCO₂/kWh. In any case, even at today’s carbon footprint of 450 gCO₂/kWh, the use of electric vehicles would result in immediate CO₂ and air pollutant emission reductions. The Ministry of Energy, which is responsible for the implementation of the outlined baseline projects, will be part of the Project Steering Committee and will play an active role in the execution of the Sierra Leone E-Mobility project. A part of the currently adopted public investment into 56 MW solar PV generation capacity will contribute as co-finance to the outcomes and overall objective of the project²⁰.

The introduction of electric 2&3-wheelers, which have battery capacities of 4 to 6 kWh and could be directly charged by low voltage and direct current produced by solar panels (and without the need for expensive transformers and inverters) provides the opportunity to seek synergies with projects aiming at the installation of rural, solar mini-grids. The batteries used in electric 2&3-wheelers could also be used for power storage for other applications when integrated into solar rural mini-grids.

Baseline projections for keke sales, fleet energy use and emissions

As the latest addition to Sierra Leone’s passenger transport, kekes are responsible for a significant share of passenger transport. For example, in Freetown, kekes account for 14 percent of the passenger demand share (World Bank, 2018). That share relates to 16 percent of passenger transport being done with motorcycle taxis, 27 percent relying on shared taxis and 28 percent using minibuses seating up to 15 passengers. In general, kekes are a relatively new but quickly growing as a mode of passenger transport. Compared to motorcycle taxis which were banned in Freetown CBD, the Sierra Leone Road Safety Authority is more in favour of 3-wheeled taxis. This is because the kekes’ speeds are lower and the dimensions of the vehicle force drivers to flow with the existing traffic rather than using sidewalks etc. to overtake. Being a major employer of local youths along with 2-wheelers, kekes hold a niche in the road transport sector as a new player and are often considered safer and more comfortable than motorcycles whose drivers and unions often clash with the police and officials over traffic laws.

Currently, the supply of kekes relies on models from three brands: 1) Bajaj; 2) TVS; and 3) Piaggio. They are all based on gasoline engines. Each of the different 3 wheelers have different advantages and drawbacks. For example, the model from Piaggio is more powerful and can climb steeper gradients at higher speeds, but it is also considered to be less fuel-efficient. Also, the supply with spare parts is considered more complicated as only a couple of importers are located in

¹⁹ <https://www.unops.org/news-and-stories/stories/access-to-energy-giving-sierra-leone-the-power-to-change>, accessed May 2020

²⁰ See co-finance letter from Ministry of Energy attached under Annex O

the centre of Freetown. Therefore, according to discussions with local experts, Bajaj and TVS have a much higher market share than Piaggio.

Based on motorcycle taxi data provided by Statistics Sierra Leone (2013 Transport Sector Bulletin) and own estimates with regards to growth of sales and stock as a function of GDP per capita, estimates for the historic and future sales and stock of 2&3-wheelers, including keke, have been developed. Therefore, it is assumed that kekes account for 25 percent of the combined keke and okada (motorcycle taxis) fleet reported by Statistics Sierra Leone. The total fleet of 2&3-wheelers in 2020 is estimated to comprise about 40,000 vehicles, 9,000 of which are kekes. It is assumed that the fleet of 2&3-wheeler taxis will grow to about 80,000 vehicles in 2030 and about 140,000 vehicles by 2050 (Figure 6). Based on local information, it is estimated that 2&3-wheeler taxis are used for about 100 km per day on 6 days per week for 48 weeks per year. In total this leads to high annual distances driven of about 28,800 km per 2&3-wheeler taxi per year. Given that these vehicles consume about 3.5 to 5 litres of gasoline per 100 km, the energy use of motorcycle taxis and keke in Sierra Leone is substantial. It is estimated, that today 2&3-wheelers account for the use of almost 55 million litres of gasoline per year, emitting about 150,000 tons of CO₂. Given the anticipated growth trajectory, emissions are envisaged to double by 2032 and to more than triple by 2050 (cf. Figure 6).

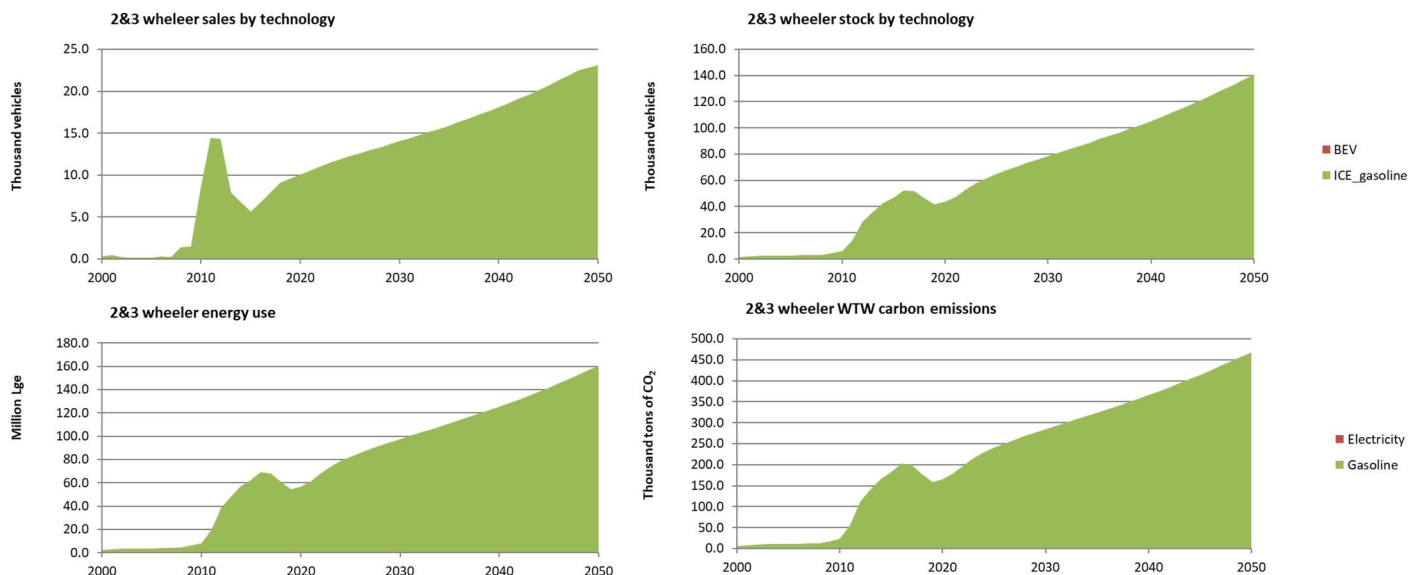


FIGURE 6 BASELINE SCENARIO FOR 2&3 WHEELER SALES, FLEET, ENERGY USE AND GHG EMISSIONS

3) Proposed alternative scenario with a description of project components, outcomes, outputs and deliverables

The objective of the electric mobility project is to lay the ground for the successful introduction of electric mobility in Sierra Leone. This comprises building the necessary administrative structures, the development of capacity among key decision-makers, and the provision of a coherent strategy. This includes for example the coordination between Ministry of Transport and Aviation, which is responsible for the implementation of mobility projects such as the World Bank IRUMP, and the Ministry of Energy, which is leading the implementation of renewable power projects, among others, such as the Ministry of Environment and the Freetown City Council. Furthermore, most stakeholders so far have very little experience with e-mobility. Therefore, to facilitate the implementation of the project, staff of relevant Ministries and city partners will be trained on issues related to e-mobility and a Project Steering Committee comprising focal points from (but not limited to) the Executing Agency from EPA-SL, the Ministry of Transport and Aviation, the Ministry of Energy, the Ministry of Environment, the Ministry of Industry and Trade, the Ministry of Finance and Freetown City Council (among others) will be established. It is proposed that this Committee will evolve into an inter-sectorial electric mobility coordination body (Output 1.1). Once fully established, the coordination body will ensure that all relevant stakeholders approach the introduction of e-mobility in a coordinated and cooperative manner, which can inform on e-mobility regulation and policy and support the local private sector with the set-up of e-mobility businesses. The

development of the gender-sensitive national e-mobility strategy will build on the analysis of the current policy framework for the transport and the energy sector and will be guided by the e-mobility coordination body. Policy gaps will be identified in order to propose adequate measures to fill these gaps and to incentivize the uptake of the e-mobility market.

The project focuses on the introduction of electric 3-wheelers (keke) used as taxis.

In the context of Sierra Leone, the electrification of kekes presents a great potential to mitigate CO₂ emissions, reduce energy use and associated costs, and to reduce air pollution and associated negative impact on health in Sierra Leone. As described above, the electrification of kekes has the potential to substantially contribute to lower energy use, GHG and air pollutant emissions. This is especially true given the very low carbon footprint of the power mix in Sierra Leone, which relies heavily on hydropower, and which increasingly depends on the expansion of other renewable power generation such as solar and wind. With the high growth rate of kekes of about 20% per year (WB, PAD2711, May 2019), the introduction of electric kekes is a very timely intervention with a high GHG mitigation potential. It is part of the project to develop the right financial products and business models to develop a convincing business case for keke drivers and fleet operators to shift to electric kekes.

The project will collaborate extensively with private sector partners, as the private sector is the major provider of transport services in Freetown, accounting for about 85% of the mobility needs of Freetown citizens (World Bank, 2019). Recognising the economic and environmental benefits of electrification, some private sector stakeholders in the 3-wheeler sector have already identified electric kekes as part of their business models. One such company is a local ride-hailing service start-up that is investigating the use of electric kekes as part of their existing ICE fleet.

Component 3 aims at developing long-term strategies to scale up electric mobility in Sierra Leone. Building on the gap analysis, working towards the objectives formulated in the national strategy developed under Component 1 and based on experiences with the e-keke pilot under Component 2, the project will support the development of concrete policy and finance measures to incentivize the e-mobility market in Sierra Leone, which will be submitted for adoption. These measures will include:

- Procurement guidelines (e.g. technical specifications) for electric vehicles
- Business models for the procurement, operation and charging of electric vehicles in public transport fleets
- Fiscal and regulatory incentives to support the up-scaling of the e-mobility market, focusing on electric 2&3 wheelers but not being limited to these segments.
- Development of a financial mechanism to make e-kekes accessible to taxi fleet operators and individual drivers;
- Development of business models, including the charging for electric kekes to allow for a large-scale introduction of e-kekes in Freetown.

Finally, Component 4 will address issues of environmental sustainability of electric mobility in Sierra Leone, including 1) the development of an initial scheme to collect, re-use and prepare for recycling of used e-mobility batteries; and 2) a strategy on how to link the upscaling of renewable power generation, including through micro and mini-grid applications in Sierra Leone.

Component 1: Institutionalization of low-carbon electric mobility

Outcome 1: The government has established a coordinated institutional framework and endorses a gender sensitive strategy for the promotion of low-carbon electric mobility

An e-mobility coordination body comprising stakeholders from (but not limited to) the Ministry of Transport and Aviation, the Ministry of Energy, EPA-SL, the Ministry of Environment, the Ministry of Industry and Trade, the Ministry of Finance, Freetown City Council and the private sector will be established. The coordination body will be responsible to align interests of the various stakeholders with respect to: 1) Meeting the needs of creating tax revenues to incentivize the e-mobility market; 2) Alignment of electrification targets and renewable power integration with e-mobility power demand projections; 3) Development of technical guidelines and standards in alignment with the power-sector and transport sector regulation in Sierra Leone; 4) Development of gender-sensitive national e-mobility targets in coordination with local authorities such as Freetown; and 5) Promoting of a positive business environment spurring innovation in Sierra

Leone. Under the guidance of the e-mobility coordination body and with support through the Global Electric Mobility Programme, its Africa Support and Investment Platform as well as local and international expertise, a gender-sensitive national strategy for the introduction and up-scaling of e-mobility in Sierra Leone will be developed. Relevant stakeholders from the government, private sector, civil society, and academia will be trained on e-mobility through the events carried out under the Africa Support and Investment Platform. The training will include a long-term strategic curriculum, starting with general aspects of electric mobility and a gradual focus on detailed issues with regards to the introduction of electric kekes as well as the various options of charging them. Training will be provided in cooperation with SOLUTIONSplus project, for which tools and knowledge products are under development since January 2020. Through this cooperation, it is ensured that more general e-mobility trainings will be available right from the beginning of the e-mobility Country Child Projects, while more specific and targeted training will be developed as required during the first 12 months of the GEF Global Electric Mobility Programme.

Outputs:

Output 1.1: An inter-sectorial electric mobility coordination body is established.

The coordination body will be based on but not limited to the Project Steering Committee and should include representatives of all key ministries (the Ministry of Transport and Aviation, the Ministry of Energy, EPA-SL, the Ministry of Environment, the Ministry of Industry and Trade, the Ministry of Finance) as well as the local administration of Freetown. In addition, the Project Management Unit will encourage the different coordination body member institutions to appoint female representatives, with the objective of achieving the target of 30% female representation in the body, as outlined in the Gender Action Plan. The table below provides an overview of the core and additional members of the inter-sectorial electric mobility coordination body:

Type of members	Entities	Roles
Core members	Ministry of Transport and Aviation Ministry of Energy EPA-SL Ministry of Environment Ministry of Industry and Trade Ministry of Finance	Review and discuss policy proposals and ensure that positions and expertise of their respective entity is reflected Provide overall guidance for the development of the National E-Mobility Strategy. Ensure that deliverables developed under the GEF E-Mobility project will be considered by relevant stakeholders Appoint a gender focal point, to support with the work on gender mainstreaming throughout the project.
Additional members, to be confirmed during the project implementation.	Sierra Leone Road Safety Authority (SLRSA) Electricity Distribution and Supply Authority (EDSA) Sierra Leone Standards Bureau Ministry of Lands, Country Planning and the Environment Ministry of Gender and Children's Affairs Sierra Leone Road Transport Corporation Freetown City Council	Provide technical inputs, data and information on the existing policies as required Are consulted by the core members whenever required.
Private sector, academia and civil society	Rokel Commercial Bank Taptap Keke rider's union Fourah Bay College	Provide technical inputs, data and information as needed Are consulted by the core members whenever required.

In addition, the coordination body will request its different member Ministries to nominate a “champion” located within each Ministry, which is to be determined to act as a local help-desk to support businesses with information around e-mobility in Sierra Leone and to host a local repository for e-mobility information. The “champions” will also actively participate in the project Technical Working Groups (TWG).

Finally, the e-mobility coordination body will encourage the different Ministries to appoint a gender focal point, to support with the work on gender mainstreaming throughout the project and particularly in the national e-mobility strategy to be developed under Output 1.2.

D 1.1.1 Inter-ministerial workshops participation and report

D 1.1.2 Quarterly coordination body meetings participation and report

D 1.1.3 Selection of e-mobility champion and establishment of local data repository and e-mobility helpdesk

D 1.1.4 Final e-mobility coordination body report, including all best practices and lessons learned from the project (to be shared with the Global Electric Mobility Programme)

Note: the project has budgeted for venue and catering services for the quarterly coordination body meetings for Years 1 & 2. Beyond Year 2, it is expected that the government will have agreed on the institutionalization of the coordination body and will have allocated regular budget to it in order to ensure its functioning for Years 3 & 4 and its sustainability beyond the life of the project.

Output 1.2: A gender sensitive national e-mobility strategy is developed and formally proposed

A detailed gender sensitive national e-mobility strategy including concrete short- to long-term scenarios and targets for the electrification of the road transport in Sierra Leone will be developed under this output. The strategy will be drafted by a team of national and international experts in close coordination with the Ministries and/or authorities and be discussed in the meetings of the coordination body before its finalisation and subsequent proposal for adoption. The strategy will include targets and milestones for the electrification of all vehicle modes, with a particular focus on 2&3 wheelers. Development of targets and milestones for the penetration of electric 2&3 wheelers can be based on the scenario analysis for the calculation of Global Environmental Benefits of this project document (described in Section 6).

In addition, the national e-mobility strategy will link to the in-depth studies regarding the aligned development of e-mobility and low carbon power generation capacity in Sierra Leone (component 4, output 4.1). The strategy will furthermore link to the analysis regarding the introduction of an initial scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries in Sierra Leone (component 4, output 4.2). The strategy will provide initial estimates for required financing to reach the established targets for e-mobility and will line out more detailed ways of financing electric 2&3 wheelers for use in public transportation.

Furthermore, the strategy will suggest policy reforms beyond the targeted interventions outlined in Component 3 to further incentivize electric mobility. It will therefore provide a holistic framework addressing the ecosystem of electric mobility in Sierra Leone and in particular the introduction and upscaling of electric 2&3 wheelers for use in fleets. The verification of the set targets and milestones and further steps to implement the strategy will be linked to the outcomes of the demonstration. The development of a financial scheme (output 3.2) to facilitate investment into electric 2&3 wheelers will be a crucial step to show the ability of private sector, government and financial institutions to implement the strategy.

The national e-mobility strategy will also discuss the possibility of locally assembling electric 2&3 wheelers, based on experience in other countries in East and West Africa, notably Kenya and Liberia. Local assembly of electric 2&3 wheelers has been identified a viable option to locate some of the e-mobility value chain in Sierra Leone while reducing the tax burden on imported e-vehicles at the same time, and to create green jobs in the country. The evaluation of local assembly will also include the option of locally retrofitting used conventional keke chassis with electric power-train and batter storage, based on experience with retrofitted e-keke in Liberia.

Finally, the strategy will also include action items to address gender-based inequalities in the public transport sector, women's representation and participation in decision-making, and investing in women's capacity in the e-mobility industry. The Project Management Unit will liaise with and seek the support of the Ministry of Gender and Children's Affairs on these particular aspects.

D 1.2.1 Set-up of the national strategy development team, including ToRs for the International Policy, Business and Strategy expert

D 1.2.2 National e-mobility strategy workshop

- D 1.2.3 Collection and consolidation of transport and energy sector data
- D 1.2.4 Draft gender sensitive national e-mobility strategy
- D 1.2.5 Final gender sensitive national e-mobility strategy, submitted for adoption

Output 1.3: Key stakeholders are trained in the EV global programme activities (regional workshops, training and thematic working groups) and awareness is raised among key stakeholders on electric mobility.

Key stakeholders from government, private sector stakeholders, civil society, and academia participate in global events as agreed with the Project Management Unit. The participants will include decision-makers and/or operational staff as targeted by the platform event. The Chief Technical Advisor will be responsible for identifying and selecting the individuals to participate in the different events, in consultation with the PMU and the e-mobility coordination body. The Chief Technical Advisor will seek to ensure at least 30% of the participants selected for participation in the events are female, as outlined in the Gender Action Plan.

- D 1.3.1 Participation in the launch of the Africa Platform
- D 1.3.2 Participation in the first regional electric mobility training
- D 1.3.3 Participation in the first regional training on electric 2&3-wheelers
- D 1.3.4 Participation in the first meeting on financing/marketplace
- D 1.3.5 Participation in the second meeting of the Africa Platform
- D 1.3.6 Participation in the second regional training on electric 2&3-wheelers
- D 1.3.7 Participation in the second meeting on financing/marketplace
- D 1.3.8 Participation in the third meeting of the Africa Platform
- D 1.3.9 Participation in the replication event

Component 2: Short term barrier removal through low-carbon e-mobility demonstrations

Outcome 2: Technical, financial and environmental feasibility of introducing e-mobility in the country is successfully demonstrated by developing a business case for e-kekes.

This component pilots approximately 15 electric kekes as part of a commercial keke fleet owned by a local private sector partner who provides ride-hailing service. The objective of this component is to develop and demonstrate a business case for electric kekes as part of an existing commercial keke fleet, owned and operated by a local partner. The business model of the company is to run a small fleet of their own until their business grows with more individual drivers joining their ride-hailing service. By using the ride-hailing app, drivers can reach more customers and save fuel costs, while providing more reliable services to passengers. At the same time, the drivers are monitored through the mobile application, which improves accountability of the drivers on many levels: 1) Provision of better service to the client since the client can rate the drivers' performance; 2) Transparency with regards to daily trips, which helps fleet operators to better monitor their fleet performance and revenues; 3) Management of daily profits generated by the drivers and provision of data for payback of loans. Ride hailing applications offer benefits for all taxi services. The current proposal focuses on e-kekes because: 1) government expressed preference over motorcycle taxis due to security and road safety issues; and 2) new passenger cars and in particular new electric cars are currently beyond the purchase power of individual taxi drivers and fleet owners in Sierra Leone. In addition to the mobility provider, a potential private sector partner with experience working on e-kekes in Liberia (Emergi) has been identified and is in discussion for a role within the project, for example for importation of e-kekes.

While e-keke with a battery capacity of about 5 to 6 kWh can be charged at any socket over a duration of 5 to 6 hours (e.g. overnight), and using grid electricity, the project also aims at the demonstration of charging of e-kekes at least partly using renewable solar power generated off-grid. Therefore, a grant of up to USD 60,000 provided by UNEP and stemming from the European Commission funded SOLUTIONSplus project will allow the procurement of charging equipment and some targeted support for local innovators to build and / or operate at least one charging station serving at least 5 e-kekes, which shall use at least 50% renewable power. This includes the development of a business model for operation of the charger, based on the lessons learnt from relevant demonstration projects under the SOLUTIONSplus project. Therefore, 5 of the e-kekes will be purchased including a second battery, to evaluate the possibility of a battery swapping scheme.

The remaining e-kekes will be charged overnight using grid electricity at places yet to be identified, and possibly including third parties, such as fuel station operators. It will be the purpose of the feasibility study to detail the exact arrangements for vehicle charging.

While the focus lies on the importation of assembled or semi-knocked down electric keke for the purpose of the demonstration project, it is part of the national e-mobility strategy (Output 1.2) development to evaluate the option of locally assembling and / or manufacturing electric keke, including the retrofitting of used conventional keke chassis with electric powertrains and battery energy storage.

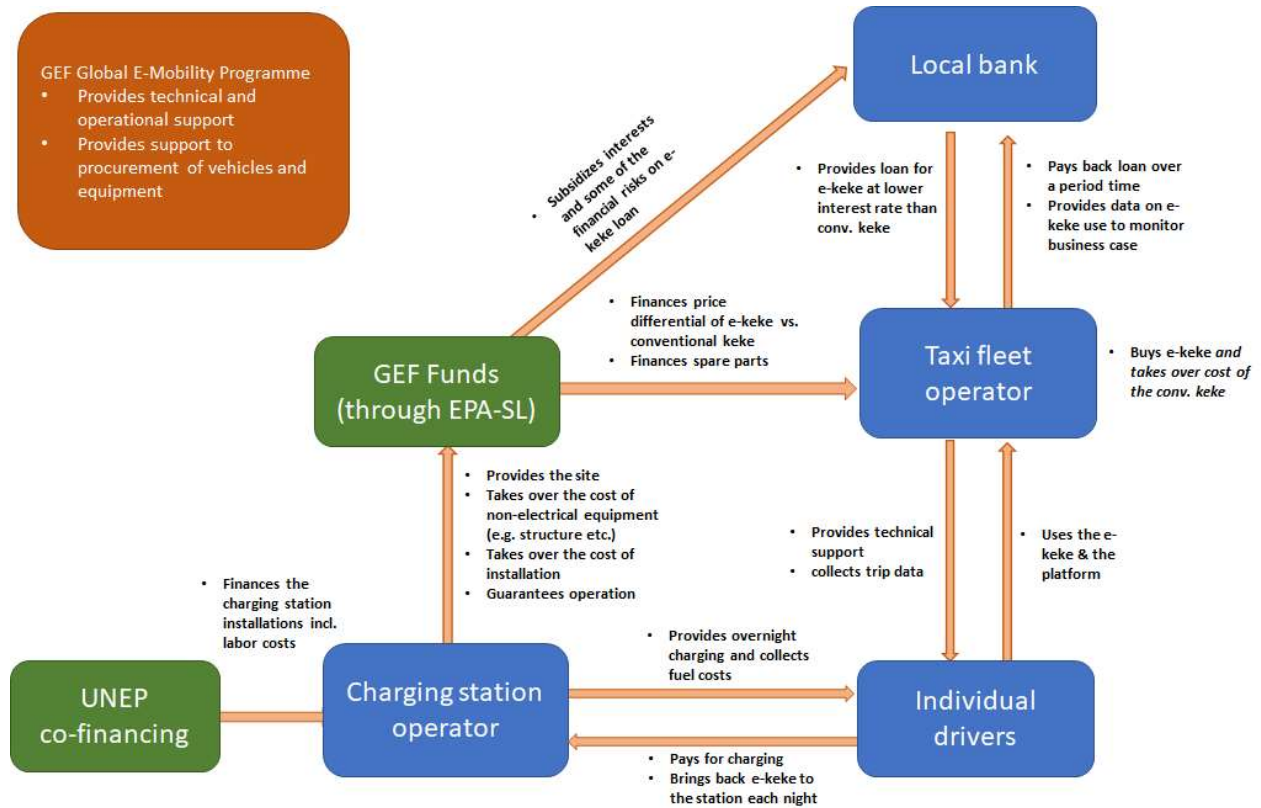


FIGURE 7 DEMONSTRATION IMPLEMENTING STRUCTURE

Financing: The GEF funding will finance the price differential between e-kekes and conventional kekes, and will be received by the private keke operator. With the help of the GEF funding, the keke operator will be able to purchase e-kekes at the price of conventional kekes, leaving him with the technical risk of the unknown technology. For the remainder of the funds required to purchase e-kekes, a local bank will provide loans to the fleet operator at the same or even lower cost than conventional kekes. Alternatively, a partial risk guarantee that guarantees the funds of the bank and a significant share of the funds of the operator could be considered. This would enable the bank to provide a loan at significantly lower capital costs but requires the private sector stakeholder to take over the costs of the entire e-vehicle (with a share of the funds guaranteed by the instrument), which might not be possible. Both possible financing options can lay the ground for the establishment of financial mechanisms including a local financial institution (such as Rokel bank) and international financiers (such as development banks or green funds such as the GCF), which could be used for up-scaling the e-2&3 wheeler fleet in Sierra Leone.

In addition to the GEF fund, UNEP co-financing of up to USD 60,000 stemming from the SOLUTIONSplus project will be used to set up a hybrid charging system to support the at least 5 e-keke of the fleet, including targeted support for installation, operation, and insurance. The installation and/or operating company will be selected through a competitive process following the requirements of SOLUTIONSplus project.

Procurement: With the loan and the GEF subsidy, the taxi fleet operator will be able to purchase e-kekes. Through the support of the Global Electric Mobility Programme, the GEF project will provide support to the fleet operator in choosing a suitable e-keke model. In addition, e-keke spare parts will be procured along with the e-kekes using the GEF fund due to the limited EV dealership presence in Sierra Leone. For the charging equipment, UNEP is considering working with the United Nations Office for Project Services (UNOPS) to procure the charging equipment.

Alternatively, and based on continued discussion with project stakeholders, it could be considered to follow the example of a pilot project implemented by the Dutch company Emergi in Monrovia, Liberia, whereby used conventional keks will be retrofitted with a new electric powertrain and battery system. While in a first step these retrofitted vehicles used in the Liberia pilot will be imported from India, it is envisaged to later on import only the electric drive-train and battery system and to source the used kekes and to execute the conversion locally. Depending on the experiences of Emergi in Liberia, such a scheme is can be within the scope of the Sierra Leone E-Mobility project.

Fleet operation: The taxi fleet operator/ride hailing app provider, selected to collaborate under this project, will be required have his own data collection system that can collect and analyse data on the use of e-kekes to inform the project as part of the established monitoring framework. The operator should be also responsible for providing technical support to his individual drivers. It is proposed that individual drivers are directly hired and supervised by the operator.

Charging: A partner to provide e-keke charging with at least partly renewable electricity will be identified and will work closely with the fleet operator. Proposed responsibilities of the partner include (1) to provide site(s) for charging stations; (2) to take over the cost of non-electrical equipment for the charging stations (e.g. structures); and (3) to take over the installation (labour) costs; (4) to guarantee the operation of the charging units, and finally (5) to collect charging fees.

UNEP with support from SOLUTIONSplus project, will finance the charging equipment and will cover the required cost of insurance. It is proposed that individual drivers will be responsible for driving e-kekes to the charging station(s) every night and payment for charging.

Potential partners to collaborate on e-keke charging include for example local petroleum fuel stations and the depots of the local private sector taxi fleet operator.

Outputs:

Output 2.1: A comprehensive implementation plan for electric vehicles demonstration including a low-carbon charging scheme, and a data collection framework are developed along with the reporting and analytical framework.

The implementation plan is developed for operating approximately 15 electric kekes in a partnership with a private sector partner.

D 2.1.1 Detailed terms of reference including an implementation plan and deliverables for the International E-Mobility Technology expert and the National E-Mobility Technology Expert

D 2.1.2 A private sector partner to implement the demonstration is officially selected and onboard

D 2.1.3 A study to identify locations, technology and capacity of a e-keke charging (including both overnight charging and battery swapping) is developed

D 2.1.4 A draft feasibility study including the development of business models for the vehicles and the charger operators as well as a finance scheme is developed and presented during workshop to the coordination body for endorsement

D 2.1.5 The final feasibility study and the demonstration implementation plan including framework for data collection, reporting, and analysis are developed

Output 2.2: Demonstration vehicles and charging equipment are procured, staff trained, demonstration projects are implemented, monitored and data are collected, analysed, and disseminated.

D 2.2.1 Technical requirements of the electric vehicles and charging equipment to be procured are developed

- D 2.2.2 Procurement of 15 electric kekes, based on specifications established in D2.2.1, to be managed by EPA-SL
- D 2.2.3 Procurement and installation of charging equipment, based on specifications established in D2.2.1, to be managed by UNEP
- D 2.2.4 Driving manual and protocol established, with operation and safety training conducted with drivers²¹
- D 2.2.5 Final report on the demonstration results presented to the coordination body and the Global Electric Mobility Programme

The company will provide local expertise and will be assisted in procuring electric vehicles through the Global Electric Mobility Programme.

Component 3: Preparing for scale-up and replication of low-carbon electric mobility

Outcome 3: The government adopts fiscal policies & regulations and endorses a financing scheme to accelerate the introduction of electric vehicles in Sierra Leone.

First of all, this component focuses on developing the regulatory, fiscal and local policy framework to incentivize the large-scale introduction of electric mobility in Sierra Leone based on the technical documents developed and the experience gained with e-keke procurement, operation, and maintenance, including the identification of viable schemes and business models for e-keke charging (possibly including battery swapping) under component 2. While the focus is on the introduction of electric fleet vehicles such as e-kekes, the framework is not limited to these modes but will also develop measures applicable to the import and registration of energy-efficient and clean passenger cars. It is desirable to develop technology-neutral policy measures, but specific incentives to the electrification of the transport sector will be duly considered.

In addition to improving the policy framework (output 3.1), component 3 looks at the development of a financial scheme (output 3.2) to incentivise the purchase of electric 2&3 wheeler for operation in taxi fleets. The financial scheme will be developed in cooperation with a local financial institute (such as for example Rokel Commercial Bank or ACTB Savings and Loans) and targets the development of a financial product, which allows for financing the higher upfront investment costs of electric 2&3 wheelers, taking into account lower operational costs and therefore anticipating higher daily income of the vehicle operators. With the support of the Global E-Mobility Project and its Africa regional Support and Investment Platform, it will be evaluated whether there are financial institutions interested in providing credit lines for investment into electric mobility to commercial banks in Sierra Leone, allowing for preferential conditions for lender willing to buy electric keke instead of conventional keke.

Through improving the policy and regulatory framework and by developing a finance scheme for electric 2&3 wheelers in Sierra Leone, Component 3 is closely linked to the targets, milestones and actions identified in the national e-mobility strategy developed under Component 1 (output 1.2).

Outputs:

Output 3.1: Fiscal policies and regulatory schemes to incentivize the uptake of electric mobility are developed and formally proposed.

Based on the gaps identified in the national e-mobility strategy developed under component 1, and with the support of the Global Programme materials, policy proposals are developed and submitted for adoption. These proposals include 1) a reform of vehicle import taxation to incentivize the purchase and import of energy-efficient and clean vehicles and relevant equipment; 2) a reform of vehicle import regulation to incentivize the purchase and import of energy efficient and clean vehicles and relevant equipment, e.g. based on combined age and emission standard limits for the import of used vehicles and containing clear regulations for the import of electric vehicles; 3) a reform of vehicle registration to incentivize the use of energy-efficient and clean vehicles.

²¹ The trainings of the drivers will be conducted in-situ. As such, no budget has been provisioned for venue and catering in relation to this activity.

- D 3.1.1 Detailed terms of reference are developed including an implementation plan and deliverables for the International Policy, Business and Strategy expert
- D 3.1.2 Draft vehicle import taxation proposal developed and presented at a workshop
- D 3.1.3 Draft vehicle import regulation proposal developed and presented at a workshop
- D 3.1.4 Draft vehicle registration proposal developed and presented at a workshop
- D 3.1.5 Final policy package delivered and presented

Output 3.2: Based on the demonstration project, a financing scheme including a procurement guideline and business models for the procurement of electric vehicles is developed and formally proposed

This Output builds upon the results of the demonstrations from Component 2. The objective of this output is to make the purchase and use of **electric 2&3 wheelers** more attractive and viable than its conventional equivalent.

- D 3.2.1 Detailed terms of reference including an implementation plan and deliverables for the International Policy, Business and Strategy expert and the National E-Mobility Technology Expert
- D 3.2.2 Draft financing mechanism and business models developed and presented
- D 3.2.3 Final financing scheme, a procurement guideline, business models developed and proposed

Component 4: Long-term environmental sustainability of low-carbon electric mobility

Outcome 4: Measures are developed to ensure long-term environmental sustainability of electric mobility in Sierra Leone

This component targets the development of initial strategies to ensure the environmental sustainability of the introduction of electric mobility in Sierra Leone. It focuses on two main areas: 1) The integration of renewable power for the charging of electric vehicles; and 2.) The collection, re-use, and preparation of used electric vehicle batteries **for recycling and safe disposal**. Acknowledging the constrained budget and the scope of the task, this component seeks for the development of a first step to sensitize project stakeholders for the problem and to start working in parallel with the introduction of electric vehicles on the issues of waste management and sustainable power supply.

With regards to renewable power integration, this component aims at aligning the targets of the e-mobility strategy with plans to invest in renewable power generation in Sierra Leone. It will investigate the opportunities of using solar power for 2&3 wheeler battery charging. This study (output 4.1) is therefore closely linked to the feasibility study and implementation plan for the e-motorcycle demonstration developed under output 2.1, also integrating the option of charging e-kekes using solar power produced off-grid. Given the low rate of access to grid electricity of the population in rural areas of Sierra Leone, the off-grid charging of electric 2&3 wheelers might very suitable for use of electric 2&3 wheelers outside the city of Freetown and other urban areas with better access to grid power. The study on renewable power integration will explicitly include the potential of charging electric 2&3 with off-grid solutions and integrating either battery storage systems (within the charging systems) or battery swapping schemes (for electric 2&3 wheelers). E-mobility based on light vehicles with small batteries are regarded a viable option for integration in off-grid power systems such as local micro and mini-grids.

Regarding Output 4.2, the UNEP Sustainable Mobility Unit (SMU) will work closely with the Economic Community of West African States (ECOWAS) to **support the development of this scheme**, with a view to present Deliverable 4.2.3 (scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries) to the ECOWAS community through formal discussions to pursue the **development of such a policy** at the sub-regional level.

Output 4.1: A study on integration of renewable power for electric vehicle charging is carried out and formally disseminated.

E-mobility should benefit from the addition of new renewable power generation that are planned by the Government of Sierra Leone. The objective of this Output is to propose a scheme that supports the alignment of supply and demand and that is tailored to the needs of renewable power producers and EV fleet operators. This activity will be closely coordinated with the economic feasibility analyses.

D 4.1.1 Detailed terms of reference are developed including an implementation plan and deliverables for the International Charging & Renewable Energy integration expert

D 4.1.2 A draft study to integrate renewable power for electric vehicle recharging and technical standards for 2&3 wheelers are developed and circulated for review

D 4.1.3 The study to integrate renewable power for electric vehicle recharging is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.

Output 4.2: A scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed and formally proposed.

After reaching the end of their lifespan, EV batteries still can be reused in other less-demanding situations, for instance as stationary energy storage devices for charging phones in rural Sierra Leone with minimal access to electricity. As second-life usage significantly reduces the ecological footprint of batteries as opposed to recycling or disposal, options for their re-use will be explored in a study.

D 4.2.1 Detailed terms of reference are developed including an implementation plan and deliverables for the International Battery Technology expert

D 4.2.2 A draft scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed and presented for review

D 4.2.3 The scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is finalized and disseminated to all local stakeholders, the coordinating body and the Global Programme knowledge management focal point.

Theory of Change

Below (Figure 8) is the overall project's Theory of Change (ToC). The ToC provides a visual representation of the project complete intervention logic. Through institutionalisation of e-mobility (e-mobility coordination body and strategy, outputs 1.1 and 1.2) and capacity building (output 1.3), in combination with on-the-ground experience with e-mobility through demonstration of electric kekes within a taxi fleet in Freetown (outputs 2.1 and 2.2), the basis will be laid for informed policy making (output 3.1) and the development of a finance scheme (output 3.2) to prepare for the upscaling of e-mobility in Sierra Leone. Preparing the long-term sustainability of e-mobility through the development of ways to integrate higher shares of renewable power for e-vehicle recharging and to line out possibilities to combine the use of electric 2&3 wheeler with off-grid charging solutions (output 4.1) and the development of an initial scheme for the collection of used EV batteries for re-use, recycling and safe disposal (output 4.2) ensure a holistic approach to introduce e-mobility in Sierra Leone.

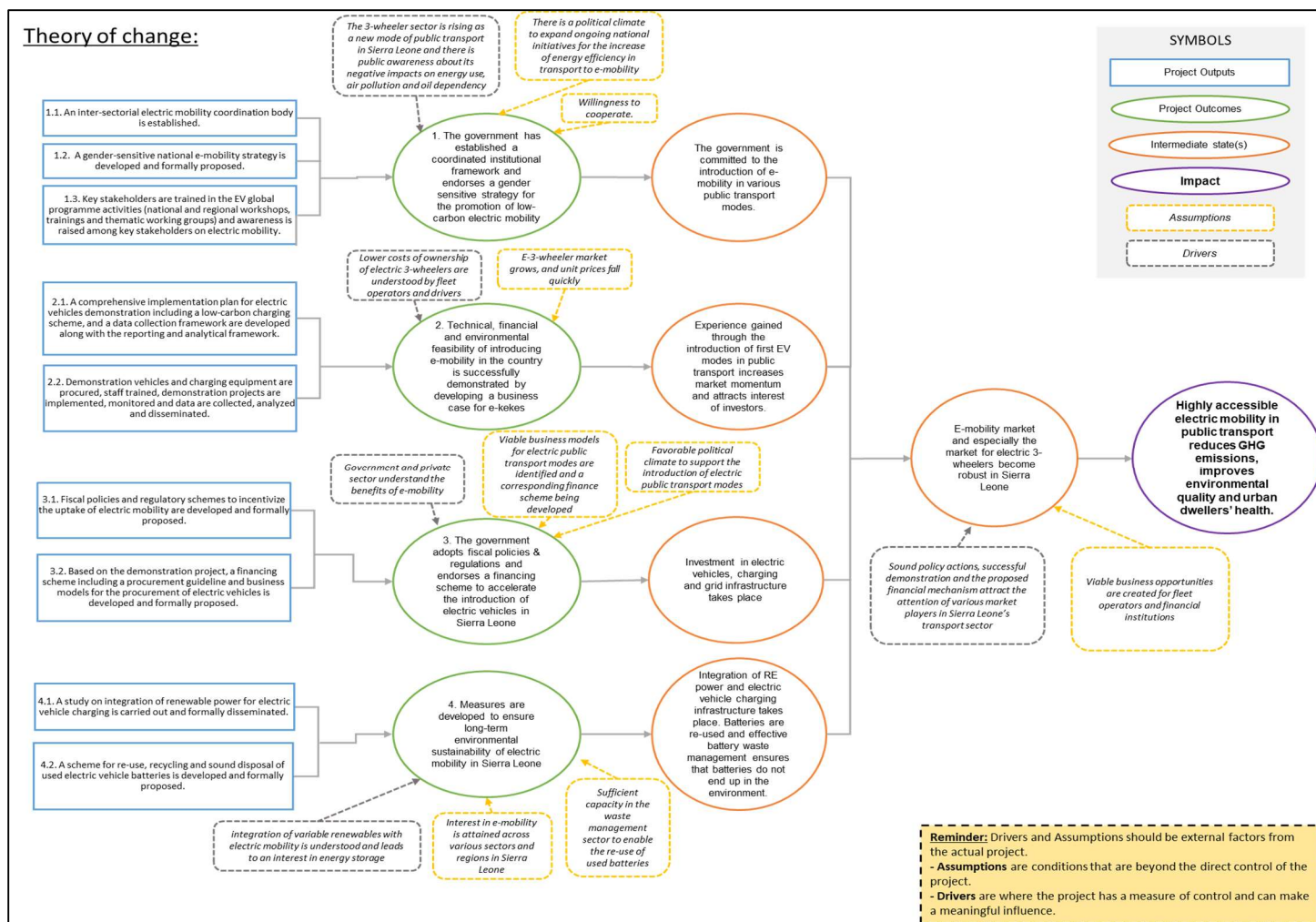


FIGURE 8 THEORY OF CHANGE OF THE GEF PROJECT

4) Alignment with GEF Focal Area and/or Impact Program strategies

This programme is aligned with Objective 1 of the Climate Change Focal Area to “Promote innovation and technology transfer for sustainable energy break-throughs”, through CCM 1-2 - Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility.

5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

The GEF is covering incremental costs of barrier removal in Sierra Leone, in particular the costs of:

- Building capacity, raising awareness, identifying policy gaps;
- Developing strategies and studies to introduce and upscale e-kekes in Sierra Leone;
- Developing technical specifications to buy appropriate, reliable and high-quality e-kekes;
- Developing a financing mechanism to overcome the higher upfront cost of e-kekes;
- Developing the policy framework for the large-scale introduction of e-mobility, and in particular e-kekes;
- Developing a strategy to integrate the use of renewable power for e-vehicle charging and;
- Developing an initial scheme for the re-use and collection of used EV batteries.

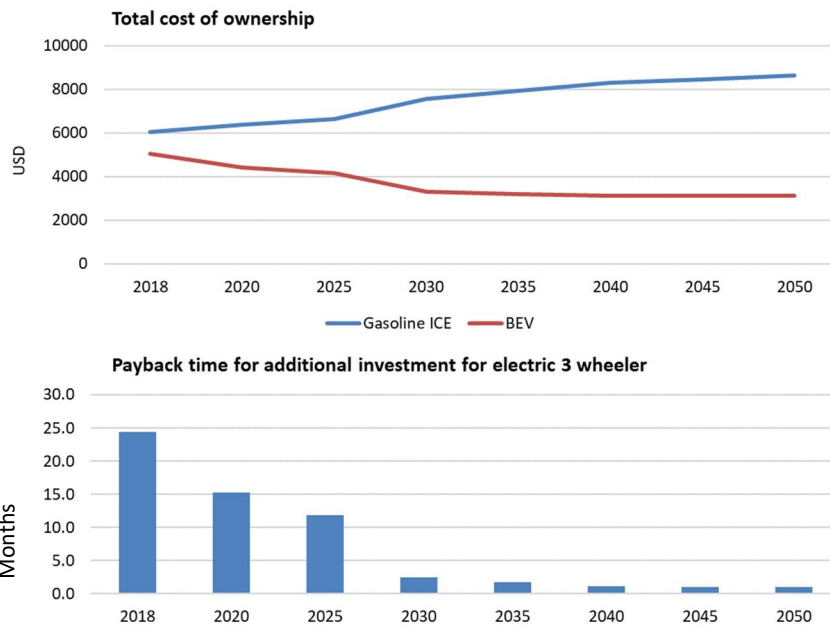


FIGURE 9 ESTIMATE OF TOTAL COST OF OWNERSHIP AND PAYBACK TIME FOR ADDITIONAL INVESTMENT OF ELECTRIC KEKES VS. CONVENTIONAL KEKES

Already today, the total cost of ownership for an electric keke used as a taxi is supposed to be lower compared to the conventional kekes and payback time for additional investment without any tax benefits or financial instruments is below 1.5 years. Yet, the investment costs are higher and there are other non-financial barriers, including first and foremost a lack of access to the technology in Sierra Leone, as no supply chain exists. Furthermore, a lack of permitting and registration rules and technical safety standards exist, which are additional barriers.

The structure of the intervention will ensure that the GEF funds cover the incremental costs of barrier removal. The contributions from the local stakeholders exceed their baseline activities. Ministries, the administration, civil society and other organisations will contribute to discussions, planning meetings, participatory processes as well as managing the transition to e-kekes in the form of own contributions/in-kind financing. The ride-hailing company will contribute investment costs as in the baseline case plus undergo significant additional costs, for example in terms of the risks, added transaction costs, added inconvenience, and necessary training and safety measures for their drivers, in order to facilitate the testing and demonstration of the viability of e-kekes under real-life conditions in the daily Freetown traffic.

The GEF intervention is geared towards reducing payback time of electric kekes, by introducing preferential tax rates and a financial mechanism to provide loans to consumers for the purchase of electric kekes at lower interest rates compared to the commercial rates of 25% and more, as well as longer payback times (e.g. 18 months instead of 12).

The intervention of the project will lead to a de-risking of investments, both for the financier to introduce and scale-up the e-keke market and for the consumer.

The co-financing contribution of Ministry of Energy in form of public investment into renewable power generation capacity will contribute to lowering the carbon footprint of grid power in Sierra Leone, which will be used to power the larger part of the future e-vehicle fleet in Sierra Leone. According to the National Renewable Energy Action Plan (NREAP) of the Republic of Sierra Leone, the share of renewable power generation capacity is targeted to grow to 65.3% by 2030 (compared to 57.8% in 2010 and 52.3% in 2020)²². The public investment implemented by Ministry of Energy will contribute to reaching that target and to close the incremental cost gap of sustainable electric mobility in Sierra Leone.

²² National Renewable Energy Action Plan (NREAP) of the Republic of Sierra Leone, ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), 2015.

In addition, the project is supported by the global project, so that the incremental costs are minimized and global synergies are leveraged through economies of scale. The global knowledge management component and the regional platform approach seek to bundle demand in the region and thus reduce the incremental costs. The Global Programme also reduces incremental costs through the following means:

- Generic tools are produced at the global level, disseminated through regional support and investment platforms and adapted to the needs in the country at the country level – thus return on investment for the development of tools and methodologies is maximized;
- Investment risk for demand side – bundling demand for e-vehicles for demonstration in a certain region can lead to lower vehicle prices and easier enforcement of technical standards;
- Technology risk for supply side – through adequate training of vehicle operators and exchange between numerous projects, the industry is less likely to face misuse of technology.

Without the intervention of the GEF, local keke-users will not be able to get access to the electric version of their vehicle, and face higher purchase prices, which will ultimately stall the introduction of electric kekes in the country. This in turn will lead to the influx of more polluting conventional kekes into the market, which is growing at high annual rates.

6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

The projected CO₂ emissions reductions are based on the benefits which will stem from the introduction of electric 2&3-wheelers in Sierra Leone. Although, most of the outputs of the project are geared towards the introduction and scale-up of the e-keke market, the electric motorcycle market will equally benefit from the introduced policies, business models and financial schemes. In addition, no data is available splitting the 2&3 wheeler market in motorcycles and 3 wheelers.

It is estimated that in 2019, 2&3-wheelers, including kekes, were responsible for about 150,000 to 200,000 tons of CO₂ emissions. In the baseline scenario, it is projected that the 2&3 wheeler fleet in Sierra Leone will almost double in size from about 40,000 to 50,000 vehicles today to about 80,000 in the next ten years, and to almost triple to about 140,000 in 2050. Therefore, in the baseline CO₂ emissions from conventional 2&3wheelers would almost double by 2032, and more than triple by 2050. This growth of CO₂ emissions would go hand in hand with a growth in air pollutants, especially since pollutant emissions of new and used 2&3 wheelers in Sierra Leone are not regulated.

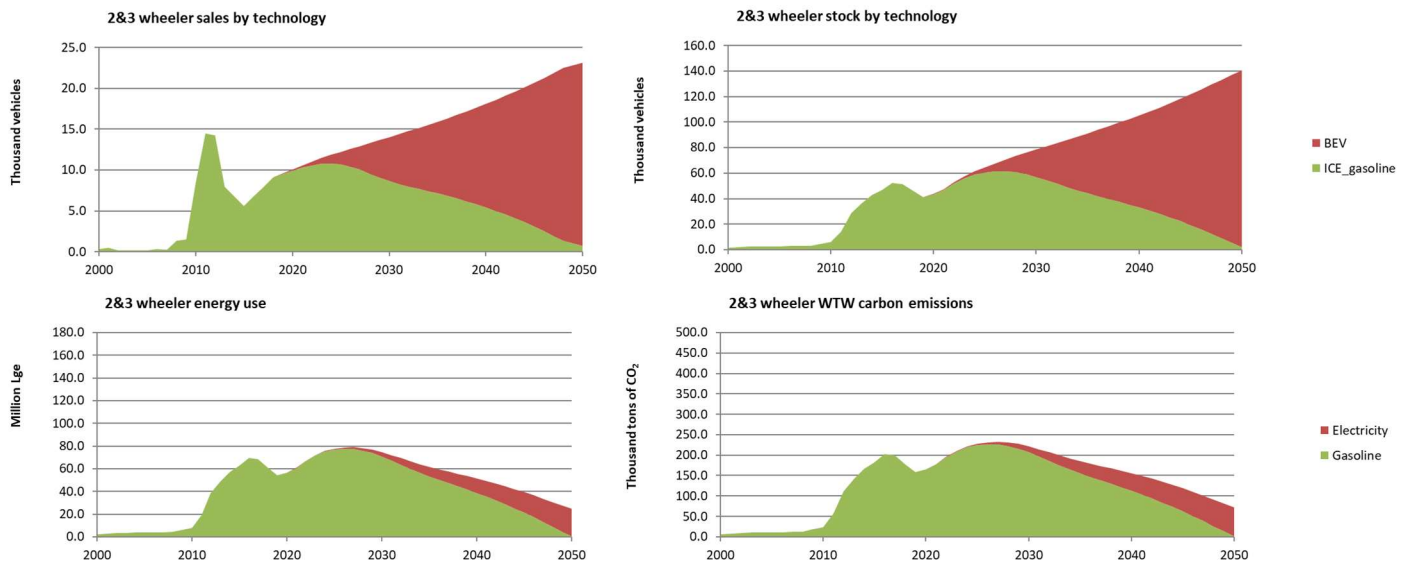


FIGURE 10 ALTERNATIVE SCENARIO FOR KEKE SALES, FLEET, ENERGY USE AND GHG EMISSIONS

Under the alternative scenario, total sales and stock of 2&3 wheelers in Sierra Leone are assumed to be identical with the baseline scenario. For calculating the GHG emissions savings, it is assumed that the institutionalization of electric mobility, the short term barrier removal as well as the preparation for scale-up of the e-mobility market and in particular

the development of a fiscal and regulatory framework, as well as the introduction of a financial mechanism, will trigger a substantial shift towards the use of electric 2&3 wheelers. It will lead to projected sales of about 600 electric 2&3 wheelers by 2025, quickly escalating to 30 percent of the market by 2030 and a complete switch to electric 3-wheelers by 2050. A conservative assumption with regards to the decarbonisation of the power mix has been integrated: by 2050, carbon footprint is estimated to reduce to 320gCO₂/kWh, from currently about 450 gCO₂/kWh. Projections of 2&3 wheeler sales, fleet size, energy use, and GHG emissions under the alternative scenario are shown in **Error! Reference source not found.10**.

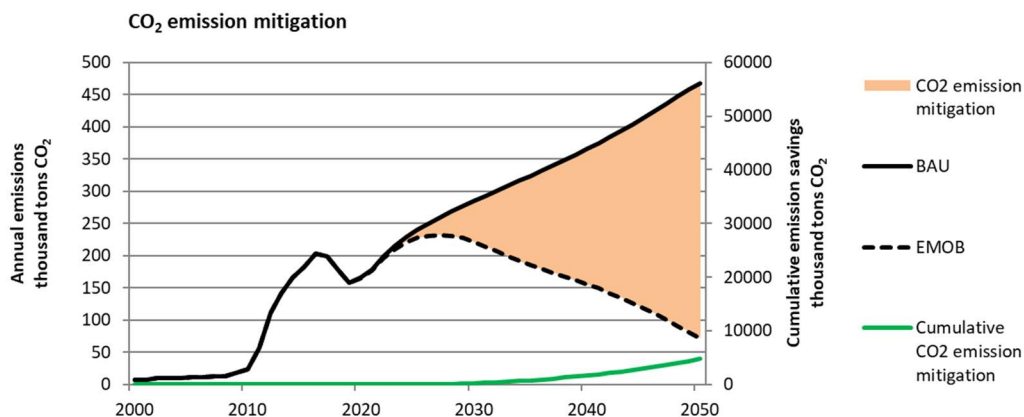


FIGURE 11 TOP DOWN EMISSION MITIGATION FROM ELECTRIFICATION OF 2&3 WHEELERS

A top-down CO₂ mitigation projection was carried out for the potential CO₂ savings accruing from the market introduction and upscaling of both, electric 2&3-wheelers. Annual CO₂ emission savings for these two vehicle groups would account for 2.9 ktCO₂ by 2025, 39.4 ktCO₂ by 2030, and 388.9 ktCO₂ by 2050. Cumulative top-down CO₂ emissions savings reach 5.4 ktCO₂ by 2025, 107.3 ktCO₂ by 2030, and 4,241.2 ktCO₂ by 2050.

Total top-down emission reduction potential 2021 to 2036, tCO₂	646,183
Thereof	
Total direct emission mitigation from demonstration, tCO ₂	209
Total secondary direct emission mitigation, tCO ₂	116,212
Total indirect impact emission mitigation, tCO ₂	271,162
Total project related emissions reductions, tCO₂	387,548

Under the assumptions described above, the total cumulative top-down emission reductions that could potentially be achieved by 2036 account for 646,2 ktCO₂. Of this total emission reduction potential identified by the top-down analysis of the entire Sierra Leone 2&3 wheeler sector until the year 2050, only a portion will be achieved through the interventions of the project (refer to further explanations below on the causality factor).

Direct emission reductions achieved cumulatively over the assumed 6 years of the lifetime of electric 3-wheelers account for about 209 tCO₂.

Secondary direct and indirect emission reductions are based on 1) Introduction of regulatory and fiscal policies; 2) Impacts of business models and finance schemes developed; and 3) Experience gained during the time of the project and cover a time frame of 15 years after the purchase of the demonstration assets (i.e. 2021 to 2036, based on the assumed lifetime of the purchased charger). Secondary emission reductions based on additional investment as a result of the project are estimated to account for 116,2 ktCO₂. Total indirect emissions savings account for about 271,2 ktCO₂. Both secondary direct and indirect emission reductions are based on the application of a Level III causality factor (60%) to the total top down emission reduction potential and a split of 30/70 between secondary direct and indirect emission reduction.

A level III causality factor (60%) has been conservatively chosen since the GEF funded demonstration project only covers 3-wheeler vehicles (while the policy interventions under output 3.1 also cover 2&3 wheelers and cars) and acknowledging that other projects such as the IRUMP are implemented in parallel in Sierra Leone (although not focussing on transport energy efficiency or electric mobility).

As such, the total GHG emission reductions attributable to the project thus account for 387,6 ktCO₂ for the time frame 2021 to 2036.

7) Innovativeness, sustainability, and potential for scaling up

Innovativeness:

This project is innovative from various angles: 1) It promotes a new and innovative clean and low carbon transport technologies; 2) It promotes the integration of low carbon power and transport; 3) It promotes the deployment of innovative business models for electric keke operation and charging; 5) It promotes the development of innovative financing schemes for electric mobility by investigating financing models for climate change mitigation within the transport sector; and 6) It promotes environmental sustainability by tackling the issue of collection of used EV batteries for re-use, recycling or safe disposal.

The use of electric 3-wheelers has the potential to create an interface between the transport sector and the power sector in Sierra Leone, which 1.) will lead to increasingly cleaner mobility with increased share of renewable energies in the power mix and 2.) can accelerate the introduction of renewable power generation in Sierra Leone, especially in remote areas with no access to the national grid, where economic viability of mini-grid solutions might be increased through the additional power demand stemming from electric 2&3wheelers integrated in such mini-grid systems. Integration of electric 2&3 wheeler charging with solar kits or mini grids is simple and cheap due to the fact that batteries need direct current (DC) and the solar panels produce DC power, which means for example that there is no need for costly inverters. Furthermore, the controller to manage the quality of the power delivered to charge the batteries is a very simple and cheap device. Hence, it is possible that the introduction of electric 2&3wheelers can trigger new business practices in off grid applications whereby the electric vehicle battery could also be used for other applications such as for power supply for use of television or other electronic devices.

Environmental Sustainability

The proposed project seeks to improve air quality through sustainable and low-emissions transport and aims to mitigate GHG emissions through promoting low-emissions transport.

The project has two outputs dedicated to environmental sustainability: 1) The development of an initial scheme to collect used EV batteries for re-use, recycling, and safe disposal; and 2) The integration of renewable sources of power generation for charging electric vehicles in Sierra Leone.

Both outputs ensure that the issue of potentially hazardous waste is tackled right from the beginning of the introduction of EVs in Sierra Leone and that the long-term sustainability with regards to truly zero- or low-carbon transportation is planned.

Sustainability of market development after the project & potential for scaling-up:

The project will be closely linked to the Africa Support and Investment Platform. Through this platform and the cooperation with various development banks such as the African Development Bank (AFDB), the West African Development Bank (BOAD), the World Bank but also private investors such as the Private Infrastructure Development Group (PIDG), it is anticipated that the project will lead to the unlocking of financing to upscale the market of electric 2&3-wheelers in Sierra Leone. Component 3, output 3.2 focusses at the development of a financing scheme, which shall ideally involve at least one local commercial bank and at least one international financing institution. The target is to

develop a scheme which involves a local commercial bank to develop a financial product aiming at providing financing for the purchase of electric 2&3 wheelers at preferential conditions (i.e. longer payback time and lower interest rate), which is based on the intervention of an international financing institution which is to provide either conditional credit or some other form of risk mitigation to the local commercial bank, e.g. through a first loss guarantee or something similar. With the help of the Africa Support and Investment Platform the developed scheme is brought to the attention of interested financiers. It is one of the goals of the project to create an understanding that electric 2&3 wheelers are often one of the most affordable mobility options for passengers while increasing profitability for drivers. Together with the development of an adequate financial scheme as described above the market is envisaged to move towards the larger-scale adoption of electric 2&3 wheelers.

The Africa Platform will be operational beyond the lifetime of the Sierra Leone e-mobility project and is anticipated to become the leading marketplace in Africa where potential project concepts meet potential financiers and potential technology suppliers. It is hence anticipated that the GEF Sierra Leone E-Mobility Project will lay the ground for a transformational shift towards electric mobility in Sierra Leone. This is based on the removal of market barriers outlined above, namely capacity building, the introduction of the technology to Sierra Leone's market, the introduction of an adequate policy framework, and the provision of business models and financial schemes. In addition, the Global Project and in particular the Africa Support and Investment Platform will play a crucial role in knowledge management, which allows for example the transfer of lessons learnt and best practise not only from developed countries to developing countries but also to spill-over capacity from the various initiatives and project in the region. For example, the Sierra Leone E-Mobility Project is envisaged to benefit from the findings coming from similar projects in Togo, Burundi and Madagascar and will benefit from e-mobility demonstration projects already implemented and operational in Kenya, Rwanda and Uganda.

1c. Project Map and Geo-Coordinates



Demonstration sites	Latitude	Longitude
Freetown, Sierra Leone	8.484444	-13.234444

1d. Child Project



The Sierra Leone child project is part of the Global Programme to Support Countries with the Shift to Electric Mobility.

The Global Programme is divided into 4 components:

- Component 1: Global thematic working groups and knowledge materials

- Component 2: Support and Investment Platforms
- Component 3: Country project implementation
- Component 4: Tracking progress, monitoring and dissemination

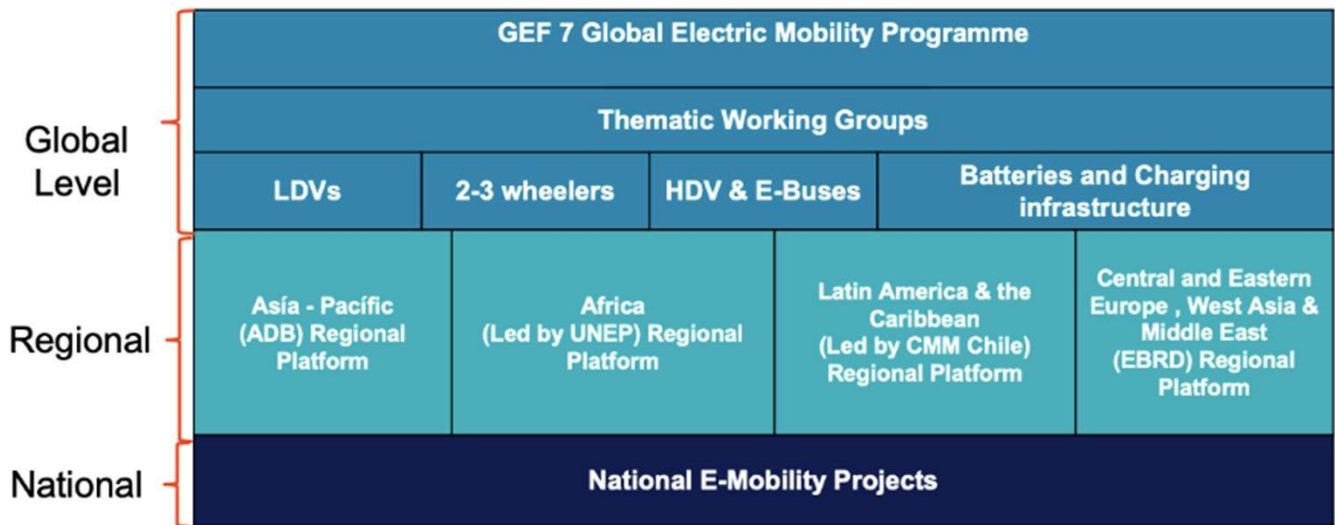
The Global Programme has put in place the monitoring framework below to track progress both globally and at the level of the country child projects. 12 indicators have been designed for this purpose: 6 relying on global level information (highlighted in blue) and 6 relying on country-level information (highlighted in green).

Global E-mobility Programme Monitoring Framework			
 Global level monitoring		 Country level monitoring	
Objective level indicators			
Indicator A: Direct and Indirect Greenhouse Gas Emissions Mitigated (metric tons of CO2) mitigated			
Indicator B: Direct and Indirect energy savings (MJ)			
Indicator C: Number of direct beneficiaries (disaggregated by Gender)			
Component 1 Global thematic working groups and knowledge materials	Component 2 Support and Investment Platforms	Component 3 Country project implementation (Child Projects)	Component 4 Tracking progress, monitoring and dissemination
Outcome 1 Knowledge products are generated to support policy making and investment decision-making through four global thematic working groups	Outcome 2 Conditions are created for market expansion and investment in electric mobility through support and investment platforms	Outcome 3 Conditions are created at country and city level for the introduction of electric mobility demonstration projects, and wider up take of electric mobility	Outcome 4 Projects and electric mobility markets are tracked, and key developments, best practices and other lessons learned are shared to promote wider uptake of electric mobility.
Indicator 1.1 # of knowledge products developed by the four thematic working groups and used by the Support and Investment platforms in their training and outreach activities	Indicator 2.1 % of countries using services and knowledge products offered by the Support and Investment Platform	Indicator 3.1 % of countries with an improved institutional framework and a strategy to promote the uptake of low-carbon electric mobility	Indicator 4.1 % of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the global programme
	Indicator 2.2 # of e-mobility scale-up and / or replication concepts facilitated as a result of the match-making	Indicator 3.2 % of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility	Indicator 4.2 # of e-mobility knowledge products refined based on evidence coming from the country projects
	Indicator 2.3 # of financial institutions / development banks (national/regional) that have been engaged through the Global Programme and are actively supporting e-mobility projects	Indicator 3.3 % of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility	Indicator 4.3 # of non-e-mobility programme countries committing to actively promote the uptake of low-carbon e-mobility
	Indicator 2.4 # of US\$ leveraged to scale-up low-carbon electric mobility through the support and investment platforms	Indicator 3.4 % of countries with measures in place to ensure the long-term environmental sustainability of low-carbon electric mobility	

The global project will report against this framework on an annual basis, using (1) the global level data from the Global Thematic Working Groups and from the Support and Investment Platforms, and (2) country-level data provided by each country project during their annual Project Implementation Review (PIR) process.

For this purpose and whenever applicable, the global level indicators highlighted in green are translated into a country-level indicator in the Project Results Framework located in Annex A of the present CEO Endorsement Document. During project implementation, EPA-SL will be requested to report against the indicators of the country Project Results Framework (Annex A) on an annual basis, during the PIR process, in addition to the usual GEF Core Indicators (mentioned at the top of the table above).

At the global level, a steering committee integrated by the International Energy Agency (IEA) and the United Nations Environment Programme will coordinate and monitor the implementation and the outputs of the GEF 7 Electric Mobility Programme. On technical gaps, four thematic working groups at the global level will support the rapid introduction of electric mobility in GEF recipient countries. These working groups will generate universal knowledge products that contain best practices, factsheets, interactive tools and guidance, as well as experiences from countries that have advanced their e-mobility market. The working groups will be integrated by representatives from the global programme regional platforms, GEF-7 countries, IEA, vehicle manufacturers, utilities, researchers and the civil society. The governance structure is presented in the figure below. For Africa, the regional platform will be led by UNEP.



Governance structure between the global programme, the national e-mobility projects, and the regional Support and Investment Platform:

The coordination between the global program, the steering committee, the thematic working groups, and the national projects will be facilitated by the regional Support and Investment Platform. The role of the regional platform is to provide customized technical assistance to ensure the success of the country projects. Moreover, knowledge products developed by the working groups will be adapted and disseminated by the regional platform according to the regional and national context, specific needs and languages.

The Africa Support and Investment Platform will interact with and support participating countries in the region to link with each other through the following activities:

- The creation of a community of practice for the GEF 7 regional countries;
- Facilitation of knowledge transfer between countries, and regions, especially those with common characteristics like SIDS;
- The creation of thematic groups in light-duty vehicles (LDVs), 2-3 wheelers, and buses at regional level;
- A marketplace between countries, technology providers and financial institutions;
- Help desk for technical assistance to GEF 7 African countries;
- Personalized assistance from international experts in electric mobility;
- Generation of training sessions and workshops.

The national child projects will generate a learning curve on electric mobility that can be transferred to other countries within and outside of the region through the global programme. As a first contact point, the regional Support and Investment Platform will facilitate the flow of learnt lessons from child projects, such as: data and demonstration results, working business models, operational know-how, working financial instruments, and working policies and regulations. At the global level, the scenarios proposed to share country knowledge and experiences on electric mobility are the thematic working groups, while at the regional level the countries will participate in the community of practice, the thematic regional groups, the marketplace, trainings and workshops.

2. Stakeholders

The key stakeholders to be involved in the project are summarized in the following table. Stakeholders can be categorized into the following groups: 1) government, 2) private sector 3) academia 4) civil society organization and 5) financial sector. Key government stakeholders include the Ministries which will be part of the Project Steering Committee as well as a larger group of Ministries which will be part of the e-mobility coordination body. The ministries that are part of the

coordination body will have the political power to drive the necessary regulatory and fiscal reforms to incentivize the introduction of e-mobility and in particular electric kekes in Sierra Leone.

TABLE 2 LIST OF STAKEHOLDERS AND THEIR ROLES

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government	Environmental Protection Agency - Sierra Leone (EPA-SL)	<ul style="list-style-type: none"> • As the GEF focal point in the Government of Sierra Leone, EPA-SL is involved closely in the project design and provide inputs on policy and regulatory aspects pertaining to the GHG and air pollution emissions sector. • EPA-SL also oversees and implements environmental levies, which will have a bearing on project activities regarding the procurement of demonstration vehicles and charging equipment. 	<ul style="list-style-type: none"> • EPA is the Executing Agency during project implementation. • To be part of the inter-sectoral electric mobility coordination body • Provides a co-finance of USD 50,000 (in-kind)
Government	Ministry of Transport and Aviation (MoTA)	<ul style="list-style-type: none"> • Has overall responsibility for planning and policy in the transport sector • Oversees the Sierra Leone Roads Authority (SLRA), Sierra Leone Road Safety Authority (SLRSA), and the Sierra Leone Road Transport Corporation (SLRTC). • Manages the ongoing World Bank project “Integrated and Resilient Urban Mobility Project (USD 52 mil)” 	<ul style="list-style-type: none"> • Provides co-finance of USD 100,000 • To provide technical inputs, data, and information on the current policy framework and provides input to the demonstration project design. • To provide support to the integrated inventory data collection. • To support Component 1,2,4
Government	Sierra Leone Road Safety Authority (SLRSA)	<ul style="list-style-type: none"> • Responsible for testing and licensing all vehicles and drivers, and for traffic management • Manages vehicle registration and licensing database 	<ul style="list-style-type: none"> • To provide technical inputs, data, and information on the current policy framework, especially with regards to vehicle registration and testing and, will support the demonstration project where applicable
Government	Ministry of Industry and Trade	<ul style="list-style-type: none"> • Develop policies and programmes to stimulate local and export trade as well as to enhance private sector investment, industrial and economic growth. • Oversees the oil marketing companies that collect fuel levies 	<ul style="list-style-type: none"> • To provide technical inputs, data and information on the current policy framework and will support the demonstration project where applicable. • To support policy review and development during project implementation. • Support on Component 3.

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government	Ministry of Energy	<ul style="list-style-type: none"> • Implements renewable power projects including 6 MW Solar Park and IFC-funded 50W solar photovoltaic project • Formulate and implement policies, and programmes on energy • Provide oversight functions across the entire energy supply chain for all sector agencies including Electricity Generation & Transmission Authority (EGTC), Electricity Distribution & Supply Agency (EDSA), Electricity & Water Regulatory Commission (EWRC). 	<ul style="list-style-type: none"> • Provides co-finance of USD 1,350,000 (Mobilized Investment through renewable power projects implemented by the Ministry of Energy) • To participate in the Project Steering Committee meetings / Electric Mobility Coordination Body meetings, workshops, trainings and capacity building events. • To provide technical inputs, data, and information on the current policy framework especially with regards to regulation of the power sector and will support the demonstration project where applicable. • To support policy review and development during project implementation. • To support Components 1,2,3,4
Utilities	Electricity Distribution and Supply Authority (EDSA)	<ul style="list-style-type: none"> • Be responsible for the supply, distribution and retail sale of electricity for the entire country 	<ul style="list-style-type: none"> • To provide technical advice and inputs on the detailed design of the project as the project relates to the charging scheme and integration with renewables. • To coordinate with the implementation of the charging scheme under Component 2 to ensure long-term strategy to integrate e-mobility into existing power distribution system in Sierra Leone is in place.
Government	Ministry of Finance	<ul style="list-style-type: none"> • In charge of managing the revenue and finances of the Sierra Leone government 	<ul style="list-style-type: none"> • To advise on policy review and development under Component 1 and 3.
Government	Sierra Leone Standards Bureau	<ul style="list-style-type: none"> • Implements and advise on the technical standards related to auto fuels and auto parts. 	<ul style="list-style-type: none"> • To provide technical inputs, data and information on the current policy framework especially with to import and safety regulation • To support the demonstration project where applicable • To advise on the technical standards on electric vehicle batteries under Component 4

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government	Ministry of Lands, Country Planning and the Environment	<ul style="list-style-type: none"> Responsible for establishing policies with regards to urban planning and the environment 	<ul style="list-style-type: none"> To provide policy advice and inputs on the detailed design of the project. To support Component 1,3,4.
Government	Ministry of Gender and Children's Affairs	<ul style="list-style-type: none"> General work on gender mainstreaming and women's empowerment 	<ul style="list-style-type: none"> The project will liaise with Ministry and actively seek their participation and contributions during project implementation, in particular in relation to the project's Gender Action Plan.
Municipality	Freetown City Council	<ul style="list-style-type: none"> Responsible for the designation of on-street parking control and enforcement of parking. 	<ul style="list-style-type: none"> To provide project technical inputs and information on the demonstration planning, design, as well as advice on charging schemes for electric vehicles.
Academia	Fourah Bay College	<ul style="list-style-type: none"> The only engineering university in Sierra Leone. A key academic institution to be engaged in the capacity building activities under the World Bank IRUMP project. 	<ul style="list-style-type: none"> To coordinate with the Ministry of Transport to identify capacity building needs on electric mobility To contribute to and potentially participate in trainings under Component 1
Private sector	Private taxi operator (potentially Taptap)	<ul style="list-style-type: none"> Owns an internal combustion engine keke fleet run by individual contractors. They are interested in the cost-saving aspect of electric kekes. They run ride-hailing services based on a mobile application, which connects mobility users and individual drivers of kekes. 	<ul style="list-style-type: none"> To play a crucial role in the implementation of Component 2 by operating the fleet of electric 3-wheelers and an accompanying charging system. To collect trip data from this demonstration which will inform the activities under Component 2.
Private sector	Waste management service provider(s) (to be identified)	<ul style="list-style-type: none"> To be identified and engaged during the project implementation 	<ul style="list-style-type: none"> To provide advice and technical inputs to Output 4.2.
Private sector	Charging station operator(s) (to be identified)	<ul style="list-style-type: none"> Owns suitable space for charging sites e.g. petrol stations in Freetown with an uninterrupted supply of power. (At least partly powered by renewable energy) 	<ul style="list-style-type: none"> Proposed responsibilities: <ol style="list-style-type: none"> (1) to provide site(s) for charging stations; (2) to take over the cost of non-electrical equipment for the charging stations (4) to ensure the smooth operation of the charging units, and (5) to collect charging fees.
Financial institutions	ACTB Savings and Loans	<ul style="list-style-type: none"> Local bank that gives out loans to finance the purchase of 3-wheelers for individual owners and investors. 	<ul style="list-style-type: none"> To provide advice and technical support in particular with regards to the development of business models and finance schemes under Component 3.

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Financial institutions	Rokel Commercial Bank	<ul style="list-style-type: none"> One of the commercial banks licensed by Bank of Sierra Leone, the national banking regulator. 	<ul style="list-style-type: none"> The bank will be engaged at project inception to discuss the possibility of giving out a soft loan at a subsidized interest rate with a longer payback period to the private sector partner to facilitate the financing of the electric 3-wheelers for Component 2. To advise on Output 3.2 - Fiscal policies and regulatory schemes to incentivize the uptake of electric mobility are developed
Civil Society Organization	Keke riders union	<ul style="list-style-type: none"> A union that represents the commercial drivers of kekes in Sierra Leone 	<ul style="list-style-type: none"> To advise with regards to the development of business models and finance schemes under Component 3. To advise on all activities under Component 3.
Civil Society Organization	Women's Network for Environmental Sustainability (WoNES)	<ul style="list-style-type: none"> A local NGO mandated to have more women and communities engaged in articulating, designing and implementing measures to minimize the effects of climate change and environmental degradation in Sierra Leone. 	<ul style="list-style-type: none"> To be invited to advise on the implementation of the Gender Action Plan. To be invited to provide inputs to the gender-inclusive national e-mobility strategy
International Organization	World Bank	<ul style="list-style-type: none"> Manages the ongoing World Bank project "Integrated and Resilient Urban Mobility Project (USD 52 mil)" 	<ul style="list-style-type: none"> To coordinate with UNEP under Component 3.
GEF Agency	United Nations Environment Programme (UNEP) - Sustainable Mobility Unit (SMU)	<ul style="list-style-type: none"> The UNEP SMU is the lead Executing Agency of the Global E-mobility project and is also leading the Africa Support and Investment Platform of the programme. 	<ul style="list-style-type: none"> Provides a grant of approx. USD 60,000 towards the procurement of a charging system under Component 2 The project will also benefit from the services and trainings offered by the Africa Support and Investment Platform. In addition, the SMU will be providing execution support to the project, as outlined in the OFP's letter in annex N-2.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Stakeholders will be consulted during project implementation as following:

- Government stakeholders will participate as members of the Project Steering Committee (PSC, meetings foreseen at least once per year) and in Thematic Working Groups as appropriate.
- The privates sector and civil society stakeholders will participate in the Thematic Working Groups as appropriate.
- Selected government and private sector stakeholders will be appointed by the Steering Committee to participate in the Global Programme events as appropriate

Finally, select what role civil society will play in the project:

- Consulted only;
 Member of Advisory Body; contractor;
 Co-financier;
 Member of project steering committee or equivalent decision-making body;
 Executor or co-executor;
 Other (Please explain)

3. Gender Equality and Women's Empowerment

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women's empowerment?

- Yes
 No

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

- closing gender gaps in access to and control over natural resources;
 improving women's participation and decision making; and or
 generating socio-economic benefits or services for women.

Does the project's results framework or logical framework include gender-inclusive indicators?

- Yes
 No

Gender analysis:

According to the United Nations Population Fund (UNFPA), the population of Sierra Leone is very young with people under the age of 14 making up 41 percent of the entire population²³. The total fertility rate remains high at 4.2 children per woman though gradually declining. Sierra Leone has the 18th highest rate of child marriage in the world at 39 percent. In terms of education, less than half of the population receives secondary education. The gender gap in literacy rate remains large in Sierra Leone, especially among people aged 25 to 64 years, at 35 percent for men and 15 percent for women.

When it comes to economic status, women are less likely to be employed and more likely to live below poverty lines even when employed. Among the 15-24-year age group, labour participation for women is about 10 percent higher than then men, however, this trend is reversed in the older age groups. The percentage of the working population living below the national poverty line (USD 1.90) is very high for people in Sierra Leone but is higher for women for all age groups, and stands at 47 percent for people aged 25 and above and 57 percent for people aged 15-24 years.

²³ United Nations Population Fund (UNFPA), <https://www.unfpa.org/data/SL> accessed February 2020

Due to the more affordable fares, women rely on 2&3-wheelers more than men. As most women in Sierra Leone are homemakers they often have to carry groceries and children with them. According to a survey on motorcycle use in rural Sierra Leone, among the residents of Bombali-Woreh Bana and Moyamba-Gondama regions, women passengers outnumber men in motorcycle use by a big margin of around 20 percent (51.1 percent and 54.8 percent of the survey respondents versus their male counterparts accounting for 35.5 percent and 30.7 percent respectively²⁴).

Women are also beneficiaries of improved mobility coming from lower costs of mobility and comfort that kekes provide, often more so than men. For pregnant women especially, increased number of motorcycles and 3-wheelers present better access to nearby hospital or clinic promptly, contributing to improving maternal health. Small markets across the country are largely dependent on the connectivity bridged by these two major modes of passenger transport. Many rural women, in particular, now can both carry out household and child-care duties while participating in small trades thanks to the improved connectivity (Africa Community Access Partnership, 2018).

Kekes are also a good affordable and more comfortable alternative to motorcycles which are characterised by often aggressive and careless driving styles of predominantly male motorcycle drivers. This is because the kekes' speeds are lower and the dimensions of the vehicle provide more space and prevent drivers from driving irresponsibly. In addition, the participation of female drivers, especially in the motorcycle sector, is likely to be met by resistance from male-dominant rider's unions which are profit-driven and highly politicised. On the other hand, keke drivers' unions in Freetown, despite still mostly male, are still rather new and are better organised.

Many factors contribute to women's underrepresentation in the passenger transport sector as drivers²⁵. First, women are expected to stay at home to carry out domestic duties such as cooking and childcare. Second, strong gender stereotypes in Sierra Leone proliferate the notion of women being less brave and strong than men and therefore unfit to be a driver. Third, women have less access to financing to allow them to buy a motorcycle and become a driver themselves. Few investors are willing to enter into a work-and-pay agreement with a woman due to a common perception against women owning a business.

Lastly, women and children are also known to be more susceptible to the harmful health impacts of bad air quality than men, and thus benefit from the air quality improvements that this project will trigger. When pregnant women are exposed to air pollution, it can affect foetal brain growth²⁶. Shifting the large fleet of cheap and polluting conventional motorcycles to clean and efficient electric motorcycles can improve maternal health in Sierra Leone. This is especially true for female street vendors and women shopping at street markets, who are directly impacted by exhaust fumes of 2&3 wheelers, which among other things are particularly rich in carcinogenic volatile organic compounds.

Gender Action Plan:

In line with Pillar 8 of Sierra Leone's five-year development plan's focus on women's empowerment, the project will seek to disaggregate data collection to capture gender-based differences in trip patterns and other characteristics, and to ensure women are included in all awareness-raising activities, decision making and capacity building so that they reap the socio-economic and health benefits of shifting to cleaner technology to the same degree as men do

The Chief Technical Advisor (CTA) will be responsible for implementing and monitoring the Gender Action Plan during project implementation. The concrete activities and means of verification to achieve the above as well as responsible parties are summarized in the following table:

TABLE 3 PROJECT GENDER ACTION PLAN

Project Components / Outputs	Objectives	Activities	Target / Means of Verification	Responsibility
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²⁴ Gender Mainstreaming in the Motorcycle Taxi Sector in Rural Sierra Leone and Liberia, Africa Community Access Partnership (AfCAP), 2018

²⁵ Gender Mainstreaming in the Motorcycle Taxi Sector in Rural Sierra Leone and Liberia (Africa Community Access Partnership, 2018)

²⁶ How air pollution is destroying our health: <https://www.who.int/airpollution/news-and-events/how-air-pollution-is-destroying-our-health>, WHO, 2018

Overall Project Management	Promote women representation in participatory and decision-making processes and empowerment of women	Prepare a 2-pager guideline on gender representation document for all participatory and decision-making bodies and capacity building measures of the project. The guidelines provide measures to ensure a balanced representation of women in these bodies. The guidelines are prepared in collaboration with the Ministry of Gender and Children's Affairs and are disseminated to the gender focal points from respective ministries to be appointed.	Gender Representation Guidelines document drafted and issued by the end of Month 3	CTA with support from the Ministry of Gender and Children's Affairs
	Monitor women's participation in project meetings, trainings and workshops	Develop an attendance sheet template to collect gender-disaggregated participants data, to be used in all project meetings, training and workshops.	Attendance sheet template prepared and ready to be used by the end of Month 2	CTA
	Mainstream gender into progress reporting	Report on the project's gender mainstreaming activities in each progress and Project Implementation (PIR) report.	2 reports per year (1 progress report and 1 PIR)	PMU
Component 1 Output 1.1	Ensure women's representation in project bodies	Based on the Gender Representation Guidelines, encourage member entities of the national coordination body to appoint women as their representatives.	The national coordination body has at least 30% female members (gender-disaggregated attendance sheets)	PMU
Component 1 Output 1.2	Ensure that the national e-mobility strategy considers gender aspects in an equitable manner	The national strategy to promote low-carbon e-mobility in Sierra Leone will include a gender analysis and action plan to mainstream gender equality right from the beginning of the development process. Gender-related action items will be included in the draft national e-mobility strategy.	1 st draft of gender-sensitive national strategy (deliverable 1.2.4) prepared by Month 16. Final gender-sensitive national strategy (deliverable 1.2.5) prepared by Month 24.	PMU together with the e-mobility policy and strategy expert
Component 1 Output 1.3	Empowerment of women through participation in regional / international events	Based on the Gender Representation Guidelines, participation of women in regional/international events, meetings and trainings will be promoted actively. The agencies or institutions that will be invited to participate will be encouraged to nominate women to participate in the events.	At least 30% of participants attending the events are women. (gender disaggregated attendance sheets)	PMU
Component 2 Output 2.2	Assess the ratio of women using the demonstration assets (e-kekes)	As part of the monitoring and data collection work to be undertaken under Output 2.2, the project will also monitor the use of the demonstrated e-kekes by gender.	The final report on the demonstration results (deliverable 2.2.5) includes the statistics on the use of the e-kekes, disaggregated by gender – by Month 36.	PMU
All Components	Promote women participation in project consultation meetings / workshops.	The participation of female representatives will be encouraged in all project consultation meetings and workshops outlined in the Workplan (refer Annex L for more details)	At least 30% of participants attending the project consultation meetings/workshops are women. (gender disaggregated attendance sheets)	PMU

In addition to above, the following considerations could be further explored during project implementation:

- The project could also consider the specific needs of women in terms of the procurement of the demonstration vehicles to be able to prioritise women’s comfort, dignity, and safety. A shift to electric kekes will have to ensure the identified challenges of women in terms of employment in the transport sector are fully considered through exploring opportunities for women as drivers, charging solution providers, auto mechanics, fleet operators, etc.
- The project could explore ways to improve access to finance for women will be also investigated. Since the project aims at developing a financial mechanism for the purchase of electric kekes used as taxis, this could be particularly interesting for the rural areas of Sierra Leone where electric motorcycles could be used for the transport of agricultural and other goods to and from markets.

4. Private Sector Engagement

Private sector involvement plays a crucial role in the project as the public transport services in Sierra Leone are provided largely by the private sector. The names and roles of key private sector actors are contained in [Table 2](#). The private sector will also engage in the stakeholder consultations undertaken as part of Output 1.2. Overall, the project will engage the private sector in the following ways including:

- **Demonstration of electric kekes:** This will be piloted by an existing local taxi operator which provides an app-based ride-hailing. Taptap is one such example and has shown strong interest and support for the project. The project seeks close collaboration with the private sector companies and the technical staff of Taptap could participate in several deliverables related to the purchase, operation, maintenance, and monitoring of electric kekes.
- **Battery charging/swapping:** The project is currently considering several business options for battery charging, including working with a local petrol station operator for the provision of charging sites. The solar mini-grids operators will be engaged as a potential partner in this regard. Through the Ministry of Energy, the project aligns itself with the renewable power projects that are implemented during the project timeframe in Sierra Leone, including Freetown Solar Park.
- **Financing e-mobility:** The project will engage closely with the financial sector to investigate favourable loan conditions for the private sector partner related to the demonstration project under Component 2. Discussions were held between EPA-SL and Rokel Commercial Bank in regards to the possibility of providing a loan to a private-sector vehicle operator at a preferential rate to fund the incremental cost of the demonstration vehicles. Further, the project held extensive consultations with a private financial institution, ACTB Savings and Loans, which will also be invited to provide technical inputs as potentially part of the e-mobility coordination body, based on their experience in giving out loans to youth drivers for conventional keke purchases.
- **Battery waste management:** The project will also identify and engage private sector partners in Sierra Leone’s existing solid waste collection industry to formulate a viable EV battery waste management scheme (Output 4.2).

5. Risks

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.

TABLE 4 RISKS AND MITIGATION MEASURES

Risk description	Main categories	Risk level rating	Risk Mitigation Strategy and Safeguards	By Whom / When?
The e-kekes might not perform as planned	Technical	Moderate	Good refund policies to be considered and/or negotiated when procuring the vehicles. Drivers to be given training and a manual for e-kekes. Finally, the project has budgeted USD 10,000 for spare parts for the demonstration vehicles.	PMU, Private sector partner, year 2-4

An e-keke might have an accident, leading to negative press	Technical	Low	As part of Output 2.2, the fleet operator and drivers are to be given an easy-to-use inspection checklist for daily inspections each day before use to avoid preventable accidents.	EPA-SL, year 2 to 4
Negative perceptions about e-mobility technology and the impacts this will bring to society and industry.	Political	Low	Capacity building of government, private sector, and civil society stakeholders in Global Programme Events & implementation of the demonstration project	Government of Sierra Leone, year 1 to 4
The growing demand from electric vehicles destabilizes the power supply	Technical / Economic	Low	The introduction of e-mobility in Sierra Leone starts with only a few electric 3-wheelers, which have a moderate power consumption and the scale-up of this vehicle segment aligns with the expansion of renewable power generation capacity outlined in Sierra Leone's national energy policies	Electricity Generation and Transmission Company (EGTC). Electricity Distribution and Supply Authority (EDSA). private sector stakeholders, after project implementation
Leadership change: change in leadership and priorities in the government	Political / Institutional	Moderate	The political risk is Moderate in light of the country context and the current global situation. Sierra Leone held general elections on March 7, 2018 to elect a new President. The ruling party has a majority by a very slim margin. The national coordination body will seek to institutionalize the involvement of the different ministries during and beyond the life of the project.	National coordination body, Government of Sierra Leone, year 1 to 4
Higher upfront cost of electric vehicles may pose a barrier to implementation and scale up of activities	Economic	Moderate	The project includes the development of a financial mechanism to lower the burden of higher upfront costs and to make the lower total cost of ownership accessible to electric 3-wheeler operators.	Private sector stakeholders, year 2 to 4
Objection or low commitment from industry and lack of interest or participation from market players/private sector.	Political / Economic	Moderate	The Global Programme works together with electric vehicles manufacturers to create an understanding of the market size and requirements of electric motorcycles in West Africa.	Government of Sierra Leone and private sector stakeholders, year 1 to 4
Insufficient and incomparable systems for tracking results	Capacity / Technical	Low	The project is part of a Global Programme that has tracking systems in place and which provides technical support to build the necessary capacity in the country.	Government of Sierra Leone, year 1 to 4
Time lag of results: Major results of the project may not be seen before the end of the project period.	Political	Moderate	The project team will identify interim goals for each engagement to track progress and will develop leading indicators of project results. The project includes both strategy and resources for performance management, knowledge management and information dissemination components. This will help ensuring that results of the projects will have early visibility. Regarding the visibility of the results of Component 3 and 4, the inter-ministerial body (i.e. Coordination Body and PSC) should be empowered and encouraged to generate consensus on benefits of low-carbon electric mobility to generate a good momentum for adoption of the developed schemes and policies.	Government of Sierra Leone, year 1 to 4
Lack of linkages with available funding/financing for EVs fleets.	Financial	Substantial	The project will work closely with the local financial institutions to develop financing mechanisms for electric mobility. So far, the project has identified interests from ACTB Savings and Loans, a private bank offering loans for kekes and Rokel Commercial Bank, Sierra Leone's biggest commercial bank who have been consulted regarding their roles in this. Beyond that, the project will receive appropriate training and networking opportunities on financing through the support provided by the Global Electric	Government of Sierra Leone in consultation with the financial sector, African Support and Investment Platform, year 2 to 4

			Mobility Programme's African Support and Investment Platform.	
Poor sustainability of the project results and a lack of ownership of the program after the end of the GEF funded activities and inability to source resources to continue the program's activities in the medium/long term	Political / Financial	Low	To promote ownership of project outputs, the project will closely engage with local stakeholders from the public and private sectors as well as civil societies in the technical and economic feasibility analysis, business and finance models, the setup of procurement guidelines for the pilot fleet, and the development of policy proposals. In this way, the project will ensure that stakeholders endorse the deliverables of the projects. To promote the ownership of the demonstration vehicles during and after the project, the GEF fund will only finance the incremental cost of the vehicles with the rest to be financed by the private sector partner. Beyond that, consideration for the sustainability of the project results are integrated into the project, with the Outputs under Component 3 and 4 dedicated to ensuring the scale-up and longer term environmental sustainability of e-mobility in Sierra Leone. Finally, the e-mobility coordination body that will be institutionalized during the life of the project under Component 1 is meant to live and continue functioning beyond project completion.	Government of Sierra Leone, year 2 to after project finalisation
Higher electricity use might lead to higher emissions, e.g. from HFO plants	Environmental	Low	The carbon footprint of the power mix in Sierra Leone is relatively low with many investments ongoing to expand the integration of additional renewable power generation capacity to the national grid.	Government of Sierra Leone, year 2 to after project finalization
Materials from EVs (e.g. from batteries) might generate environmental pollution	Environmental	Moderate	Development of a scheme for recycling and tracking of these materials are integrated into the project under Component 4.	Government of Sierra Leone, year 2 to after project finalization
Stakeholder interest is low in re-use and disposal of EV batteries	Political / Environmental	Low	Explore various options for EV battery second life, including both government and private-led solutions. In addition, the UNEP Sustainable Mobility Unit (SMU) will closely engage the Economic Community of West African States (ECOWAS) to mobility political support for this issue, with a view to present Deliverable 4.2.3 (scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries) to the ECOWAS community through formal discussions to pursue the development and adoption of such a policy at the sub-regional level.	PMU, During the implementation of Component 4
The project faces political / institutional resistance to appoint female representatives in the coordination body and to select female participants for the trainings, events and workshops.	Political / Institutional	Moderate	The project has a Gender Action Plan with clear gender mainstreaming activities, indicators, targets and means of verification. The Chief Technical Advisor will be responsible for implementing and monitoring the Gender Action Plan. The CTA may raise his/her concerns on the project's compliance with the Gender Action Plan during the annual Steering Committee Meetings.	CTA, years 1 to 4
Charging stations face operational challenges	Capacity / Technical	Moderate	To ensure the smooth operation of charging station operation, mitigation measures will be in place including formal project agreements, technical training of operators and drivers, and the development of manuals. The Chief Technical Advisor will be responsible for overseeing the implementation of the demonstration project, with the support of the	CTA, UNEP SMU, private sector partners, years 2-3

			UNEP SMU for the procurement and installation of the charging infrastructure.	
Climate risk: there is an increased risk of extreme weather events in Sierra Leone, such as floods and heavy rains, leading to landslides which can cause damage of charging stations.	Environmental	Low	While this risk itself is beyond the control of the project, careful project planning with buffer times can help reducing delays due to unexpected events. In Component 2, in locating the charging stations and selecting the vehicle models, weather and natural disaster factors will need to be factored in to avoid the damages from floods, landslides and heatwave, among others. Please refer to the detailed climate risk screening in the paragraphs below for further details.	PMU, years 1 and 2

Climate Risk Screening

(i) How will the project’s objectives or outputs be affected by climate risks over the period 2020 to 2050, and have the impact of these risks been addressed adequately?

Sierra Leone is located in West Africa between the Republic of Guinea and the Republic of Liberia. The western border spans along the Atlantic Ocean. Coastal plains, lowland plains, plateaus, hills, and mountains characterize the geography of Sierra Leone. It is this varied topography of Sierra Leone that gives the country a hot and humid tropical climate that varies across the coast and inland. The dry season, November to April, is prone to dusty and hot Harmattan winds and drought conditions. Average temperatures range between 25 and 27°C, with lower temperatures (22–25°C) during the rainy season. High dependence on agriculture and natural resources, compounded by high rates of poverty, and environmental degradation, leaving Sierra Leone vulnerable to climate change impacts.

1. Hazards

The chart from the World Bank below provides an overview of the most frequent natural disaster in Sierra Leone. Besides epidemic, floods by far were the more frequent natural hazards between 1900 and 2018, followed by storms, landslides, and wildfires.

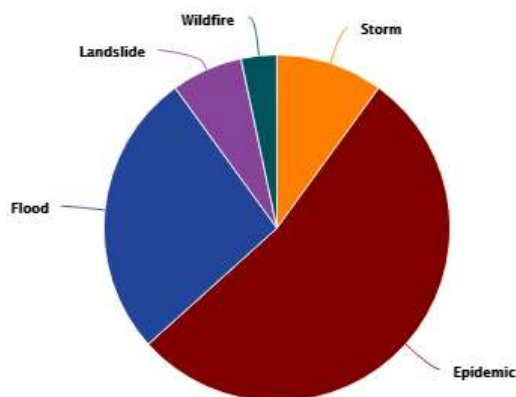


FIGURE 12 AVERAGE ANNUAL NATURAL HAZARD OCCURRENCE FOR 1900-2018
(Source: World Bank Climate Change Knowledge Portal)

Increases in the intensity of rainfall events exacerbate the existing impacts of floods, which include loss of life and property as well as damage to critical service and transport infrastructure. Rising sea levels, on the other hand, also pose a risk of causing damage to coastal areas including industrial infrastructure. Floods account for 85 percent of disaster-related mortality in the country, followed by landslides and storms.

1. Vulnerability and exposure

According to the World Bank's Climate Change Knowledge Portal²⁷, Sierra Leone's key vulnerabilities to climate change are directly related to its rising temperatures, sea level rise, more intense rainfall events including storms, and floods:

- Storms and in particular Squall Lines brings thunderstorms and strong winds, are a frequent natural hazard between April and June. These storms have caused damages to communications and transportation infrastructure, as well as people's homes and agriculture, while also causing coastal erosion.
- Sea level rise will cause the coastal regions of Sierra Leone to see more frequent coastal floods, and increasing average precipitation levels and intense rainfall events may induce more flooding and increase streamflow rates.
- Additionally, flooding can affect the quality and quantity of water resources increasing the likelihood of waterborne diseases, especially in concert with unsafe drinking water.

In the project context, the primary risks come from changes in precipitation, which leads to extreme weather events including high rainfall and droughts. Both have a moderate to low potential to affect the project's outcomes and outputs. Heavy rainfalls can lead to flooding and landslides, damaging electric vehicle charging infrastructure, power grid infrastructure, and general road infrastructure. More frequent flooding events and power supply outages can be expected which can affect the economic viability of charging infrastructure. Increased temperatures pose a risk of damaging the equipment, and can hinder overall vehicle performance.

2. Measures to manage the risk:

The main climate change risks in Sierra Leone are²⁸ (1) flooding risks for charging infrastructure due to increased frequency and intensity of heavy rainfall events, (2) impacts of strong winds on charging infrastructure and demonstration vehicles, and (3) impacts of rising temperatures and heatwaves on charging infrastructure and vehicles and battery performance.

However, such risks are not regarded a high risk to the project implementation as long as mitigation measures are in place for siting charging stations and choosing appropriate technologies (vehicles, batteries, and charging equipment). Mitigation measures will be incorporated in the project design when (a) selecting the location for charging stations, and (b) selecting the charging equipment, based on the climate risks identified above. Furthermore, pilot drivers and operators will be trained as part of the driving safety protocol on safe usage of electric vehicles and charging equipment.

(ii) Has the sensitivity to climate change, and its impacts, been assessed?

The flooding and wind risks should be factored in to prevent potential damages when choosing the location for the pilot infrastructure from flooding and extreme winds. The project will mitigate the heat risks by selecting adequate heat-resistant technologies.

(iii) Have resilience practices and measures to address projected climate risks and impacts been considered? How will these be dealt with?

The overall goal of the project is on building climate resilience by reducing the country's dependence on fossil fuel imports through the uptake of electric vehicles. Thus, the project is directly contributing to the overall climate resilience of Sierra Leone.

(iv) What technical and institutional capacity, and information, will be needed to address climate risks and resilience enhancement measures?

Technical capacity should be able to address climate risk needs to incorporate the knowledge to assess flooding history of the potential locations for charging infrastructure. Beyond that, the technical design of the solar panel and vehicle

²⁷ <https://climateknowledgeportal.worldbank.org/country/sierra-leone>

²⁸ Climate Change Risk Profile: Sierra Leone (USAID, 2016)

charging installations will need to be in accordance with the latest building codes, to ensure resilience to extreme weather events (primarily extreme wind speeds, see discussion above).

Institutional capacity should be able to receive detailed information about the reliability of power supply for selected EV charger locations. Operators of and institutions operating the solar panel and vehicle charging installations will need the capacity to understand how to operate the systems during and after extreme weather events, especially in the event of power disruptions.

COVID-19 Risk and Opportunity analysis

The COVID-19 pandemic presents several challenges but also highlights the valuable benefits of electric mobility, in particular in the field of public health, and therefore the Sierra Leone Electric Mobility Child Project has an opportunity for larger impact by starting now. According to today's knowledge, long-term exposure to particulates could be linked to up to 15% of global COVID-19 deaths. Other studies suggest that besides, particulates (e.g. PM2.5, PM10), N2O from both mobile (e.g. trucks and cars) and stationary emission sources can be a multiplier of COVID-19 impact. Since electric mobility has the potential to significantly contribute to improving urban air quality, this project is a timely move in Sierra Leone's efforts to respond to the COVID-19 pandemic. Similarly, a shift to electric mobility will significantly reduce the dependency of Sierra Leone on petroleum fuel imports. It therefore increases resilience against restrictions or oil price spikes resulting from international crisis. Furthermore, in terms of green recovery, clean mobility is expected to play a key role in getting the country's economy back on track. Continued social distancing measures will have an impact on how transportation services are used, and certain modes such as 2&3-wheeler taxis, or usual taxis and ride-hailing providers using passenger cars, are likely to see increased use to reduce close contact with higher numbers of riders in larger and cramped vehicles. For many of these modes good electric alternatives are already available. Below is a risk and opportunity analysis of the Covid-19 situation in relation to the Sierra Leone e-mobility project:

Risks:

The COVID-19 pandemic has the potential to affect the project in the following ways:

Reduced keke operations. The responses to COVID-19, ranging from social distancing, teleworking to lockdowns have significant implications for the continuity of transport services in Sierra Leone both from the demand and supply perspectives. Firstly, users will have to modify their mobility needs either for concern on reducing the physical moves but also because users will less likely afford them. Secondly, keke drivers and operators could suffer a reduction in income, and hence adopting new technologies such as electric vehicles might not be their priority. This would negatively impact the effective execution of the project's outputs, potentially leading to slower adoption of electric kekes in Freetown.

Lockdowns and movement restrictions. Mobility restrictions and the need for social distancing would make it difficult to organise physical events that have traditionally benefited from in-person interactions, such as workshops, meetings, training, and consultations.

Changes in government priorities. With the national focus on addressing the pandemic and its impact on the national economy, commitment to electric mobility might be impacted. Financial incentives such as favourable import taxes or exemptions for EVs and charging equipment might not gain enough political support.

Mitigation measures:

Reduced taxi and minibus operations. If the pandemic continues to hamper the implementation of the project activities, especially Component 2 which is scheduled to take place in 2021 and 2022 with lockdowns and travel restrictions continue to impact the country, the PMU will re-evaluate the project work plan to reschedule field activities until the second or the third year (2022-2023). Additional health and safety protocols for the drivers will need to be put in place to minimize the risks of spread. Where possible, the capacity development components of the project, also in collaboration with the

Ministry of Transport, could be used to support the development of pandemic response protocols/roadmaps for transport operators.

Lockdowns and movement restrictions. In the event of travel and mobility restrictions and social distancing, events will be rescheduled or held online. The government of Sierra Leone has used teleconferencing and therefore is already familiar with required arrangements.

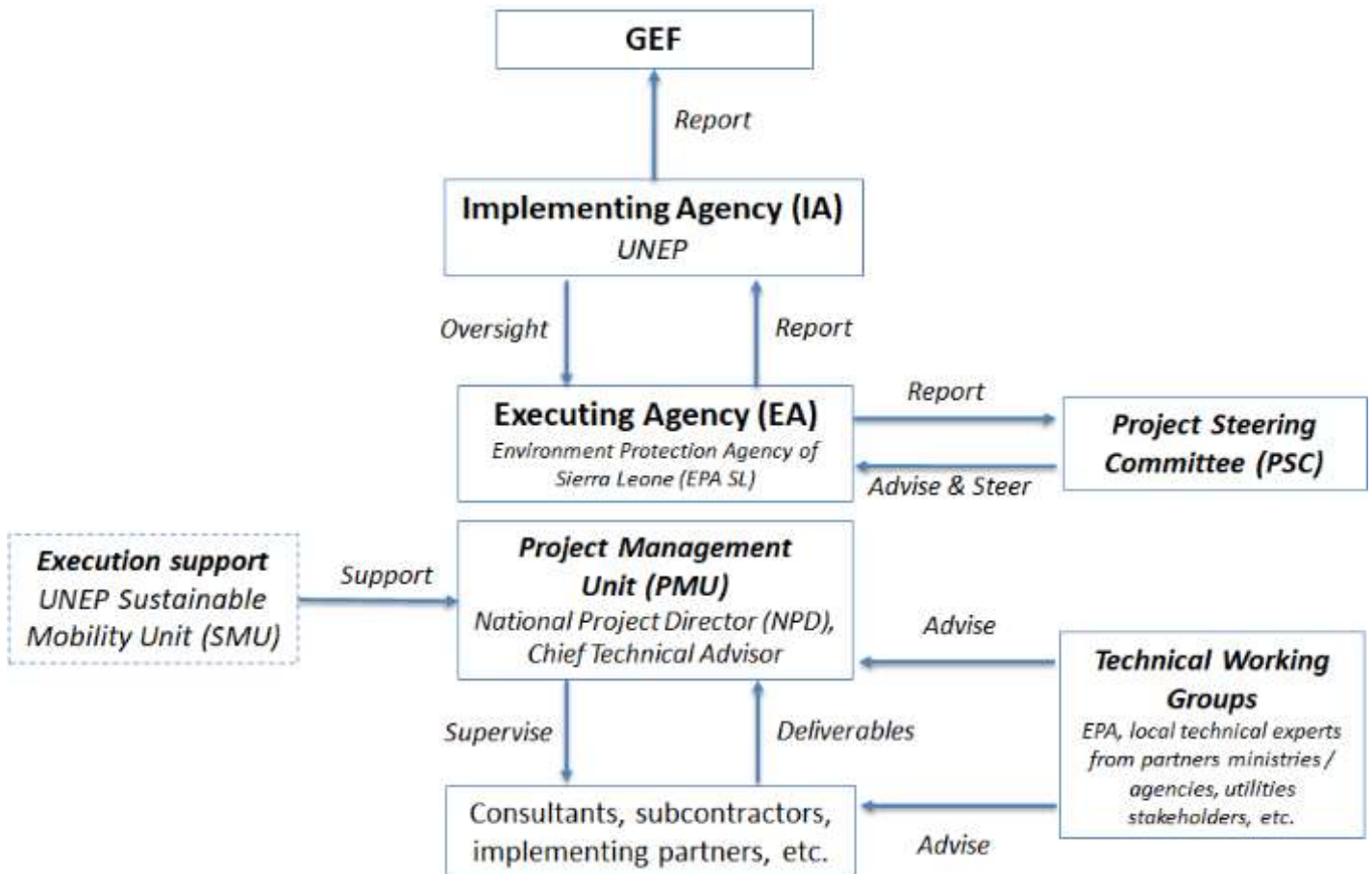
Changes in government priorities. Project activities requiring the government’s endorsement of laws and decrees are to take place primarily for the project’s second and third year when it is estimated that action on the pandemic will be in place and less of a requirement for legislative authorities. If the pandemic continues to be requiring the attention of decision-makers, such project activities will be rescheduled for the project’s third year.

Opportunities:

Increased awareness about cleaner urban air: As the GEF project directly contributes to improving urban air quality through a reduction of air pollutants coming from internal combustion engine vehicles, the project can take advantage of this growing global voice demanding cleaner urban air. What needs to be ensured is that this leads to not only better awareness in the public and among decision-makers but also to concrete actions.

Budget savings and reallocation: It is likely many if not most of the project’s events would have to be held virtually. Budget savings made from the unused traveling and venue costs could be reallocated to more substantive activities, which would be decided depending on project needs.

6. Institutional Arrangement and Coordination



Institutional arrangements:

This project is funded by the GEF and co-financed by the EPA SL, the Ministry of Transport and Aviation, the Ministry of Energy and. UNEP will be acting as the GEF Implementing Agency and the Environment Protection Agency of Sierra Leone (EPA SL) will be the project's Executing Agency.

Refer to Annex K for further details on the roles and responsibilities of the Implementing and Executing Agencies.

The main project bodies are the following (refer to Annex K for more details):

A Project Steering Committee (PSC) will be established to provide overall guidance and oversee the progress and performance of the project as well as to enhance and optimize the coordination and contribution with various project partners. The PSC will be chaired by the National Project Director (NPD, EPA-SL) and will convene at least once per year. The PSC will include members from (but not limited to) the EPA-SL, the Ministry of Transport and Aviation, the Ministry of Industry and Trade, the Ministry of Environment, the Ministry of Energy, The Ministry of Industry and Trade, The Ministry of Finance, the Ministry of Gender and Children's Affairs and the Freetown City Council. The Africa Support and Investment Platform Coordinator of the global e-mobility project will also participate in the PSC, most likely through remote attendance. In addition, during the inception phase of the project, the Project Management Unit will suggest the inclusion of other Ministries and national agencies as part of the the PSC, as well as key stakeholders from the private sector and civil societies.

Project Management Unit (PMU) will be overseen by a National Project Director (NPD) assigned (on a part-time basis) by the EPA-SL and led and managed on a day-to-day basis by the CTA in close collaboration with the NPD. The PMU will be responsible for day-to-day project operations of the project. The Chief Technical Advisor will also support the development of studies, analyses and datasets and will support the national and international experts during project implementation.

Its responsibilities include:

- managing field operations;
- managing project information and documentation and distribution of project reports, and training materials to relevant stakeholders;
- managing project M&E and assisting the CTA to prepare biannual project progress reports; acting as secretariat to the PSC;
- handling day-to-day project issues and requirements, coordinating project interventions with other on-going activities and ensuring a high degree of inter-institutional collaboration;
- ensuring the timely delivery of inputs and outputs;
- preparing and submitting to the PSC and UNEP project progress reports on outputs and outcomes achieved, financial statements, annual work programme, and detailed budget.

Ad-hoc **Technical Working Groups (TWG)** will be formed to facilitate the implementation of the project components. These will include working groups on:

1. E-mobility technology, including experts from the local private sector taxi fleet operator hosting the demonstration project as well as the local petroleum fuel distributor hosting the charging stations;
2. E-mobility policy and finance: representatives from the local financial institutions providing the loan for the financing of the e-keke's conventional price equivalent, among others;
3. E-mobility and sustainability, including representatives from EPASL, Ministry of Transport and Aviation Ministry of Transport and Aviation and the Ministry of Energy, among others.

The TWG will meet regularly during project implementation.

At the request of Sierra Leone's GEF OFP and the EPA-SL (refer to letter appended in Annex N-2), UNEP's Sustainable Mobility Unit (SMU) will also provide **targeted technical support** to the project, including (but not limited to) (1) the

procurement of the electric vehicles, (2) the recruitment and contracting of international experts, (3) facilitating discussions among the Ministries and project stakeholders, and (4) technical troubleshooting.

Justifications for the targeted technical support to be provided by UNEP's Sustainable Mobility Unit are as follows²⁹:

For Outputs 1.2, 3.2, 4.1, 4.2:

- The recruitment and contracting of international experts: to ensure the project receives the best technical support available in the field of electric mobility which is still quite a new concept, the UNEP SMU's support will be required to ensure experts with adequate qualifications are on board.
- Facilitating political and technical discussions among the Ministries and project stakeholders; while EPA-SL is well-positioned to coordinate with the Government entities, the UNEP SMU's support is needed to assist the political and technical discussion both at the national and sub-regional level through the collaboration with ECOWAS (especially Output 4.2).
- Technical troubleshooting: EPA-SL, the executing entity, currently does not have in-house expertise on the technical issues related to electric mobility, which the UNEP SMU would be able to provide.

For Output 2.2:

- The procurement of the demonstration vehicles: UNEP's SMU support is needed to minimise risks associated with introducing new technology with little to no prior experience dealing with electric vehicles in the executing entity. As there is currently not enough market interest to bring electric 3-wheelers in Sierra Leone, the UNEP SMU is currently linking with other countries in the region to achieve economies of scale that are big enough for manufacturers' interest. Choosing the right dealership is crucial in sustaining the success of the demonstration components of the project.

Further details on the targeted technical support to be provided by the UNEP SMU can be found in the annex on Project Implementation Arrangements (Annex K), the project Workplan (Annex L) and the Terms of Reference (Annex H). In particular, the detailed list of deliverables to be supported by the UNEP SMU can be found in the Terms of References of the "*International E-mobility Technical Support (UNEP SM Unit)*" position, located in Annex H of the CEO Endorsement Document.

Coordination with other initiatives:

As described above, this project will work closely with the GEF Global Electric Mobility Programme, especially through the Africa Support and Investment Platform as well as the Thematic Working Groups of the Global Programme.

In addition, the project will work together ^{with} the Global Fuel Economy Initiative (GFEI) project, which is currently implemented and aims to strengthen the data basis for the transport sector in Sierra Leone.

The GEF project will coordinate closely with the Ministry of Energy's renewable energy projects, particularly the 50MW IPP solar project (IFC, USD 50 million) and 6 MW Solar Park project (Abu Dhabi Development Fund, USD 12.6 million).

Synergies will be drawn with the "Integrated and Resilient Urban Mobility Project" (IRUMP), implemented by the Ministry of Transport and Aviation and funded by the World Bank and the Government of Sierra Leone. Extensive discussions took place between the Ministry of Transport and Aviation and the EPA-SL on linking the capacity-building activities of the IRUMP under the component "modernization and professionalization of transport services" with the capacity building work to be undertaken as part of Output 1.3 of the GEF project. This will be further explored and formalized during the inception phase of the GEF project. Please see Figure 11 for detailed components and activities of the IRUMP.

²⁹ These justifications had been provided by email to the GEF in October 2020, in order to obtain the GEF's approval of the same before the 1st submission of the CEO Endorsement Document.

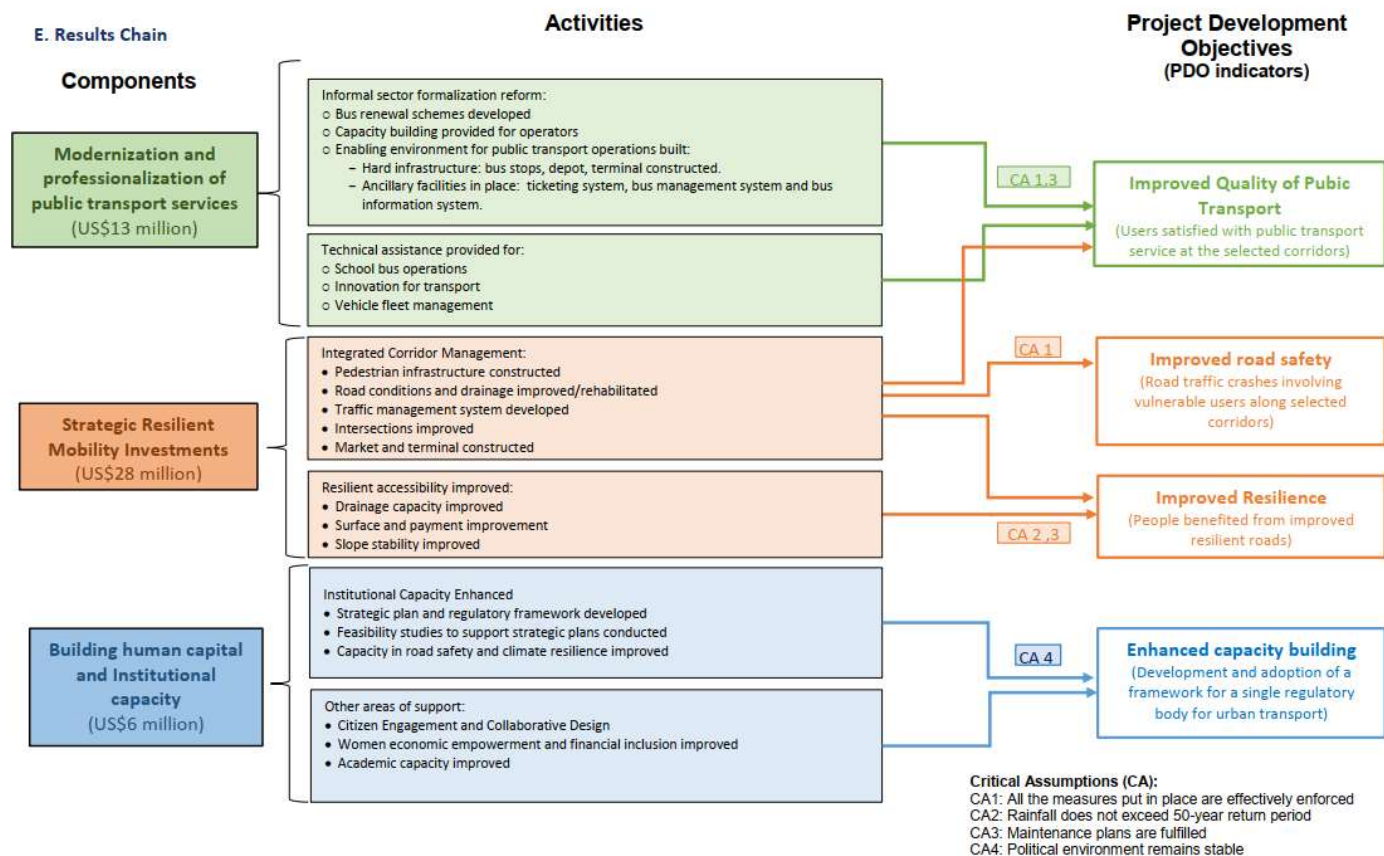


FIGURE 13 THE WORLD BANK “INTEGRATED AND RESILIENT URBAN MOBILITY PROJECT

Besides linking with the above efforts, the Sustainable Mobility Unit (SMU) of UNEP will closely engage the Economic Community of West African States (ECOWAS) to mobility political support for this issue, with a view to present Deliverable 4.2.3 (scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries) to the ECOWAS community through formal discussions to pursue the development and adoption of such a policy at the sub-regional level.

7. Consistency with National Priorities

Conditional Mitigation Contribution:

Sierra Leone’s NDC intends to maintain the emission levels of Sierra Leone below 7.58 MtCO₂e by 2035 or neutral by 2050 by reducing her carbon footprint and by following green growth pathways in all economic sectors.

Sierra Leone has identified 7 priority climate change response strategies in the area of mitigation of greenhouse gas emissions. Among these, Strategy 6 states the following: Diversification of economic growth through strengthened transport sub-sector, particularly the infrastructure to contribute to the reduction of regional and global emissions of greenhouses and build a stable economy.

Current GHG emission contributions as part of Sierra Leone’s “Internationally communicated pre-2020 GHG emissions reduction plans under the Copenhagen Accord” related to the transport sector are as follows:

- Development and enforcement of regulations on regular maintenance of vehicles (vehicle emission testing): formulation of transport plans.

- Improved and promoting use of public transport (e.g. road, rail and water) for passengers and cargo to reduce traffic congestion and GHG's emissions

Contribution to Sustainable Development Goals

The proposed project will contribute to achieving the below Sustainability Development Goals (SDG).

Goal	Goals and targets
SDG 3 – Ensure healthy lives and promote well-being for all at all ages	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
SDG 11 – Make cities and human settlements inclusive, safe, resilient and sustainable	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
SDG 13 – Take urgent action to combat climate change and its impacts	13.2 Integrate climate change measures into national policies, strategies and planning

UN Sustainable Development Cooperation Framework (UNSCDF)

The project contributes to the outcomes and indicators of UNSDCF Sierra Leone 2020-2023, including:

- Outcome 3: By 2023, the population of Sierra Leone, particularly the most vulnerable, will benefit from increased and more equitable access to and utilisation of quality education, healthcare, energy and water, sanitation and hygiene services, including during emergencies
- Indicator 4.6.1: Number of national sectoral plans that incorporate evidence-based disaggregated gender-inclusive data
- Indicator 4.6.3: Number of MDAs and Local Councils that are generating real-time data disaggregated by sex, age, and PWDs with the use of innovation and technology

8. Knowledge Management

The project is part of the global GEF-UNEP Programme on Electric Mobility. It will actively participate in the global programme's global and regional activities through its Component 1, for example by participating and contributing to the knowledge exchange in the Africa Regional Support and Investment Platforms, which will be hosted by UNEP, and the relevant global working groups, as well as by providing insights and knowledge.

All the knowledge products and lessons learned will be shared at three levels – at the country level (through the), in the Global Thematic Working Groups of the Global e-mobility Programme and in the Africa Regional Support and Investment Platform.

On the global level, results and knowledge products of the Sierra Leone Project will be made accessible through the Global E-Mobility Programme Online Toolbox. The Global Programme website will showcase the Sierra Leone project and report on progress. The Global Programme will also disseminate results of the Sierra Leone Project through social media, whenever relevant.

Since UNEP is hosting the Africa Support and Investment Platform, close linkages will be made between this Project and the Regional Support and Investment Platform. Also, through that platform, the Sierra Leone Project will benefit from lessons learnt and experience gained from other GEF-funded projects in the region, such as the GEF E-Mobility Projects in Côte d'Ivoire, Togo, Burundi, Seychelles, South Africa and Madagascar.

EPA-SL will be responsible for knowledge management as part of their duties as the GEF Executing Agency. The EPA-SL and the Chief Technical Advisor (CTA) will ensure that all knowledge products developed under the project will be shared with the Global Programme and in particular the IEA (for the global data repository) and UNEP (for dissemination through the Africa Support and Investment Platform).

The deliverables and approaches of the project's knowledge management activities will contribute to the successful implementation of the project as well as the sustainability and scaling up of the project impact. The tools developed, best practices collected and knowledge generated by the project will continue to be available to country and cities even after the project as UNEP will continue supporting the African Regional Support and Investment Platform so that these can continue to take the lead in supporting a shift to electric mobility in their respective regions.

The key deliverables contributing to knowledge management are summarised in the below table:

Outputs	Knowledge products produced by the project (deliverables)	Indicative timeline	Indicative Budget (US\$)
Component 1			
Output 1.1	D 1.1.4 Final e-mobility coordination body report, including all best practices and lessons learned from the project	Month 44	≈4,000
Output 1.2	D 1.2.4 Draft gender-sensitive national e-mobility strategy D 1.2.5 Final gender-sensitive national e-mobility strategy	Month 17 Month 24	≈15,000
Component 2			
Output 2.1	D 2.1.3 A study to identify locations, technology and capacity of a e-keke charging (including both overnight charging and battery swapping) is developed D 2.1.4 A draft feasibility study including the development of business models for the vehicles and the charger operators as well as a finance scheme is developed and presented during workshop to the coordination body for endorsement D.2.1.5 The final feasibility study and the demonstration implementation plan including the framework for data collection, reporting, and analysis are developed	Month 8 Month 8 Month 15	≈15,000
Output 2.2.	D 2.2.1 Technical requirements of the electric vehicles and charging equipment to be procured are developed D 2.2.4 Driving manual and protocol established with operation and safety training conducted with drivers D 2.2.5 Final report on the demonstration results presented to the coordination body and to the Global Electric Mobility Programme	Month 9 Month 14 Month 36	≈20,000
Component 3			
Output 3.1	D 3.1.2 Draft vehicle import taxation proposal developed and presented at a workshop D 3.1.3 Draft vehicle import regulation proposal developed and presented at a workshop D 3.1.4 Draft vehicle registration proposal developed and presented at a workshop D 3.1.5 Final policy package delivered and presented	Month 22 Month 22 Month 22 Month 30	≈15,000
Output 3.2	D 3.2.2 Draft financing mechanism and business models developed and presented D 3.2.3 Final financing scheme, a procurement guideline, business models developed and proposed	Month 20 Month 24	≈20,000

Component 4			
Output 4.1	D 4.1.2 A draft study to integrate renewable power for electric vehicle recharging and technical standards for 2&3 wheelers are developed and circulated for review D 4.1.3 The study to integrate renewable power for electric vehicle recharging is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.	Month 27 Month 34	≈15,000
Output 4.2	D 4.2.2 A draft scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed and presented for review D 4.2.3 The scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is finalized and disseminated to all local stakeholders, the coordinating body and the Global Programme knowledge management focal point.	Month 27 Month 34	≈10,000

The total budget for knowledge management and knowledge products is estimated at approximately US\$ 114,000.

9. Monitoring and Evaluation

Monitoring and Evaluation (M&E) activities and related costs are presented in the costed M&E Plan (Annex J) and are fully integrated in the overall project budget.

The project will follow UNEP standard monitoring, reporting and evaluation procedures. Reporting requirements and templates are an integral part of the legal instrument to be signed by the Executing Agency (EPASL) and the Implementing Agency. The project M&E plan foresees an optional Mid-Term Review (MTR) and a Terminal Evaluation (TE), worth USD 10,000 and USD 20,000, respectively. In addition, USD 2,400 have been provisioned to organize the project's Inception Workshop and the project Steering Committee Meetings. Therefore, the total M&E budget is amounting to USD 32,400. If it is decided that the Mid-Term Review is not necessary, the budget will be allocated towards a more comprehensive Terminal Evaluation.

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy for Medium-Sized Projects (MSP). The Project Results Framework presented in Annex A includes SMART indicators for each expected outcome as well as end-of-project targets. These indicators along with the key deliverables and benchmarks included in Annex L will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification to track the indicators are summarized in Annex A.

The M&E plan will be reviewed and revised as necessary during the project Inception Workshop (IW) to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. General project monitoring is the responsibility of the Project Management Unit (PMU) but other project partners could have responsibilities in collecting specific information to track the indicators. It is the responsibility of the Chief Technical Advisor to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The project Steering Committee (PSC) will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E Plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the UNEP Task Manager. UNEP Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. UNEP Task Manager will develop a project Supervision Plan at the inception of the project, which will be communicated to the Project Management Unit and the project partners during the Inception Workshop. The emphasis of the Task Manager's supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring.

Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by the Project Management Unit, the project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The PIR will be completed by the Chief Technical Advisor and ratings will be provided by UNEP's Task Manager. The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. UNEP's Task Manager will have the responsibility of verifying the PIR and submitting it to the GEF. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

Since this is a Medium-Size Project (MSP) of less than 4 years of duration, no Mid-Term Evaluation (MTE) will be undertaken. However, if the project is rated as being at risk or if deemed needed by the Task Manager, he/she may decide to conduct a Mid-Term Review (MTR). This review will include all parameters recommended by the GEF Evaluation Office for Terminal Evaluations (TE) and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 2 above). Members of the project Steering Committee could be interviewed as part of the MTR process and the Chief Technical Advisor will develop a management response to the review recommendations along with an implementation plan. Results of the MTR will be presented to the Project Steering Committee. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented.

In-line with the with UNEP Evaluation Policy and the GEF Evaluation requirements, the project will be subject to an independent Terminal Evaluation. The Evaluation Office will be responsible for the Terminal Evaluation (TE) and will liaise with the project manager throughout the process.

The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP staff and implementing partners. The direct costs of the evaluation will be charged against the project evaluation budget. The TE will typically be initiated after the project's operational completion. If a follow-on phase of the project is envisaged, the timing of the evaluation will be discussed with the Evaluation Office to feed into the submission of the follow-on proposal.

The draft TE report will be sent by the Evaluation Office to project stakeholders for comment. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The final determination of project ratings will be made by the Evaluation Office when the report is finalised.

The evaluation report will be publicly disclosed and will be followed by a recommendation compliance process. The evaluation recommendations will be entered into a Recommendations Implementation Plan template by the Evaluation Office. Formal submission of the completed Recommendations Implementation Plan by the project manager is required within one month of its delivery to the project team. The Evaluation Office will monitor compliance with this plan every six months for a total period of 12 months from the finalisation of the Recommendations Implementation Plan.

The GEF Core Indicator Worksheet is attached as Annex F. It will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the MTR and TE will verify the information of the tracking tool.

The direct costs of reviews and evaluations will be charged against the project evaluation budget. A summary of M&E activities envisaged is provided in Annex J. The GEF contribution for this project's M&E activities (including evaluations) is **USD 32,400**.

10. Benefits

Describe the socio-economic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

Additional socio-economic benefits comprise two components:

Health:

Currently, cheap and polluting 2&3 wheelers are contributing deteriorating air quality in urban areas in Sierra Leone. A switch towards clean electric 2&3 wheelers will improve air quality and hence reduce costs of the health sector. This is especially true against the background of the COVID-19 pandemic. Many scientists believe that better air quality and reduced number of severe courses of COVID-19 disease are correlated. Improving urban air quality would hence increase resilience against crises such as the COVID-19 pandemic.

Economy:

As outlined above, Sierra Leone is fully dependent on petroleum fuel imports. Since oil price volatility is partly buffered through adjusted fuel taxation, spikes in oil price directly affect the budget of Sierra Leone. Increased independence from oil importation through e-mobility and the use of locally generated power will increase Sierra Leone's resilience against oil price peaks and shortages in international supply. In addition, use of locally generated power will shift the transport value chain towards generation of added value at national level.

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO endorsement under GEF-7.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Kelly West, Senior Programme Manager & Global Environment Facility Coordinator Corporate Services Division UNEP			Julien Lheureux Task Manager Climate Change Mitigation Unit UNEP	+254 20 762 5452	julien.lheureux@un.org

PART IV: ANNEXES

The CEO Endorsement Document annexes may be found in the following pages.

ANNEX A: PROJECT RESULTS FRAMEWORK

Project Objective	Objective level Indicators	Baseline	Mid-Point Target (if applicable)	End of project Target	Means of Verification	Assumptions & Risks	UN Environment MTS reference
To mitigate GHG emissions in Sierra Leone by accelerating the introduction of electric mobility through development of legal, regulatory and institutional framework, public outreach, capacity building, demonstration pilots of electric vehicles, development of business models for private sector engagement and finance schemes for upscaling and replication.	Indicator A: Direct and Indirect Greenhouse Gas Emissions Mitigated (metric tons of CO ₂ e) over the period 2021-2036	Baseline A: 0	Mid-point target A: N/A	End-of-project target A: Direct: 116,422 tCO ₂ Indirect: 271,162 tCO ₂	Calculation based on UNEP Emob calculator	Adoption of policies and introduction of financial mechanism by the Government of Sierra Leone Lack of interest or participation from government as well as market players/private sector stall the upscaling of the e-mobility market in Sierra Leone.	UNEP MTS 2018-2021 Climate Change Objective: Countries increasingly transition to low-emission economic development and enhance their adaptation and resilience to climate change
	Indicator B: Number of direct beneficiaries of the project, disaggregated by gender	Baseline B: 0	Mid-point target B: Women: 30 Men: 70 Total: 100	End-of-project target B: Women: 477 Men: 738 Total: 1,215	- Attendance sheets from the child project and the Global Electric Mobility Programme - Monitoring (the number of unique passengers serviced by the demonstration vehicles)		
Project Outcomes	Outcome level Indicators	Baseline	Mid-Point Target (if applicable)	End of project Target	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
Outcome 1: The government has established a coordinated institutional framework and endorses a gender sensitive strategy for the promotion of low-carbon electric mobility	Indicator 1.1: A national inter-sectorial coordination body to support and promote the uptake of low-carbon e-mobility in Sierra Leone is established, formalized and operational	Baseline 1.1: No	Mid-point target 1.1: The national coordination body is established and includes all key institutions. It has formulated shared goals and defined roles and responsibilities of all members.	End-of-project target 1.1: Yes - The coordination body remains operational and has agreed on post-project plan to promote e-mobility. - The national coordination body has at least 30% female members.	- Review of the body's activities (meeting summary reports) - Reports of the coordination body's quarterly meetings - Gender-disaggregated member and meeting participation lists - Written agreement of cooperation - Written post-project action plan	- There is a political climate to expand ongoing national initiatives for the increase of energy efficiency in transport to e-mobility. - Members are provided with sufficient resources to participate in activities. - Willingness to cooperate. - Conflicting interests making it impossible to find consensus or required compromises that render the strategy and action plan too vague. - Lack of interest by the Ministries although benefits are clear. - Lack of knowledge of the subject matter. - Best practices and lessons learned are generated early enough so that they can be fed into/included in the support activities by the global programme.	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
	Indicator 1.2: The government of Sierra Leone endorses a gender sensitive national strategy to promote low-carbon electric mobility	Baseline 1.2: No	Mid-point target 1.2: The respective Ministries are discussing the draft strategy.	End-of-project target 1.2: Yes	- Public announcements by the government and/or respective Ministries - Public availability of the strategy - The strategy contains a chapter / section on gender mainstreaming - Government gazette and other publications		
	Indicator 1.3: # of reports on best practices and lessons learned on e-mobility shared by the national coordination body with the Global e-mobility project	Baseline 1.3: 0	Mid-point target 1.3: 0	End-of-project target 1.3: 1	- Lessons learned and best practices report produced by the national coordination body (deliverable 1.1.4)		
Outcome 2: Technical, financial and environmental feasibility of introducing e-mobility in the country is successfully demonstrated by developing a business case for e-kekes	Indicator 2.1: # of mobility providers demonstrating interest to invest in e-kekes in Sierra Leone based on the evidence generated through the demonstration project	Baseline 2.1: 0	Mid-point target 2.1: 0	End-of-project target 2.1: At least 1 mobility provider issues a formal expression of interest	- Expression of Interest or Letter of Intent signed by a mobility provider or an investor.	- The project properly disseminates and communicates the results of the demo project - Charging infrastructure is available - EV costs continue to decrease - EV manufacturers take interest in Sierra Leone market	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
Outcome 3: The government adopts fiscal policies & regulations and endorses a financing scheme to accelerate the introduction of electric vehicles in Sierra Leone	Indicator 3.1: The policy/regulatory package (including vehicle import taxation, import regulations and registration) to incentivize the uptake of electric mobility is adopted by the government	Baseline 3.1: No	Mid-point target 3.1: No	End-of-project target 3.1: Yes	- Government gazette and other publications - Policy package document	- Favorable political climate to the introduction of electric public transport modes - Relevant Ministries (i.e. Ministry of Industry and Trade, Ministry of Finance, etc.) are properly involved in the project - Viable business models for electric public transport modes are identified and a corresponding finance scheme being developed	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
	Indicator 3.2: The financing scheme (including a procurement guideline and business models) for the procurement of electric vehicles is endorsed by the government	Baseline 3.2: No	Mid-point target 3.2: No	End-of-project target 3.2: Yes	- Business / financing model - Procurement guideline document - LOIs - Government gazette and other publications		
Outcome 4: Measures are developed to ensure long-term environmental sustainability of electric mobility in Sierra Leone	Indicator 4.1: The scheme for re-use, recycling and sound disposal of used electric vehicle batteries is endorsed by the Ministry of Environment	Baseline 4.1: No	Mid-point target 4.1: N/A	End-of-project target 4.1: Yes	- Government gazette and other publications - Scheme for re-use, recycling and sound disposal of used batteries document	- Interest by e-waste collection companies to collect and treat of used EV batteries - Sufficient capacity in the waste management sector to enable the re-use of used batteries	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies

ANNEX B: RESPONSE TO PROJECT REVIEWS

Please refer to the separate pdf files which include all responses to the GEF's reviews:

Annex B.1 – Responses to GEF Sec reviews (on the PFD)

Annex B.2 – Responses to GEF Sec reviews (on the PFD addendum)

Annex B.3 – Responses to STAP comments

Annex B.4 – Responses to Council comments

ANNEX C: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

PPG Grant Approved at PIF: US\$ 35,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (US\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent to date</i>	<i>Amount Committed</i>
UNEP Sustainable Mobility Unit expert	22,988	22,065.88	
UNEP Sustainable Mobility Unit travel	6,012	6,934.12	
GEF project consultant	6,000	6,000.00	
Total	35,000	35,000.00	

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (IF NON-GRANT INSTRUMENT IS USED)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up) – if applicable.

Not applicable.

ANNEX E: PROJECT MAP(S) AND COORDINATES

Please attach the geographical location(s) of the project area(s), if possible.

Demonstration sites	Latitude	Longitude
Freetown, Sierra Leone	8.484444	-13.234444

The project will be piloted in Freetown, the country's capital city.



ANNEX F: GEF 7 CORE INDICATOR WORKSHEET

Core Indicator 6	Greenhouse gas emission mitigated				
		Tons (6.2) (6.1 emissions from AFOLU do not apply)			
		Entered		Entered	
		PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)	98,829	116,422		
	Expected CO2e (indirect)	66,788	271,162		
Indicator 6.2	Emissions avoided				
		Tons			
		Expected		Achieved	
		PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)	98,829	116,422		
	Expected CO2e (indirect)	66,788	271,162		
	Anticipated Year		2036		
Indicator 6.3	Energy saved				
		MJ			
		Expected		Achieved	
		PIF stage	Endorsement	MTR	TE
	Expected direct	1,089,563,086	1,283,514,453		
	Expected indirect	736,319,103	2,989,994,484		
Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment				
		Number			
		Expected		Achieved	
		PIF stage	Endorsement	MTR	TE
	Female	5	477		
	Male	34	738		
	Total	39	1,215		

ANNEX G: GEF PROJECT TAXONOMY WORKSHEET

Include the GEF 7 Taxonomy Worksheet to list down the taxonomic information required under Part I, item G by ticking the most relevant keywords/topics/themes that best describe this project.

Level 1	Level 2	Level 3	Level 4
<input checked="" type="checkbox"/> Influencing models			
	<input checked="" type="checkbox"/> Transform policy and regulatory environments		
	<input checked="" type="checkbox"/> Strengthen institutional capacity and decision-making		
	<input checked="" type="checkbox"/> Convene multi-stakeholder alliances		
	<input checked="" type="checkbox"/> Demonstrate innovative approaches		
	<input checked="" type="checkbox"/> Deploy innovative financial instruments		
<input checked="" type="checkbox"/> Stakeholders			
	<input type="checkbox"/> Indigenous Peoples		
	<input checked="" type="checkbox"/> Private Sector		
		<input checked="" type="checkbox"/> Capital providers	
		<input checked="" type="checkbox"/> Financial intermediaries and market facilitators	
		<input checked="" type="checkbox"/> Large corporations	
		<input checked="" type="checkbox"/> SMEs	
		<input checked="" type="checkbox"/> Individuals/Entrepreneurs	
		<input type="checkbox"/> Non-Grant Pilot	
		<input type="checkbox"/> Project Reflow	
	<input type="checkbox"/> Beneficiaries		
	<input type="checkbox"/> Local Communities		
	<input checked="" type="checkbox"/> Civil Society		
		<input type="checkbox"/> Community Based Organization	
		<input checked="" type="checkbox"/> Non-Governmental Organization	
		<input checked="" type="checkbox"/> Academia	
		<input type="checkbox"/> Trade Unions and Workers Unions	
	<input checked="" type="checkbox"/> Type of Engagement		
		<input checked="" type="checkbox"/> Information Dissemination	
		<input checked="" type="checkbox"/> Partnership	
		<input checked="" type="checkbox"/> Consultation	
		<input checked="" type="checkbox"/> Participation	
	<input checked="" type="checkbox"/> Communications		
		<input checked="" type="checkbox"/> Awareness Raising	
		<input checked="" type="checkbox"/> Education	
		<input checked="" type="checkbox"/> Public Campaigns	
		<input checked="" type="checkbox"/> Behaviour Change	
<input checked="" type="checkbox"/> Capacity, Knowledge and Research			
	<input type="checkbox"/> Enabling Activities		
	<input checked="" type="checkbox"/> Capacity Development		
	<input checked="" type="checkbox"/> Knowledge Generation and Exchange		
	<input type="checkbox"/> Targeted Research		
	<input type="checkbox"/> Learning		
		<input type="checkbox"/> Theory of Change	
		<input type="checkbox"/> Adaptive Management	

Level 1	Level 2	Level 3	Level 4
		<input type="checkbox"/> Indicators to Measure Change	
	<input checked="" type="checkbox"/> Innovation		
	<input checked="" type="checkbox"/> Knowledge and Learning		
		<input checked="" type="checkbox"/> Knowledge Management	
		<input checked="" type="checkbox"/> Innovation	
		<input checked="" type="checkbox"/> Capacity Development	
		<input checked="" type="checkbox"/> Learning	
	<input type="checkbox"/> Stakeholder Engagement Plan		
<input checked="" type="checkbox"/> Gender Equality			
	<input checked="" type="checkbox"/> Gender Mainstreaming		
		<input checked="" type="checkbox"/> Beneficiaries	
		<input type="checkbox"/> Women groups	
		<input checked="" type="checkbox"/> Sex-disaggregated indicators	
		<input checked="" type="checkbox"/> Gender-inclusive indicators	
	<input checked="" type="checkbox"/> Gender results areas		
		<input type="checkbox"/> Access and control over natural resources	
		<input checked="" type="checkbox"/> Participation and leadership	
		<input checked="" type="checkbox"/> Access to benefits and services	
		<input type="checkbox"/> Capacity development	
		<input type="checkbox"/> Awareness raising	
		<input type="checkbox"/> Knowledge generation	
<input checked="" type="checkbox"/> Focal Areas/Theme			
	<input type="checkbox"/> Integrated Programs		
		<input type="checkbox"/> Commodity Supply Chains (Good Growth Partnership)	
			<input type="checkbox"/> Sustainable Commodities Production
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Financial Screening Tools
			<input type="checkbox"/> High Conservation Value Forests
			<input type="checkbox"/> High Carbon Stocks Forests
			<input type="checkbox"/> Soybean Supply Chain
			<input type="checkbox"/> Oil Palm Supply Chain
			<input type="checkbox"/> Beef Supply Chain
			<input type="checkbox"/> Smallholder Farmers
			<input type="checkbox"/> Adaptive Management
		<input type="checkbox"/> Food Security in Sub-Sahara Africa	
			<input type="checkbox"/> Resilience (climate and shocks)
			<input type="checkbox"/> Sustainable Production Systems
			<input type="checkbox"/> Agroecosystems
			<input type="checkbox"/> Land and Soil Health
			<input type="checkbox"/> Diversified Farming
			<input type="checkbox"/> Integrated Land and Water Management
			<input type="checkbox"/> Smallholder Farming
			<input type="checkbox"/> Small and Medium Enterprises
			<input type="checkbox"/> Crop Genetic Diversity
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Gender Dimensions
			<input type="checkbox"/> Multi-stakeholder Platforms
		<input type="checkbox"/> Food Systems, Land Use and Restoration	
			<input type="checkbox"/> Sustainable Food Systems
			<input type="checkbox"/> Landscape Restoration
			<input type="checkbox"/> Sustainable Commodity Production

Level 1	Level 2	Level 3	Level 4
			<input type="checkbox"/> Comprehensive Land Use Planning
			<input type="checkbox"/> Integrated Landscapes
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Smallholder Farmers
		<input checked="" type="checkbox"/> Sustainable Cities	
			<input type="checkbox"/> Integrated urban planning
			<input type="checkbox"/> Urban sustainability framework
			<input checked="" type="checkbox"/> Transport and Mobility
			<input type="checkbox"/> Buildings
			<input type="checkbox"/> Municipal waste management
			<input type="checkbox"/> Green space
			<input type="checkbox"/> Urban Biodiversity
			<input type="checkbox"/> Urban Food Systems
			<input type="checkbox"/> Energy efficiency
			<input type="checkbox"/> Municipal Financing
			<input type="checkbox"/> Global Platform for Sustainable Cities
			<input type="checkbox"/> Urban Resilience
	<input type="checkbox"/> Biodiversity		
		<input type="checkbox"/> Protected Areas and Landscapes	
			<input type="checkbox"/> Terrestrial Protected Areas
			<input type="checkbox"/> Coastal and Marine Protected Areas
			<input type="checkbox"/> Productive Landscapes
			<input type="checkbox"/> Productive Seascapes
			<input type="checkbox"/> Community Based Natural Resource Management
		<input type="checkbox"/> Mainstreaming	
			<input type="checkbox"/> Extractive Industries (oil, gas, mining)
			<input type="checkbox"/> Forestry (Including HCVF and REDD+)
			<input type="checkbox"/> Tourism
			<input type="checkbox"/> Agriculture & agrobiodiversity
			<input type="checkbox"/> Fisheries
			<input type="checkbox"/> Infrastructure
			<input type="checkbox"/> Certification (National Standards)
			<input type="checkbox"/> Certification (International Standards)
		<input type="checkbox"/> Species	
			<input type="checkbox"/> Illegal Wildlife Trade
			<input type="checkbox"/> Threatened Species
			<input type="checkbox"/> Wildlife for Sustainable Development
			<input type="checkbox"/> Crop Wild Relatives
			<input type="checkbox"/> Plant Genetic Resources
			<input type="checkbox"/> Animal Genetic Resources
			<input type="checkbox"/> Livestock Wild Relatives
			<input type="checkbox"/> Invasive Alien Species (IAS)
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangroves
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Sea Grasses
			<input type="checkbox"/> Wetlands
			<input type="checkbox"/> Rivers
			<input type="checkbox"/> Lakes
			<input type="checkbox"/> Tropical Rain Forests
			<input type="checkbox"/> Tropical Dry Forests

Level 1	Level 2	Level 3	Level 4
			<input type="checkbox"/> Temperate Forests
			<input type="checkbox"/> Grasslands
			<input type="checkbox"/> Paramo
			<input type="checkbox"/> Desert
		<input type="checkbox"/> Financial and Accounting	
			<input type="checkbox"/> Payment for Ecosystem Services
			<input type="checkbox"/> Natural Capital Assessment and Accounting
			<input type="checkbox"/> Conservation Trust Funds
			<input type="checkbox"/> Conservation Finance
		<input type="checkbox"/> Supplementary Protocol to the CBD	
			<input type="checkbox"/> Biosafety
			<input type="checkbox"/> Access to Genetic Resources Benefit Sharing
	<input type="checkbox"/> Forests		
		<input type="checkbox"/> Forest and Landscape Restoration	
			<input type="checkbox"/> REDD/REDD+
		<input type="checkbox"/> Forest	
			<input type="checkbox"/> Amazon
			<input type="checkbox"/> Congo
			<input type="checkbox"/> Drylands
	<input type="checkbox"/> Land Degradation		
		<input type="checkbox"/> Sustainable Land Management	
			<input type="checkbox"/> Restoration and Rehabilitation of Degraded Lands
			<input type="checkbox"/> Ecosystem Approach
			<input type="checkbox"/> Integrated and Cross-sectoral approach
			<input type="checkbox"/> Community-Based NRM
			<input type="checkbox"/> Sustainable Livelihoods
			<input type="checkbox"/> Income Generating Activities
			<input type="checkbox"/> Sustainable Agriculture
			<input type="checkbox"/> Sustainable Pasture Management
			<input type="checkbox"/> Sustainable Forest/Woodland Management
			<input type="checkbox"/> Improved Soil and Water Management Techniques
			<input type="checkbox"/> Sustainable Fire Management
			<input type="checkbox"/> Drought Mitigation/Early Warning
		<input type="checkbox"/> Land Degradation Neutrality	
			<input type="checkbox"/> Land Productivity
			<input type="checkbox"/> Land Cover and Land cover change
			<input type="checkbox"/> Carbon stocks above or below ground
	<input type="checkbox"/> International Waters	<input type="checkbox"/> Food Security	
		<input type="checkbox"/> Ship	
		<input type="checkbox"/> Coastal	
		<input type="checkbox"/> Freshwater	
			<input type="checkbox"/> Aquifer
			<input type="checkbox"/> River Basin
			<input type="checkbox"/> Lake Basin
		<input type="checkbox"/> Learning	
		<input type="checkbox"/> Fisheries	
		<input type="checkbox"/> Persistent toxic substances	

Level 1	Level 2	Level 3	Level 4
		<input type="checkbox"/> SIDS : Small Island Dev States	
		<input type="checkbox"/> Targeted Research	
		<input type="checkbox"/> Pollution	
			<input type="checkbox"/> Persistent toxic substances
			<input type="checkbox"/> Plastics
			<input type="checkbox"/> Nutrient pollution from all sectors except wastewater
			<input type="checkbox"/> Nutrient pollution from Wastewater
		<input type="checkbox"/> Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		<input type="checkbox"/> Strategic Action Plan Implementation	
		<input type="checkbox"/> Areas Beyond National Jurisdiction	
		<input type="checkbox"/> Large Marine Ecosystems	
		<input type="checkbox"/> Private Sector	
		<input type="checkbox"/> Aquaculture	
		<input type="checkbox"/> Marine Protected Area	
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangrove
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Seagrasses
			<input type="checkbox"/> Polar Ecosystems
			<input type="checkbox"/> Constructed Wetlands
	<input type="checkbox"/> Chemicals and Waste		
		<input type="checkbox"/> Mercury	
		<input type="checkbox"/> Artisanal and Scale Gold Mining	
		<input type="checkbox"/> Coal Fired Power Plants	
		<input type="checkbox"/> Coal Fired Industrial Boilers	
		<input type="checkbox"/> Cement	
		<input type="checkbox"/> Non-Ferrous Metals Production	
		<input type="checkbox"/> Ozone	
		<input type="checkbox"/> Persistent Organic Pollutants	
		<input type="checkbox"/> Unintentional Persistent Organic Pollutants	
		<input type="checkbox"/> Sound Management of chemicals and Waste	
		<input type="checkbox"/> Waste Management	
			<input type="checkbox"/> Hazardous Waste Management
			<input type="checkbox"/> Industrial Waste
			<input type="checkbox"/> e-Waste
		<input type="checkbox"/> Emissions	
		<input type="checkbox"/> Disposal	
		<input type="checkbox"/> New Persistent Organic Pollutants	
		<input type="checkbox"/> Polychlorinated Biphenyls	
		<input type="checkbox"/> Plastics	
		<input type="checkbox"/> Eco-Efficiency	
		<input type="checkbox"/> Pesticides	
		<input type="checkbox"/> DDT - Vector Management	
		<input type="checkbox"/> DDT - Other	
		<input type="checkbox"/> Industrial Emissions	
		<input type="checkbox"/> Open Burning	
		<input type="checkbox"/> Best Available Technology / Best Environmental Practices	
		<input type="checkbox"/> Green Chemistry	
	<input checked="" type="checkbox"/> Climate Change		
		<input type="checkbox"/> Climate Change Adaptation	
			<input type="checkbox"/> Climate Finance

Level 1	Level 2	Level 3	Level 4
			<input type="checkbox"/> Least Developed Countries
			<input type="checkbox"/> Small Island Developing States
			<input type="checkbox"/> Disaster Risk Management
			<input type="checkbox"/> Sea-level rise
			<input type="checkbox"/> Climate Resilience
			<input type="checkbox"/> Climate information
			<input type="checkbox"/> Ecosystem-based Adaptation
			<input type="checkbox"/> Adaptation Tech Transfer
			<input type="checkbox"/> National Adaptation Programme of Action
			<input type="checkbox"/> National Adaptation Plan
			<input type="checkbox"/> Mainstreaming Adaptation
			<input type="checkbox"/> Private Sector
			<input type="checkbox"/> Innovation
			<input type="checkbox"/> Complementarity
			<input type="checkbox"/> Community-based Adaptation
			<input type="checkbox"/> Livelihoods
		<input checked="" type="checkbox"/> Climate Change Mitigation	
			<input type="checkbox"/> Agriculture, Forestry, and other Land Use
			<input checked="" type="checkbox"/> Energy Efficiency
			<input checked="" type="checkbox"/> Sustainable Urban Systems and Transport
			<input checked="" type="checkbox"/> Technology Transfer
			<input checked="" type="checkbox"/> Renewable Energy
			<input type="checkbox"/> Financing
			<input type="checkbox"/> Enabling Activities
		<input type="checkbox"/> Technology Transfer	
			<input type="checkbox"/> Poznan Strategic Programme on Technology Transfer
			<input type="checkbox"/> Climate Technology Centre & Network (CTCN)
			<input type="checkbox"/> Endogenous technology
			<input type="checkbox"/> Technology Needs Assessment
			<input type="checkbox"/> Adaptation Tech Transfer
		<input type="checkbox"/> United Nations Framework on Climate Change	
			<input type="checkbox"/> Nationally Determined Contribution
		<input type="checkbox"/> Climate Finance (Rio Markers)	<input type="checkbox"/> Paris Agreement
			<input type="checkbox"/> Sustainable Development Goals
			<input type="checkbox"/> Climate Change Mitigation 1
			<input checked="" type="checkbox"/> Climate Change Mitigation 2
			<input type="checkbox"/> Climate Change Adaptation 1
			<input type="checkbox"/> Climate Change Adaptation 2

ANNEX H: INDICATIVE TERMS OF REFERENCE FOR PROJECT PERSONNEL, CONSULTANTS AND SUBCONTRACTS

Position title:	Chief Technical Advisor		
Budget line number:	0101		
Duration:	48	months	(during Year 4 of the project, the CTA will only work part-time)
Date required:	M 1		
Duty station:	Freetown, Sierra Leone		
Reporting structure:	The Chief Technical Advisor will report to the National Project Director and to the Task Manager of the Lead Implementing Agency [UNEP].		
Description of duties:	<p>Main project management duties:</p> <ul style="list-style-type: none"> - Ensure that project implementation is carried out according to the project design and the outputs are delivered and outcomes achieved to the required standard of quality within the approved timeframe and budget. - Regular communication with relevant ministries, governmental agencies, co-finance partners, PSC members, members of ad-hoc technical working groups and all other key stakeholders. - Organize and facilitate the inception workshop, project steering committee meetings and other project meetings. - Undertake timely reporting to the NPD and the IA as per the M&E Plan and the project cooperation agreement requirements. - Prepare annual workplan and budget revisions and update the project Procurement Plan, as required. - Supervision of the staff, experts, subcontractors, and implementing partners working on the project. - Identification of risks, preparing of mitigation strategies and implementation of mitigations measures. - Track project achievements against the Results Framework, Core Indicator worksheet and Gender Action Plan. - Review of project documents with a particular focus on local context - Support data and information retrieval and research by actively liaising national stakeholders with consultants. - Ensure the Gender Action Plan is implemented and monitored during project implementation. - Undertake other activities as assigned by the Executing Agency (EPA). 		
Expected deliverables:	1.1.	All deliverables under Output 1.1 (establishing and running the coordination body)	
	1.1.4	Final e-mobility coordination body report, including all best practices and lessons learned from the project (to be shared with the Global Electric Mobility Programme)	
	1.2.1	Set-up of the national strategy development team, including ToRs for the International Policy, Business	
	1.2.2	National e-mobility strategy workshop	
	1.3.	All deliverables under Output 1.3 (ensures right stakeholders participate in Global events)	
	2.1.1	Detailed terms of reference are developed including an implementation plan and deliverables for the International E-Mobility Technology expert and the National E-Mobility Technology Expert	
	2.1.5	Support the International E-Mobility Technology expert in the preparation of the final feasibility study and the demonstration implementation plan including framework for data collection, reporting, and analysis	
	2.2.3	Support the International E-mobility Technical Support (UNEP SM Unit) in the procurement of charging equipment	
	2.2.5	Final report on the demonstration results presented to the coordination body and to the Global Electric Mobility Programme	
	3.1.1	Detailed terms of reference are developed including an implementation plan and deliverables for the International Policy, Business and Strategy expert	
	3.1.2	Support the International Policy, Business and Strategy expert with the draft vehicle import taxation proposal presentation at a workshop	

	3.1.3	Support the International Policy, Business and Strategy expert with the draft vehicle import regulation proposal presentation at a workshop
	3.1.4	Support the International Policy, Business and Strategy expert with the draft vehicle registration proposal presentation at a workshop
	3.1.5	Support the International Policy, Business and Strategy expert with the final policy package presentation
	3.2.1	Detailed terms of reference including an implementation plan and deliverables for the International Policy, Business and Strategy expert and the National E-Mobility Technology Expert
	4.1.1	Detailed terms of reference are developed including an implementation plan and deliverables for the International Charging & Renewable Energy integration expert
	4.1.3	Support the International Charging & Renewable Energy integration expert with the dissemination of the study to integrate renewable power for electric vehicle recharging
	4.2.1	Detailed terms of reference are developed including an implementation plan and deliverables for the International Battery Technology expert
	4.2.3	Support the International Battery Technology expert with the dissemination of the scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries
Qualifications:		<ul style="list-style-type: none"> - Professional degree in Engineering, Economics or other discipline related to the technical, economic and regulatory dimensions of urban public transport and - ideally - renewable energies. A Master Degree in urban mobility or automotive engineering will be an added advantage. - Professional experience of at least 4 years in the area of urban mobility or related fields. - Extensive experience and ability to effectively manage and coordinate complex inter-sectoral and multi-stakeholder projects and lead, manage and motivate teams to achieve results. - Excellent communication (especially in French) and negotiation skills proven through successful interactions with all levels of stakeholder groups, including senior government officials, private entrepreneurs, as well as representatives from the finance sector and technical agencies. - Excellent and proven know-how in institutional and policies development and excellent capacities for strategic thinking, planning and management. - Good technical knowledge in the thematic areas of urban public transport, innovative vehicle technologies (incl. electric vehicles), renewable energies and power supply and distribution systems. - Knowledge implementation procedures of UNEP projects or projects with similar structures (incl. procurement, disbursements, and reporting and monitoring as well as the implementation of gender action plans) will be an added advantage.
Languages:	English	

Position title:	International Policy, Business and Strategy expert		
Budget line number:	0102		
Duration:	22	weeks	(Note: the Expert will be mobilized intermittently from Year 1 to 4)
Date required:	M 5		
Duty station:	Home-based with missions to Sierra Leone		
Reporting structure:	Reports to the Chief Technical Advisor		
Description of duties:	<ul style="list-style-type: none"> - Provide technical, economic and financial expertise on the subject of e-mobility policies - Preparation of feasibility studies, conceptualization of e-mobility business models, finance scheme and investment plans for the public transport sector - Providing consultancy on fund-raising for public e-mobility projects - Active participation as expert in workshops - Communication and promotion of results to government officials and other urban public transport sector stakeholders - Design and preparation of an EV operation monitoring campaign 		
Expected deliverables:	1.2.2	Support the Chief Technical Advisor for the national e-mobility strategy workshop	
	1.2.3	Collection and consolidation of transport and energy sector data	
	1.2.5	Final gender sensitive national e-mobility strategy, submitted for adoption	
	3.1.2	Draft vehicle import taxation proposal developed and presented at a workshop	
	3.1.3	Draft vehicle import regulation proposal developed and presented at a workshop	
	3.1.4	Draft vehicle registration proposal developed and presented at a workshop	
	3.1.5	Final policy package delivered and presented	
	3.2.2	Draft financing mechanism and business models developed and presented	
	3.2.3	Final financing scheme, a procurement guideline, business models developed and proposed	
Qualifications:	<ul style="list-style-type: none"> - Academic Degree in Automotive Engineering or other relevant fields. A Master Degree in Automotive Engineering with focus on electric transport modes or post-graduation of at least 12 month in electric mobility or sustainable urban transport and/or Business Administration/Finance/Economics would be an added advantage. - Senior professional level with a minimum of ten years experience in related innovative transport system assessments. Work experience in the selection, procurement and/or operation of EV modes and charging infrastructure and/or in the public transport sector would be an added advantage. - Experience in producing technical and economic feasibility studies for the introduction of electric transport or other innovative transportation modes. - Excellent technical and economic knowledge of electric public transport modes, incl. charging infrastructure - Excellent communication skills proven through successful interactions with all levels of stakeholder groups, including senior government officials, private entrepreneurs, as well as representatives from the finance sector and technical agencies. - Experience in the facilitation of workshops and meetings. - Excellent conceptualization, planning, writing and presentation skills, and pro-active behavior. - Ability to work independently on deliverables. - Willingness and readiness to travel to Sierra Leone. 		
Languages:	English		

Position title:	International E-mobility Technical Support (UNEP SM Unit)		
Budget line number:	0103		
Duration:	6.50	weeks	(Note: UNEP SM Unit will be available for support throughout the project, main intermittent contributions expected in Years 1-3.)
Date required:	M 3		
Duty station:	Home-based with missions to Sierra Leone		
Reporting structure:	Reports to the Chief Technical Advisor		
Description of duties:	<p>The EPA-SL and Sierra Leone's GEF OFP have requested the UNEP SMU to provide execution support (refer to letter in Annex N-2) on the following</p> <ul style="list-style-type: none"> - The procurement of electric vehicles (3-wheelers) - The recruitment and contracting of international experts - Facilitate technical discussions among Ministries and project stakeholder <p>In addition, through its co-finance contribution, the UNEP SMU will also procure charging infrastructure for the project.</p> <p>Finally, the SMU support will also include the following through the Africa Support and Investment Platform:</p> <ul style="list-style-type: none"> - Technical troubleshooting - Provides guidance to project implementation - Links to experts from the Global e-mobility programme 		
Expected deliverables:	1.2.2	Support the Chief Technical Advisor in conducting the National e-mobility strategy workshop	
	1.2.3	Support the International Policy, Business and Strategy expert in the development of the gender sensitive national e-mobility strategy	
	2.2.2	Support in the procurement of 15 electric kekes	
	2.2.3	Procurement of charging equipment	
	3.2.2	Support the International Policy, Business and Strategy expert in the development of the financing mechanism and business models	
	3.2.3	Support the International Policy, Business and Strategy expert in the development of the procurement guideline	
	4.1.2	Support the International Charging & Renewable Energy integration expert to develop the study to integrate renewable power for electric vehicle recharging and technical standards for 2&3 wheelers	
	4.2.2	Support the International Battery Technology expert in the development of the scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries	
Qualifications:	<ul style="list-style-type: none"> - Academic Degree in Engineering / Environmental studies or other relevant fields. A Master Degree in Engineering / Environmental studies. - Entry level professional level with a minimum of 3 years experience in related innovative transport system assessments. Work experience in the selection, procurement and/or operation of EV modes and charging infrastructure and/or in the public transport sector would be an added advantage. - Experience in producing technical and economic feasibility studies for the introduction of electric transport or other innovative transportation modes. - Excellent technical and economic knowledge of electric public transport modes, incl. charging infrastructure. - Excellent communication skills proven through successful interactions with all levels of stakeholder groups, including senior government officials, private entrepreneurs, as well as representatives from the finance sector and technical agencies. - Experience in the facilitation of workshops and meetings. - Excellent conceptualization, planning, writing and presentation skills, and pro-active behavior. - Ability to work independently on deliverables. - Willingness and readiness to travel to Sierra Leone. 		
Languages:	English		

Position title:	International E-Mobility Technology expert		
Budget line number:	0104		
Duration:	9	weeks	(Note: the Expert will be mobilized intermittently from Year 1 to 4)
Date required:	M 6		
Duty station:	Home-based with missions to Sierra Leone		
Reporting structure:	Reports to the Chief Technical Advisor		
Description of duties:	<ul style="list-style-type: none"> - Provide technical, economic and financial expertise on the subject of e-mobility technology - Preparation of feasibility studies and preparation of the analysis for charging network - Providing consultancy on fund-raising for public e-mobility projects - Active participation as expert in workshops - Communication and promotion of results to government officials and other urban public transport sector stakeholders - Design and preparation of an EV operation monitoring campaign 		
Expected deliverables:	2.1.2	A private sector partner to implement the demonstration is officially selected and onboard	
	2.1.3	A study to identify locations, technology and capacity of a e-keke charging (including both overnight charging and battery swapping) is developed	
	2.1.4	A draft feasibility study including the development of business models for the vehicles and the charger operators as well as a finance scheme is developed and presented during workshop to the coordination body for endorsement	
	2.1.5	The final feasibility study and the demonstration implementation plan including framework for data collection, reporting, and analysis are developed	
	2.2.1	Technical requirements of the electric vehicles and charging equipment to be procured are developed	
	2.2.2	Procurement of 15 electric kekes, based on specifications established in D2.2.1, to be managed by EPA-SL	
	2.2.4	Driving manual and protocol established, with operation and safety training conducted with drivers	
Qualifications:	<ul style="list-style-type: none"> - Academic Degree in Engineering or other relevant fields. A Master Degree in Engineering with focus on electric transport modes or post-graduation of at least 12 month in electric mobility or sustainable urban transport and/or Business Administration/Finance/Economics would be an added advantage. - Professional with a minimum of 4 years experience in related innovative transport system assessments. Work experience in the selection, procurement and/or operation of EV modes and charging infrastructure and/or in the public transport sector would be an added advantage. - Experience in producing technical and economic feasibility studies for the introduction of electric transport or other innovative transportation modes. - Excellent technical and economic knowledge of electric public transport modes, incl. charging infrastructure. - Excellent communication skills proven through successful interactions with all levels of stakeholder groups, including senior government officials, private entrepreneurs, as well as representatives from the finance sector and technical agencies. - Experience in the facilitation of workshops and meetings. - Excellent conceptualization, planning, writing and presentation skills, and pro-active behavior. - Ability to work independently on deliverables. - Willingness and readiness to travel to Sierra Leone. 		
Languages:	English		

Position title:	National E-Mobility Technology Expert		
Budget line number:	0105		
Duration:	9	weeks	(Note: the Expert will be mobilized intermittently from Year 1 to 4)
Date required:	M 3		
Duty station:	Freetown, Sierra Leone		
Reporting structure:	Reports to Chief Technical Advisor		
Description of duties:	<ul style="list-style-type: none"> - Supporting experts through the research of local data and information - Supporting experts in the preparation of workshops and meeting, incl. linguistic review of presentations and other documents provided by the international experts - Participation in meetings and presentation of results 		
Expected deliverables:	2.2.1	Support the International E-Mobility Technology expert in the development of technical requirements of the electric vehicles and charging equipment to be procured	
	2.2.2	Support the procurement of 15 electric kekes	
	2.2.3	Support the procurement of charging equipment	
	2.2.4	Support the International E-Mobility Technology expert in the development of the driving manual and safety trainings for drivers	
	3.2.2	Support the International Policy, Business and Strategy expert in the development of the financing mechanism and business models	
	3.2.3	Support the International Policy, Business and Strategy expert in the development of the procurement guideline	
Qualifications:	<ul style="list-style-type: none"> - A first-level university degree or equivalent in Engineering, Economics or other discipline related to the technical, economic and regulatory dimensions of urban public transport and - ideally - renewable energies - At least 3 years of relevant experience in electric mobility including transport, renewable energy and climate change mitigation - Experience with local implementation of mobility projects - Sound technical knowledge of electric public transport modes, incl. charging infrastructure. - Good communication skills proven through successful interactions with a variety of stakeholder groups 		
Languages:	English		

Position title:	International Charging & Renewable Energy Integration expert		
Budget line number:	0106		
Duration:	8	weeks	(Note: the Expert will be mobilized intermittently during Year 3)
Date required:	M 22		
Duty station:	Home-based with missions to Sierra Leone		
Reporting structure:	Reports to Chief Technical Advisor		
Description of duties:	<ul style="list-style-type: none"> - Provide technical and economic expertise on the subject of the integration of e-mobility charging infrastructure in urban distribution grids and associated market development of renewable energies - Preparation of studies on the integration of charging infrastructure into distribution grids - Development of scenarios for accelerated renewable energy deployment under given e-mobility scenarios - Active participation as expert in workshops - Communication and promotion of results to government officials and other urban public transport sector stakeholders - Design and preparation of an EV operation monitoring campaign 		
Expected deliverables:	4.1.2	A draft study to integrate renewable power for electric vehicle recharging and technical standards for 2&3 wheelers are developed and circulated for review	
	4.1.3	The study to integrate renewable power for electric vehicle recharging is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.	
Qualifications:	<ul style="list-style-type: none"> - Academic Degree in Electrical/Electronic Engineering or other relevant fields. An Engineering Master Degree or post-graduation of at least 12 month with focus on power transmission and distribution systems would be an added advantage. - At least 4 years of experience in the power sector, especially in distribution grid analysis, grid integration and renewable power generation and direct renewable power purchase agreements, incl. cost estimations. - Excellent technical and economic knowledge of grid integration issues and relevant standards. - Strong ability to comprehend technical aspects of e-mobility, especially charging infrastructure. Proven experience in dealing with e-mobility infrastructure would be an added advantage. - Very good knowledge of renewable energies and proven experience in the development of national renewable energy deployment scenarios. - Proven experience in drafting policies, reports and strategies in the power sector. - Excellent communication skills (especially oral communication skills in French) proven through successful interactions with all levels of stakeholder groups, especially senior government officials. - Excellent conceptualization, planning, writing and presentation skills, and pro-active behavior. - Ability to work independently on deliverables. - Willingness and readiness to travel to Sierra Leone 		
Languages:	English		

Position title:	International Battery Technology expert		
Budget line number:	0107		
Duration:	6	weeks	(Note: the Expert will be mobilized intermittently during Year 3)
Date required:	M 22		
Duty station:	Home-based with missions to Sierra Leone		
Reporting structure:	Reports to Chief Technical Advisor		
Description of duties:	<ul style="list-style-type: none"> - Provide technical expertise on the subject of EV battery related e-waste management - Preparation of a study on the introduction and conceptualization of EV battery waste management in Côte d'Ivoire - Providing consultancy on EV battery waste management to e-waste collection points - Implementation of a pre-audit for the certification of a collection point to collect used EV batteries - Active participation as expert in workshops - Communication and promotion of results to government officials and waste management sector stakeholders 		
Expected deliverables:	4.2.2	A draft scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed and presented for review	
	4.2.3	The scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is finalized and disseminated to all local stakeholders, the coordinating body and the Global Programme knowledge management focal point.	
Qualifications:	<ul style="list-style-type: none"> - Academic Degree in Environmental Engineering/Recycling and Waste Management/Electrochemistry or other relevant fields. An Engineering Master Degree or post-graduation of at least 12 month with focus on electronic waste management would be an added advantage. - At least 4 years of experience in the recycling and waste management sector. Experience in the management of lithium battery waste would be an added advantage. - Very good knowledge of current practices in recycling, reuse and disposal of used lithium batteries. - Proven experience in drafting proposals for a regulatory framework including a certification scheme for the collection of used EV batteries for re-use, recycling and safe disposal. - Excellent communication skills (especially oral communication skills in French) proven through successful interactions with all levels of stakeholder groups, especially technical agencies and private sector enterprises. - Excellent conceptualization, planning, writing and presentation skills, and pro-active behavior. - Ability to work independently on deliverables. - Willingness and readiness to travel to Sierra Leone. 		
Languages:	English		

ANNEX I-1 DETAILED GEF BUDGET

Project Components	Project Outputs	Umoja budget class	Budget line	Budget line description	Budget allocation per Year					
					Year 1	Year 2	Year 3	Year 4	Total	
Component 1: Institutionalization of low-carbon electric mobility	Output 1.1: An inter-sectorial electric mobility coordination body is established.	010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	2,500	2,000	2,000	1,000	7,500	
		120 - Contract Services	1201	Venue and catering for workshop on e-mobility coordination body	1,750	1,750	-	-	3,500	
		Sub-total Output 1.1				4,250	3,750	2,000	1,000	11,000
	Output 1.2: A gender-sensitive national e-mobility strategy is developed and formally proposed.	010 - Staff & Personnel (Including Consultants)	0102	International Policy, Business and Strategy expert	8,250	8,250	-	-	16,500	
		160 - Travel	1601	Travel for the International Policy, Business and Strategy expert (component 1)	1,600	-	-	-	1,600	
		010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	1,250	1,000	-	-	2,250	
		120 - Contract Services	1202	Venue and catering for workshop on e-mobility national strategy	-	1,750	-	-	1,750	
		010 - Staff & Personnel (Including Consultants)	0103	International E-mobility Technical Support (UNEP SM Unit)	1,375	1,375	-	-	2,750	
		160 - Travel	1602	Travel for the International E-mobility Technical Support (UNEP SM Unit)	2,500	-	2,500	-	5,000	
	Sub-total Output 1.2				15,130	12,530	2,500	-	30,160	
	Output 1.3: Key stakeholders are trained in the EV global programme activities (national and regional workshops, trainings and thematic working groups) and awareness is raised among key stakeholders on electric mobility.	010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	500	250	250	250	1,250	
		160 - Travel	1603	Travel to attend Africa Support & Investment Platform events	18,400	13,800	2,300	2,300	36,800	
		160 - Travel	1604	Travel to attend E-Mobility Global Programme events (DSA only)	1,100	-	-	1,100	2,200	
		160 - Travel	1605	Travel to attend 2&3 wheeler working group	2,300	2,300	-	-	4,600	
		Sub-total Output 1.3				22,300	16,350	2,550	3,650	44,850
Total Component 1					41,680	32,630	7,050	4,650	86,010	
Component 2: Short term barrier removal through low-carbon e-mobility demonstrations	Output 2.1: A comprehensive implementation plan for electric vehicles demonstration including a low-carbon charging scheme, and a data collection framework are developed along with the reporting and analytical framework.	010 - Staff & Personnel (Including Consultants)	0104	International E-Mobility Technology expert	8,250	8,250	-	-	16,500	
		010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	4,250	3,000	3,000	1,500	11,750	
		160 - Travel	1606	Travel for the International E-Mobility Technology expert	1,600	-	-	-	1,600	
		135 - Equipment, Vehicles & Furniture	1353	Electric vehicle spareparts	-	10,000	-	-	10,000	
	Sub-total Output 2.1				14,100	21,250	3,000	1,500	39,850	
	Output 2.2: Demonstration vehicles and charging equipment are procured, staff trained, demonstration projects are implemented, monitored and data are collected, analyzed and disseminated.	010 - Staff & Personnel (Including Consultants)	0104	International E-Mobility Technology expert	-	8,250	6,875	5,500	20,625	
		010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	1,750	1,750	1,750	1,000	6,250	
		010 - Staff & Personnel (Including Consultants)	0105	National E-Mobility Technology Expert	3,000	3,000	2,250	2,250	10,500	
		010 - Staff & Personnel (Including Consultants)	0103	International E-mobility Technical Support (UNEP SM Unit)	-	2,750	2,750	-	5,500	
		135 - Equipment, Vehicles & Furniture	1351	Price differential subsidies for electric 3-wheelers	-	58,931	-	-	58,931	
Sub-total Output 2.2				4,750	74,681	13,625	8,750	101,806		
Total Component 2					18,850	95,931	16,625	10,250	141,656	
Component 3: Preparation of scale-up and replication of electric mobility	Output 3.1: Fiscal policies and regulatory schemes to incentivize the uptake of electric mobility are developed and formally proposed.	010 - Staff & Personnel (Including Consultants)	0102	International Policy, Business and Strategy expert	-	11,000	8,250	-	19,250	
		160 - Travel	1607	Travel for the International Policy, Business and Strategy expert (component 3)	-	1,600	1,600	-	3,200	
		120 - Contract Services	1203	Venue and catering for workshops on fiscal policies & regulatory schemes	-	1,750	1,750	-	3,500	
		010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	500	1,500	1,500	-	3,500	
	Sub-total Output 3.1				500	15,850	13,100	-	29,450	
	Output 3.2: Based on the demonstration project, a financing scheme including a procurement guideline and business models for the procurement of electric vehicles is developed and formally proposed.	010 - Staff & Personnel (Including Consultants)	0102	International Policy, Business and Strategy expert	-	13,750	12,375	-	26,125	
		010 - Staff & Personnel (Including Consultants)	0103	International E-mobility Technical Support (UNEP SM Unit)	-	1,375	1,375	1,375	4,125	
		010 - Staff & Personnel (Including Consultants)	0105	National E-Mobility Technology Expert	-	3,000	3,000	3,000	9,000	
		010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	-	750	750	750	2,250	
		120 - Contract Services	1204	Venue and catering for workshops on financing and business models	-	1,750	-	-	1,750	
	Sub-total Output 3.2				-	20,625	17,500	5,125	43,250	
	Total Component 3					500	36,475	30,600	5,125	72,700
	Component 4: Long-term environmental sustainability of low-carbon electric mobility	Output 4.1: A study on integration of renewable power for electric vehicle charging is carried out and formally disseminated.	010 - Staff & Personnel (Including Consultants)	0106	International Charging & Renewable Energy integration expert	-	-	22,000	-	22,000
160 - Travel			1608	Travel for the International Charging & Renewable Energy integration expert	-	-	1,600	-	1,600	
010 - Staff & Personnel (Including Consultants)			0101	Chief Technical Advisor	-	500	1,500	-	2,000	
120 - Contract Services			1205	Venue and catering for the workshop on environmental sustainability	-	-	1,750	-	1,750	
010 - Staff & Personnel (Including Consultants)			0103	International E-mobility Technical Support (UNEP SM Unit)	-	-	2,750	-	2,750	
Sub-total Output 4.1				-	500	29,600	-	30,100		
Output 4.2: A scheme for re-use, recycling and sound disposal of used electric vehicle batteries is developed and formally proposed.		010 - Staff & Personnel (Including Consultants)	0107	International Battery Technology expert	-	-	16,500	-	16,500	
		160 - Travel	1609	Travel for the International Battery Technology expert	-	-	1,600	-	1,600	
		010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	-	-	1,500	-	1,500	
		010 - Staff & Personnel (Including Consultants)	0103	International E-mobility Technical Support (UNEP SM Unit)	-	-	2,750	-	2,750	
	Sub-total Output 4.2				-	-	22,350	-	22,350	
Total Component 4					-	500	51,950	-	52,450	
Monitoring and Evaluation (M&E)	Monitoring and Evaluation (M&E)	120 - Contract Services	1207	Catering for inception workshop and PSC meetings	1,200	400	400	400	2,400	
		120 - Contract Services	1291	Mid-Term Review (optional)	-	10,000	-	-	10,000	
		120 - Contract Services	1292	Terminal Evaluation (UNEP Evaluation Office)	-	-	-	20,000	20,000	
Total M&E					1,200	10,400	400	20,400	32,400	
Project Management Costs (PMC)	Project Management Costs (PMC)	010 - Staff & Personnel (Including Consultants)	0101	Chief Technical Advisor	9,000	9,000	7,500	7,000	32,500	
		120 - Contract Services	1206	Independent financial audits	1,500	1,500	1,500	1,500	6,000	
Total PMC					10,500	10,500	9,000	8,500	38,500	
Project Grand Total					72,730	186,436	115,625	48,925	423,716	

ANNEX I-2 DETAILED CO-FINANCE BUDGET

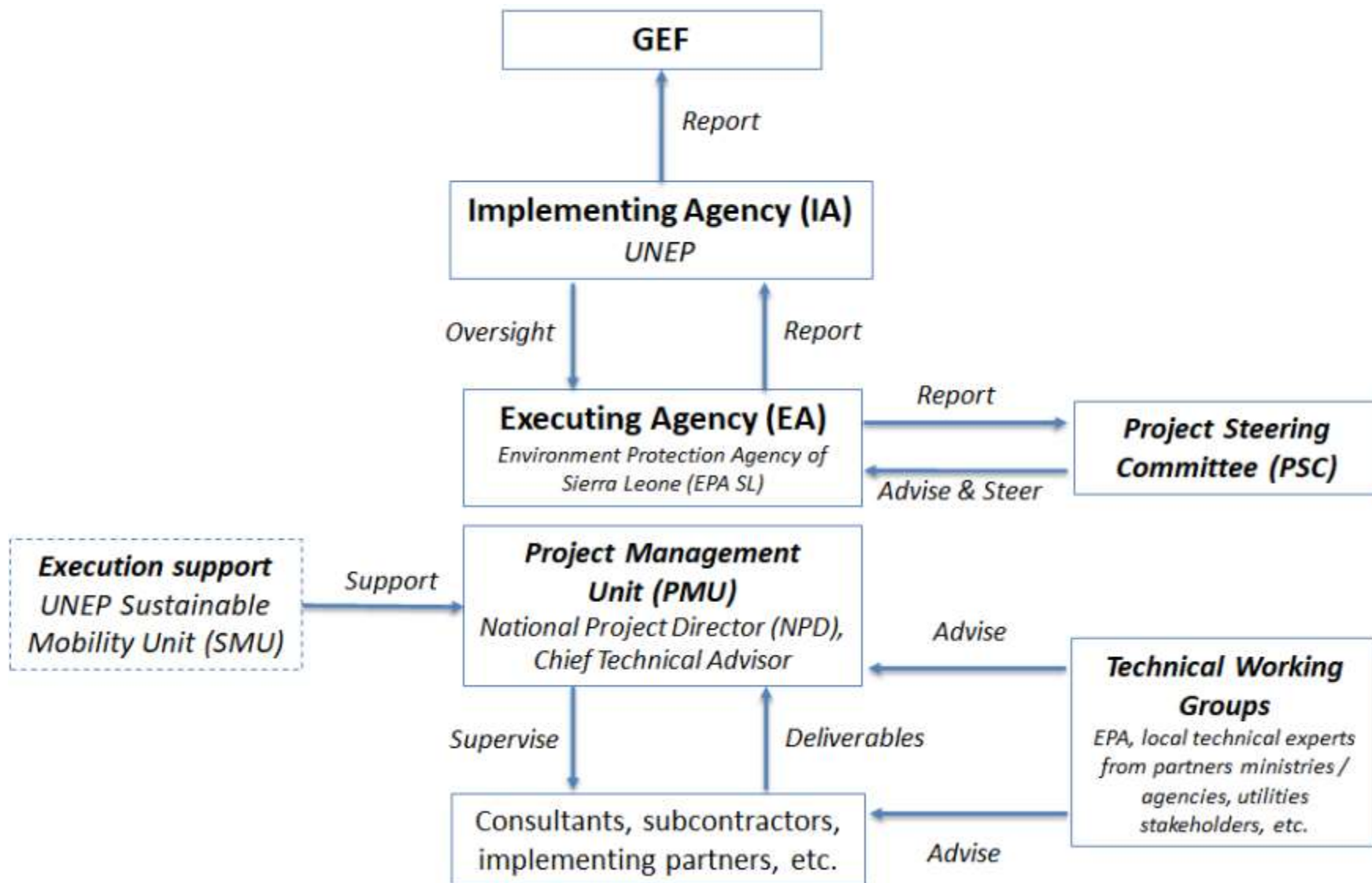
No.	Co-finance partner		Nature of co-finance		Co-finance contribution per project Component in US\$					Total in US\$	Description of co-finance contributions <i>(in line with co-finance letters received from partners)</i>
	Name	Source	Type	Investment Mobilized	C1	C2	C3	C4	PMC		
1	Environment Protection Agency Sierra Leone	Recipient Country Government	In-Kind	Recurrent expenditures	30,400	30,400	30,400	30,400	70,000	191,600	General project execution support from the Environment Protection Agency, which is the Executing Agency of this project.
2	Ministry of Energy	Recipient Country Government	Public Investment	Investment mobilized	-	-	1,300,000	-	-	1,300,000	The investment mobilized through renewable power projects implemented by Ministry of Energy of Sierra Leone is based on the share of annual power demand of an up-scaled electric 2&3 wheeler fleet on the power generation of the renewable power projects. It is envisaged that the fleet of electric 2&3 wheelers directly attributable to the project interventions will reach about 8,000 units by 2030. The power demand stemming from the use of these electric 2&3 wheelers is estimated to account for about 2% of the annual power generation produced by the renewable power projects mentioned in the co-finance letter. This co-finance contribution in form of investment mobilized is therefore set to 2% of the total investment in renewable power projects implemented by Ministry of Energy and occurring during the project time frame 2021 to 2025
3	Ministry of Energy	Recipient Country Government	In-Kind	Recurrent expenditures	8,750	8,750	8,750	8,750	15,000	50,000	Participation in the Project Steering Committee meetings / Electric Mobility Coordination Body meetings, workshops, trainings and capacity building events as appropriate. Review of project documents / deliverables. Political support.
4	Ministry of Transport and Aviation	Recipient Country Government	In-Kind	Recurrent expenditures	8,750	8,750	8,750	8,750	15,000	50,000	Participation in the Project Steering Committee meetings / Electric Mobility Coordination Body meetings, workshops, trainings and capacity building events as appropriate. Review of project documents / deliverables. Political support.
6	UNEP	GEF Agency	Grant	Investment mobilized	-	60,000	-	-	-	60,000	UNEP will mobilize a small grant through the European Commission funded Solutions Plus project. This grant is to build upon an existing project with electric vehicle demonstration activities, and to replicate lessons learnt from the Solutions Plus demonstration projects. The grant portion will be used by UNEP for the procurement of charging equipment and for targeted support of local innovators to install and / or operate that equipment
Total					47,900	107,900	1,347,900	47,900	100,000	1,651,600	

ANNEX J: M&E BUDGET AND WORKPLAN

M&E Activity	Description	Responsible Parties	Timeframe	Indicative budget (USD)
Inception Workshop (IW)	Report prepared following the IW; which includes: <ul style="list-style-type: none"> - A detailed workplan and budget for the first year of project implementation, - An overview of the workplan for subsequent years, divided per component, output and activities. - A detailed description of the roles and responsibilities of all project partners - A detailed description of the PMU and PSC, including an organization chart - Updated Procurement Plan and a M&E Plan, Gender Action Plan - Minutes of the Inception Workshop 	Execution: CTA Support:	1 report to be prepared following the IW, to be shared with participants 4 weeks after the IW (latest)	GEF: US\$ 800
Steering Committee Meeting	Prepare minutes for every Steering Committee Meeting.	Execution: CTA Support:	At least 1 per year Minutes to be submitted 1 week following each PSC meeting	GEF: US\$ 1,600 (=US\$ 400 for 4 PSC meetings)
Half-yearly progress report	Part of UNEP requirements for project monitoring. <ul style="list-style-type: none"> - Narrative of the activities undertaken during the considered semester - Analyses project implementation progress over the reporting period; - Describes constraints experienced in the progress towards results and the reasons. 	Execution: CTA Support: PMU	Two (2) half-yearly progress reports for any given year, submitted by July 31 and January 31 (latest)	GEF: as part of CTA budget
Quarterly expenditure reports	Detailed expenditure reports (in excel) broken down per project component and budget line, with explanations and justification of any change	Execution: CTA and Financial Officer Support: PMU	Four (4) quarterly expenditure reports for any given year, submitted by January 31, April 30, July 31 and October 31 (latest)	GEF: as part of CTA budget
Project Implementation Review (PIR)	Analyses project performance over the reporting period. Describes constraints experienced in the progress towards results and the reasons. Draws lessons and makes clear recommendations for future orientation in addressing the key problems in the lack of progress. The PIRs shall be documented with the evidence of the achievement of end-of-project targets (as appendices).	Execution: CTA and TM Support: PMU	1 report to be prepared on an annual basis, to be submitted by 15 July latest	GEF: as part of CTA budget

M&E Activity	Description	Responsible Parties	Timeframe	Indicative budget (USD)
Annual Inventory of Non-expendable equipment	Report with the complete and accurate records of non-expendable equipment purchased with GEF project funds	Execution: CTA Support: PMU	1 report per year as at 31 December, to be submitted by 31 January latest	GEF: as part of CTA budget
Co-financing Report	Report on co-financing (cash and/or in-kind) fulfilled contributions from all project partners that provided co-finance letters.	Execution: CTA Support: co-finance partners	1 annual report from each co-finance partner, and 1 consolidated report, to be submitted by 31 July latest	GEF: as part of CTA budget
Medium-Term Review (MTR) <i>optional</i>	The purpose of the MTR is to provide an independent assessment of project performance at mid-term, to analyse whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. It will verify information gathered through the GEF tracking tools.	Execution: Independent Evaluator / TM Support: CTA, PMU	At mid-point of project implementation if deemed needed by the Task Manager	GEF: US\$ 10,000 If this budget is not used, it will be rolled over to the Terminal Evaluation budget.
Final Report	The project team will draft and submit a Project Final Report, with other docs (such as the evidence to document the achievement of end-of-project targets). Comprehensive report summarizing all outputs, achievements, lessons learned, objectives met or not achieved structures and systems implemented, etc. Lays out recommendations for any further steps to be taken to ensure the sustainability and replication of project outcomes.	Execution: CTA Support: PMU	Final report to be submitted no later than three (3) months after the technical completion date	GEF: as part of CTA budget
Terminal Evaluation (TE)	Further review the topics covered in the mid-term evaluation. Looks at the impacts and sustainability of the results, including the contribution to capacity development and the achievement of global environmental goals.	Execution: Independent Evaluator / TM Support: CTA, PMU	Can be initiated within six (6) months prior to the project's technical completion date	GEF: US\$ 20,000
TOTAL M&E COST			GEF: US\$ 32,400	

ANNEX K: PROJECT IMPLEMENTATION ARRANGEMENTS



The project is funded by the Global Environment Facility (GEF) with UNEP acting as the GEF Implementing Agency and EPA-SL as the Executing Agency. The implementation structure is illustrated in the organogram below:

Roles and responsibilities of each bodies are detailed in the following table:

Body	Composition	Role and description	Frequency of meetings
Project Steering Committee (PSC)	<ul style="list-style-type: none"> - EPA-SL (EA) - UNEP (IA) - Ministry of Environment - Ministry of Transport and Aviation - Ministry of Energy - Ministry of Industry and Trade - Ministry of Finance - Ministry of Gender and Children's Affairs - Freetown City Council - Other Ministries or governmental agencies as deemed appropriate (to be decided at project inception) - Other key stakeholders from the private sector and civil societies as deemed appropriate (to be decided during project inception). - Africa Support and Investment Platform Coordinator of the Global e-mobility project (virtual attendance) 	<ul style="list-style-type: none"> • Oversight of the project progress and implementation of Outputs; • Approve workplans and budget revisions; • Approve management decisions to ensure timely delivery of quality outputs; • Provide overall guidance and strategic direction; • Enhance and optimize the contributions of various partner organizations through coordination of all activities and inputs • The EPA-SL will appoint a National Project Director (NPD) that will act as the PSC Chairperson • The Chief Technical Advisor will act as the PSC Secretary 	Once a year
Implementing GEF Agency (IA)	UNEP	<ul style="list-style-type: none"> • Ensure timely disbursement/sub-allotment to executing agency based on agreed legal document and in accordance with UNEP and GEF fiduciary standards; • Follow-up with Executing agency for progress, equipment, financial and audit reports; • Provide consistent and regular oversight on project execution and conduct project supervisory missions as per Supervision Plans and in doing so ensures that all UNEP and GEF criteria, rules and regulations are adhered to by project partners; • Technically assess and oversee quality of project outputs, products and deliverables – including formal publications; • Provide no-objection to main TORs and subcontracts issued by the project, including selection of the Chief Technical Advisor; • Attend and facilitate inception workshops, field visits where relevant, and selected steering committee meetings; • Assess project risks, and monitor and enforce a risk management plan; • Regularly monitor project progress and performance and rate progress towards meeting project objectives, project execution progress, quality of project monitoring and evaluation, and risk; • Monitor reporting by project executing partners and provide prompt feedback on the contents of the report; • Promptly inform the management of any significant risks or project problems and take action and follow up on decisions made; 	Periodic meetings (calls) with the EA's Project Management Unit (PMU), at least once per month

		<ul style="list-style-type: none"> • Apply adaptive management principles to the supervision of the project; • Review of reporting, checking for consistency between execution activities and expenditures, ensuring that it respects GEF rules; • Clear cash requests, and authorization of disbursements once reporting found to be complete; • Approve budget revision, certify fund availability and transfer funds; • Ensure that GEF and UNEP quality standards are applied consistently to all projects, including branding and safeguards; • Certify project operational completion; • Link the project partners to any events organized by GEF and UNEP to disseminate information on project results and lessons; • Manage relations with GEF 	
Executing Agency (EA)	Environment Protection Agency – Sierra Leone (EPA-SL)	<ul style="list-style-type: none"> • Ensure that the project meets its objectives and achieves expected outcomes; • Ensure technical execution according to the execution plan laid out in the project document; • Ensure technical quality of products, outputs and deliverables; • Ensure compilation and submission of progress, financial and audit reporting to IA; • Submit budget revisions to IA for approval; • Address and propose solutions to any problem or inconsistency raised by the IA; • Bring issues raised by or associated with clients to the IA for resolution; • Facilitate meetings of Steering Committees and other oversight bodies of the project; • Day to day oversight of project execution; • Submit all technical reports and completion reports to IA (realized outputs, inventories, verification of co-finance, terminal reporting, etc.); • Monitoring and evaluation of the project outputs and outcomes; • Effective use of both international and national resources • Timely availability of financing to support project execution; • Proper coordination among all project stakeholders; in particular national parties; • Timely submission of all project reports, including work plans and financial reports, • Follow-up with, or progress, procurement, financial and audit reports. 	Periodic meetings (calls) with the IA’s Task Manager, at least once per month
Project Management Unit (PMU)	National Project Director (NPD)	<ul style="list-style-type: none"> • Will be a national/governmental officer appointed by EPA-SL; • Act as the PSC’s Chairperson; • Report to and receive advice from the PSC; • Identify and secure partner support for the implementation of project activities; • Advise on hiring process. • Act as the project’s entry point within the government of Sierra Leone 	Regular meetings with the CTA, at least twice per month
	Chief Technical Advisor (CTA)	<p>The CTA will be recruited externally, paid with GEF funds, hosted within the [Executing Agency name] premises and have the following duties:</p> <ul style="list-style-type: none"> • Take responsibility for day-to-day project operations; 	Regular meetings with the NPD, at least twice per month

		<ul style="list-style-type: none"> • Take responsibility for the execution of the project in accordance with the project objectives, activities and budget; • Deliver the outputs and demonstrate its best efforts in achieving the project outcomes; • Coordinate project execution and liaison with national counterparts (relevant ministries, national agencies, private sector, NGOs etc.); • Manage financial resources and processing all financial transaction relating to sub-allotments; • Prepare all annual/year-end project revisions; • Attend and facilitate inception workshops and national project steering committee meetings; • Assess project risks in the field, monitor risk management plan; • Ensure technical quality of products, outputs and deliverables; • Coordinate the project team of consultants and subcontractors; • Coordinate with strategic taskforces (i.e. thematic or technical working groups); • Act as Secretary of the PSC; • Plan and organize the PSC annual meetings; • Implement and monitor the project's Gender Action Plan; • Periodic reporting to UNEP and the PSC for allocation of the GEF grant according to the approved workplan and budget, in coordination with UNEP and NPD; • Notify UNEP and the PSC in writing if there is need for modification to the agreed implementation plan and budget, and to seek approval; • Address and rectify any issues or inconsistencies raised by the Implementing Agency; • Support compilation and submission of progress, financial and audit reporting to the Implementing Agency; • Prepare, at the end of the project, the project Final Report. 	<p>Quarterly meeting with the project's Financial Officer</p> <p>Ad-hoc meetings with project team members (consultants, subcontractors, etc.)</p>
Technical (or Thematic) Working Groups	E-mobility technology	<ul style="list-style-type: none"> • E-mobility technology, including experts from the local private sector taxi fleet operator hosting the demonstration project and the local petroleum fuel distributor hosting the charging stations; 	The TWGs will meet regularly as required during project implementation to work on the respective topics
	E-mobility policy and finance	<ul style="list-style-type: none"> • E-mobility policy and finance, including representatives from the local finance institutions providing the loan for the financing of the e-keke's conventional price equivalent, among others; 	
	E-mobility and sustainability	<ul style="list-style-type: none"> • E-mobility and sustainability, including representatives from EPASL, Ministry of Transport and Aviation Ministry of Transport and Aviation and the Ministry of Energy, among others. 	
Execution Support	Sustainable Mobility Unit, UNEP	<p>The EPA-SL and Sierra Leone's GEF OFP have requested the UNEP SMU to provide execution support (refer to letter in Annex N-2) on the following:</p> <ul style="list-style-type: none"> • The procurement of electric vehicles (3-wheelers) • The recruitment and contracting of international experts • Facilitate technical discussions among Ministries and project stakeholder • Technical troubleshooting <p>Details on the deliverables to be supported by the UNEP SMU are found in the Terms of References of the "International E-mobility Technical Support (UNEP SM Unit)" position, in Annex H.</p>	Regular meetings between the PMU and the SMU.

ANNEX L: PROJECT WORKPLAN AND DELIVERABLES

OUTPUTS	DELIVERABLES (*)	PROJECT YEAR 1												PROJECT YEAR 2												PROJECT YEAR 3												PROJECT YEAR 4												Consultant, subcontractor or stakeholder responsible for producing the deliverable	Other stakeholders supporting deliverable production
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48		
Component 1: Institutionalization of low-carbon electric mobility																																																			
Output 1.1: An inter-sectoral electric mobility coordination body is established.	1.1.1	Workshop report				Workshop report				Workshop report				Workshop report				Workshop report				Workshop report				Workshop report				Chief Technical Advisor	Member institutions to the e-mobility coordination body																				
	1.1.2	Quarterly coordination body meetings participation and report				Summary report 1				Summary report 2				Summary report 3				Summary report 3				Summary report 3				Summary report 3				Chief Technical Advisor	Member institutions to the e-mobility coordination body																				
	1.1.3	Selection of gender focal points and e-mobility champion and establishment of local data repository and e-mobility helpdesk				Summary report				Summary report				Summary report				Summary report				Summary report				Summary report				Chief Technical Advisor	Member institutions to the e-mobility coordination body																				
	1.1.4	Final e-mobility coordination body report, including all best practices and lessons learned from the project (to be shared with the Global Electric Mobility Programme)				Final report				Final report				Final report				Final report				Final report				Final report				Chief Technical Advisor	Member institutions to the e-mobility coordination body																				
Output 1.2: A gender-sensitive national e-mobility strategy is developed and formally proposed.	1.2.1	Set-up of the national strategy development team, including ToRs for the International Policy, Business and Strategy expert				TORs				TORs				TORs				TORs				TORs				TORs				TORs				Chief Technical Advisor	Focal points within relevant ministries.																
	1.2.2	National e-mobility strategy workshop				Workshop report				Workshop report				Workshop report				Workshop report				Workshop report				Workshop report				Chief Technical Advisor	International E-mobility Technical Support (UNEP SM Unit), International Policy, Business and Strategy expert, relevant national stakeholders																				
	1.2.3	Collection and consolidation of transport and energy sector data				Summary report				Summary report				Summary report				Summary report				Summary report				Summary report				International Policy, Business and Strategy expert	Ministry of Transport, Ministry of Energy, Ministry of Environment, EPA-SL																				
	1.2.4	Draft gender sensitive national e-mobility strategy				Draft strategy				Draft strategy				Draft strategy				Draft strategy				Draft strategy				Draft strategy				International Policy, Business and Strategy expert	International E-mobility Technical Support (UNEP SM Unit), Chief Technical Advisor																				
	1.2.5	Final gender sensitive national e-mobility strategy, submitted for adoption				Final strategy submitted for adoption				Final strategy submitted for adoption				Final strategy submitted for adoption				Final strategy submitted for adoption				Final strategy submitted for adoption				Final strategy submitted for adoption				International Policy, Business and Strategy expert	Chief Technical Advisor																				
Output 1.3: Key stakeholders are trained in the EV global programme activities (national and regional workshops, trainings and thematic working groups) and awareness is raised among key stakeholders on electric mobility.	1.3.1	Participation in launch of the Africa Platform				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.2	Participation in first regional electric mobility training				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.3	Participation in first regional training on electric 2&3 wheelers				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.4	Participation in first Meeting on financing/marketplace				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.5	Participation in second meeting of the Africa Platform				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.6	Participation in second regional training on electric 2&3 wheelers				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.7	Participation in second meeting on financing/marketplace				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.8	Participation in third meeting of the Africa Platform				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
	1.3.9	Participation in replication event				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Event participation & report				Chief Technical Advisor	Relevant governmental / national stakeholders involved in e-mobility																
Component 2: Short term barrier removal through low-carbon e-mobility demonstrations																																																			
Output 2.1: A comprehensive implementation plan for electric vehicles demonstration including a low-carbon charging scheme, and a data collection framework are developed along with the reporting and analytical framework.	2.1.1	Detailed terms of reference are developed including an implementation plan and deliverables for the International E-Mobility Technology expert and the National E-Mobility Technology Expert				TORs				TORs				TORs				TORs				TORs				TORs				TORs				Chief Technical Advisor																	
	2.1.2	A private sector partner to implement the demonstration is officially selected and onboard				Partner selected				Partner selected				Partner selected				Partner selected				Partner selected				Partner selected				Partner selected				International E-Mobility Technology expert	Private sector partners																
	2.1.3	A study to identify locations, technology and capacity of a e-keke charging (including both overnight charging and battery swapping) is developed				Study				Study				Study				Study				Study				Study				Study				International E-Mobility Technology expert	Ministry of Transport, Ministry of Energy																
	2.1.4	A draft feasibility study including the development of business models for the vehicles and the charger operators as well as a finance scheme is developed and presented during workshop to the coordination body for endorsement				Draft study & workshop report				Draft study & workshop report				Draft study & workshop report				Draft study & workshop report				Draft study & workshop report				Draft study & workshop report				Draft study & workshop report				International E-Mobility Technology expert	Ministry of Transport																
	2.1.5	The final feasibility study and the demonstration implementation plan including framework for data collection, reporting, and analysis are developed				Final feasibility study				Final feasibility study				Final feasibility study				Final feasibility study				Final feasibility study				Final feasibility study				Final feasibility study				International E-Mobility Technology expert	Ministry of Transport, Chief Technical Advisor																
Output 2.2: Demonstration vehicles and charging equipment are procured, staff trained, demonstration projects are implemented, monitored and data are collected, analyzed and disseminated.	2.2.1	Technical requirements of the electric vehicles and charging equipment to be procured are developed				Specs				Specs				Specs				Specs				Specs				Specs				Specs				International E-Mobility Technology expert	National E-Mobility Technology expert																
	2.2.2	Procurement of 15 electric kekes, based on specifications established in D2.2.1, to be managed by EPA-SL				Procurement				Delivery				Procurement				Delivery				Procurement				Delivery				Procurement				International E-Mobility Technology expert	International E-mobility Technical Support (UNEP SM Unit), National E-Mobility Technology expert																
	2.2.3	Procurement and installation of charging equipment, based on specifications established in D2.2.1, to be managed by UNEP				Procurement				Delivery & installation				Procurement				Delivery & installation				Procurement				Delivery & installation				Procurement				International E-mobility Technical Support (UNEP SM Unit)	National E-Mobility Technology expert, Chief Technical Advisor																
	2.2.4	Driving manual and protocol established, with operation and safety training conducted with drivers				Manual & protocol				Training				Manual & protocol				Training				Manual & protocol				Training				Manual & protocol				International E-Mobility Technology expert	National E-Mobility Technology expert, Ministry of Transport																
	2.2.5	Final report on the demonstration results presented to the coordination body and to the Global Electric Mobility Programme				Summary report & workshop				Summary report & workshop				Summary report & workshop				Summary report & workshop				Summary report & workshop				Summary report & workshop				Summary report & workshop				Chief Technical Advisor	International E-Mobility Technology expert																

ANNEX M: ESTIMATES OF DIRECT AND CONSEQUENTIAL GREENHOUSE GAS EMISSION REDUCTIONS

Total topdown emission reduction potential 2021 to 2036, tCO2	646,183
Thereof	
Total direct emission mitigation from demonstration, tCO2	209
Total secondary direct emission mitigation, tCO2	116,212
Total indirect impact emission mitigation, tCO2	271,162
Total project related emissions reductions, tCO2	387,584

Methodology for the estimation of GHG reductions and energy savings benefits

A uniform methodology was applied in all GEF Global E-Mobility Child Projects for assessing the short, medium and long-term benefits in terms of GHG emission reductions and energy savings. The methodology compares two scenarios, the “benchmark scenario” and the “e-mobility scenario”. In the benchmark scenario, the transport sector evolves assuming a “business as usual” behaviour with regards to vehicle fleet growth, vehicle use, technology and fuel use. It is based on the current policy framework with no or limited incentives to buy and use clean and efficient electric vehicles. The e-mobility scenario uses the same projections with regards to vehicle fleet growth but assumes a high penetration of electric vehicles within the new vehicle market, as a consequence of the project interventions including the adoption of EV policies, the use of business models and the existence of financial mechanisms. The scenarios are use a “top-down approach” targeting the national vehicle market. The Child Projects tackle the introduction of electric vehicles for one or multiple modes. In the latter case, calculations are performed for several modes (e.g. passenger cars, buses and 2&3 wheelers).

Projections of fleet growth, energy use and GHG emissions are based on country specific data, and region-specific parameters. Projection of the vehicle fleet growth is based on the elastic relationship between per capita income and vehicle acquisition. Therefore, country specific scenarios for population growth (based on the UNDESA medium scenario) and projections for gross domestic product (GDP PPP) from the World Economic Outlook of the International Monetary Fund (IMF) are used. Vehicle fleet projections are based on vehicle sales and assumptions on technical lifetime of vehicles. A comprehensive set of parameters describing the technologic and economic parameters of various vehicle technologies are used. Country specific grid emission factors for the carbon footprint of electricity are used. For petroleum-based fuels, well-to-wheel emission factors are used. Historic development of the vehicle fleet is based on country specific vehicle stock and sales data. Emission reductions which accrued during and after the project timeframe are taken into account. GHG emission benefits are classified as direct and indirect GHG emission reductions. This categorization follows the methodology suggested by the GEF.

Direct benefits correspond to the GHG emission reductions and energy savings obtained from 1.) The investments that are planned and executed during the project lifetime, i.e. the emission and energy use savings stemming from the demonstration of electric vehicles and EV supply equipment such as chargers purchased as part of the project³⁰; and 2.) emission reductions and energy savings as a result of investment in replication and upscaling (secondary direct benefits).

Indirect benefits correspond to the GHG reductions and energy savings obtained during and beyond the project as the result of outputs and outcomes of the project. This includes in particular the adoption of policies, business models and financial mechanisms, which incentivize the uptake of electric mobility. Total emission reductions attributable to the project are based on the cumulative sum of annual emission reductions compared to the baseline scenario over a time

³⁰ These benefits are calculated over the lifetime of the purchased assets (e.g. 15 years for cars and buses, 5 years for 2&3 wheelers and 20 years for EV supply equipment).

frame equivalent to the lifetime of the demonstration assets purchased as part of the project or for a period of ten years after the end of the project³¹.

Quantification of secondary direct and indirect benefits is based on an e-mobility scenario considering the maximum realizable electric mobility market (both in terms of size and pace of technology introduction). Causality factors are used to estimate the contribution of the GEF funded project to the projected large-scale and nation-wide introduction of electric vehicles. Guidelines issued by the GEF for the selection of the causality factor level are as following:

- Level 5 = “The project contribution is critical, and nothing would have happened in the benchmark scenario,” causality factor = 100%
- Level 4 = “The project contribution is dominant, but some of this reduction can be attributed to the benchmark scenario,” causality factor = 80%
- Level 3 = “The project contribution is substantial, but modest indirect emission reductions can be attributed to the benchmark scenario,” causality factor = 60%
- Level 2 = “The project contribution is modest, and substantial indirect emission reductions can be attributed to the benchmark,” causality factor = 40%
- Level 1 = “The project contribution is weak, and most indirect emission reductions can be attributed to the benchmark scenario,” GEF causality = 20%

Secondary direct and indirect emission reduction are based on a 30:70 split of the top-down emission reductions attributable to the project via the application of the causality factor.

As selection of the parameters and variables to describe the benchmark and the e-mobility scenario are shown in the following table, a flow diagram of the e-mob calculator is shown in **Error! Reference source not found.4**.

TABLE 5 VARIABLES AND PARAMETERS OF THE BENCHMARK AND EMOBILITY SCENARIO

	Variable	Unit
Socio – economic data	GDP PPP (2000-2018)	Billion USD PPP
	Population	Million habitants
	Annual growth of GDP	% of 2023-2030, and % 2031-2050
Vehicle fleet data	Vehicles stock (2000-2015)	Thousand vehicles
	Vehicles sales (2000-2015)	Thousand vehicles
	Technology share of stock	% share gasoline, diesel, hybrid, PHEV, BEV
Vehicle operating information	Annual Mileage	km
	Load factor	Passenger in a vehicle
	Technical lifetime	years
	Share of electric driving for PHEV	%
	Fuel economy (FE) by technology	Lge / 100 km, kWh / 100 km
	Annual FE improvement by technology	%
	FE gap (Real vs Type Approval)	%

³¹ Whichever time frame is longer is applied. E.g. if the project demonstrates e-buses with an assumed lifetime of 15 years (which are introduced in year 2 of the project) then the timeframe for the calculation of indirect emission reductions is the year 2036 (2021 plus 15 years). If electric motorcycles with a lifetime of only 5 years are demonstrated, the timeframe is 2034 (end of project 2024 plus ten years).

Variable	Benchmark scenario	E-mobility scenario
Technology share of vehicle sales	%	%
Well to tank CO2 footprint	kg CO2/ Lge	kg CO2/ Lge
Tank to wheel CO2 footprint	kgCO2 / kWh	kgCO2 / kWh
Vehicle fleet emission standards	Euro 1 to Euro 6	Euro 1 to Euro 6
Fuel quality standards	Euro 1 to Euro 6	Euro 1 to Euro 6
Vehicle price, maintenance and fuel price	USD	USD

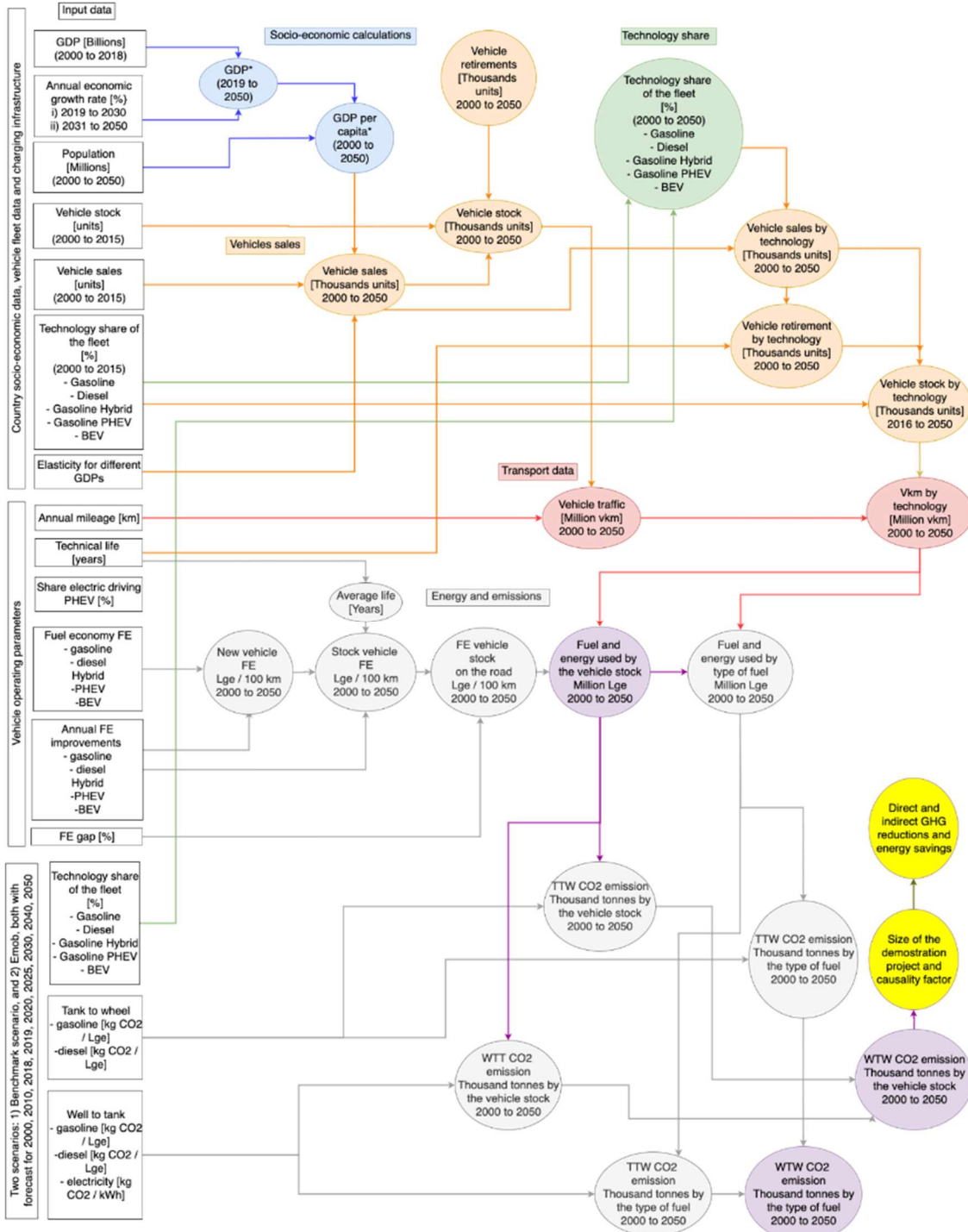


FIGURE 14 FLOW DIAGRAMME OF THE EMOB CALCULATOR

ANNEX N-1: OFP ENDORSEMENT LETTER

1. From EPA-SL



**Government of Sierra Leone
Office of the President
Environment Protection Agency
21, Old Railwayline, Brookfields**

To: Kelly West
UN Environment
P.O Box 30552
Nairobi 00100
Kenya

12th February, 2019.

Subject: Endorsement for **“Supporting Sierra Leone with the Shift to Electric Mobility”**

In my capacity as GEF Operational Focal Point for Sierra Leone, I confirm that the above project proposal (a) is in accordance with my government’s national priorities and our commitment to the relevant global environmental conventions; and (b) was discussed with relevant stakeholders, including the global environmental convention focal points.

I am pleased to endorse the preparation of the above project proposal with the support of the GEF Agency listed below. If approved, the proposal will be prepared and implemented by UN Environment as the Implementing Agency and the Environment Protection Agency Sierra Leone. I request the GEF Agency to provide a copy of the project document before it is submitted to the GEF Secretariat for CEO endorsement.

The total financing (from GEFTF) being requested for this project is US\$500,000, inclusive of project preparation grant (PPG), if any, and Agency fees for project cycle management services associated with the total GEF grant. The financing requested for Sierra Leone is detailed in the table below.

Source of Funds	GEF Agency	Focal Area	Amount (in US\$)			
			Project Preparation	Project	Fee	Total
GEFTF	UNEP	Climate Change	35,000	423,716	41,284	500,000
Total GEF Resources			35,000	423,716	41,284	500,000

I consent to the utilization of Sierra Leone’s allocations in GEF-7 as defined in the System for Transparent Allocation of Resources (STAR).

Sincerely,

**Abdul Bakarr Salim
Deputy Director, CCS, EPA
Operational Focal Point (OFP)**

Copy: Convention Focal Point for UNFCCC

ANNEX N-2: OFP EXECUTION SUPPORT APPROVAL LETTER



GOVERNMENT OF SIERRA LEONE
Environment Protection Agency Sierra Leone
Office of the President
92 Dundas Street, Freetown.



20th November, 2020

To: Mrs. Kelly West
GEF Coordinator
UNEP
Nairobi, Kenya

Subject: Letter of Support to request GEF Agency Execution for the “Supporting Sierra Leone with the Shift to Electric Mobility” project (GEF ID 10273)

Dear Mrs. West,

In my capacity as GEF Operational Focal Point for Sierra Leone, I hereby request UNEP, the GEF Implementing Agency for the aforementioned project, to also carry out execution services for the above project, on an exceptional basis, for a total amount of US\$ 22,875.

The execution services provided by UNEP’s Sustainable Mobility Unit are expected to include:

- The procurement of the electric vehicles (3-wheelers)
- The recruitment and contracting of international experts
- Facilitating technical discussions among the Ministries and project stakeholders
- Technical troubleshooting

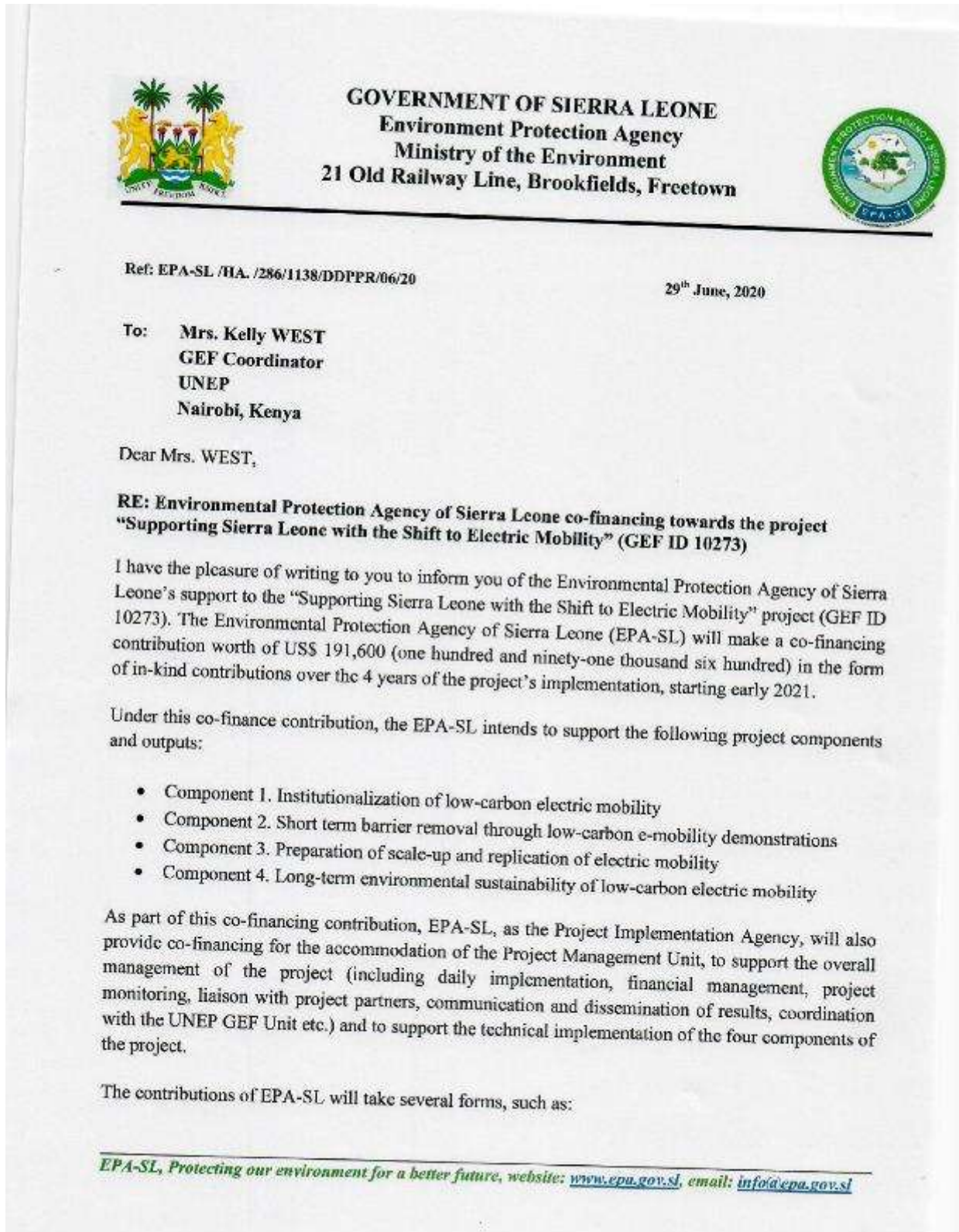
Execution activities provided by UNEP are described in detail in the GEF CEO Endorsement/Approval request and accompanying project documents, including the project budget.

Sincerely,

Mr. Sheku Mark Kanneh
GEF Operational Focal Point
National Climate Change Secretariat
Environment Protection Agency Sierra Leone

ANNEX O: CO-FINANCING COMMITMENT LETTERS FROM PROJECT PARTNERS

1. From EPA-SL



- In kind contributions for office space, staff time, travel and operational support for project implementation;
- In kind contributions in form of staff time for political and technical support of the project as well as project management.

The EPA-SL strongly supports this important GEF project and is pleased to be part of it. We look forward to continue working with UNEP to accelerate the global transition to electric mobility, and making it a success.

Yours sincerely,



Dr Bondi Gevao (Phd)
Executive Chairman

Cc:

Minister of Environment

Director Environment Protection Agency

Deputy Director Policy Planning and Research Environment Protection Agency

EPA-SL, Protecting our environment for a better future, website: www.epa.gov.sl, email: info@epa.gov.sl

2. From the Ministry of Energy



SIERRA LEONE GOVERNMENT

MINISTRY OF ENERGY

3 & 3A PADEMBA ROAD,
STRONGE TOWER,
FREETOWN,
SIERRA LEONE

9th October, 2020

To: **Mrs. Kelly WEST**
GEF Coordinator
UNEP
Nairobi, Kenya

Subject: Environmental Protection Agency of Sierra Leone co-financing towards the project "Supporting Sierra Leone with the Shift to Electric Mobility" (GEF ID 10273)

Dear Mrs. WEST,

I have the pleasure of writing to you to inform you of the Sierra Leone's Ministry of Energy support towards "Supporting Sierra Leone with the Shift to Electric Mobility" Project (GEF ID 10273). The Ministry of Energy of Sierra Leone will make a co-financing contribution worth of USD 1,350,000 in the form of public investment and in-kind contributions over the 4 years of the project's implementation, starting early 2021.

Under this co-finance contribution, the Ministry of Energy of Sierra Leone intends to support the following project components and outputs:

- Component 1. Institutionalization of low-carbon electric mobility
- Component 2. Short term barrier removal through low-carbon e-mobility demonstrations
- Component 3. Preparation of scale-up and replication of electric mobility
- Component 4. Long-term environmental sustainability of low-carbon electric mobility

The public investment is based on the current pipeline of investments in renewable power projects implemented by the Ministry of Energy, and summarized in below table.

Project title and description	Contractor	Installed capacity	Investment
50MW IPP Solar Supply and Installation of 50MW Solar nationwide, located at 25MW Makoth, and 25MW nationwide (to complement the Rural Electrification Project - Energy Mix)	Planet Core Solar, funded by International Finance Corporation / World Bank	50 MW	USD 50 M
6 MW Solar Park located at Newton to be connected to the national grid	Abu Dhabi Development Fund / Government of	6 MW	USD 12.6 M

	Sierra Leone		
Total		56 MW	USD 62.6 M

The envisaged 56 MW of installed solar power capacity are assumed to provide about 89 MWh of annual power generation, thus covering about 27% of the current power generation of Sierra Leone.

It is envisaged that the fleet of electric 2&3 wheelers directly attributable to the project interventions will reach about 8,000 units by 2030. The power demand stemming from the use of these electric 2&3 wheelers is estimated to account for about 2% of the annual power generation produced by the renewable power projects lined out in above table. The co-finance in form of investment mobilized is therefore set to 2% of the total investment in renewable power projects implemented by the Ministry of Energy, and occurring during the project time frame 2021 to 2025. Thus, the public investment mobilized amounts to USD 1,300,000.

As part of this co-financing contribution, the Ministry of Energy will also provide in-kind contributions of up to USD 50,000 for project support such as participation in the Project Steering Committee meetings / Electric Mobility Coordination Body meetings, workshops, trainings and capacity building events. Likewise, the Ministry of Energy will support the project with provision of data, but also through review of relevant project outputs / deliverables, such as the feasibility study for e-mobility demonstration (output 2.1), the proposal for fiscal policies and regulatory schemes to incentivize the uptake of electric mobility (output 3.2), and the study on the integration of renewable power generation for vehicle charging.

We strongly support this important GEF project.

We look forward to continue working with UNEP to accelerate the global transition to electric mobility, and making it a success.

Yours sincerely,



Ing Benjamin Kamara
Director of Energy
FOR: Permanent Secretary



GOVERNMENT OF SIERRA LEONE

Ministry of Transport and Aviation
7th Floor, Youyi Building
Brookfields
Freetown

Ref: MC/19/3

11th November 2020

Mrs. Kelly WEST
GEF Coordinator
UNEP
Nairobi, Kenya

Dear Mrs WEST,

**SUBJECT: MINISTRY OF TRANSPORT AND AVIATION CO-FINANCING
TOWARDS THE PROJECT "SUPPORTING SIERRA LEONE WITH THE
SHIFT TO ELECTRIC MOBILITY" (GEF ID 10273)**

I have the pleasure of writing to you to inform you of the Ministry of Transport and Aviation of Sierra Leone's support to the "Supporting Sierra Leone with the Shift to Electric Mobility" project (GEF ID 10273). The Ministry of Transport and Aviation of Sierra Leone will make a co-financing contribution worth USD 50,000 in the form of in-kind contributions over the 4 years of the project's implementation, starting in 2021.

Under this co-finance contribution, the Ministry of Transport and Aviation of Sierra Leone intends to support the following project components and outputs:

- Component 1. Institutionalization of low-carbon electric mobility
- Component 2. Short term barrier removal through low-carbon e-mobility demonstrations
- Component 3. Preparation of scale-up and replication of electric mobility

This in-kind contribution of USD 50,000 for project support includes participation in the Project Steering Committee / Electric Mobility Coordination Body meetings, workshops, trainings and capacity building events as needed.

In addition, the Ministry of Transport and Aviation will support the project with provision of data, but also through review of project deliverables such as the feasibility study for e-mobility demonstration (Output 2.1), the proposal for fiscal policies and regulatory schemes to incentivize the uptake of electric mobility (Output 3.1) and the financing scheme including a procurement guideline and business models for the procurement of electric vehicles (Output 3.2).

The Ministry of Transport and Aviation of Sierra Leone strongly supports this important initiative and will ensure that the project receives appropriate political support from the Ministry. We look forward to continue working with UNEP to accelerate the transition to electric mobility, and making it a success.

Yours sincerely,



Hindolo M. Shiaka

Project Coordinator, IRUMP

cc: The Snr. Permanent Secretary, MTA

File

Reference: UNEP/SMU/RDJ

25 November 2020

Dear Ms. West,

I have the pleasure of writing to you to inform you of UNEP's support to the GEF 7 project "Supporting Sierra Leone with the Shift to Electric Mobility (GEF ID 10273)". UNEP's Sustainable Mobility Unit will make a co-financing contribution in the form of a grant worth US\$ 60,000 over the 4 years of the project's implementation, starting first quarter of 2021.

More specifically, under this co-finance contribution UNEP intends to support the following project component and output:

Component 2 – Short term barrier removal through low-carbon e-mobility demonstrations

- Output 2.2: Demonstration vehicles and charging equipment are procured, staff trained, demonstration projects are implemented, monitored and data are collected, analyzed and disseminated

UNEP, through its Sustainable Mobility Unit (SMU) will use part of the replication funds mobilized through the European Commission funded Solutions Plus project (Grant Agreement number: 875041 — SOLUTIONS plus — H2020-LC-GV-2018-2019-2020/H2020-LC-GV-2019, started implementation January 2020). The funds will be used to procure charging equipment and eventually provide a small grant to the selected charging operation company. The recipient(s) will be selected through a competitive process managed by UNEP's SMU. The equipment will be procured through one of the UN systems procurement agencies.

UNEP, as the Implementation Agency for the project "Supporting Sierra Leone with the Shift to Electric Mobility" strongly supports this Child Country Project under the GEF-7 Global E-Mobility Programme.

Yours sincerely,



Rob De Jong
Head, Sustainable Mobility Unit
UNEP

Ms. Kelly WEST
GEF Coordinator
UNEP
kelly.west@un.org

ANNEX P: ENVIRONMENTAL, SOCIAL AND ECONOMIC REVIEW NOTE (ESERN)

I. Project Overview

Identification	10273
Project Title	Supporting Sierra Leone with the Shift to Electric Mobility
Managing Division	Economy Division
Type/Location	National
Region	Africa
List Countries	Sierra Leone
Project Description	<p>This project aims at accelerating the shift towards electric mobility in Sierra Leone by demonstrating the technical, operational, and economic viability of electrification of three-wheeler taxis, locally referred to as kekes in Sierra Leone.</p> <p>The proposed project is structured across four components, which are necessary to address the barriers and facilitate the successful implementation of the efforts to achieve an integrated, sustainable, and low-emissions transport system.</p> <ol style="list-style-type: none"> 1. Component 1. Institutionalization of low-carbon electric mobility 2. Component 2. Short term barrier removal through low-carbon e-mobility demonstrations 3. Component 3. Preparing for scale-up and replication of low-carbon electric mobility 4. Component 4. Long-term environmental sustainability of low-carbon electric mobility
Estimated duration of project:	48 months
Estimated cost of the project:	US\$ 423,716

II. Environmental Social and Economic Screening Determination

A. Summary of the Safeguard Risks Triggered

Safeguard Standard Triggered by the Project	Impact of Risk ³² (1-5)	Probability of Risk (1-5)	Significance of Risk (L, M, H)
SS 1: Biodiversity, natural habitat and Sustainable Management of Living Resources	1	1	L
SS 2: Resource Efficiency, Pollution Prevention and Management of Chemicals and Wastes	2	2	L
SS 3: Safety of Dams (or infrastructure)	1	1	L
SS 4: Involuntary resettlement	1	1	L
SS 5: Indigenous peoples	1	1	L
SS 6: Labor and working conditions	2	1	L
SS 7: Cultural Heritage	1	1	L
SS 8: Gender equity	2	2	L
SS 9: Economic Sustainability	1	1	L
Additional Safeguard questions for projects seeking GCF-funding (Section IV)			

B. ESE Screening Decision³³ (Refer to the UNEP ESES Framework (Chapter 2) and the UNEP's ESES Guidelines.)

Low risk Moderate risk High risk Additional information required

C. Development of ESE Review Note and Screening Decision:

Prepared by: Name: Alexander Koerner_ Date: 05/03/2020

Safeguard Advisor: Name: Yunae Yi_____ Date: 11/06/2020

Task Manager: Name: Julien Lheureux____ Date: 16/10/2020

D. Recommended further action from the Safeguard Advisor:

This is likely a low risk project. However, UNEP ESSF guiding principles-- resilience and sustainability; human rights, gender equality and women empowerment, accountability and leave no one behind--are still applicable for low risk projects. Detailed attention should be given to potentially affected marginalized and vulnerable population in terms of

³² Refer to UNEP Environment, Social and Economic Sustainability (ESES): Implementation Guidance Note to assign values to the Impact of Risk and the Probability of Risk to determine the overall significance of Risk (Low, Moderate or High).

³³ **Low risk:** Negative impacts negligible: no further study or impact management required.

Moderate risk: Potential negative impacts, but less significant; few if any impacts irreversible; impact amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop a ESEMP. Straightforward application of good practice may be sufficient without additional study.

High risk: Potential for significant negative impacts, possibly irreversible, ESEA including a full impact assessment may be required, followed by an effective safeguard management plan.

project's proposed policy and strategies for them. The project will mobilize fund through partnership with financial institutions. Their terms and conditions should be poor and women-friendly.

If COVID-19 pandemic continues during the project implementation phase, attention should be given to occupational safety and health (OSH) issues of the partners, subcontractors and anyone who may participate in the training/workshops.

Project level grievance mechanism should be stated clearly in the project document and established to handle any complaints swiftly. Share UNEP's grievance mechanism with the affected population for any grievance issues that are not unresolved at the project level.

III. ESES Principle and Safeguard checklist

(Section III and IV should be retained in UNEP)

Precautionary Approach

The project will take precautionary measures even if some cause and effect relationships are not fully established scientifically and there is risk of causing harm to the people or to the environment.

Human Rights Principle

The project will make an effort to include any potentially affected stakeholders, in particular vulnerable and marginalized groups; from the decision making process that may affect them.

The project will respond to any significant concerns or disputes raised during the stakeholder engagement process.

The project will make an effort to avoid inequitable or discriminatory negative impacts on the quality of and access to resources or basic services, on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups.³⁴

Screening checklist	Y/N/ Maybe	Comment
Safeguard Standard 1: Biodiversity, natural habitat and Sustainable Management of Living Resources		
Will the proposed project support directly or indirectly any activities that significantly convert or degrade biodiversity and habitat including modified habitat, natural habitat and critical natural habitat?	N	Not anticipated.
Will the proposed project likely convert or degrade habitats that are legally protected?	N	Not anticipated.
Will the proposed project likely convert or degrade habitats that are officially proposed for protection? (e.g.; National Park, Nature Conservancy, Indigenous Community Conserved Area, (ICCA); etc.)	N	Not anticipated.
Will the proposed project likely convert or degrade habitats that are identified by authoritative sources for their high conservation and biodiversity value?	N	Not anticipated.
Will the proposed project likely convert or degrade habitats that are recognized- including by authoritative sources and /or the national and local government entity, as protected and conserved by traditional local communities?	N	Not anticipated.
Will the proposed project approach possibly not be legally permitted or inconsistent with any officially recognized management plans for the area?	N	Not anticipated.
Will the proposed project activities result in soils deterioration and land degradation?	N	Not anticipated.
Will the proposed project interventions cause any changes to the quality or quantity of water in rivers, ponds, lakes or other wetlands?	N	Not anticipated.
Will the proposed project possibly introduce or utilize any invasive alien species of flora and fauna, whether accidental or intentional?	N	Not anticipated.

³⁴ Prohibited grounds of discrimination include race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to “women and men” or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender people and transsexuals.

Screening checklist	Y/N/ Maybe	Comment
Safeguard Standard 2: Resource Efficiency, Pollution Prevention and Management of Chemicals and Wastes		
Will the proposed project likely result in the significant release of pollutants to air, water or soil?	N	The proposed project seeks to improve air quality through sustainable and low-emissions transport.
Will the proposed project likely consume or cause significant consumption of water, energy or other resources through its own footprint or through the boundary of influence of the activity?	N	The project seeks to reduce fossil energy consumption through the promotion of electric mobility powered with renewable energy sources.
Will the proposed project likely cause significant generation of Green House Gas (GHG) emissions during and/or after the project?	N	The project aims to mitigate GHG emissions through promoting low-emissions transport. Please refer to section "1.b.6) Global environmental benefits" and Annex M of the CEO Endorsement Document for further details.
Will the proposed project likely generate wastes, including hazardous waste that cannot be reused, recycled or disposed in an <u>environmentally sound and safe manner</u> ?	Y	To address this issue, the activities to be undertaken under project Component 4 will include the development of life-cycle management of battery packs that are used to power electric vehicles, as well as plans for battery recycling, reuse and sound disposal.
Will the proposed project use, cause the use of, or manage the use of, storage and disposal of hazardous chemicals, including pesticides?	N	Please refer to the comments above.
Will the proposed project involve the manufacturing, trade, release and/or use of hazardous materials subject to international action bans or phase-outs, such as DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Convention on Persistent Organic Pollutants or the Montreal Protocol?	N	Not anticipated.
Will the proposed project require the procurement of chemical pesticides that is not a component of integrated pest management (IPM) ³⁵ or integrated vector management (IVM) ³⁶ approaches?	N	Not anticipated.
Will the proposed project require inclusion of chemical pesticides that are included in IPM or IVM but high in human toxicity?	N	Not anticipated.

³⁵ "Integrated Pest Management (IPM) means the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/ipm/en/>

³⁶ "IVM is a rational decision-making process for the optimal use of resources for vector control. The approach seeks to improve the efficacy, cost-effectiveness, ecological soundness and sustainability of disease-vector control. The ultimate goal is to prevent the transmission of vector-borne diseases such as malaria, dengue, Japanese encephalitis, leishmaniasis, schistosomiasis and Chagas disease." (http://www.who.int/neglected_diseases/vector_ecology/ivm_concept/en/)

Screening checklist	Y/N/ Maybe	Comment
Will the proposed project have difficulty in abiding to FAO's International Code of Conduct ³⁷ in terms of handling, storage, application and disposal of pesticides?	N	Not anticipated.
Will the proposed project potentially expose the public to hazardous materials and substances and pose potentially serious risk to human health and the environment?	N	Not anticipated.
Safeguard Standard 3: Safety of Dams		
Will the proposed project involve constructing a new dam(s)?	N	Not anticipated.
Will the proposed project involve rehabilitating an existing dam(s)?	N	Not anticipated.
Will the proposed project activities involve dam safety operations?	N	Not anticipated.
Safeguard Standard 4: Involuntary resettlement		
Will the proposed project likely involve full or partial physical displacement or relocation of people?	N	Not anticipated.
Will the proposed project involve involuntary restrictions on land use that deny a community the use of resources to which they have traditional or recognizable use rights?	N	Not anticipated.
Will the proposed project likely cause restrictions on access to land or use of resources that are sources of livelihood?	N	Not anticipated.
Will the proposed project likely cause or involve temporary/permanent loss of land?	N	Not anticipated.
Will the proposed project likely cause or involve economic displacements affecting their crops, businesses, income generation sources and assets?	N	Not anticipated.
Will the proposed project likely cause or involve forced eviction?	N	Not anticipated.
Will the proposed project likely affect land tenure arrangements, including communal and/or customary/traditional land tenure patterns negatively?	N	Not anticipated.
Safeguard Standard 5: Indigenous peoples³⁸		
Will indigenous peoples be present in the proposed project area or area of influence?	N	Not anticipated.
Will the proposed project be located on lands and territories claimed by indigenous peoples?	N	Not anticipated.
Will the proposed project likely affect livelihoods of indigenous peoples negatively through affecting the rights, lands and territories claimed by them?	N	Not anticipated.
Will the proposed project involve the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	N	Not anticipated.
Will the project negatively affect the development priorities of indigenous peoples defined by them?	N	Not anticipated.
Will the project potentially affect the traditional livelihoods, physical and cultural survival of indigenous peoples?	N	Not anticipated.
Will the project potentially affect the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	N	Not anticipated.
Safeguard Standard 6: Labor and working conditions		
Will the proposed project involve the use of forced labor and child labor?	N	Not anticipated.

³⁷ Find more information from http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/CODE_2014Sep_ENG.pdf

³⁸ Refer to the Toolkit for the application of the UNEP Indigenous Peoples Policy Guidance for further information.

Screening checklist	Y/N/ Maybe	Comment
Will the proposed project cause the increase of local or regional un-employment?	N	Not anticipated. Rather, the project intends to develop business models for the procurement, operation and charging of electric vehicles in public transport fleets.
Safeguard Standard 7: Cultural Heritage		
Will the proposed project potentially have negative impact on objects with historical, cultural, artistic, traditional or religious values and archeological sites that are internationally recognized or legally protected?	N	Not anticipated.
Will the proposed project rely on or profit from tangible cultural heritage (e.g., tourism)?	N	Not anticipated.
Will the proposed project involve land clearing or excavation with the possibility of encountering previously undetected tangible cultural heritage?	N	Not anticipated.
Will the proposed project involve in land clearing or excavation?	N	Not anticipated.
Safeguard Standard 8: Gender equity		
Will the proposed project likely have inequitable negative impacts on gender equality and/or the situation of women and girls?	N	Gender equality will be considered in all aspects of the project. In addition, improved public transport, including electric 3-wheelers as part of professionalized fleets, tends to benefit women more than men since women use public transport more frequently. Please refer to section “3. Gender Equality and Women’s Empowerment” of the CEO Endorsement Document
Will the proposed project potentially discriminate against women or other groups based on gender, especially regarding participation in the design and implementation or access to opportunities and benefits?	N	Please refer to above comment.
Will the proposed project have impacts that could negatively affect women’s and men’s ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N	Not anticipated.
Safeguard Standard 9: Economic Sustainability		
Will the proposed project likely bring immediate or short-term net gain to the local communities or countries at the risk of generating long-term economic burden (e.g., agriculture for food vs. biofuel; mangrove vs. commercial shrimp farm in terms of fishing, forest products and protection, etc.)?	N	Not anticipated.
Will the proposed project likely bring unequal economic benefits to a limited subset of the target group?	N	Not anticipated.

ANNEX Q: ACRONYMS AND ABBREVIATIONS

AFDB	African Development Bank
BOAD	Banque Ouest Africaine de Development (West African Development Bank)
CBD	Central Business District
CTA	Chief Technical Advisor
DFID	Department for International Development
EA	Executing Agency
EDGCT	Electricity Generation and Transmission Company
EDSA	Electricity Distribution and Supply Authority
EPASL	Environmental Protection Agency Sierra Leone
ESERN	Environmental, social and economic review note
EV	Electric Vehicles
EWRC	Energy and Water Regulatory Commission
GEB	Global Environmental Benefits
GEF	Global Environment Facility
GEFTF	Global Environment Facility Trust Fund
GFEI	Global Fuel Economy Initiative
GDP	Gross domestic product
GHG	Greenhouse gas
HFO	Heavy fuel oil
IA	Implementing Agency
ICE	Internal combustion engine
IDA	International Development Agency
IEA	International Energy Agency
INDC	Intended Nationally Determined Contribution
INV	Investments
IPP	Independent power producer
IRUMP	Integrated Resilience Urban Mobility Project
IW	Inception Workshop
kWh	Kilo Watt hours
LDCF	Least Developed Country Fund
M&E	Monitoring and Evaluation
MTR	Mid-Term Review
MoIT	Ministry of Industry and Trade
MoTA	Ministry of Transport and Aviation
MJ	Mega Joule
MW	Mega Watt
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NPD	National Project Director
OFP	Operational Focal Point
PFD	Program Framework Document
PIDG	Private Infrastructure Development Group
PIF	Project Identification Form
PIR	Project Implementation Report
PMC	Project Management Costs
PMU	Project Management Unit
PPG	Project Preparation Grant
PSC	Project Steering Committee
RCB	Rokel Commercial Bank

SCCF	Special Climate Change Fund
SIDS	Small island development states
SLRA	Sierra Leone Roads Authority
SLRSA	Sierra Leone Road Safety Authority
SLRTC	Sierra Leone Road Transport Corporation (SLRTC).
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
SMU	UNEP Sustainable Mobility Unit
STAP	Scientific Technical Advisory Panel
TA	Technical Assistance
TE	Terminal Evaluation
TWG	Technical Working Groups
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
UNFPA	United Nations Population Fund
VAT	Value added tax
WB	World Bank
WHO	World Health Organisation

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